Government of the People's Republic of Bangladesh
Department of Disaster Management
Ministry of Disaster Management and Relief

Multi Hazard
Risk and
Vulnerability
Assessment,
Modeling and Mapping

RISK ATLAS

VOLUME I [PART - I]

Hydro-meterological Hazard, Exposure / Risk Assessment
(Flood and Storm Surge)

MULTI-HAZARD RISK ATLAS

Government of the People's Republic of Bangladesh

Risk Atlas

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Volume I (Part I): Hydro-meteorological Hazard, Exposure/Risk Assessment (Flood and Storm Surge)

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Multi-Hazards Risk and Vulnerability Assessment, Modeling and Mapping

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Message from Secretary, MoDMR

Government of the Peoples' Republic of Bangladesh had initiated the 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)' under DDM, LGED & BWDB with the assistance of the World Bank for Disaster Risk Mitigation and Reduction. Multi-hazard Risk and Vulnerability Assessment, Modeling and Mapping (MRVAM) is one of the initiatives under ECRRP, D1(DDM component) to assess risk and vulnerability of 8(eight) major hazards like Flood, Cyclone induced Storm Surge, Landslide, Drought, Earthquake, Tsunami, Technological & Health hazards. Component D1 is designed to contribute towards 'building long-term preparedness by strengthening disaster risk management' through strengthening and enhancement of long-term disaster risk mitigation and reduction ability of the DDM. This study is very important, due to the geographical location and topographical features of Bangladesh exposed the country to almost all kinds of natural disasters and a large-scale disaster in Bangladesh has been observed at a frequency of 5-6 years.

I am very happy to know that ECRRP-D1 project is going to publish comprehensive Risk Atlas on MRVAM with the help of ADPC, Thailand and IWM, Bangladesh. This study will supplement the efforts of the government to incorporate disaster risk reduction issues in all development programmes to build a safe and disaster resilience nation, referring to the SOD-2010, Disaster Management Act-2012, Disaster Management Policy-2015, and National Disaster Management Plan 2010-15. Alongside by the government, all including non- governmental organizations (NGOs) and civil society should come forward to build an effective disaster management infrastructure to reduce the post-disaster losses. District and local level officials who are frequently involved with the disaster damage assessment, management, preparedness and risk & vulnerability reduction activities will be benefitted by using these national level risk assessment map and database from this Risk Atlas as well as MRVAM Reports.

Md. Shah Kamal
Secretary
Ministry of Disaster Management and Relief

Message from DG, DDM

Bangladesh has made a strong commitment to implement Hyogo Framework for Action (HFA) during 2005-2015 for critical guidance in efforts to reduce disaster risk and the Multi-Hazard Risk and Vulnerability Assessment, Modeling and Mapping (MRVAM) project initiated under 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)' as D1 component has advanced Bangladesh's progress in Priority Action 2: Identify, assess and monitor disaster risks and enhance early warning. In continuation of this, outcome of this project "Multi-Hazard Risk Assessment at national level" is in line with Priority 1: 'Understanding disaster risk' of Sendai Framework for Disaster Risk Reduction 2015-2030, adopted in the 3rd World Conference on Disaster Risk Reduction, held from 14 to 18 March 2015 in Sendai, Miyagi, Japan.

The Risk Atlas of MRVAM project has created the basis for "building long term preparedness through strengthening disaster risk management capacity in the country as well as for enhancement of long term disaster risk mitigation and reduction ability of the Department of Disaster Management (DDM)". On the other hand, MRVAM project outcome has created awareness among the district and upazila level officials and will help in contributing towards incorporating appropriate risk-reduction strategies and prioritizing them into the country's development planning process.

In addition to this, the findings of this Atlas 'risk information of population, housing and livelihood at upazila level' will allow decision makers to prioritize risk mitigation investments and measures to strengthen the emergency preparedness and response mechanisms for reducing the losses and damages due to future disaster events.

Last of all, I hope that this Atlas will be actively and frequently consulted by decision-makers, becoming a resource not only to disaster risk reduction professionals, but also to local government officials, development professionals, planners, and researchers across the board.

(Md. Reaz Ahmed)
Director General (Additional Secretary)
Department of Disaster Management

Message from PD, ECRRP-D1, DDM

Multi-Hazard Risk and Vulnerability Assessment, Modeling and Mapping (MRVAM) project implemented as a part of sub-component D1.2 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)', by Department of Disaster Management (DDM) is an effort towards 'building long-term preparedness through strengthened disaster risk management', through the strengthening and enhancement of the long-term disaster risk mitigation and reduction ability of the DDM.

This project has developed enormous quantity of database representing multi-hazards of Flood, Cyclone induced Storm Surge, Landslides, Drought, Earthquake, Tsunami, Technological and Health along with national level database representing population, housing, livelihood, critical facilities, infrastructure which can be used at Union / Upazila level for development planning process.

DDM has established Multi-Hazard Risk and Vulnerability Assessment (MRVA) Cell, in which geo-database of hazard, exposure and risk assessment at upazila level developed in this project and hosted in the state of the hardware & software facilities. I take this opportunity to state that, this Risk Atlas and Report/s produced under the MRVAM project will enhance the capacity of the department to monitor the hazard, exposure and risk assessment, in this way, all the government agencies, professionals and researchers will be benefitted in contributing towards disaster risk reduction in Bangladesh.

Finally, it is important to note that, this Risk Atlas is a living document, and therefore, there is an expectation of further improvement in the Disaster Risk Reduction and Mitigation Strategy based on continuous research in many relevant disciplines.

(M. Khalid Mahmood)
Joint Secretary and Director (Planning & Development)
Project Director, ECRRP-D1
Department of Disaster Management

Preface

A category IV cyclone *SIDR* struck in the south west coast of Bangladesh on November 15, 2007 evening and moved inland, destroying infrastructure, causing numerous deaths, disrupting economic activities, and affecting social conditions. As most all of Bangladesh is considered as a Delta just above sea level, tidal surge of 15-20 feet and gail-force winds of approximately 150 mph creates havoc in most of the area. The aim of the assessment was to identify priority areas to support the Government of Bangladesh in cyclone recovery efforts as well as to recommend priority interventions for a long-term disaster management strategy. The preparation of Multi-Hazard Risk and Vulnerability Assessment, Modelling and Mapping (MRVAM) project has identified the damage needs and quantified financial and technical requirements and established MRVA Cell in DDM, that will facilitate formulating comprehensive early recovery actions, medium-term recovery and reconstruction plans and a long-term disaster risk management and reduction strategy. The main objective to establish MRVA Cell is to strengthen and enhance country capacity in carrying out systematic multi-hazard risk assessments and consolidating and maintaining hazard risk information at central (national) and disaggregated (district) levels. This will contribute towards the realization of the specific priority attached in the country's disaster management strategy of 'defining and redefining the risk environment' of the country. The Asian Disaster Preparedness Center (ADPC), Thailand, in partnership with the Institute of Water Modeling (IWM), the Norwegian Geotechnical Institute (NGI), the Asian Institute of Technology (AIT), Thailand, and the Faculty of Geo-Information Science and Earth Observation of the University of Twente (ITC), the Netherlands had worked together to deliver consulting services on the Multi-Hazard Risk and Vulnerability Assessment, Modeling and Mapping in Bangladesh and finally prepared the Volume I: Hydro-meteorological Hazard Assessment (Flood, Storm Surge, Landslide, Drought), Volume II: Geological and Environmental Hazard Assessment (Earthquake, Tsunami, Technological, Health), Volume III: Elements at risk, Volume IV: Vulnerability and Risk Assessment (Flood, Storm Surge, Landslide, Drought), Volume V: Vulnerability and Risk Assessment (Earthquake, Tsunami, Technological, Health), Volume VI: Summary and Recommendations. Based on the MRVA six volumes, the Risk Atlas produced and organized in 4 volumes representing:

- Volume I [PART-I]: Hydro-meteorological Hazard, Exposure / Risk Assessment (Flood and Storm Surge)
- Volume I [PART-II]: Hydro-meteorological Hazard, Exposure / Risk Assessment (Drought and Landslide)
- Volume II: Geological and Environmental Hazard, Exposure / Risk Assessment (Earthquake, Tsunami, Technological and Health)
- Volume III: Multi Hazard Exposure and Risk Assessment (Flood, Storm Surge, Drought, Landslide, Earthquake and Tsunami)

For flood hazard and vulnerability assessment, Flood Modeling used in this study is MIKE11 Hydrodynamic Model developed by DHI, coupled with Geographic Information System (GIS) to capture the hydraulic response of Bangladesh Rivers, in-depth Flood analysis and its floodplains in extreme flooding conditions. Then a frequency analysis was carried out in the river network at 7617 grid points in order to obtain return period-wise flood levels for 25 year, 50 year, 100 year and 150 years. The model used in MRVAM project for Cyclone Induced Storm Surge is called Bay of Bengal Model (BoBM). The model is developed using a MIKE21 FM modelling system, which is a numerical modelling system for the simulation of water levels and flows in estuaries, bays and coastal areas. Storm Surge hazard depth was divided into seven different depth categories in order to find the extent of surge inundation and prepare inundation maps for all return periods: 25, 50 and 100 years for the entire coastal region. The depth categories are <1 m, 1-1.5 m, 1.5-2 m, 2-3 m, 3-4 m, 4-5 m, >5 m. Earthquake hazard maps were developed using the historical data and existing geological setting for 50 year, 100 year, 200 year, 500 year and 1000 years return periods at the sites of investigation derived and interpolated to develop earthquake hazard maps representing spatial variation of Peak Ground Acceleration (PGA) Map in Bangladesh. Simultaneously, to model the tsunamigenic conditions and the possible hazard maps due to Tsunami, have been generated for 50, 100, 200, 500 and 1000 years return period and the SPI (Standardized Precipitation Index)-Return period plots used to calculate the severity of Drought with different return periods such as the SPI values for 10, 50 and 100 years return period.

The purpose of this Multi-Hazard Risk and Vulnerability Assessment (MRVA) Modelling and Mapping study is to develop a hazard and vulnerability framework using the progression of vulnerability model to identify the root causes (problems) and the underlying pressures within coastal belt as well as whole Bangladesh. The information provided in this study was intended to assist in identifying hazards and vulnerabilities thereby building a disaster resilient Districts and Upazilas by sharing local hazards and also establishing community structures. Combining the results of the theoretical framework and research findings with the argument constructed in these MRVA Volumes I-VI and Risk Atlas about the disaster risk reduction and mitigation; it was found that it is possible to reduce hazard risks, and vulnerability to disasters, through the application of the latest GIS & RS tools and Hydrodynamic modeling and the participation of the grass-root level community in disaster risk management activities.

It is a great pleasure to successfully launch this Scientific MRVAM National Risk Atlas, signifying the needs and opportunities for the protection of the coastal environment as well as overall most vulnerable districts of Bangladesh and associated lives and livelihoods. The Department of Disaster Management (DDM), Ministry of Disaster Management and Relief would like to thank all those involved in the preparation and finalization of this document and would like to believe that materialization of these policies and programmes will improve overall catastrophic environment of the country as a whole and coastal environment in particular.

We would like to express our in-depth gratitude to the prominent experts of Technical Advisory Committee (TAC), the well-known and reverend group of professionals of the Country, specially, Dr. A. S. M. Maksud Kamal, Convener-TAC and Dean, Faculty of Earth and Environmental Sciences, Dhaka University; Dr. Umme Kulsum Navera, Professor, Department of Water Resources Engineering, BUET; Dr. Md. Atiqur Rahman, Joint Secretary (Admin.), Ministry of Disaster Management and Relief (MoDMR), Mr. M. A. Rouf Hawlader, Director, Survey of Bangladesh (SOB); Mr. Shamsuddin Ahmed, Director in Charge, Bangladesh Meteorological Department (BMD), Mr. Md. Shahidul Islam, GIS Analyst, CDMP-II; Mr. Mir Ahmed, Member Secretary-TAC & Director-MIM, DDM; Mr. M. Khalid Mahmood, Director (Planning & Development) & PD-ECRRP-D1, DDM; and Mr. Reaz Ahmed, Director General and MRVAM Advisor, DDM & last of all, those associated with MRVA Cell; under whose overall guidance and supervision, this MRVAM Risk Atlas was duly checked and scientifically verified, who had worked relentlessly for years to generate scientific information required for these risk and vulnerability assessments. A special appreciation to the World Bank, ERD and PCMU – Planning Commission Team, whose financial and project extension support from the beginning helped us to reach its ultimate destination.

Last of all, the main objective of the Risk Atlas is to provide decision makers, city planners, engineers, academics and managers with a compiled and handy set of information on the current situation of the respective hazards/ sectors in the districts and upazilas in terms of vulnerability and risk to facilitate more informed and effective development decision making. The Risk Atlas is to form a basis for decision making and mainstreaming disaster risk reduction in the government´s sectoral planning process. It provides recommendations to different institutions on revision or formulation of national policies, laws and regulations for disaster risk reduction and management. Maps presented in this Atlas can be used as reference and further research only, for more details, it is however, recommended to consult main MRVA reports.

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About the Project

The project "Multi-Hazard Risk and Vulnerability Assessment, Modeling and Mapping (MRVAM) was initiated by the Department of Disaster Management (DDM) under the Ministry of Disaster Management and Relief (MoDMR) as a part of sub-component D1.2 'Emergency 2007 Cyclone Recovery and Restoration Project (ECRRP)' with funding support from the World Bank. ECRRP aims to contribute towards 'building long-term preparedness through strengthened disaster risk management', through the strengthening and enhancement of long-term disaster risk mitigation and reduction ability of the DDM. The main purpose of MRVAM is to develop a hazard and vulnerability framework using the progression of vulnerability model to identify the root causes and the underlying pressures within coastal belt as well as whole Bangladesh. The specific objectives of this study are as follows:

- Identify all hazard prone areas of Bangladesh specifically District, City Corporation, Municipality, Upazila and Unions covering geological, hydro-meteorological and technological hazards;
- Assess the exposure of people, property, infrastructure and economic activities to the above mentioned hazards;
- Assess the full range of vulnerabilities of the exposed elements experienced throughout the country with reference to the above hazards; and
- Influence sectoral development strategies towards recognizing the highly dynamic form of vulnerabilities and factoring an understanding into institutional, legislative and organizational systems for preparedness, planning and mitigation.

Project Partners

The MRVAM project was implemented by the Asian Disaster Preparedness Center (ADPC), Thailand, in partnership with the Institute of Water Modeling (IWM), Bangladesh, the Norwegian Geotechnical Institute (NGI), the Asian Institute of Technology (AIT), Thailand, and the Faculty of Geo-Information Science and Earth Observation of the University of Twente (ITC), the Netherlands. The project was also supported by many other departments and institutions, such as Bangladesh Bureau of Statistics (BBS), Directorate General Health Services (DGHS), Geological Survey of Bangladesh (GSB), Local Government Engineering Department (LGED), Water Resources Planning Organization (WARPO), and Deputy Commissioner (DC) Offices.

About the Atlas

The Risk Atlas contains the basic information on the 8 (eight) major hazards, such as Flood, Cyclone induced Storm Surge, Landslide, Drought, Earthquake, Tsunami, Technological & Health hazards in context of the country, and the exposure, vulnerability and risk with regard to population (Gender, Age, Ethnicity, Employment, Education, Disability, Poverty), housing (Housing Types- Pucka, Semi-Pucka, Kutcha, Jhupri), livelihoods (Agriculture, Industries), critical facilities (Healthcare, Educational Institutions, First Responders- Fire and Police stations, Cyclone Shelters), and infrastructure (Road, Bridge, Railway, Air, Sea and River Ports, Power Stations).

The Atlas is presented in 3 Volumes, such as Volume I (Part I): Hydro-meteorological Hazard, Exposure/Risk Assessment (Flood and Storm Surge); Volume I (Part II): Hydro-meteorological Hazard, Exposure/Risk Assessment (Drought and Landslide); Volume II: Geological and Environmental Hazard, Exposure/Risk Assessment (Earthquake, Tsunami, Technological and Health), Volume III: Multi-Hazard Exposure and Risk Assessment (Flood, Storm Surge, Landslide, Drought, Earthquake and Tsunami).

It is now very interesting that the decision makers are aware of National Risk Atlas as a tool that must be applied during planning and programming for preparedness and response to disasters. Given that the disaster management is a cross cutting issue, the Atlas will serve to identify and prioritize hazard prone areas during planning and programming for development activities in various sectors, such as transport, health and education, other critical facilities, essential service, as well as in urban and rural land use planning and in the development of infrastructures.

For flood hazard and vulnerability assessment, MIKE11 Hydrodynamic Model developed by DHI used to obtain return period-wise flood levels for 25 year, 50 year, 100 year and 150 years. For Cyclone, induced Storm Surge, the Bay of Bengal Model (BoBM) was used for the return periods: 25, 50 and 100 years for the entire coastal region. Earthquake hazard maps were developed using the historical data and existing geological setting for 50 year, 100 year, 200 year, 500 year and 1000 years return periods. Simultaneously, Tsunami hazars maps were generated for 50, 100, 200, 500 and 1000 years return period and the Drought hazard maps were generated with different return periods such as the SPI (Standardized Precipitation Index) values for 10, 50 and 100 years return period.

The objective of the Atlas is to facilitate the decision makers with the information on the existing situation of respective sectors in terms multi-hazard risk and vulnerability. It will assist the decision makers and respective government departments to prioritize risk mitigation investments and measures for strengthening the emergency preparedness and response mechanisms to different hazards identified in the study.

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List of Abbreviations

MRVAM	Multi-Hazard Risk and Vulnerability Assessment Modeling and Mapping
AFCCL	Ashuganj Fertilizer & Chemical Company Factory Limited
ARCGIS	Aeronautical Reconnaissance Coverage Geographic Information System
BBS	Bangladesh Bureau of Statistics
BoBM	Bay of Bengal Model
CRI	Multi-Hazard Risk Indices
CUFL	Chittagong Urea Fertilizer Limited
DAPFCL	DAP Fertilizer Company Ltd.
DEM	Digital Elevation Model
DHI	Danish Hydraulic Institute
DRR	Disaster Risk Reduction
EM-DAT	Emergency Event Database
GIS	Geographic Information System
HFA	Hyogo Framework for Action
JFCL	Jamuna Fertilizer Company
MPO	Master Plan Organization
NGFFL	Natural Gas Fertilizer Factory Ltd.
PFFL	Polash Fertilizer Factory Limited
PGA	Peak Ground Acceleration
ToR	Terms of Reference
UNISDR	United Nations International Strategy for Disaster Reduction

1. Multi-Hazard Risk and Vulnerability Assessment Modeling and Mapping (MRVAM)

Bangladesh has made a strong commitment to implementing the Hyogo Framework for Action (HFA) and, in that context, the Project on "Multi-hazard Risk and Vulnerability Assessment Modeling and Mapping for Bangladesh" has advance Bangladesh's progress in Priority Action Area 2: "Identify, assess and monitor disaster risks and enhance early warning". This includes ensuring that "national and local risk assessments based on hazards data and vulnerability information are available and include risk assessments for key sectors. "Bangladesh is considered to be a disaster "hot-spot", facing multiple hazards that threaten lives, property and economic development (UNISDR, 2008).

The project on Multi-hazard Risk and Vulnerability Assessment Modeling and Mapping will have an impact far beyond what its detailed scope might suggest. On a macro level, this project aims to be the catalyst for DRR practice in Bangladesh, helping to achieve the Government's ambitious goal of bringing its policies, institutions, and capabilities for disaster preparation, mitigation, and response up to world-class standards. In a very real sense, it is a pilot effort for activities to be financed by various donor agencies in order to expand efforts further at all levels. Therefore, it absolutely must establish a solid base and ensure that Bangladesh will have the expertise to take maximum advantage of the present and future interventions. At the same time, on a more micro level, outputs of the project are aimed to increase the capacity of Districts, City Corporations, Paurashava, Upazila etc., and individual citizens, including the most vulnerable individuals and groups among them, to deal with all aspects of emergencies. It further aims to help save lives and property, and increase the sense of security for people throughout the country.

1.1 Project Objectives

The main objectives of this study are as follows:

- Identify all hazard prone areas of Bangladesh specifically district, City Corporation, municipality, upazila and unions covering geological, hydro-meteorological and technological hazards;
- Assess the exposure of people, property, infrastructure and economic activities to the above mentioned hazards;
- Assess the full range of vulnerabilities of the exposed elements experienced throughout the country with reference to the above hazards; and
- Influence sectoral development strategies towards recognizing the highly dynamic form of vulnerabilities and factoring an understanding into institutional, legislative and organizational systems for preparedness, planning and mitigation.

1.2 Multi-Hazard, Vulnerability and Risk Assessment

The methodology adopted in this project is summarized in Figure 1.1. The hazards identified for assessment as per the Terms of Reference (ToR) are as follows:

- Flood, Storm surge, Earthquake, Tsunami, Landslide, Drought, Technological, Health

The elements at risk considered in this project for exposure, vulnerability and risk assessment are as follows:

- Population – Gender, Age, Ethnicity, Employment, Education, Disability, Poverty
- Housing – Housing Types (Pucka, Semi-Pucka, Kutcha, Jhupri)
- Livelihoods - Agriculture, Industries
- Critical Facilities – Healthcare, Educational Institutions, First Responders (Fire and Police stations), Cyclone Shelters
- Infrastructure – Road, Bridge, Railway, Air, Sea and River Ports, Power Stations.

Using the individual hazard assessment maps developed for the eight hazards in GIS environment and GIS database developed at the country level, the above elements at risk are combined to assess the exposure. Using the exposure data, vulnerability assessment is carried out by the damage curves developed exclusively for Bangladesh for the first time at the national level. Using the hazard and vulnerability assessment, individual risk of the elements at risk is assessed. The hazard specific risk is combined into a multi-hazard risk assessment to identify the most hazardous prone district/upazila/union in the country.

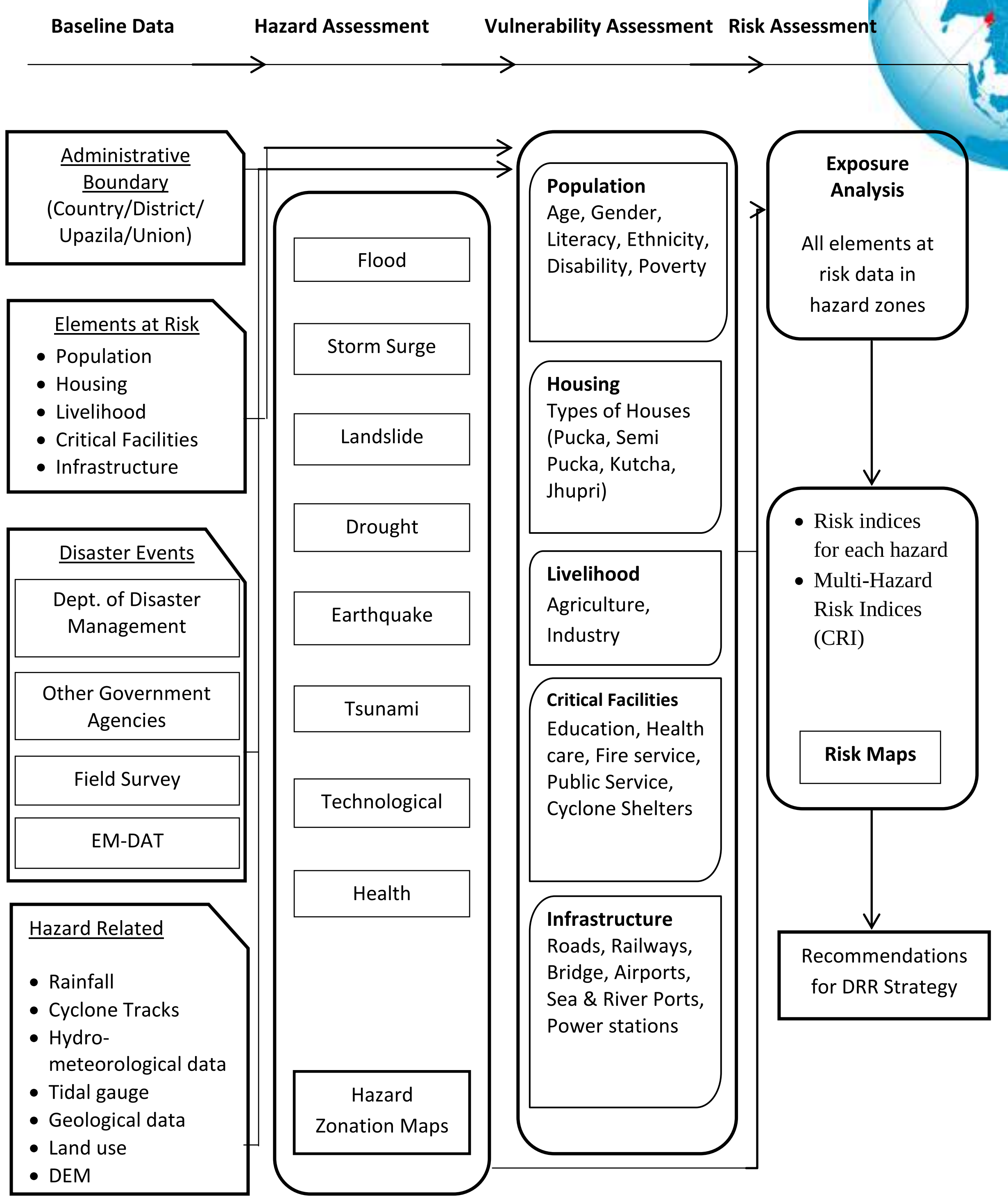


Figure 1.1: Overall Methodology of the MHVRA Project

1.3 Risk Assessment

Components of risk assessment are hazard, elements at risk, exposure, vulnerability. The hazard, exposure, vulnerability and risk Assessment approach adopted in this study is based on definitions from United Nations International Strategy for Disaster Reduction (UNISDR, 2009), given in table 1.1.

Table 1.1: Definition of Hazard, Exposure, Vulnerability and Risk

Hazard	A dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.
Exposure	The degree to which the elements at risk are exposed to a particular hazard.
Vulnerability	The conditions determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards. Can be subdivided into physical, social, economic and environmental vulnerability.
Risk	The probability of harmful consequences, or expected losses (deaths, injuries, property loss, livelihoods loss, economic activity disruption or environmental damaged) resulting from interactions between (natural and/ or human-induced) hazards and vulnerable conditions in a given area and time period.

Risk can be presented conceptually with the following basic equation:

Risk = Hazard x Vulnerability x Element at risk

1.3.1 Hazard Assessment

Hazard assessment presented in this risk atlas are Flood, Storm Surge, Earthquake, Tsunami, Landslide, Drought, Technological and Health. These hazard maps are prepared for different return periods, as shown in table 1.2.

Table 1.2: Summary of Hazard maps developed in this study

Hazards	Return Period							
	10	**25**	**50**	**100**	**150**	**200**	**500**	**1000**
Flood		√	√	√	√			
Storm Surge		√	√	√				
Earthquake			√	√		√	√	√
Landslide	Not Applicable as there is no return period							
Tsunami			√	√		√	√	√
Drought	√		√	√				
Technological	Not Applicable as there is no return period							
Health	Not Applicable as there is no return period							

1.3.2 Exposure Assessment

Exposure is assessed for elements at risk of Population, Housing, Livelihoods, Critical Facilities and Infrastructure using the most frequent and damaging hazard maps with relevant return periods (table 1.3) based on indicators of hazard levels for each hazard (table 1.4).

Table 1.3: Summary of exposure assessment and return period of hazards

Hazard	Return Period for Exposure of Elements at Risk				
	Population	**Housing**	**Livelihood**	**Critical Facilities**	**Infrastructure**
Flood	25	25	25	100	100
Storm Surge	25	25	25	100	100
Landslide	Not Applicable (NA)				
Drought	10	NA	50	NA	NA
Earthquake	50	50	NA	50	50
Tsunami	50	50	50	50	50
Technological	Not Applicable (NA)				
Health	Not Applicable (NA)				

Table 1.4: Hazard level indicators considered for exposure assessment

	Indicator of Hazard level considered
Flood	Inundation area with different flood depths at 25 and 100 year return period
Storm Surge	Inundation area with different depth due to Cyclone induced storm surge at 25 and 100 year return period
Landslide	Landslide susceptibility category
Drought	Drought hazard category representing severity of 10 year return period
Earthquake	Peak Ground Acceleration (PGA) zones at 50 year return period
Tsunami	Inundation area with different depth due to tsunami at 50 year return period
Technological	Area of influence (3 zones) due to chemical release
Health	Area representing number of cases reported for each disease at district level

1.3.3 Vulnerability Assessment

Based on exposure assessment, damage curves are developed for all hazards and elements at risk for vulnerability and risk assessment, where ever possible. Damage curves represent the relationship between hazard level and % of physical damage.

Vulnerability of Population: Based on the area of exposure of the settlements in each union, the vulnerability of population is calculated as number of population affected due to a hazard.

Vulnerability of Household structures: Factors affecting vulnerability of household structures are different in each hazard, damage curves are developed accordingly, as indicated in table 1.5.

Table 1.5: Factors affecting used for vulnerability of household structures

Hazard	Factor considered for damage curves	Vulnerability of Household structures
Flood	Inundation depth due to Flood	Damage curves
Cyclone induced Storm surge	Inundation depth due to induced storm surge	Damage curves
Landslide	Landslide susceptible category	Risk matrix
Earthquake	Peak Ground Acceleration (PGA)	Damage curves
Tsunami	Inundation depth due to Tsunami	Damage curves

Vulnerability of Livelihood: Livelihood considered is transplanted Aman crop. Vulnerability of crop is developed using damage curves using the factors affecting a hazard as given in table 1.6.

Table1.6: Factors considered for vulnerability for crops

Hazard	Factor considered for damage curves	Vulnerability
Flood	Inundation depth due to Flood	Risk matrix
Storm surge	Inundation depth due to Storm surge	Risk matrix
Drought	Drought hazard category	Risk matrix
Tsunami	Inundation depth due to Tsunami	Risk matrix

Exposure of Population, Risk of Housing and Livelihood as explained in section 1.3 is assessed at upazila / thana level in Bangladesh and the results are presented in this risk atlas based on the administrative division as given in section 1.4.

1.4 Administrative Division of Bangladesh

Bangladesh is divided into eight administrative divisions, each named after respective divisional headquarters: Barisal, Chittagong, Dhaka, Khulna, Mymensingh, Rajshahi, Rangpur and Sylhet. Divisions are subdivided into 64 districts (zila), which are further subdivided into 544 upazila or thana, and their distribution is given in table 1.7.

Table 1.7: Administrative Division of Bangladesh

Division	Districts	Upazilas / Thanas	City Corporations
Barisal	6	40	1
Chittagong	11	111	1
Dhaka	13	129	4
Khulna	10	64	1
Mymensingh	4	34	
Rajshahi	8	70	1
Rangpur	8	58	1
Sylhet	4	38	1
Country Total	**64**	**544**	**11**

Source: BBS, 2012

1.5 How to use this Risk Atlas?

The main components in this study are Hazard Assessment, Elements at Risk, Exposure / Risk Assessment, Multi-Hazard Risk Assessment. This Atlas is organized in 4 volumes representing,

- Volume I [PART-I]: Hydro-meteorological Hazard, Exposure / Risk Assessment (Flood and Storm Surge)
- Volume I [PART-II]: Hydro-meteorological Hazard, Exposure / Risk Assessment (Drought and Landslide)
- Volume II: Geological and Environmental Hazard, Exposure / Risk Assessment (Earthquake, Tsunami, Technological and Health)
- Volume III: Multi Hazard Exposure and Risk Assessment (Flood, Storm Surge, Drought, Landslide, Earthquake and Tsunami)

In each volume, the relevant text, info graphics and maps representing Hazard, Exposure / Risk are arranged for each division and all districts in the division. However, at upazila / thana level very high and high exposure / risk are only presented.

Volume I [PART-1]: Hydro-meteorological Hazards (Flood and Storm Surge)

Flood

- Flood hazard maps are available for four return periods i.e. 25, 50, 100 and 150 years for all the eight divisions.
- Exposure of Population and Risk levels of Housing and Livelihood to flood hazard are provided at district and upazila / thana level as given in table 1.8

Table 1.8: Population Exposure, Housing and Livelihood at Risk to Flood

Flood	Population Exposure		Housing at Risk (Packa and Semi-Packa)		Housing at Risk (Kutcha and Jhupri)		Livelihood	
Division	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas
Barisal	3	6	3	8	3	8	4	11
Chittagong	5	29	5	30	5	30	5	27
Dhaka	12	67	10	71	10	71	7	31
Khulna	1	2	1	2	1	2	1	1
Mymensingh	4	16	4	19	4	20	4	27
Rajshahi	4	9	3	11	3	12	3	20
Rangpur	2	2	3	3	3	3	3	6
Sylhet	4	31	4	31	4	31	4	29
Total	35	162	33	175	33	177	31	152

Storm Surge

- Storm Surge hazard maps are available for three return periods i.e. 25, 50 and 100 years for Barisal, Chittagong, Dhaka and Khulna divisions.
- Exposure of Population and Risk levels of Housing and Livelihood to storm surge hazard are provided at district and upazila / thana level as given in table 1.9

Table 1.9: Population Exposure, Housing and Livelihood at Risk to Storm Surge

Storm Surge	Population Exposure		Housing at Risk (Packa and Semi-Packa)		Housing at Risk (Kutcha and Jhupri)		Livelihood	
Division	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas
Barisal	2	3	1	2	2	3	6	16
Chittagong	2	2	2	4	2	2	5	13
Khulna	0	0	0	0	0	0	1	1
Total	4	5	3	6	4	5	12	30

Volume I [PART-II]: Hydro-meteorological Hazards (Drought and Landslide)

Drought:

- Drought hazard maps are available for 10, 50 and 100 year return period for all the eight divisions.
- Exposure of Population and Risk levels of Housing and Livelihood to drought hazard are provided at district and upazila / thana level as given in table 1.10

Table 1.10: Population Exposure and Livelihood at Risk to Drought

Drought	Population Exposure		Livelihood	
Division	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas
Barisal	0	0	6	40
Chittagong	0	0	9	73
Dhaka	0	0	11	47
Khulna	0	0	4	33
Mymensingh	0	0	10	56
Rajshahi	5	34	8	61
Rangpur	7	35	8	57
Sylhet	0	0	4	31
Total	12	69	60	398

Landslide:

- Landslide hazard does not have any return period and is presented for Chittagong and Sylhet divisions.
- Exposure of Population and Risk levels of Housing to landslide hazard are provided at district and upazila level as given in table 1.11.

Table 1.11: Population Exposure and Housing at Risk to Landslide

Landslide	Population Exposure		Housing at Risk (Packa and Semi-Packa)		Housing at Risk (Kutcha and Jhupri)	
Division	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas
Chittagong	5	29	5	31	5	34
Sylhet	2	5	2	11	3	14
Total	7	34	7	42	8	48

Volume II: Geological and Environmental Hazards (Earthquake, Tsunami, Technological and Health)

Earthquake:

- Earthquake hazard maps are available for five return periods i.e. 50, 100, 200, 500 and 1000 years for all the eight divisions.
- Exposure of Population and Risk levels of Housing to earthquake hazard (moderate) at district and upazila / thana level as given in table 1.12

Table 1.12: Population Exposure and Housing at risk to Earthquake Hazard

Earthquake	Population Exposure		Housing Exposure (Packa and Semi-Packa)		Housing Exposure (Kutcha and Jhupri)	
Division	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas
Chittagong	10	96	10	62	10	62
Dhaka	4	28	4	28	4	28
Mymensingh	4	34	4	34	4	34
Rajshahi	5	70	5	30	5	30
Rangpur	7	49	7	48	7	48
Sylhet	4	38	4	38	4	38
Total	34	315	34	240	34	240

Tsunami:

- Tsunami hazard maps are available for five return periods i.e. 50, 100, 200, 500 and 1000 years for Barisal, Chittagong and Khulna divisions.
- Exposure of Population and Risk levels of Housing to tsunami hazard are provided at district and upazila level as given in table 1.13.

Table 1.13: Population Exposure, Housing and Livelihood at Risk to Tsunami

Tsunami	Population Exposure		Housing Exposure (Packa and Semi-Packa)		Housing Exposure (Kutcha and Jhupri)		Livelihood	
Division	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas	Districts	Upazilas /Thanas
Barisal	2	2	2	4	2	4	1	1
Chittagong	0	0	0	0	0	0	1	1
Total	2	2	2	4	2	4	2	2

Technological:

- Technological hazard maps are available only for six industries in Chittagong and Dhaka divisions.
- Exposure maps of Population to six industries at upazila level as given in table 1.14.

Table 1.14: Population Exposure due to Technological Hazard

Sl. No.	Name of the Industry	Division	District	Number of Upazilas
1	Ashuganj Fertilizer & Chemical Company Factory Limited (AFCCL)	Chittagong	Brahmanbaria	3
			Kishoreganj	1
			Narsingdi	2
2	Chittagong Urea Fertilizer Limited (CUFL)	Chittagong	Chittagong	2
3	DAP Fertilizer Company Ltd. (DAPFCL)	Chittagong	Chittagong	2
4	Jamuna Fertilizer Company (JFCL),	Mymensingh	Jamalpur	1
		Dhaka	Tangail	2
		Rajshahi	Sirajganj	1
5	Natural Gas Fertilizer Factory Ltd. (NGFFL)	Sylhet	Maulvibazar	2
			Sylhet	2
6	Polash Fertilizer Factory Limited (PFFL)	Dhaka	Gazipur	2
			Narsigdi	3

Health:

- Health hazard maps represents number of population affected to 9 diseases (Arsenicosis, Dengue, Diarrhea, Encephalitis, Filariasis, Kalaazar, Leprosy, Malaria, Tuberculosis (Pulmonary)) are shown at national level and division level for 2011, 2012 and 2013, which represents the exposure of Population to Health hazard.

Volume III: Multi-Hazard Exposure and Risk Assessment (Flood, Storm Surge, Drought, Landslide, Earthquake and Tsunami)

- Population exposed to six multi-hazards (Flood, Storm Surge, Landslide, Drought, Earthquake and Tsunami) at country level are presented along with division and district level maps
- Housing types (Pucka, Semi-Pucka, Kutcha, Jhupri) at Risk to five multi-hazards (Flood, Storm Surge, Landslide, Earthquake and Tsunami) at country level are presented along with division and district level maps
- Livelihood (Transplanted Aman crop) at Risk to four multi-hazards (Flood, Storm Surge, Drought and Tsunami) at country level are presented along with division and district level maps

VOLUME - I

PART - I FLOOD & STORM SURGE

FLOOD

2. Flood

Floods are annual phenomena with the most severe occurring during the months of July and August. Regular river floods affect 20% of the country increasing up to 68% in extreme years. The floods of 1988, 1998 and 2004 were particularly catastrophic, resulting in large-scale destruction and loss of lives. Approximately 37%, 43%, 52% and 68% of the country is inundated with floods of return periods of 10, 20, 50 and 100 years respectively (MPO, 1986). In this study, the percentage of the country inundated due to floods (excluding eastern hilly area, Hatia, Sandwip and estuary areas around them) for return periods of 25, 50, 100 and 150 years is 57.1%, 61.1%, 80.6% and 81.2% respectively. This indicates that the area subjected to flooding has increased from 52% to 61.1% for 50 years and 68% to 80.6% for the 100-year return period. Four types of flooding occur in Bangladesh, including normal and flash floods, as well as storm surges in coastal areas.

Bangladesh is located in a low-lying delta, formed by the dense network of the distributaries of the mighty Ganges, the Brahmaputra and the Meghna, between the Himalayas and the Bay of Bengal. The total land area is 147,570 km^2 and consists mostly of low and flat land, with some hilly areas in the northeast and southeast (BBS, 2015). A network of more than 230 major rivers and their tributaries crisscross the country, which makes 80% of the country is flood plain and 75% of the country is at less than 10m above the mean sea level (Adaptive Learning Mechanism, 2015). Flooding normally occurs during the monsoon season from June to September. Every year, nearly 26,000 km^2 (around 18% of the country) is flooded. Floods has caused devastation in Bangladesh throughout its history. For example, the flood of 1988 resulted in 60% of the country being under flood water for more than a month, while the flood in 1998 caused 75% of the country's area to be under water. There were also severe floods in 1966, 1987 and 2007. A more detailed report on Flood Hazard Assessment is given below.

2.1 Methodology

The methodology adopted in this flood hazard study is shown in Figure 1.1. Flood modeling used in this study is MIKE11 (DHI, 2004). The MIKE11 flood modeling system consists of two modules: hydrological and hydrodynamic. Hydrological module uses rainfall and evaporation data and performs rainfall-runoff modeling, whose output is the input for the hydrodynamic module. The Hydrodynamic module computes water flows and water levels in the river network. Historical boundary data flood simulations for 26 years (1986 to 2011) was used to compute water levels in the river network at 7617 model grid points. Then a frequency analysis was carried out at these grid points in order to obtain return period-wise flood levels for 25, 50, 100 and 150years. These flood levels are used in ARC GIS software to develop flood hazard maps with the help of a digital elevation model using the following equation:

Flood depth (m) = Flood level (m PWD) – Land level (m PWD)

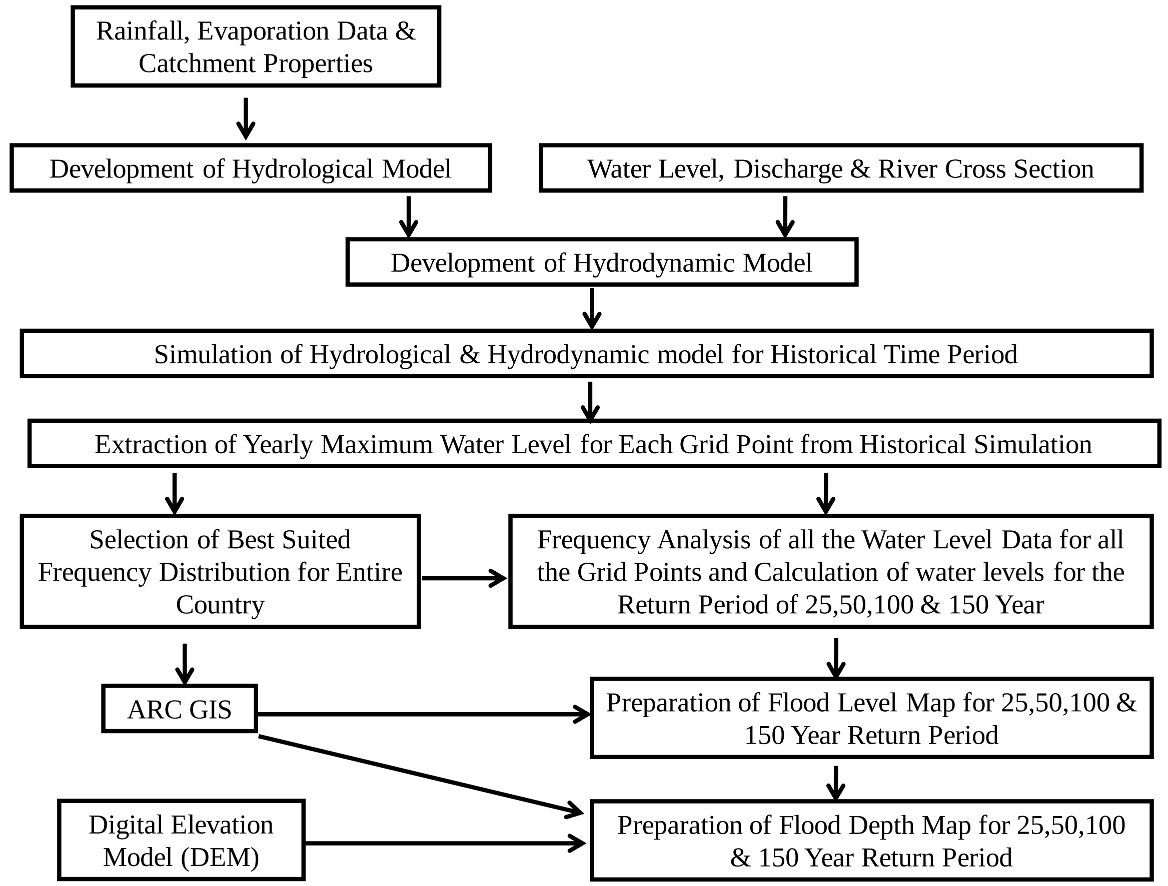


Figure 2.1: Methodology of the Flood Hazard Assessment

Flood simulation is carried out using the existing five hydrological region models: North West Region Model, North Central Region Model, North East Region Model, South West Region Model, and South East Region Model.

2.2 Map Content

Flood hazard maps consist of flood depth in meters. The flood depth is categorized based on the classification adopted by the Master Plan Organization (MPO, 1986). Flood depth categories adopted in this study are given in Table 2.1.

Table 2.1: Flood depth categories based on inundation depth

Flood Depth (m)	Flood Categories	Symbology used in maps
No Flood	Not Affected (NA)	
0 – 0.3	Very Shallow (VS)	
0.3 – 0.9	Shallow (S)	
0.9 – 1.8	Medium (M)	
1.8 – 3.6	Deep (D)	
> 3.6	Very Deep (VD)	

2.3 Analysis of Flood Hazard

The flood hazard maps of 25, 50, 100 and 150 year return period were analyzed. Flood inundation area (Km^2) and percentage for 25 and 50 year return period is given in table 2.2 and for 100 and 150 years in table 2.3.

Table 2.2: Inundated Area (Km^2) and Percentage in depth categories for 25 and 50 years return period

S.No.	Return period	25 year		50 year	
	Flood Depth (m)	**Area (Km^2)**	**Percentage (%)**	**Area (Km^2)**	**Percentage (%)**
1	>3.6	10240.47	10.55	13473.63	13.88
2	1.8 – 3.6	23147.64	23.84	25313.58	26.08
3	0.9 – 1.8	14203.17	14.63	13305.15	13.71
4	0.3 – 0.9	5955.66	6.14	5502.69	5.67
5	0.0001 - 0.3	1860.93	1.92	1774.53	1.83
6	No Flood	41667.84	42.92	37706.13	38.84

Table 2.3: Percentage of inundated area in different depth categories

S.No.	Return period	100 year		150 year	
	Flood Depth (m)	**Area (Km^2)**	**Percentage (%)**	**Area (Km^2)**	**Percentage (%)**
1	>3.6	18801.9	19.37	23159.97	23.86
2	1.8 – 3.6	33991.11	35.02	33111.81	34.11
3	0.9 – 1.8	15918.84	16.40	14076.36	14.50
4	0.3 – 0.9	7045.47	7.26	6261.3	6.45
5	0.0001 - 0.3	2443.5	2.52	2176.56	2.24
6	No Flood	18874.89	19.44	18289.71	18.84

Table 2.4 indicates the percentage of inundation area in different flood depth categories in different divisions for 100 year return period.

Table 2.4: Percentage of inundated area in different depth categories in different divisions

Division	Flood depth (m) vs percentage of inundation area					Not Affected
	< 0.3	**0.3 - 0.9**	**0.9 - 1.8**	**1.8 - 3.6**	**> 3.6**	
Barisal	1.5	8.6	26.4	30.9	31.0	69.0
Chittagong	4.5	8.3	16.5	26.4	28.3	71.7
Dhaka	23.7	6.0	17.2	36.3	11.6	5.28
Mymensingh	42.9	43.6	45.8	48.0	48.2	51.8
Khulna	24.7	11.3	22.9	30.0	8.0	3.00
Rajshahi	59.8	63.2	72.1	88.4	91.1	8.9
Rangpur	74.2	76.9	80.4	87.9	92.5	7.5
Sylhet	14.5	16.4	21.7	54.7	96.4	3.6
Country Total	**31.7**	**35.5**	**44.9**	**60.2**	**69.0**	**31.0**

2.4 Flood maps

Flood hazard maps at national level is shown for 25, 50, 100 and 150 year return periods. As Exposure of Population, Risk of Housing and Livelihood is assessed for flood hazard of 25 years return period, flood hazard maps at division, district and upazila are presented in this Risk Atlas. Number of Flood hazard maps presented is given table 2.5.

2.4.1 Flood Hazard maps

Table 2.5: Number of Flood Hazard maps presented in Risk Atlas

Division	Districts	Upazilas /Thanas
Barisal	3	6
Chittagong	5	29
Dhaka	12	67
Khulna	1	2
Mymensingh	4	16
Rajshahi	4	9
Rangpur	2	2
Sylhet	4	31
8	**35**	**162**

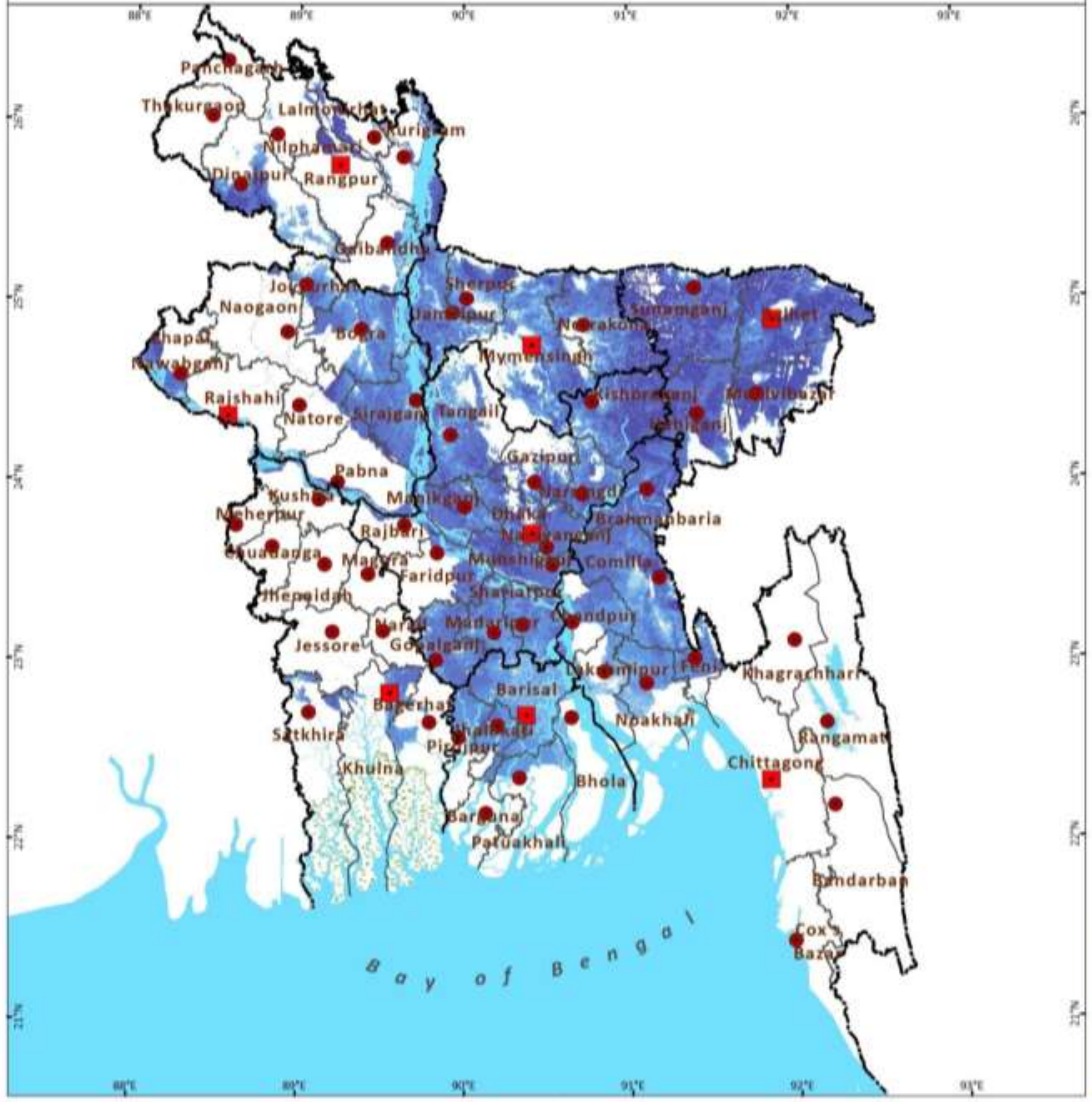
2.4.2 Flood Exposure and Risk maps

Exposure of Population, Risk of Housing and Livelihood for flood hazard of 25 years return period at division and district level is shown in table 2.6.

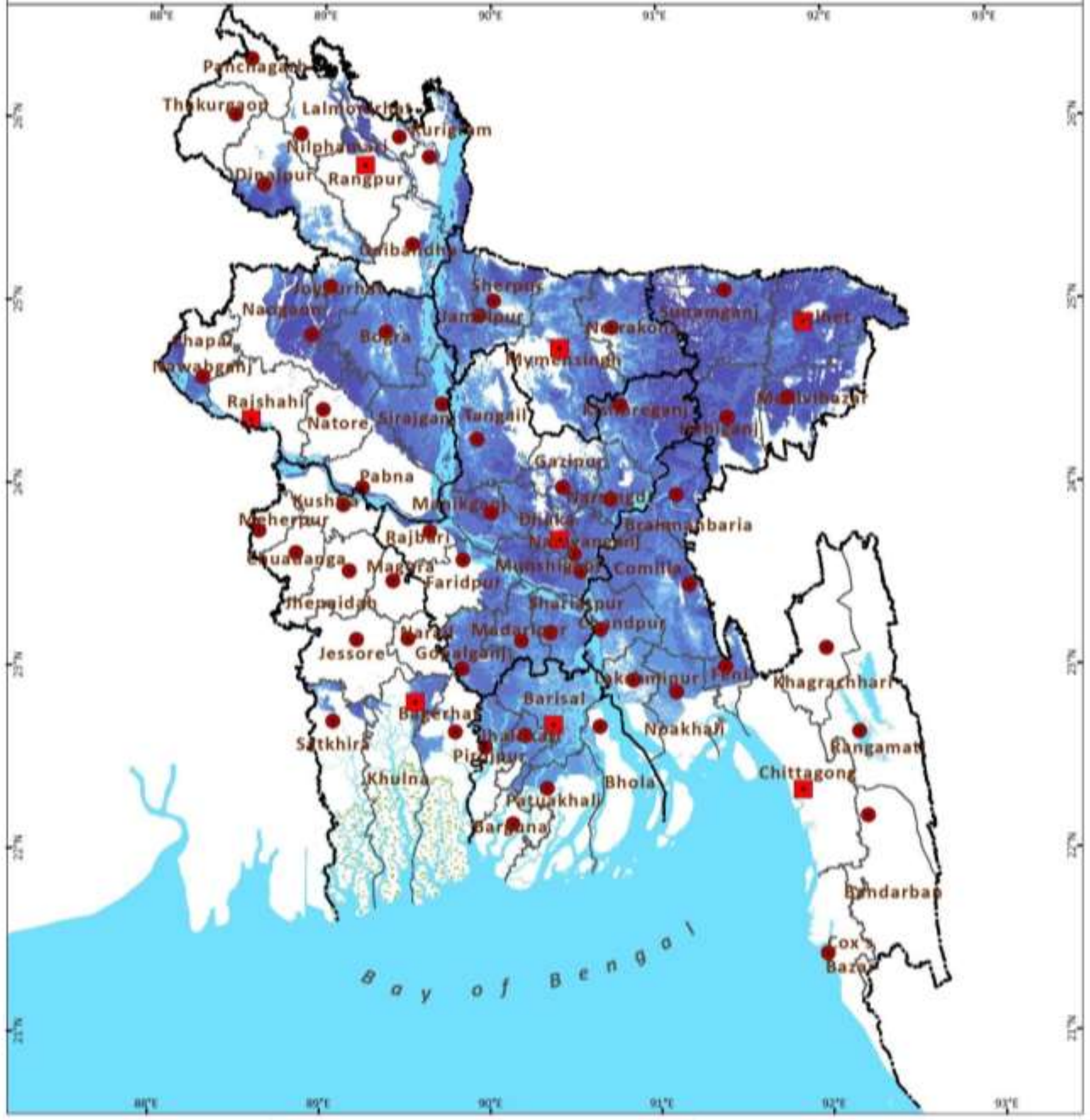
Table 2.6: Exposure of Population, Risk of Housing and Livelihood maps at division and district level presented in Risk Atlas

Division	Number of Districts			
	Population Exposure	**Housing at Risk (Packa and Semi-Packa)**	**Housing at Risk (Kutcha and Jhupri)**	**Livelihood**
Barisal	3	3	3	4
Chittagong	5	5	5	5
Dhaka	12	10	10	7
Khulna	1	1	1	1
Mymensingh	4	4	4	4
Rajshahi	4	3	3	3
Rangpur	2	3	3	3
Sylhet	4	4	4	4
8	**35**	**33**	**33**	**31**

Flood Inundation Map for 25 Year Return Period



Flood Inundation Map for 50 Year Return Period



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- < 0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Flood inundation map is developed using the MIKE11 Hydrodynamic modeling.

Flood depth categories are adopted from Master Planning Organization (1986).

The exposure of population to flood is derived by combining flood depth map and population at upazila level and overall level of exposure at district level is derived.

Data Source: BBS, BWDB, IWM and LGED.
Coordinate System: BTM, Datum : Gulshan 303.

N

0 25 50 100 150 200 Km
R. F.: 1:3,800,000

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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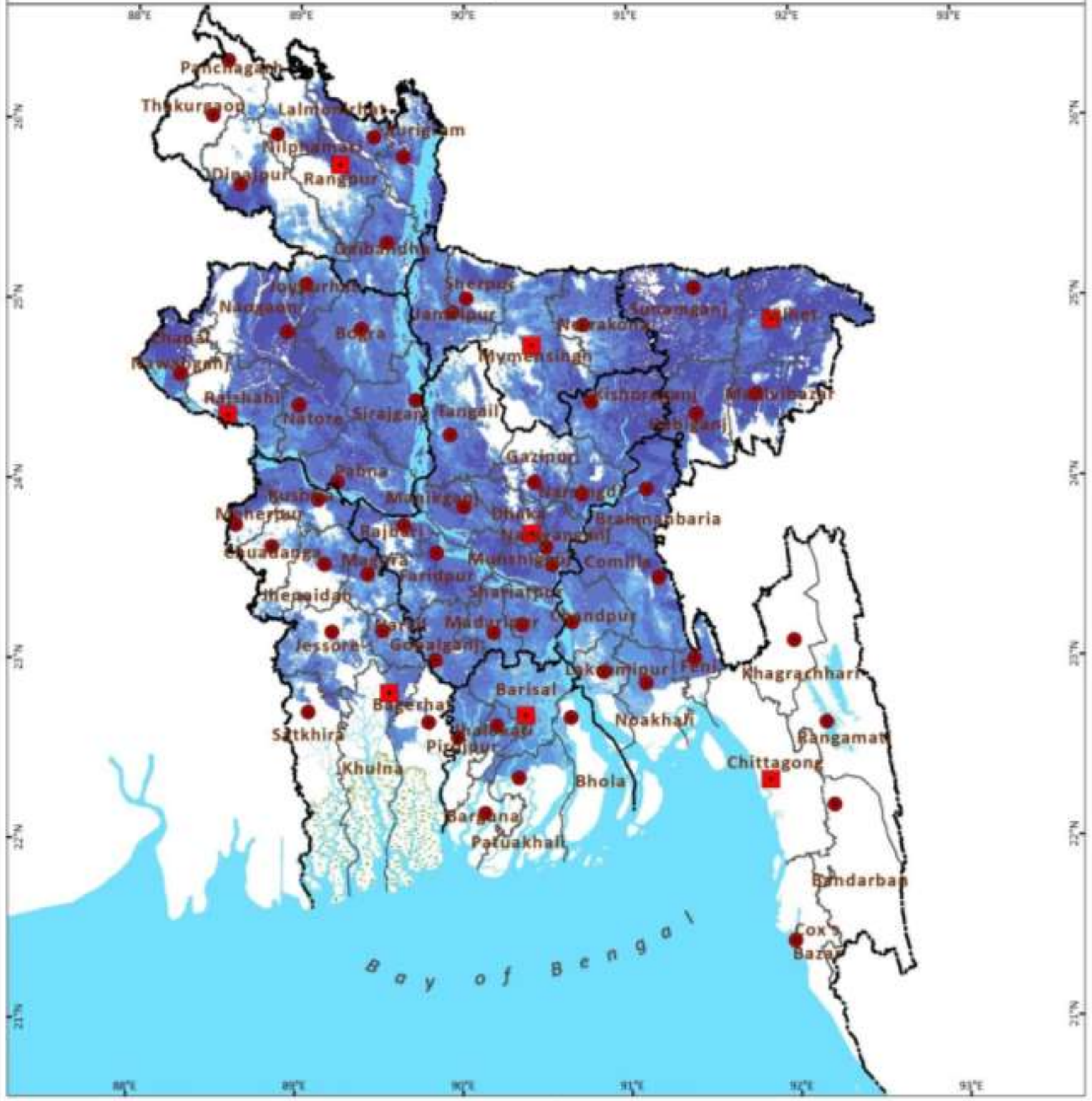
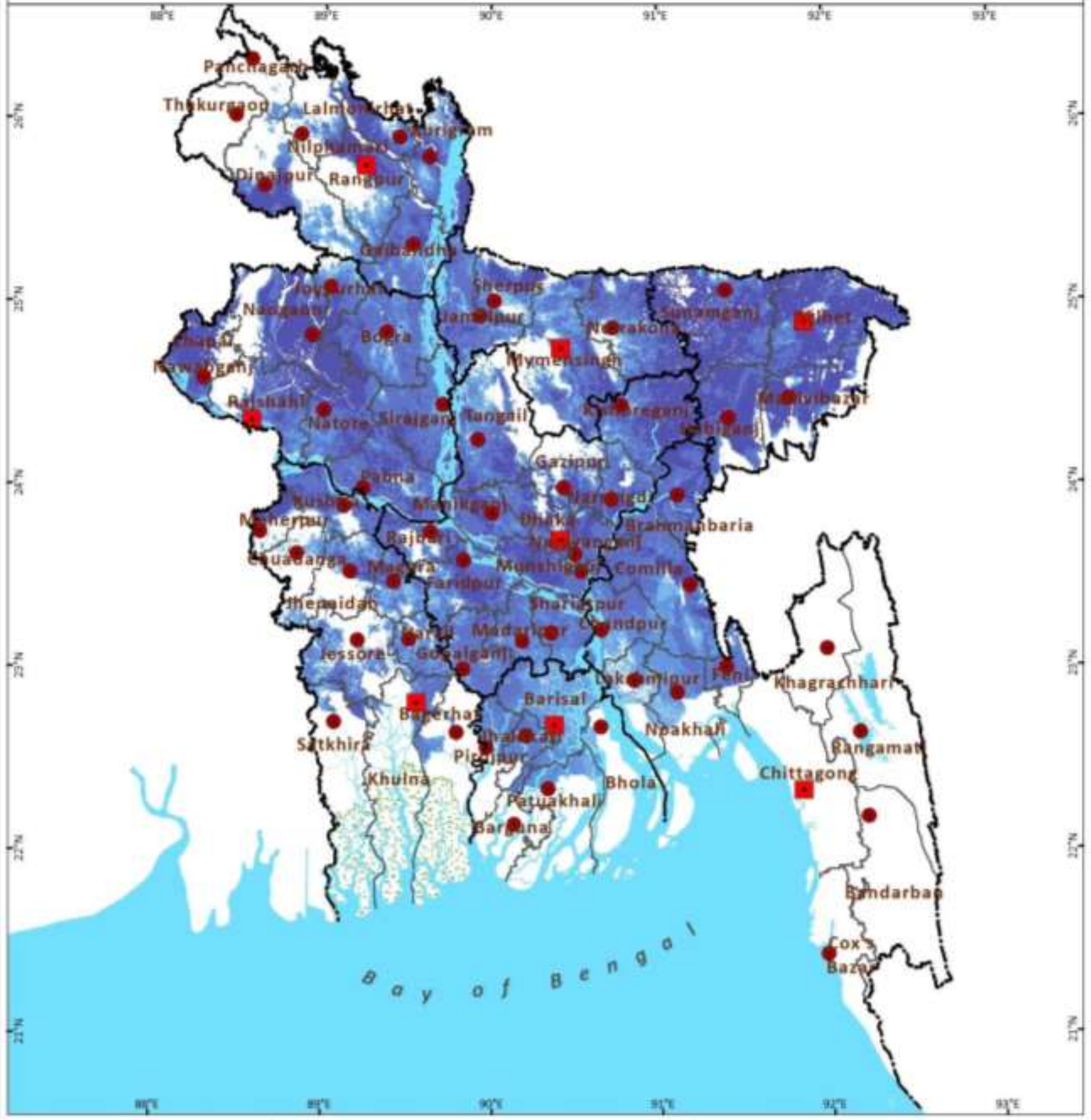
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Flood Inundation Map for 100 Year Return Period



Flood Inundation Map for 150 Year Return Period



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- < 0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Flood inundation map is developed using the MIKE11 Hydrodynamic modeling.

Flood depth categories are adopted from Master Planning Organization (1986).

The exposure of population to flood is derived by combining flood depth map and population at upazila level and overall level of exposure at district level is derived.

Data Source: BBS, BWDB, IWM and LGED.
Coordinate System: BTM, Datum : Gulshan 303.

N

0 25 50 100 150 200 Km

R. F.: 1:3,800,000

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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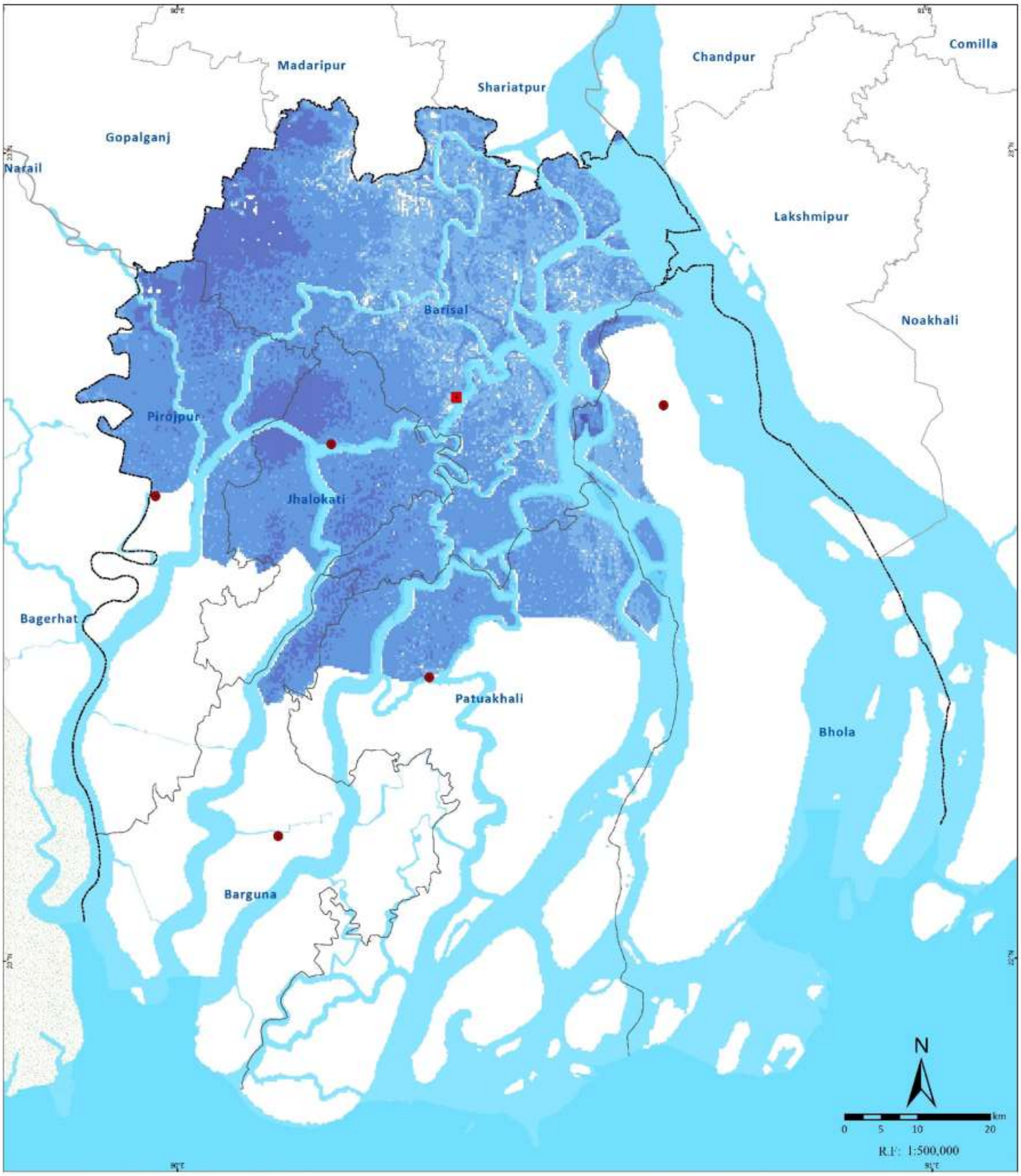
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Barisal Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- <0.3
- 0.3 -0.9
- 0.9 - 1.8
- 1.8 - 3.6
- >3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, division level map is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

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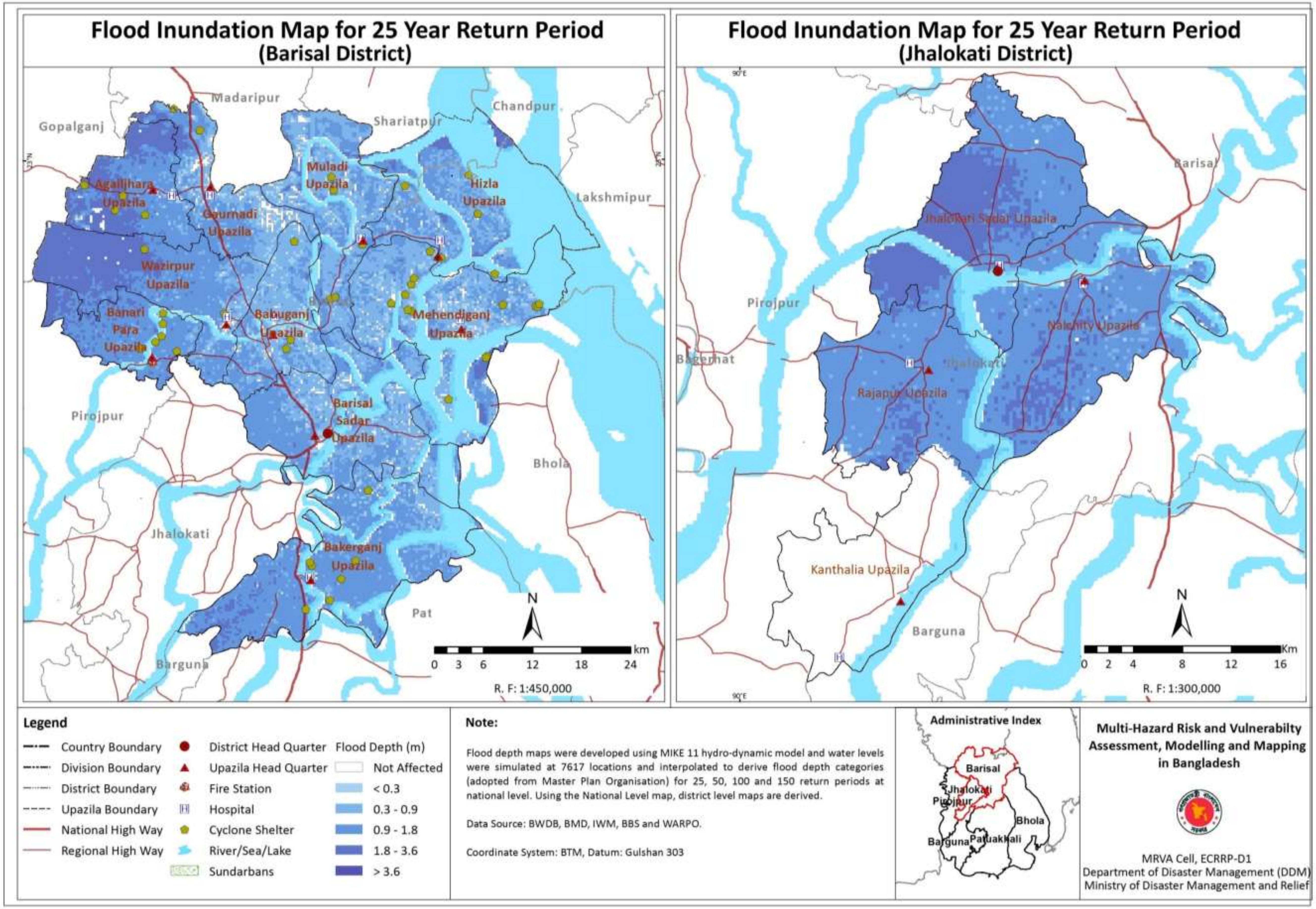
Ministry of Disaster Management and Relief


Flood Inundation Map for 25 Year Return Period
(Barisal District)
Madaripur
Gopalganj
Shariatpur
Chandpur
Lakshmipur
Muladi Upazila
Hizla Upazila
Agailjhara Upazila
Gournadi Upazila
Wazirpur Upazila
Banari Para Upazila
Babuganj Upazila
Mehendiganj Upazila
Barisal Sadar Upazila
Pirojpur
Bhola
Jhalokati
Bakerganj Upazila
Pat
Barguna
N
km
0 3 6 12 18 24
R. F: 1:450,000
Flood Inundation Map for 25 Year Return Period
(Jhalokati District)
Barisal
Jhalokati Sadar Upazila
Pirojpur
Nalchity Upazila
Bagerhat
Jhalokati
Rajapur Upazila
Kanthalia Upazila
Barguna
N
Km
0 2 4 8 12 16
R. F: 1:300,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO.
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Barisal
Jhalokati
Pirojpur
Bhola
Barguna
Patuakhali
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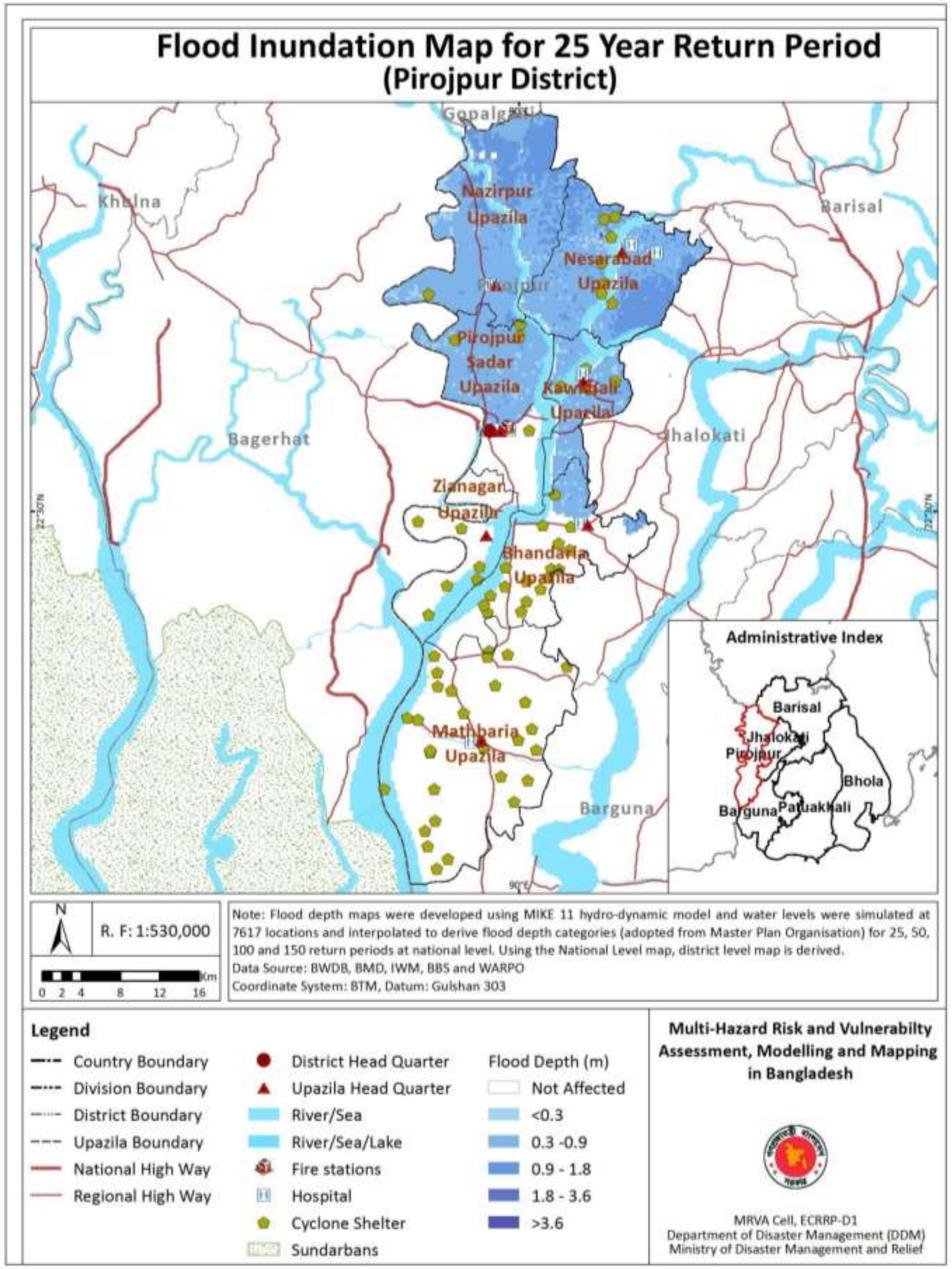
Ministry of Disaster Management and Relief


Flood Inundation Map for 25 Year Return Period
(Pirojpur District)
Khulna
Barisal
Nazirpur Upazila
Nesarabad Upazila
Pirojpur Sadar Upazila
Kawkhali Upazila
Bagerhat
Jhalokati
Zianagar Upazila
Bhandaria Upazila
Mathbaria Upazila
Barguna
Administrative Index
Barisal
Jhalokati
Pirojpur
Bhola
Barguna
Patuakhali
R. F: 1:530,000
0 2 4 8 12 16 Km
Note: Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level map is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
River/Sea
River/Sea/Lake
Fire stations
Hospital
Cyclone Shelter
Sundarbans
Flood Depth (m)
Not Affected
<0.3
0.3 -0.9
0.9 - 1.8
1.8 - 3.6
>3.6
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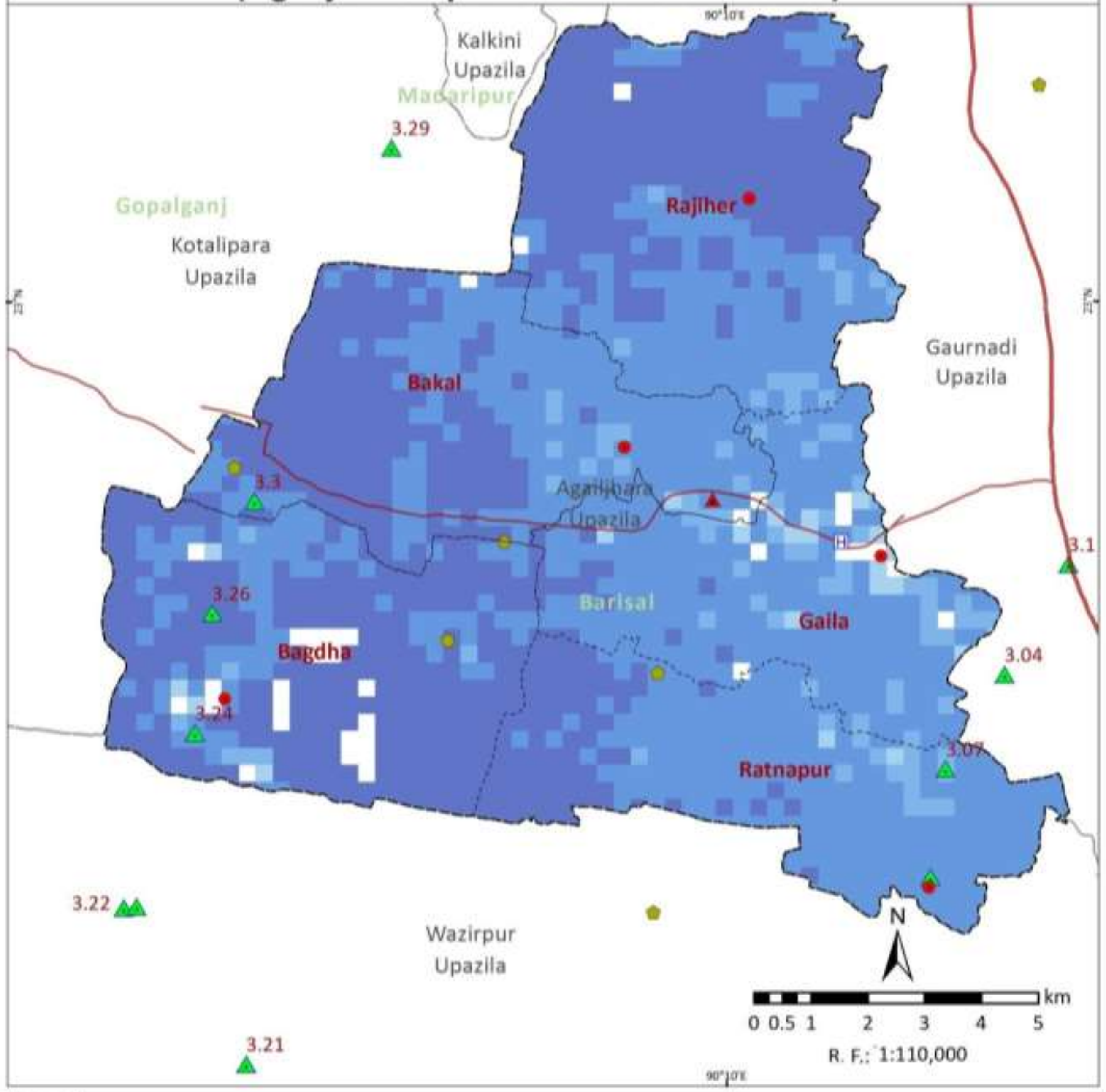
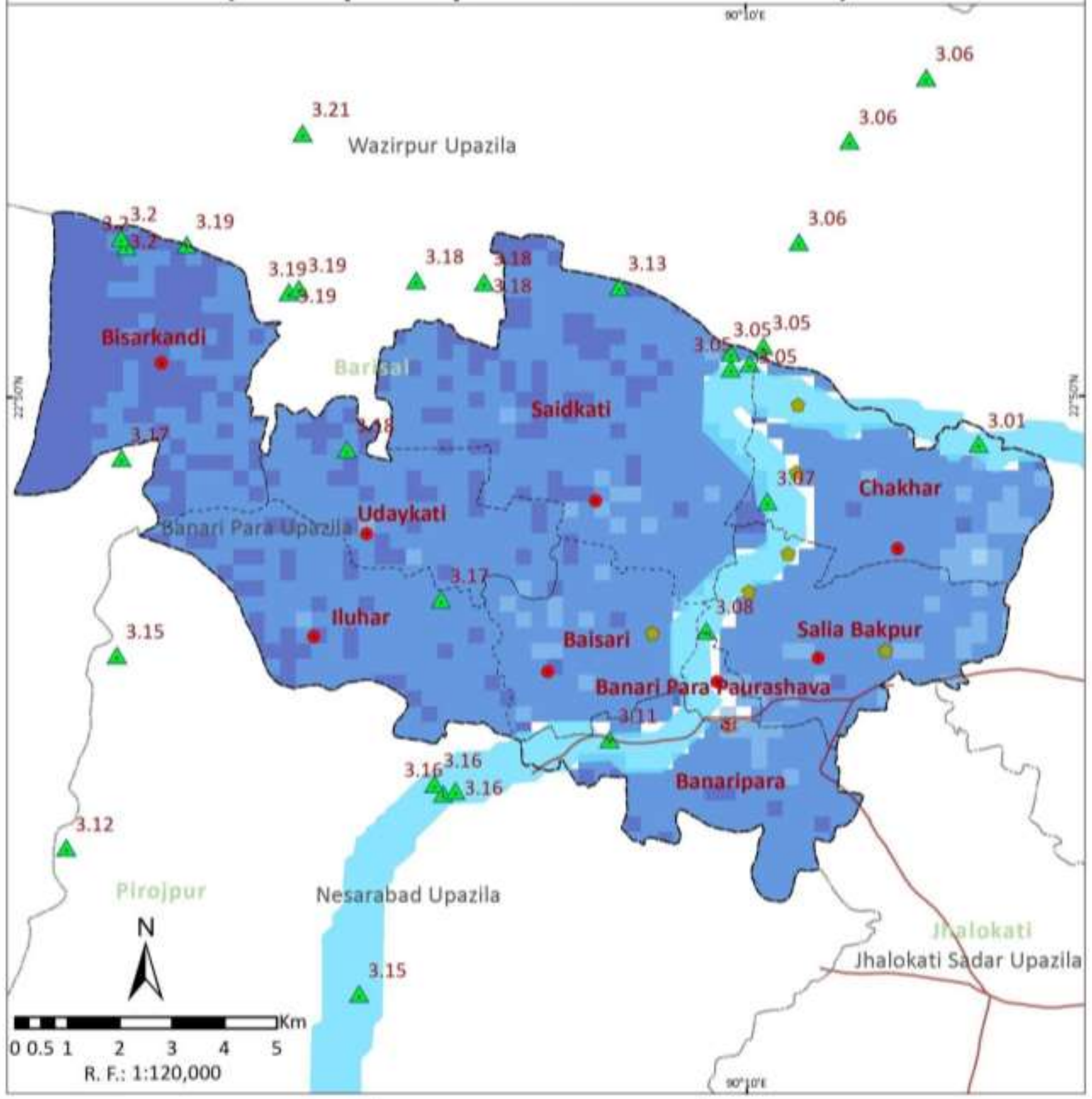
Flood Inundation Map for 25 Year Return Period
(Agailjhara Upazila of Barisal District)



Flood Inundation Map for 25 Year Return Period
(Banaripara Upazila of Barisal District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Unoin Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Cyclone Shelter	0.9 - 1.8
National High Way	Fire Station	1.8 - 3.6
Regional High Way	Water Level (m)	> 3.6
River/Sea/Lake	Danger level (m)	
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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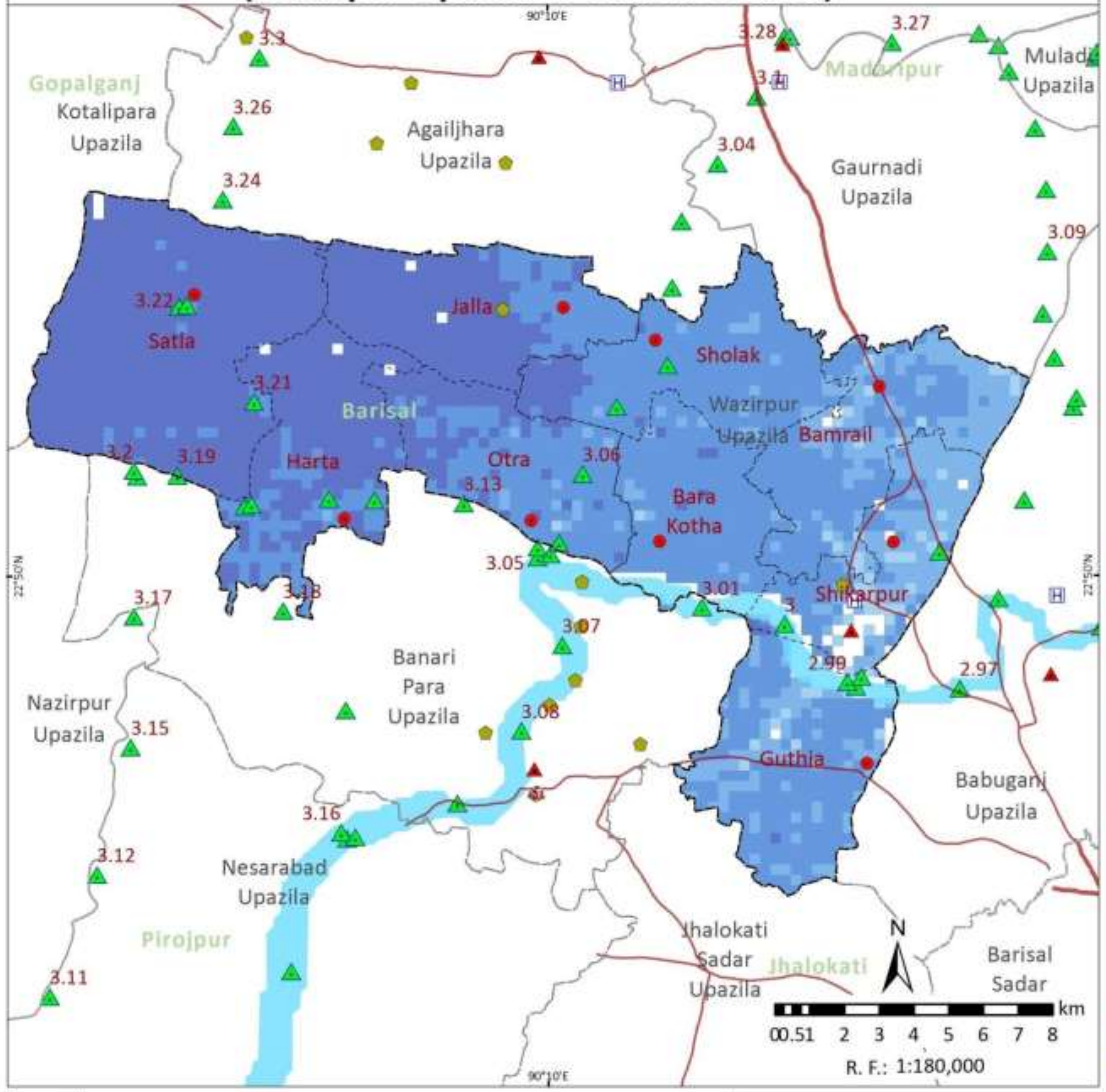
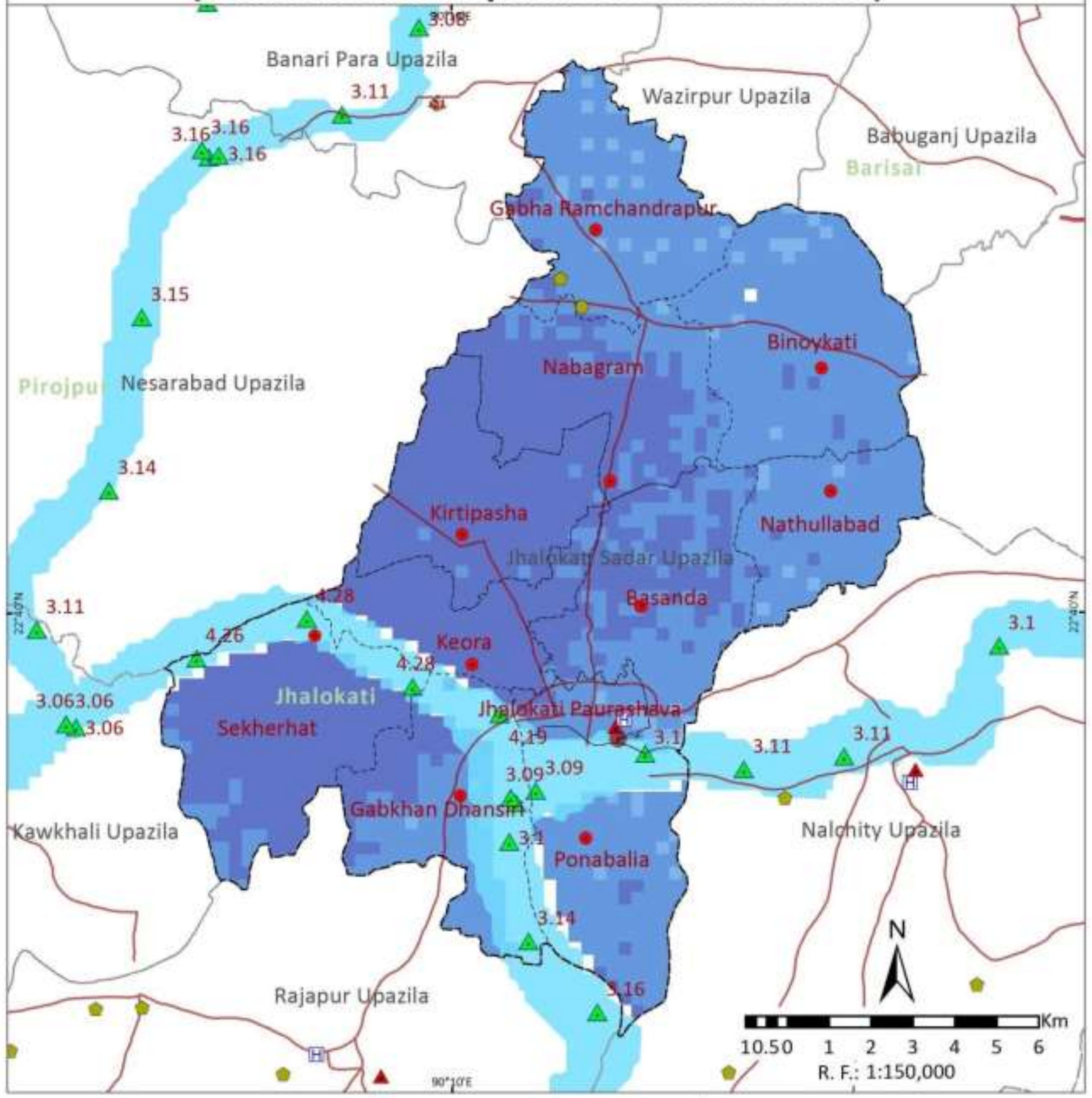
Flood Inundation Map for 25 Year Return Period (Wazirpur Upazila of Barisal District)



Flood Inundation Map for 25 Year Return Period (Jhalokati Sadar Upazila of Barisal District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Cyclone Shelter	0.9 - 1.8
National High Way	Fire Station	1.8 - 3.6
Regional High Way	Water Level (m)	> 3.6
River/Sea/Lake	Danger level (m)	
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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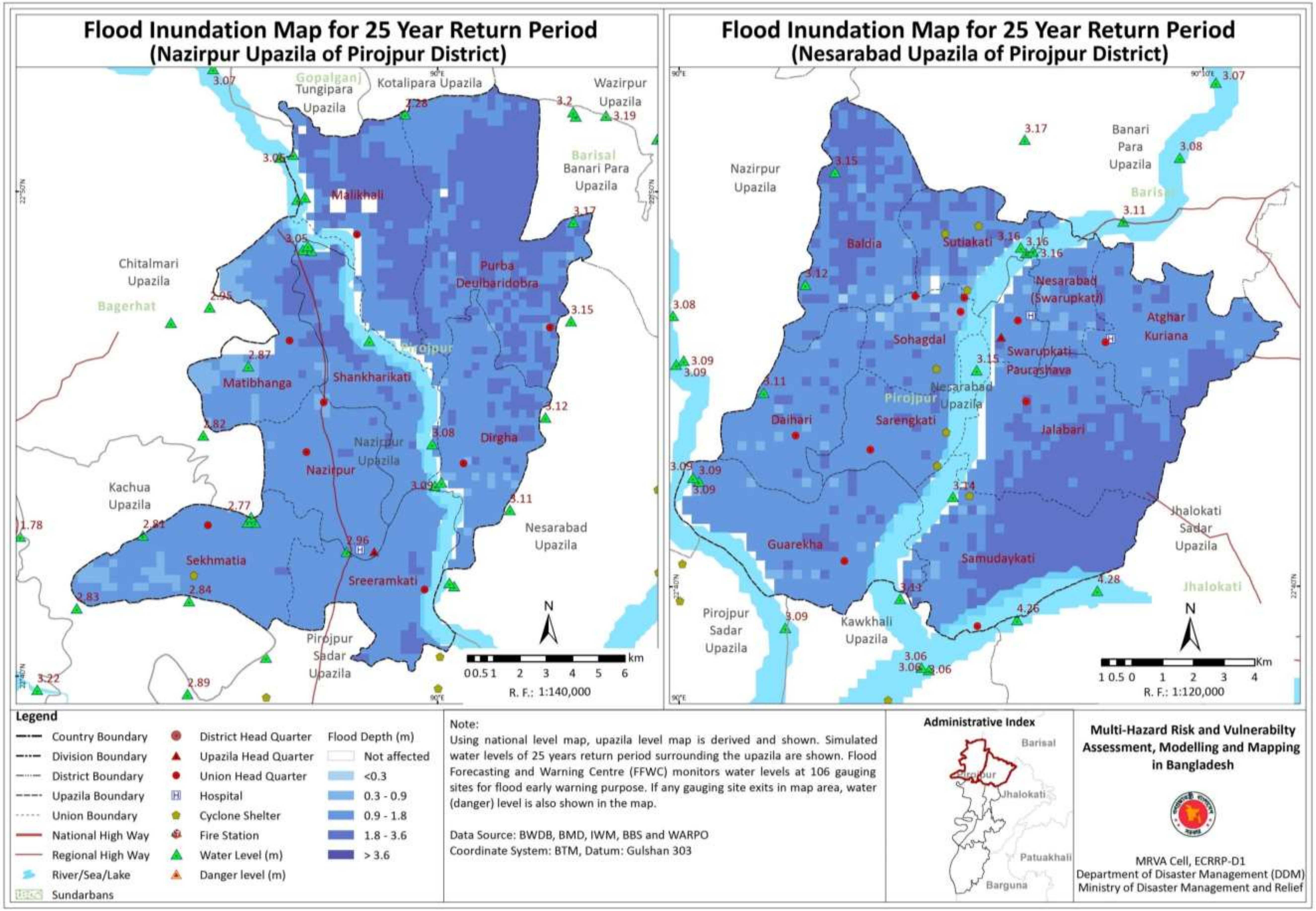
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief



Flood Inundation Map for 25 Year Return Period
(Nazirpur Upazila of Pirojpur District)
Flood Inundation Map for 25 Year Return Period
(Nesarabad Upazila of Pirojpur District)
Malikhali
Purba Deulbaridobra
Matibhanga
Shankharikati
Nazirpur Upazila
Nazirpur
Dirgha
Sekhmatia
Sreeramkati
Chitalmari Upazila
Kachua Upazila
Bagerhat
Gopalganj
Tungipara Upazila
Kotalipara Upazila
Wazirpur Upazila
Barisal
Banari Para Upazila
Nesarabad Upazila
Pirojpur Sadar Upazila
R. F.: 1:140,000
Baldia
Sutiakati
Nesarabad (Swarupkati)
Atghar Kuriana
Sohagdal
Swarupkati Paurashava
Nesarabad Upazila
Daihari
Sarengkati
Jalabari
Guarekha
Samudaykati
Kawkhali Upazila
Jhalokati Sadar Upazila
Jhalokati
R. F.: 1:120,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Cyclone Shelter
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Barisal
Pirojpur
Jhalokati
Patuakhali
Barguna
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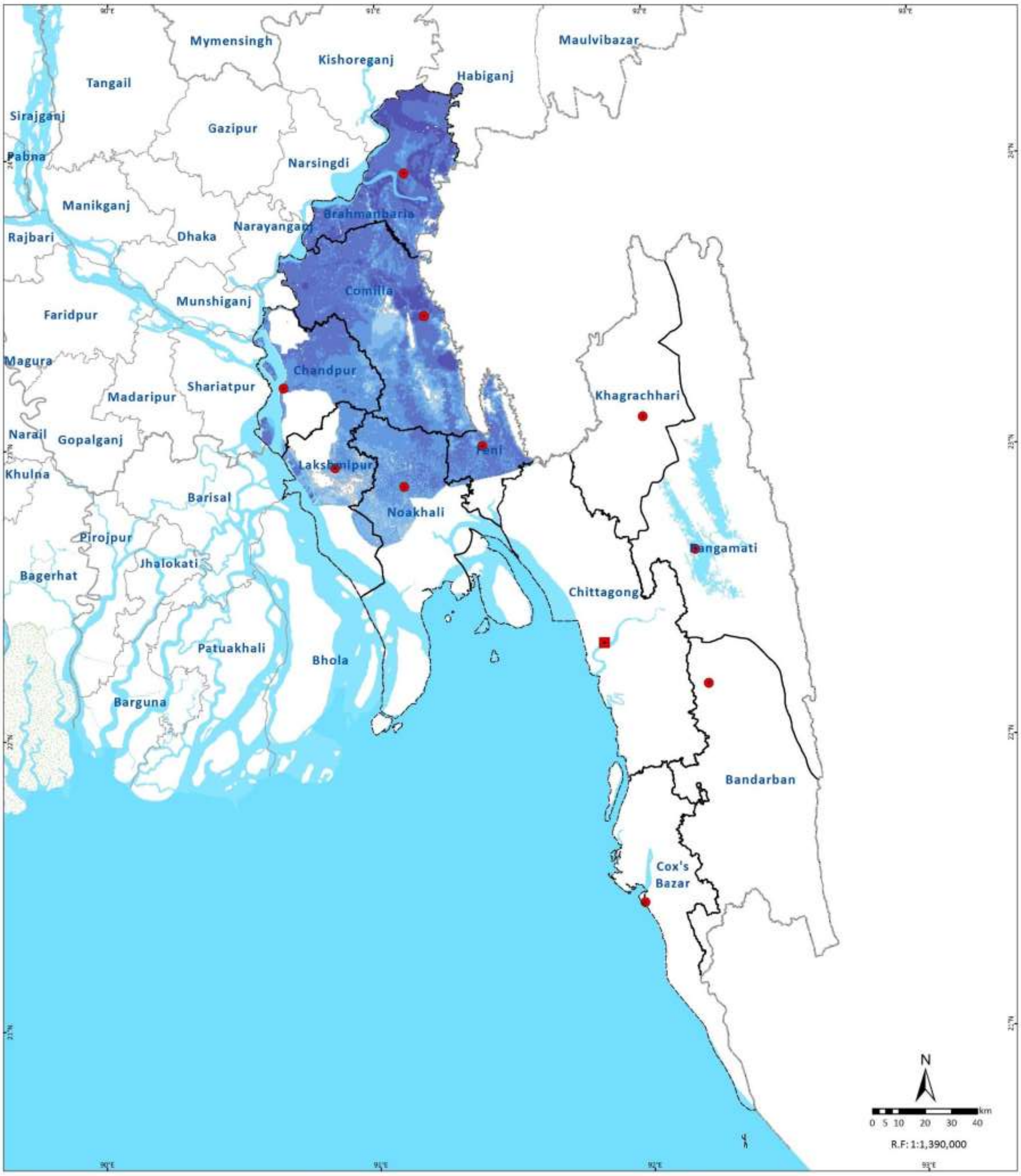
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Chittagong Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- <0.3
- 0.3 -0.9
- 0.9 - 1.8
- 1.8 - 3.6
- >3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, division level map is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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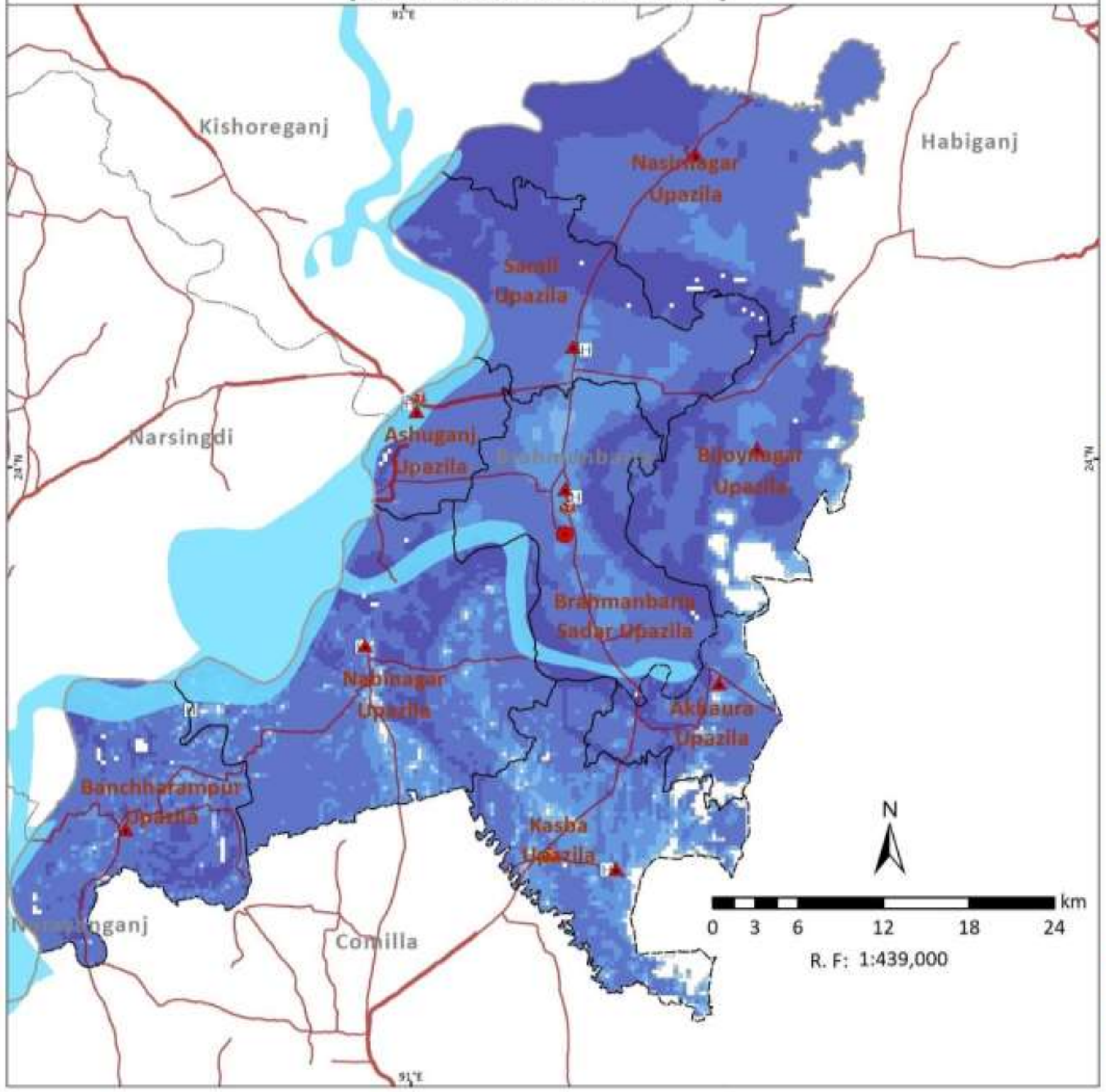
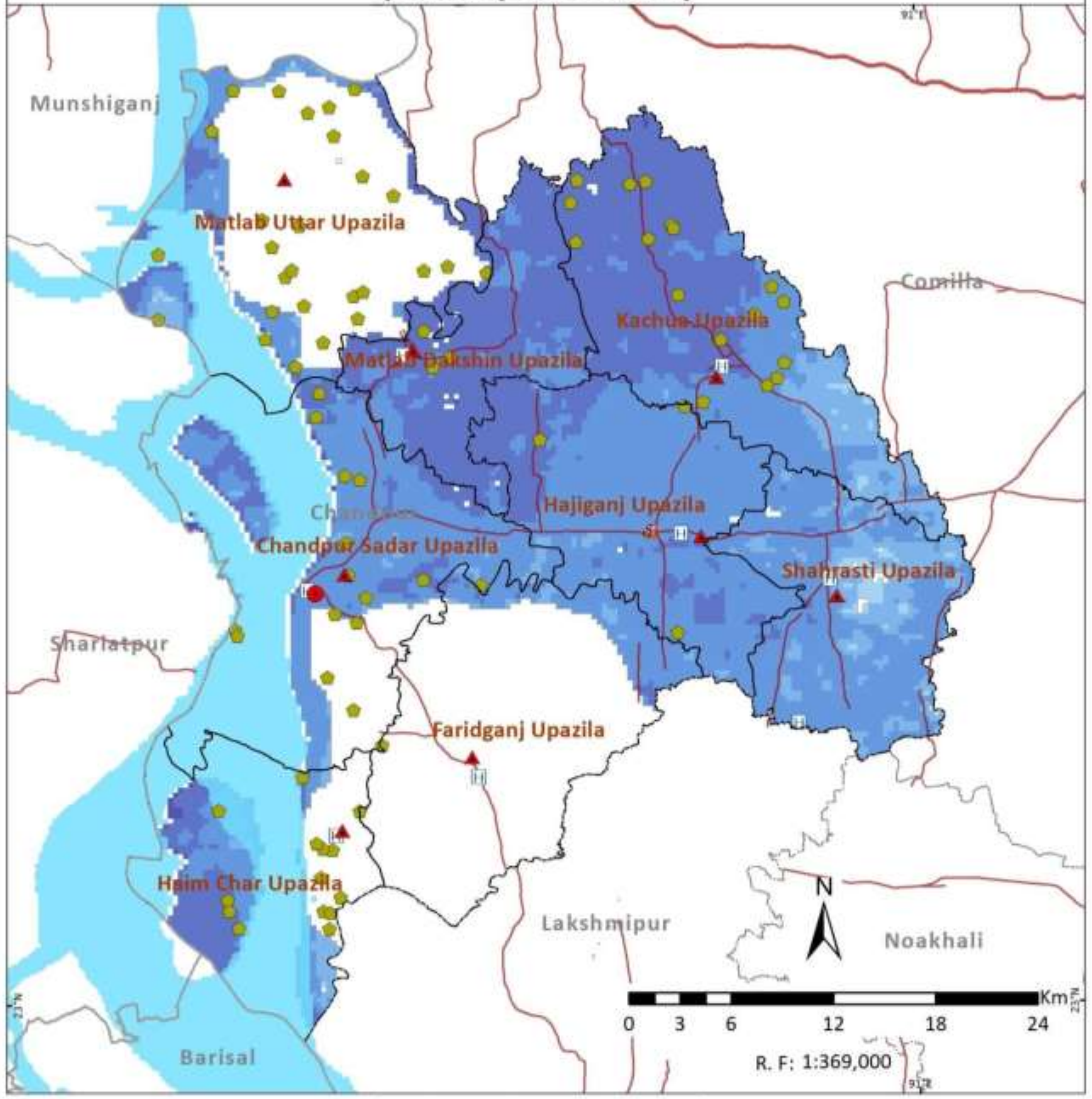
Flood Inundation Map for 25 Year Return Period
(Brahmanbaria District)



Flood Inundation Map for 25 Year Return Period
(Chandpur District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not Affected
District Boundary	Fire Station	< 0.3
Upazila_Boundary	Hospital	0.3 - 0.9
National High Way	Cyclone Shelter	0.9 - 1.8
Regional High Way	River/Sea/Lake	1.8 - 3.6
	Sundarbans	> 3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Brahmanbaria
Chandpur

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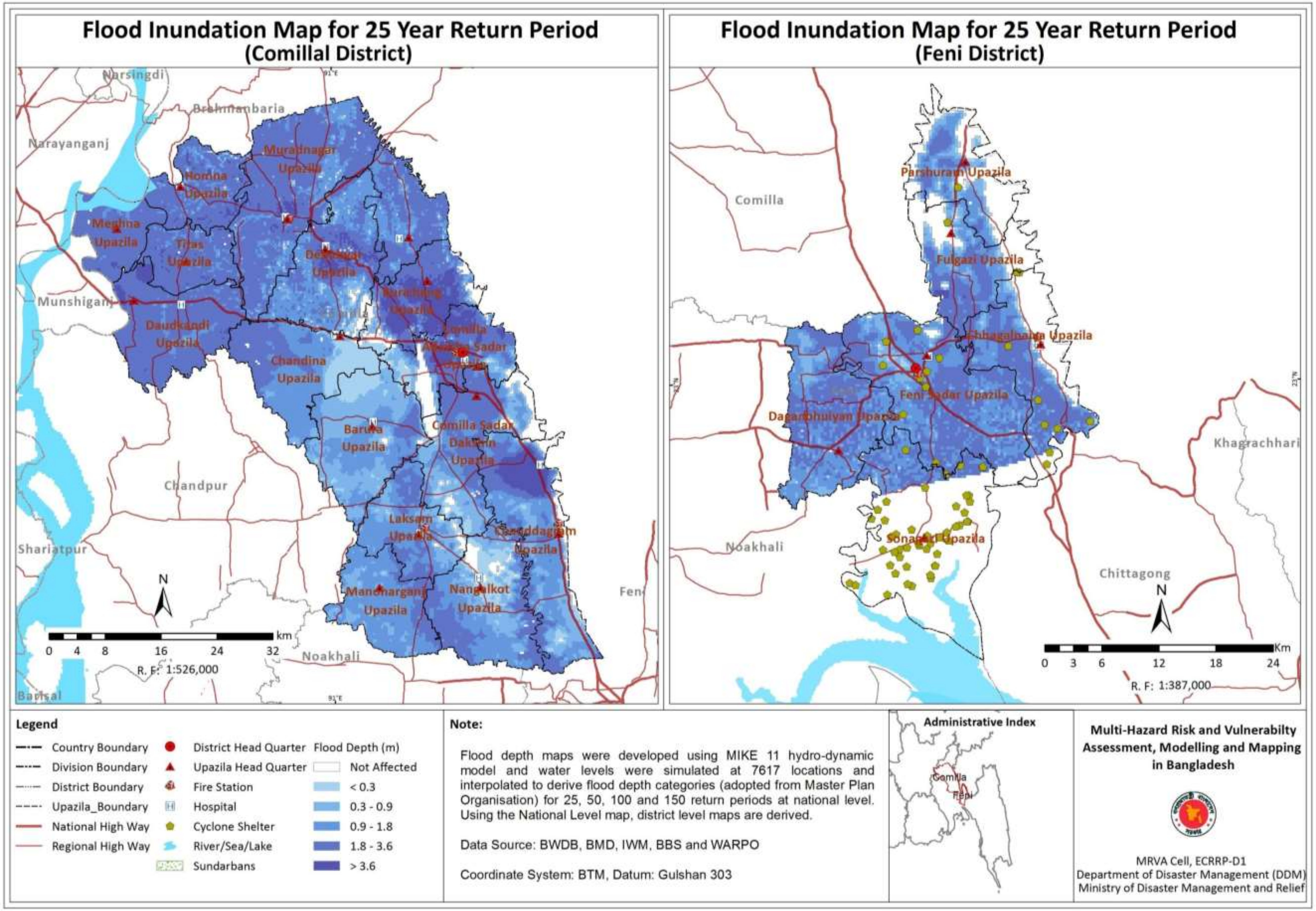

Flood Inundation Map for 25 Year Return Period
(Comillal District)
Narsingdi
Brahmanbaria
Narayanganj
Muradnagar Upazila
Homna Upazila
Meghna Upazila
Titas Upazila
Debidwar Upazila
Munshiganj
Burichang Upazila
Daudkandi Upazila
Comilla Adarsha Sadar Upazila
Chandina Upazila
Barura Upazila
Comilla Sadar Dakshin Upazila
Chandpur
Laksam Upazila
Chauddagram Upazila
Shariatpur
Manoharganj Upazila
Nangalkot Upazila
Feni
Noakhali
Barisal
N
0 4 8 16 24 32 km
R. F: 1:526,000
Flood Inundation Map for 25 Year Return Period
(Feni District)
Parshuram Upazila
Comilla
Fulgazi Upazila
Chhagalnaiya Upazila
Feni Sadar Upazila
Daganbhuiyan Upazila
Khagrachhari
Noakhali
Sonagazi Upazila
Chittagong
N
0 3 6 12 18 24 Km
R. F: 1:387,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Comilla
Feni
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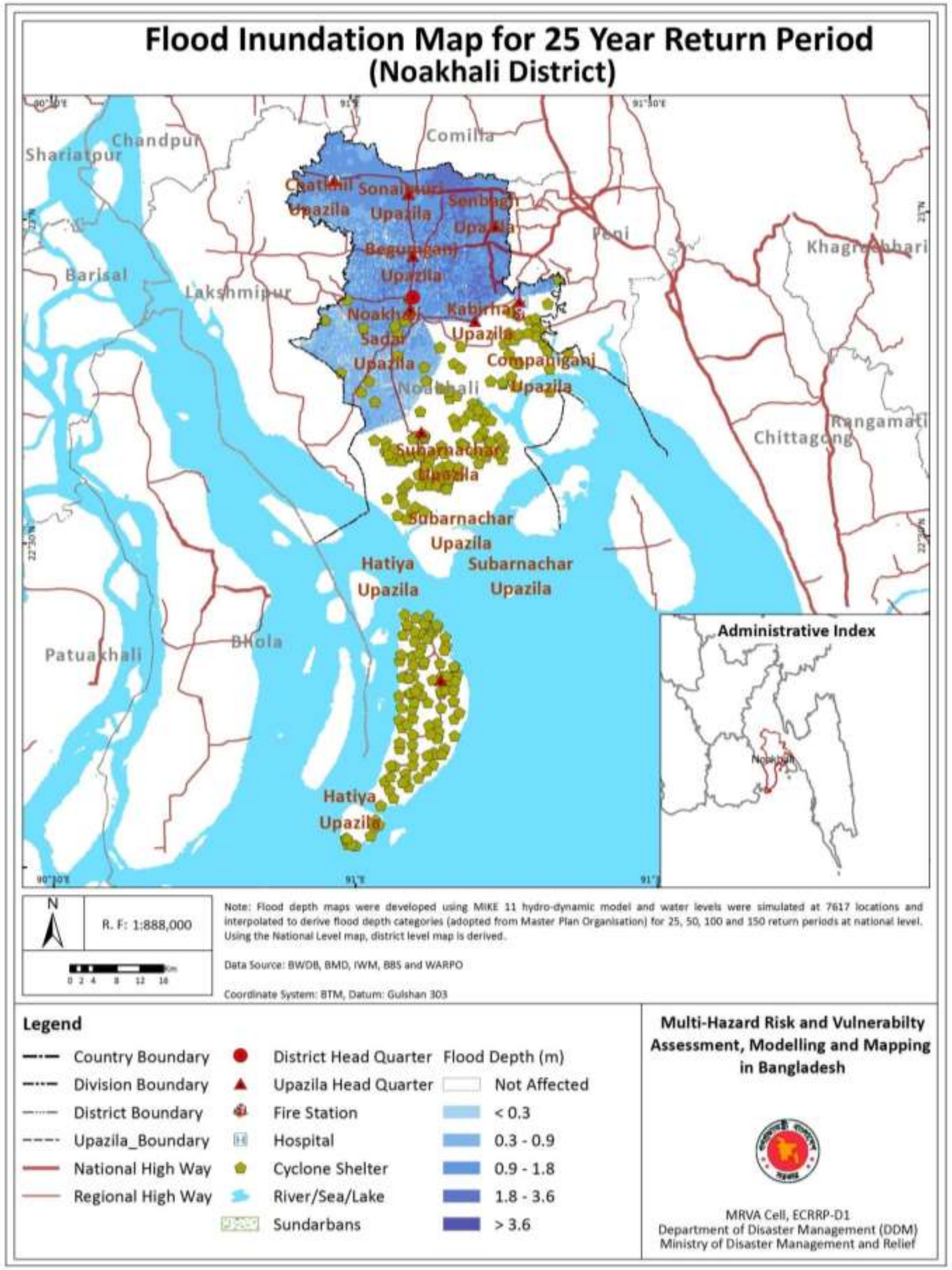
Flood Inundation Map for 25 Year Return Period
(Noakhali District)
Chandpur
Shariatpur
Comilla
Chatkhil Upazila
Sonaimuri Upazila
Senbagh Upazila
Begumganj Upazila
Feni
Khagrachhari
Barisal
Lakshmipur
Noakhali Sadar Upazila
Kabirhat Upazila
Companiganj Upazila
Noakhali
Chittagong
Rangamati
Subarnachar Upazila
Hatiya Upazila
Subarnachar Upazila
Patuakhali
Bhola
Hatiya Upazila
Administrative Index
Noakhali
N
R. F: 1:888,000
Note: Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level map is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
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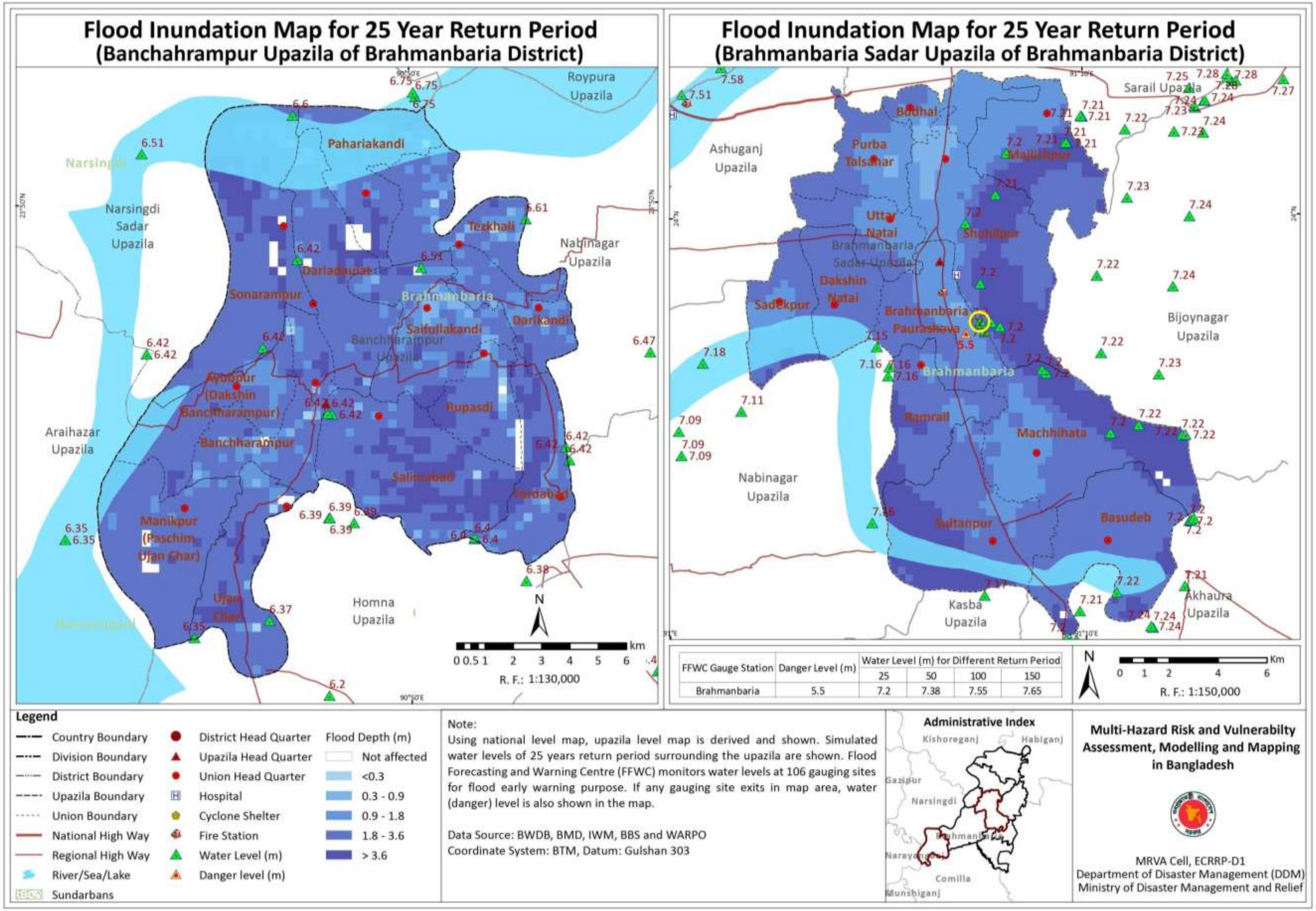
Flood Inundation Map for 25 Year Return Period
(Banchahrampur Upazila of Brahmanbaria District)
Flood Inundation Map for 25 Year Return Period
(Brahmanbaria Sadar Upazila of Brahmanbaria District)
Roypura Upazila
Narsingdi Sadar Upazila
Araihazar Upazila
Homna Upazila
Nabinagar Upazila
Paharlakandi
Tezkhali
Dariadaulat
Sonarampur
Brahmanbaria
Saifullakandi
Darikandi
Banchharampur Upazila
Ayubpur (Dakshin Banchharampur)
Banchharampur
Rupasdi
Salimabad
Fardabad
Manikpur (Paschim Ujan Char)
Ujan Char
R. F.: 1:130,000
Ashuganj Upazila
Sarail Upazila
Budhal
Purba Talsahar
Majlishpur
Uttar Natai
Brahmanbaria Sadar Upazila
Shuhilpur
Dakshin Natai
Sadekpur
Brahmanbaria Paurashava
Bijoynagar Upazila
Ramrail
Machhihata
Nabinagar Upazila
Sultanpur
Basudeb
Kasba Upazila
Akhaura Upazila
FFWC Gauge Station | Danger Level (m) | Water Level (m) for Different Return Period: 25, 50, 100, 150
Brahmanbaria | 5.5 | 7.2 | 7.38 | 7.55 | 7.65
R. F.: 1:150,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Cyclone Shelter
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Kishoreganj
Habiganj
Gazipur
Narsingdi
Brahmanbaria
Narayanganj
Comilla
Munshiganj
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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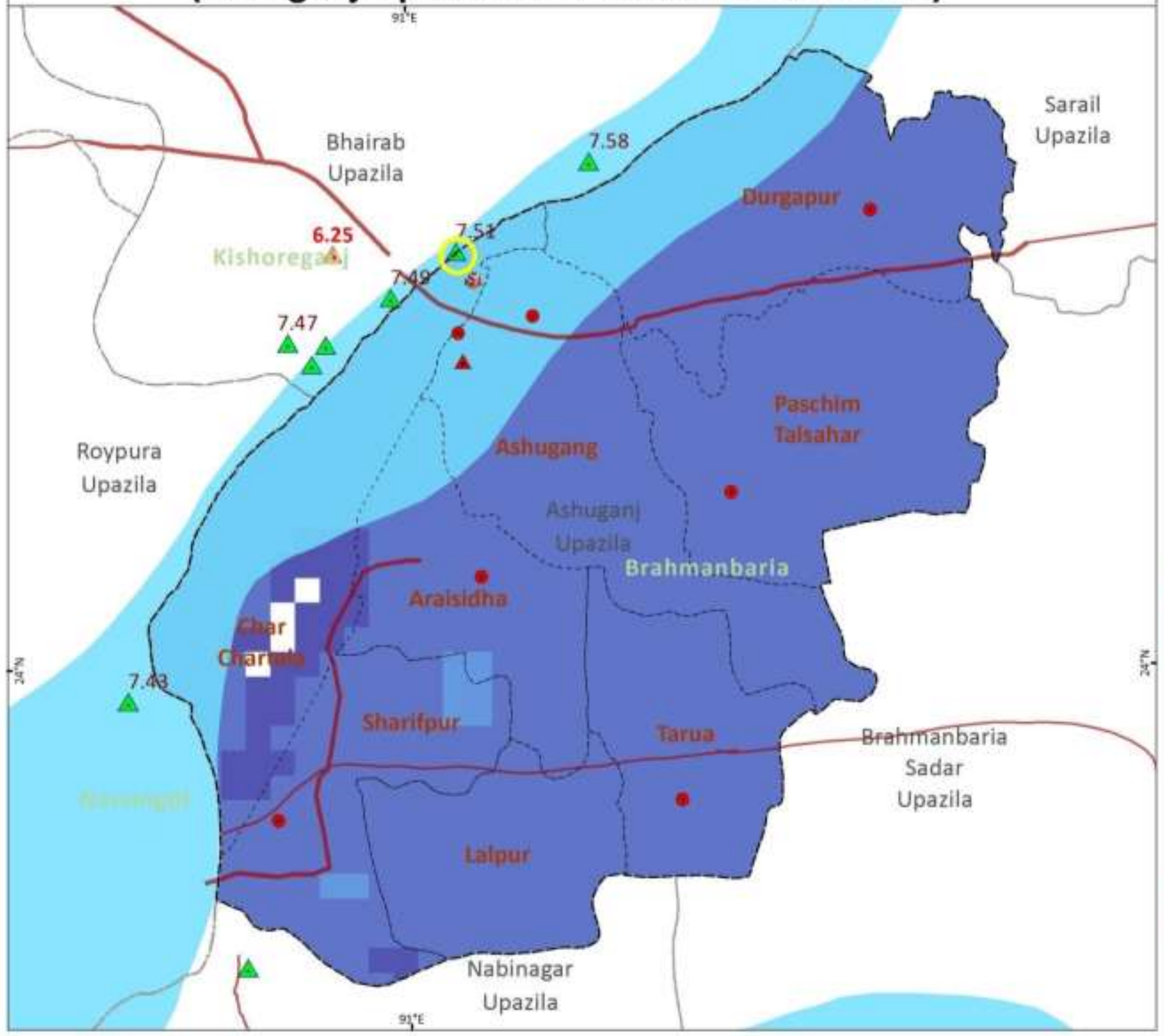
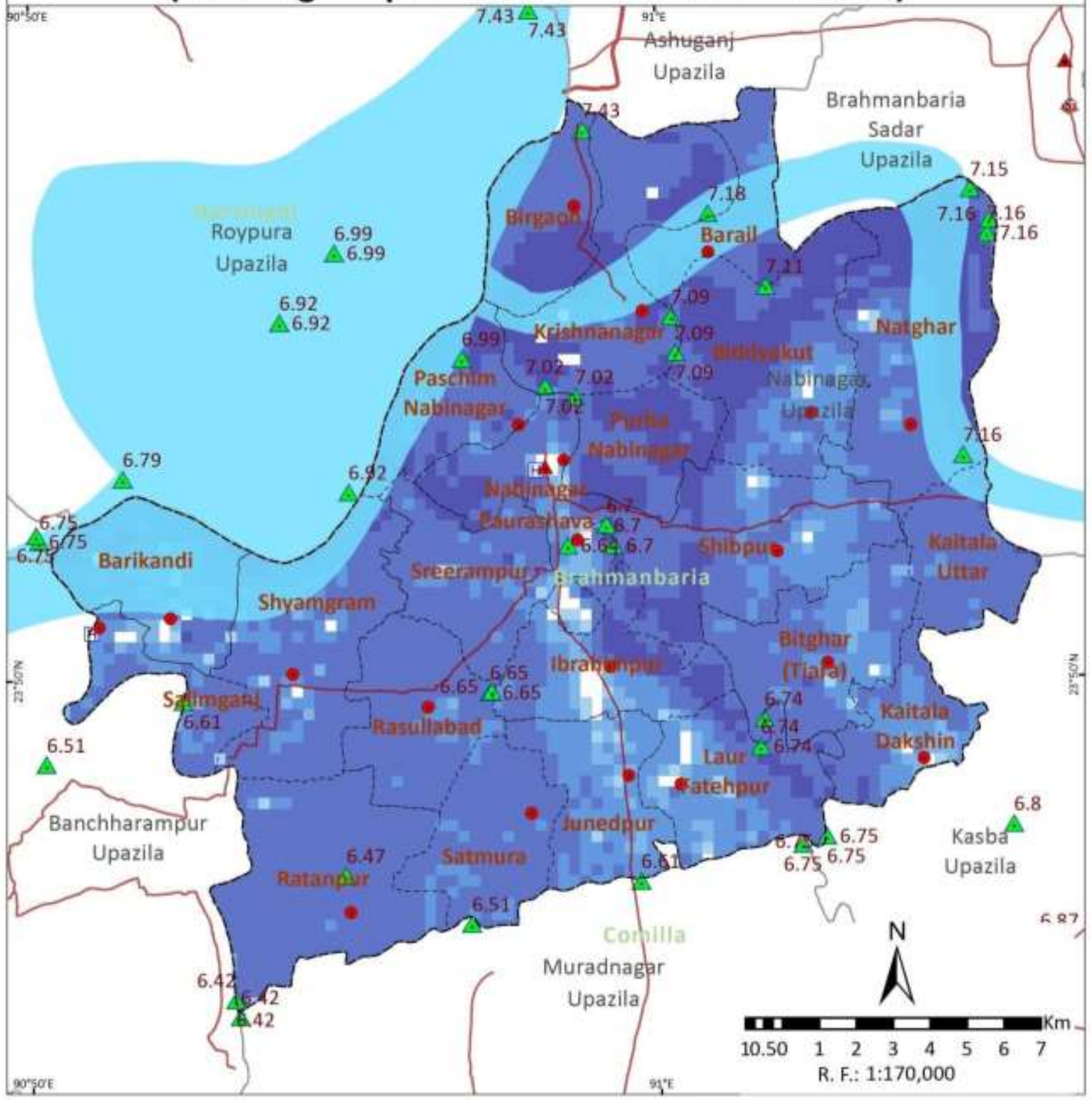
Flood Inundation Map for 25 Year Return Period
(Ashuganj Upazila of Brahmanbaria District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Bhairabbazar	6.25	7.51	7.72	7.9	8

N
0 0.5 1 2 3 km
R. F.: 1:80,000

Flood Inundation Map for 25 Year Return Period
(Nabinagar Upazila of Brahmanbaria District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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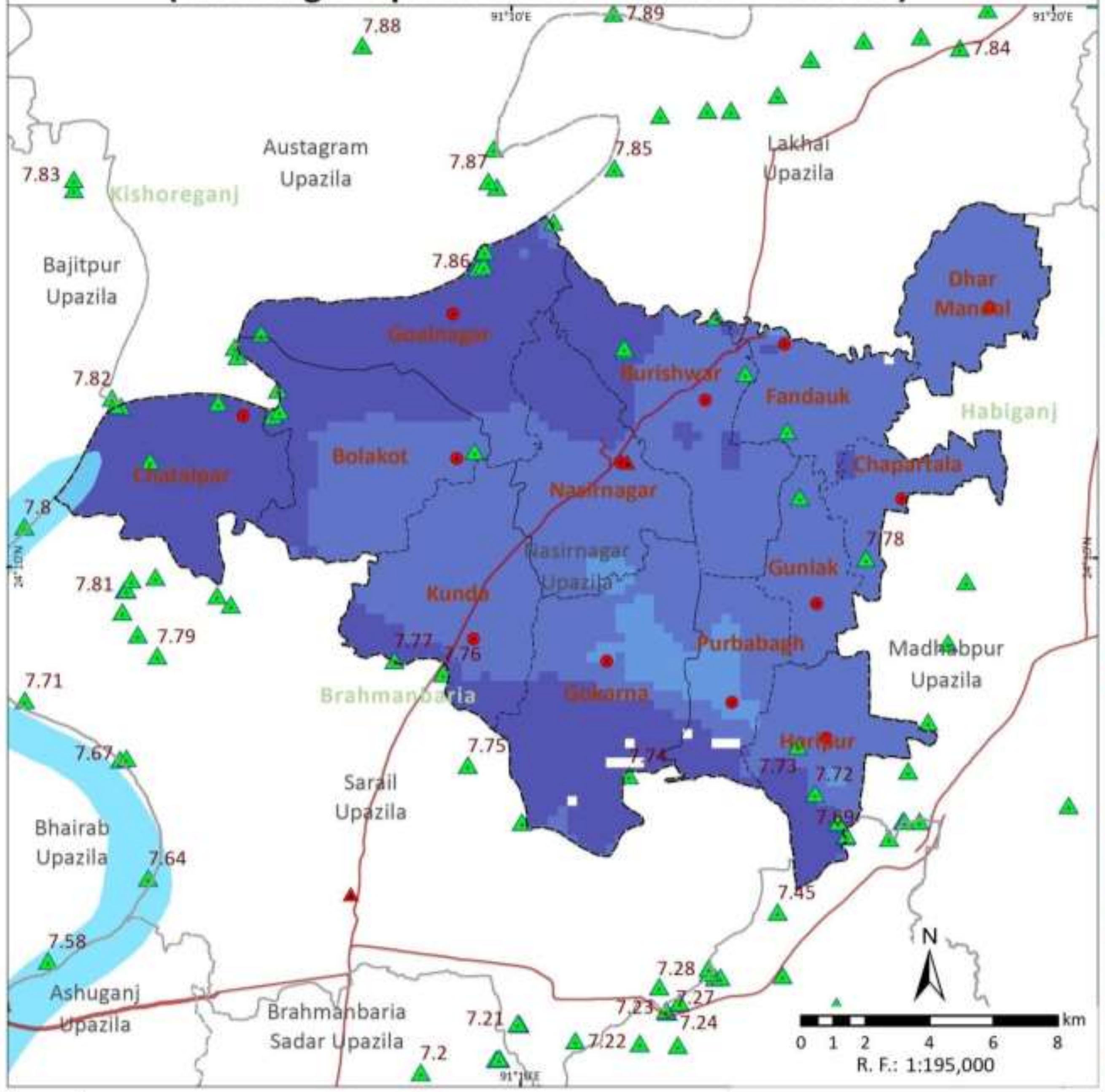
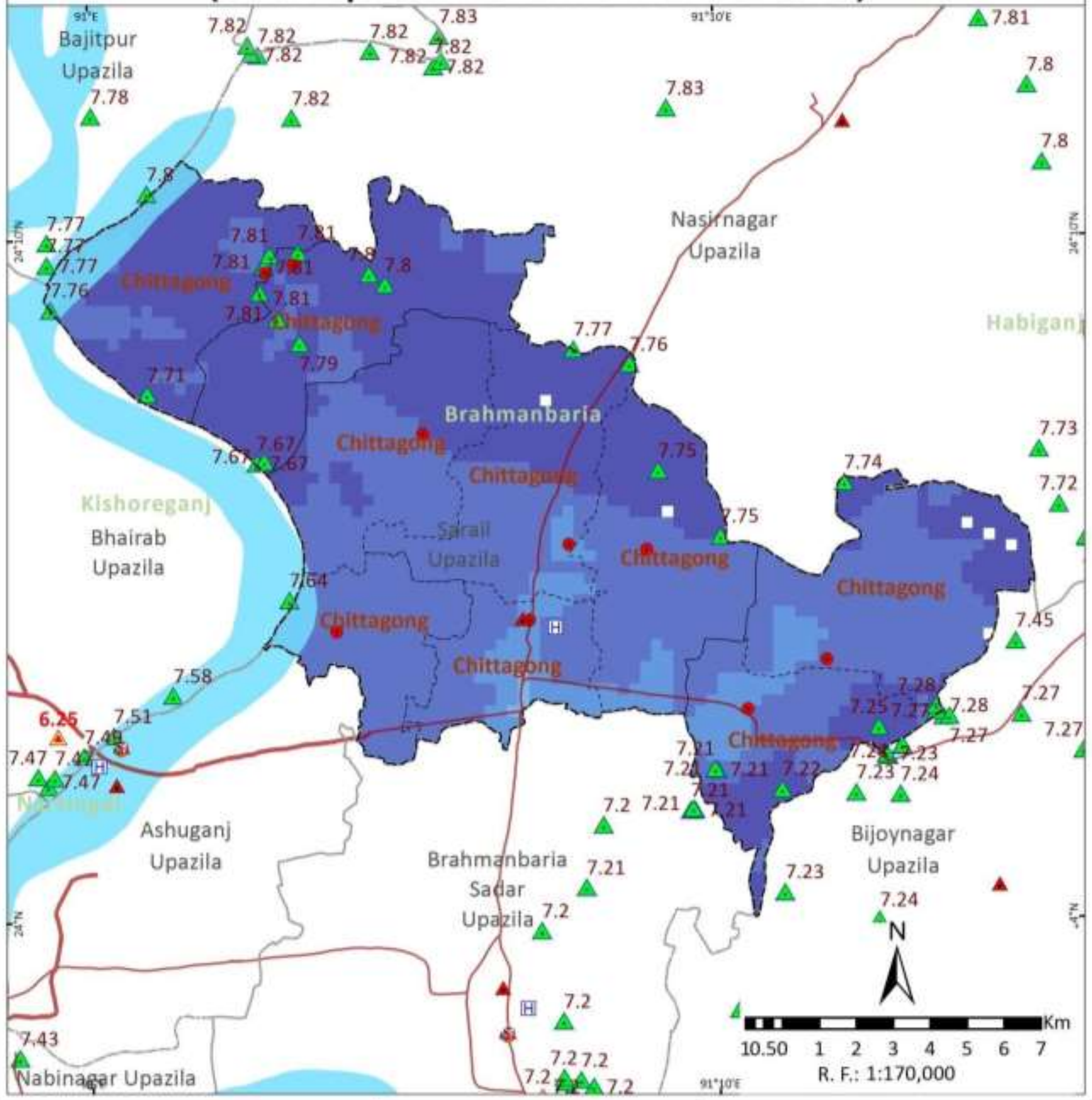
Flood Inundation Map for 25 Year Return Period
(Nasirnagar Upazila of Brahmanbaria District)



Flood Inundation Map for 25 Year Return Period
(Sarail Upazila of Brahmanbaria District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
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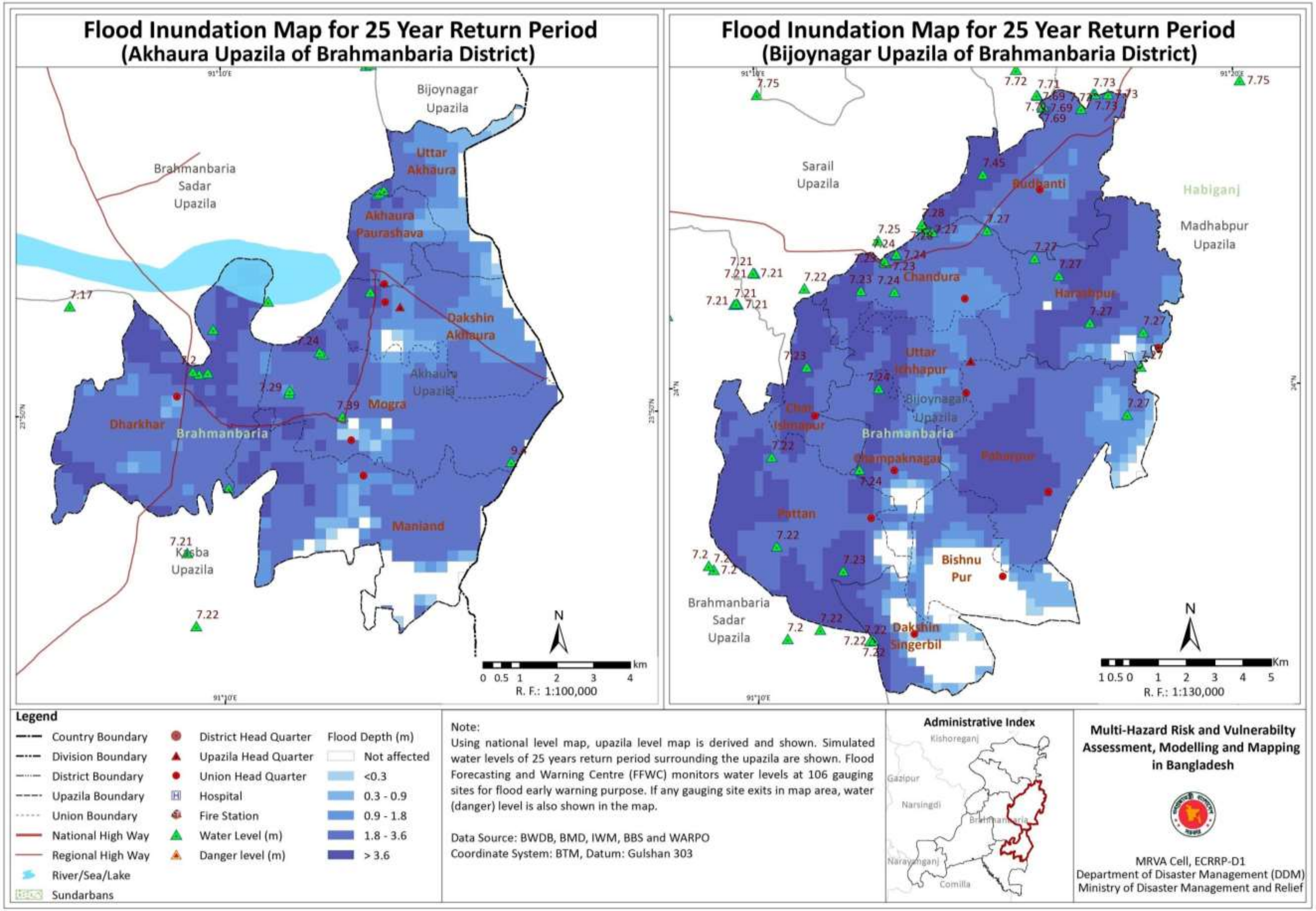
Ministry of Disaster Management and Relief


Flood Inundation Map for 25 Year Return Period
(Akhaura Upazila of Brahmanbaria District)
Bijoynagar Upazila
Brahmanbaria Sadar Upazila
Uttar Akhaura
Akhaura Paurashava
Dakshin Akhaura
Akhaura Upazila
Mogra
Dharkhar
Brahmanbaria
Maniand
Kasba Upazila
R. F.: 1:100,000
Flood Inundation Map for 25 Year Return Period
(Bijoynagar Upazila of Brahmanbaria District)
Sarail Upazila
Habiganj
Madhabpur Upazila
Budhanti
Chandura
Harashpur
Uttar Ichhapur
Bijoynagar Upazila
Brahmanbaria
Char Islampur
Champaknagar
Paharpur
Pattan
Bishnu Pur
Dakshin Singerbil
Brahmanbaria Sadar Upazila
R. F.: 1:130,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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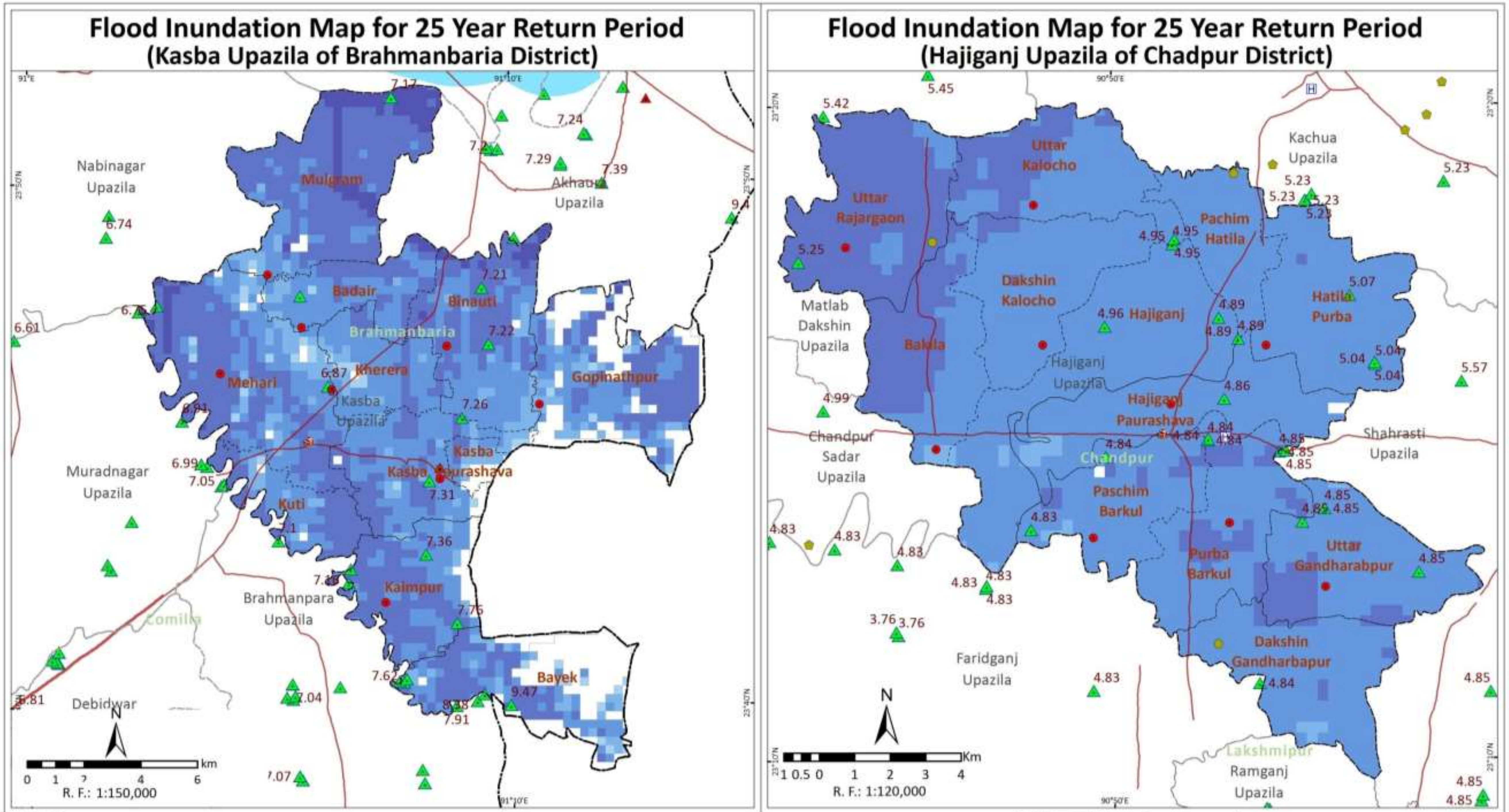
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief



Legend

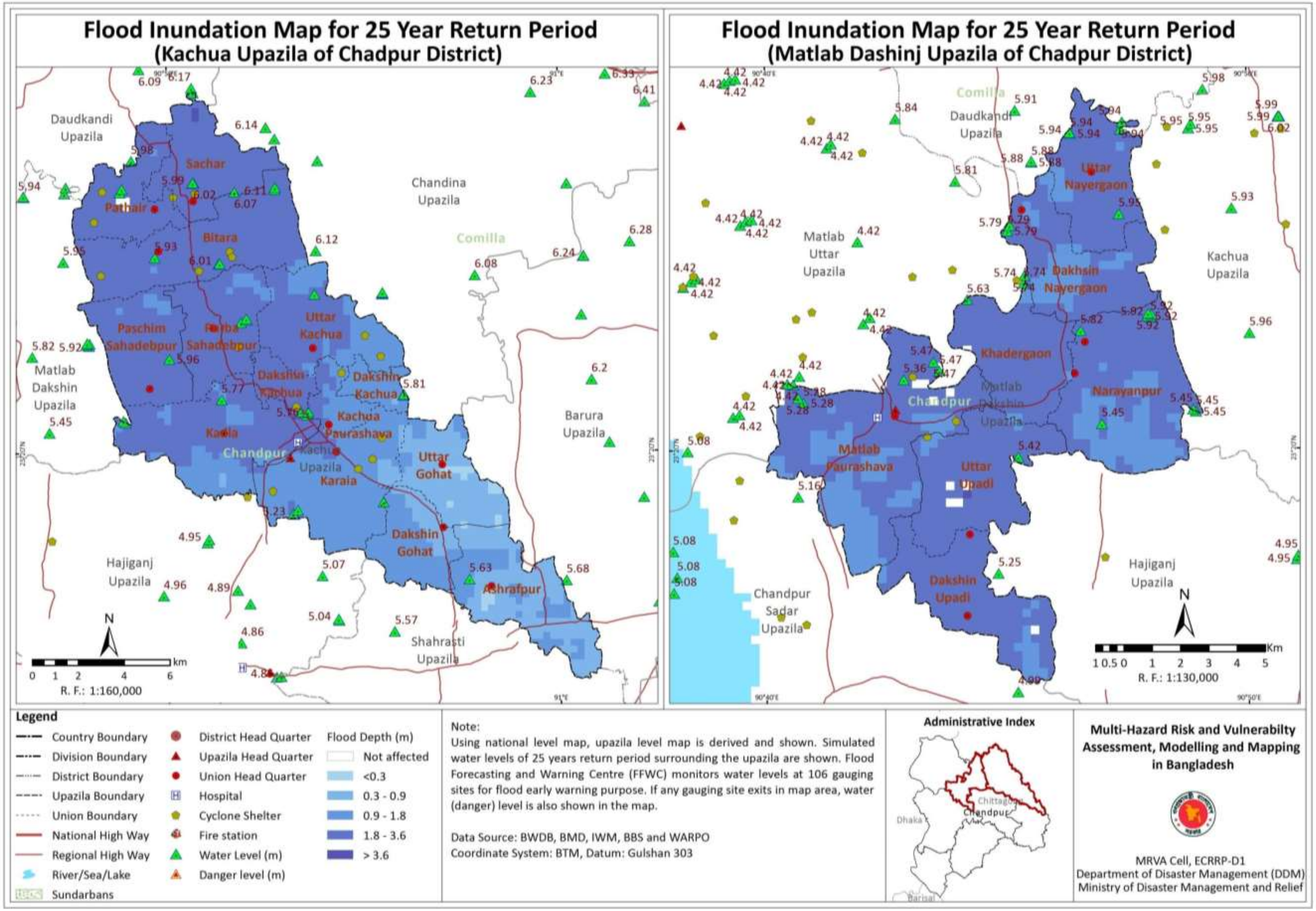
Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Cyclone Shelter	0.9 - 1.8
National High Way	Fire Station	1.8 - 3.6
Regional High Way	Water Level (m)	> 3.6
River/Sea/Lake	Danger level (m)	
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

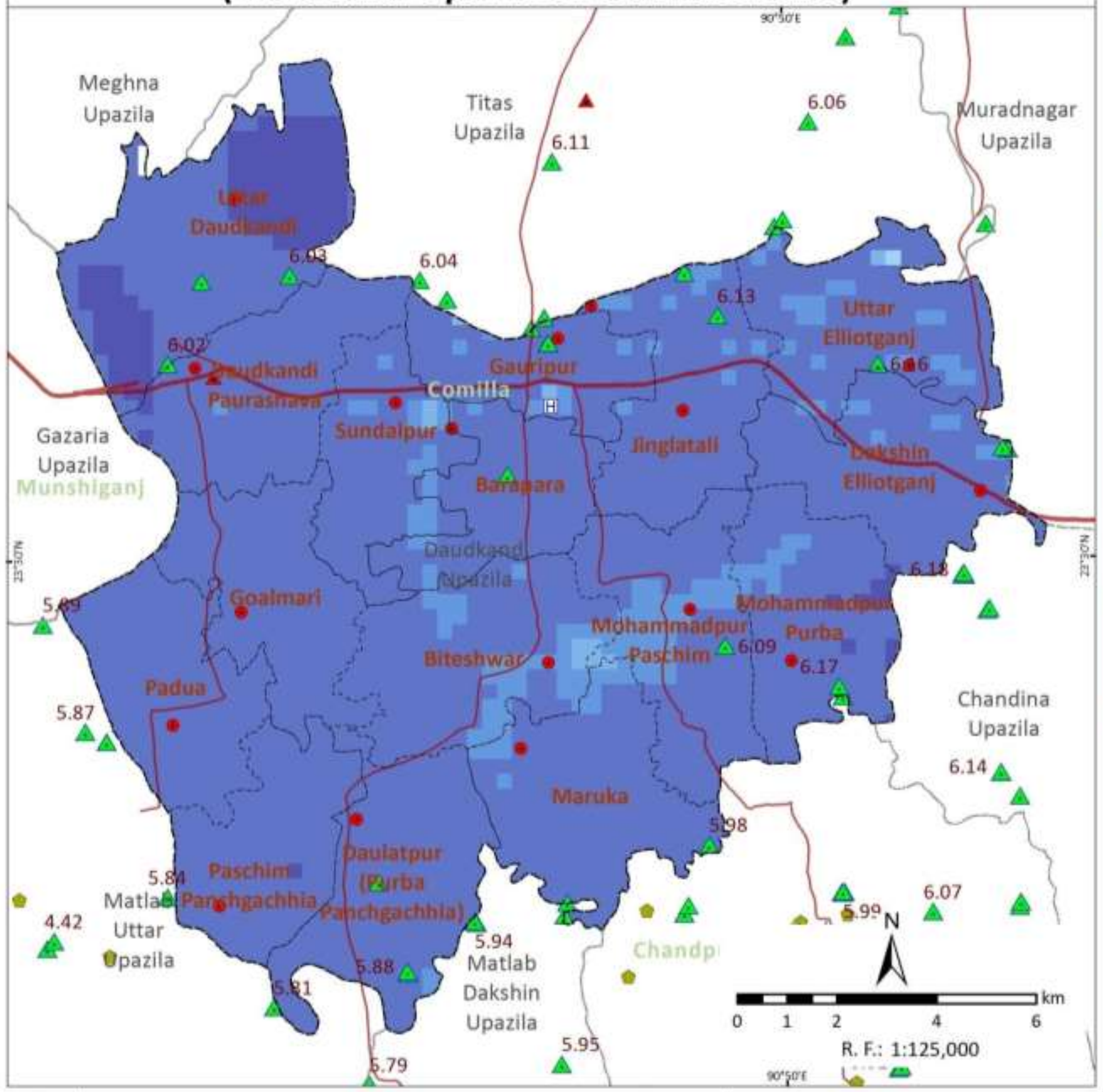
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

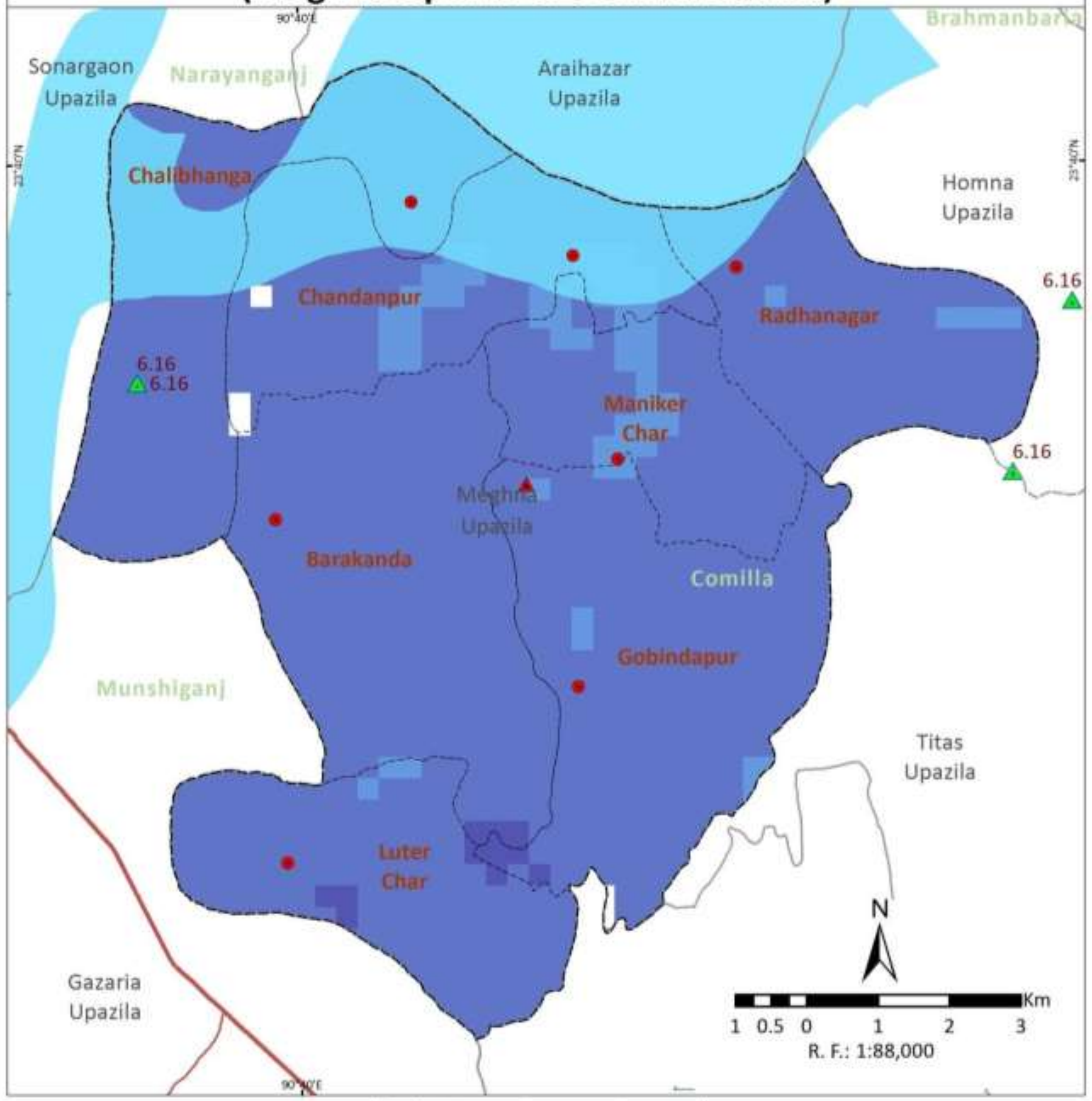
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Flood Inundation Map for 25 Year Return Period
(Kachua Upazila of Chadpur District)
Flood Inundation Map for 25 Year Return Period
(Matlab Dashinj Upazila of Chadpur District)
Daudkandi Upazila
Chandina Upazila
Comilla
Matlab Dakshin Upazila
Barura Upazila
Hajiganj Upazila
Shahrasti Upazila
Sachar
Pathair
Bitara
Paschim Sahadebpur
Purba Sahadebpur
Uttar Kachua
Dakshin Kachua
Kachua Paurashava
Karaia
Uttar Gohat
Dakshin Gohat
Ashrafpur
Chandpur
Kachua Upazila
R. F.: 1:160,000
Matlab Uttar Upazila
Kachua Upazila
Uttar Nayergaon
Dakshin Nayergaon
Khadergaon
Narayanpur
Matlab Paurashava
Uttar Upadi
Dakshin Upadi
Chandpur Sadar Upazila
R. F.: 1:130,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Cyclone Shelter
Fire station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Dhaka
Chittagong
Chandpur
Barisal
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Daudkandi Upazila of Comilla District)



Flood Inundation Map for 25 Year Return Period
(Meghna Upazila of Comilla District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Daudkandi Upazila	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire station	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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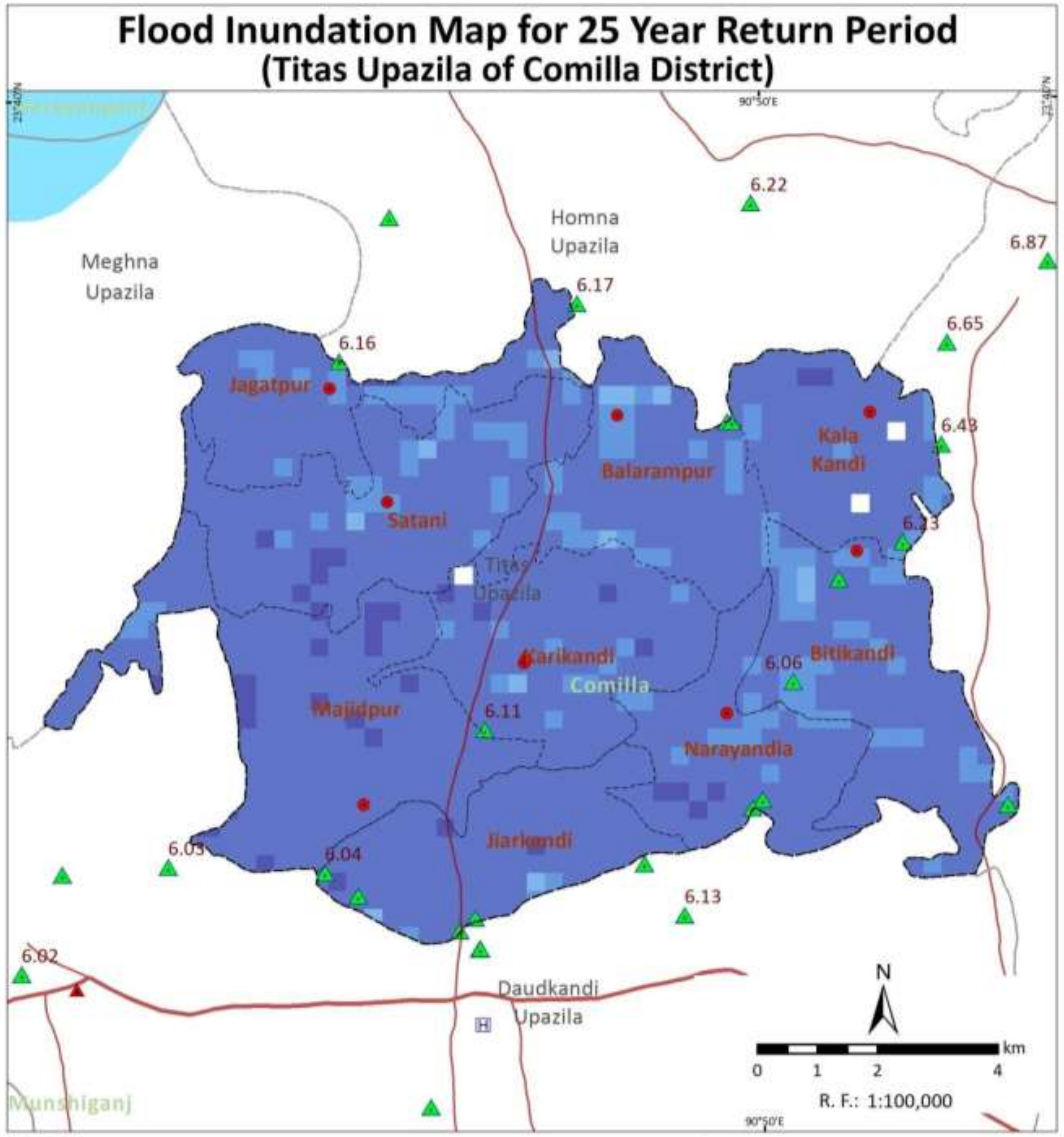

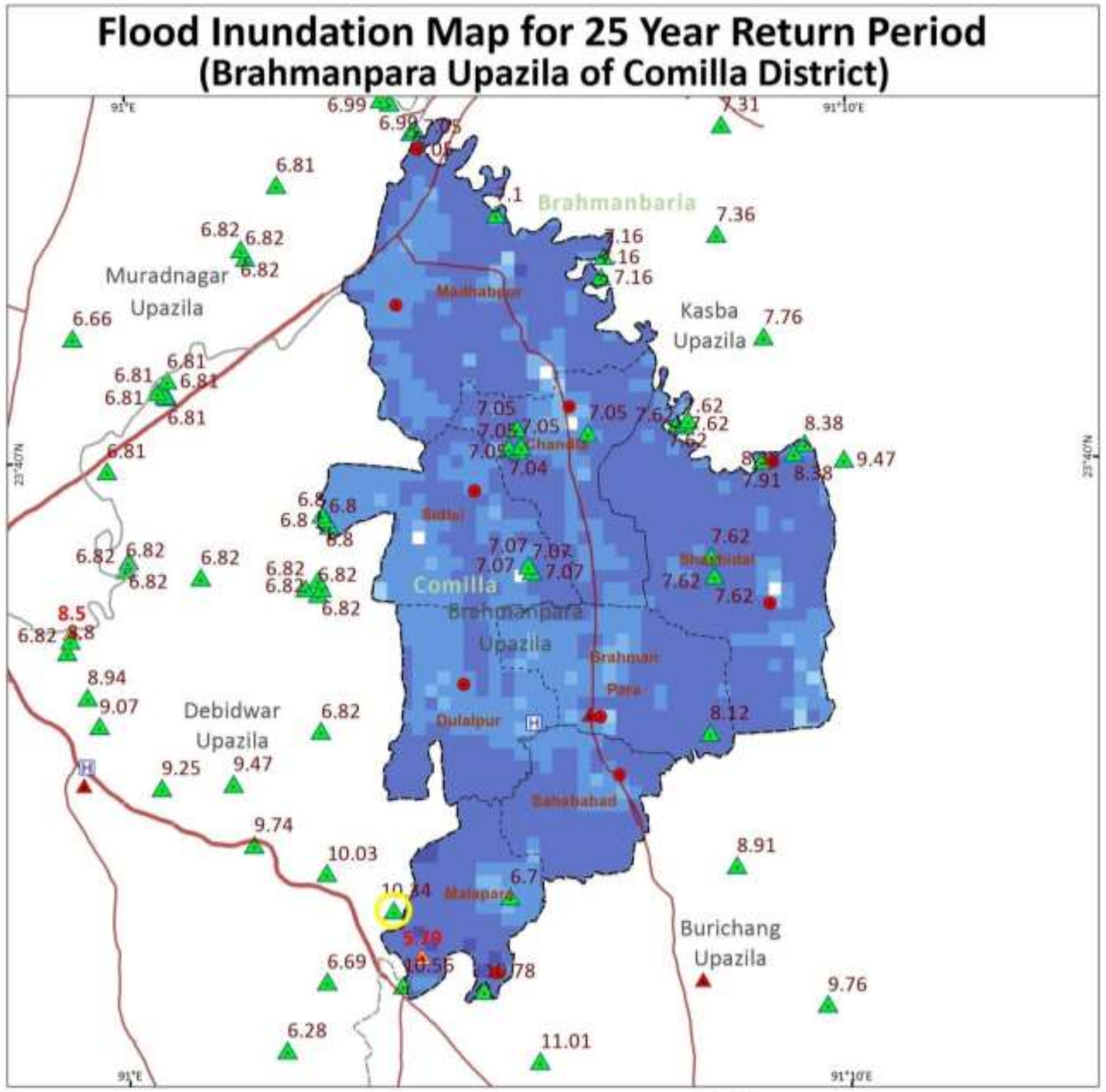

FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Kangsanagar	5.79	10.34	10.83	11.3	11.56

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Titas Upazila
- Hospital
- Fire station
- Water Level (m)
- Danger level (m)

Flood Depth (m)
- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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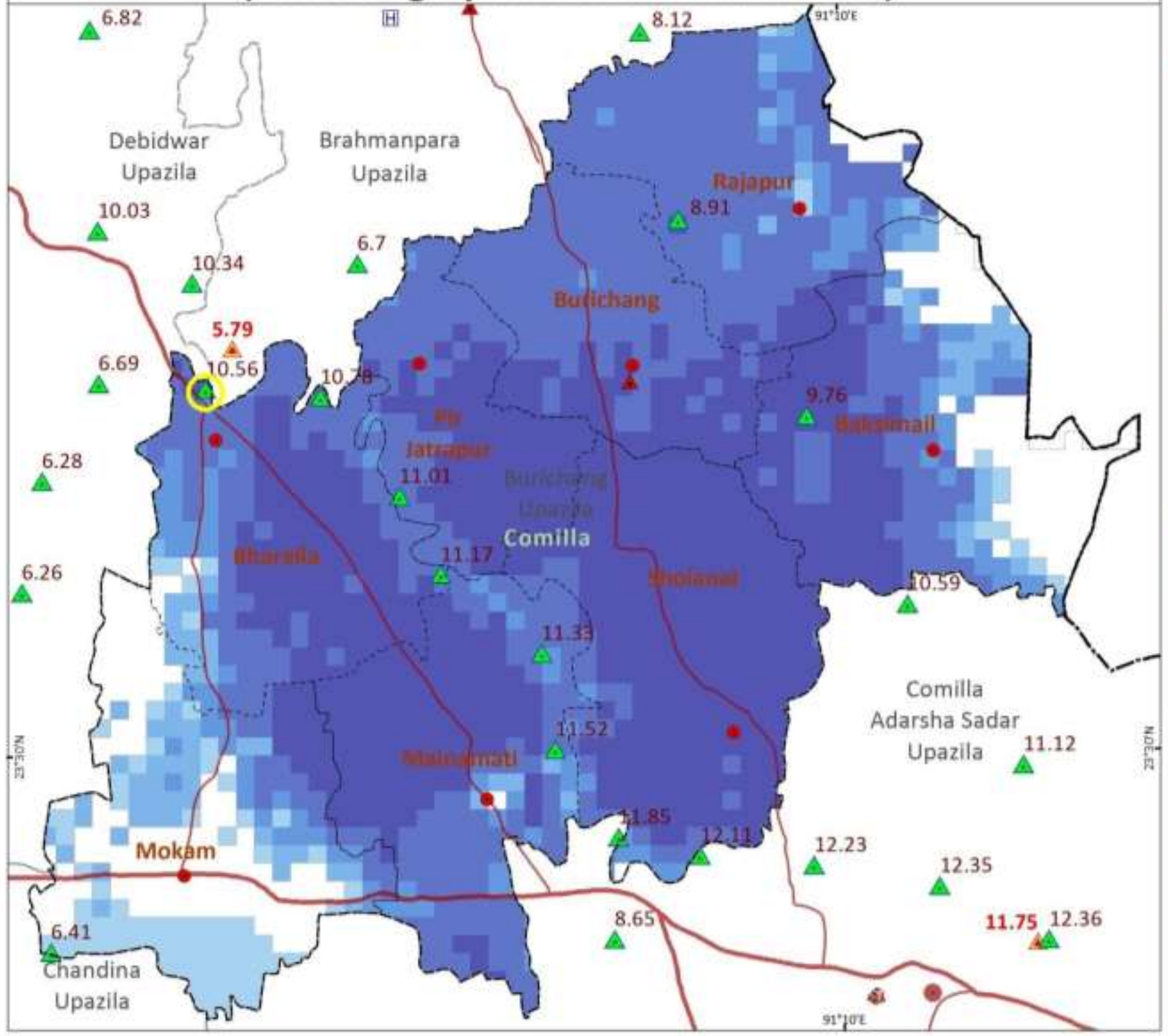
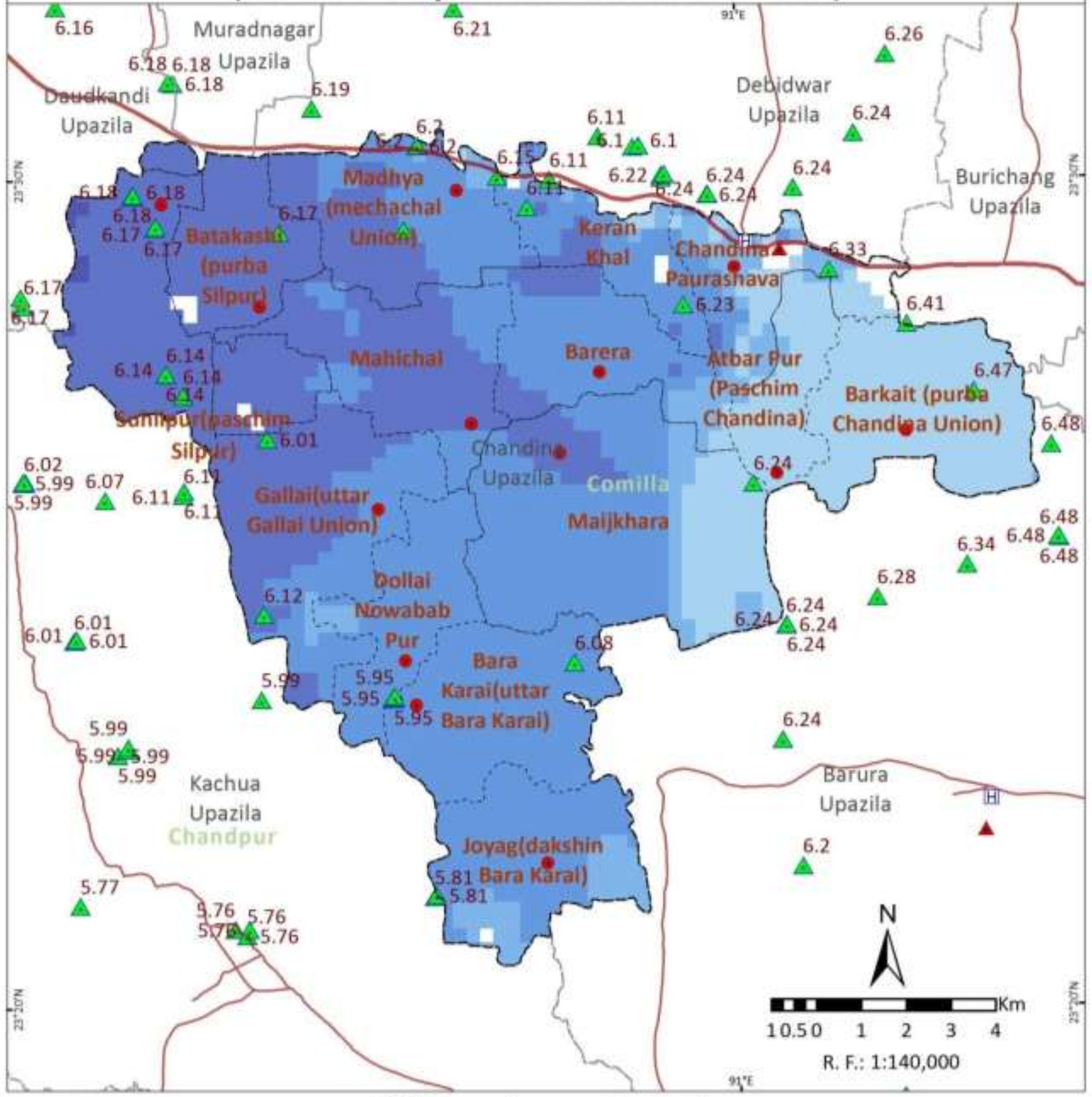
Flood Inundation Map for 25 Year Return Period
(Burichang Upazila of Comilla District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Kangsanagar	5.79	10.56	11.06	11.52	11.72

N
0 1 2 4 km
R. F.: 1:110,000

Flood Inundation Map for 25 Year Return Period
(Chandina Upazila of Comilla District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire station	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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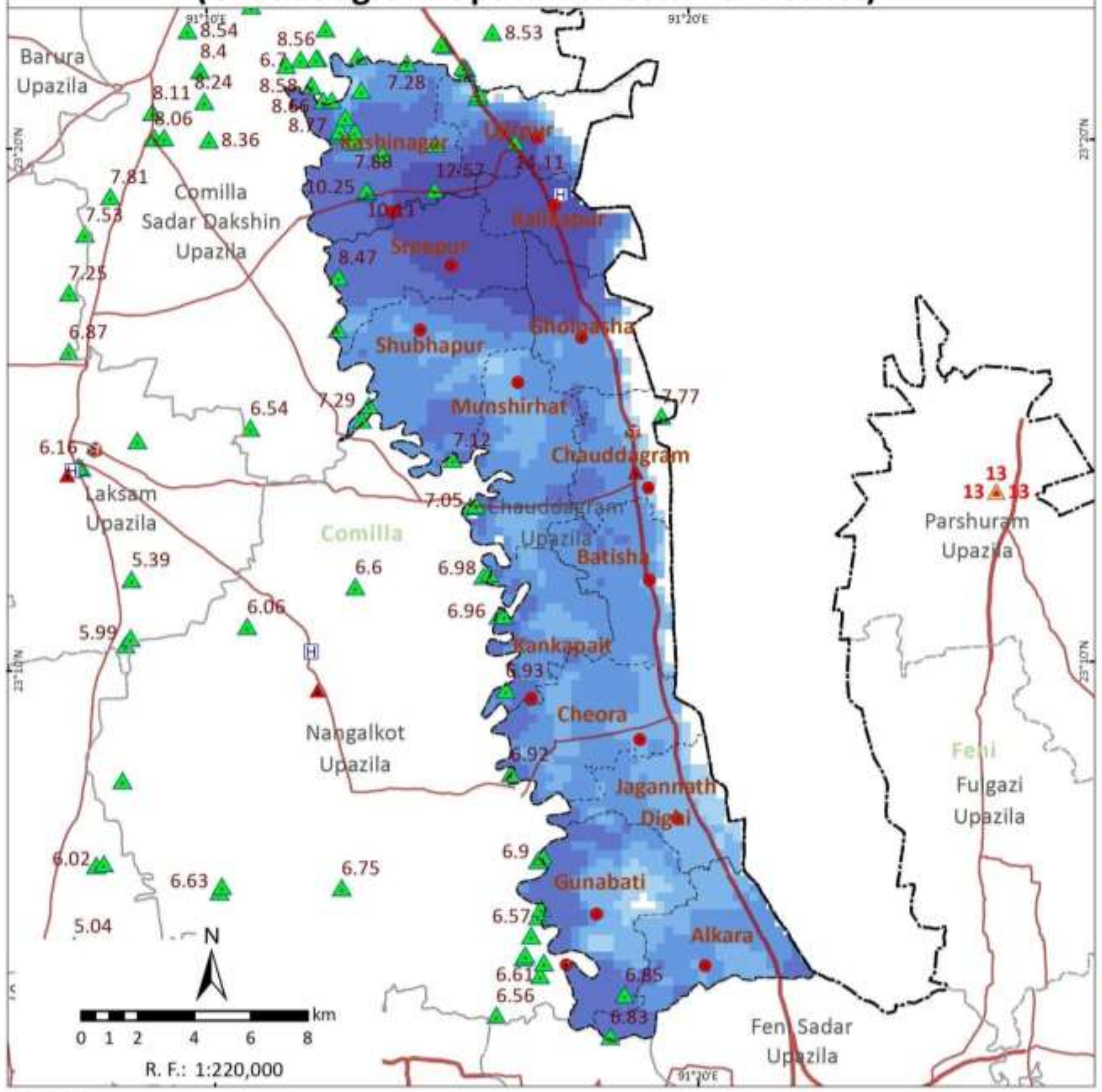
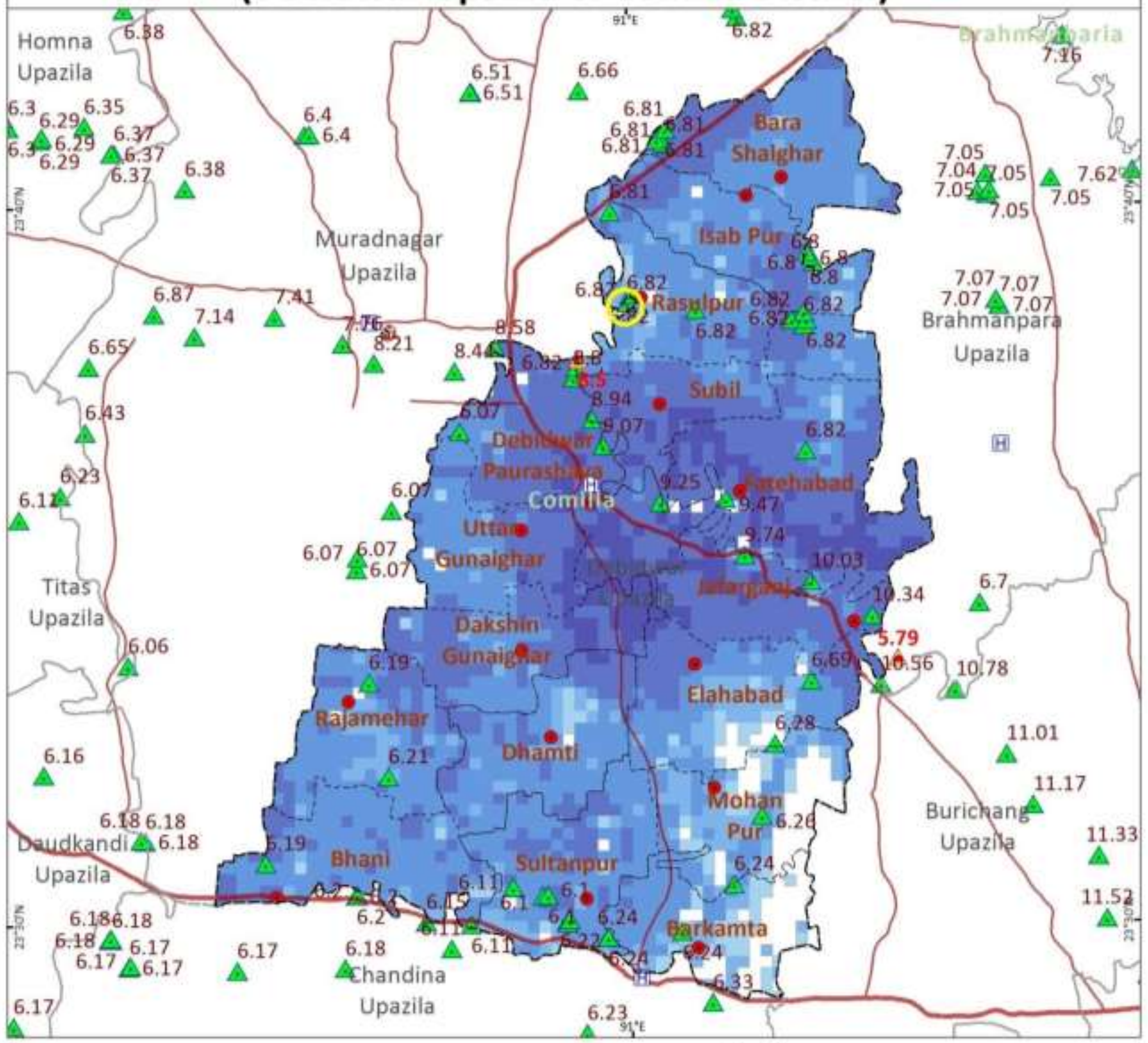
Flood Inundation Map for 25 Year Return Period
(Chauddagram Upazila of Comilla District)



Flood Inundation Map for 25 Year Return Period
(Debidwar Upazila of Comilla District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Jibanpur	8.5	6.82	6.98	7.14	7.22

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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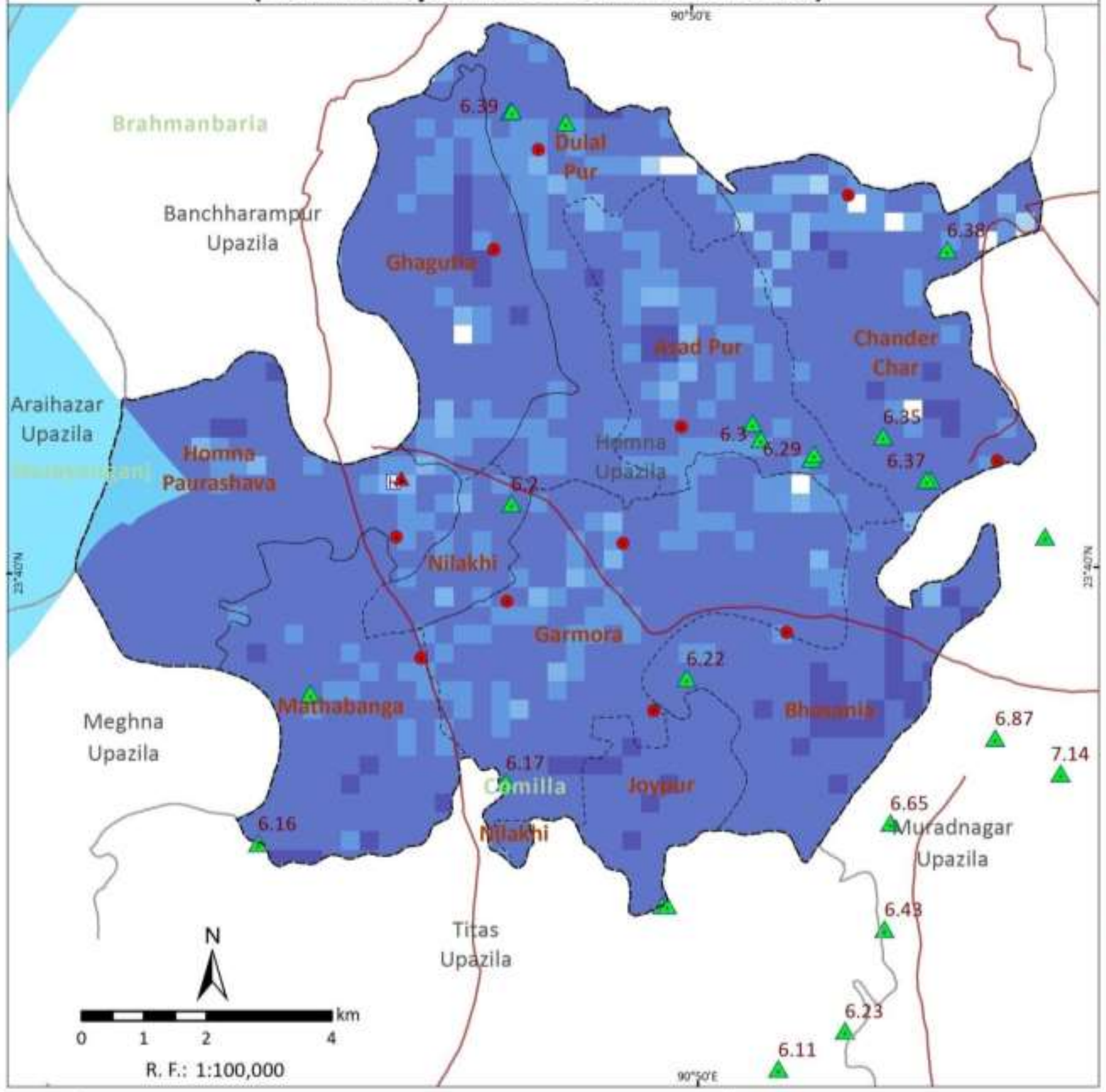
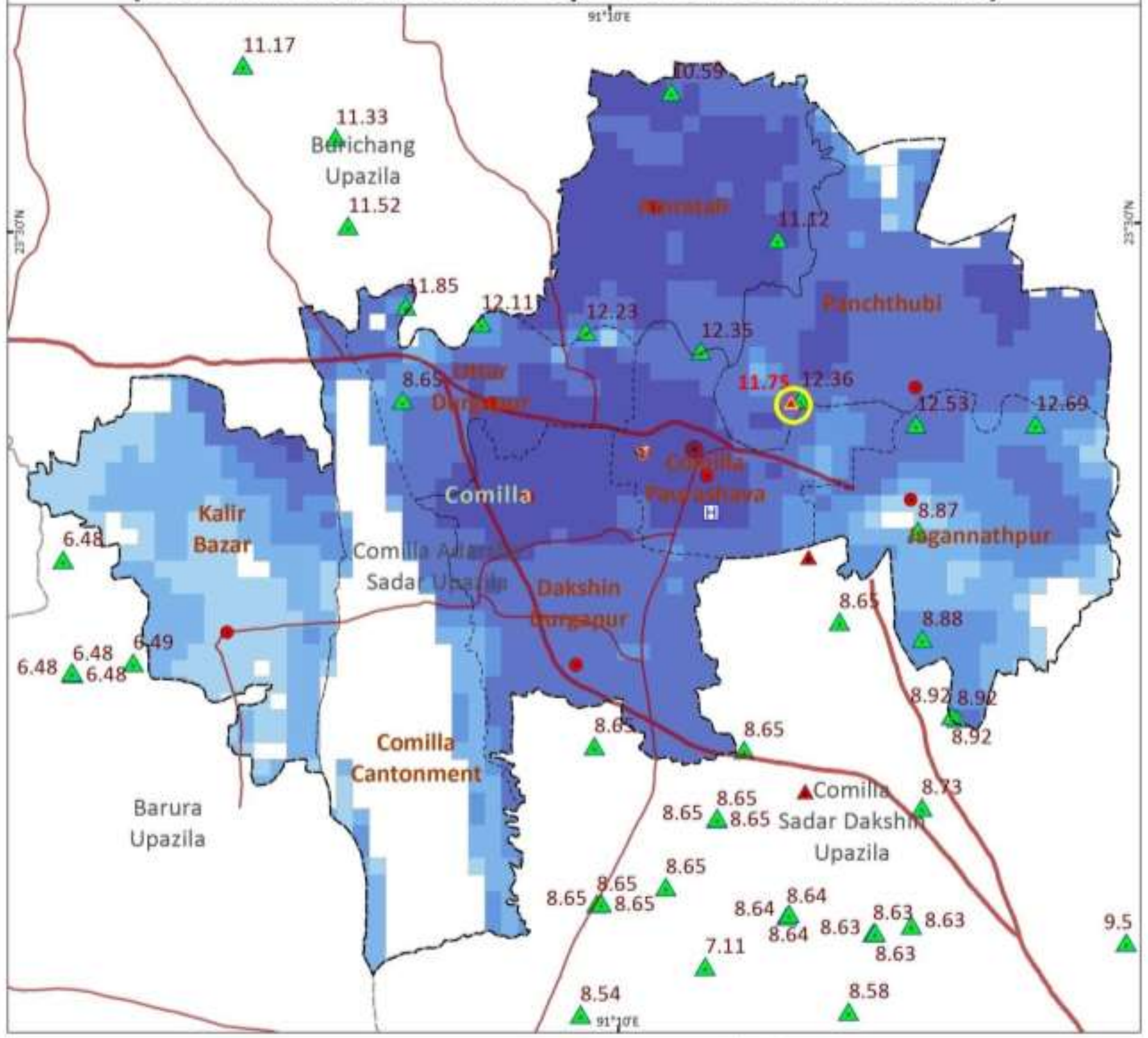
Flood Inundation Map for 25 Year Return Period
(Homna Upazila of Comilla District)



Flood Inundation Map for 25 Year Return Period
(Comilla Adarsha Sadar Upazila of Comilla District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Comilla	11.75	12.36	12.76	13.12	13.33

N

1 0.5 0 1 2 3 4 Km

R. F.: 1:120,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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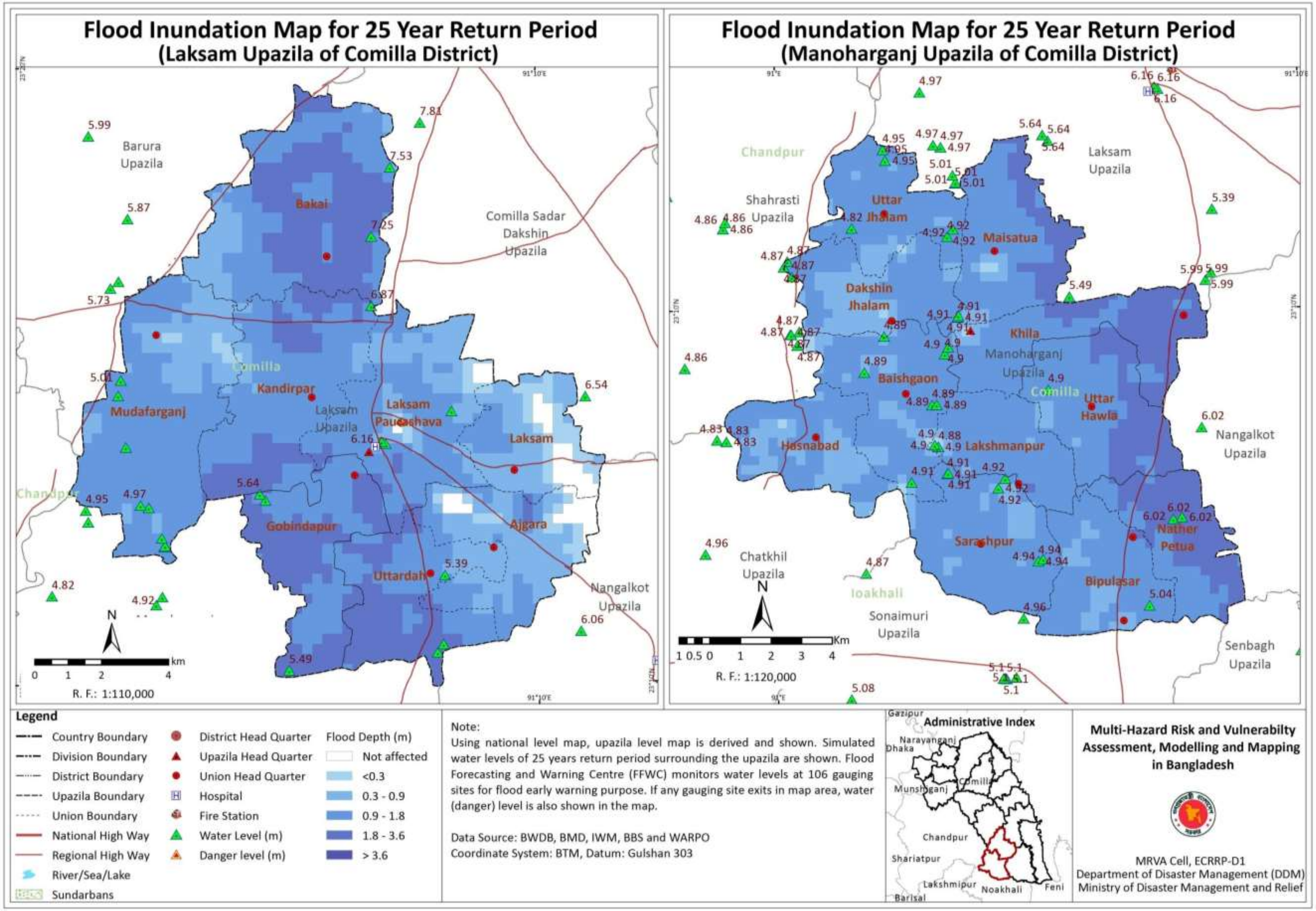
Flood Inundation Map for 25 Year Return Period
(Laksam Upazila of Comilla District)
R. F.: 1:110,000
Flood Inundation Map for 25 Year Return Period
(Manoharganj Upazila of Comilla District)
R. F.: 1:120,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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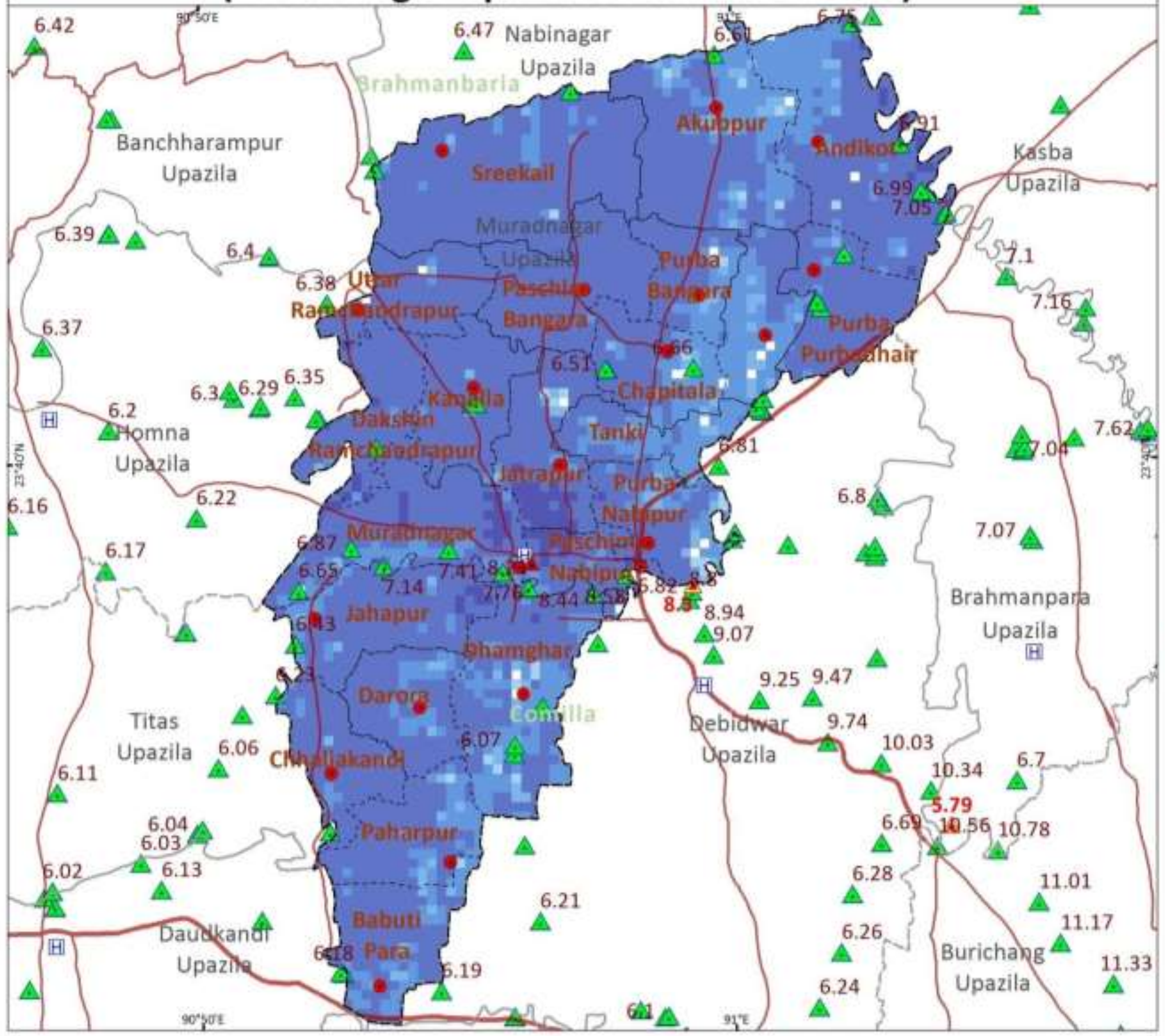
Flood Inundation Map for 25 Year Return Period
(Muradnagar Upazila of Comilla District)



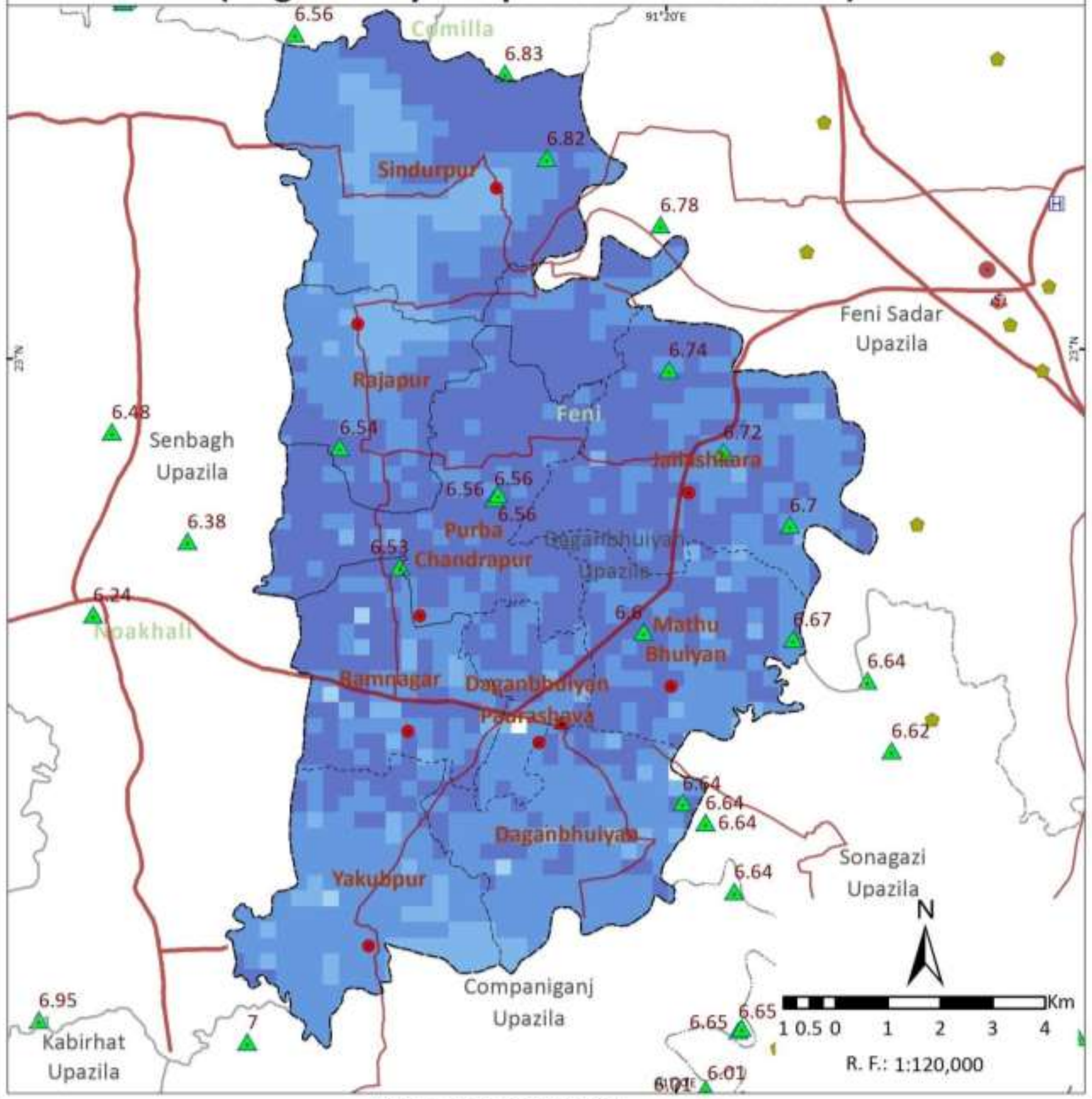
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Jibanpur	8.5	6.82	6.98	7.14	7.23

N

0 1 2 4 6 8 km

R. F.: 1:210,000

Flood Inundation Map for 25 Year Return Period
(Daganbhuiyan Upazila of Feni District)



N

1 0.5 0 1 2 3 4 Km

R. F.: 1:120,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire station
- Water Level (m)
- Danger level (m)

Flood Depth (m)
- Not affected
- < 0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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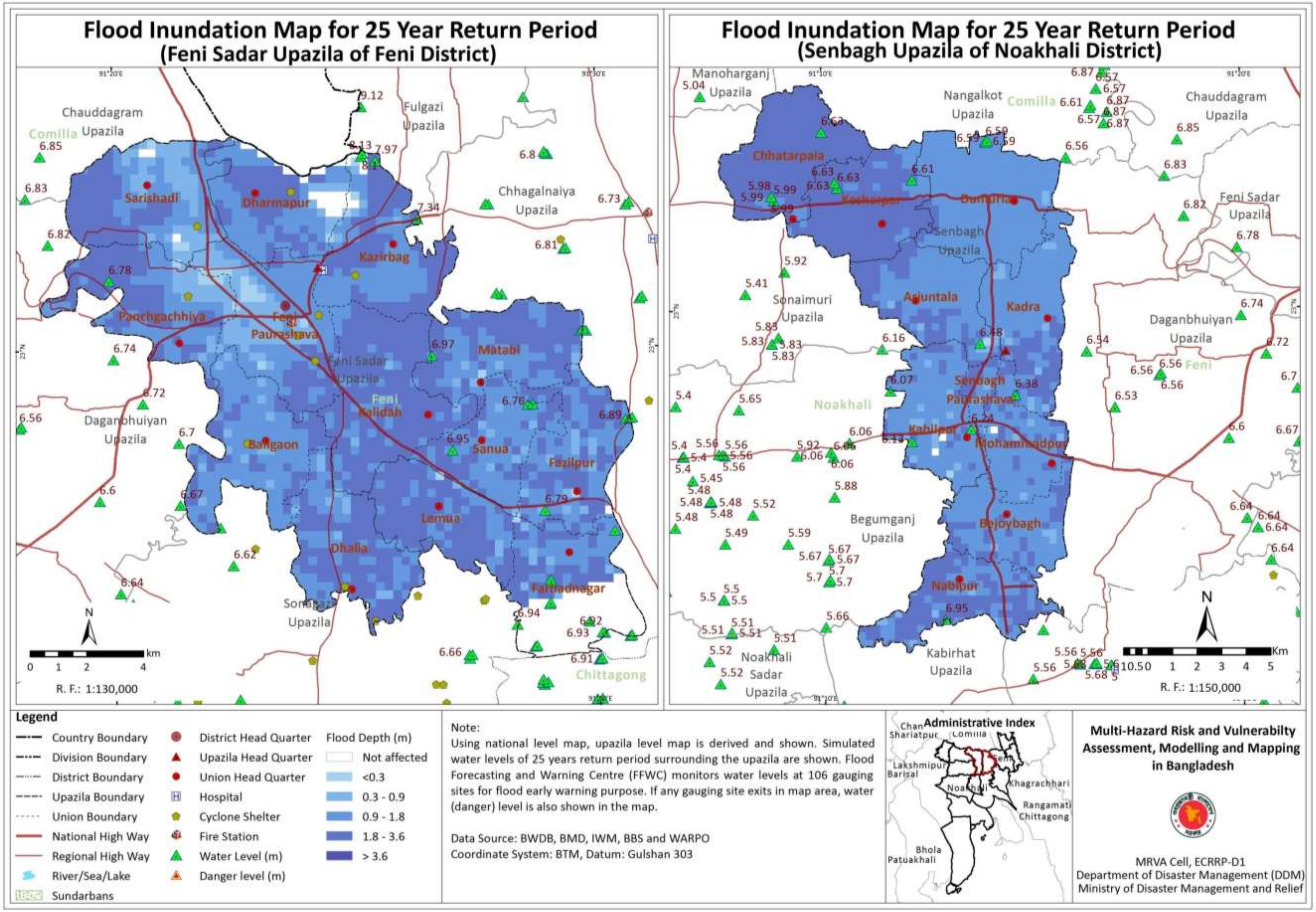

Flood Inundation Map for 25 Year Return Period
(Feni Sadar Upazila of Feni District)
Flood Inundation Map for 25 Year Return Period
(Senbagh Upazila of Noakhali District)
R. F.: 1:130,000
R. F.: 1:150,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Cyclone Shelter
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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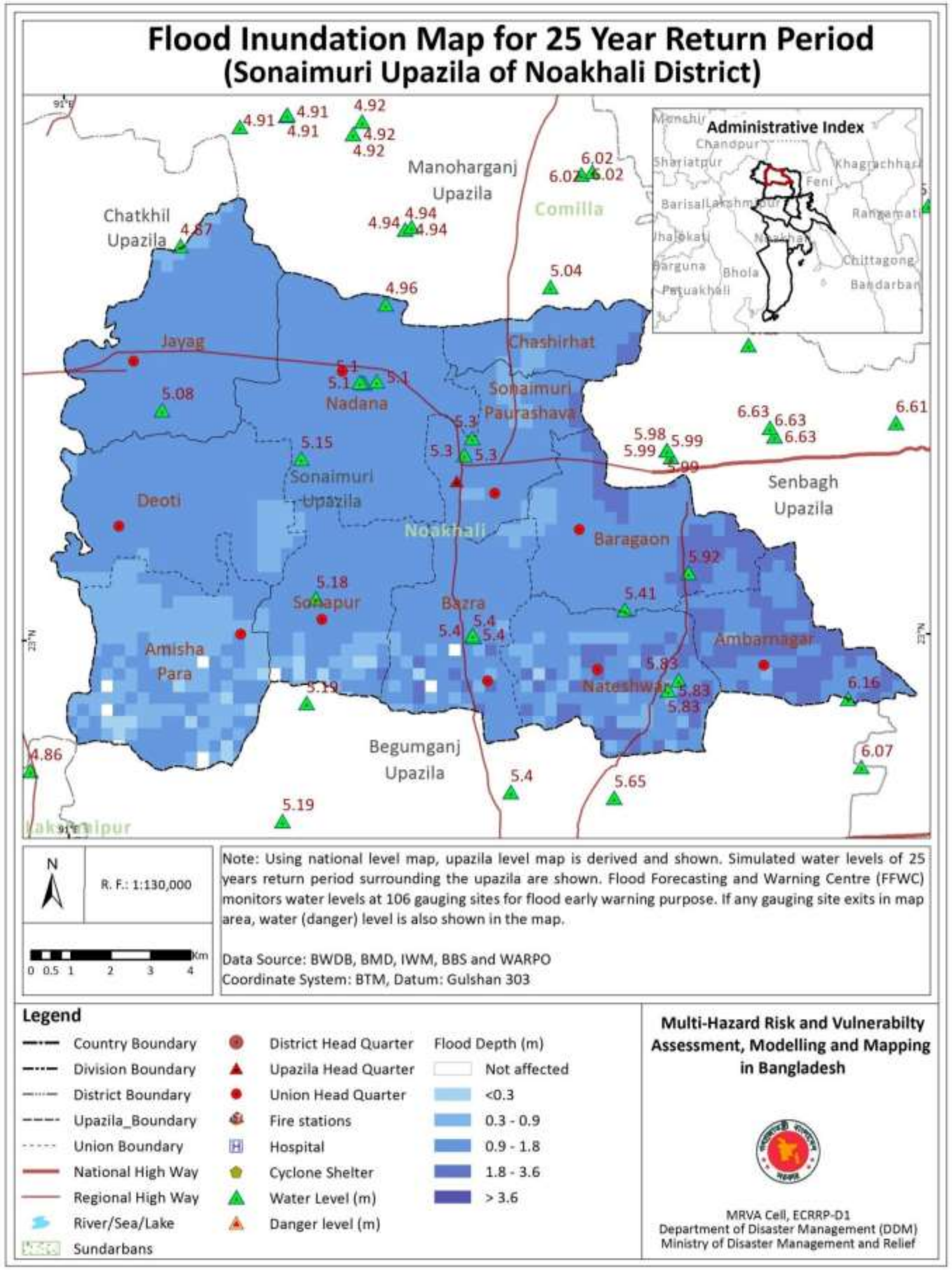
Flood Inundation Map for 25 Year Return Period
(Sonaimuri Upazila of Noakhali District)
Manoharganj Upazila
Comilla
Chatkhil Upazila
Jayag
Nadana
Chashirhat
Sonaimuri Paurashava
Sonaimuri Upazila
Deoti
Noakhali
Baragaon
Senbagh Upazila
Sonapur
Bazra
Amisha Para
Ambarnagar
Nateshwar
Begumganj Upazila
Lakshmipur
Administrative Index
Note: Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
R. F.: 1:130,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Fire stations
Hospital
Cyclone Shelter
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
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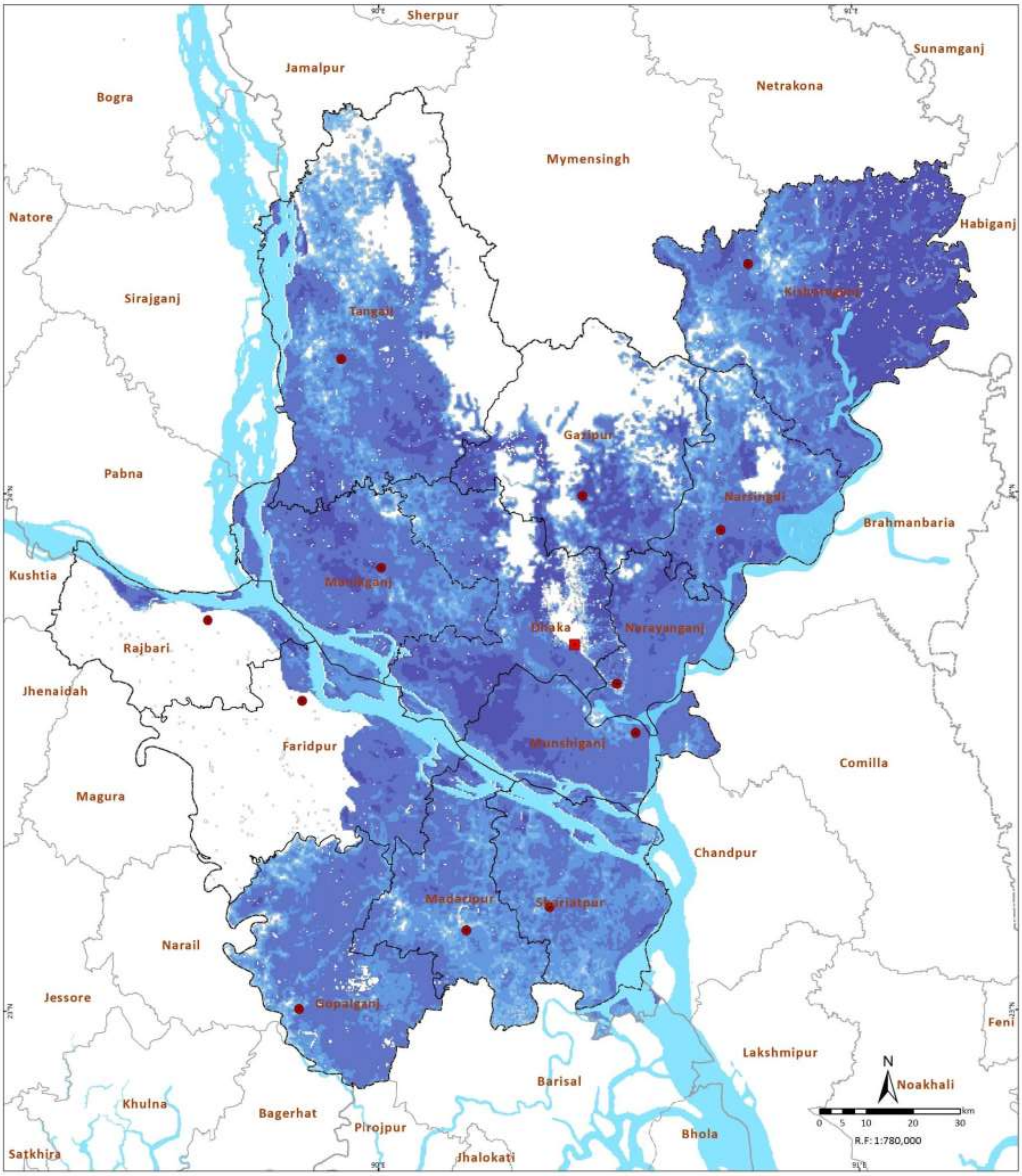
Flood Inundation Map for 25 Year Return Period
(Dhaka Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- <0.3
- 0.3 -0.9
- 0.9 - 1.8
- 1.8 - 3.6
- >3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, division level map is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Rangpur, Mymensingh, Sylhet, Rajshahi, Dhaka, Khulna, Barisal, Chittagong

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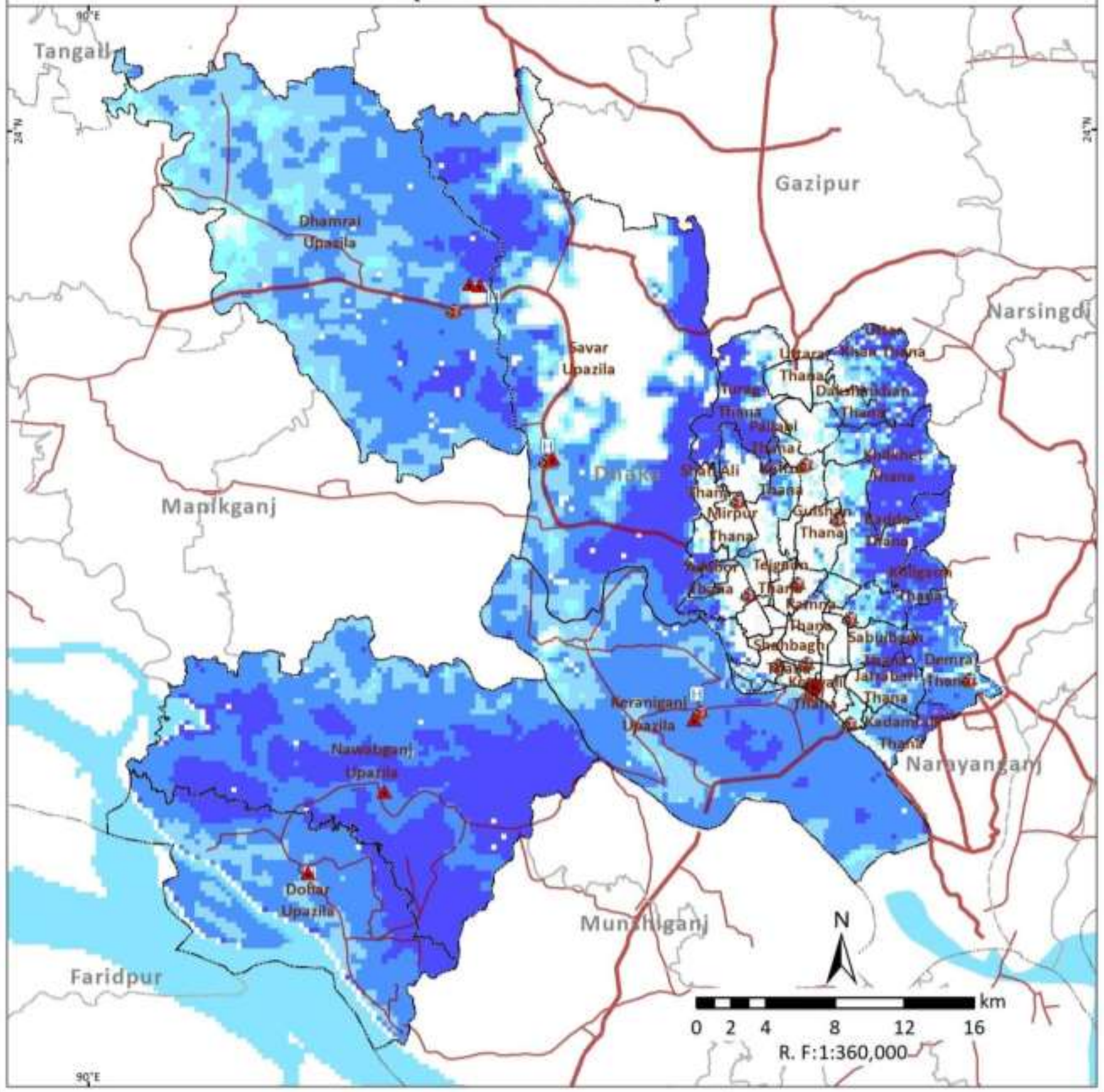
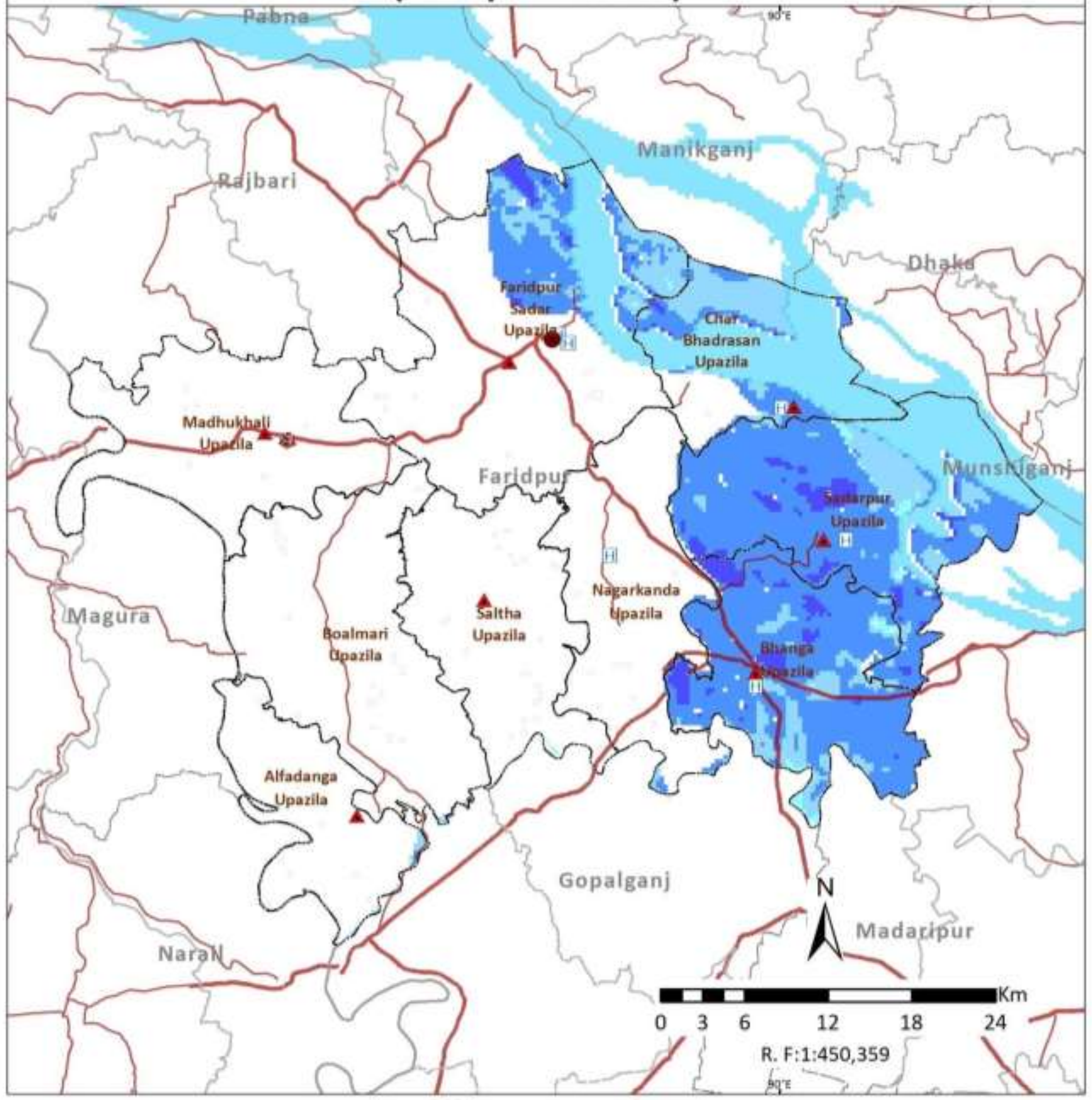
Flood Inundation Map for 25 Year Return Period
(Dhaka District)



Flood Inundation Map for 25 Year Return Period
(Faridpur District)



Legend

Country Boundary	Division Head Quarter	Flood Depth (m)
Division Boundary	District Head Quarter	Not Affected
District Boundary	Upazila Head Quarter	< 0.3
Upazila Boundary	Fire Station	0.3 - 0.9
National High Way	Hospital	0.9 - 1.8
Regional High Way	Cyclone Shelter	1.8 - 3.6
	River/Sea/Lake	> 3.6
	Sundarbans	

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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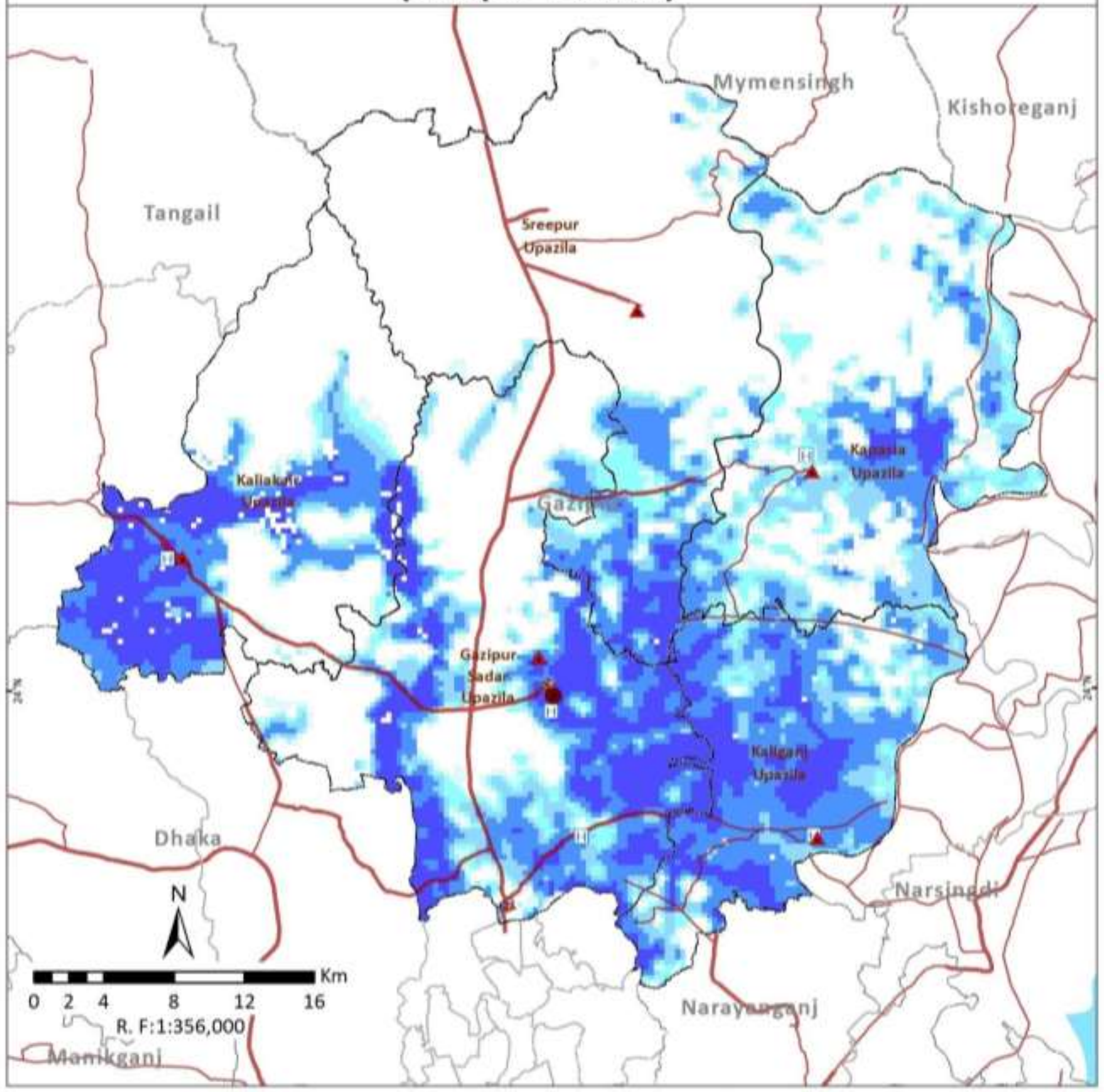
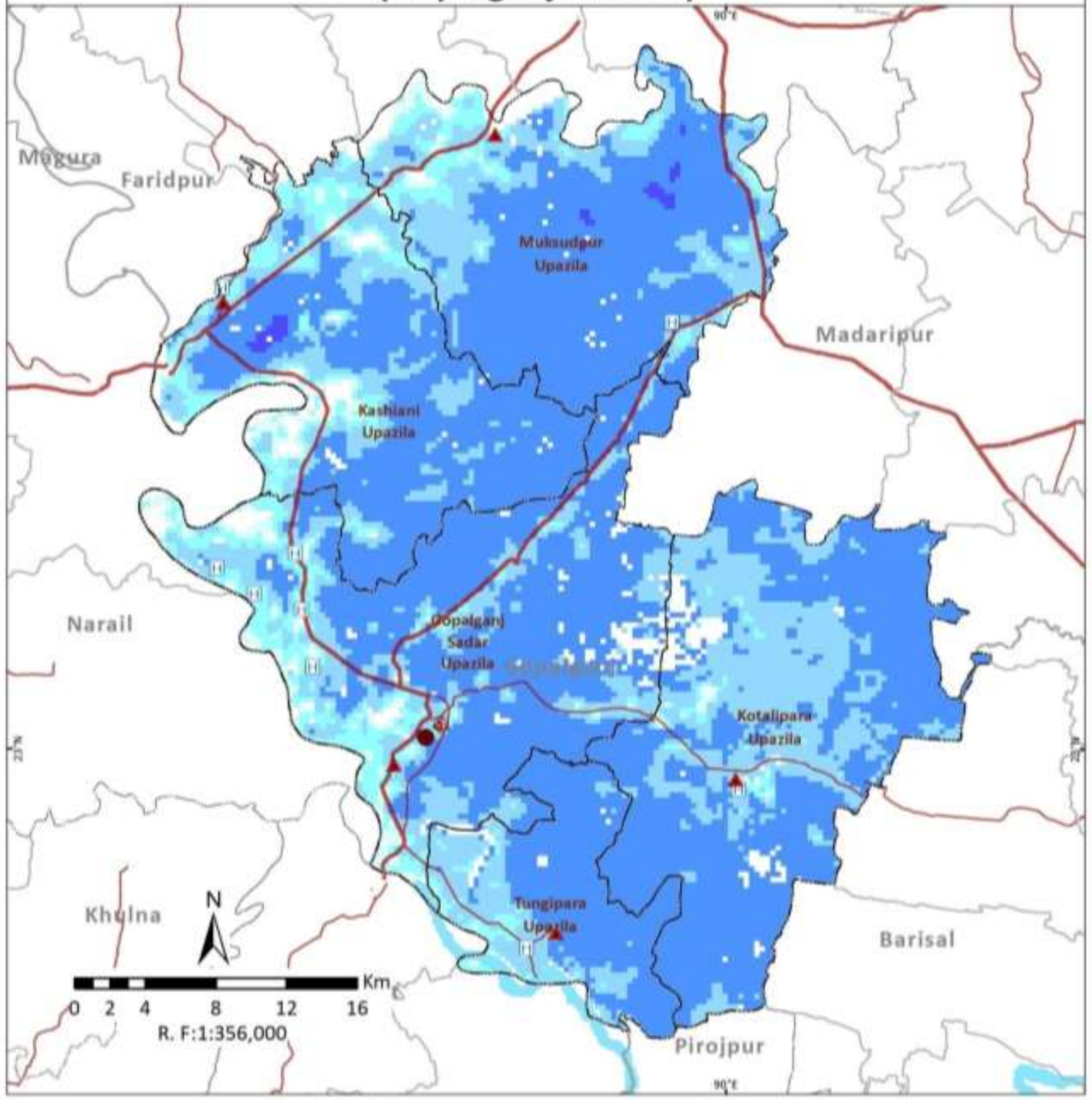
Flood Inundation Map for 25 Year Return Period
(Gazipur District)



Flood Inundation Map for 25 Year Return Period
(Gopalganj District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not Affected
District Boundary	Fire Station	< 0.3
Upazila Boundary	Hospital	0.3 - 0.9
National High Way	Cyclone Shelter	0.9 - 1.8
Regional High Way	River/Sea/Lake	1.8 - 3.6
	Sundarbans	> 3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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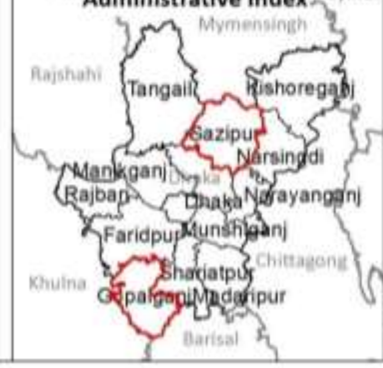

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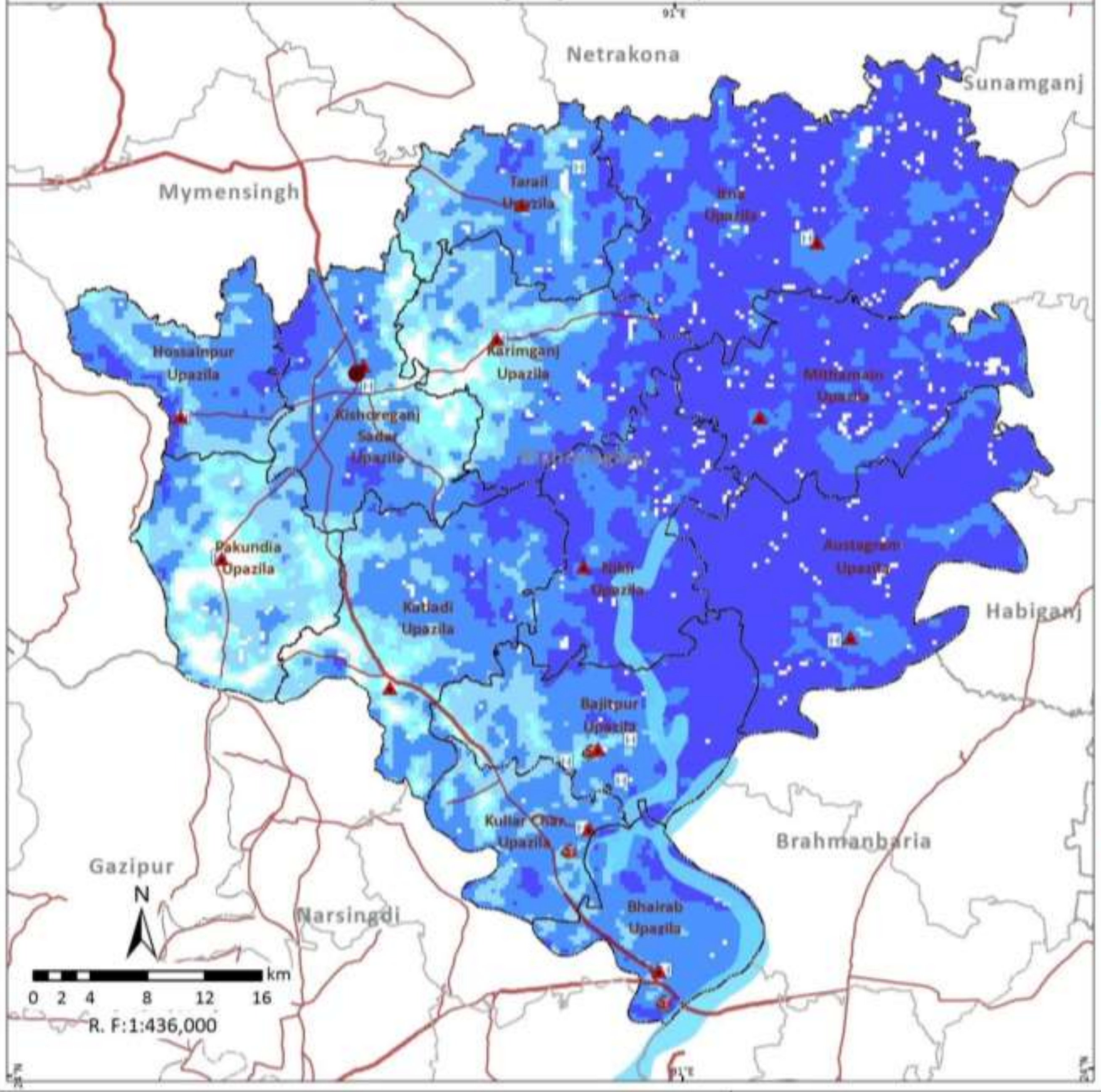
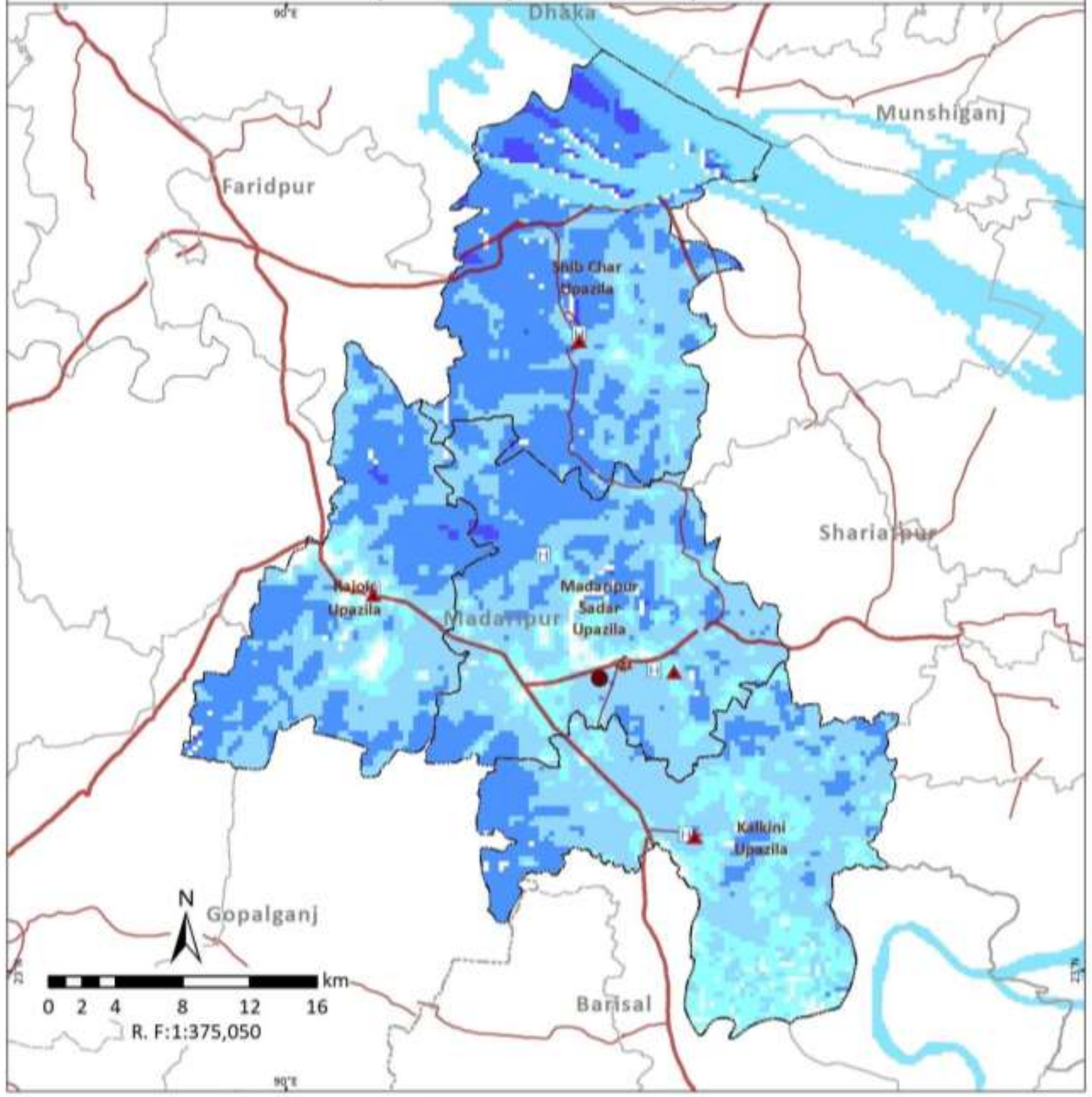
Flood Inundation Map for 25 Year Return Period
(Kishoreganj District)



Flood Inundation Map for 25 Year Return Period
(Madaripur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- < 0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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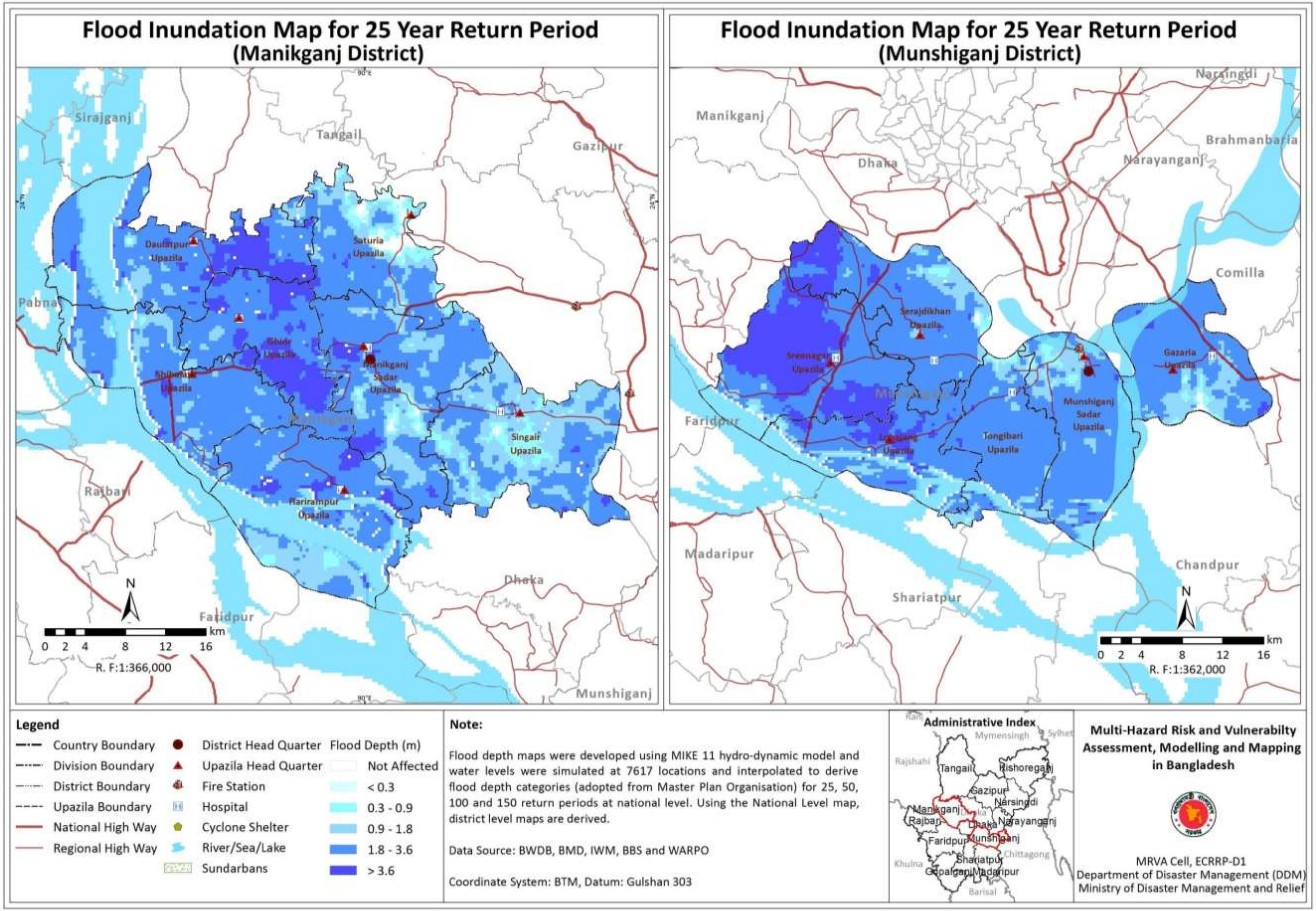
Flood Inundation Map for 25 Year Return Period
(Manikganj District)
Sirajganj
Tangail
Gazipur
Pabna
Daulatpur Upazila
Saturia Upazila
Ghior Upazila
Manikganj Sadar Upazila
Shibalaya Upazila
Singair Upazila
Harirampur Upazila
Rajbari
Dhaka
Faridpur
Munshiganj
N
km
0 2 4 8 12 16
R. F:1:366,000
Flood Inundation Map for 25 Year Return Period
(Munshiganj District)
Manikganj
Narsingdi
Dhaka
Narayanganj
Brahmanbaria
Comilla
Serajdikhan Upazila
Sreenagar Upazila
Gazaria Upazila
Munshiganj Sadar Upazila
Tongibari Upazila
Lohajang Upazila
Faridpur
Madaripur
Shariatpur
Chandpur
N
km
0 2 4 8 12 16
R. F:1:362,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Mymensingh
Sylhet
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Chittagong
Khulna
Shariatpur
Gopalganj
Madaripur
Barisal
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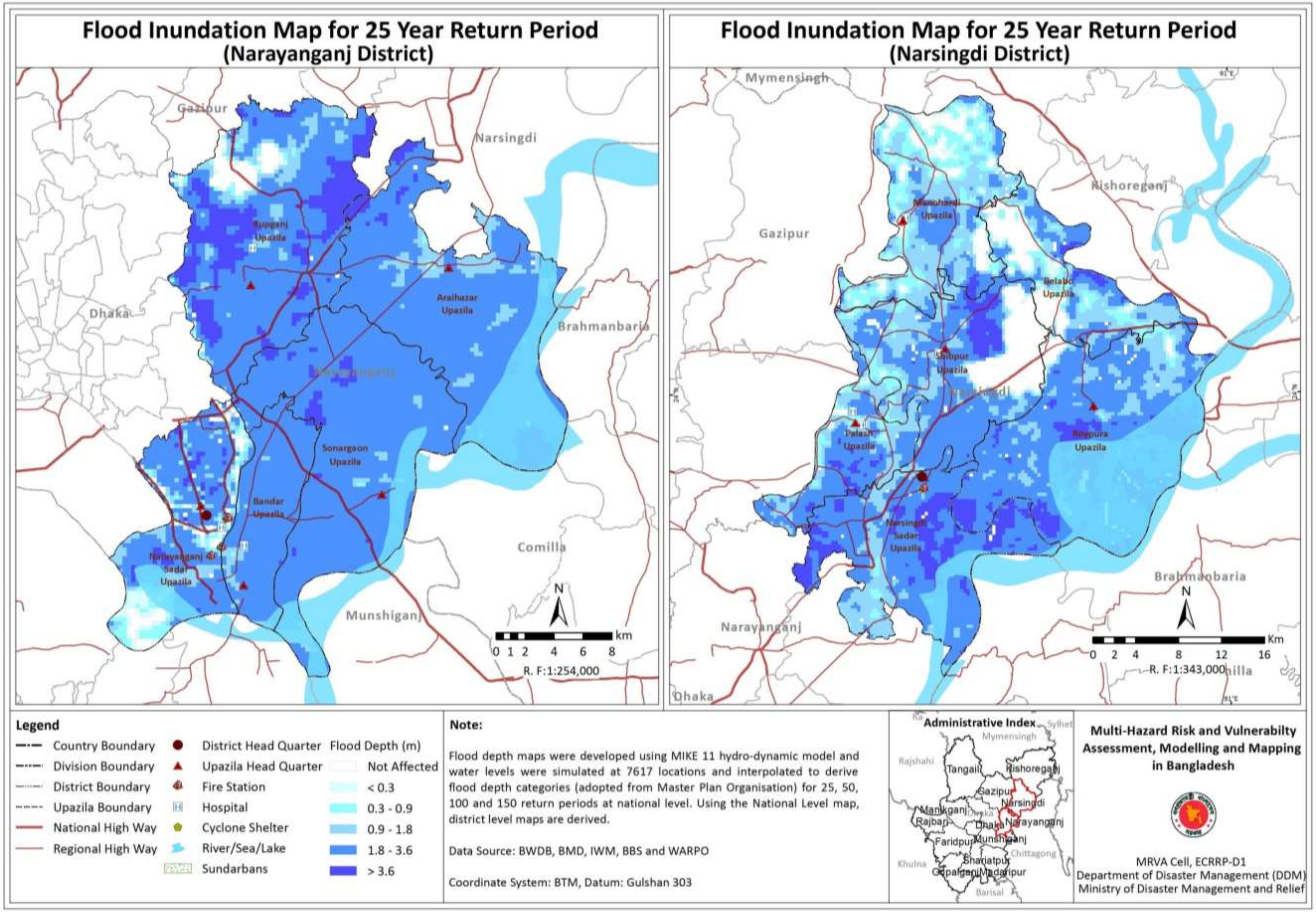
Flood Inundation Map for 25 Year Return Period
(Narayanganj District)
Gazipur
Narsingdi
Rupganj Upazila
Araihazar Upazila
Dhaka
Brahmanbaria
Sonargaon Upazila
Bandar Upazila
Narayanganj Sadar Upazila
Comilla
Munshiganj
N
km
0 1 2 4 6 8
R. F:1:254,000
Flood Inundation Map for 25 Year Return Period
(Narsingdi District)
Mymensingh
Kishoreganj
Gazipur
Manohardi Upazila
Belabo Upazila
Shibpur Upazila
Palash Upazila
Roypura Upazila
Narsingdi Sadar Upazila
Brahmanbaria
Narayanganj
Dhaka
N
Km
0 2 4 8 12 16
R. F:1:343,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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Mymensingh
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Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Shariatpur
Gopalganj
Madaripur
Khulna
Chittagong
Barisal
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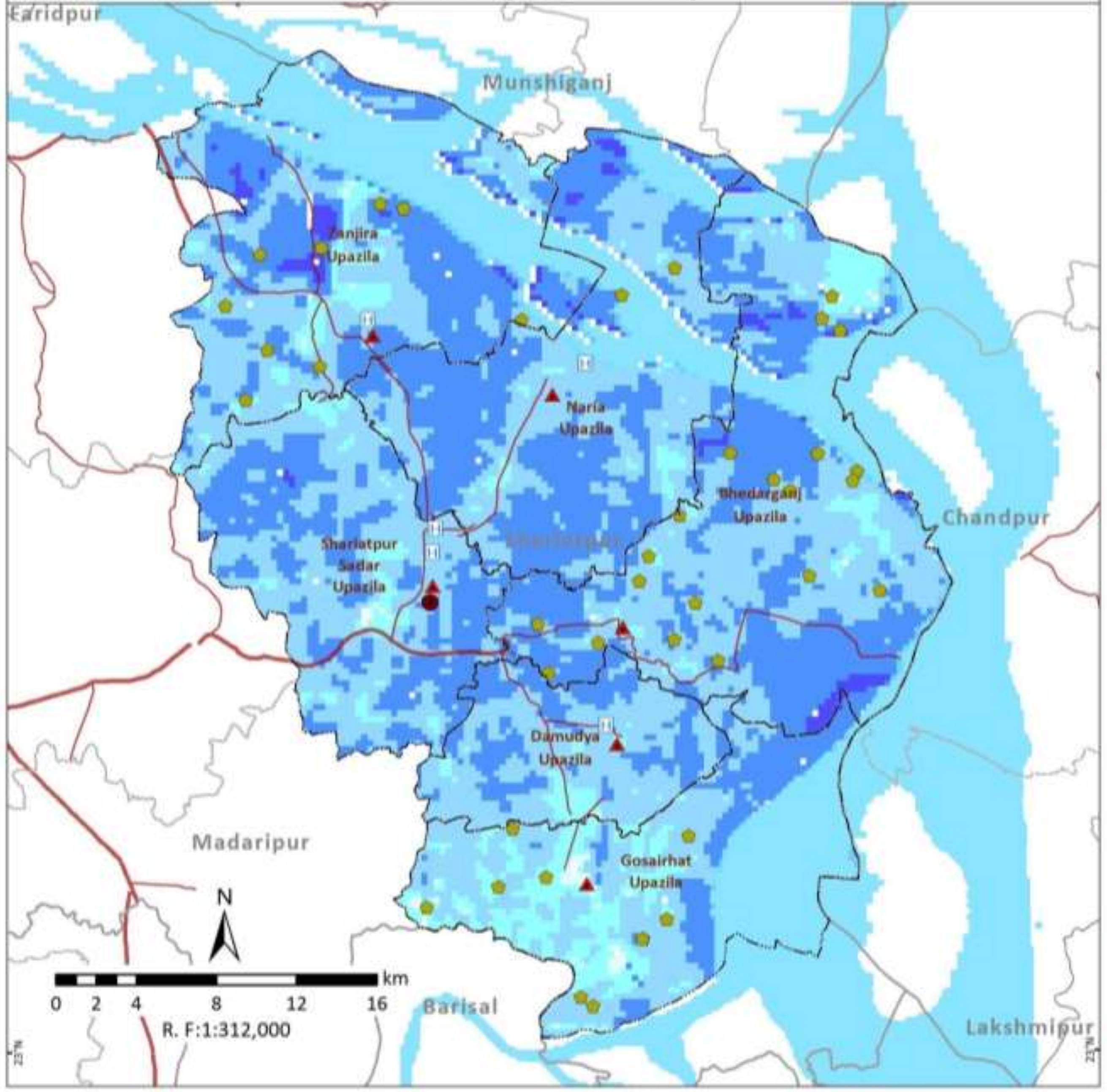
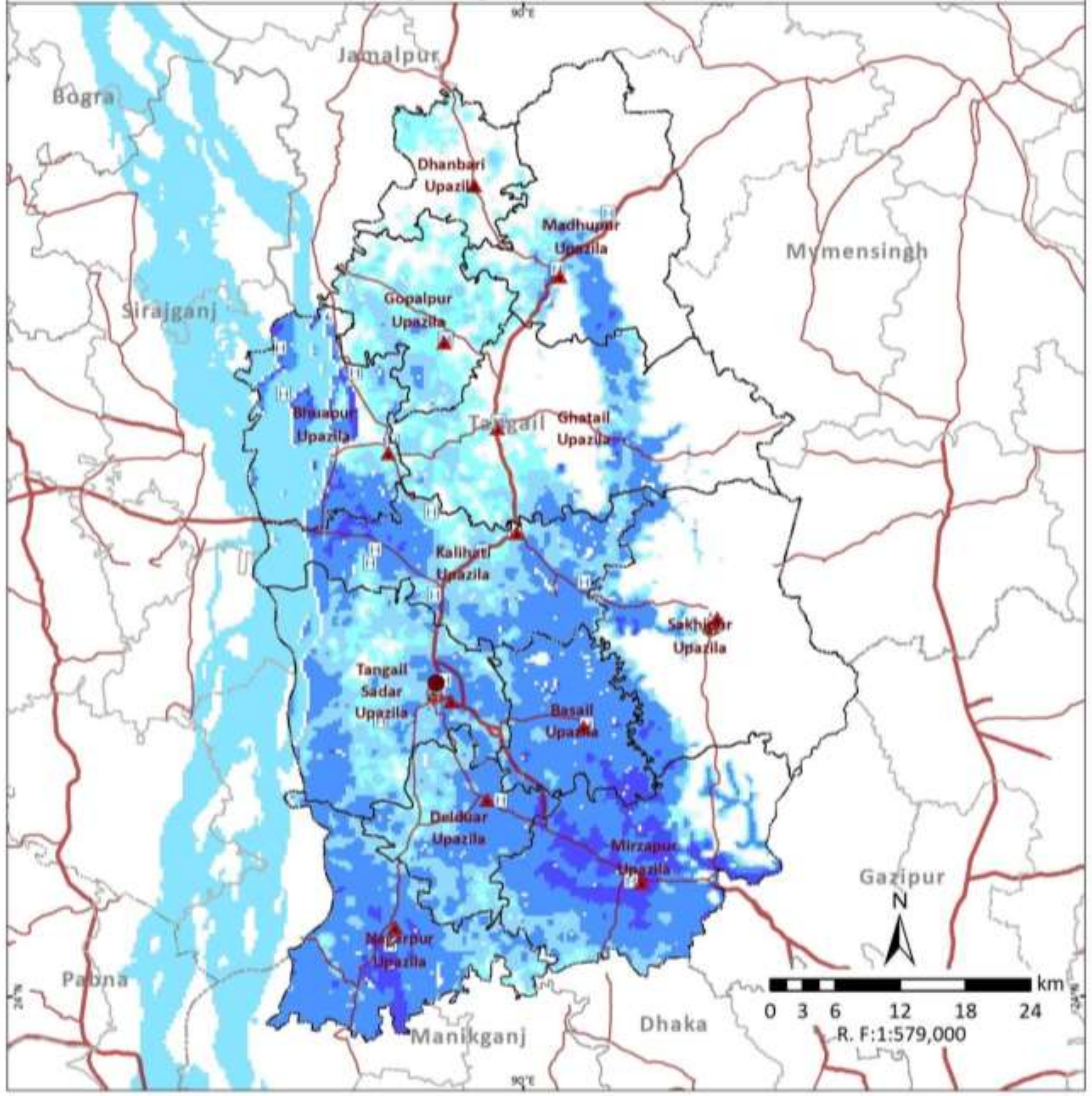
Flood Inundation Map for 25 Year Return Period
(Shariatpur District)



Flood Inundation Map for 25 Year Return Period
(Tangail District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)	
Division Boundary	Upazila Head Quarter		Not Affected
District Boundary	Fire Station		< 0.3
Upazila Boundary	Hospital		0.3 - 0.9
National High Way	Cyclone Shelter		0.9 - 1.8
Regional High Way	River/Sea/Lake		1.8 - 3.6
	Sundarbans		> 3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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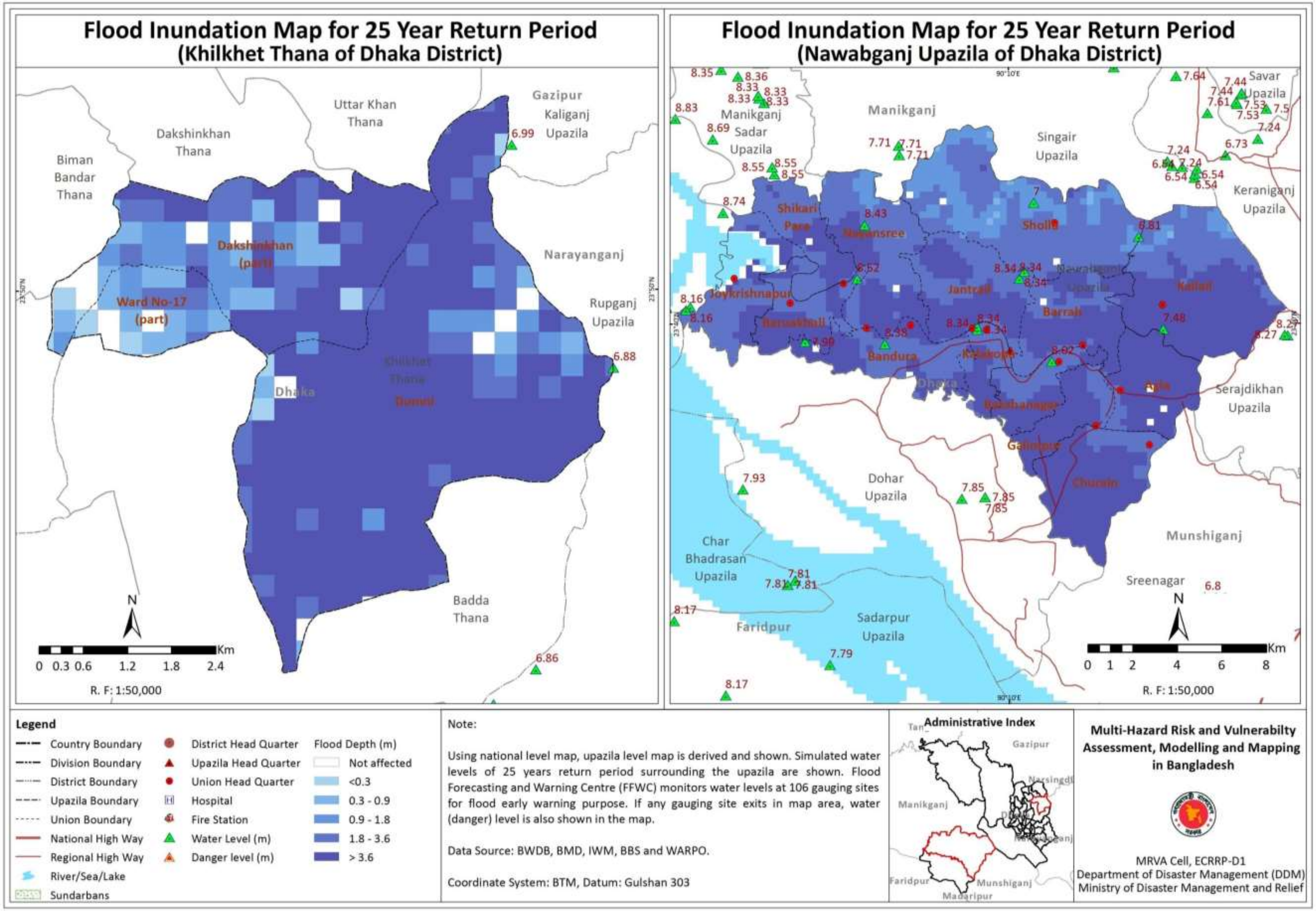
Flood Inundation Map for 25 Year Return Period
(Khilkhet Thana of Dhaka District)
Biman Bandar Thana
Dakshinkhan Thana
Uttar Khan Thana
Gazipur
Kaliganj Upazila
6.99
Narayanganj
Rupganj Upazila
6.88
Dakshinkhan (part)
Ward No-17 (part)
Dhaka
Khilkhet Thana
Badda Thana
6.86
0 0.3 0.6 1.2 1.8 2.4 Km
R. F: 1:50,000
Flood Inundation Map for 25 Year Return Period
(Nawabganj Upazila of Dhaka District)
Manikganj Sadar Upazila
Manikganj
Singair Upazila
Savar Upazila
Keraniganj Upazila
Serajdikhan Upazila
Dohar Upazila
Char Bhadrasan Upazila
Faridpur
Sadarpur Upazila
Munshiganj
Sreenagar
Shikari Para
Joykrishnapur
Sholla
Jantrail
Barrah
Kailail
Bandura
Kalakopa
Agla
Galimpur
Churain
0 1 2 4 6 8 Km
R. F: 1:50,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO.
Coordinate System: BTM, Datum: Gulshan 303
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Munshiganj
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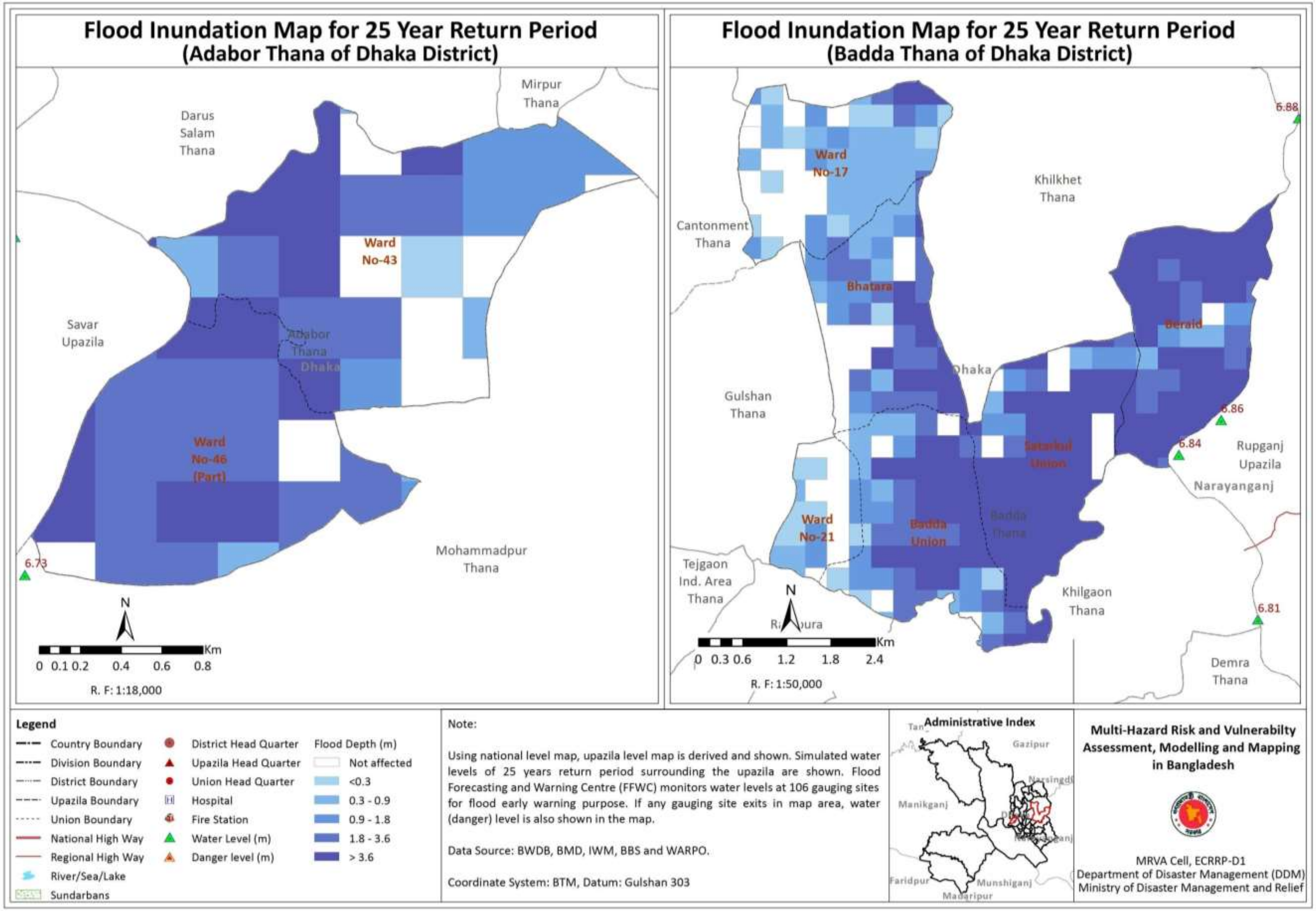

Flood Inundation Map for 25 Year Return Period
(Adabor Thana of Dhaka District)
Mirpur Thana
Darus Salam Thana
Ward No-43
Savar Upazila
Adabor Thana
Dhaka
Ward No-46 (Part)
Mohammadpur Thana
6.73
N
Km
0 0.1 0.2 0.4 0.6 0.8
R. F: 1:18,000
Flood Inundation Map for 25 Year Return Period
(Badda Thana of Dhaka District)
6.88
Ward No-17
Khilkhet Thana
Cantonment Thana
Bhatara
Beraid
Dhaka
Gulshan Thana
6.86
6.84
Rupganj Upazila
Narayanganj
Satarkul Union
Ward No-21
Badda Union
Badda Thana
Tejgaon Ind. Area Thana
Khilgaon Thana
6.81
N
Km
0 0.3 0.6 1.2 1.8 2.4
R. F: 1:50,000
Demra Thana
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO.
Coordinate System: BTM, Datum: Gulshan 303
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Munshiganj
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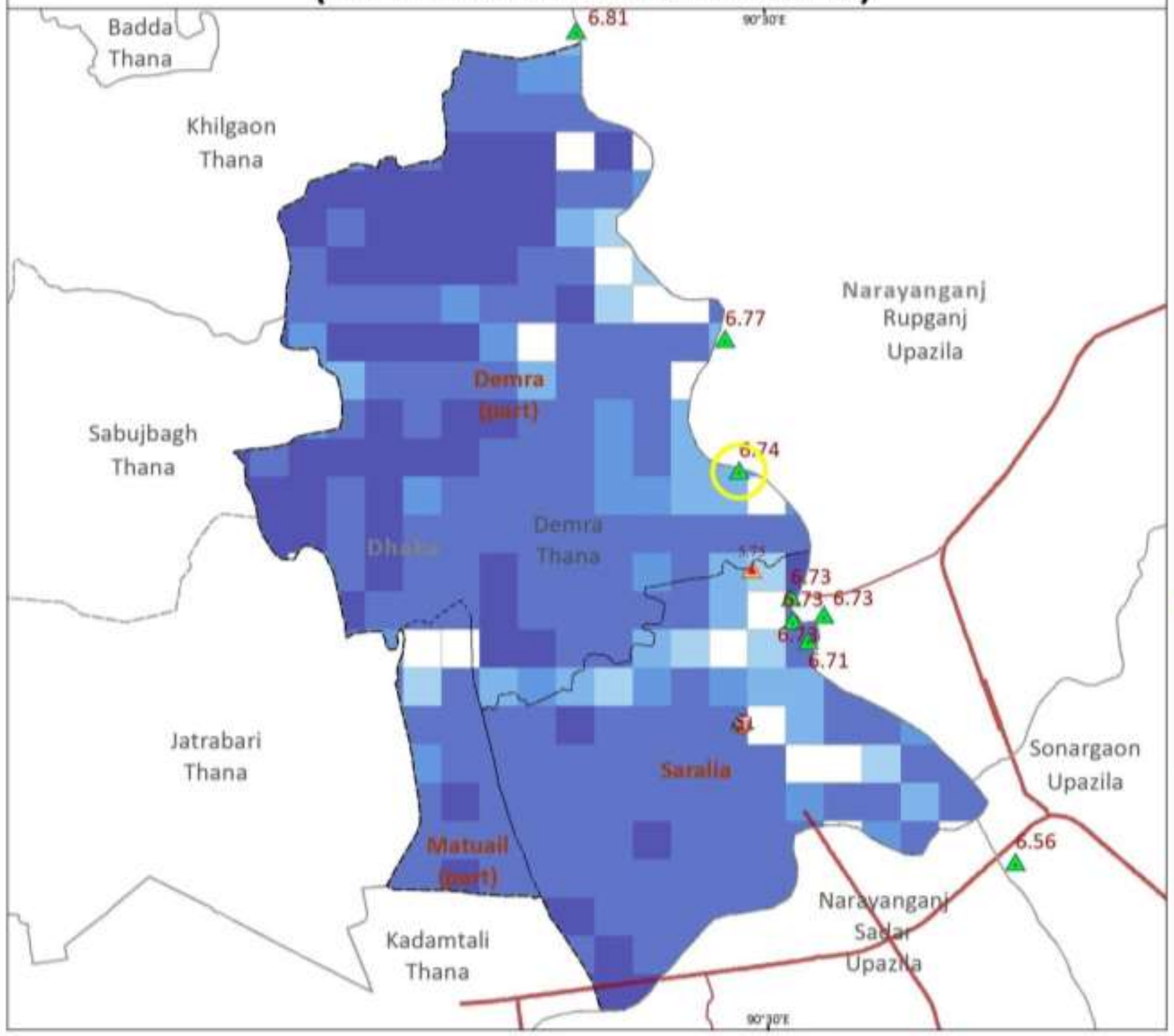
Flood Inundation Map for 25 Year Return Period
(Demra Thana of Dhaka District)



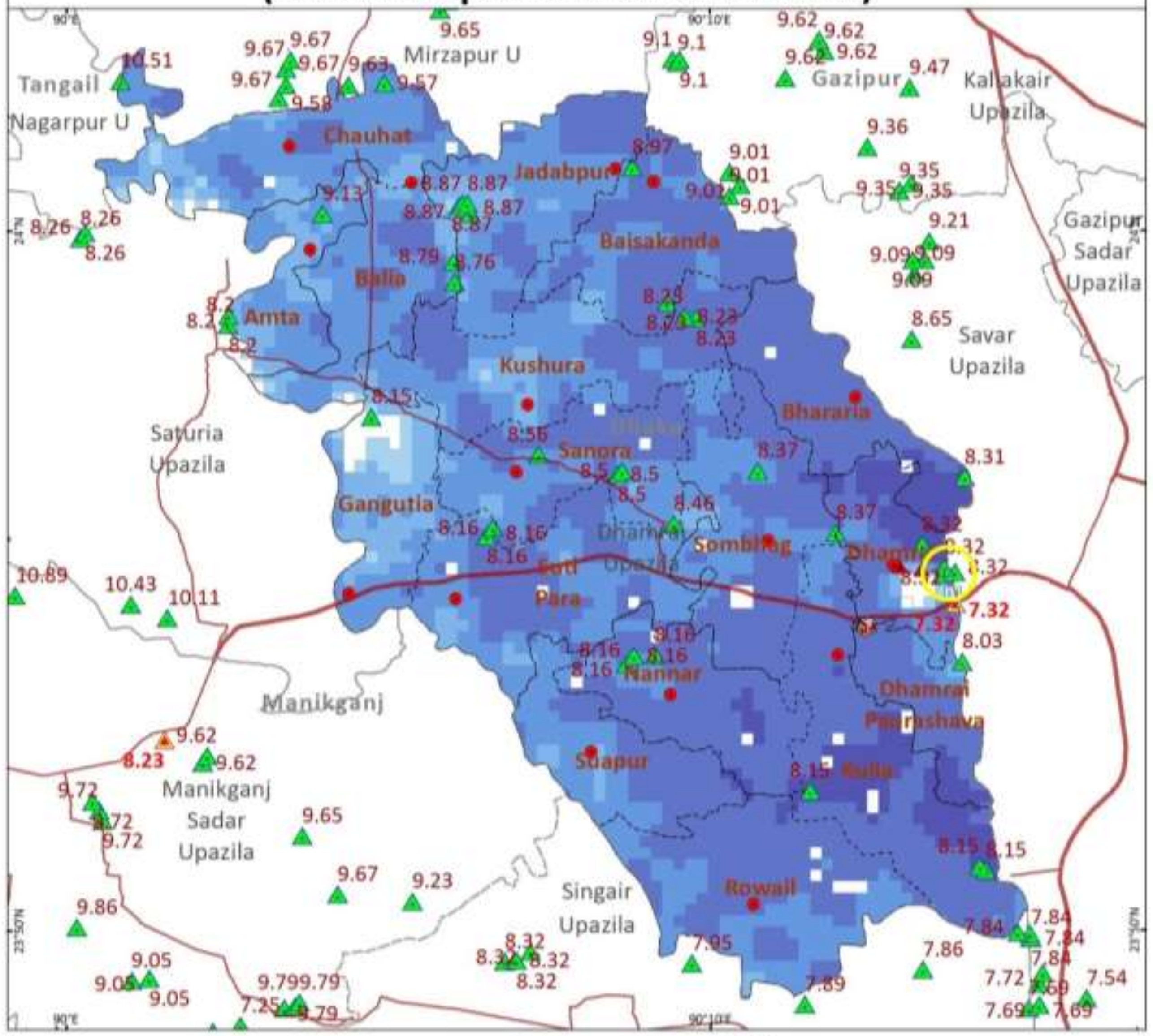
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Demra	5.75	6.74	6.96	7.16	7.27

N

0 0.2 0.4 0.8 1.2 1.6 Km

R. F: 1:52,000

Flood Inundation Map for 25 Year Return Period
(Dhamrai Upazila of Dhaka District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Nayarhat	7.32	8.32	8.67	9	9.19

N

0 1 2 4 6 8 Km

R. F: 1:175,000

Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire Station	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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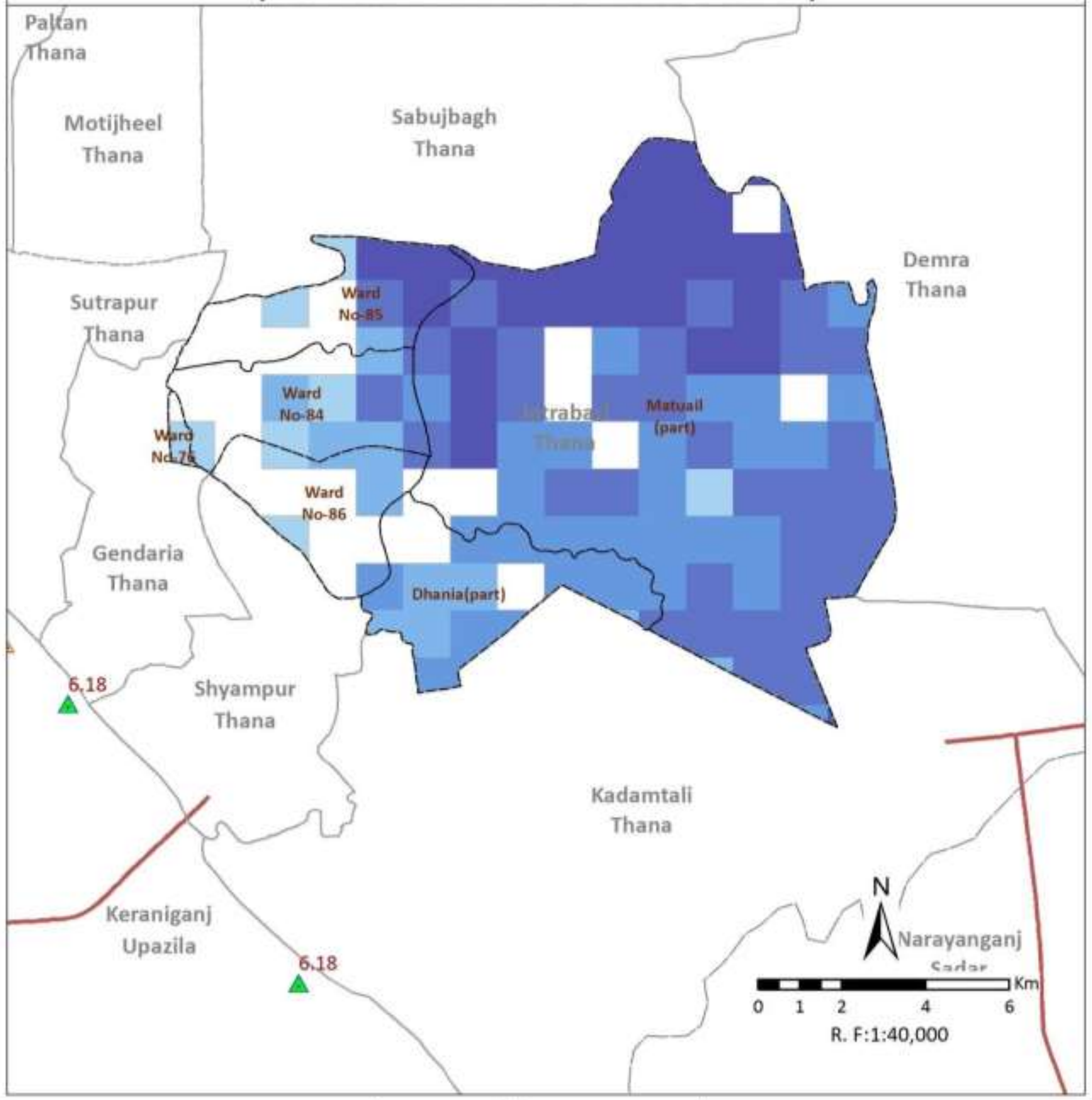
Flood Inundation Map for 25 Year Return Period
(Dohar Upazila of Dhaka District)

Flood Inundation Map for 25 Year Return Period
(Jatrabari Thana of Dhaka District)



Legend

Country Boundary		District Head Quarter		Flood Depth (m)	
Division Boundary		Upazila Head Quarter		Not affected	
District Boundary		Union Head Quarter		<0.3	
Upazila Boundary		Hospital		0.3 - 0.9	
Union Boundary		Fire Station		0.9 - 1.8	
National High Way		Water Level (m)		1.8 - 3.6	
Regional High Way		Danger level (m)		> 3.6	
River/Sea/Lake					
Sundarbans					

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
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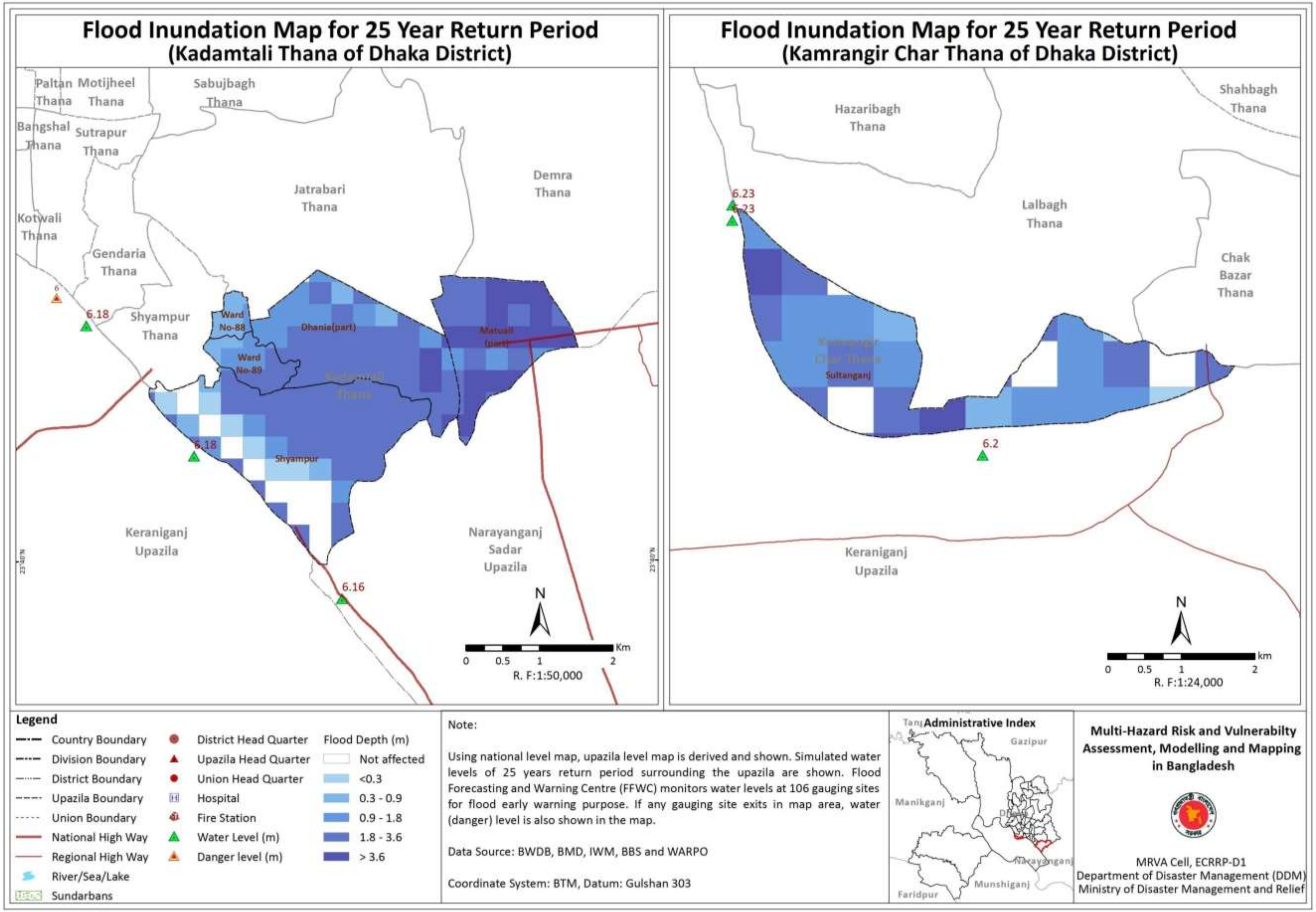
Flood Inundation Map for 25 Year Return Period
(Kadamtali Thana of Dhaka District)
Paltan Thana
Motijheel Thana
Sabujbagh Thana
Bangshal Thana
Sutrapur Thana
Kotwali Thana
Gendaria Thana
Jatrabari Thana
Demra Thana
Shyampur Thana
Ward No-88
Ward No-89
Dhania(part)
Matuail (part)
Shyampur
6
6.18
6.18
6.16
Keraniganj Upazila
Narayanganj Sadar Upazila
N
0 0.5 1 2 Km
R. F:1:50,000
Flood Inundation Map for 25 Year Return Period
(Kamrangir Char Thana of Dhaka District)
Hazaribagh Thana
Shahbagh Thana
Lalbagh Thana
Chak Bazar Thana
Sultanganj
6.23
6.23
6.2
Keraniganj Upazila
N
0 0.5 1 2 km
R. F:1:24,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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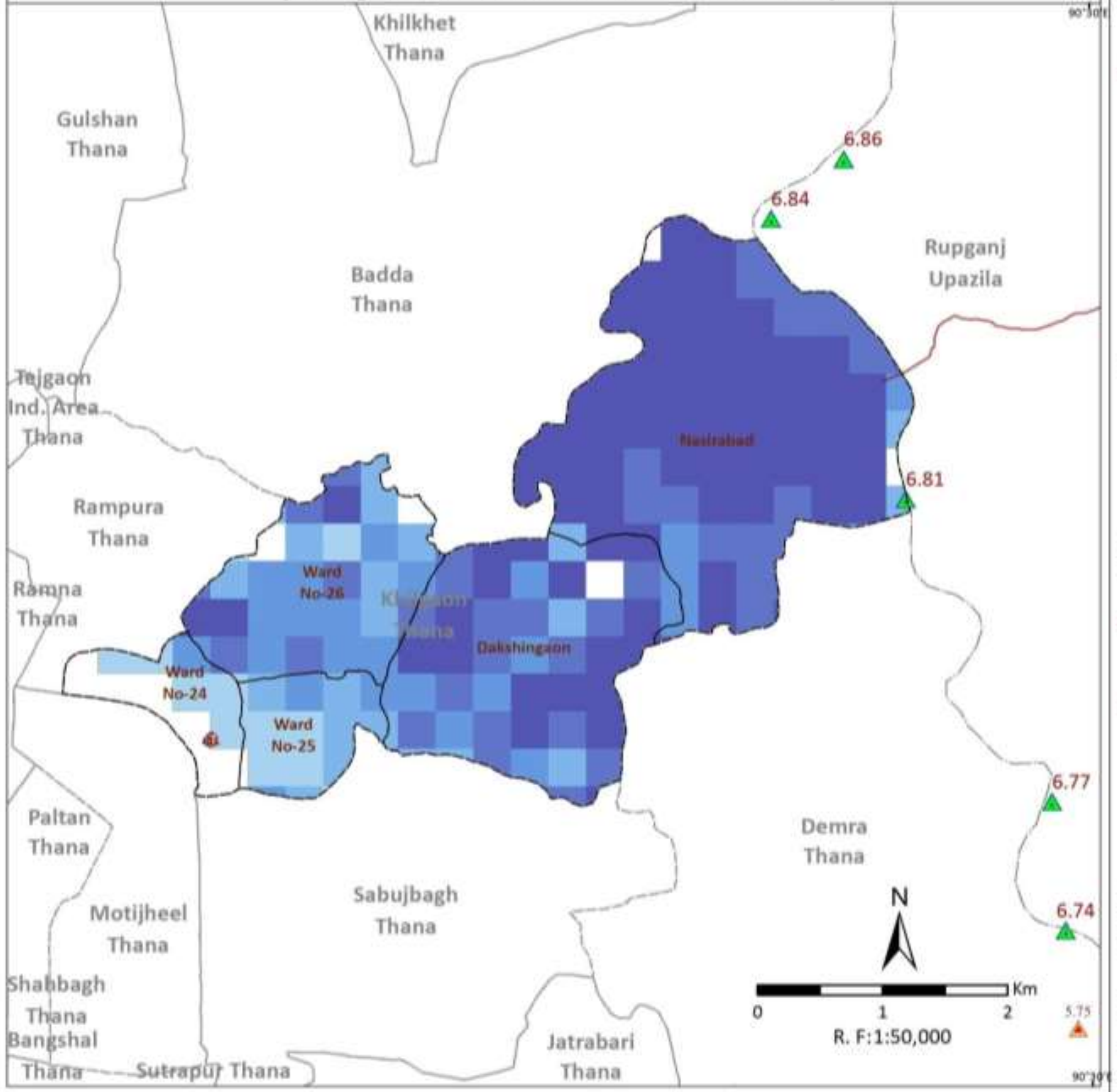
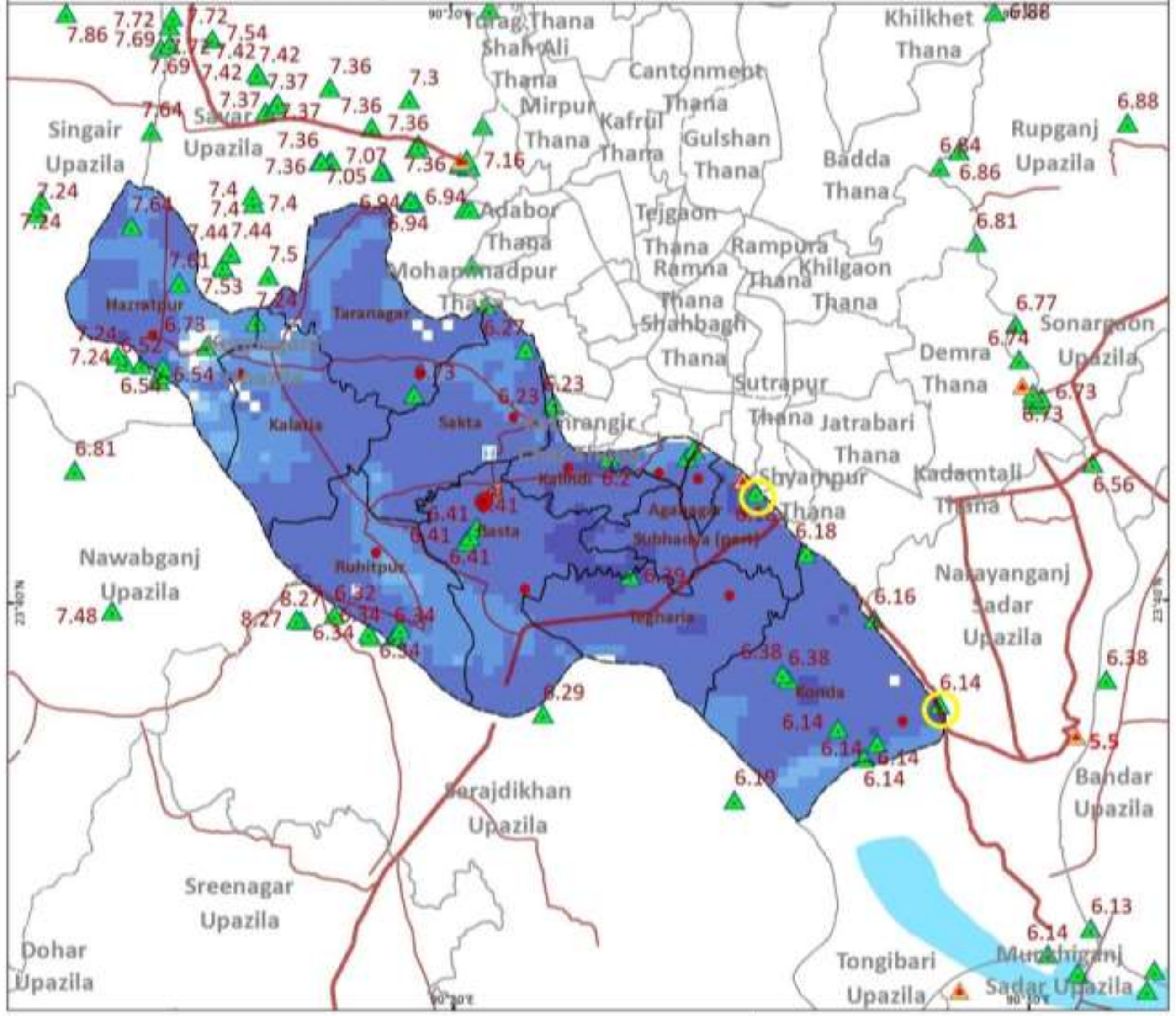
Flood Inundation Map for 25 Year Return Period
(Khilgaon Thana of Dhaka District)



Flood Inundation Map for 25 Year Return Period
(Keraniganj Upazila of Dhaka District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Dhaka	6	6.18	6.37	6.54	6.64
Narayanganj	5.5	6.14	6.33	6.5	6.6
Mirpur	5.94	7.16	7.4	7.62	7.74

N

0 1 2 4 6 8 Km

R. F:1:200,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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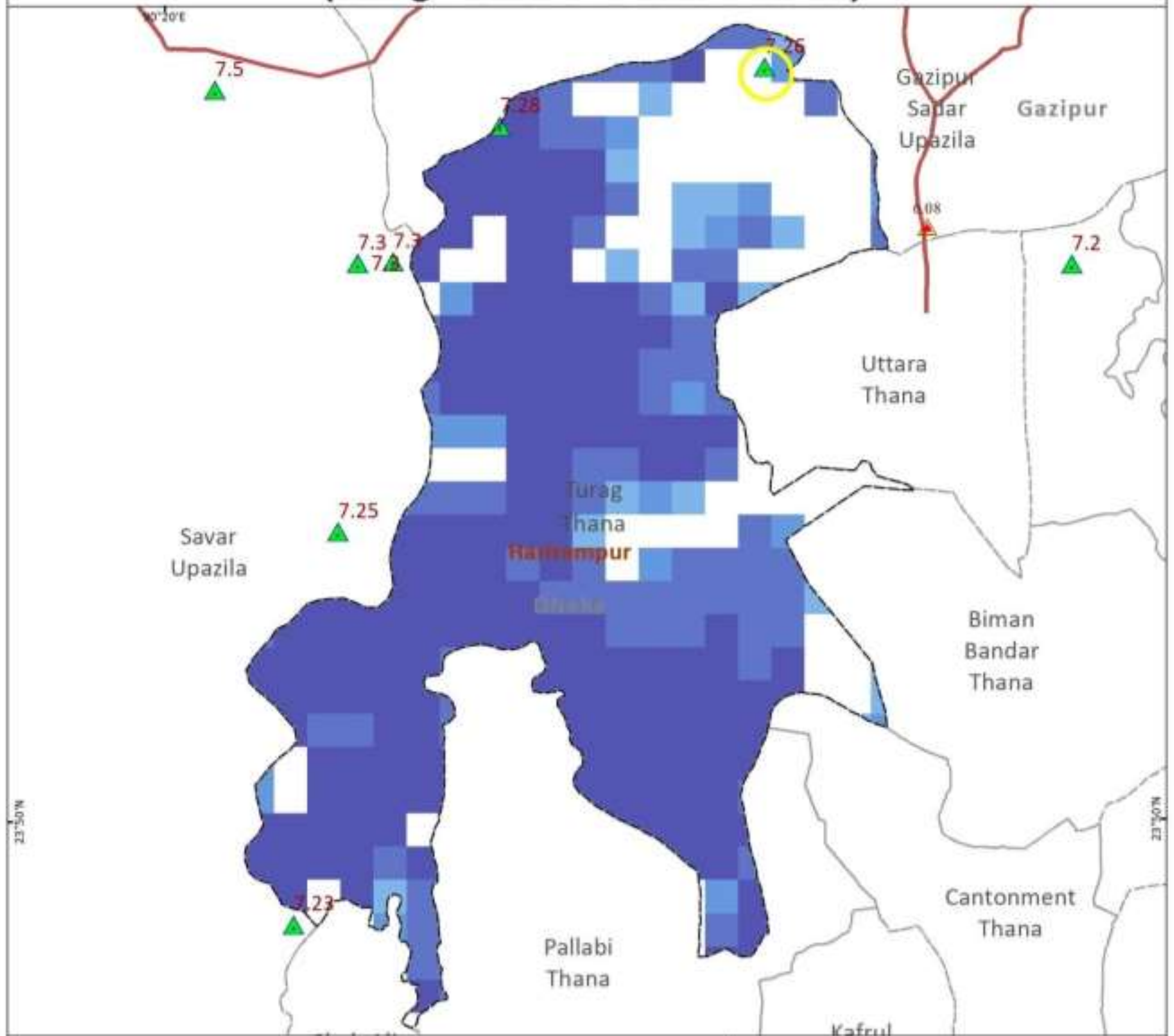
Flood Inundation Map for 25 Year Return Period
(Turag Thana of Dhaka District)



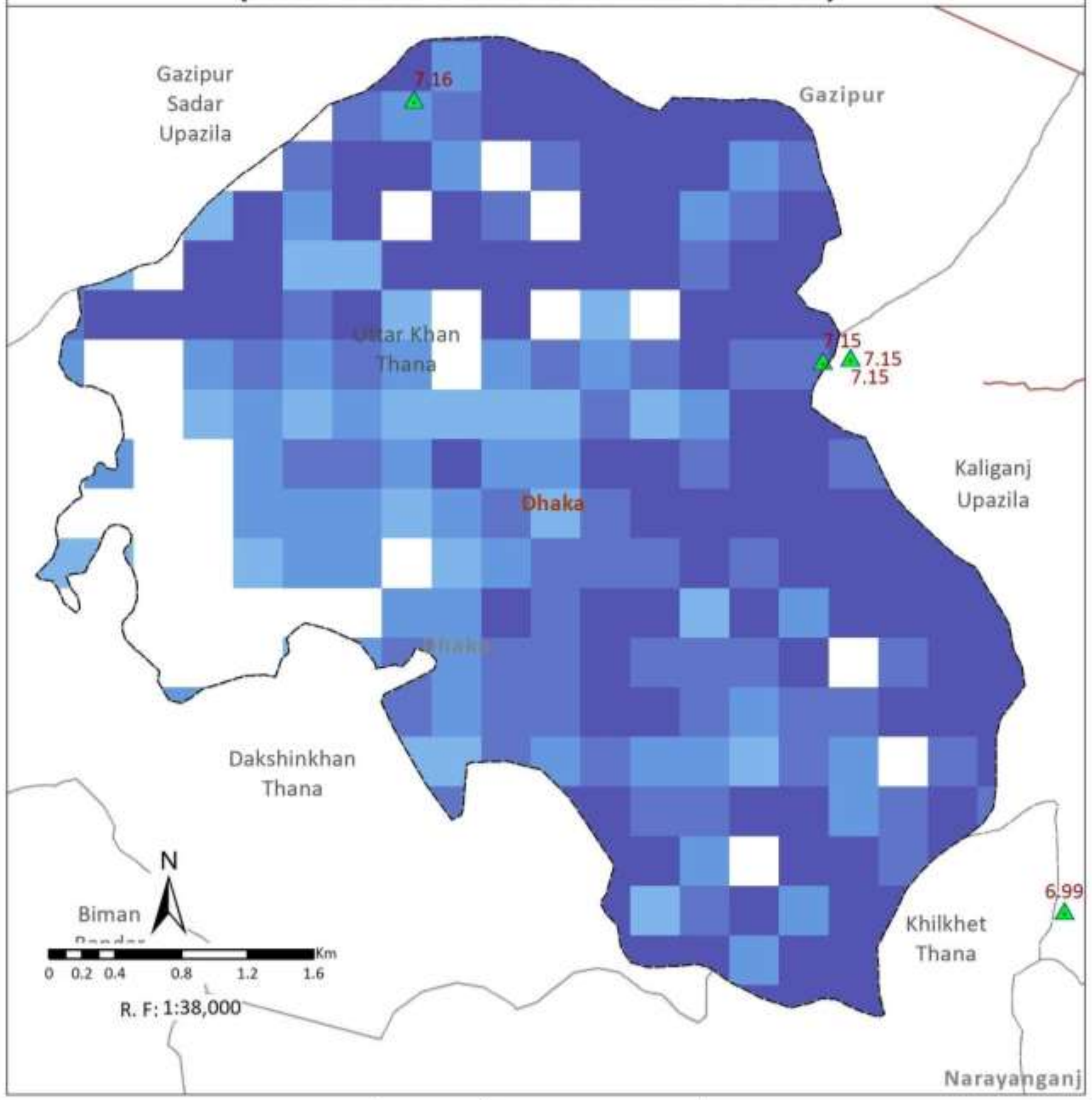
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Tongi	6.08	7.26	7.48	7.68	7.79

N

0 0.5 1 2 km

R. F: 1:60,000

Flood Inundation Map for 25 Year Return Period
(Uttar Khan Thana of Dhaka District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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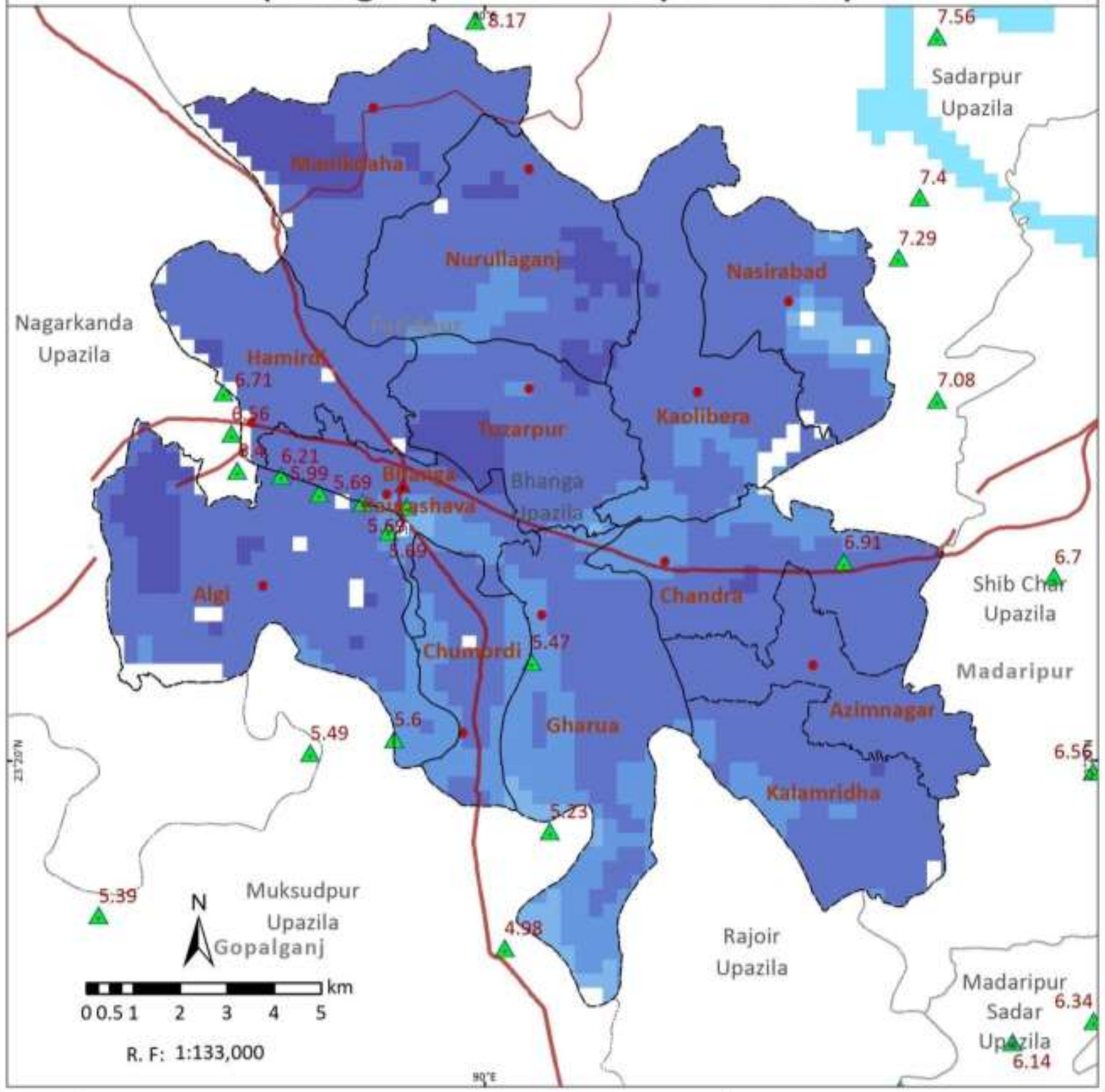
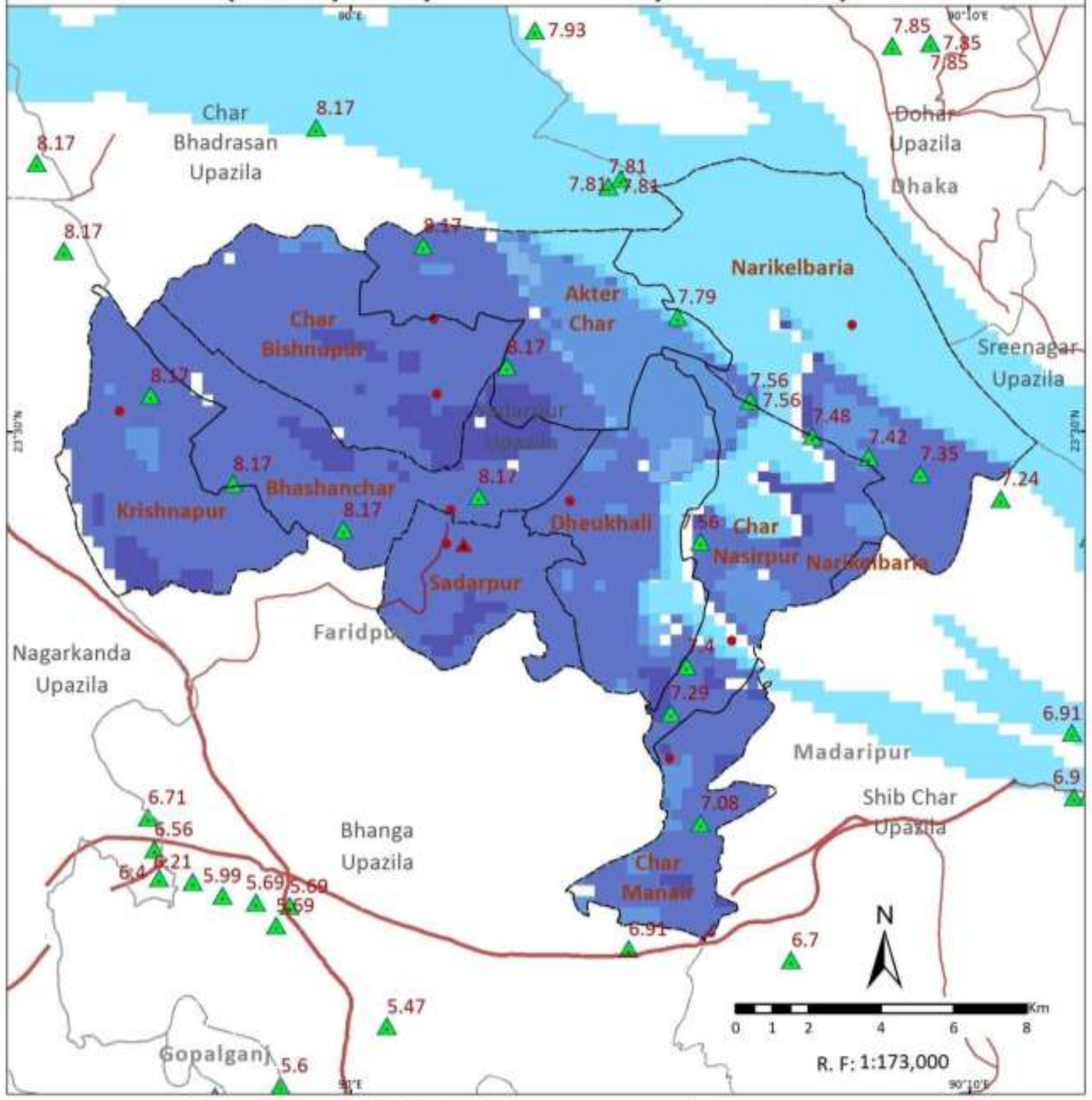
Flood Inundation Map for 25 Year Return Period
(Bhanga Upazila of Faridpur District)



Flood Inundation Map for 25 Year Return Period
(Sadarpur Upazila of Faridpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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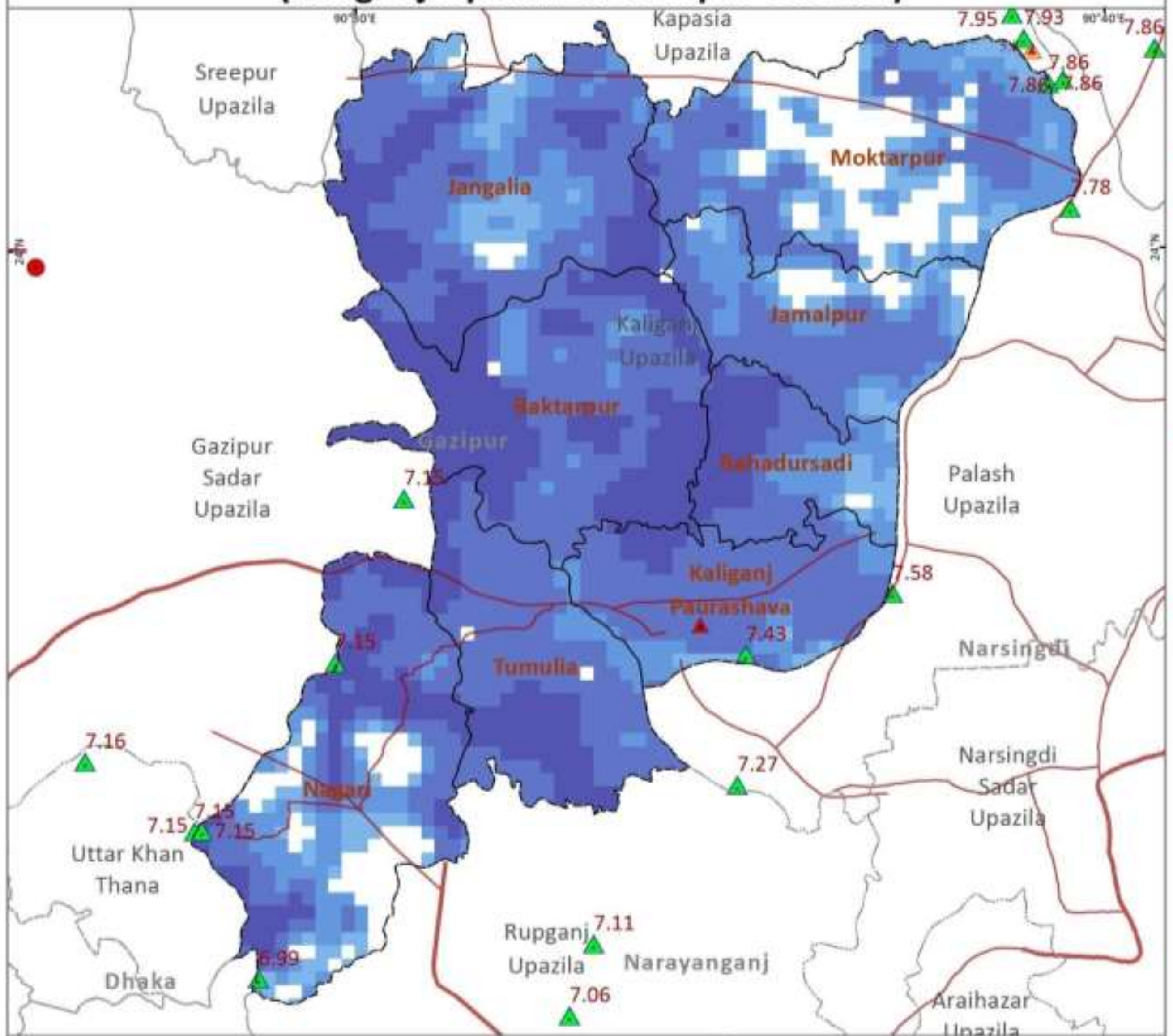
Flood Inundation Map for 25 Year Return Period
(Kaliganj Upazila of Gazipur District)



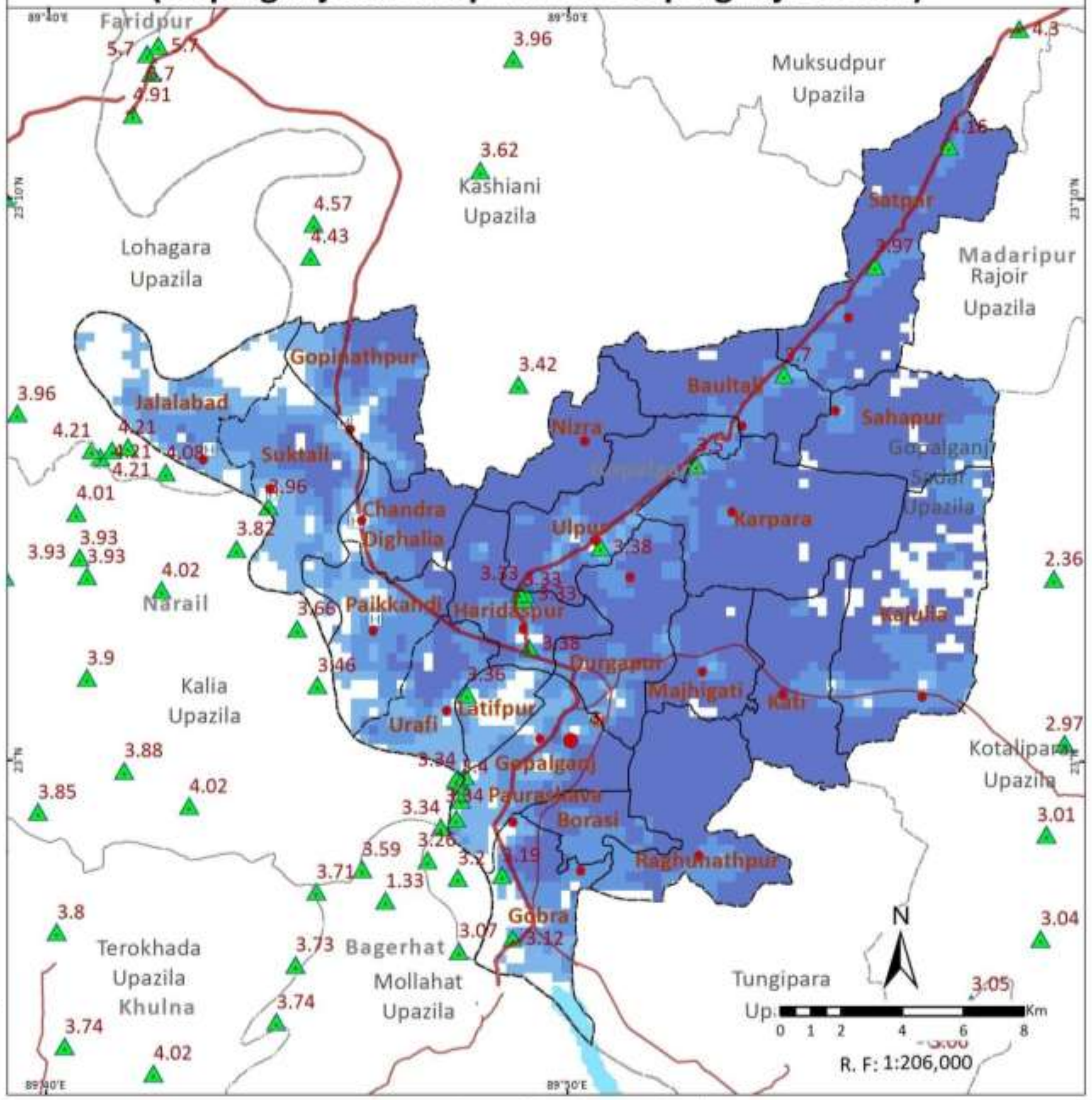
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Lakhpur	5.8	7.95	8.22	8.46	8.6

N

00.51 2 3 4 5 6 km

R. F: 1:150,000

Flood Inundation Map for 25 Year Return Period
(Gopalganj Sadar Upazila of Gopalganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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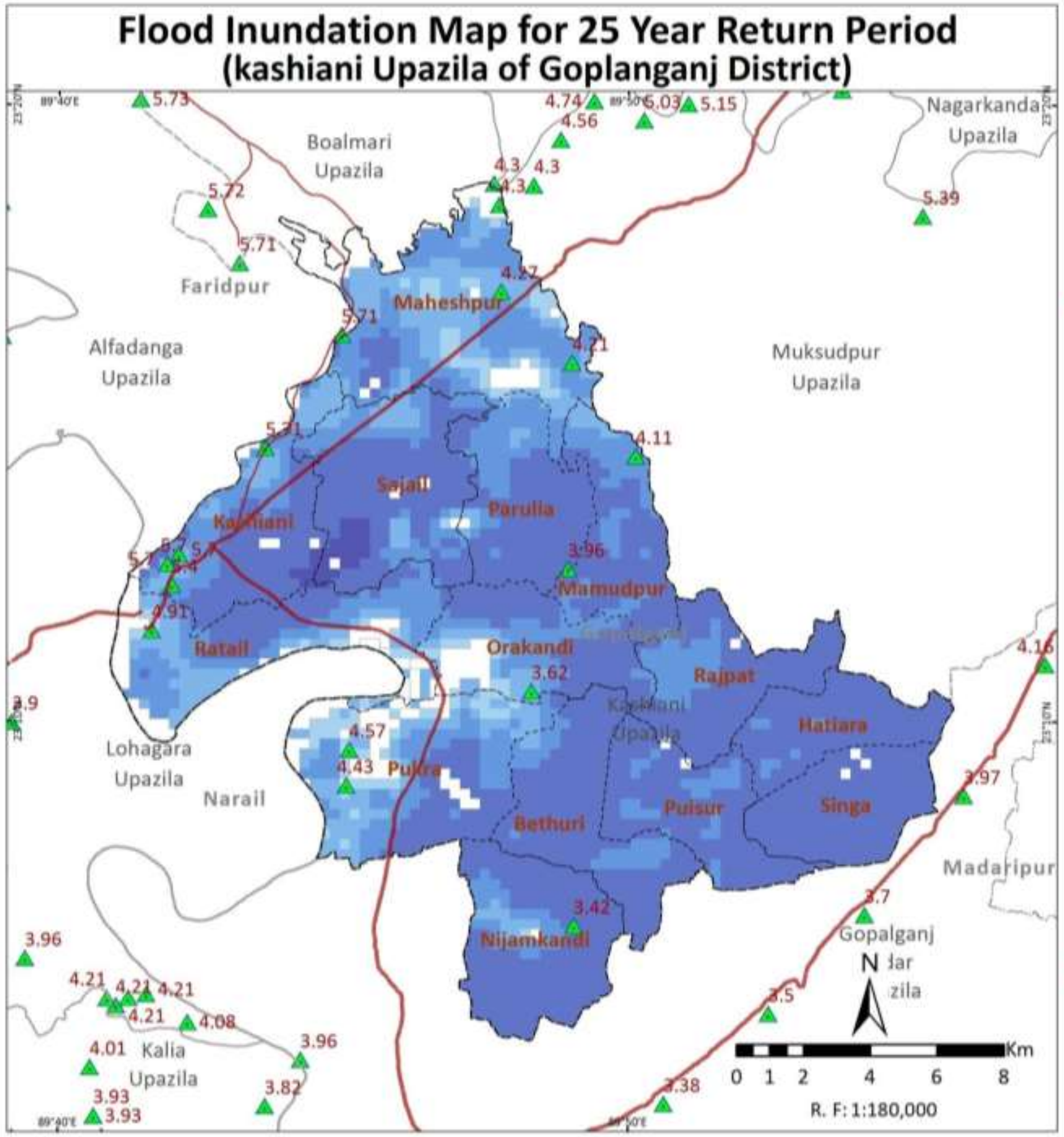

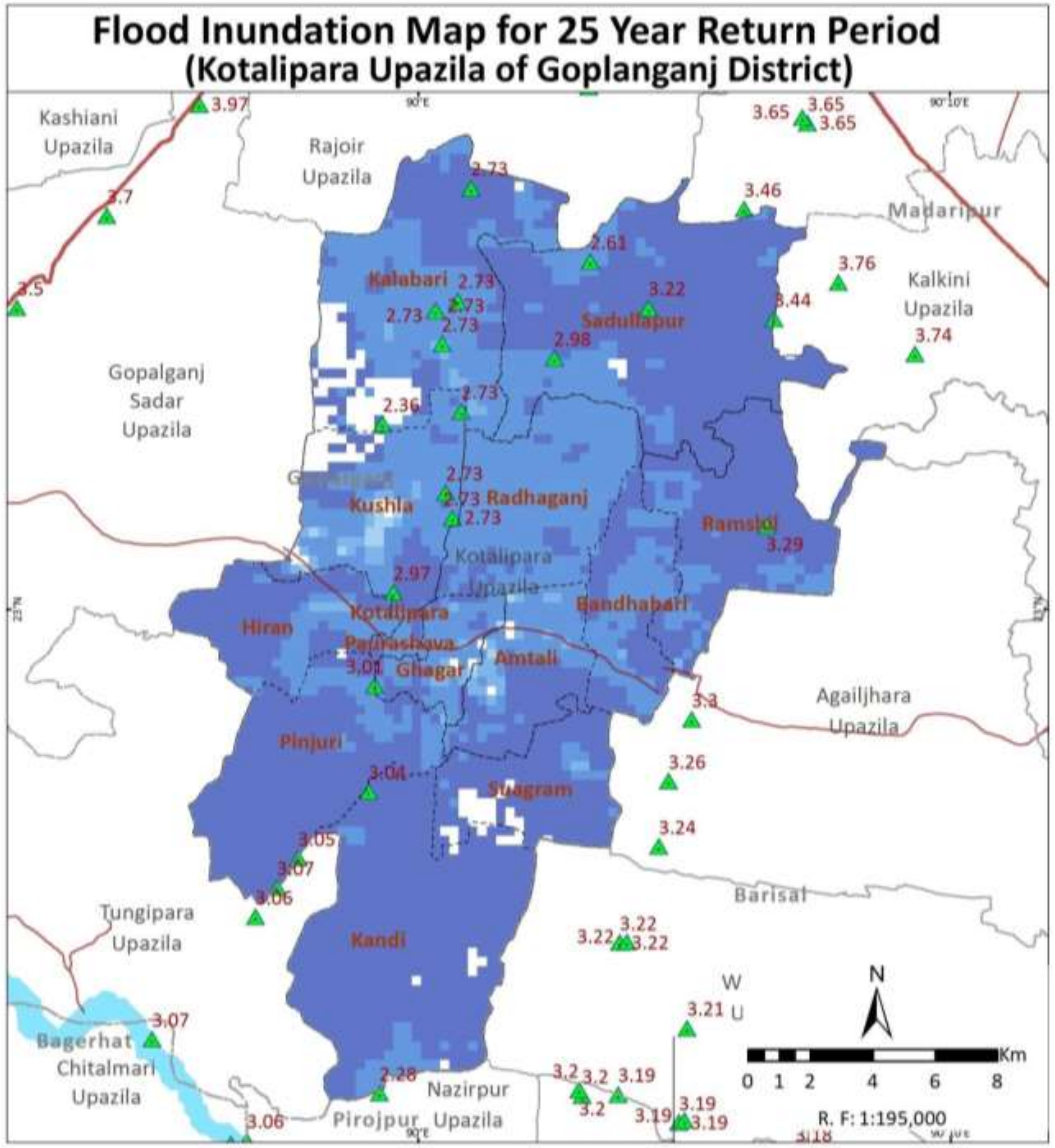

Legend

Country Boundary	District Head Quarter	**Flood Depth (m)**
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire Station	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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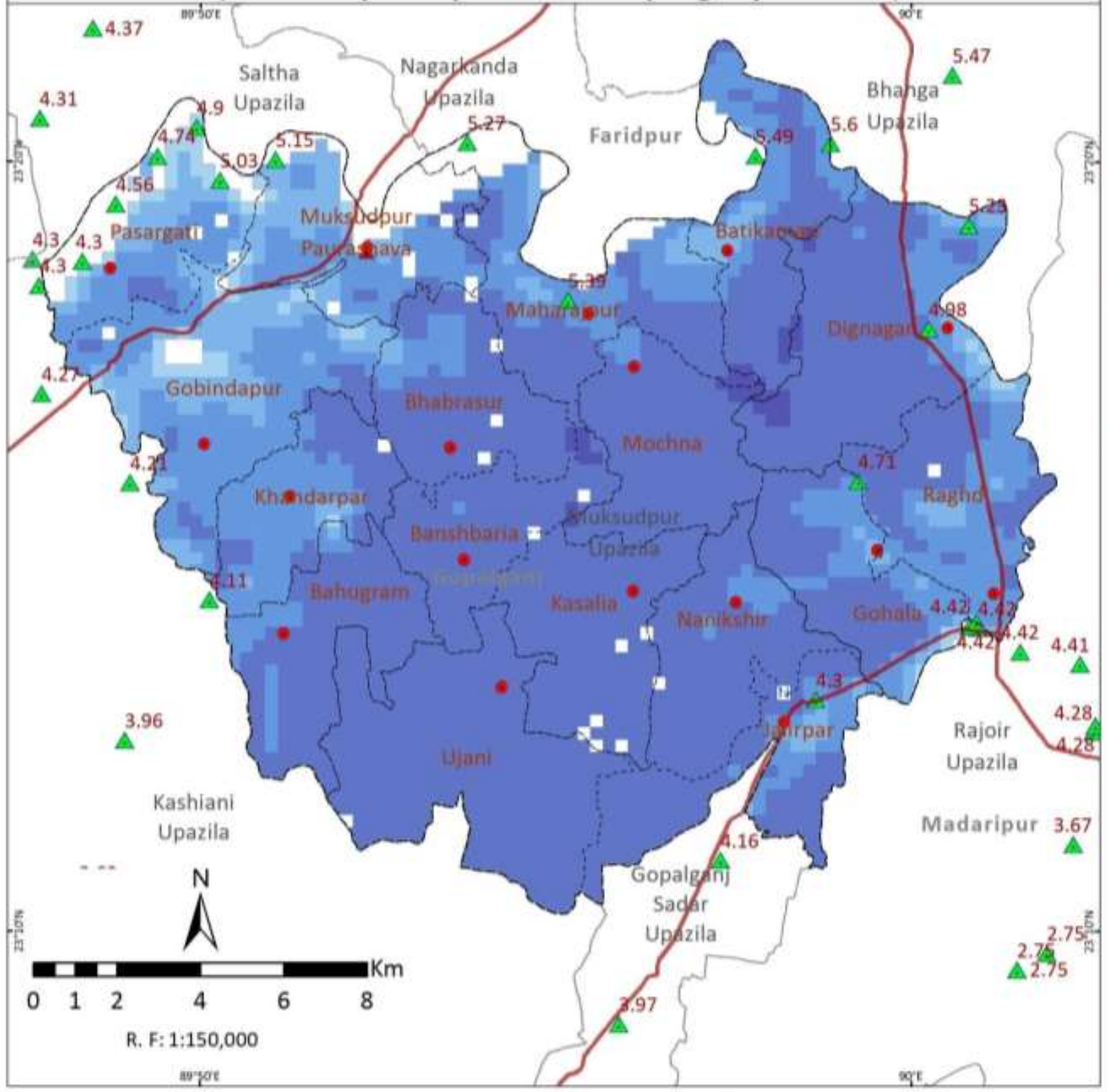
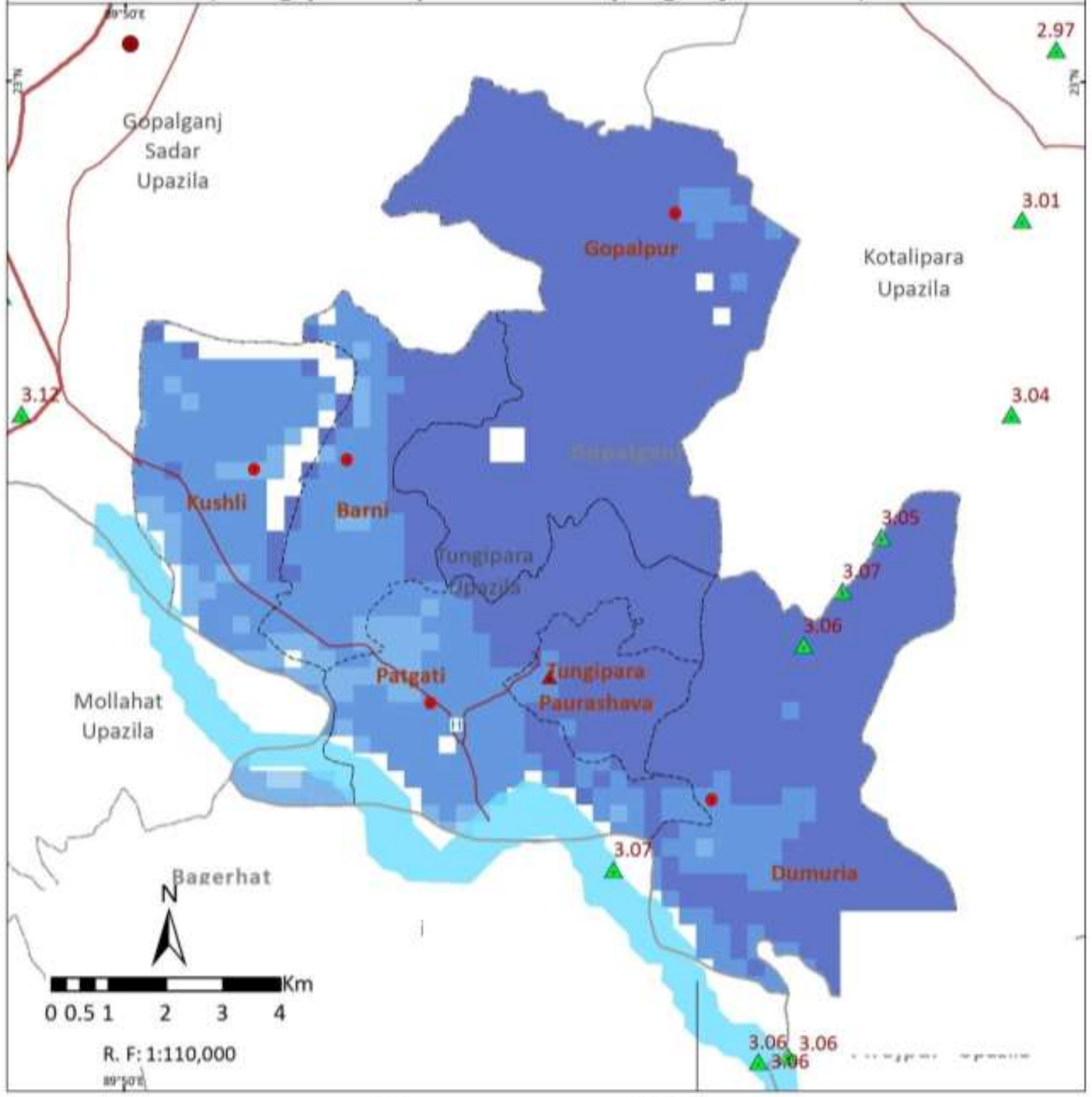
Flood Inundation Map for 25 Year Return Period
(Muksudpur Upazila of Gopalganj District)



Flood Inundation Map for 25 Year Return Period
(Tungipara Upazila of Gopalganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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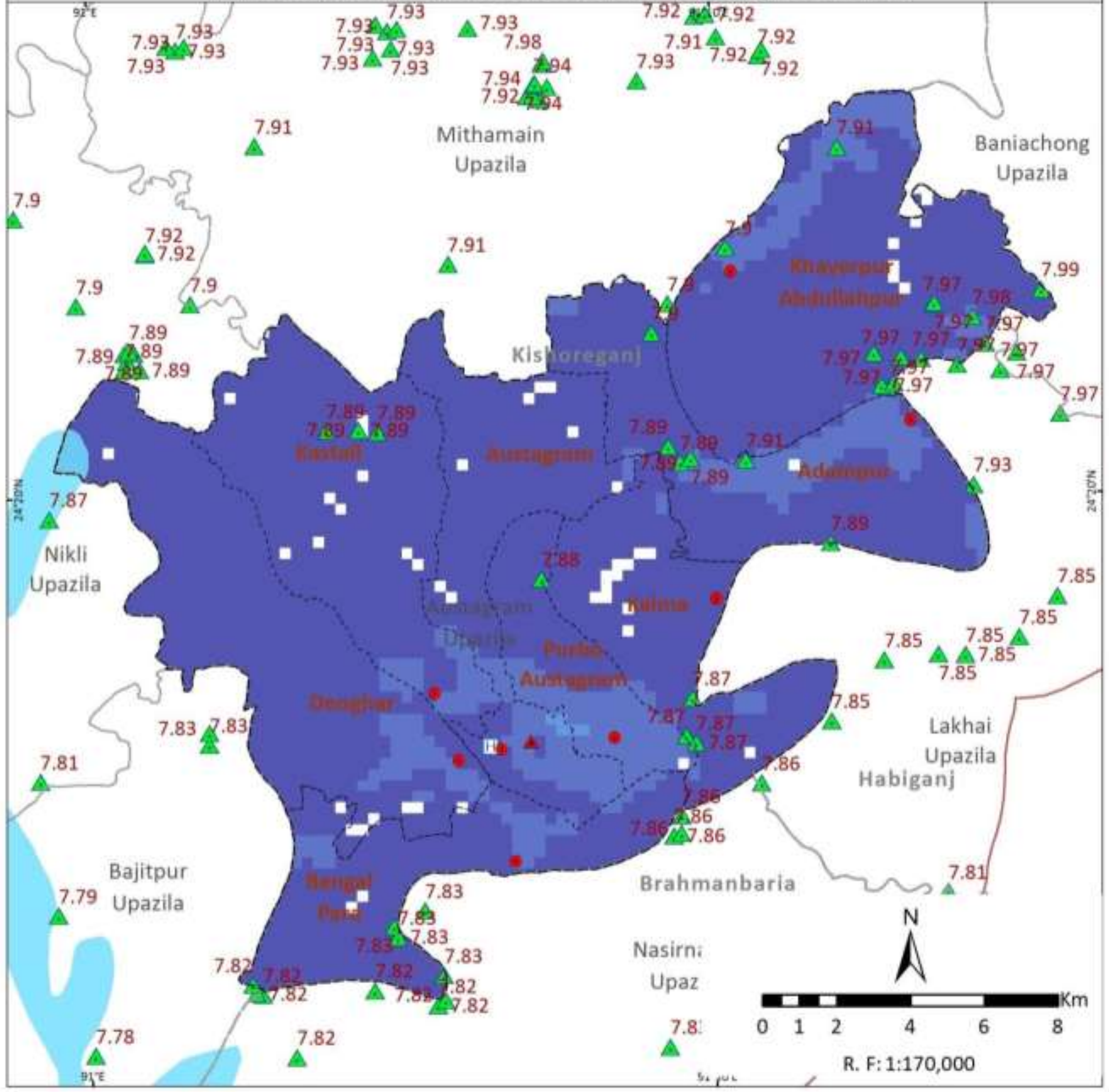
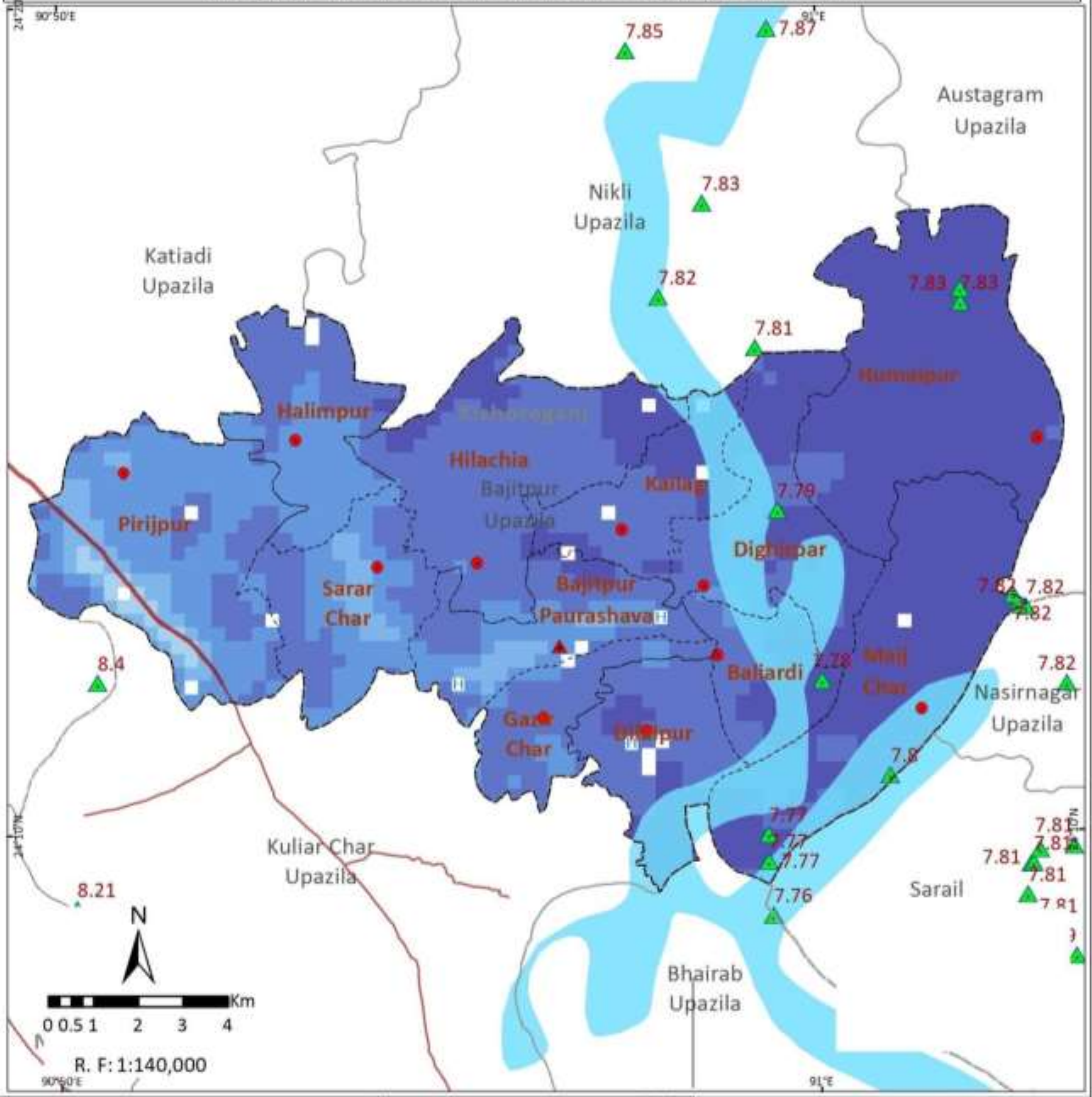
Flood Inundation Map for 25 Year Return Period
(Austagram Upazila of Kishoreganj District)



Flood Inundation Map for 25 Year Return Period
(Bajitpur Upazila of Kishoreganj District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire Station	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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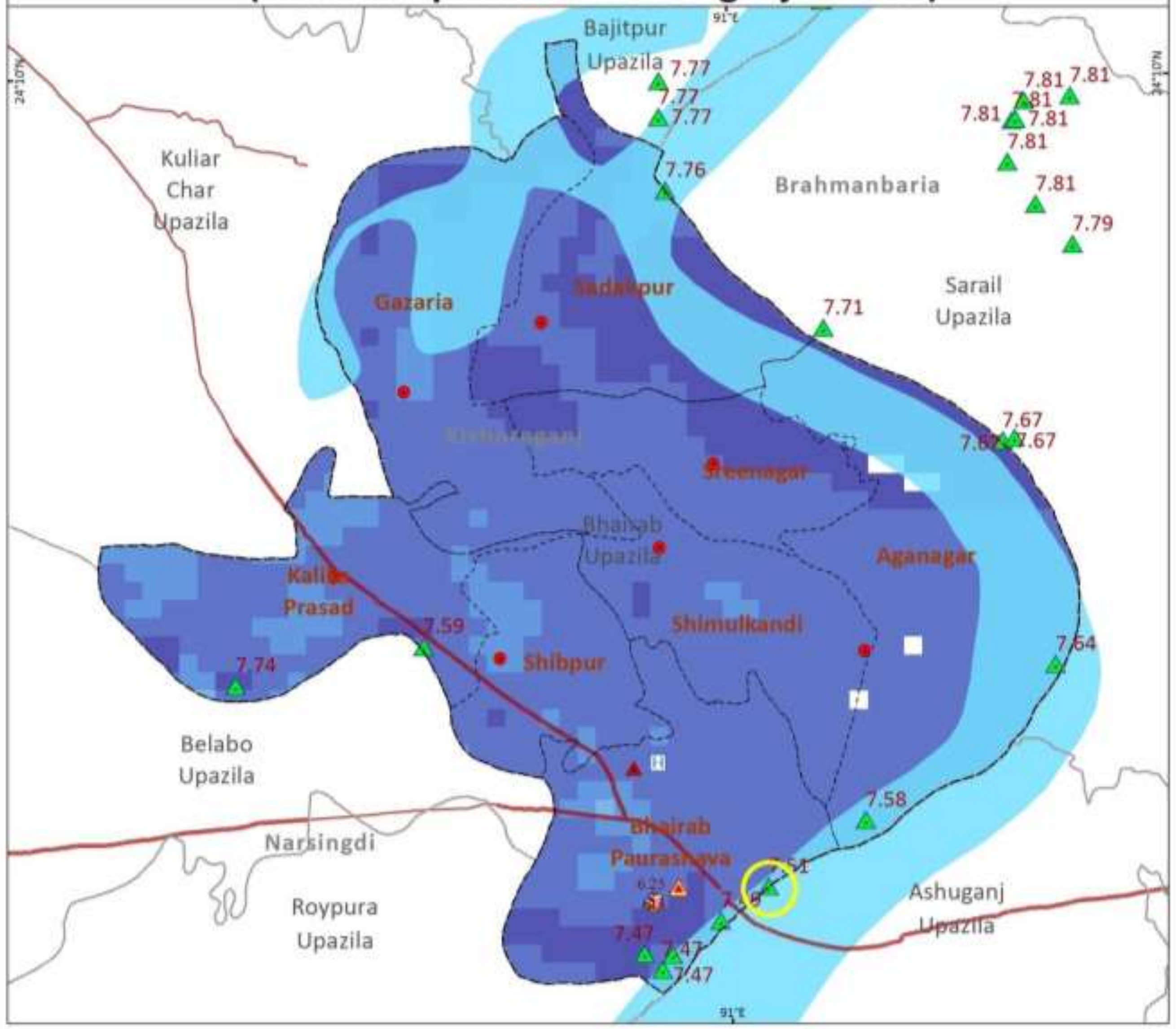
Flood Inundation Map for 25 Year Return Period
(Bhairab Upazila of Kishoreganj District)



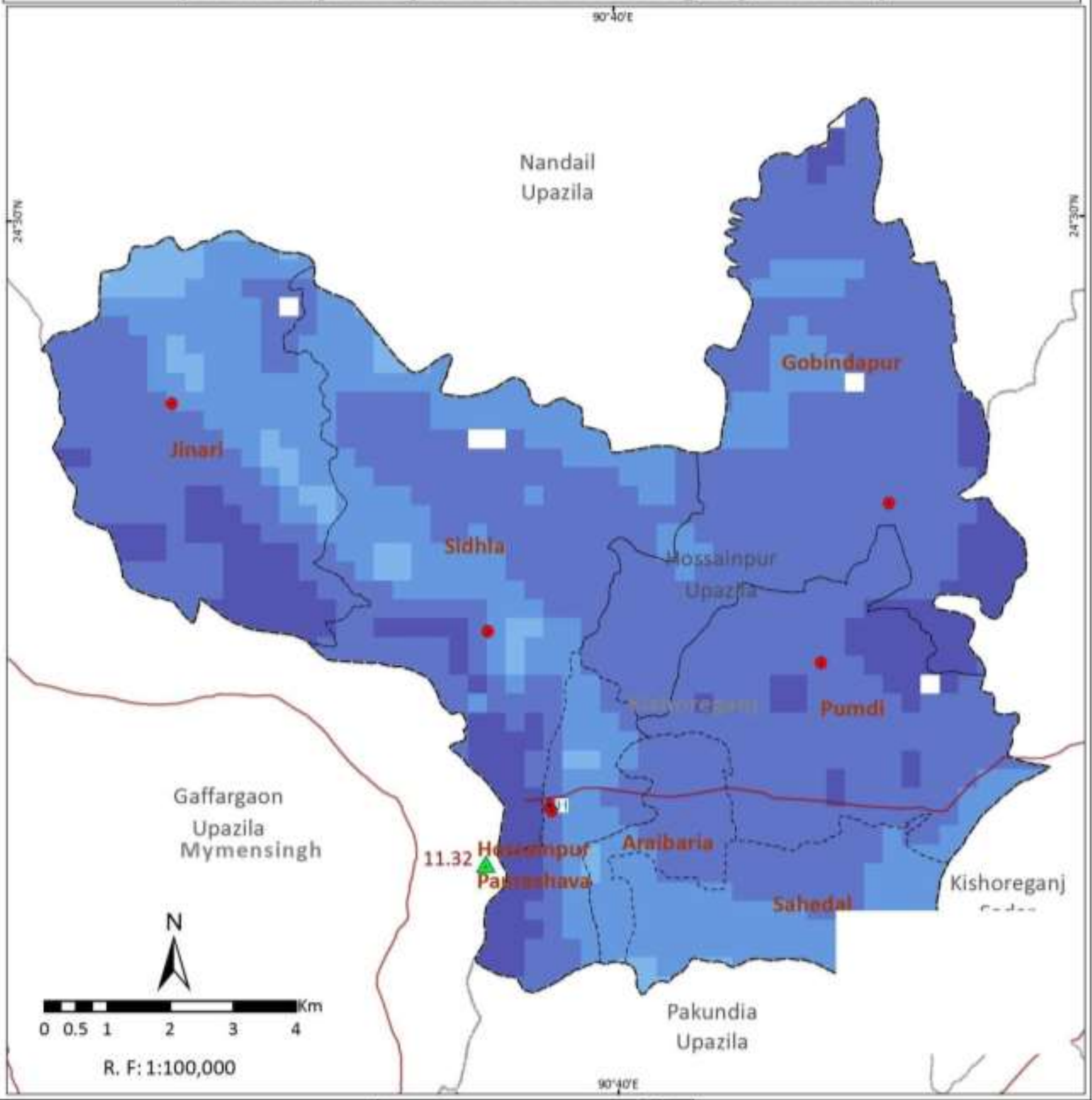
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Bhairabbazar	6.25	7.51	7.72	7.9	8.01

N

0 0.5 1 2 3 4 Km

R. F: 1:110,000

Flood Inundation Map for 25 Year Return Period
(Hossainpur Upazila of Kishoreganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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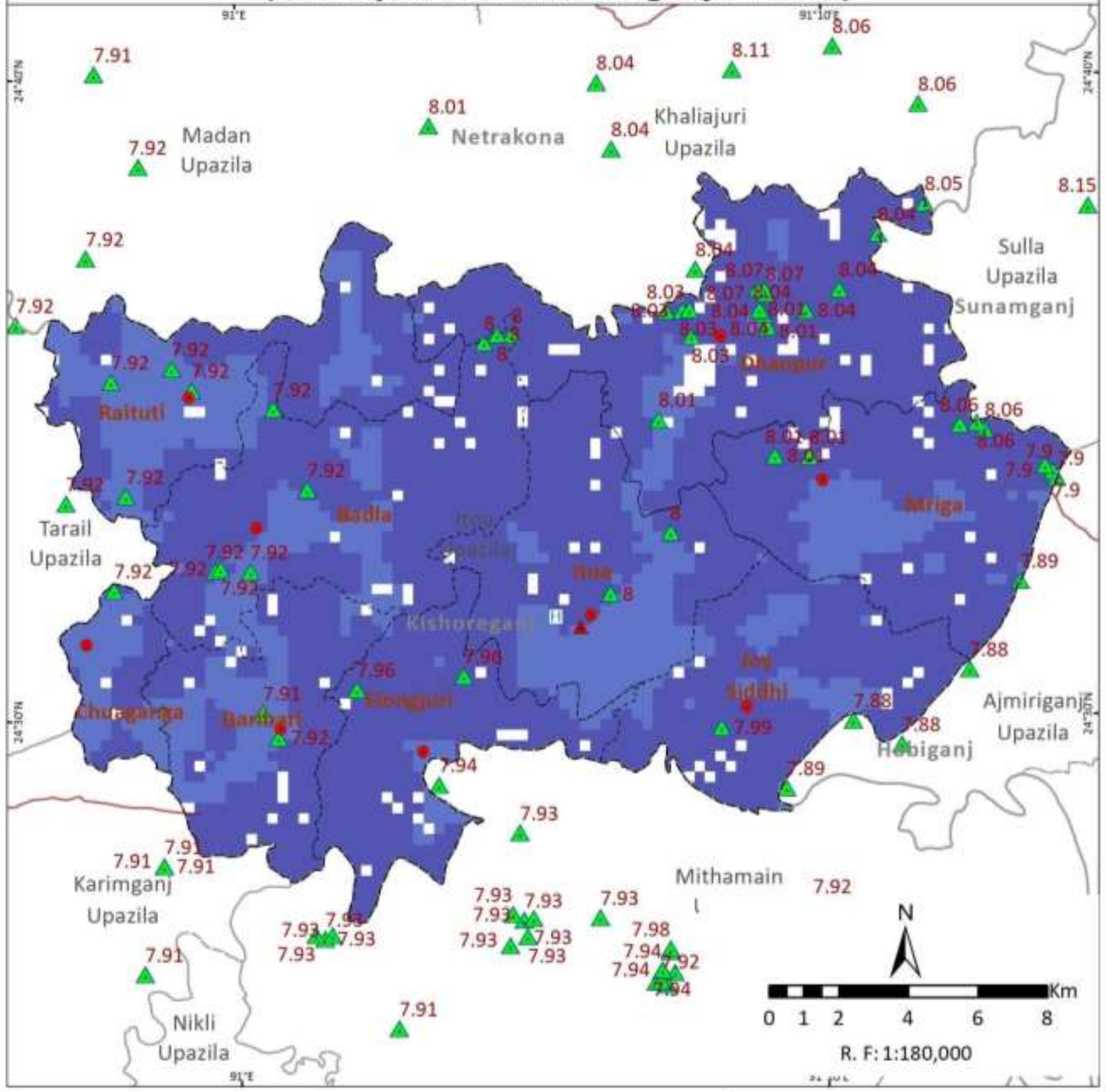
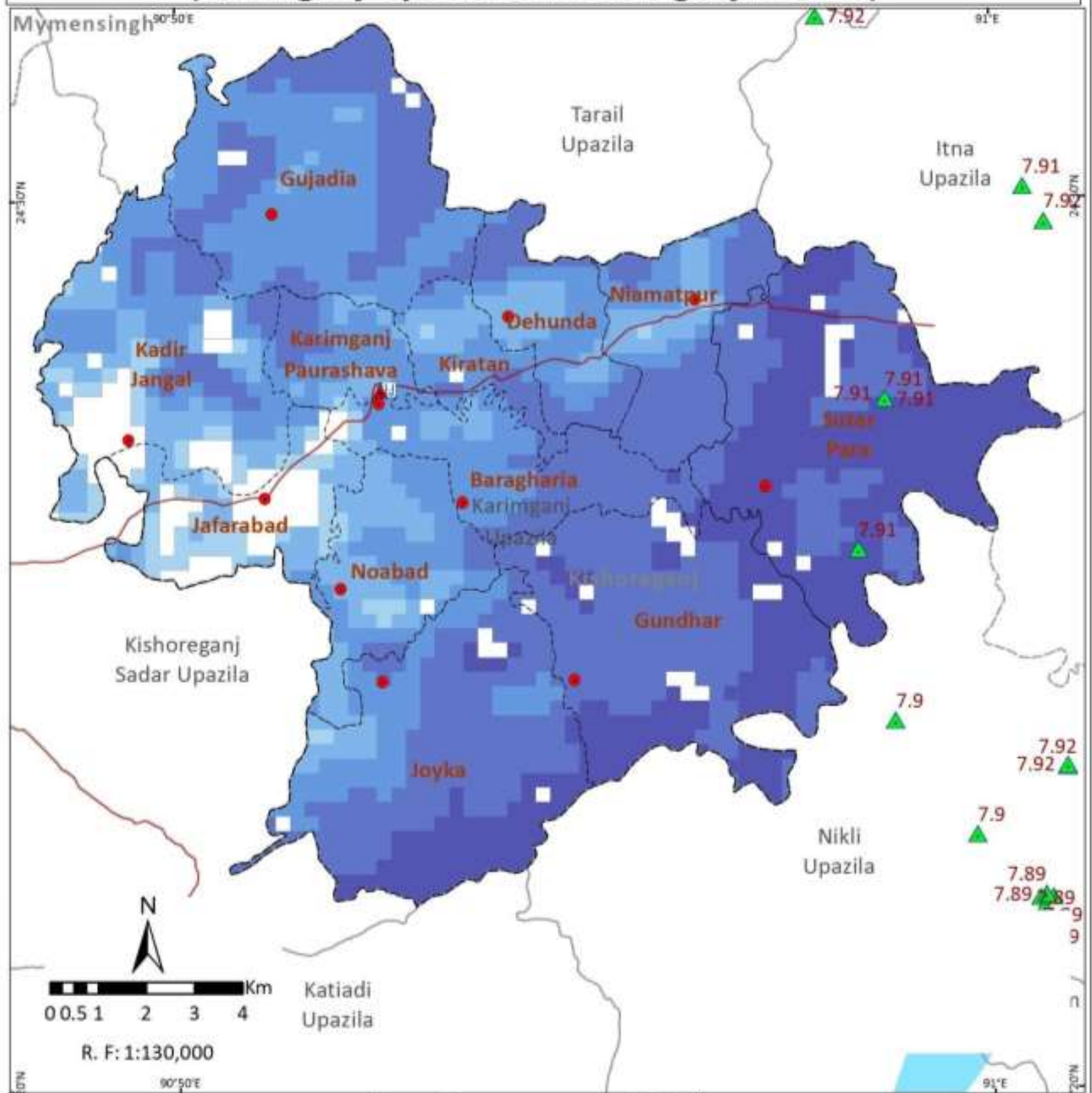
Flood Inundation Map for 25 Year Return Period
(Itna Upazila of Kishoreganj District)



Flood Inundation Map for 25 Year Return Period
(Karimganj Upazila of Kishoreganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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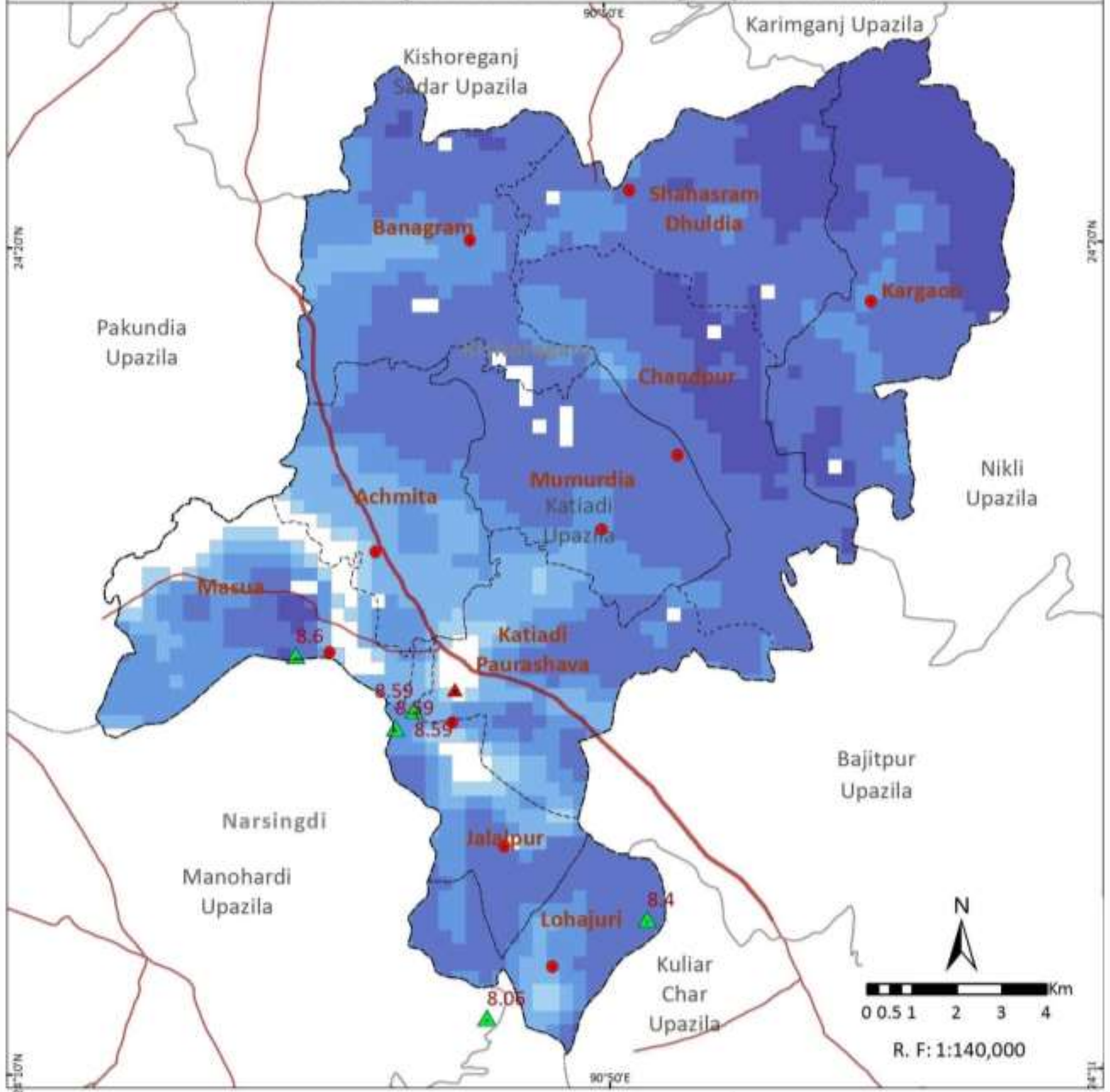
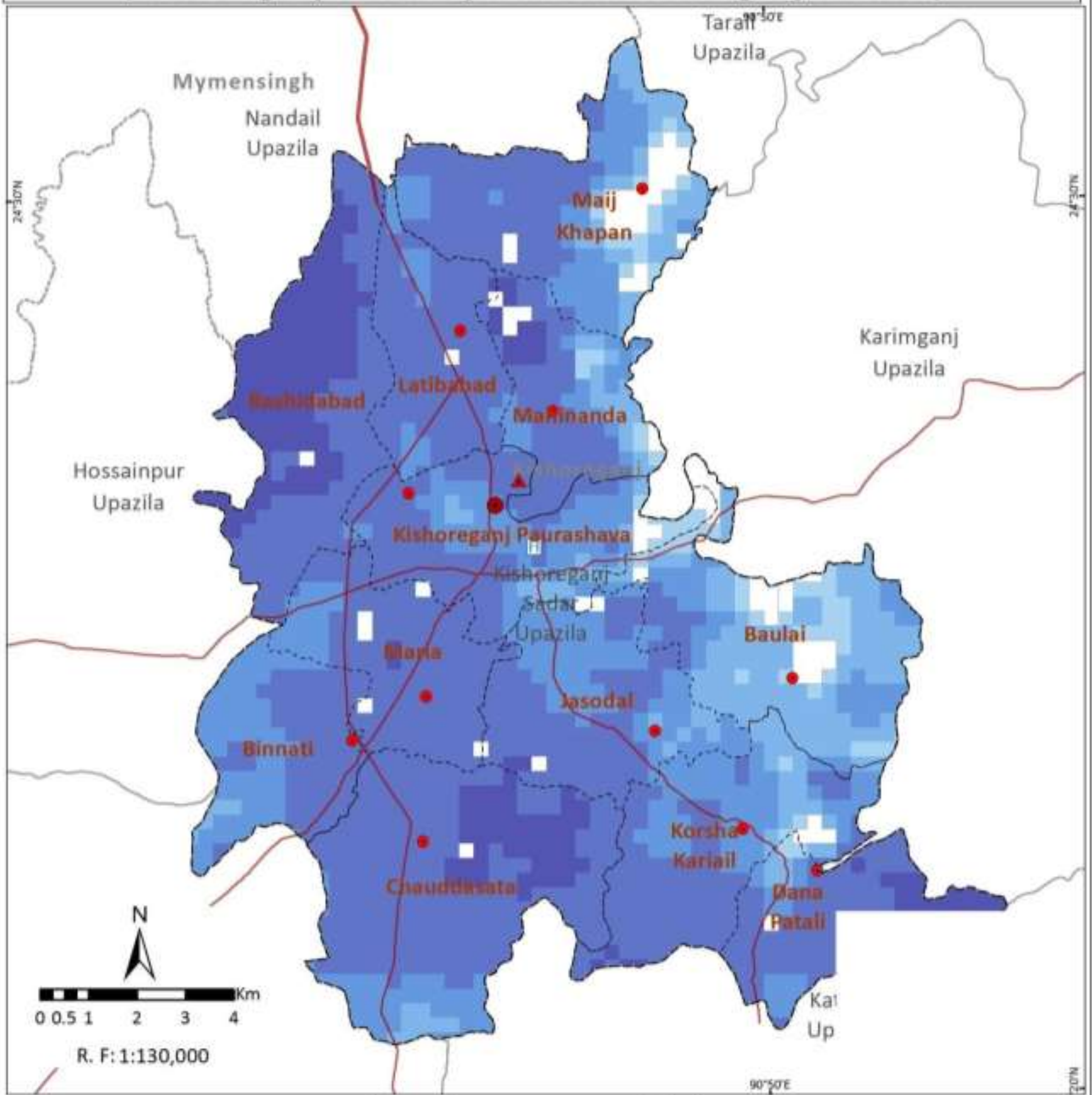
Flood Inundation Map for 25 Year Return Period
(Katiadi Upazila of Kishoreganj District)



Flood Inundation Map for 25 Year Return Period
(Kishoreganj Sadar Upazila of Kishoreganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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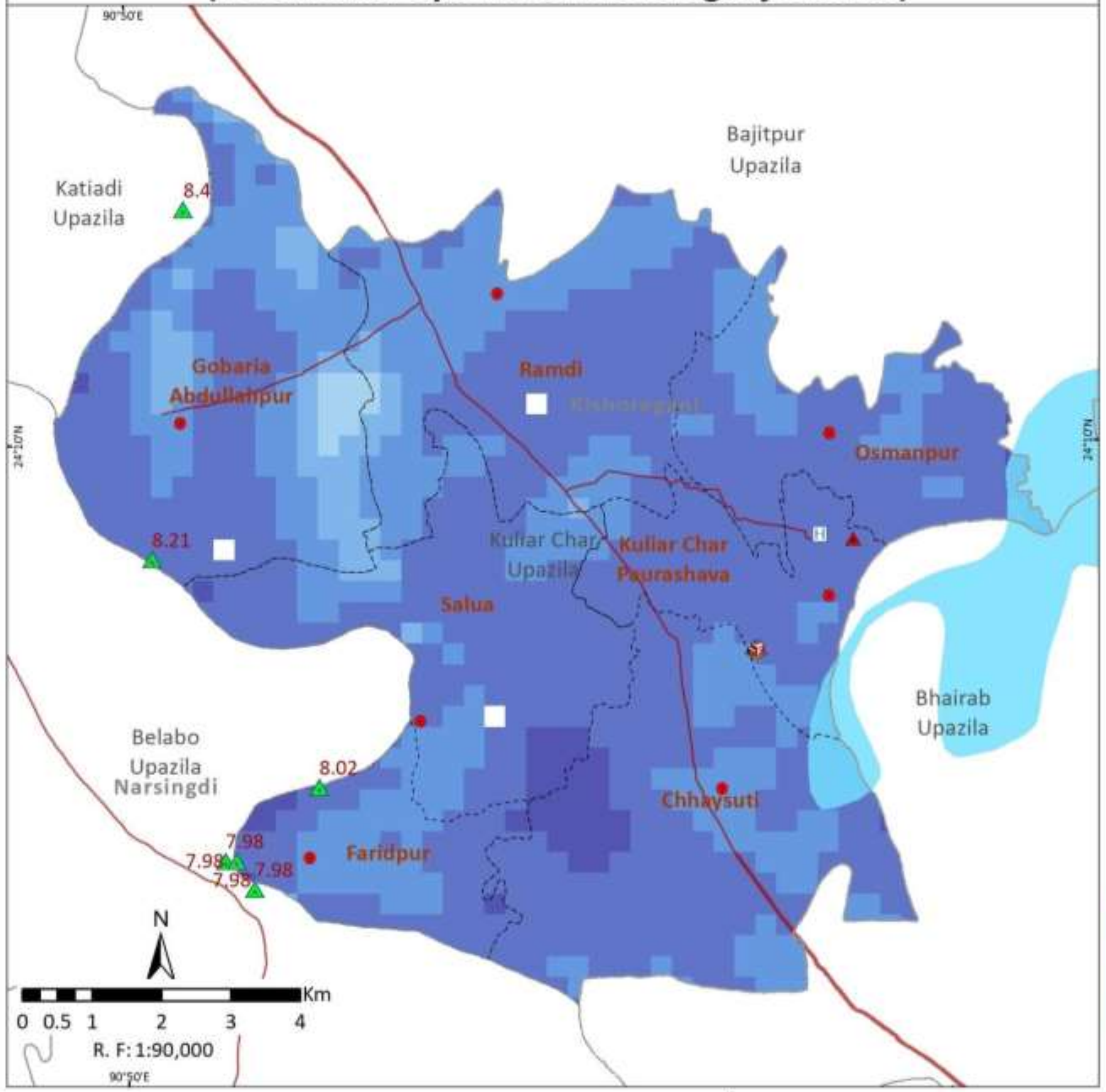
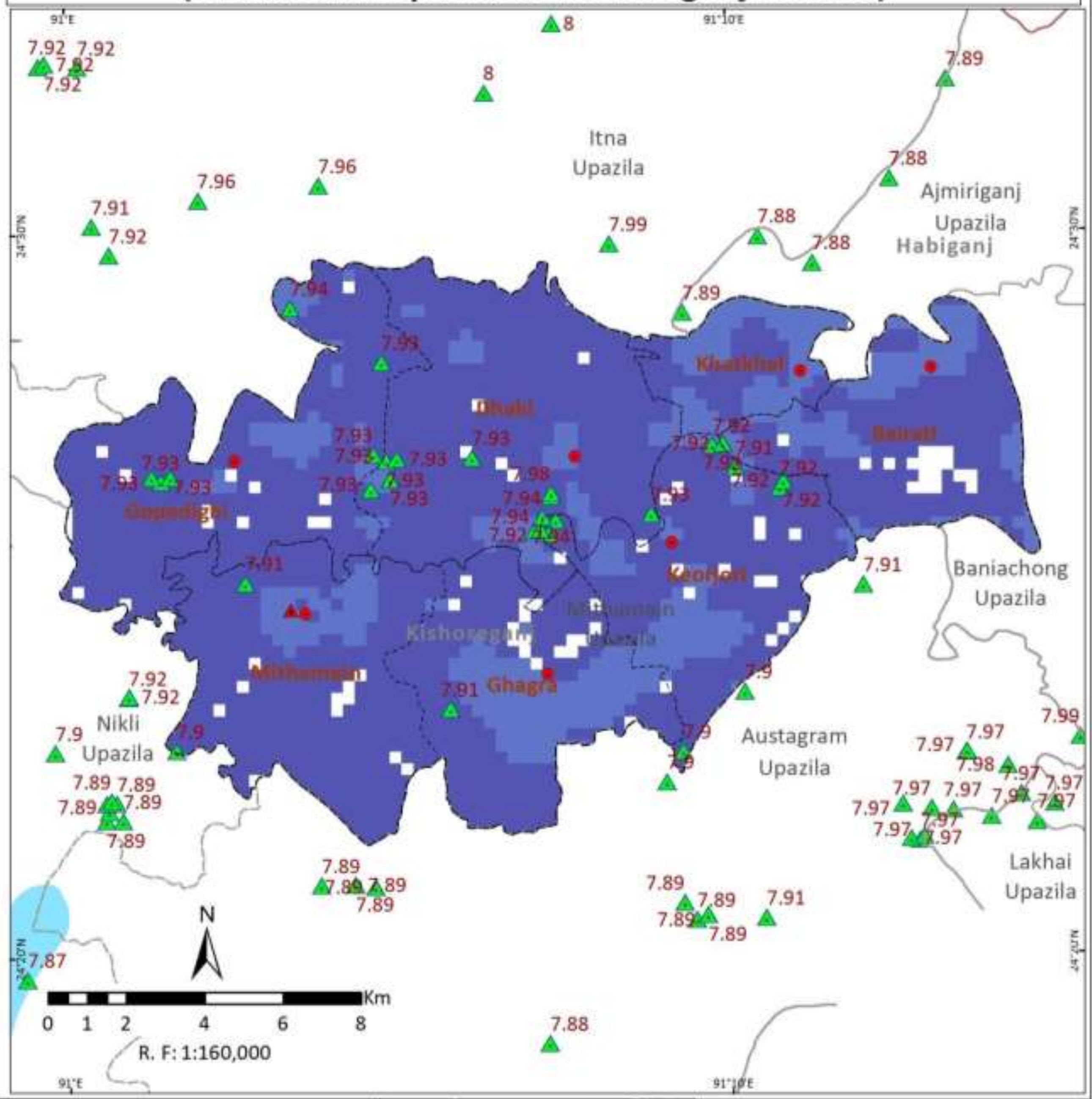
Flood Inundation Map for 25 Year Return Period
(Kuliar Char Upazila of Kishoreganj District)



Flood Inundation Map for 25 Year Return Period
(Mithamain Upazila of Kishoreganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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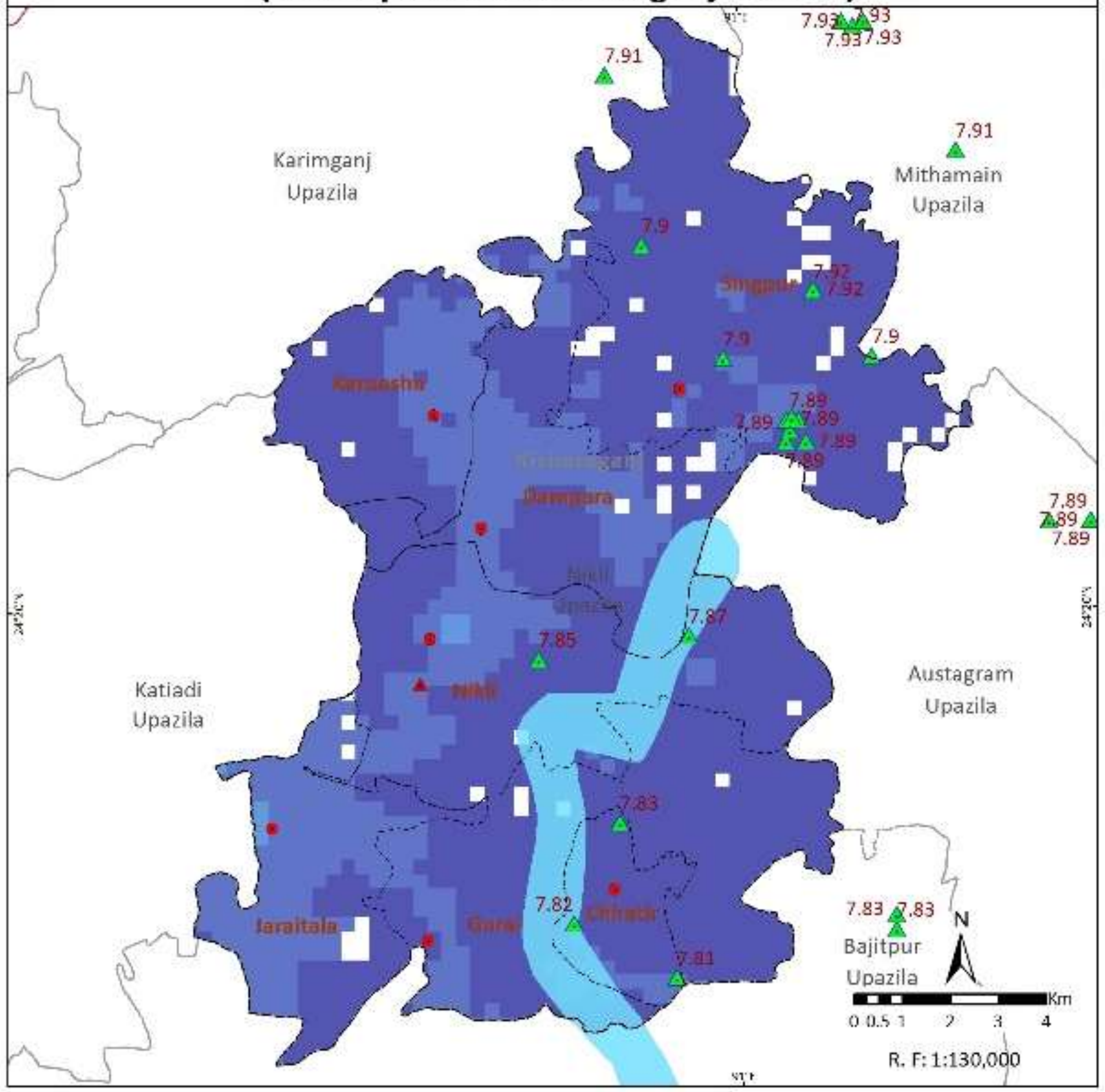
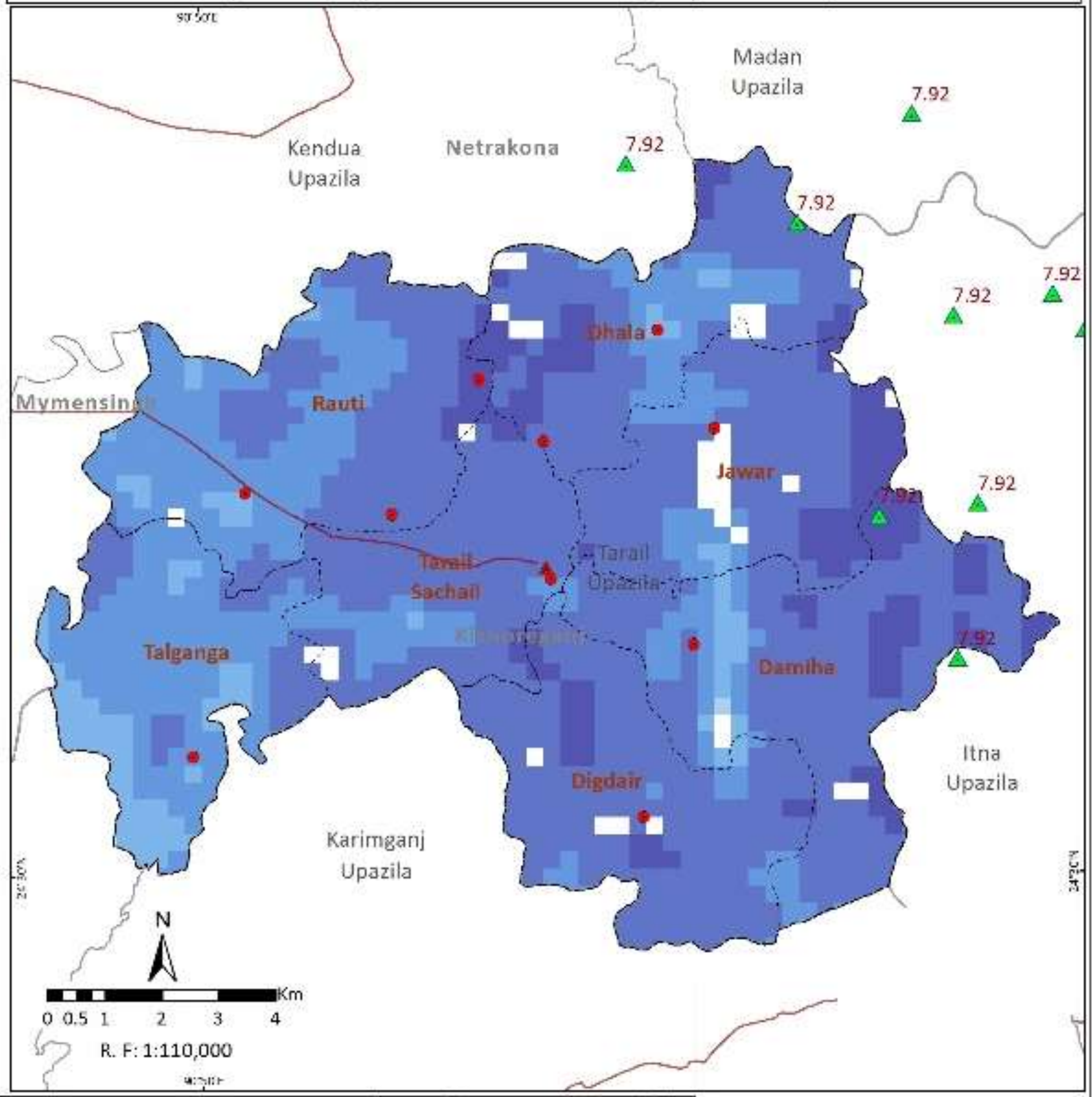
Flood Inundation Map for 25 Year Return Period
(Nikli Upazila of Kishoreganj District)



Flood Inundation Map for 25 Year Return Period
(Tarail Upazila of Kishoreganj District)



Legend

Country Boundary	District Head Quarter	**Flood Depth (m)**
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire Station	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

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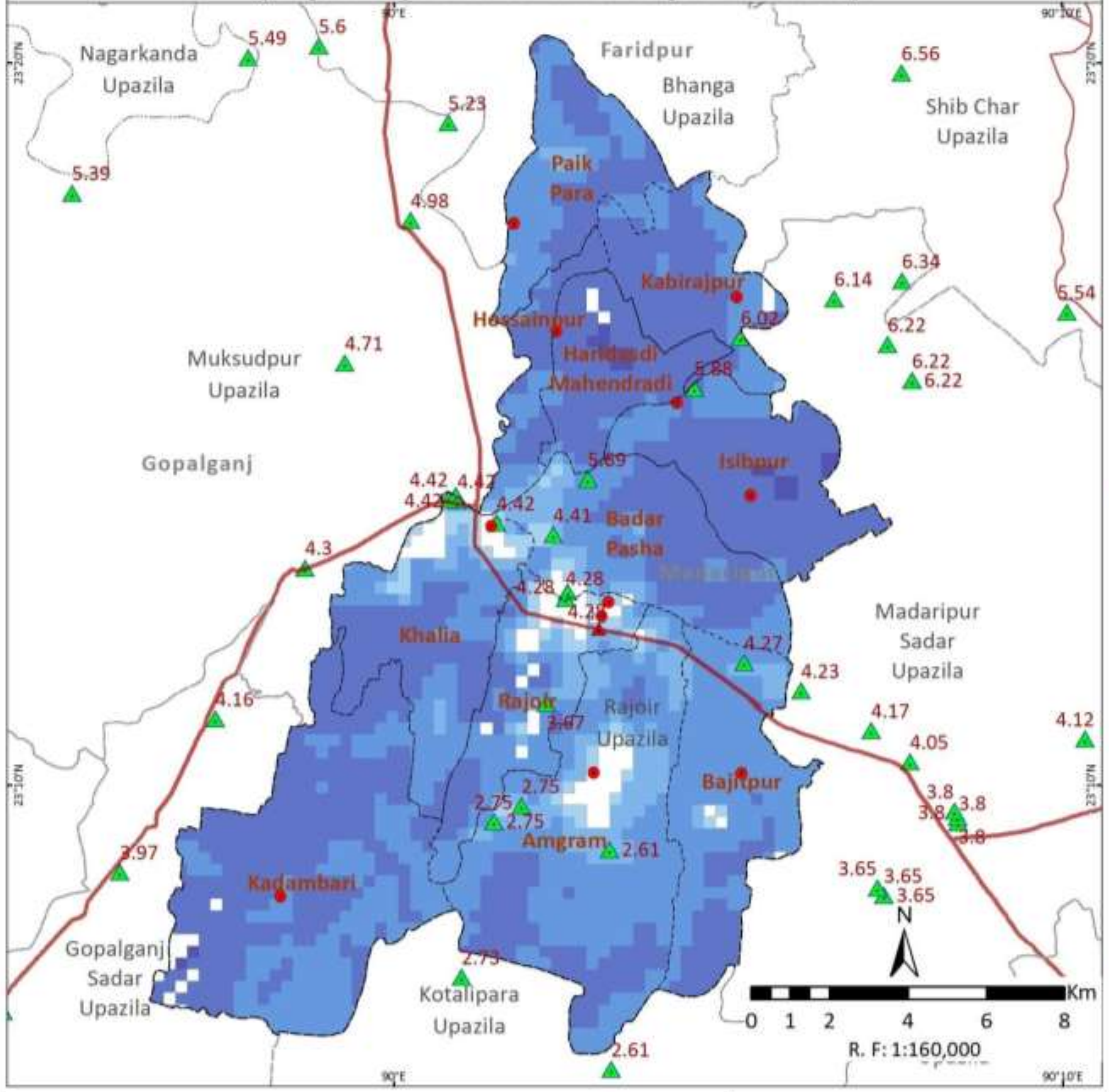
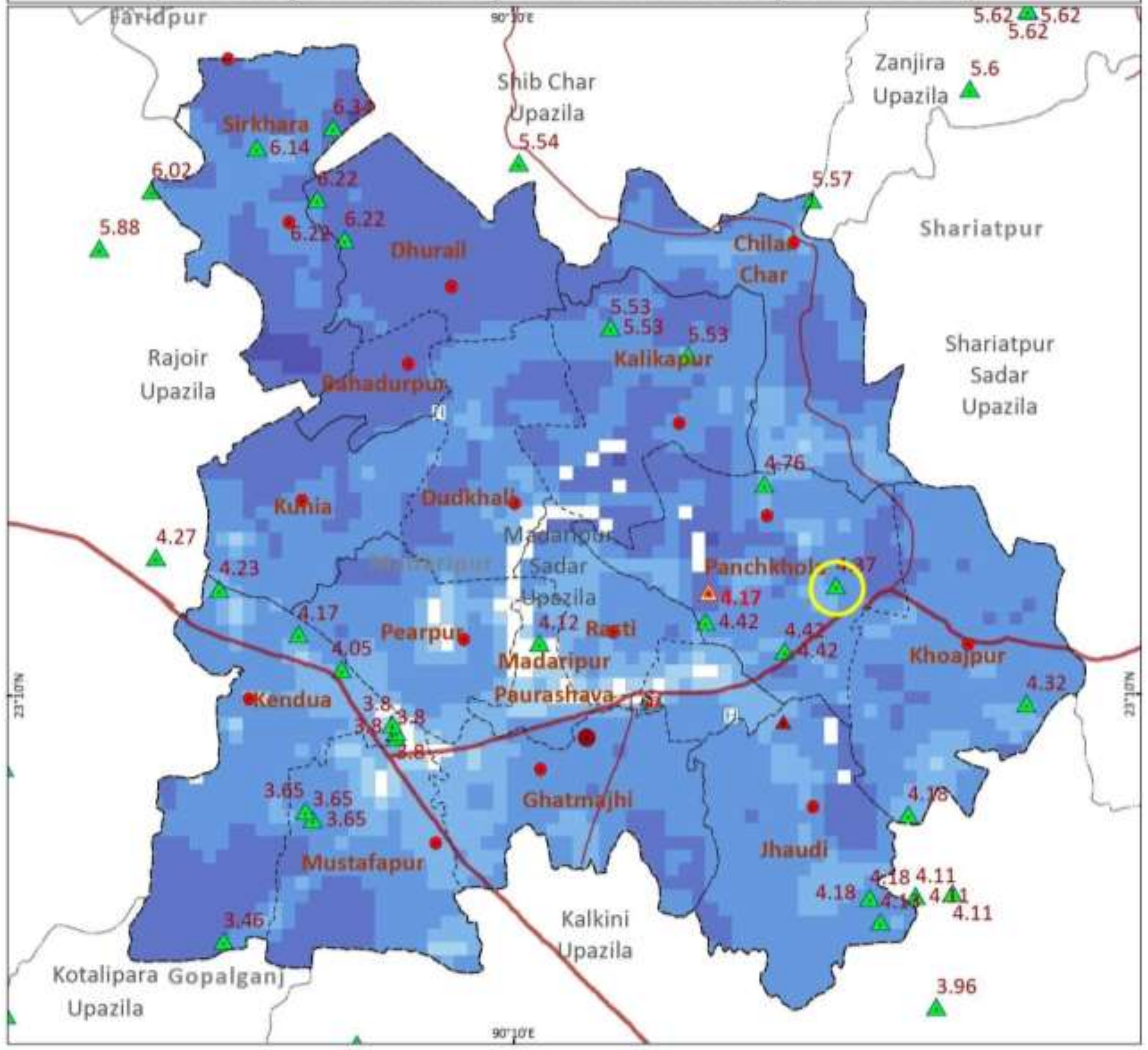
Flood Inundation Map for 25 Year Return Period
(Rajoir Upazila of Madaripur District)



Flood Inundation Map for 25 Year Return Period
(Madaripur Sadar Upazila of Madaripur District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Madaripur	4.17	4.37	4.48	4.59	4.64

N

R. F: 1:150,000

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO.

Coordinate System: BTM, Datum: Gulshan 303

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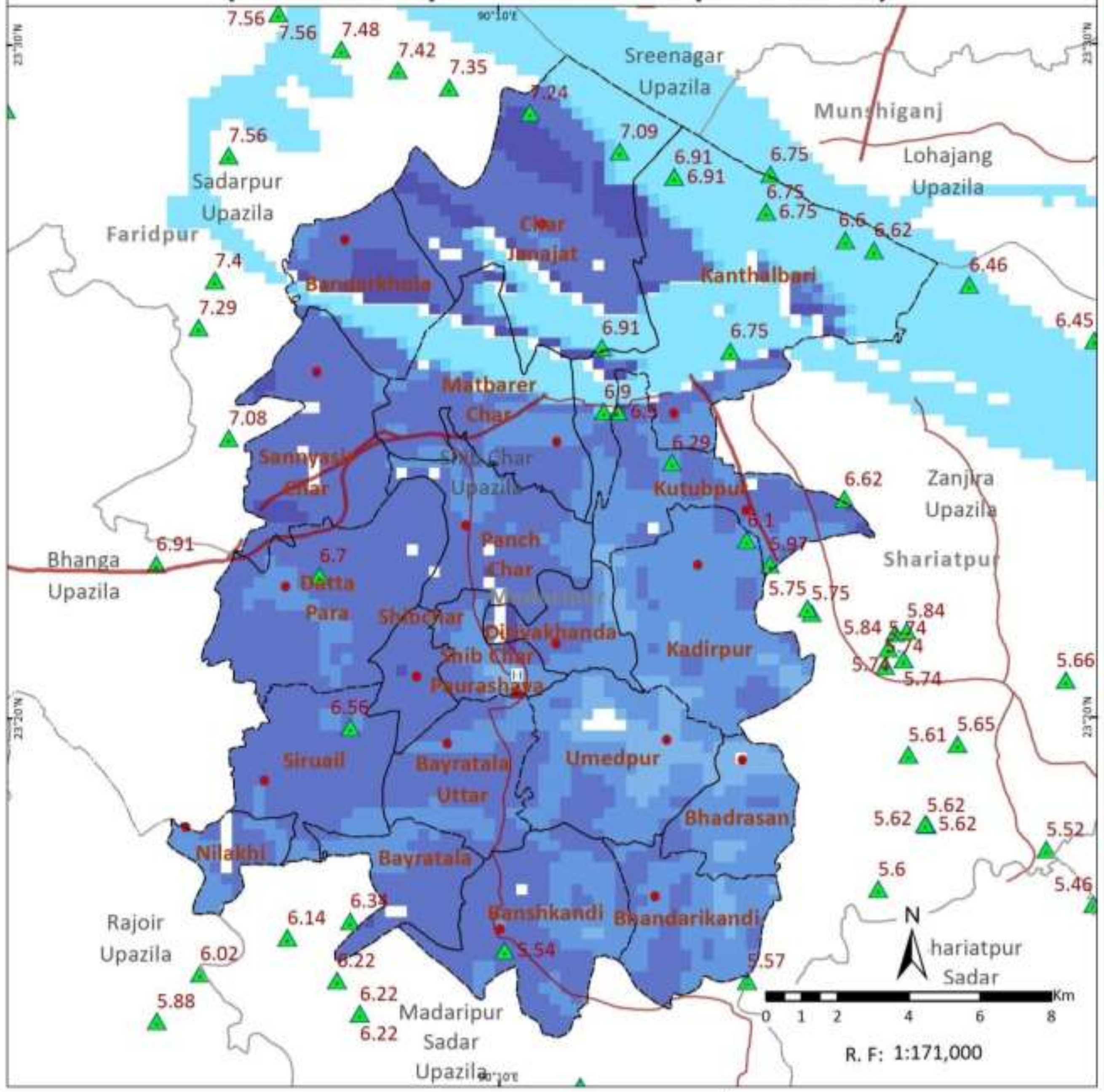
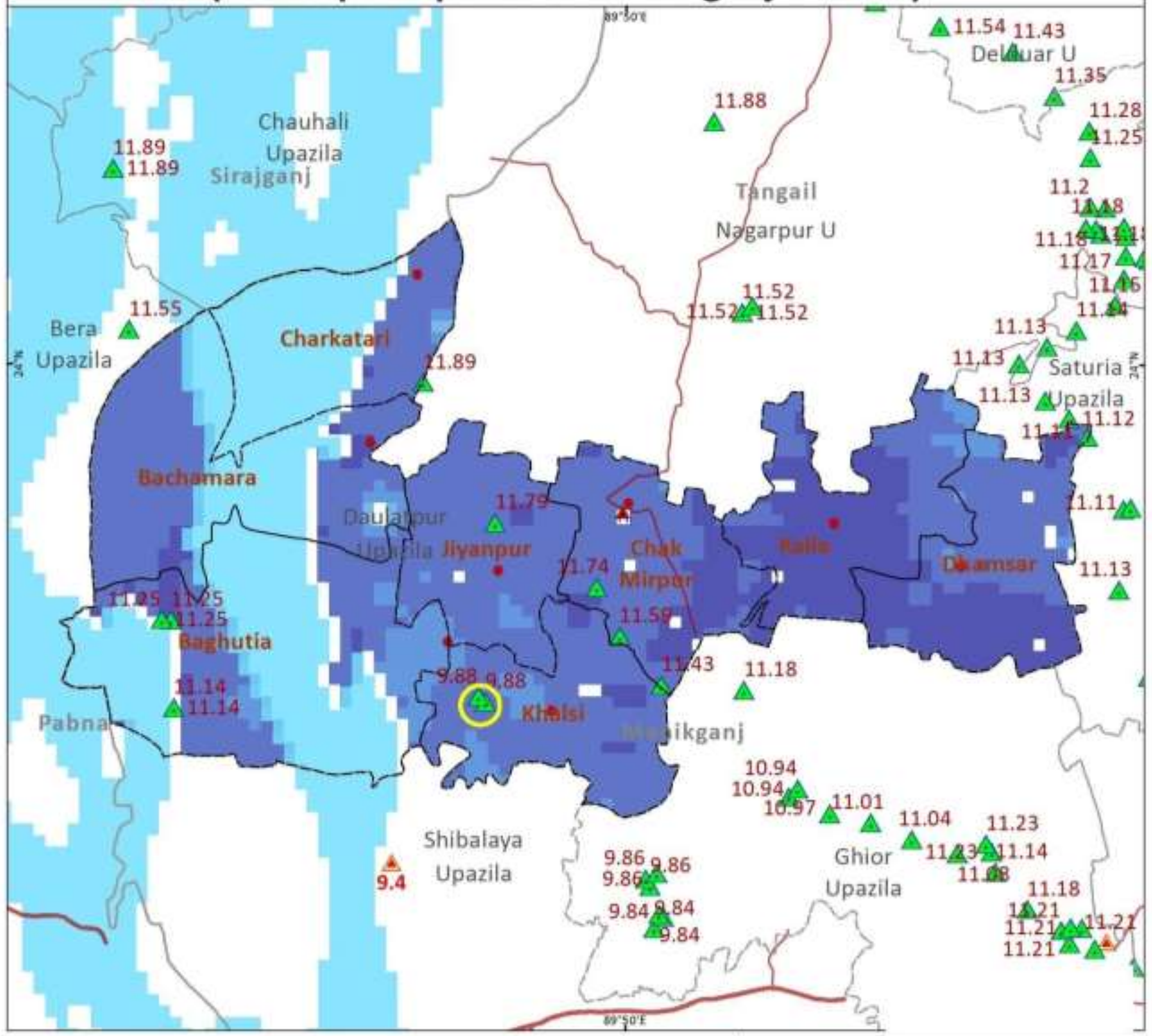
Flood Inundation Map for 25 Year Return Period
(Shib Char Upazila of Madaripur District)



Flood Inundation Map for 25 Year Return Period
(Daulatpur Upazila of Manikganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Aricha	9.4	9.88	10.04	10.18	10.26

N
Km
0 1 2 4 6 8
R. F:1:175,000

Legend

Country Boundary	District Head Quarter	Flood Depth (m)	
Division Boundary	Upazila Head Quarter	Not affected	
District Boundary	Union Head Quarter	<0.3	
Upazila Boundary	Hospital	0.3 - 0.9	
Union Boundary	Cyclone Shelter	0.9 - 1.8	
National High Way	Fire Station	1.8 - 3.6	
Regional High Way	Water Level (m)	> 3.6	
River/Sea/Lake	Danger level (m)		
Sundarbans			

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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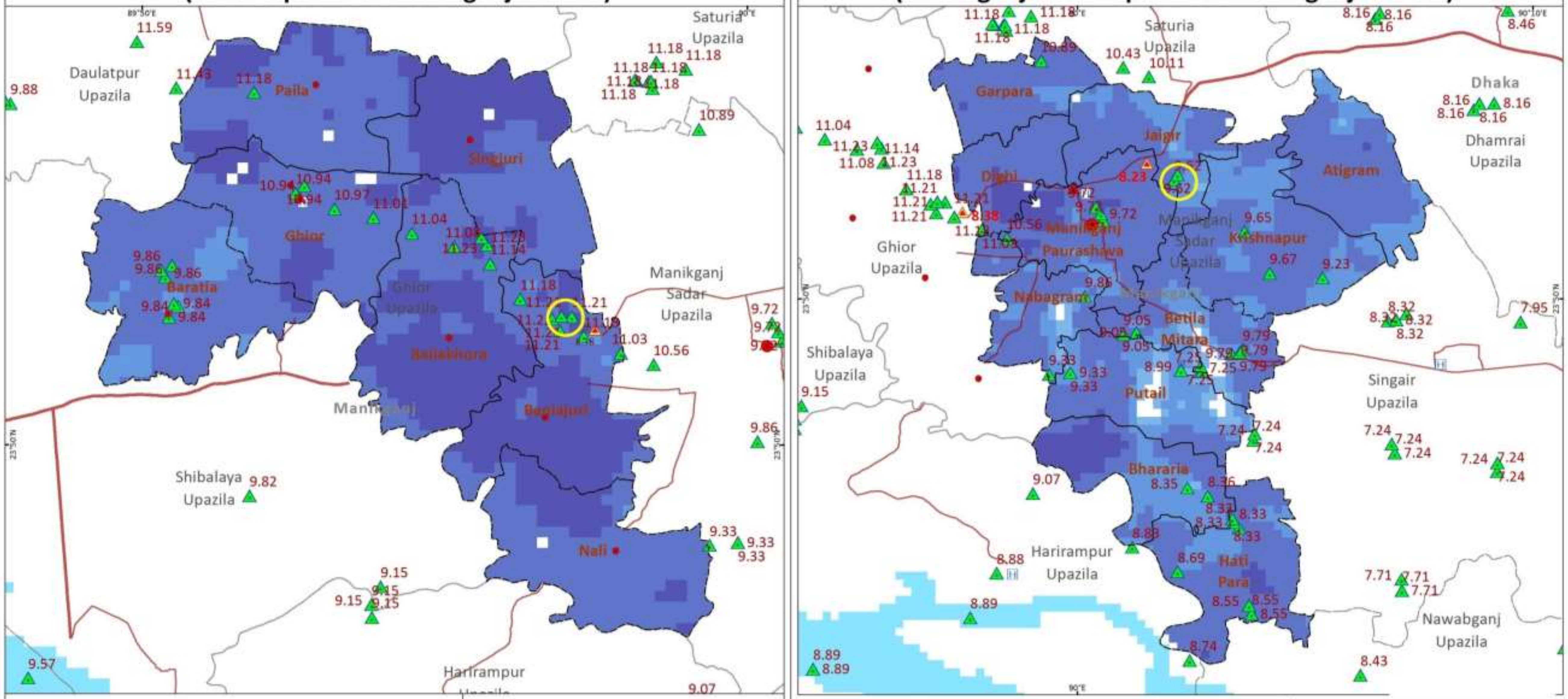
Flood Inundation Map for 25 Year Return Period
(Ghior Upazila of Manikganj District)

Flood Inundation Map for 25 Year Return Period
(Manikganj Sadar Upazila of Manikganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Taraghat	8.38	11.21	11.49	11.75	11.9

N

0 0.5 1 2 3 4 5 km

R. F: 1:125,000

FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Jagir	8.23	9.62	9.83	10.04	10.15
Taraghat	8.38	11.21	11.49	11.75	11.9

N

0 1 2 4 6 8 Km

R. F:1:166,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)
- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- >3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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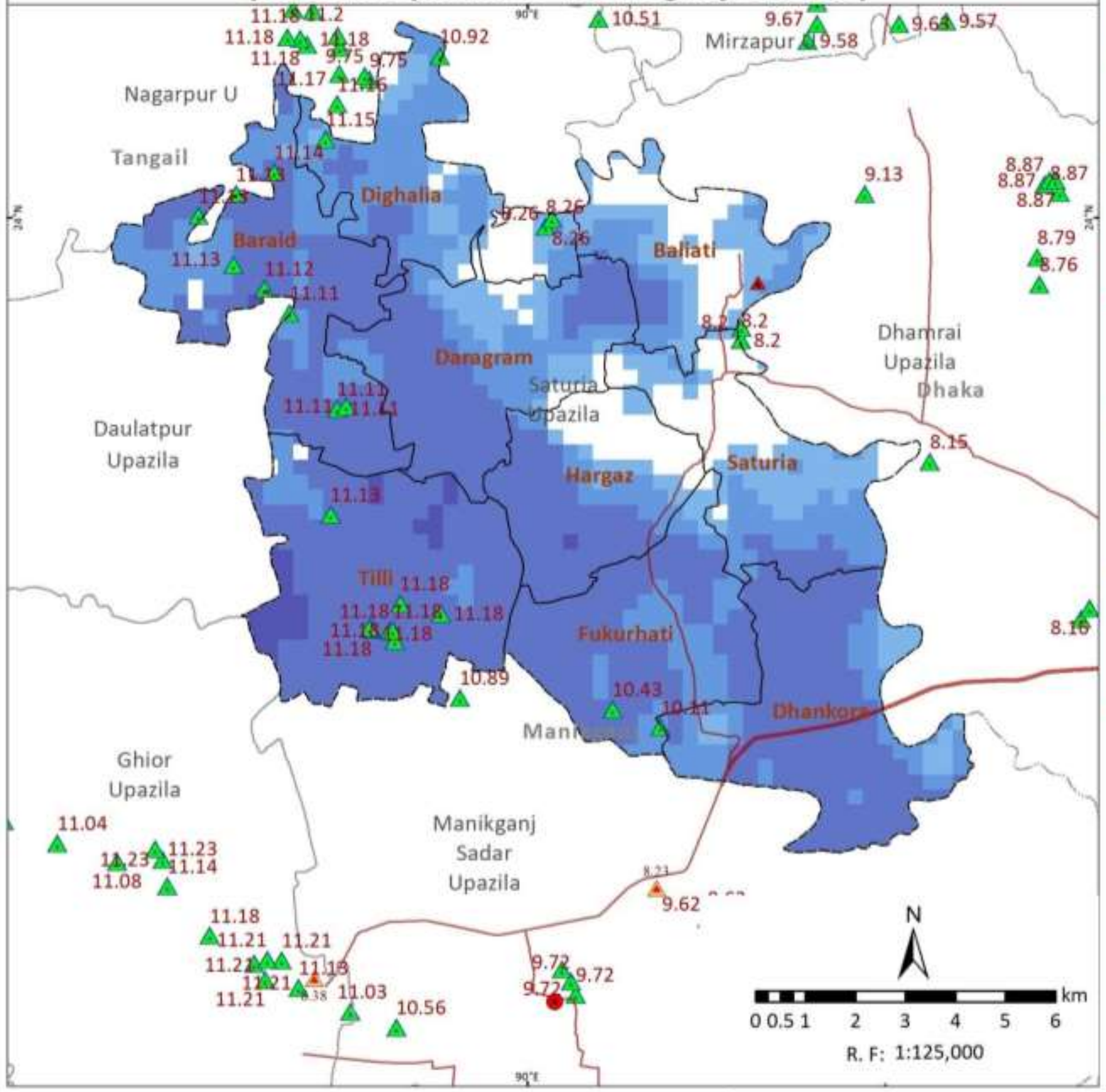
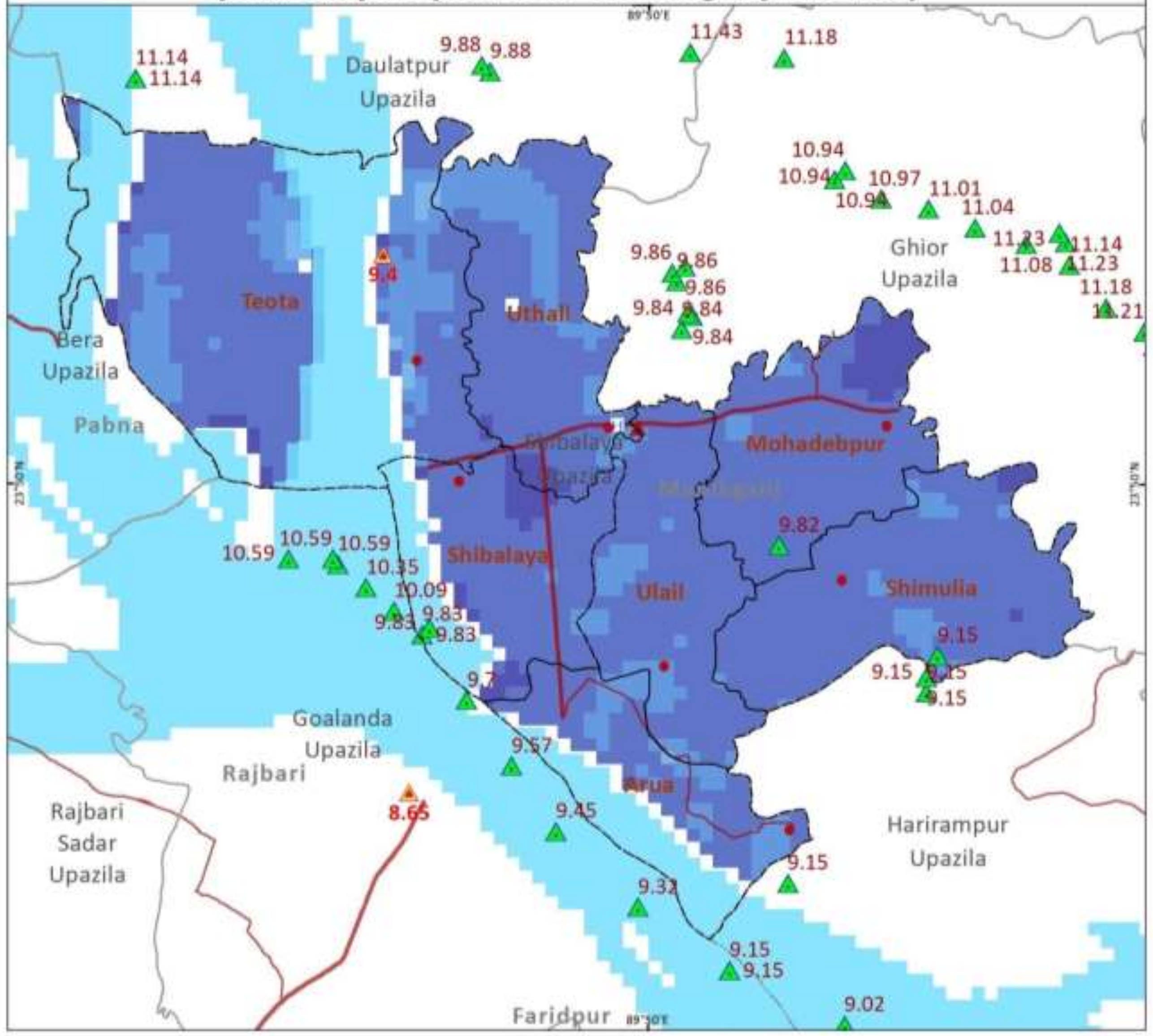
Flood Inundation Map for 25 Year Return Period (Saturia Upazila of Manikganj District)



Flood Inundation Map for 25 Year Return Period (Shibalaya Upazila of Manikganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Goalondo	8.65	9.7	9.95	10.18	10.3
Aricha	9.4	9.88	10.04	10.18	10.26

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)
- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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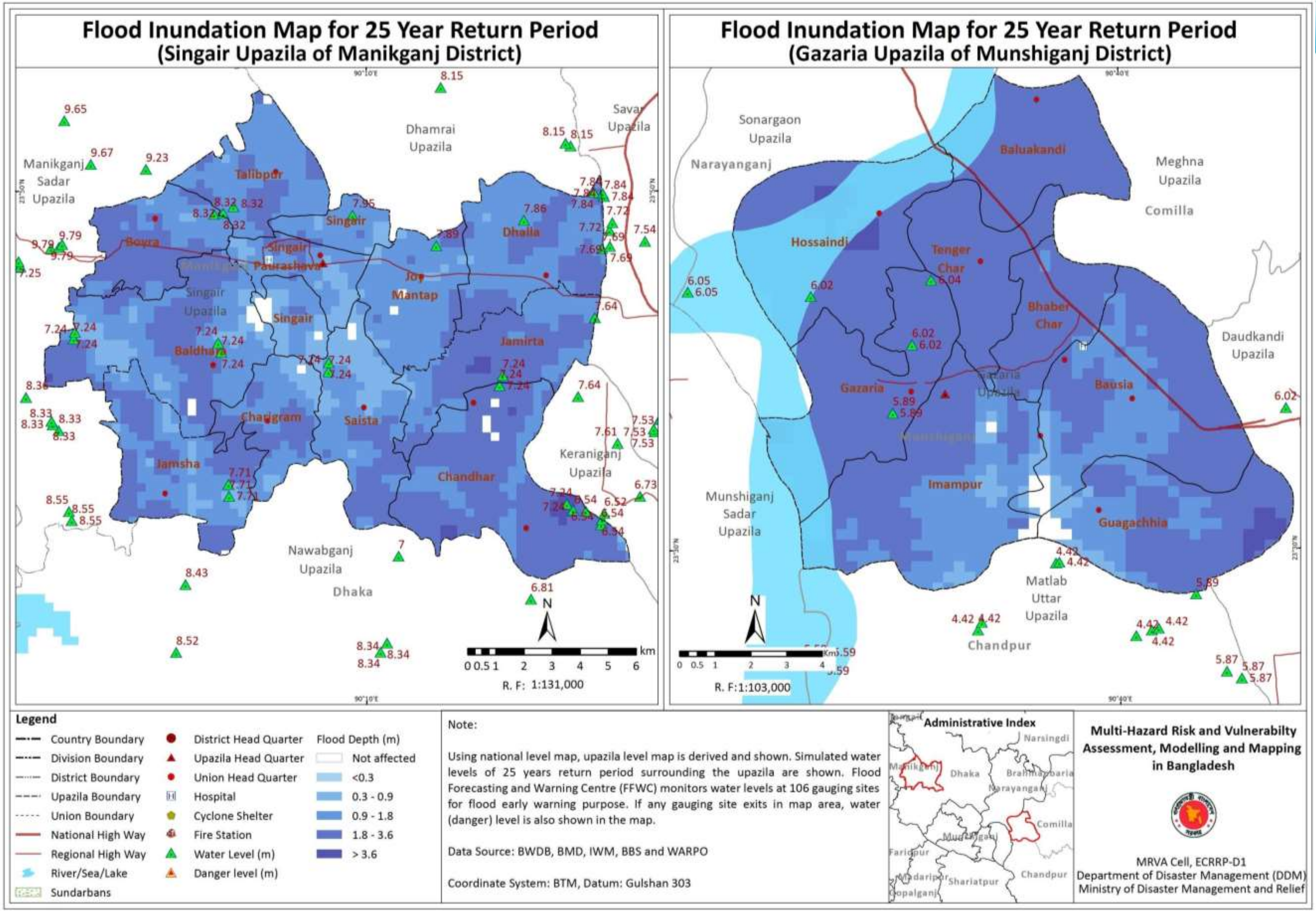
Flood Inundation Map for 25 Year Return Period
(Singair Upazila of Manikganj District)
Dhamrai Upazila
Savar Upazila
Manikganj Sadar Upazila
Talibpur
Singair
Boyra
Singair Paurashava
Joy Mantap
Dhalla
Singair Upazila
Baldhara
Jamirta
Charigram
Saista
Jamsha
Chandhar
Keraniganj Upazila
Nawabganj Upazila
Dhaka
R. F: 1:131,000
Flood Inundation Map for 25 Year Return Period
(Gazaria Upazila of Munshiganj District)
Sonargaon Upazila
Narayanganj
Meghna Upazila
Comilla
Baluakandi
Hossaindi
Tenger Char
Bhaber Char
Daudkandi Upazila
Gazaria
Bausia
Imampur
Guagachhia
Munshiganj Sadar Upazila
Matlab Uttar Upazila
Chandpur
R. F:1:103,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Cyclone Shelter
Fire Station
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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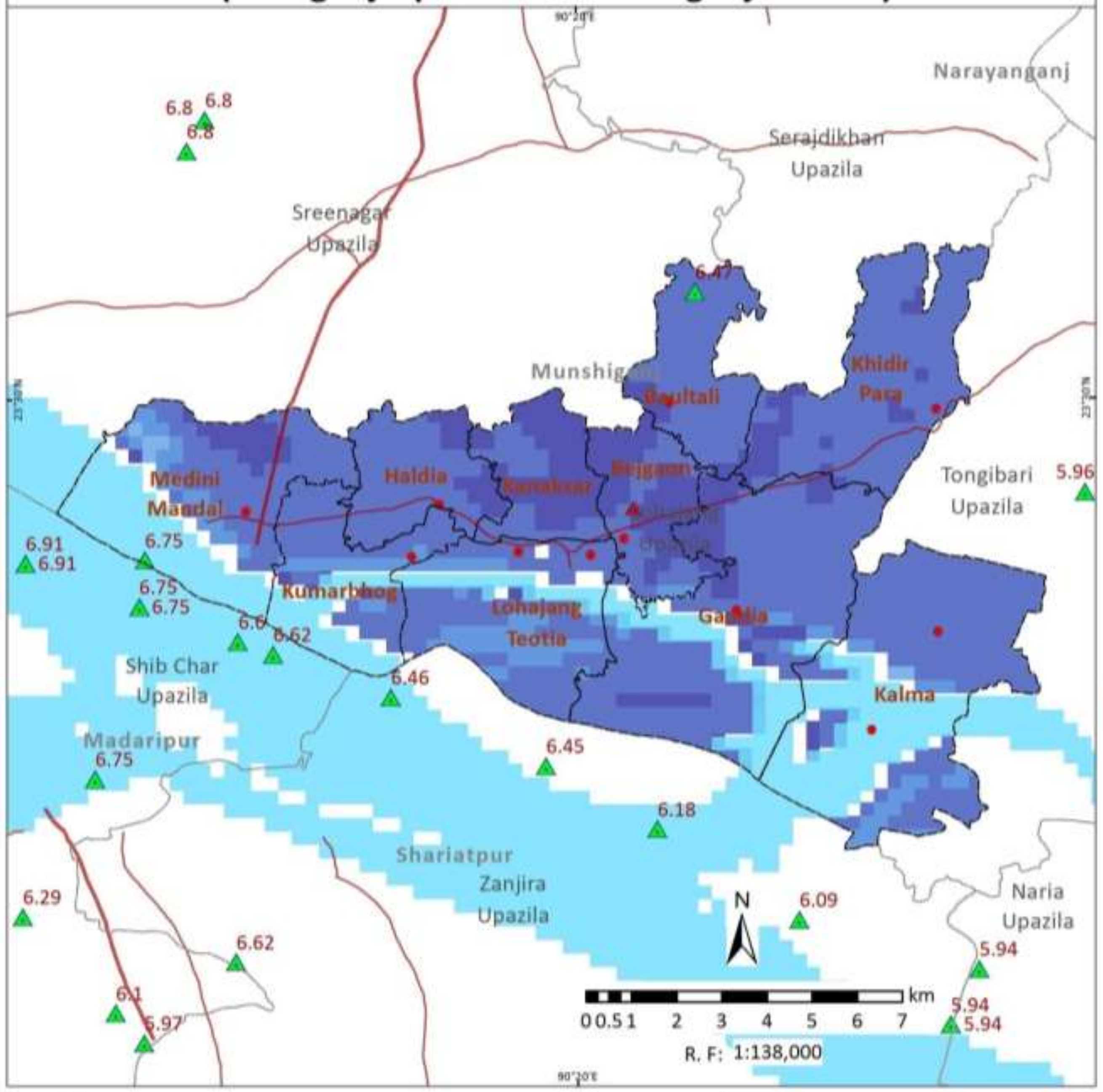
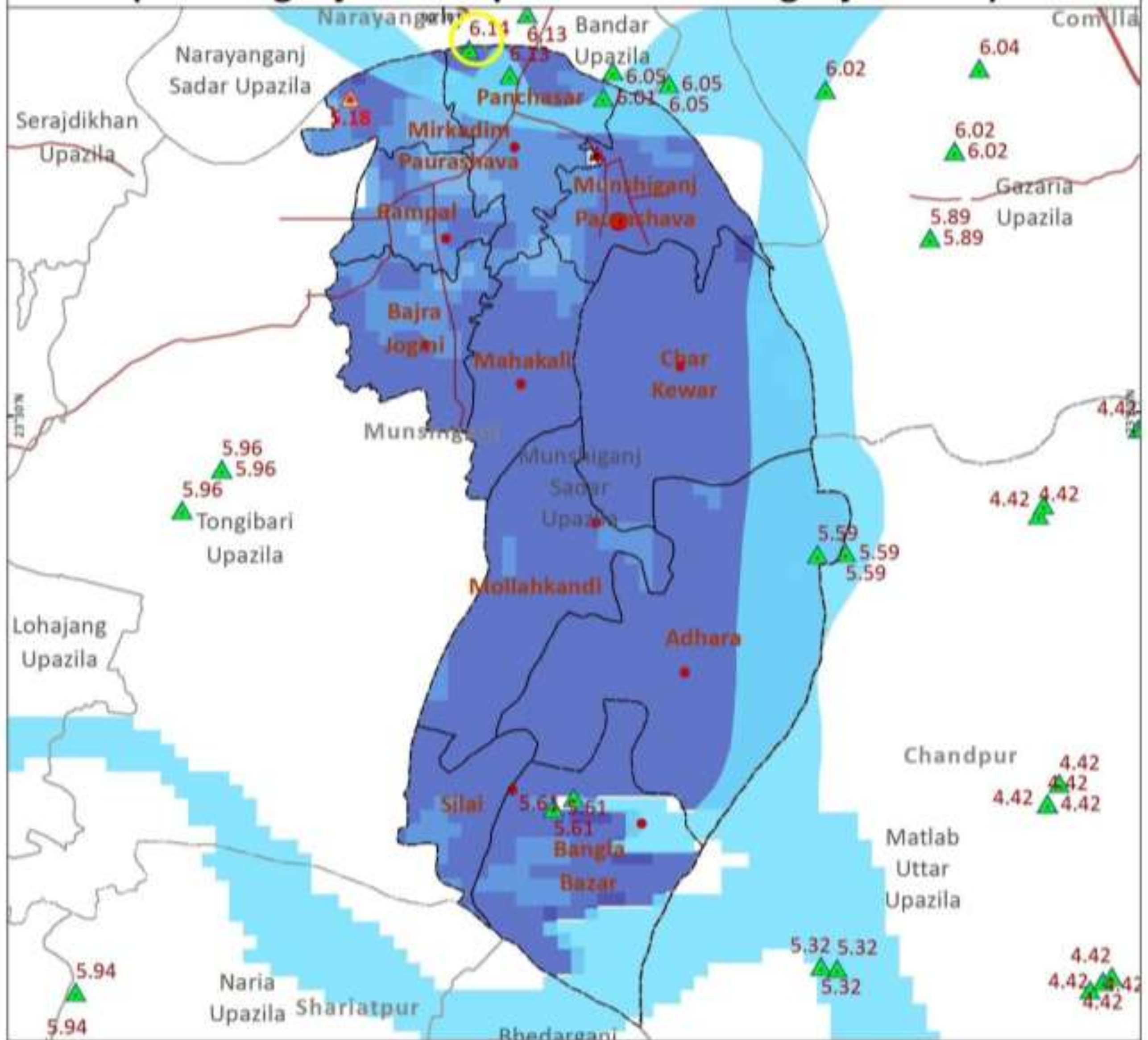
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Lohaganj Upazila of Munshiganj District)



Flood Inundation Map for 25 Year Return Period
(Munshiganj Sadar Upazila of Munshiganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Rekabi-Bazar	5.18	6.14	6.33	6.51	6.61

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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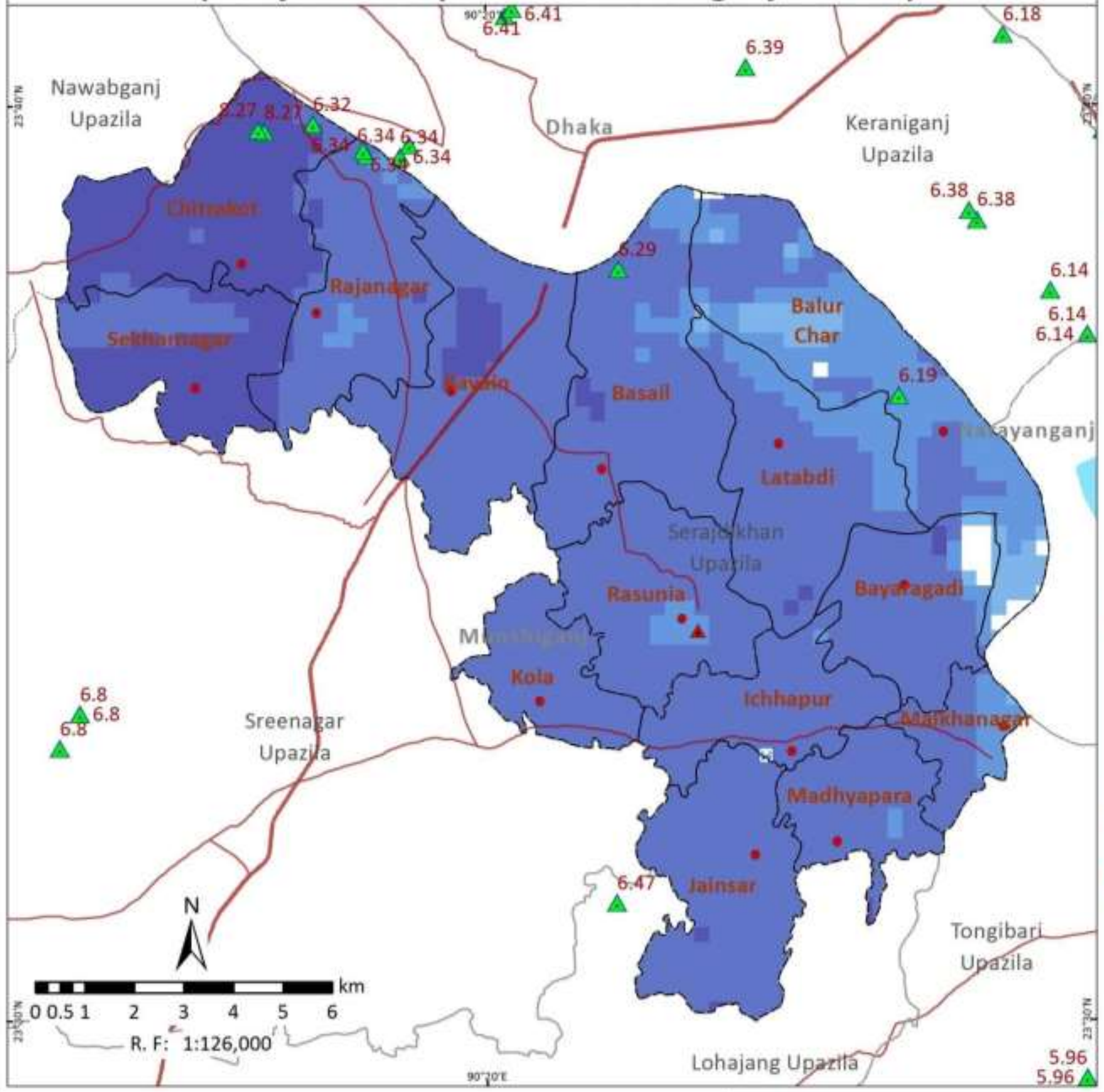
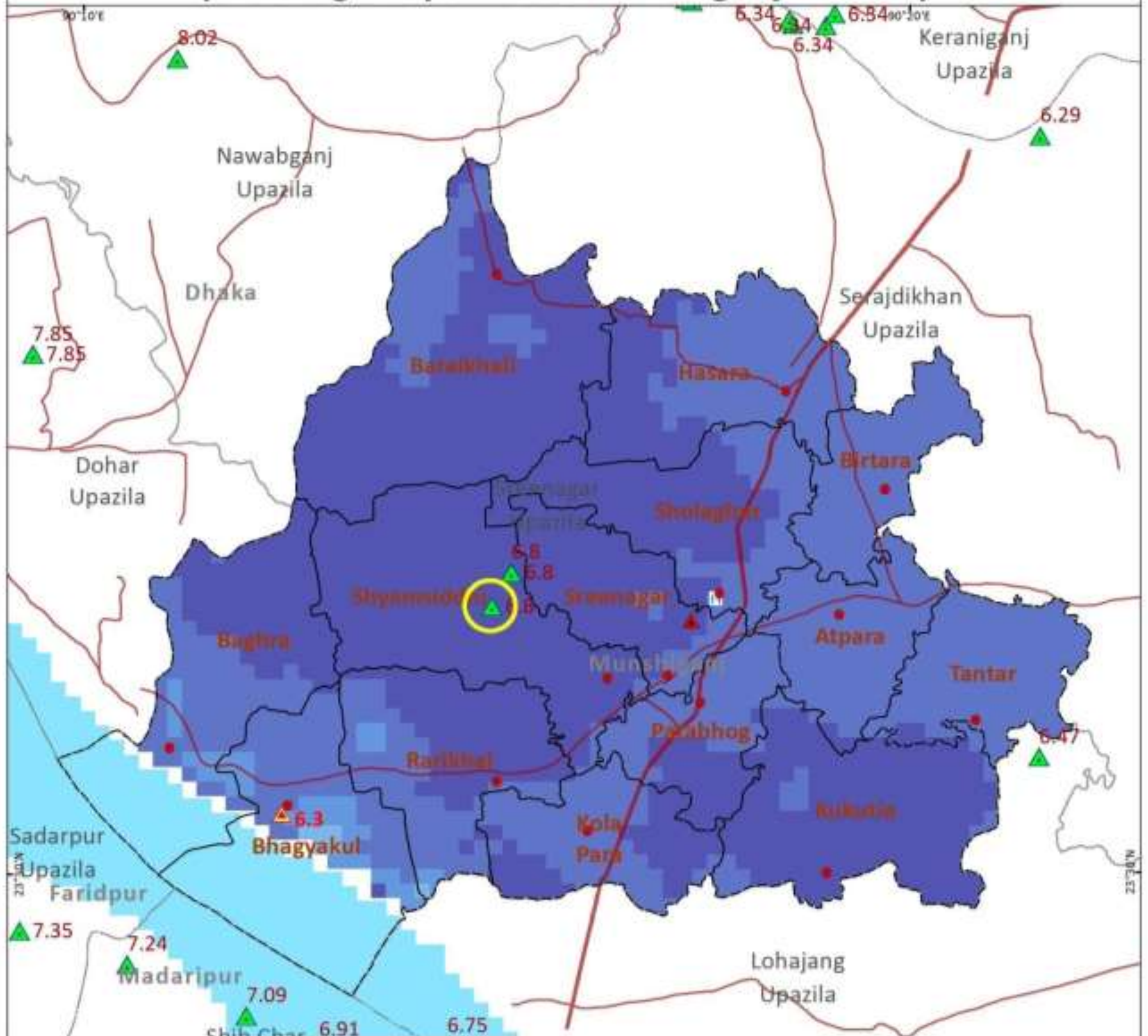
Flood Inundation Map for 25 Year Return Period
(Serajdikhan Upazila of Munshiganj District)



Flood Inundation Map for 25 Year Return Period
(Sreenagar Upazila of Munshiganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Bhagyakul	6.3	6.8	6.94	7.08	7.16

N

0 1 2 4 6 8 Km

R. F: 1:136,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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Flood Inundation Map for 25 Year Return Period
(Tongibari Upazila of Munshiganj District)

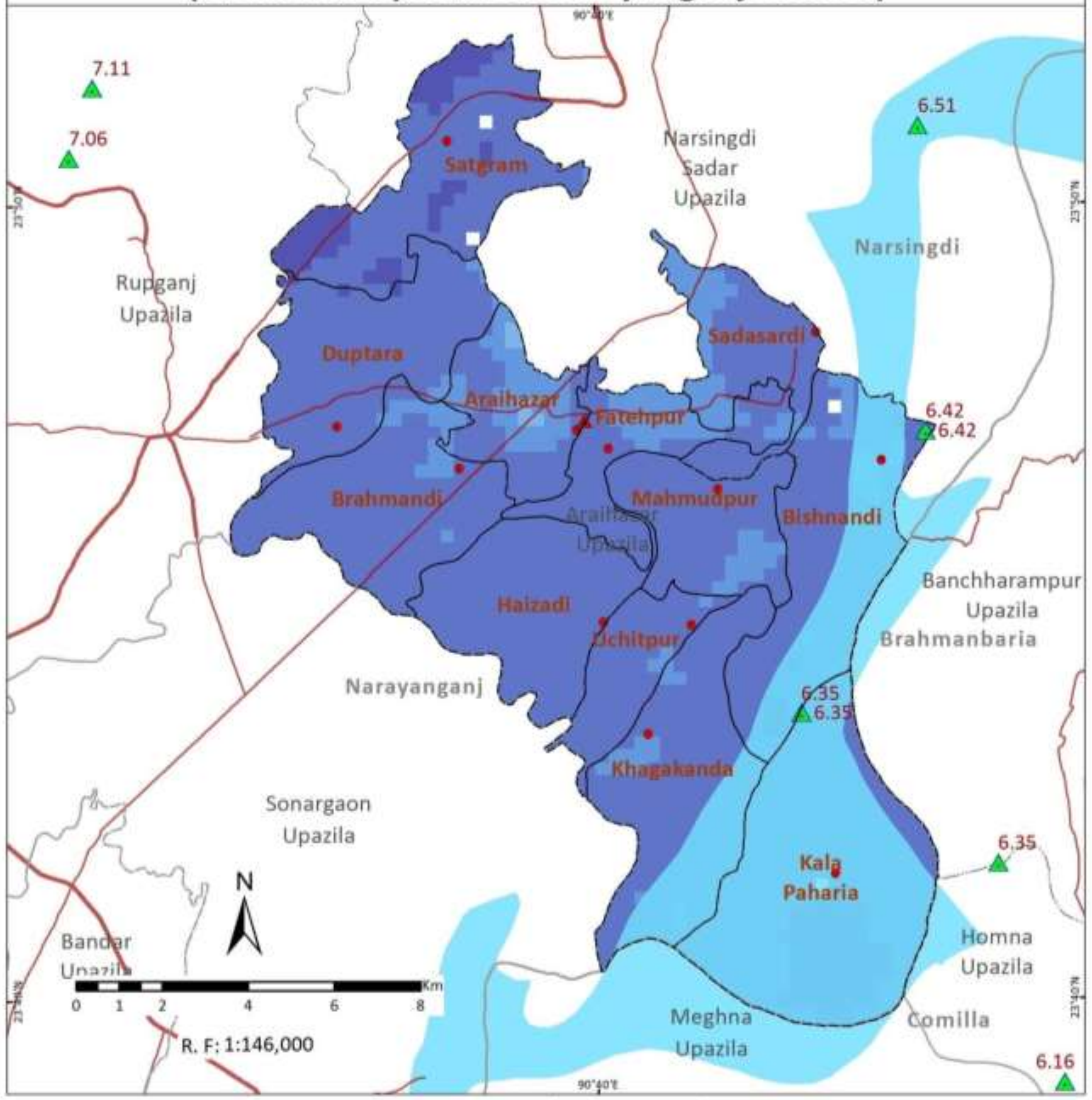
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Rekabi-Bazar	5.18	5.96	6.06	6.15	6.21

N

0 0.5 1 2 3 4 5 6 km

R. F: 1:125,000

Flood Inundation Map for 25 Year Return Period
(Araihazar Upazila of Narayanganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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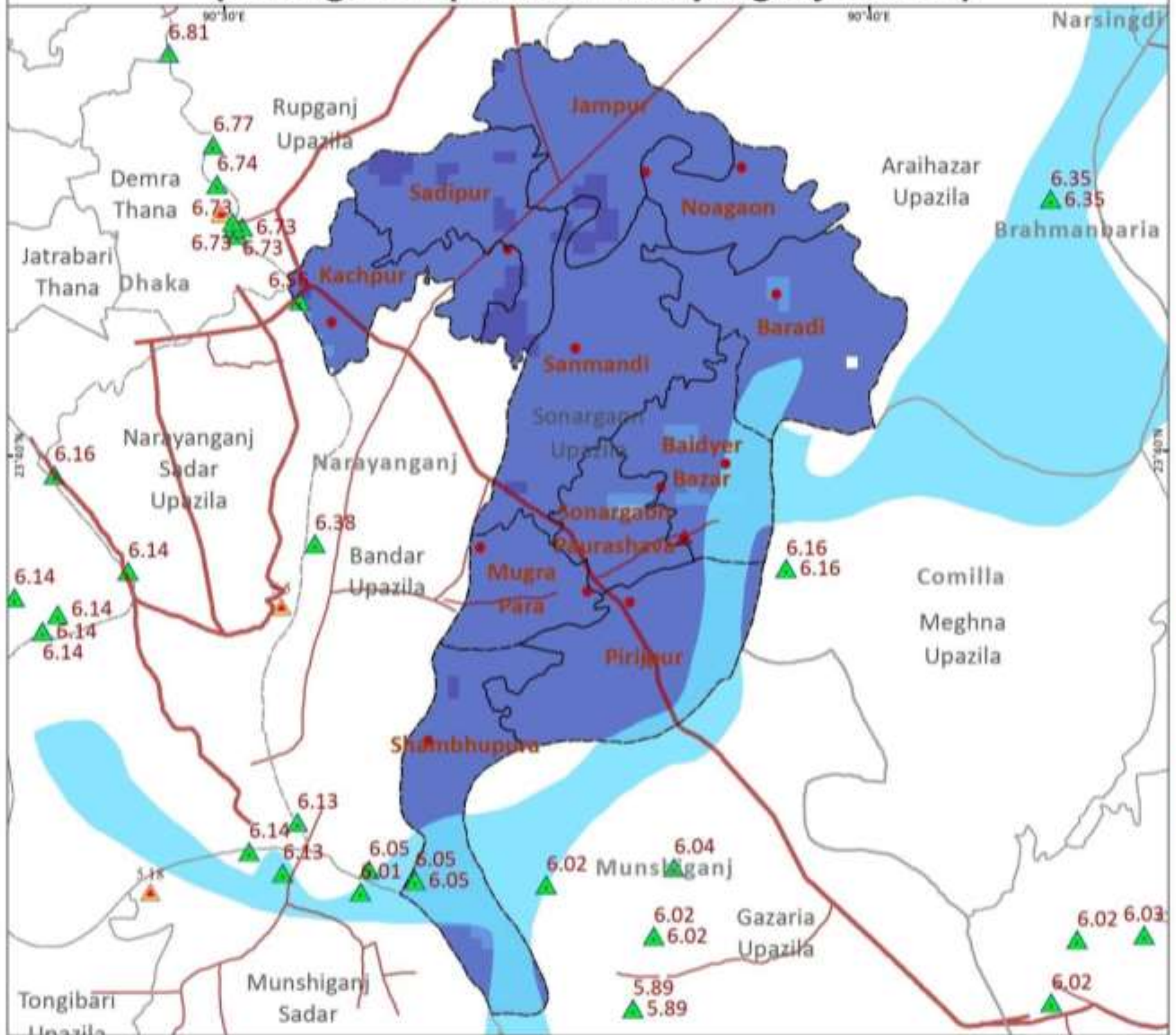
Flood Inundation Map for 25 Year Return Period
(Sonargaon Upazila of Narayanganj District)



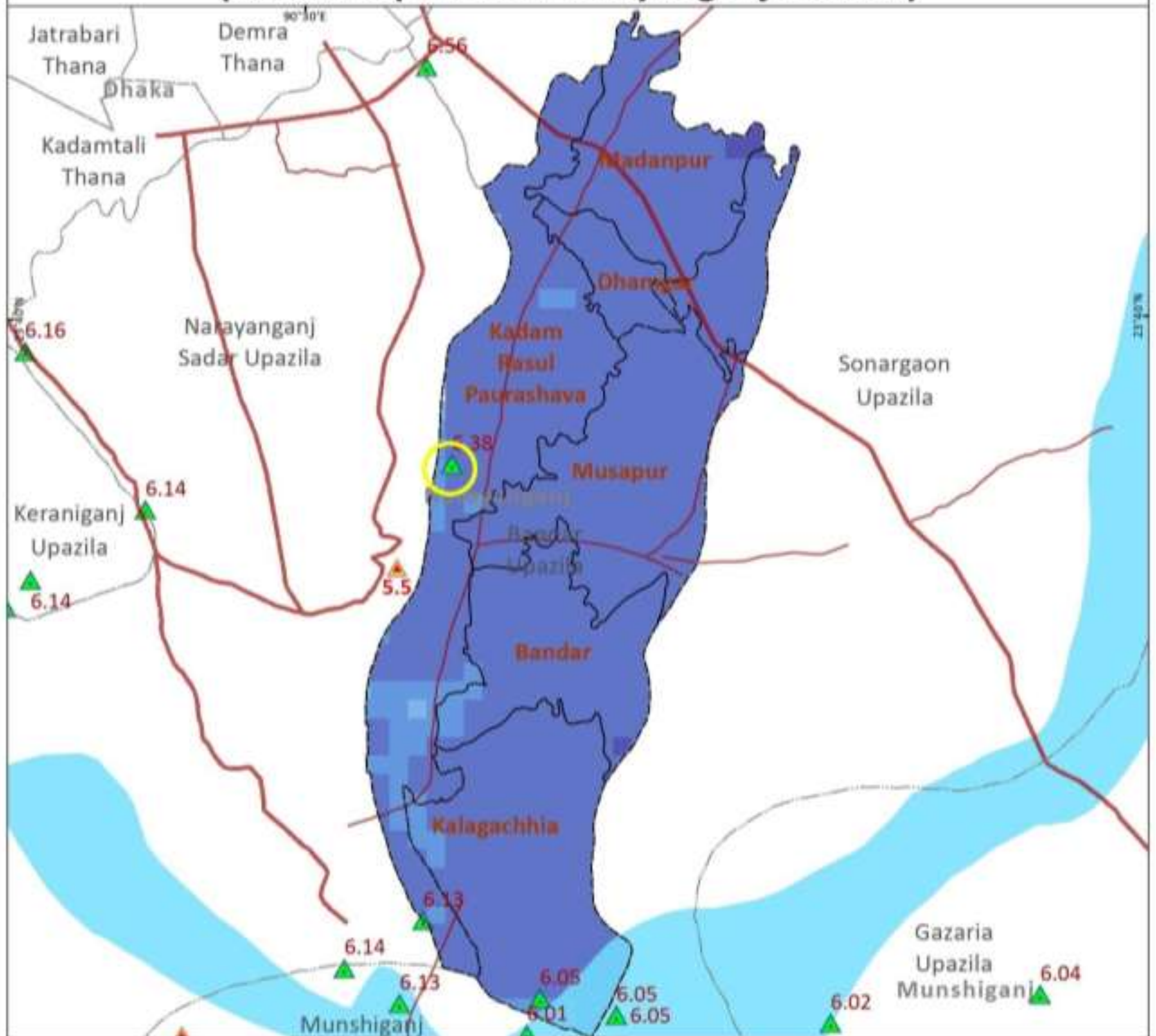
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Narayanganj	5.5	6.38	6.58	6.77	6.87
Demra	5.75	6.74	6.89	7.04	7.12

N

0 0.5 1 2 3 4 5 6 7 km

R. F: 1:175,000

Flood Inundation Map for 25 Year Return Period
(Bandar Upazila of Narayanganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Narayanganj	5.5	6.38	6.58	6.77	6.87

N

0 0.5 1 2 3 4 Km

R. F: 1:107,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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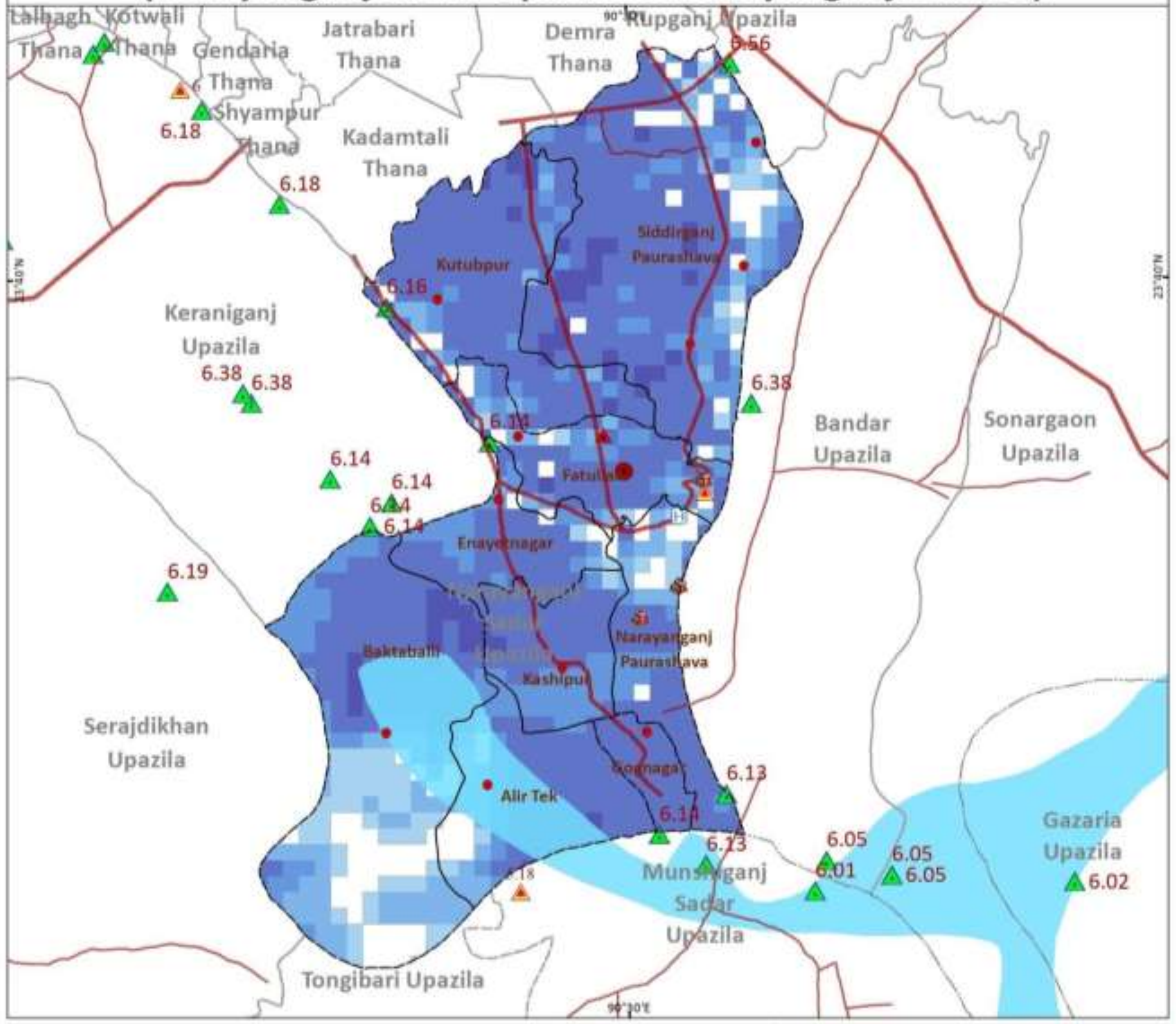
Flood Inundation Map for 25 Year Return Period (Narayanganj Sadar Upazila of Narayanganj District)



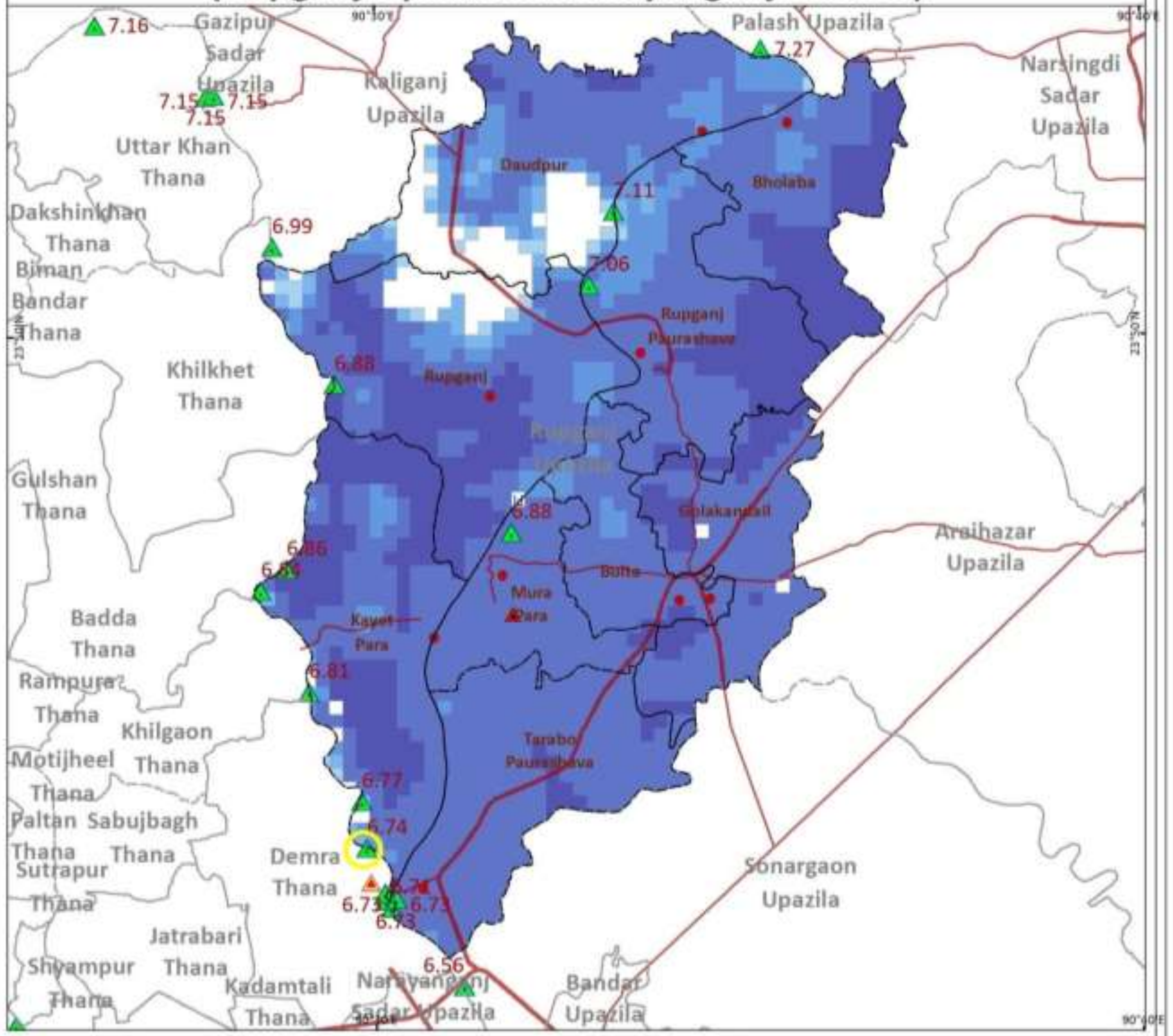
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Narayanganj	5.5	6.38	6.58	6.77	6.89
Rekabi-Bazar	5.18	6.14	6.33	6.51	6.61

N

0 1 2 4 km

R. F:1:125,000

Flood Inundation Map for 25 Year Return Period (Rupganj Upazila of Narayanganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Demra	5.75	6.74	6.96	7.16	7.27

N

0 1 2 4 6 Km

R. F:1:147,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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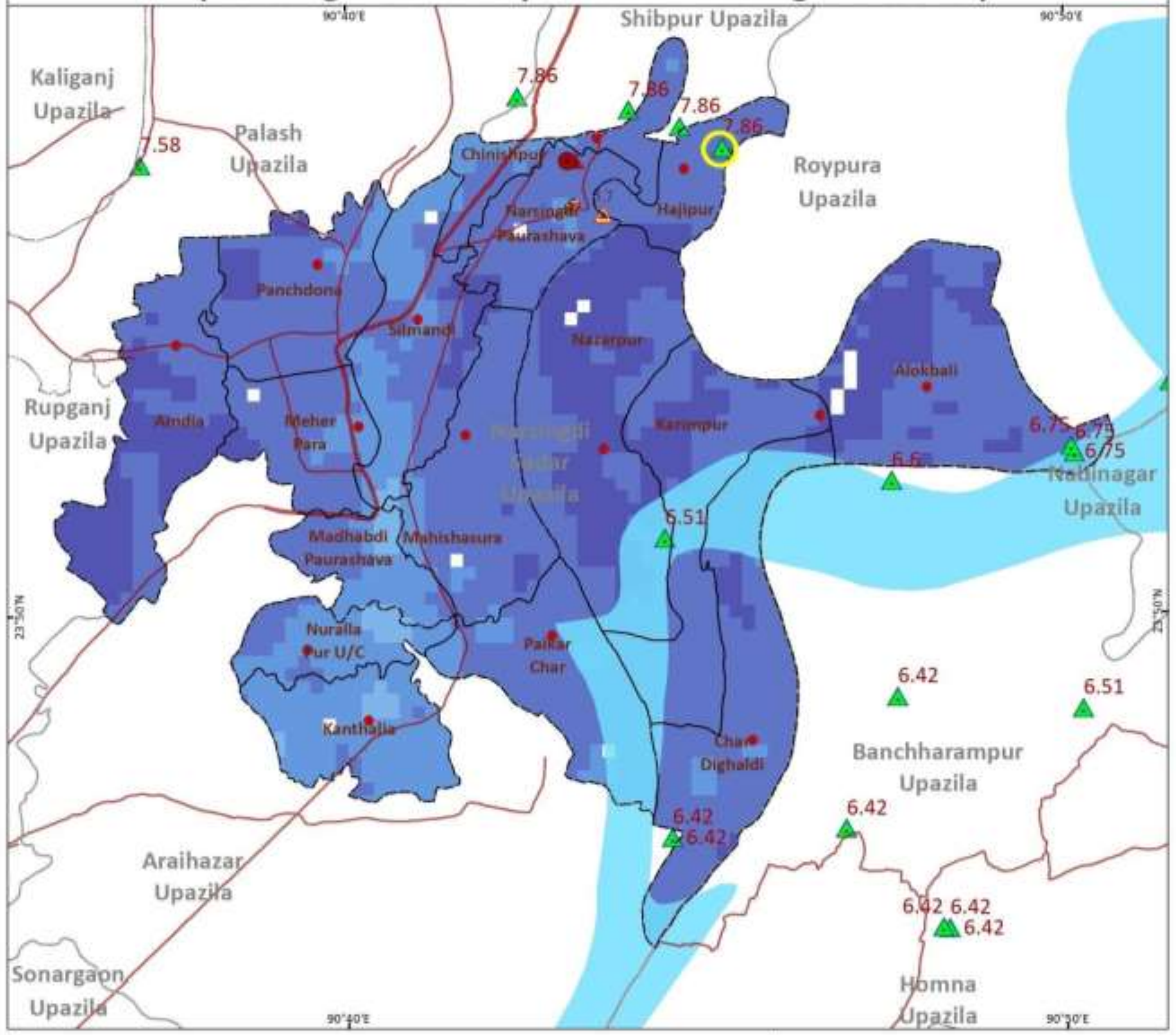
Flood Inundation Map for 25 Year Return Period
(Narsingdi Sadar Upazila of Narsingdi District)



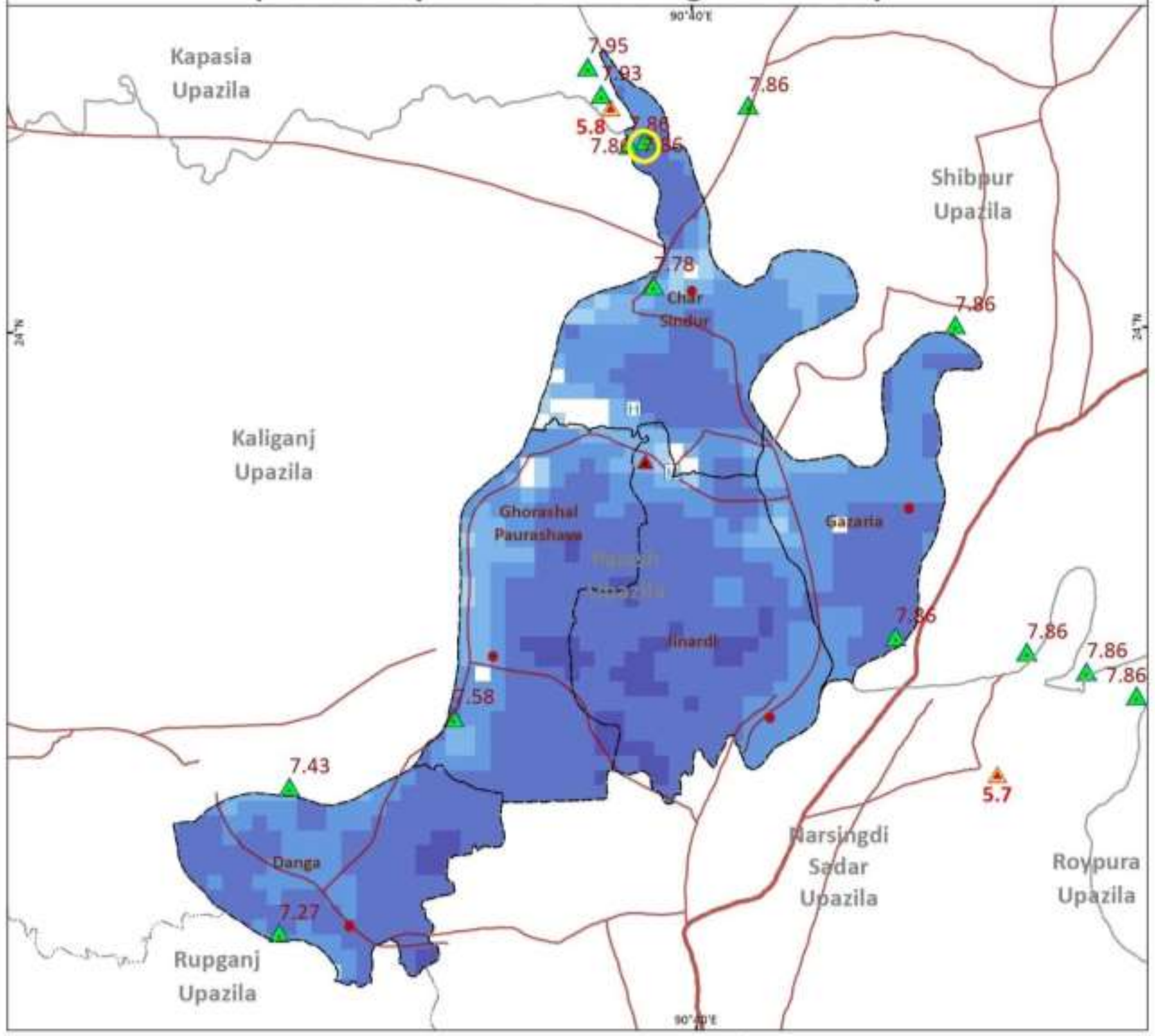
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Narsingdi	5.7	7.86	8.12	8.36	8.5

N

0 1 2 4 6 Km

R. F:1:157,000

Flood Inundation Map for 25 Year Return Period
(Palash Upazila of Narsingdi District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Lakhpur	5.8	7.86	8.12	8.36	8.5

N

0 1 2 4 6 Km

R. F:1:134,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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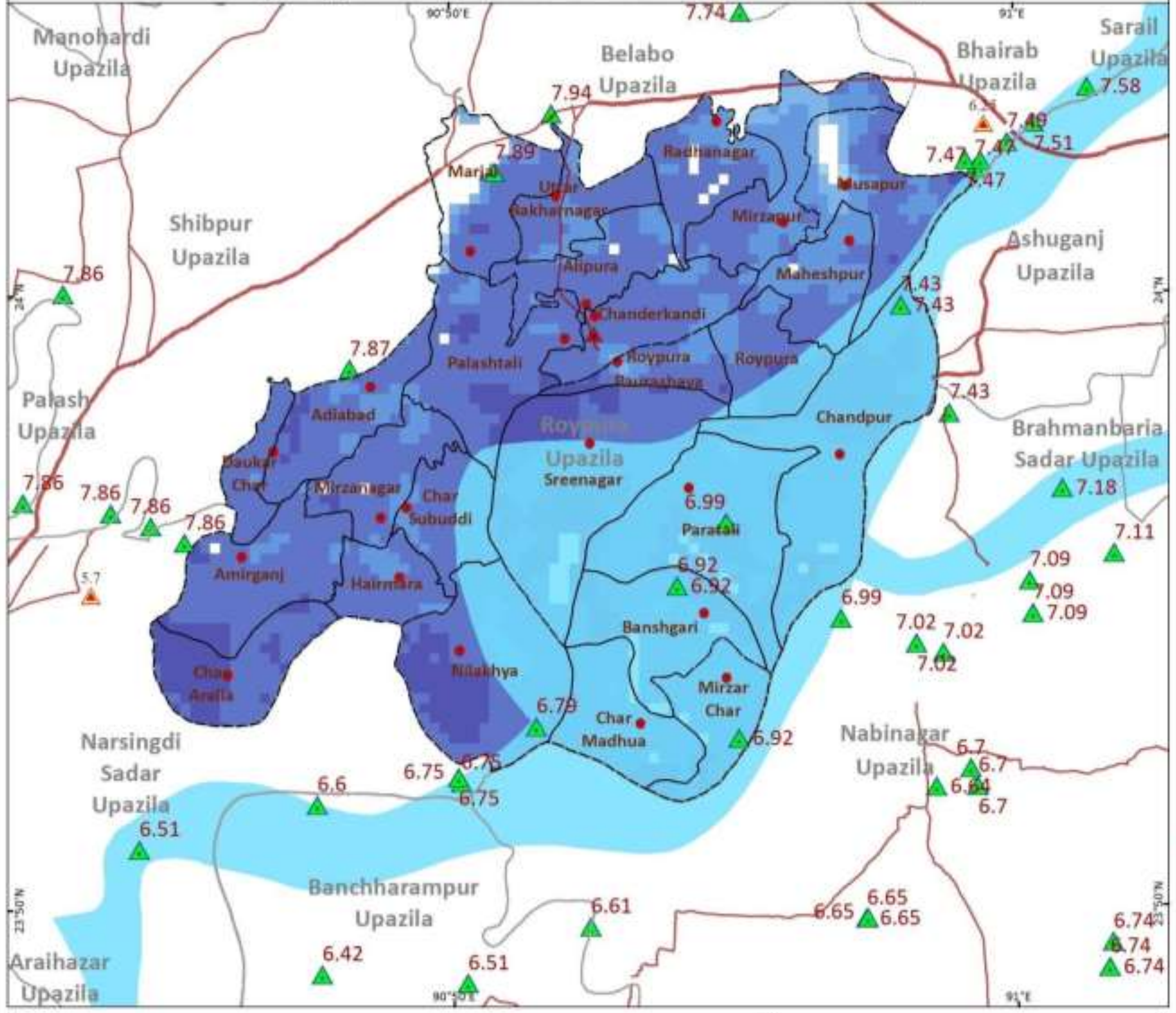
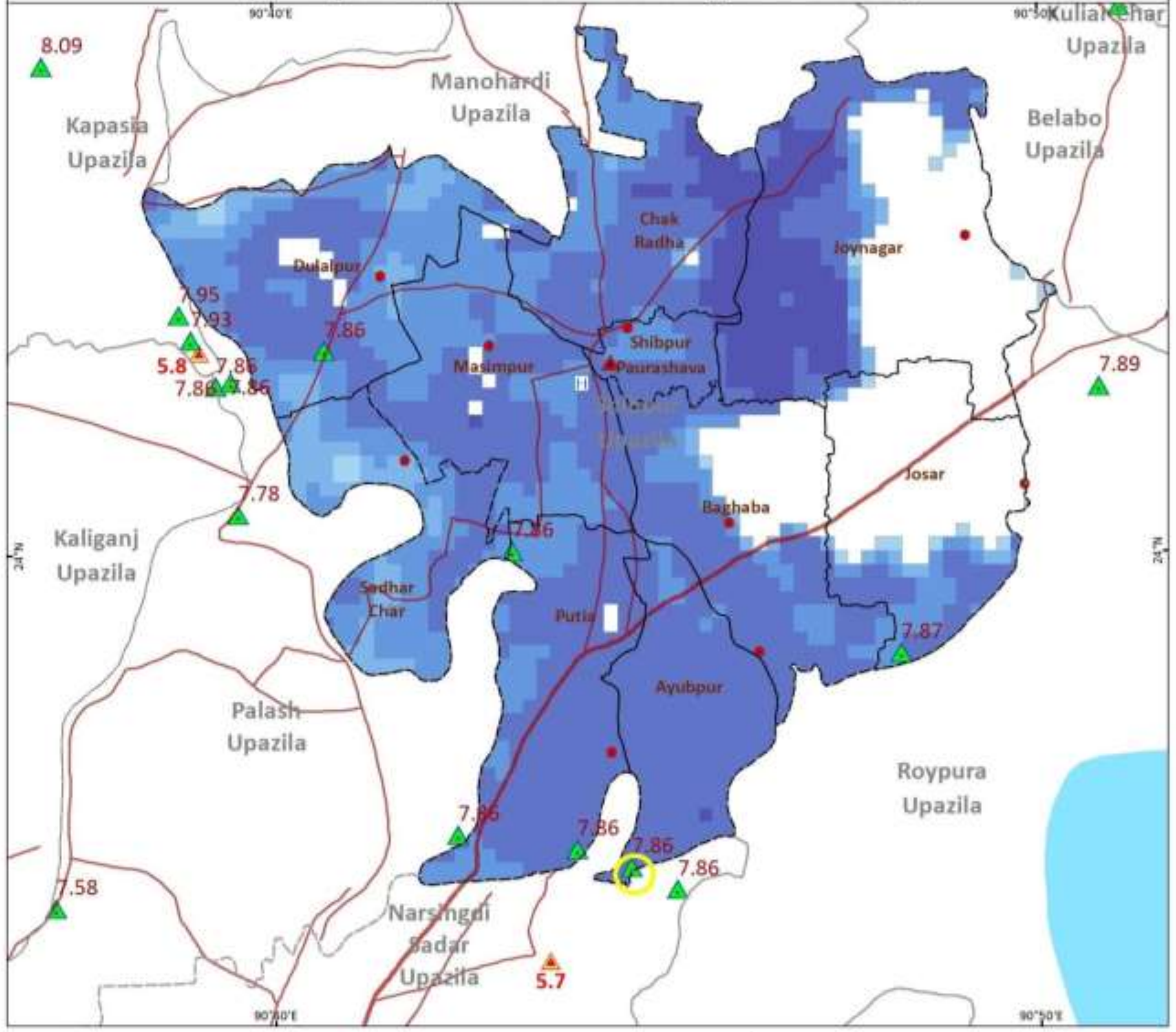
Flood Inundation Map for 25 Year Return Period
(Roypura Upazila of Narsingdi District)



Flood Inundation Map for 25 Year Return Period
(Shibpur Upazila of Narsingdi District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Bhairabbazar	6.25	7.47	7.67	7.86	7.96
Narsingdi	5.7	7.86	8.12	8.36	8.5

N

km 0 1 2 4 6 8

R. F:1:200,000

FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Lakhpur	5.8	7.93	8.19	8.44	8.57
Narsingdi	5.7	7.86	8.11	8.36	8.5

N

Km 0 1 2 4 6

R. F:1:150,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)
- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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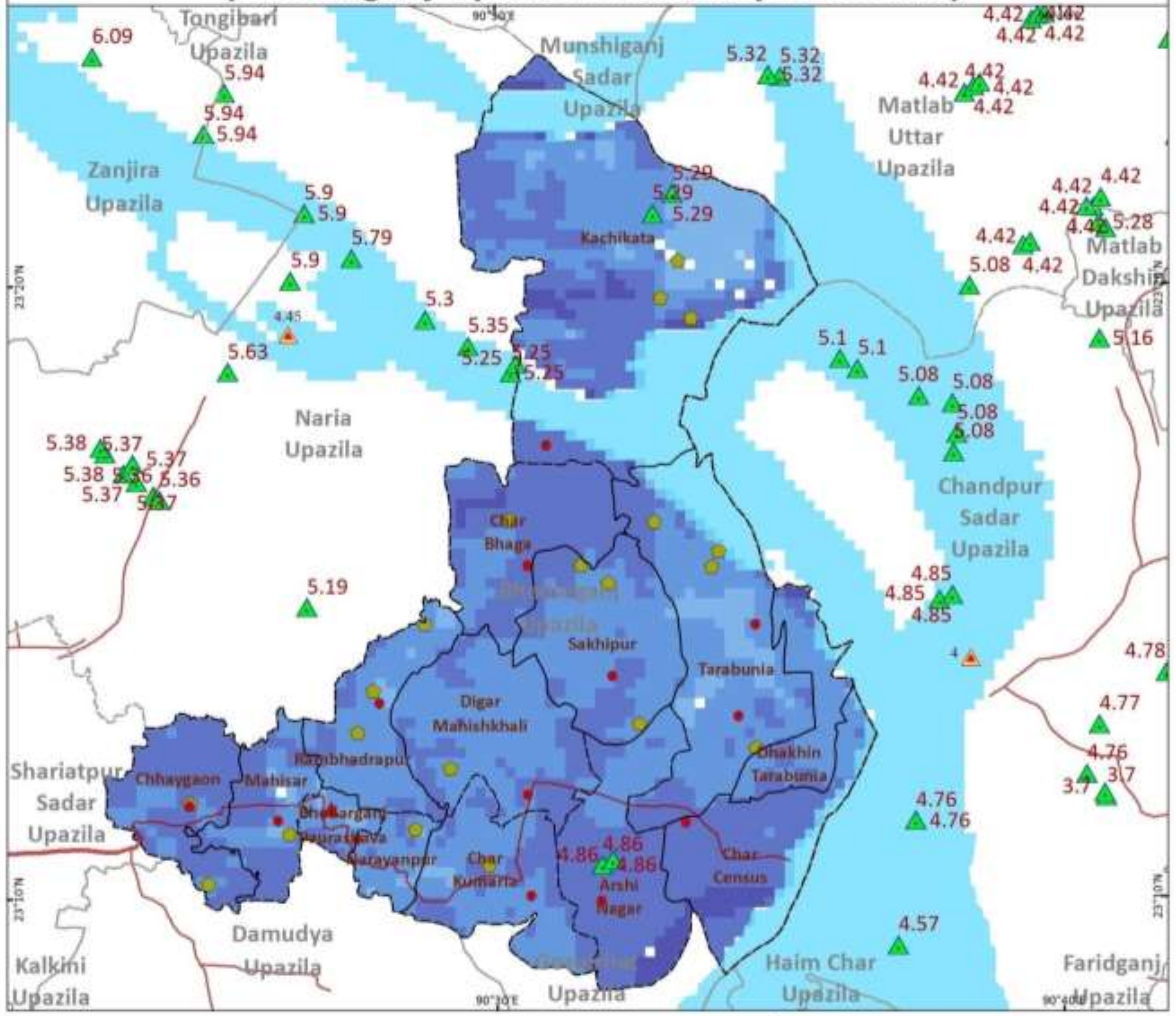
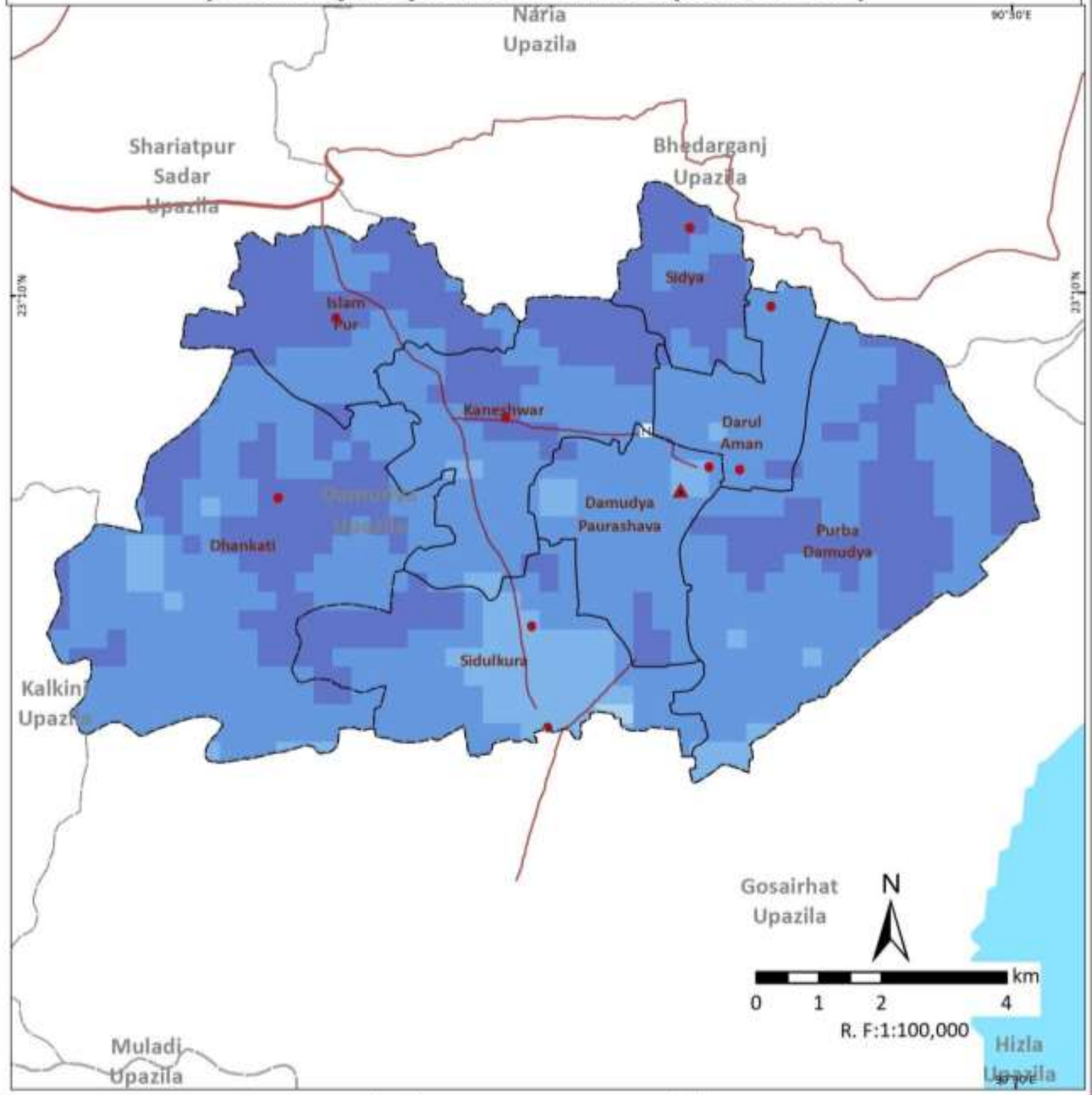
Flood Inundation Map for 25 Year Return Period
(Bhedarganj Upazila of Shariatpur District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Chandpur	4	4.85	4.94	5.02	5.07
Sureshswar	4.45	5.9	6.02	6.14	6.2

N
0 1 2 4 6 km
R. F:1:200,000

Flood Inundation Map for 25 Year Return Period
(Damudya Upazila of Shariatpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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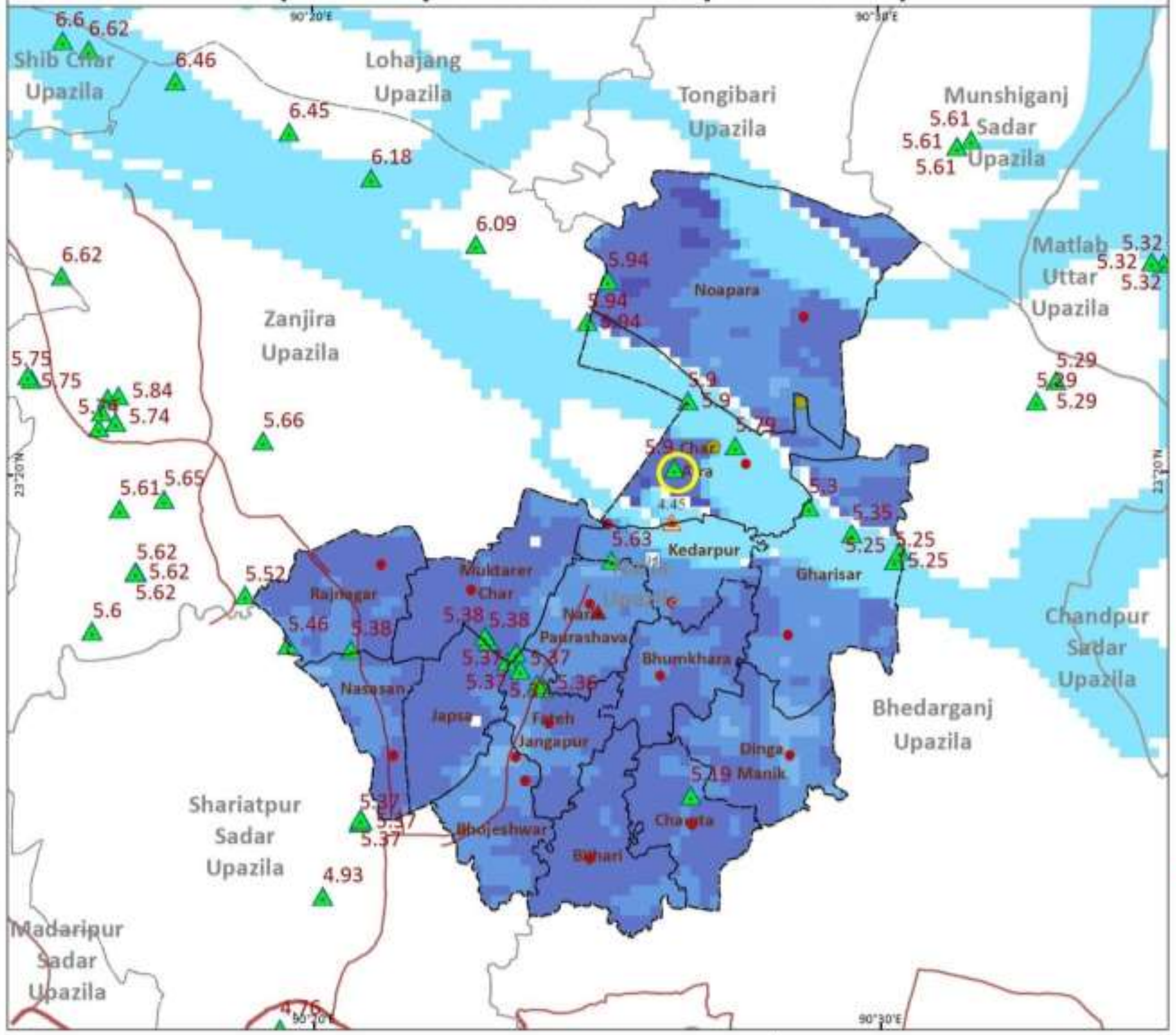
Flood Inundation Map for 25 Year Return Period
(Naria Upazila of Shariatpur District)



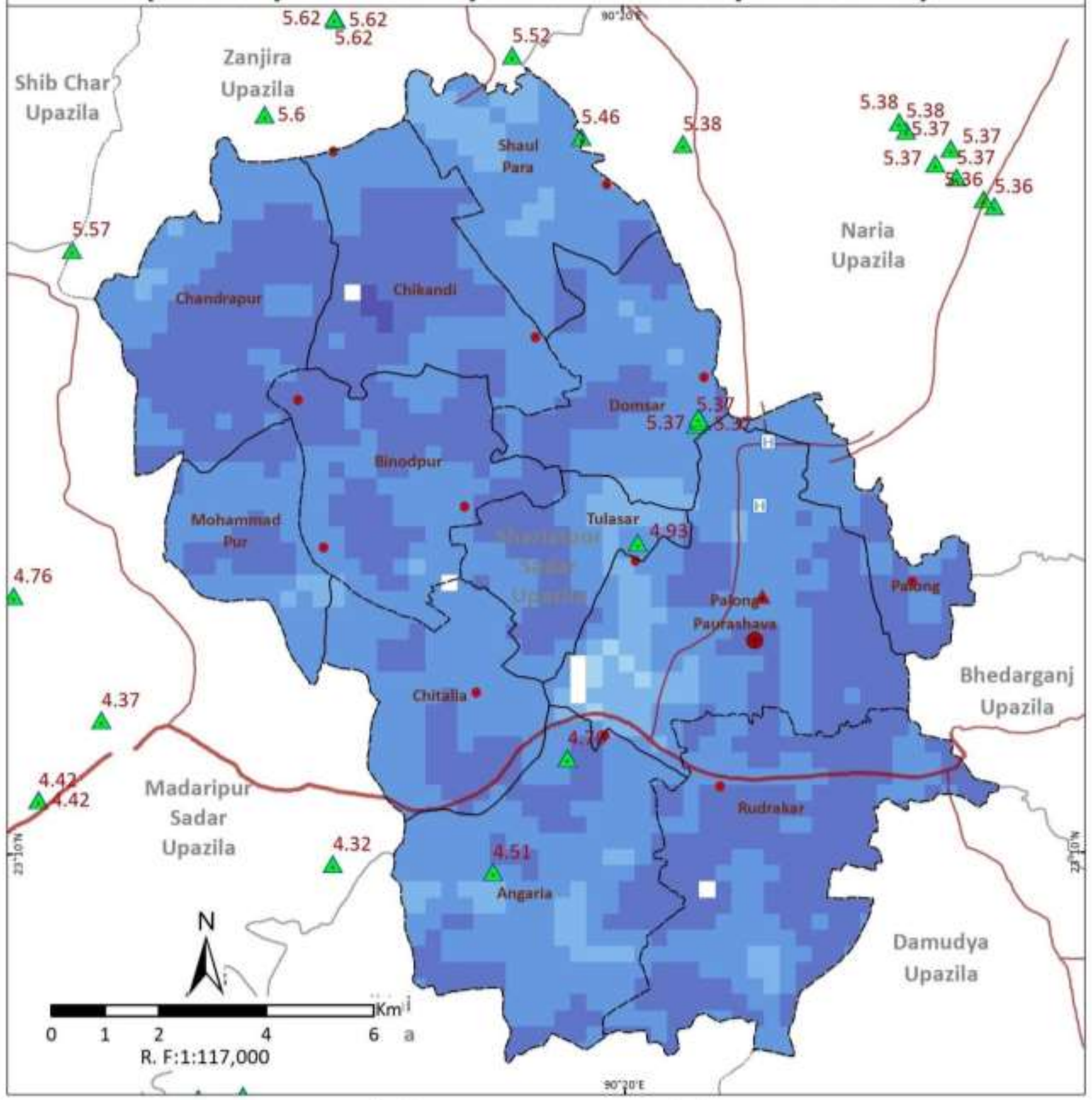
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Sureshswar	4.45	5.9	6.02	6.14	6.2

N

0 1 2 4 6 8 km

R. F:1:200,000

Flood Inundation Map for 25 Year Return Period
(Shariatpur Sadar Upazila of Shariatpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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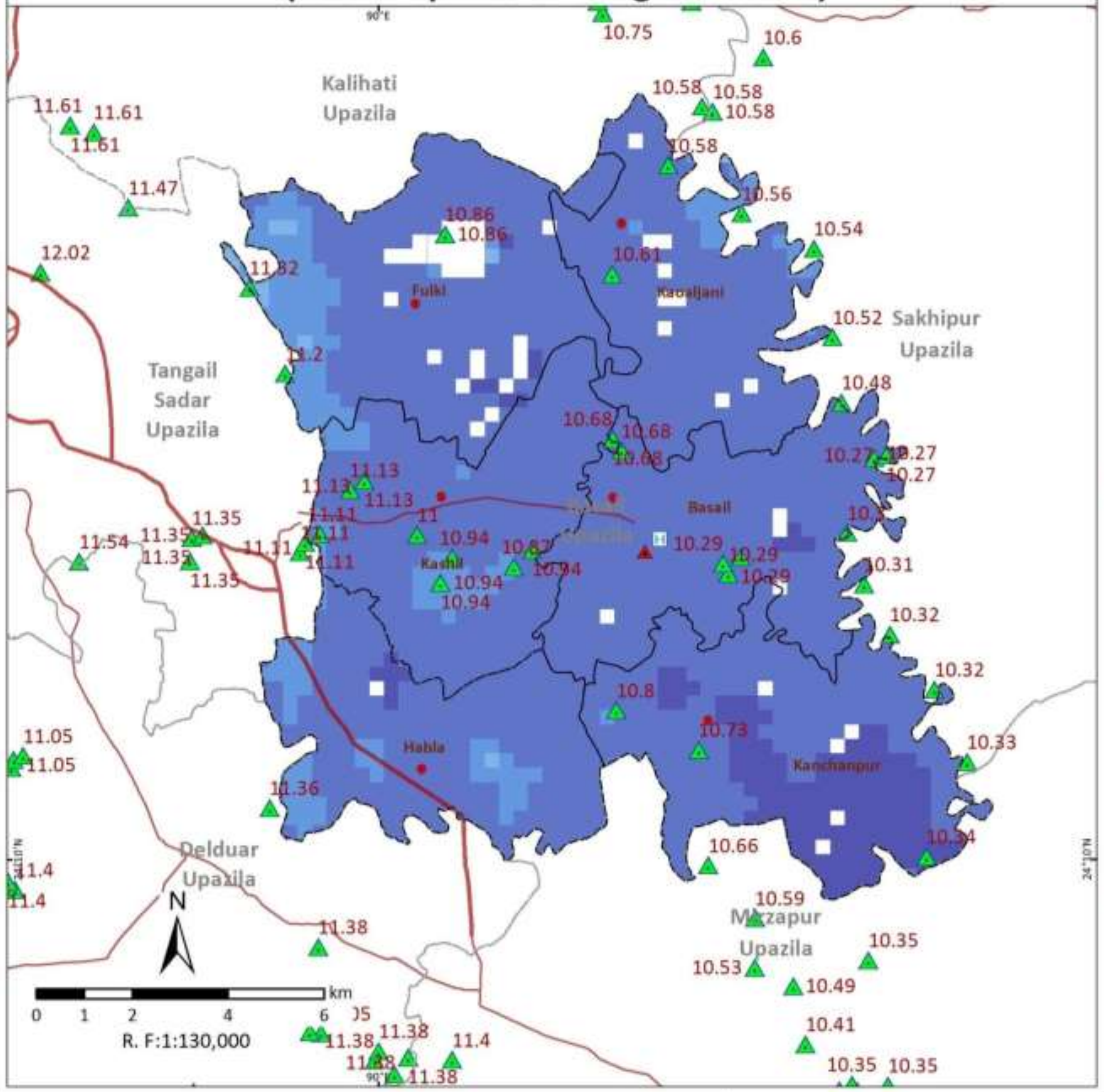
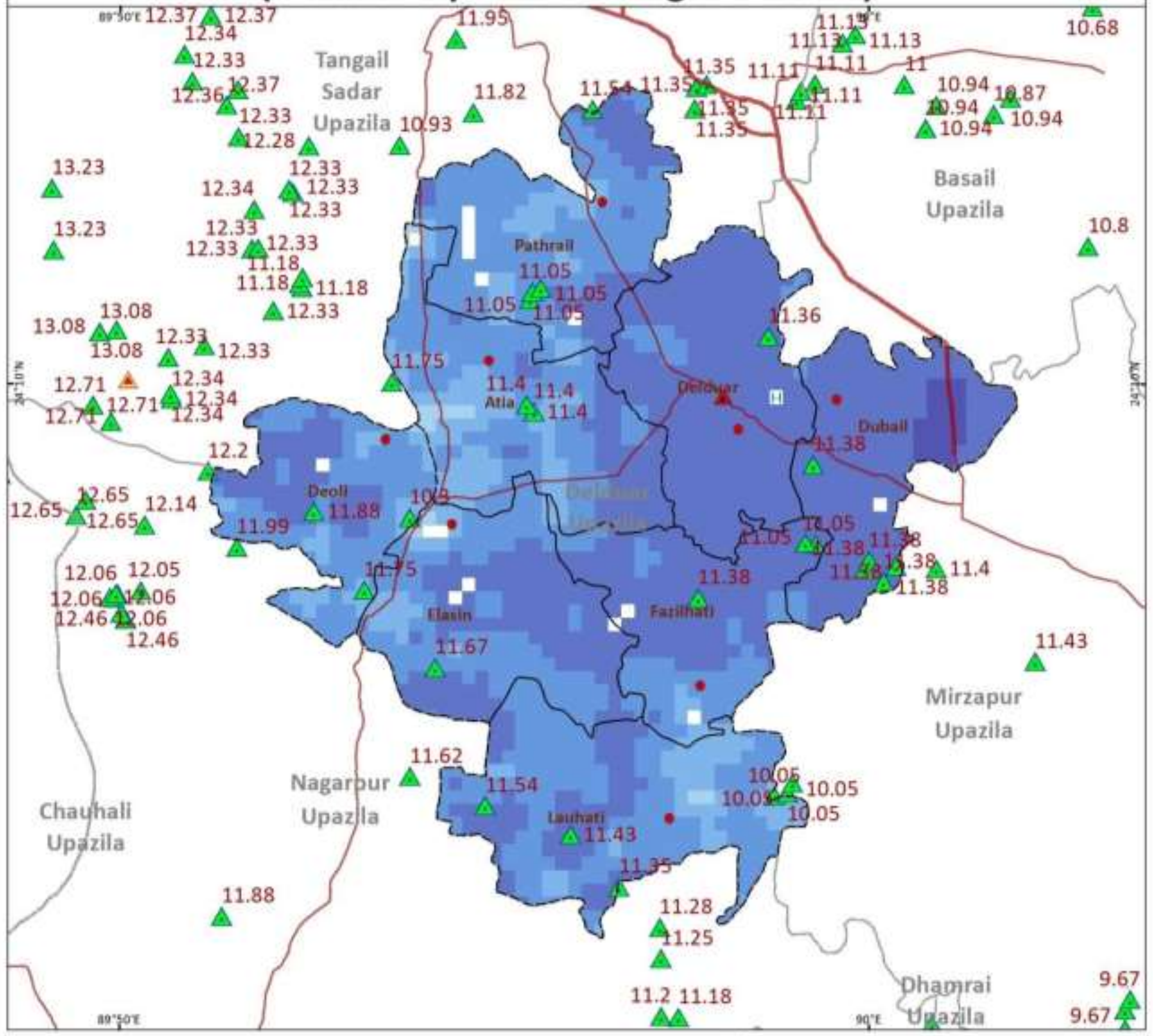
Flood Inundation Map for 25 Year Return Period
(Basail Upazila of Tangail District)



Flood Inundation Map for 25 Year Return Period
(Delduar Upazila of Tangail District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Elasinghat	11.4	12.34	12.52	12.69	12.78

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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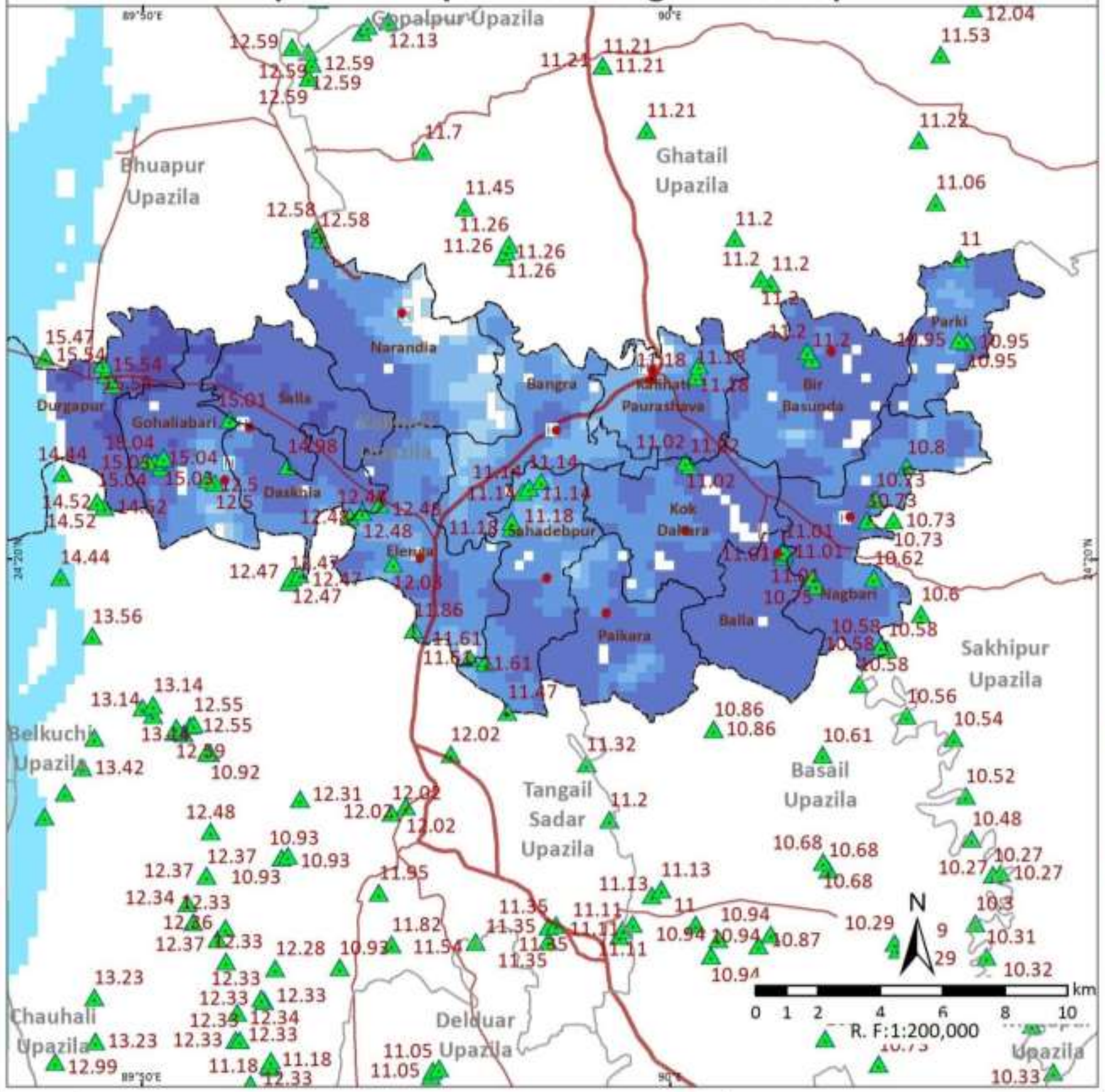
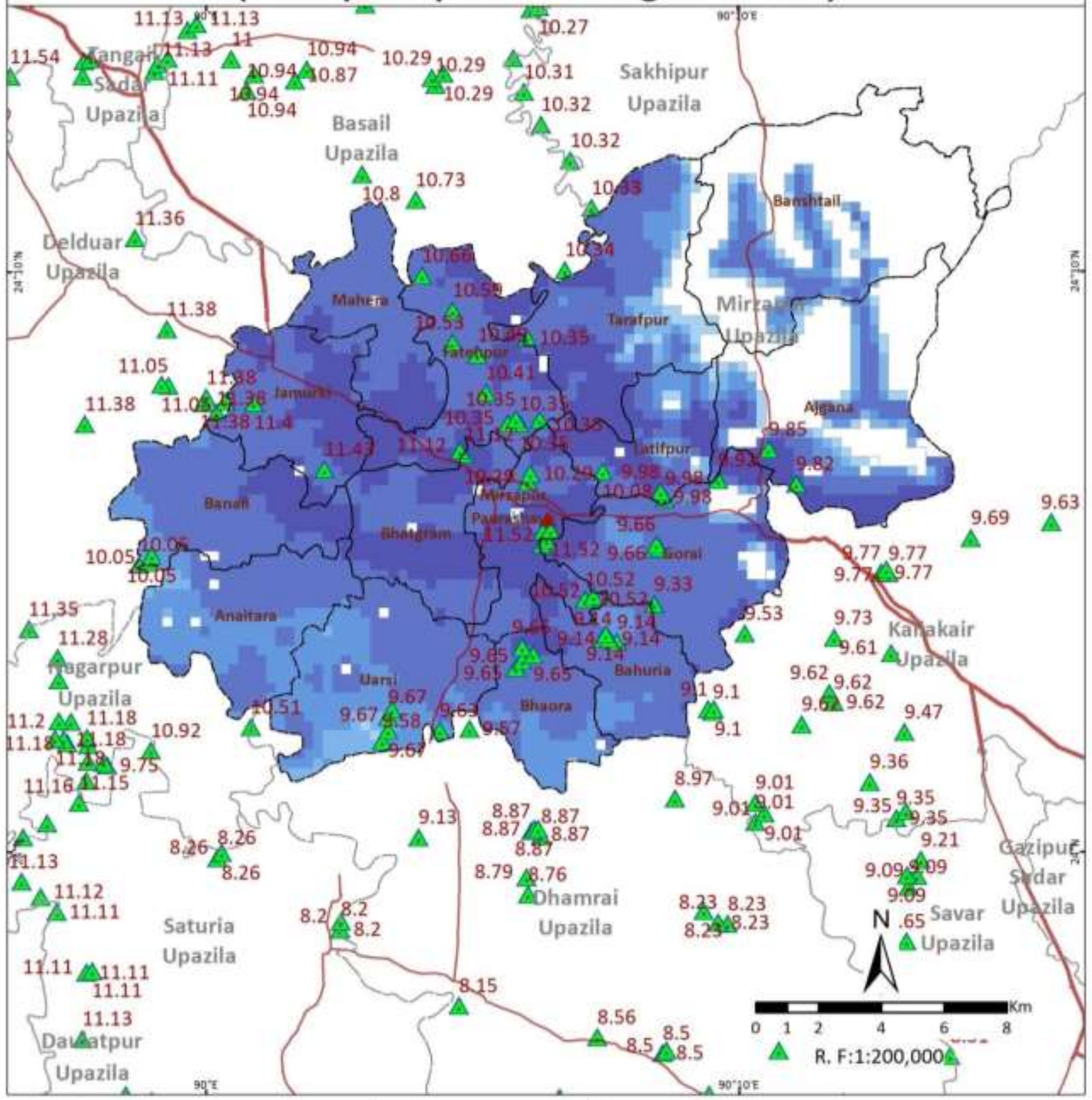
Flood Inundation Map for 25 Year Return Period
(Kalihati Upazila of Tangail District)



Flood Inundation Map for 25 Year Return Period
(Mirzapur Upazila of Tangail District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire Station
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- \> 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

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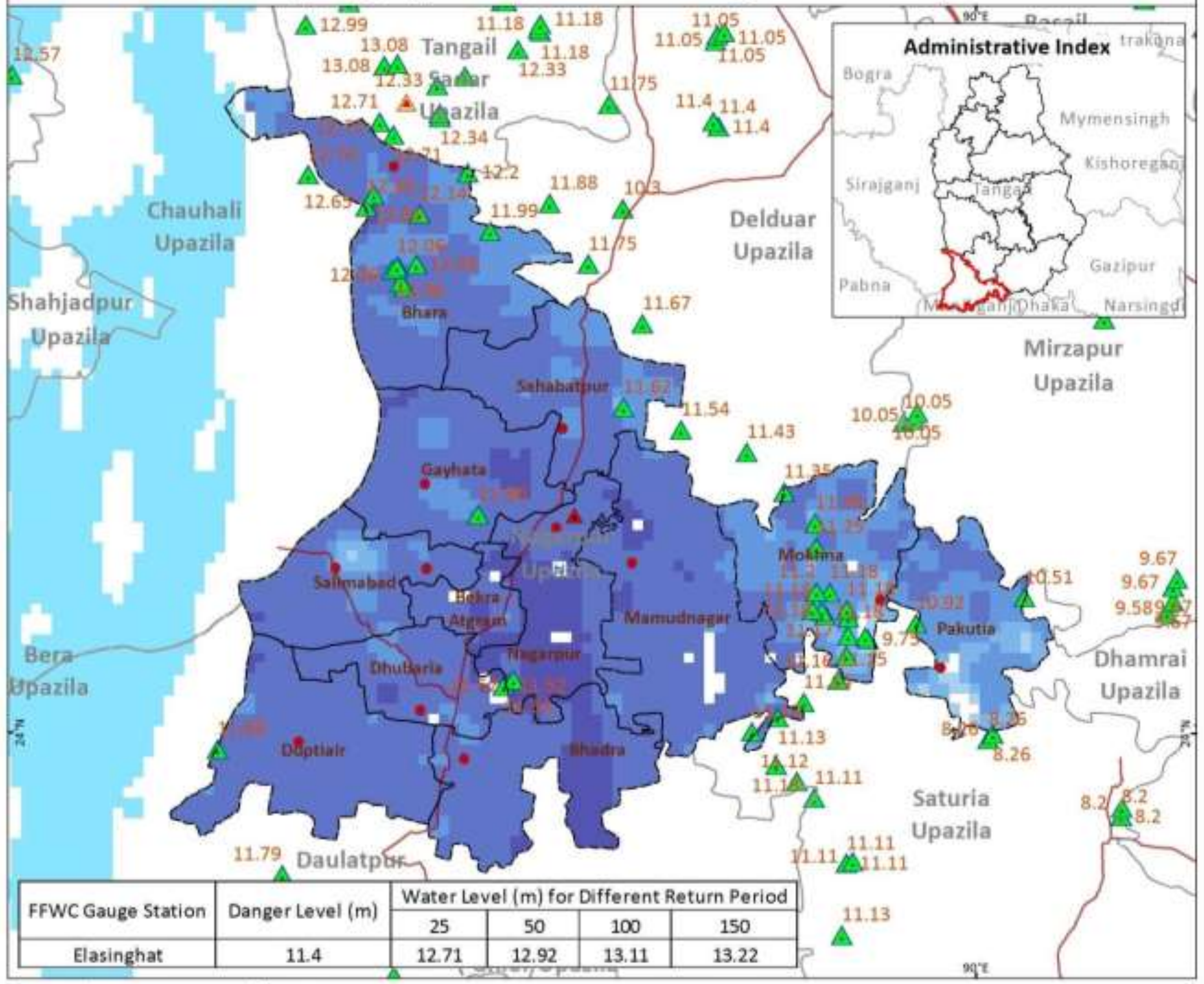
Flood Inundation Map for 25 Year Return Period
(Nagarpur Upazila of Tangail District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Elasinghat	11.4	12.71	12.92	13.11	13.22

N

R. F:1:200,000

0 1 2 4 6 Km

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO.
Coordinate System: BTM, Datum : Gulshan 303.

Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire Station	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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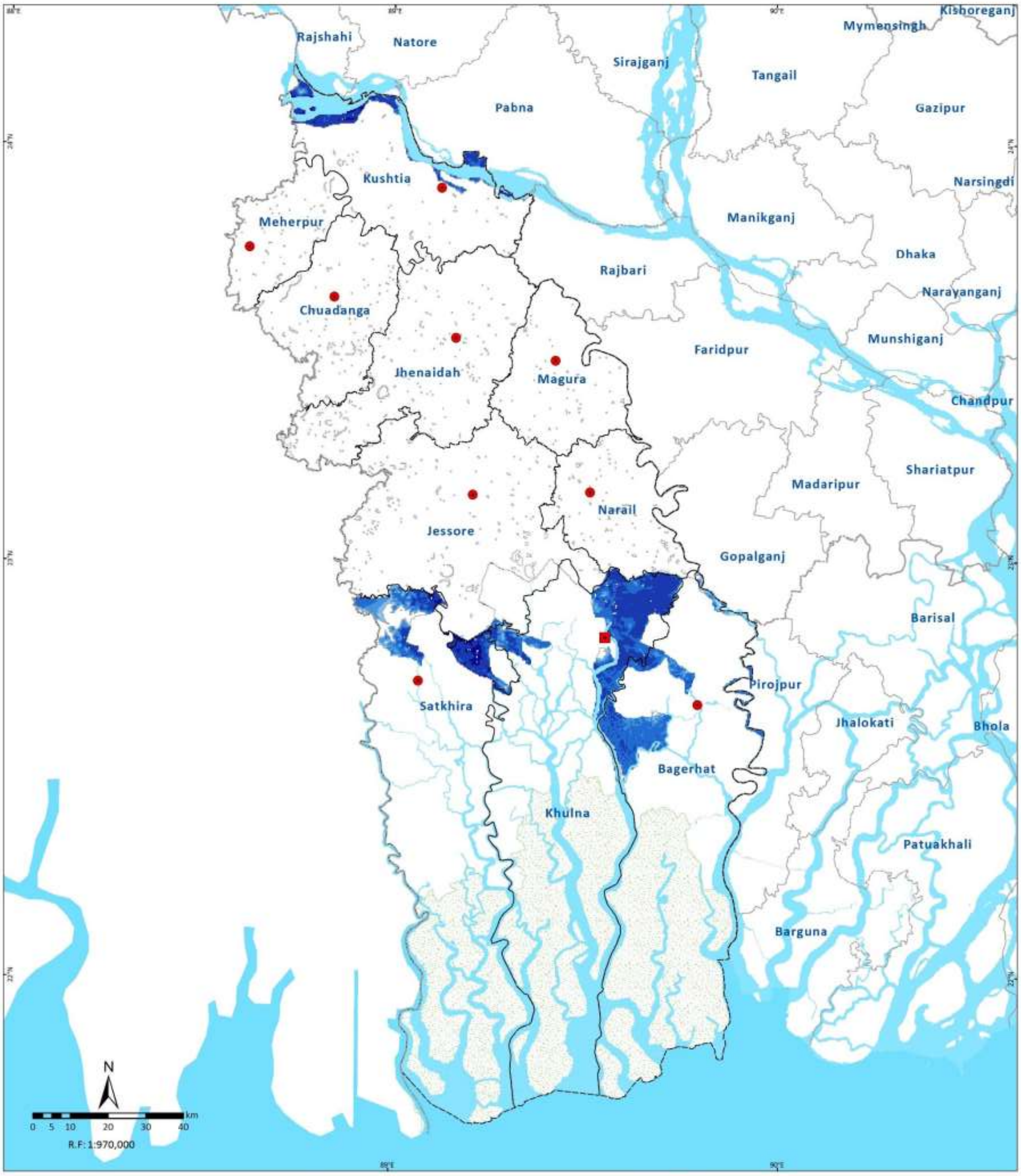
Flood Inundation Map for 25 Year Return Period
(Khulna Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- <0.3
- 0.3 -0.9
- 0.9 - 1.8
- 1.8 - 3.6
- >3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, division level map is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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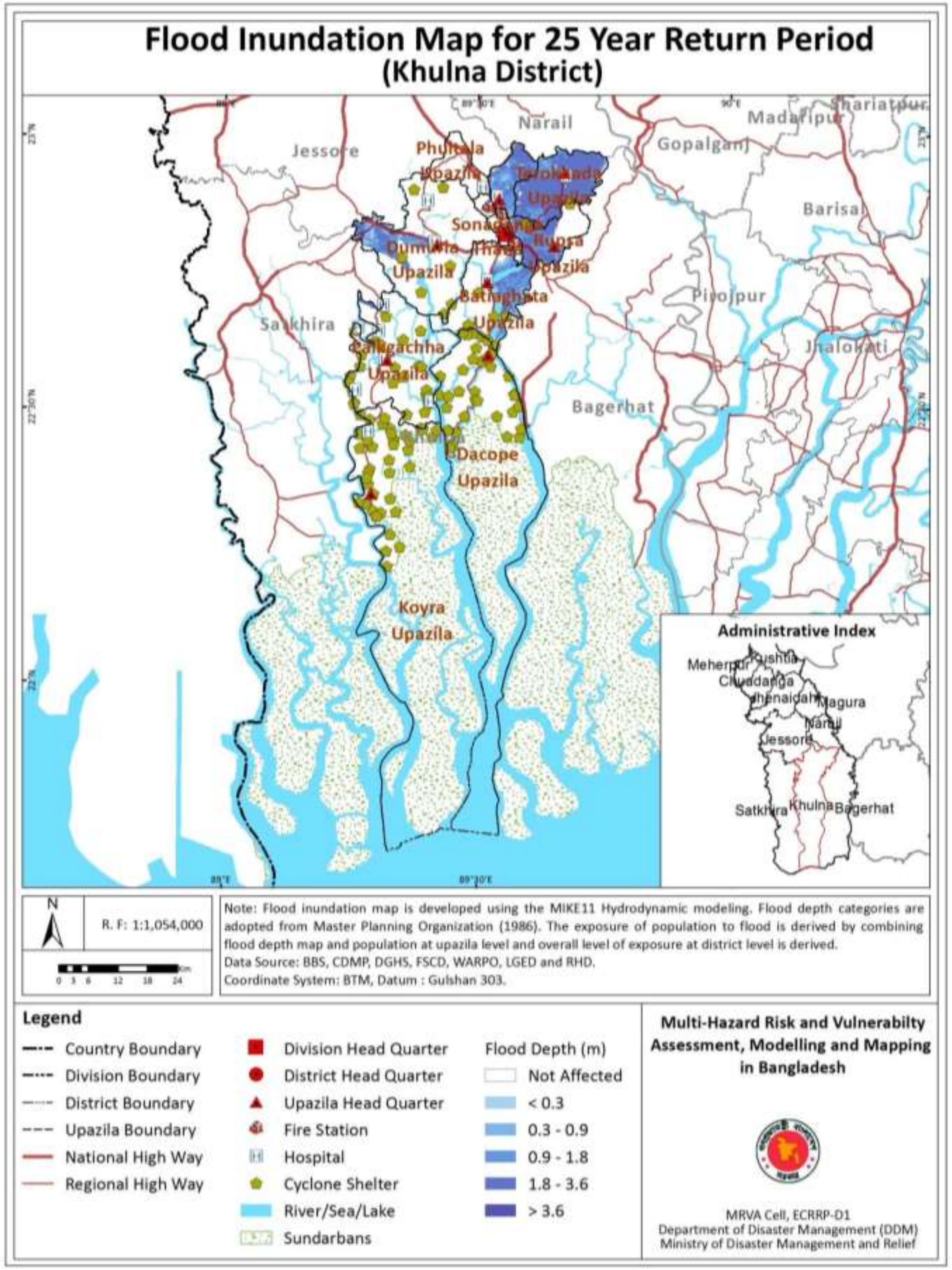
Ministry of Disaster Management and Relief


Flood Inundation Map for 25 Year Return Period
(Khulna District)
Jessore
Narail
Madaripur
Gopalganj
Barisal
Pirojpur
Jhalokati
Satkhira
Bagerhat
Dacope
Upazila
Koyra
Upazila
Administrative Index
Meherpur
Kushtia
Chuadanga
Jhenaidah
Magura
Narail
Jessore
Satkhira
Khulna
Bagerhat
N
R. F: 1:1,054,000
Note: Flood inundation map is developed using the MIKE11 Hydrodynamic modeling. Flood depth categories are adopted from Master Planning Organization (1986). The exposure of population to flood is derived by combining flood depth map and population at upazila level and overall level of exposure at district level is derived.
Data Source: BBS, CDMP, DGHS, FSCD, WARPO, LGED and RHD.
Coordinate System: BTM, Datum : Gulshan 303.
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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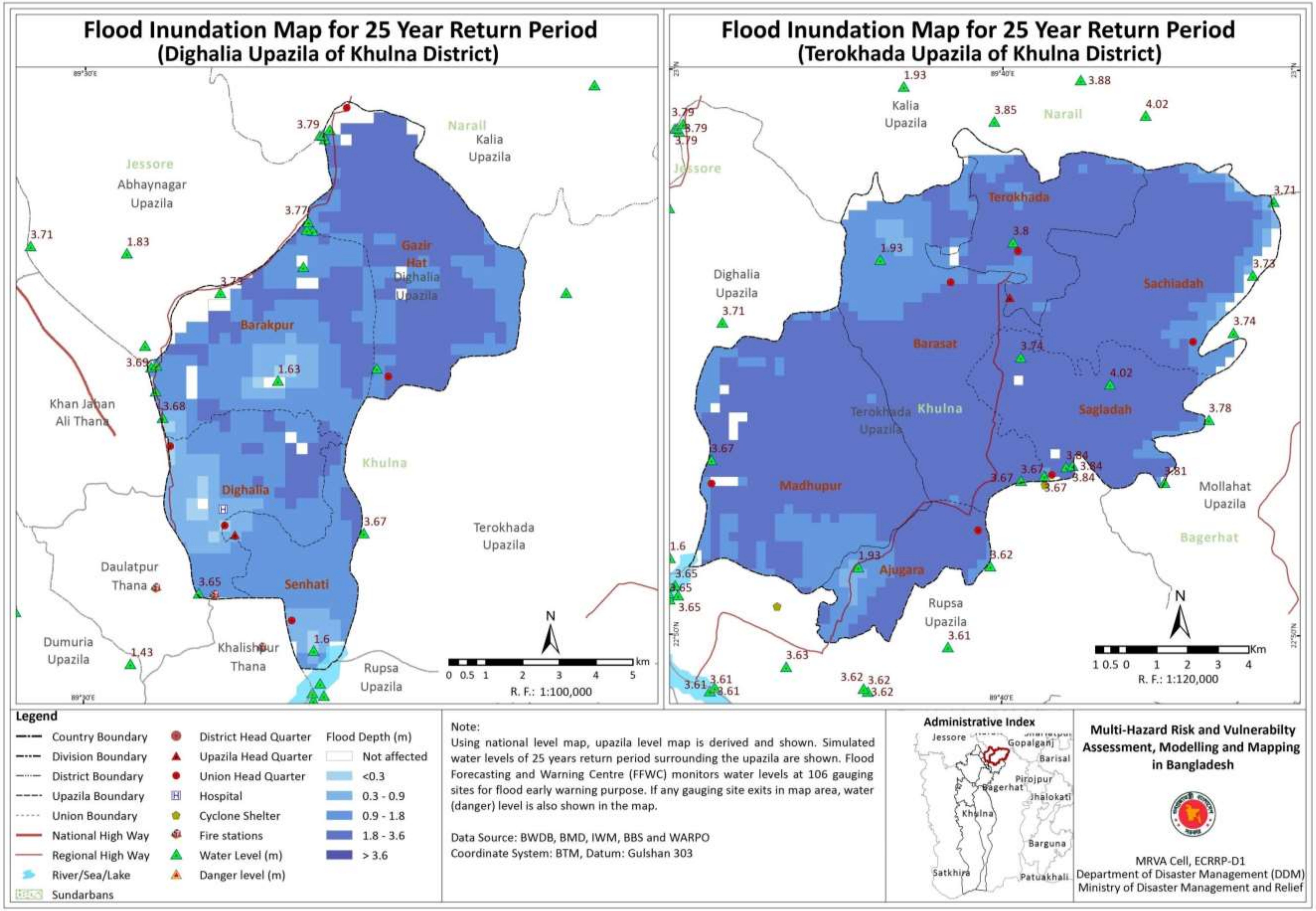

Flood Inundation Map for 25 Year Return Period
(Dighalia Upazila of Khulna District)
Jessore
Abhaynagar Upazila
Narail
Kalia Upazila
Gazir Hat
Dighalia Upazila
Barakpur
Khan Jahan Ali Thana
Dighalia
Khulna
Daulatpur Thana
Senhati
Terokhada Upazila
Dumuria Upazila
Khalishpur Thana
Rupsa Upazila
R. F.: 1:100,000
Flood Inundation Map for 25 Year Return Period
(Terokhada Upazila of Khulna District)
Kalia Upazila
Narail
Jessore
Terokhada
Dighalia Upazila
Sachiadah
Barasat
Terokhada Upazila
Khulna
Sagladah
Madhupur
Mollahat Upazila
Bagerhat
Ajugara
Rupsa Upazila
R. F.: 1:120,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Cyclone Shelter
Fire stations
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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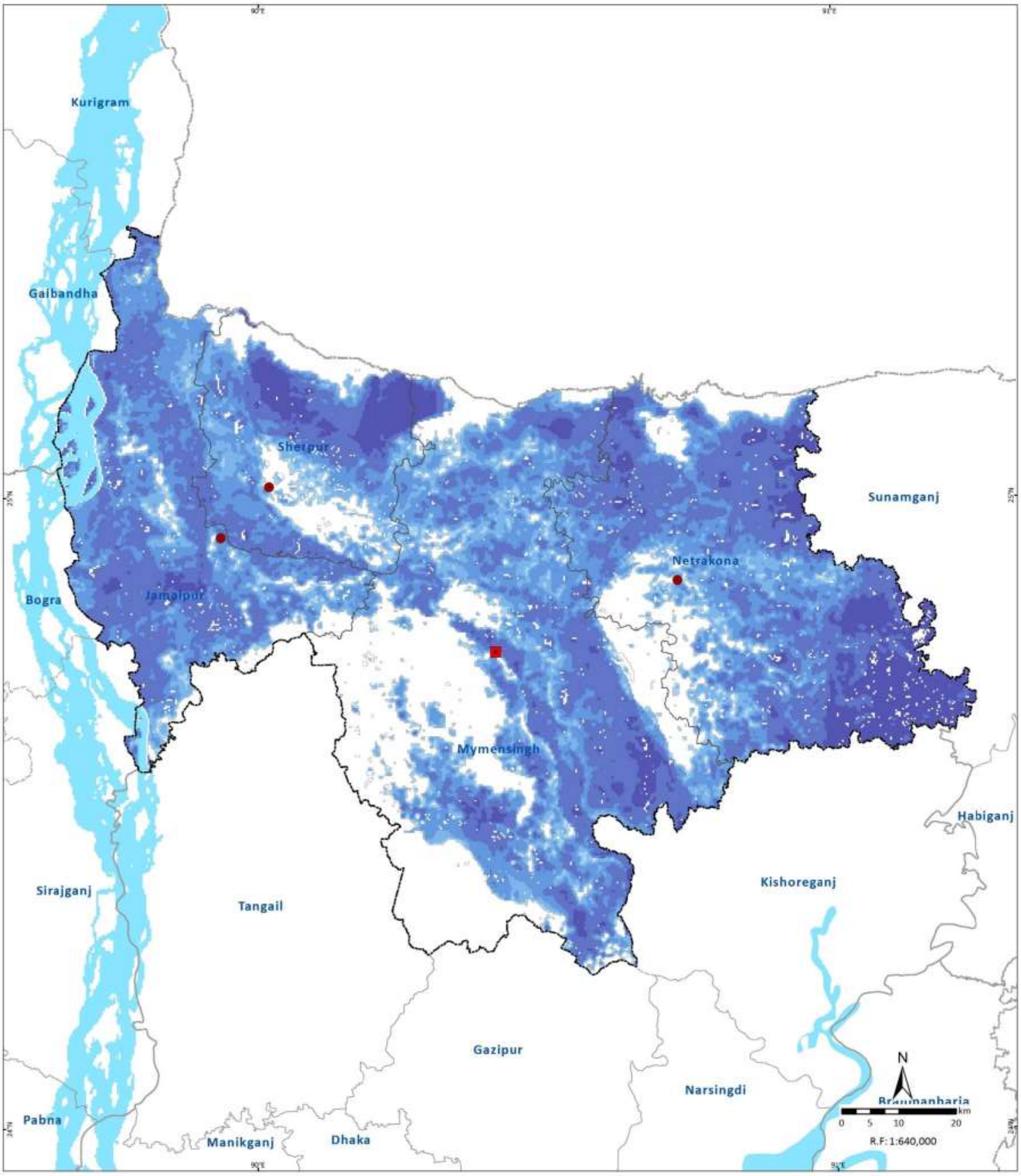
Flood Inundation Map for 25 Year Return Period
(Mymensingh Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- <0.3
- 0.3 -0.9
- 0.9 - 1.8
- 1.8 - 3.6
- >3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, division level map is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Rangpur, Rajshahi, Mymensingh, Sylhet, Dhaka, Khulna, Barisal, Chittagong

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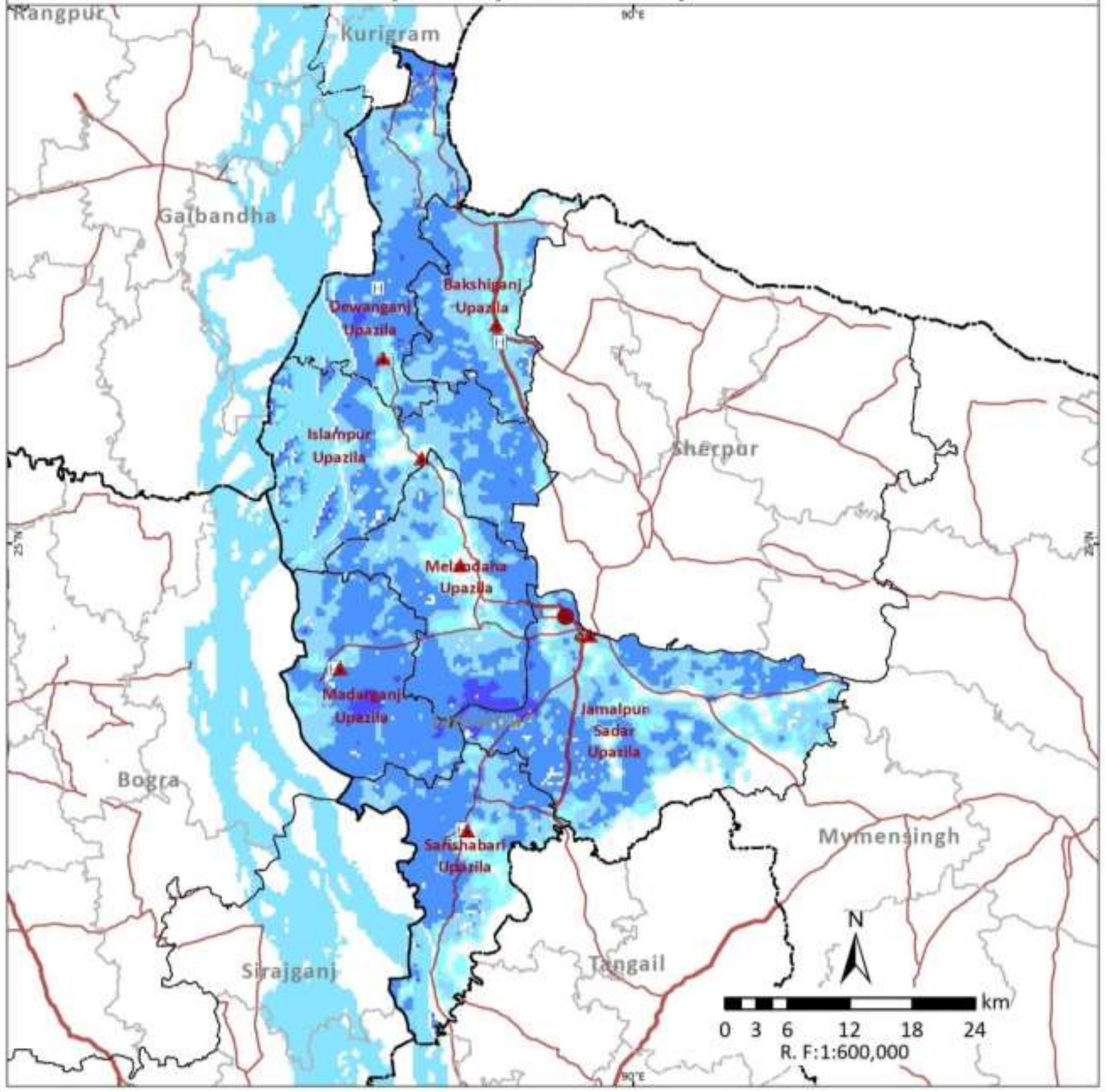
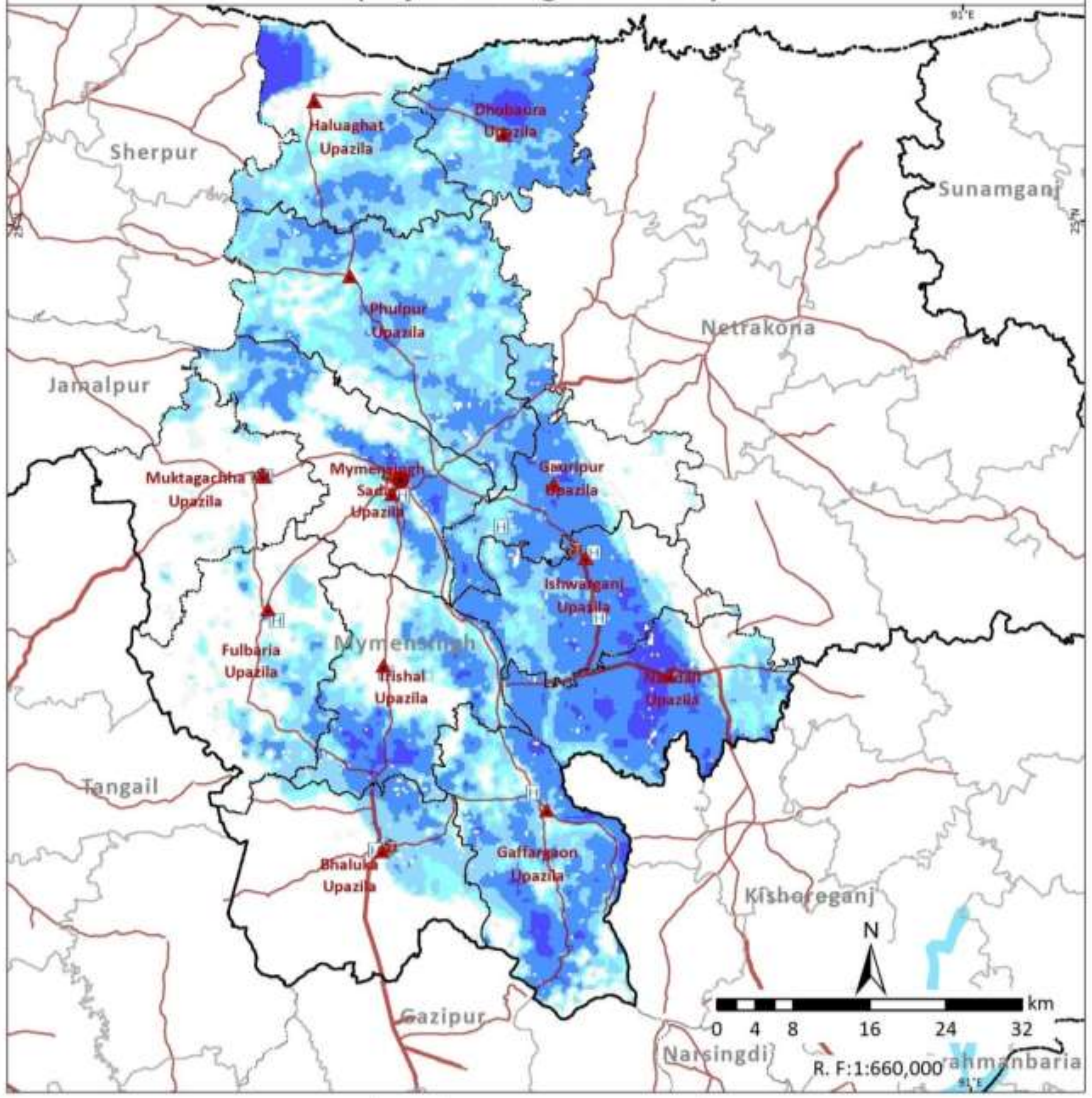
Flood Inundation Map for 25 Year Return Period
(Jamalpur District)



Flood Inundation Map for 25 Year Return Period
(Mymensingh District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- < 0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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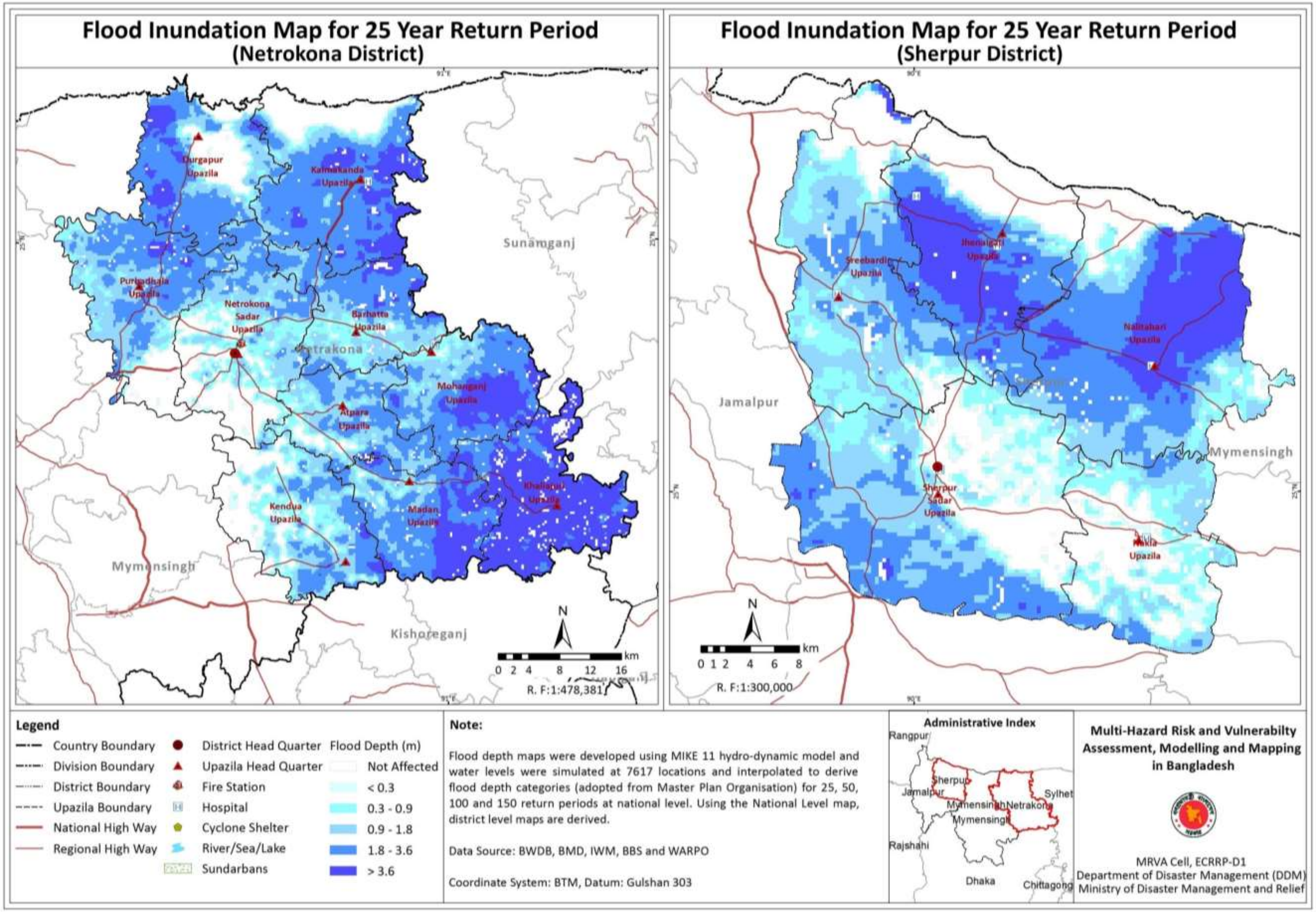
Flood Inundation Map for 25 Year Return Period
(Netrokona District)
Flood Inundation Map for 25 Year Return Period
(Sherpur District)
Durgapur Upazila
Kalmakanda Upazila
Purbadhala Upazila
Netrokona Sadar Upazila
Barhatta Upazila
Netrakona
Mohanganj Upazila
Atpara Upazila
Kendua Upazila
Madan Upazila
Khaliajuri Upazila
Sunamganj
Mymensingh
Kishoreganj
R. F:1:478,381
Sreebardi Upazila
Jhenaigati Upazila
Nalitabari Upazila
Jamalpur
Sherpur Sadar Upazila
Nakla Upazila
Mymensingh
R. F:1:300,000
N
km
0 2 4 8 12 16
0 1 2 4 6 8
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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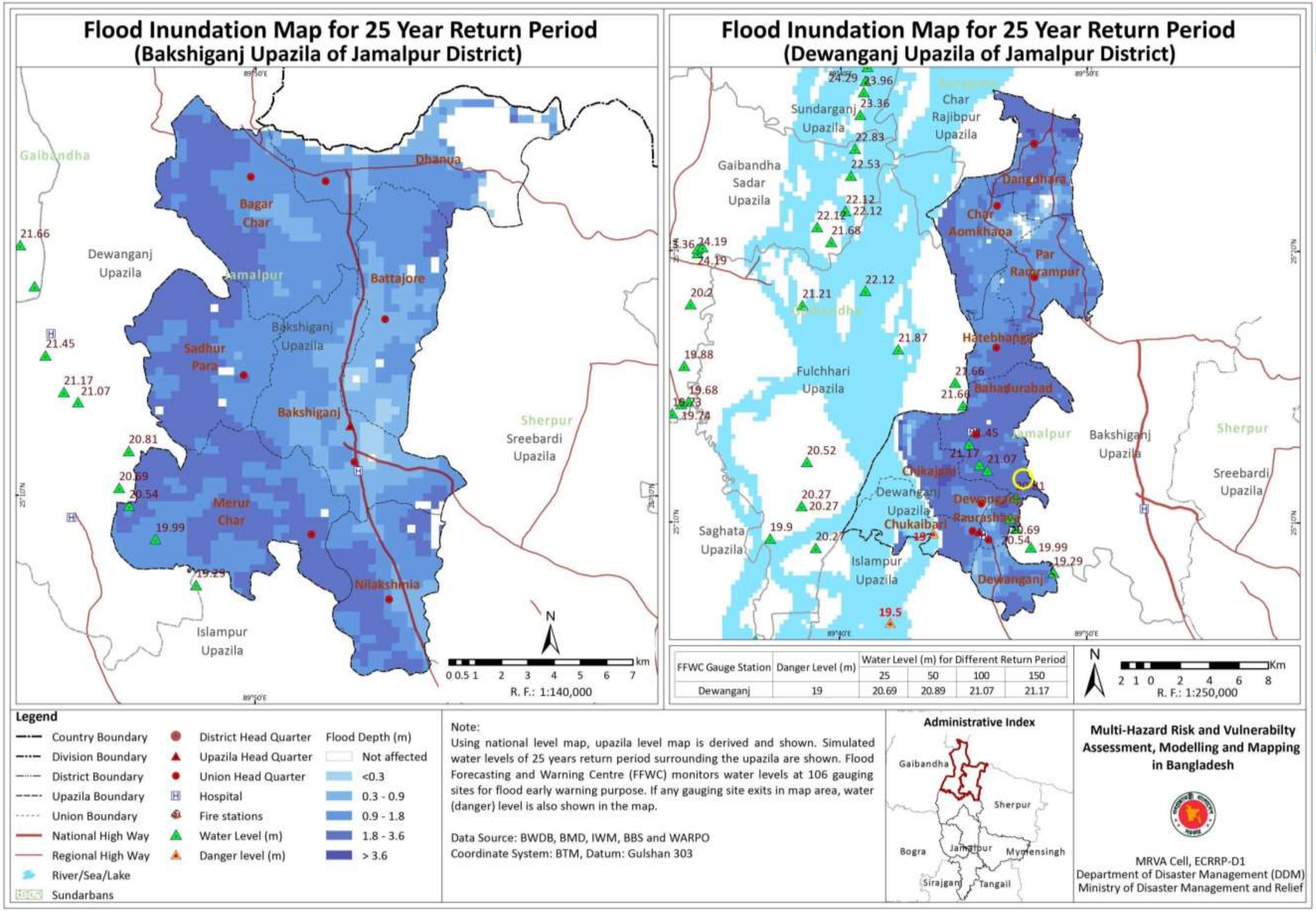

Flood Inundation Map for 25 Year Return Period
(Bakshiganj Upazila of Jamalpur District)
Flood Inundation Map for 25 Year Return Period
(Dewanganj Upazila of Jamalpur District)
Gaibandha
Dewanganj Upazila
Bagar Char
Dhanua
Jamalpur
Battajore
Bakshiganj Upazila
Sadhur Para
Bakshiganj
Merur Char
Nilakshmia
Sherpur
Sreebardi Upazila
Islampur Upazila
R. F.: 1:140,000
Sundarganj Upazila
Char Rajibpur Upazila
Gaibandha Sadar Upazila
Fulchhari Upazila
Saghata Upazila
Dangdhara
Char Aomkhaoa
Par Rampur
Hatebhanga
Bahadurabad
Chikajani
Dewanganj Upazila
Chukaibari
Dewanganj
Paurashava
Bakshiganj Upazila
R. F.: 1:250,000
FFWC Gauge Station | Danger Level (m) | Water Level (m) for Different Return Period: 25, 50, 100, 150
Dewanganj | 19 | 20.69 | 20.89 | 21.07 | 21.17
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire stations
Water Level (m)
Danger level (m)
Flood Depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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Gaibandha
Sherpur
Bogra
Jamalpur
Mymensingh
Sirajganj
Tangail
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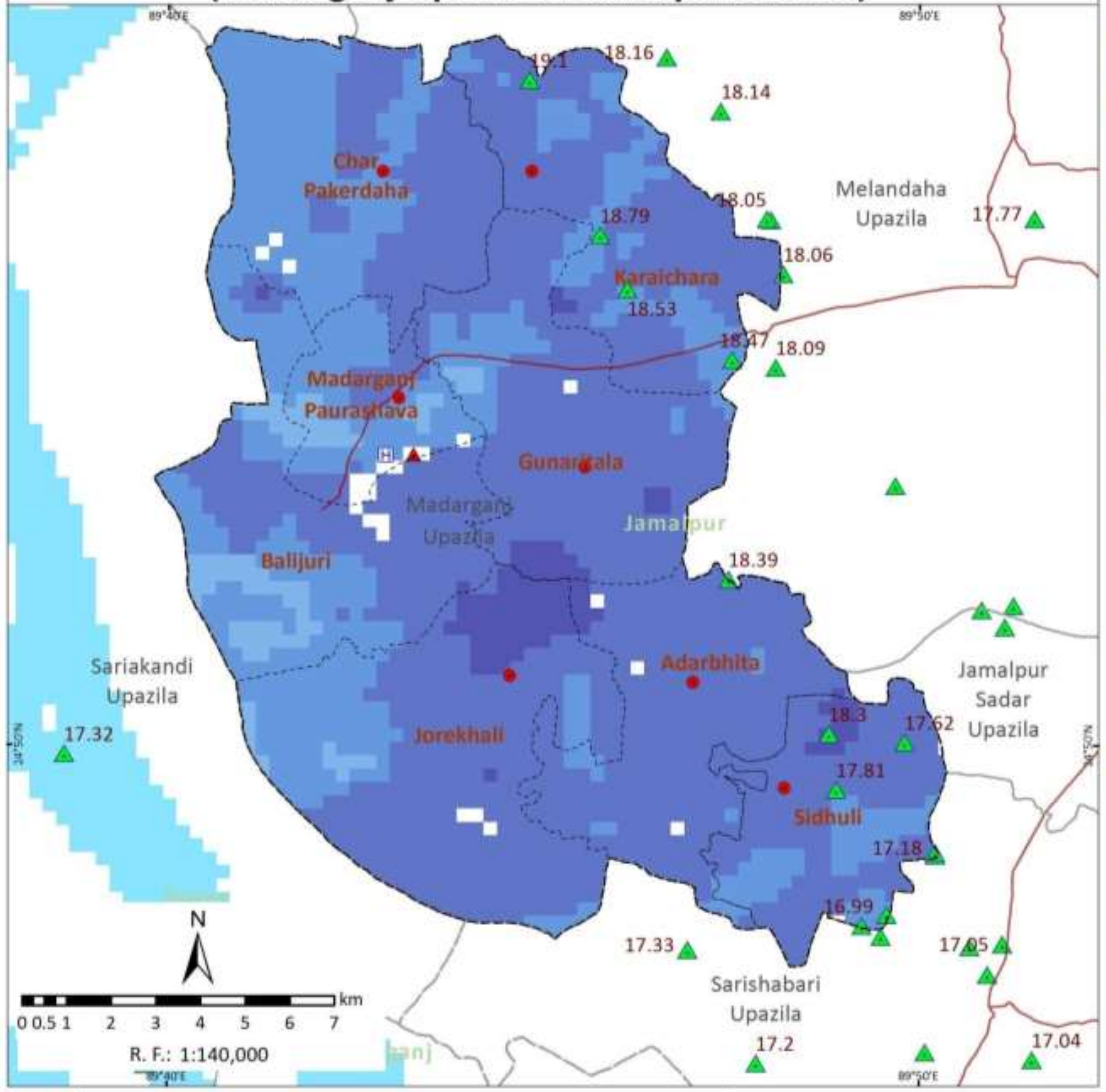
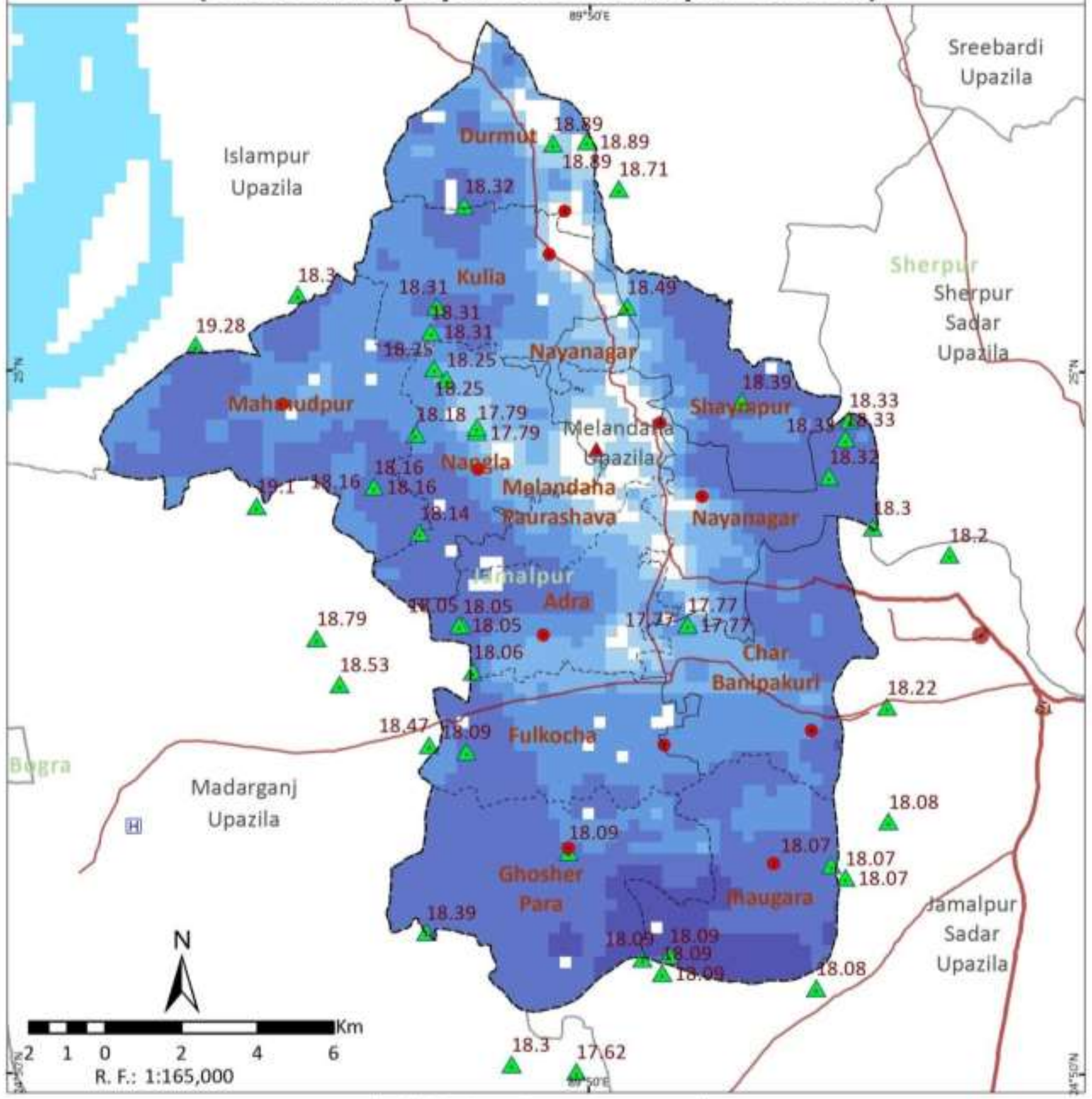
Flood Inundation Map for 25 Year Return Period
(Madarganj Upazila of Jamalpur District)



Flood Inundation Map for 25 Year Return Period
(Melandahaj Upazila of Jamalpur District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)	
Division Boundary	Upazila Head Quarter	Not affected	
District Boundary	Union Head Quarter	<0.3	
Upazila Boundary	Hospital	0.3 - 0.9	
Union Boundary	Fire stations	0.9 - 1.8	
National High Way	Water Level (m)	1.8 - 3.6	
Regional High Way	Danger level (m)	> 3.6	
River/Sea/Lake			
Sundarbans			

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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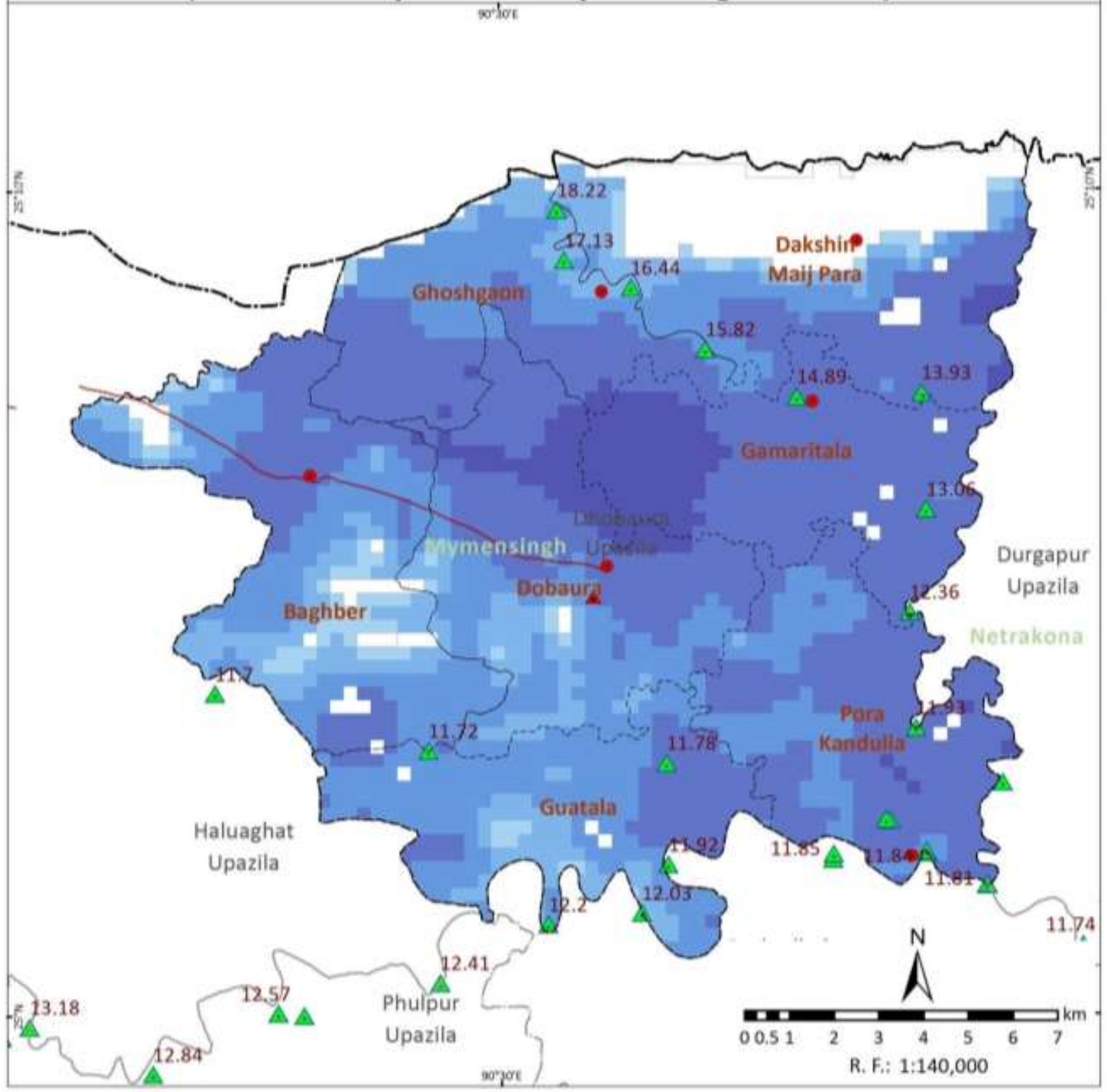
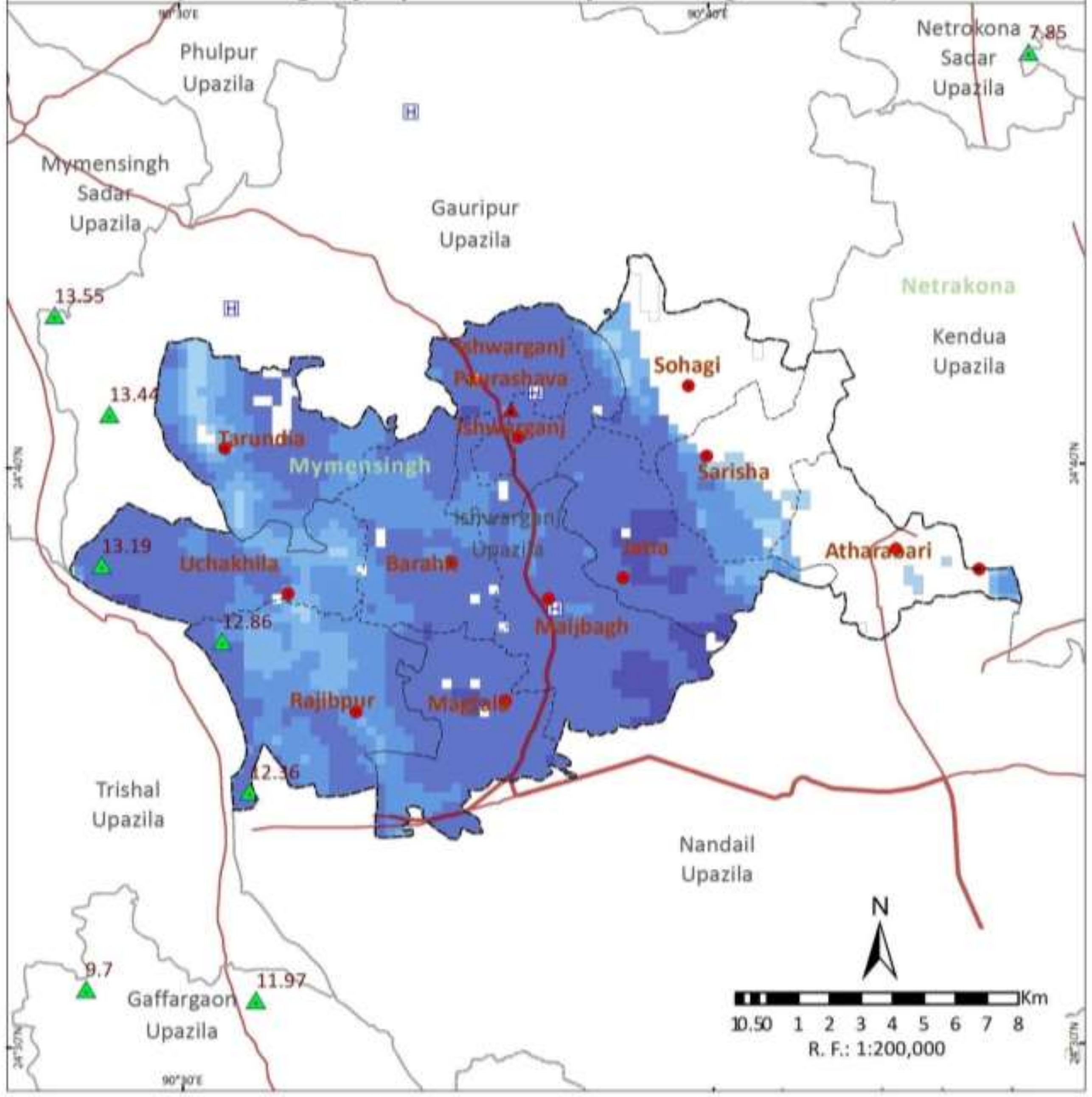
Flood Inundation Map for 25 Year Return Period
(Dhobaura Upazila of Mymensingh District)



Flood Inundation Map for 25 Year Return Period
(Ishwarganj Upazila of Mymensingh District)



Legend

Country Boundary		District Head Quarter		Flood Depth (m)	
Division Boundary		Upazila Head Quarter		Not affected	
District Boundary		Union Head Quarter		<0.3	
Upazila Boundary		Hospital		0.3 - 0.9	
Union Boundary		Fire stations		0.9 - 1.8	
National High Way		Water Level (m)		1.8 - 3.6	
Regional High Way		Danger level (m)		> 3.6	
River/Sea/Lake					
Sundarbans					

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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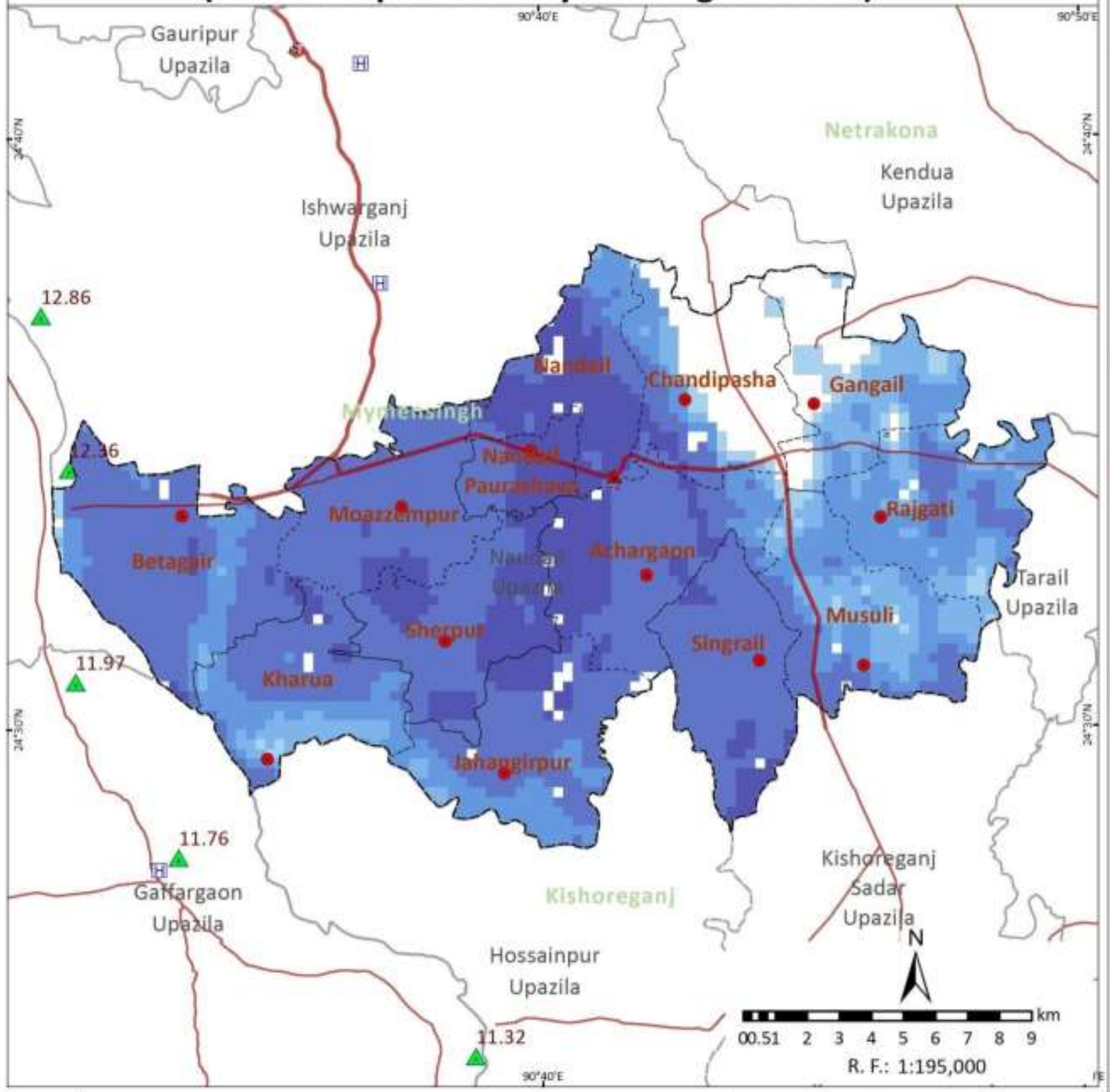
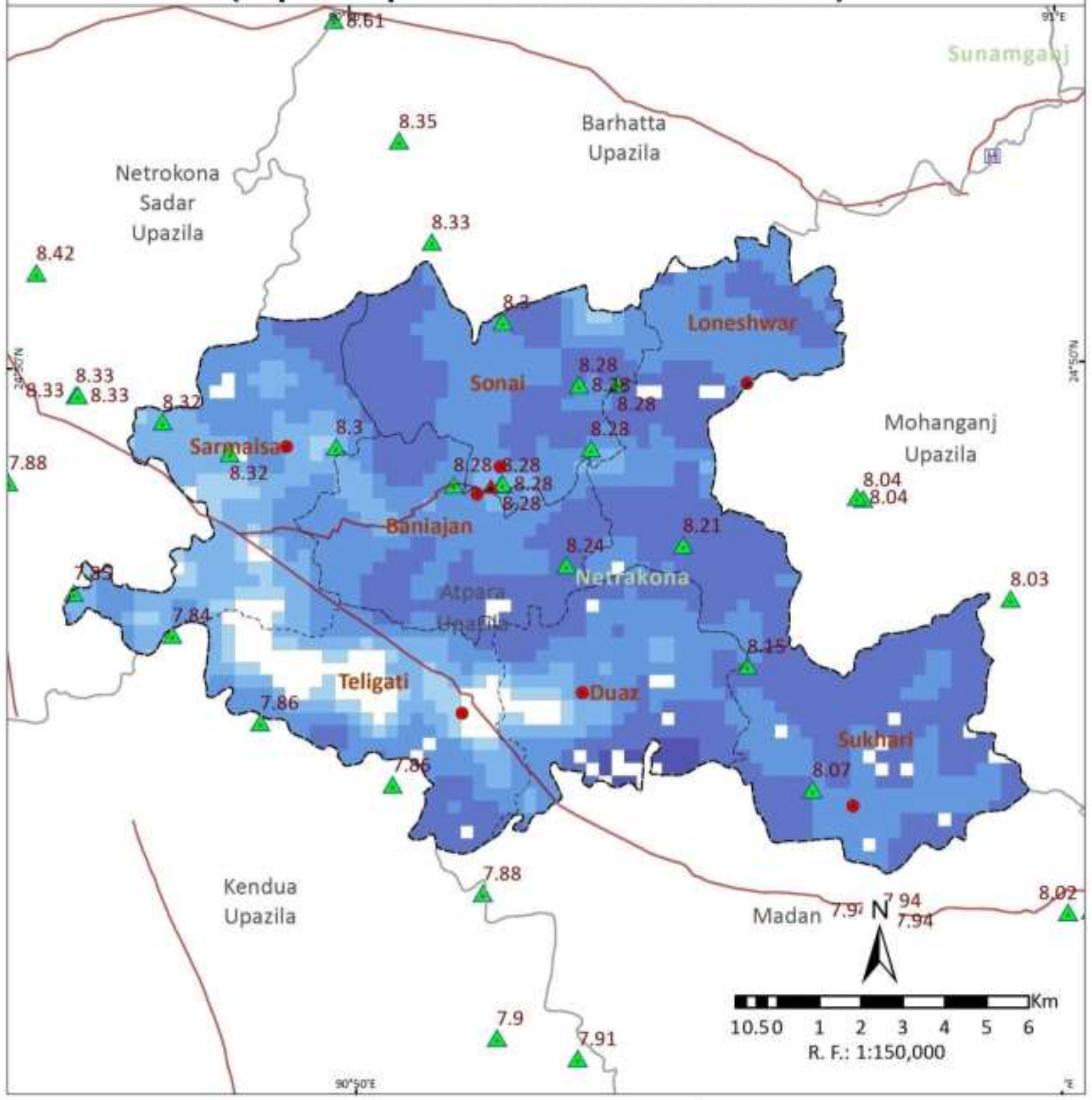
Flood Inundation Map for 25 Year Return Period
(Nandail Upazila of Mymensingh District)



Flood Inundation Map for 25 Year Return Period
(Atpara Upazila of Netrakona District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire stations
- Water Level (m)
- Danger level (m)

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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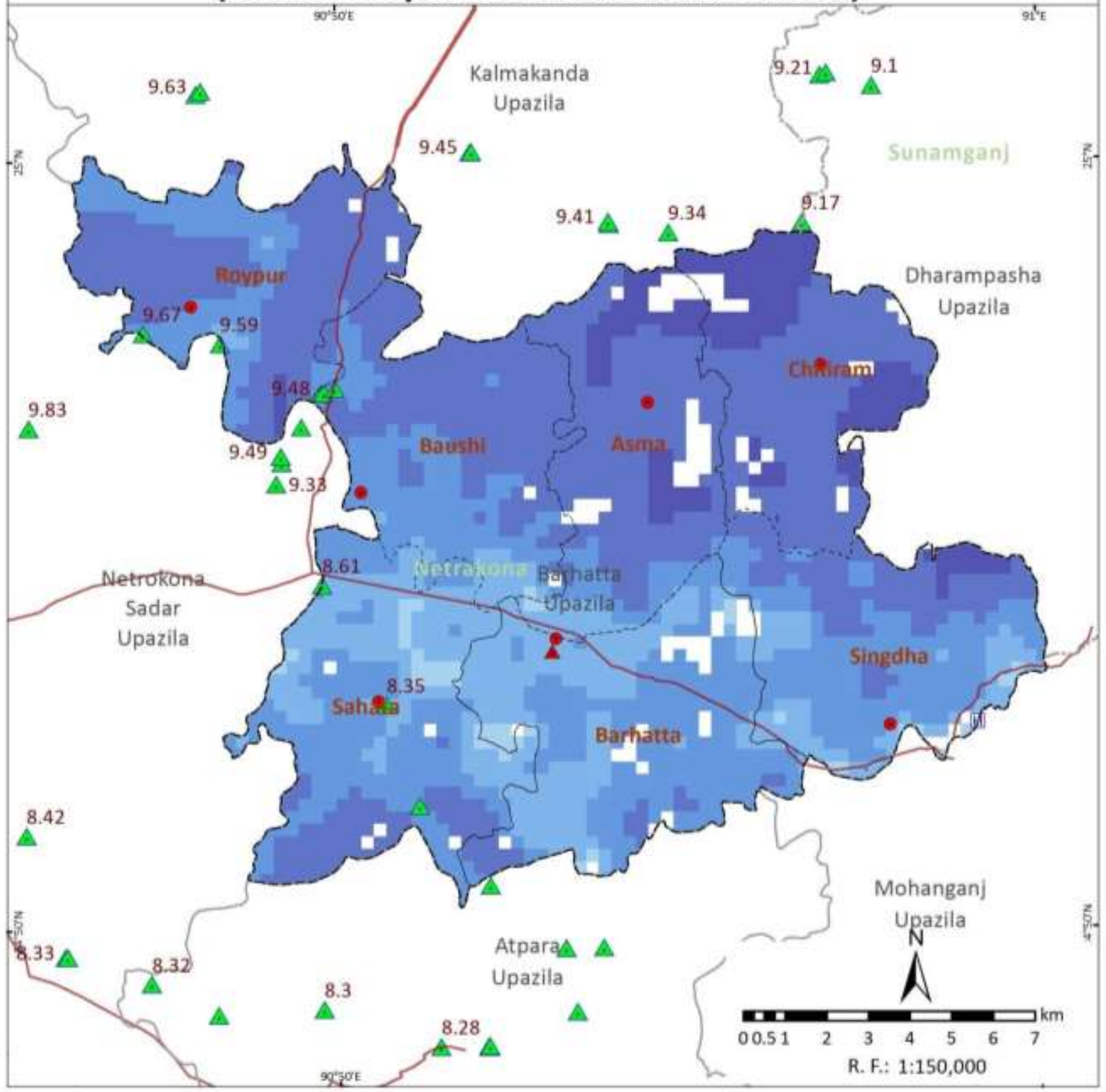
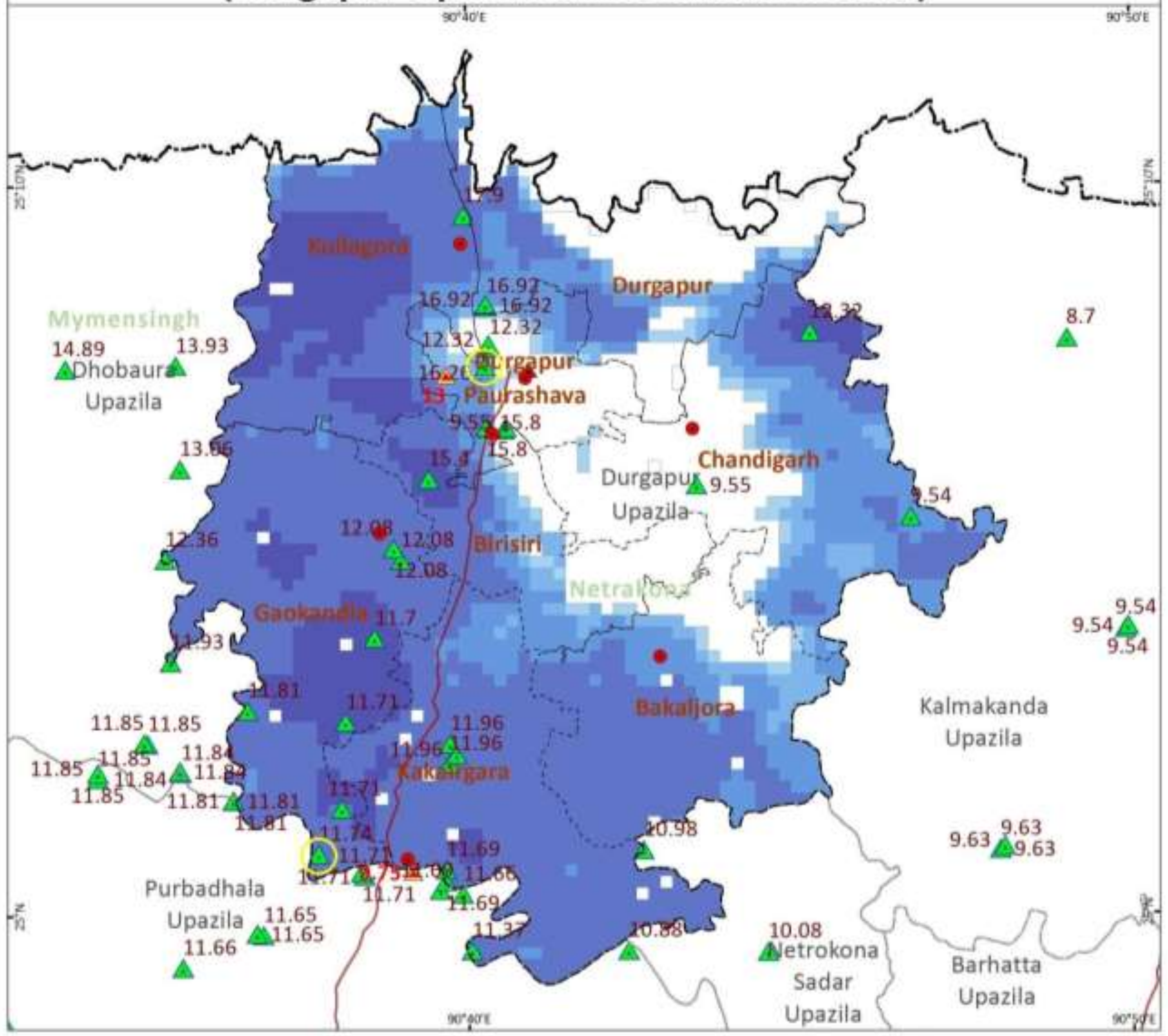
Flood Inundation Map for 25 Year Return Period
(Barhatta Upazila of Netrakona District)



Flood Inundation Map for 25 Year Return Period
(Durgapur Upazila of Netrakona District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Durgapur	13	16.26	16.52	16.76	16.89
Jariajanjail	9.75	11.74	11.91	12.06	12.15

N

10.50 1 2 3 4 5 6 Km

R. F.: 1:170,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood Depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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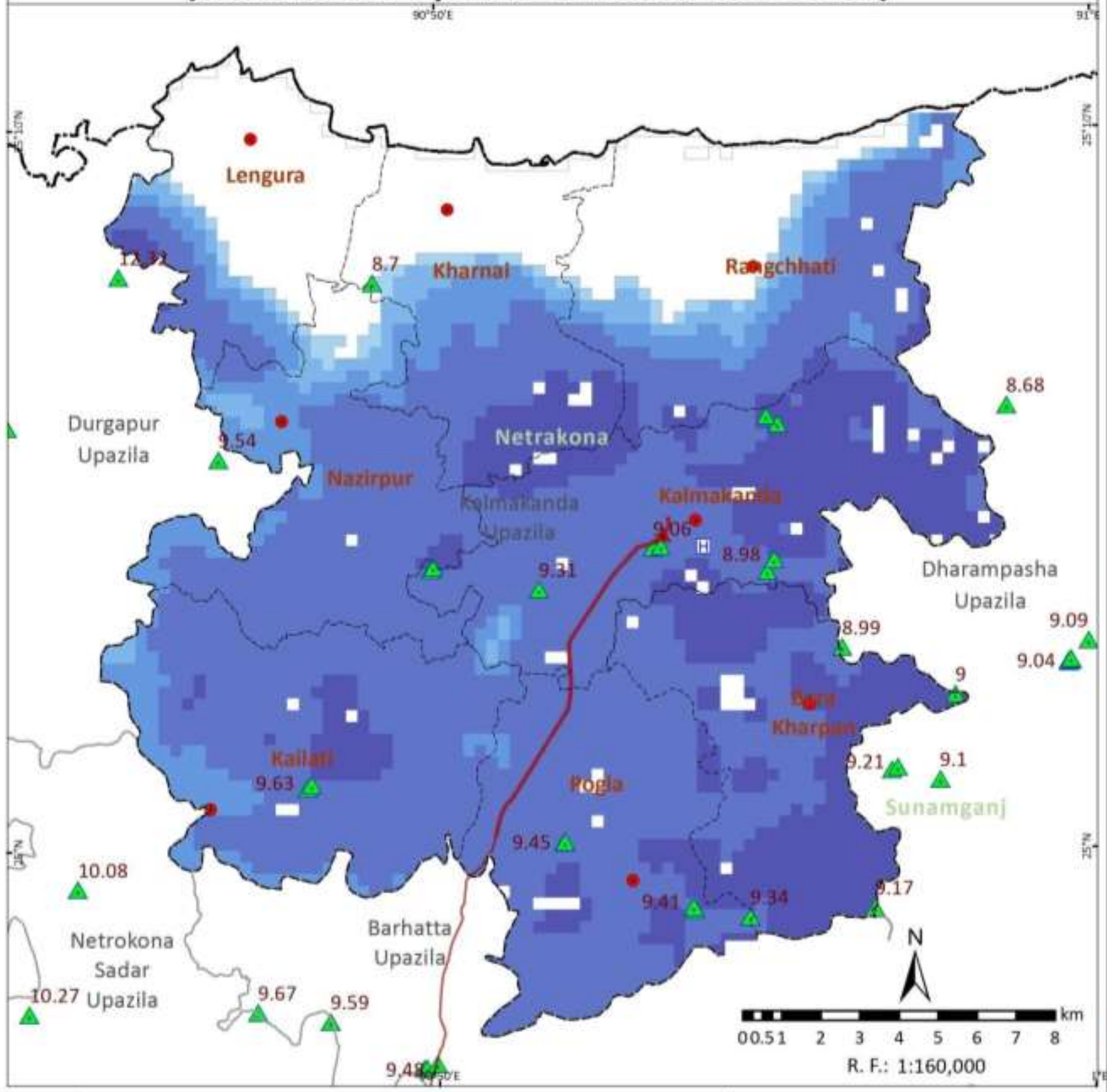
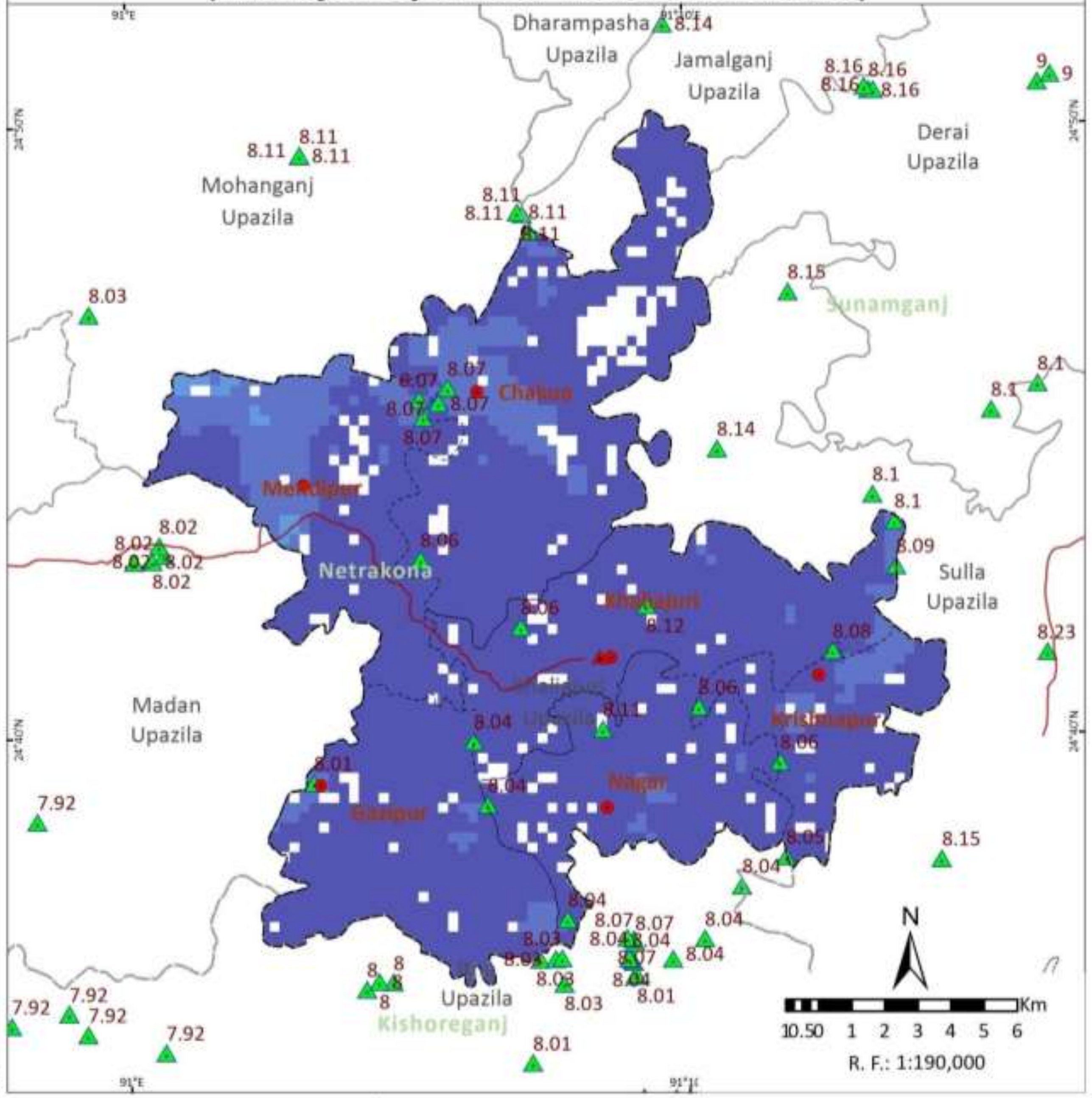
Flood Inundation Map for 25 Year Return Period
(Kalmakanda Upazila of Netrakona District)



Flood Inundation Map for 25 Year Return Period
(Khaliajuri Upazila of Netrakona District)



Legend

Country Boundary	District Head Quarter	Flood depth (m)		
Division Boundary	Upazila Head Quarter	Not affected		
District Boundary	Union Head Quarter	<0.3		
Upazila Boundary	Hospital	0.3 - 0.9		
Union Boundary	Fire stations	0.9 - 1.8		
National High Way	Water Level (m)	1.8 - 3.6		
Regional High Way	Danger level (m)	> 3.6		
River/Sea/Lake				
Sundarbans				

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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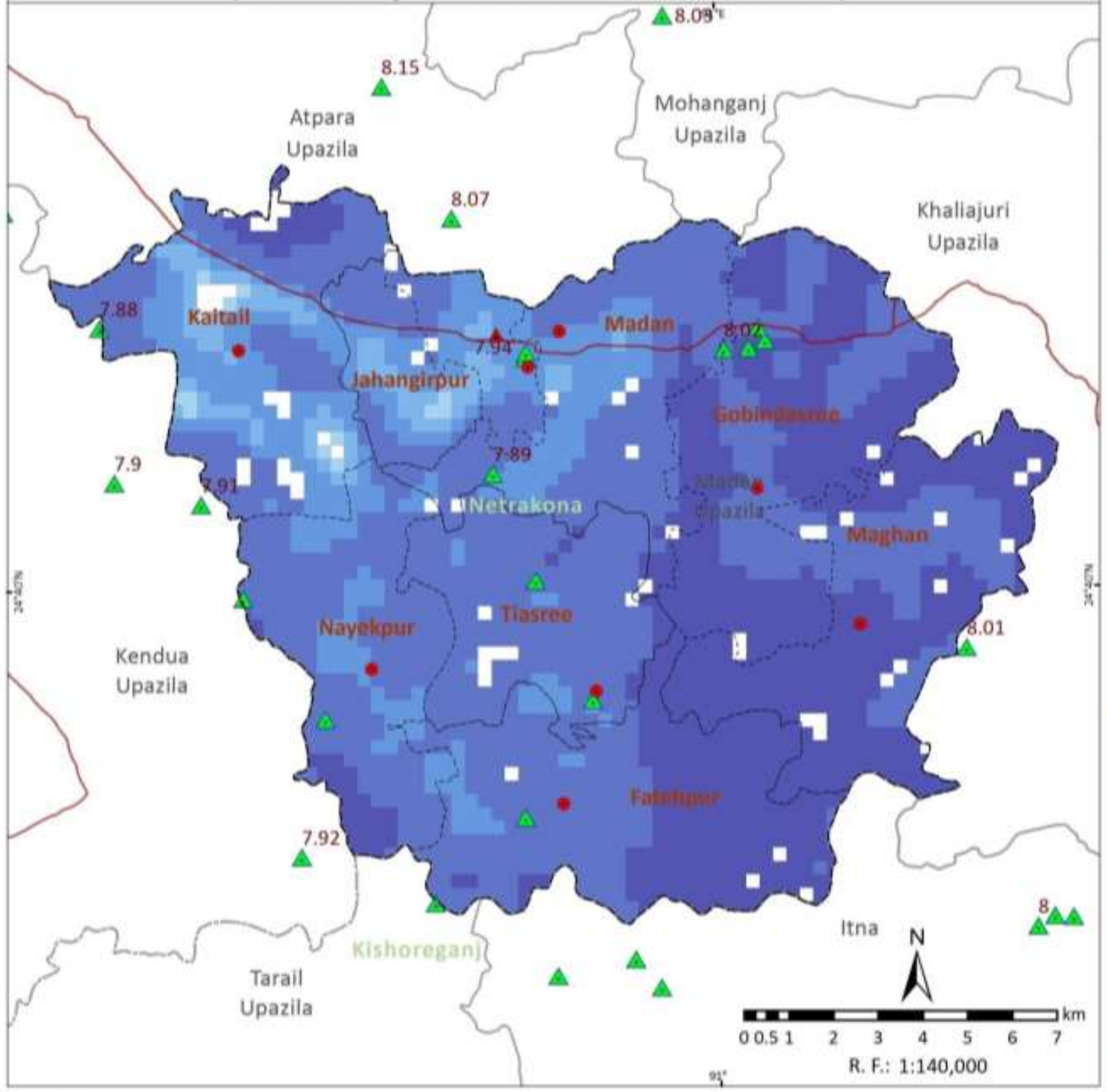
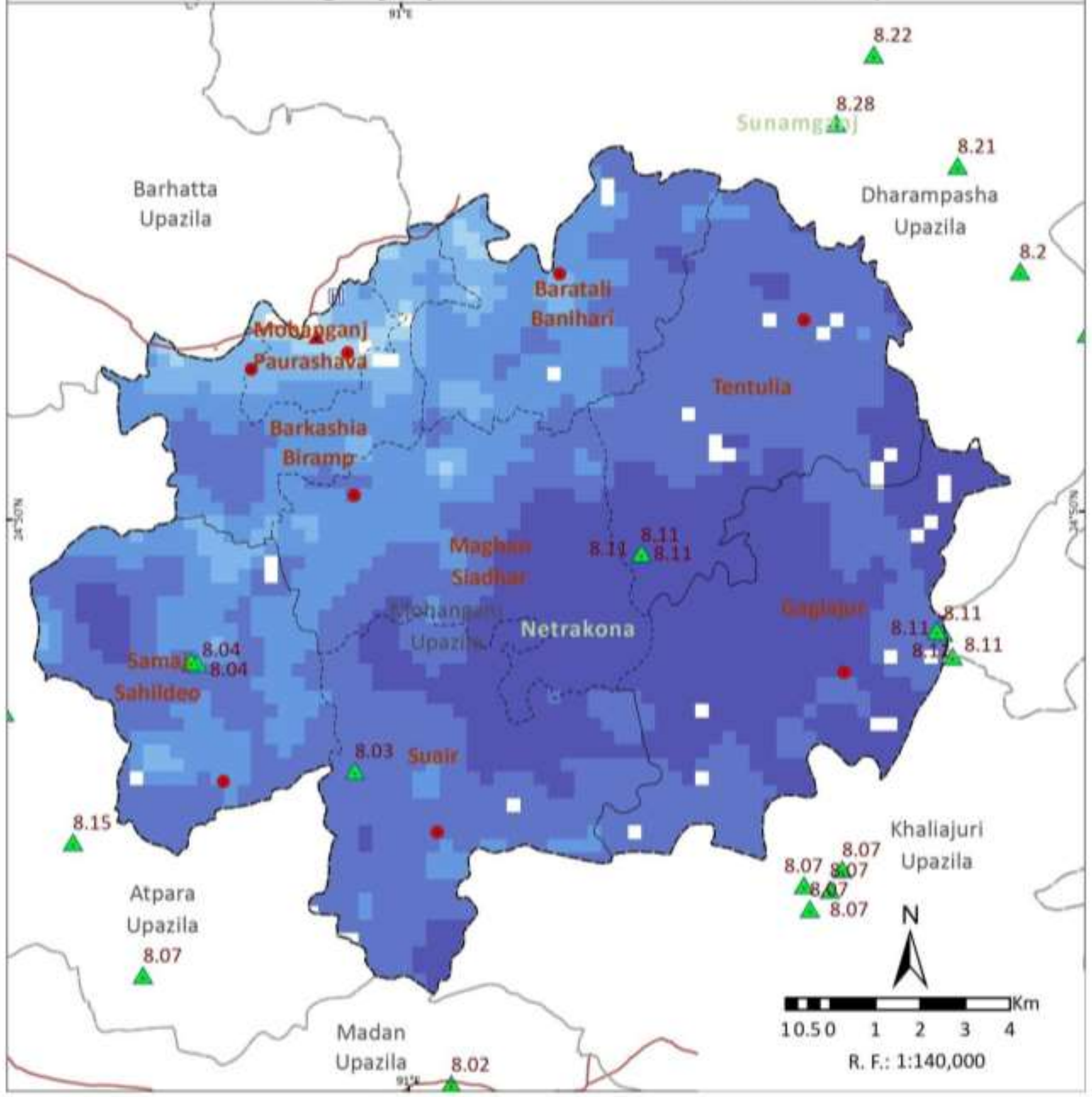
Flood Inundation Map for 25 Year Return Period
(Madan Upazila of Netrakona District)



Flood Inundation Map for 25 Year Return Period
(Mohanganj Upazila of Netrakona District)



Legend

Country Boundary		District Head Quarter	Flood depth (m)	
Division Boundary		Upazila Head Quarter		Not affected
District Boundary		Union Head Quarter		<0.3
Upazila Boundary		Hospital		0.3 - 0.9
Union Boundary		Fire stations		0.9 - 1.8
National High Way		Water Level (m)		1.8 - 3.6
Regional High Way		Danger level (m)		> 3.6
River/Sea/Lake				
Sundarbans				

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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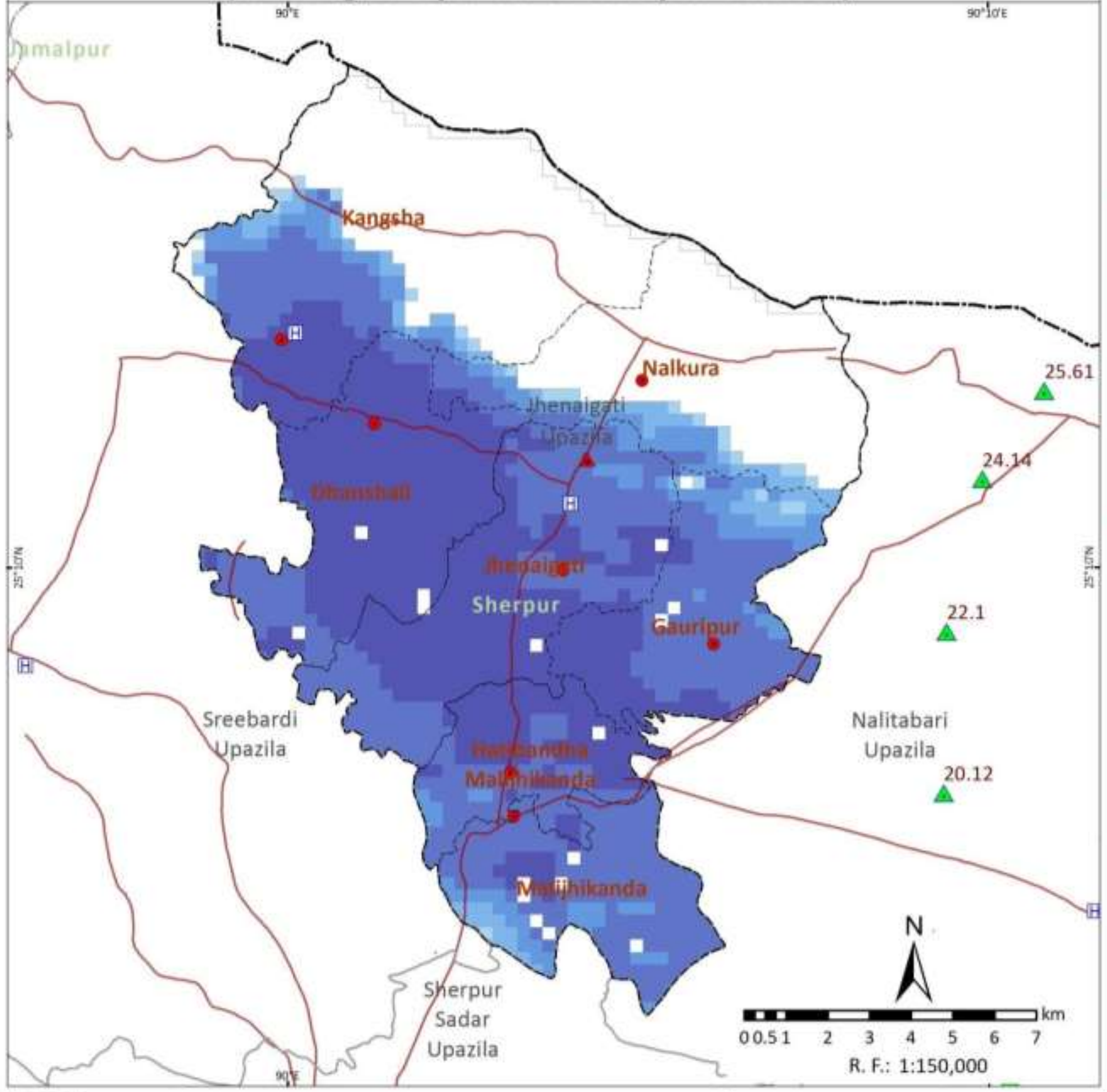
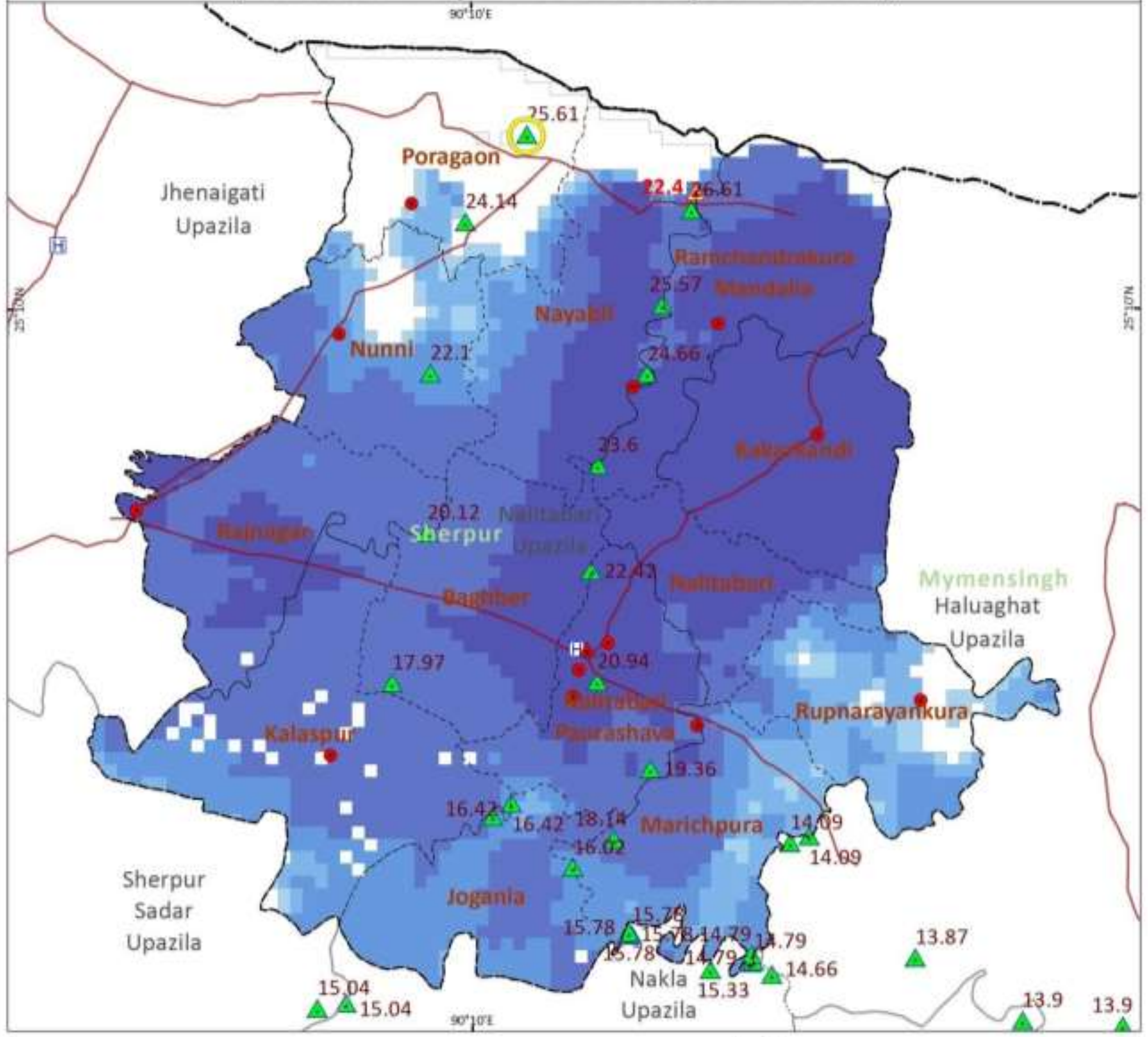
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Jhenaigati Upazila of Sherpur District)



Flood Inundation Map for 25 Year Return Period
(Nalitabari Upazila of Sherpur District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Nakuagaon	22.4	25.61	25.87	26.11	26.24

N

10.50 1 2 3 4 5 Km

R. F.: 1:160,000

Legend

Country Boundary	District Head Quarter	Flood depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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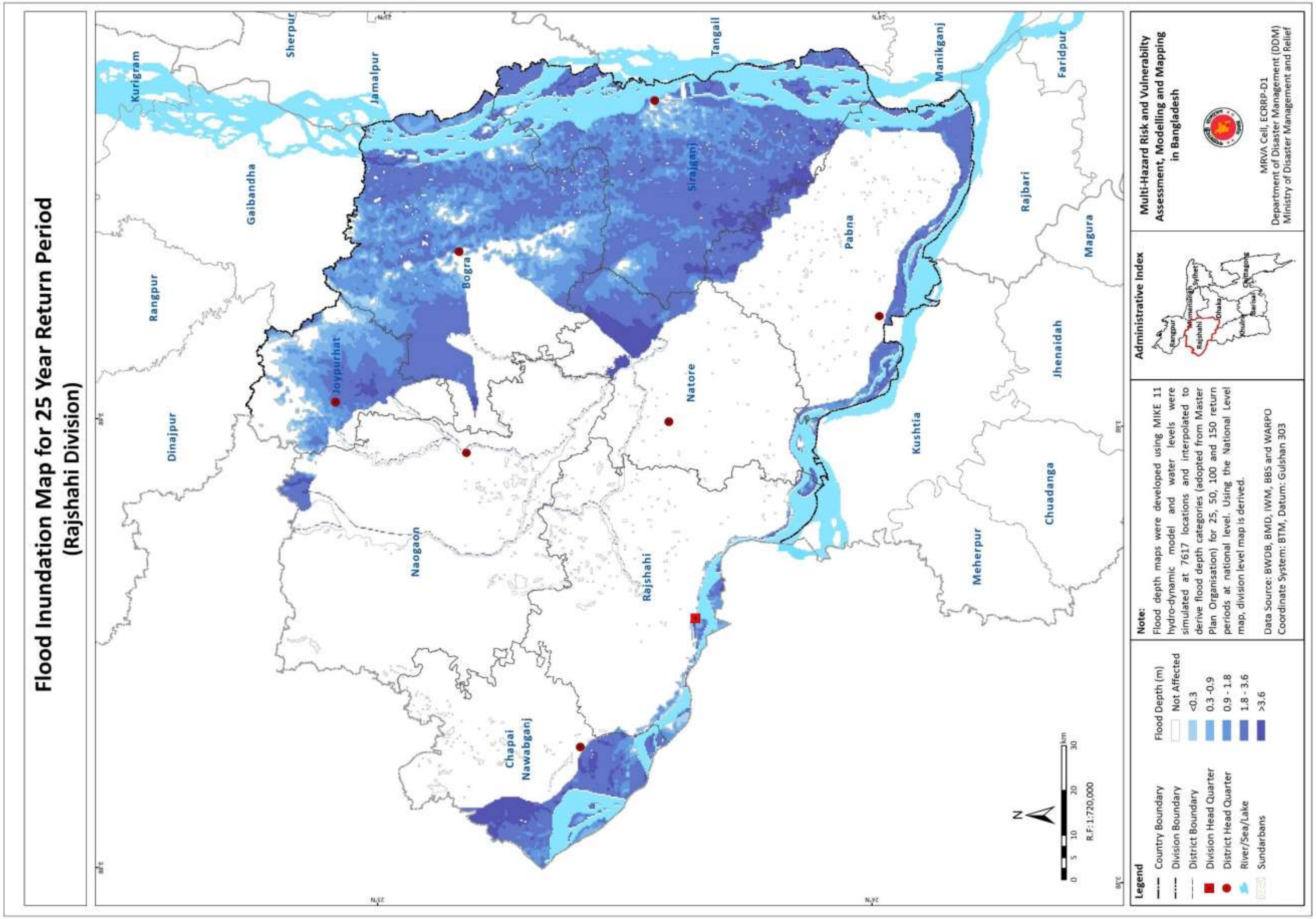
Ministry of Disaster Management and Relief


Flood Inundation Map for 25 Year Return Period
(Rajshahi Division)
Kurigram
Sherpur
Jamalpur
Tangail
Manikganj
Faridpur
Gaibandha
Rangpur
Dinajpur
Joypurhat
Bogra
Sirajganj
Pabna
Rajbari
Magura
Jhenaidah
Natore
Kushtia
Chuadanga
Meherpur
Naogaon
Rajshahi
Chapai Nawabganj
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
>3.6
N
0 5 10 20 30 km
R.F.:1:720,000
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, division level map is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Rajshahi
Dhaka
Sylhet
Khulna
Barisal
Chittagong
Mymensingh
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MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
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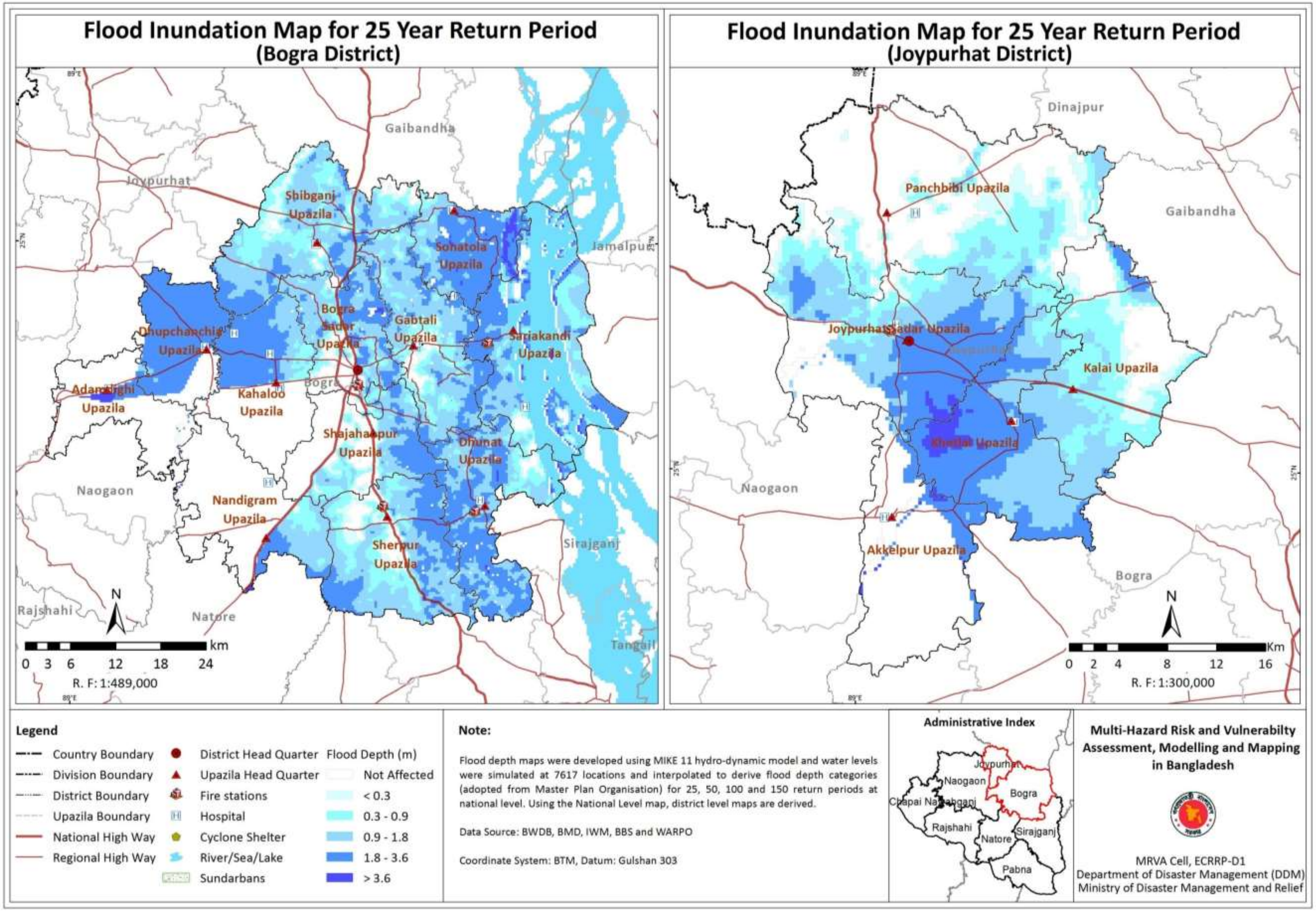
Flood Inundation Map for 25 Year Return Period
(Bogra District)
Gaibandha
Joypurhat
Jamalpur
Shibganj Upazila
Sonatola Upazila
Bogra Sadar Upazila
Gabtali Upazila
Sariakandi Upazila
Dhupchanchia Upazila
Adamdighi Upazila
Kahaloo Upazila
Shajahanpur Upazila
Dhunat Upazila
Nandigram Upazila
Sherpur Upazila
Naogaon
Sirajganj
Rajshahi
Natore
Tangail
km
0 3 6 12 18 24
R. F: 1:489,000
Flood Inundation Map for 25 Year Return Period
(Joypurhat District)
Dinajpur
Panchbibi Upazila
Gaibandha
Joypurhat Sadar Upazila
Kalai Upazila
Khetlal Upazila
Naogaon
Akkelpur Upazila
Bogra
Km
0 2 4 8 12 16
R. F: 1:300,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Joypurhat
Naogaon
Chapai Nawabganj
Bogra
Rajshahi
Natore
Sirajganj
Pabna
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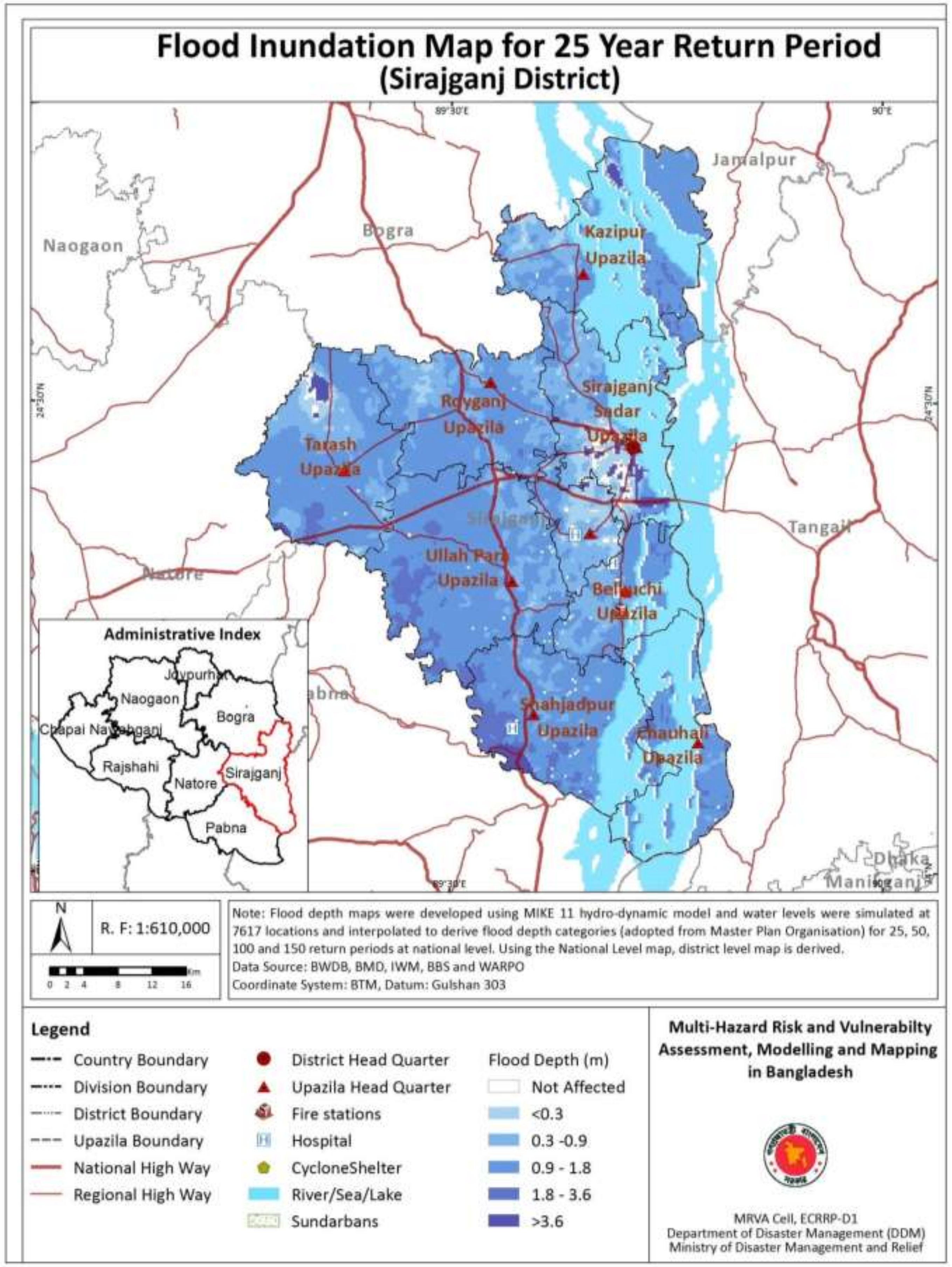

Flood Inundation Map for 25 Year Return Period
(Sirajganj District)
Jamalpur
Naogaon
Bogra
Kazipur Upazila
Sirajganj Sadar Upazila
Raiganj Upazila
Tarash Upazila
Tangail
Ullah Para Upazila
Belkuchi Upazila
Shahjadpur Upazila
Chauhali Upazila
Administrative Index
Joypurhat
Naogaon
Bogra
Chapai Nawabganj
Rajshahi
Natore
Sirajganj
Pabna
R. F: 1:610,000
Note: Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level map is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
CycloneShelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
<0.3
0.3 -0.9
0.9 - 1.8
1.8 - 3.6
>3.6
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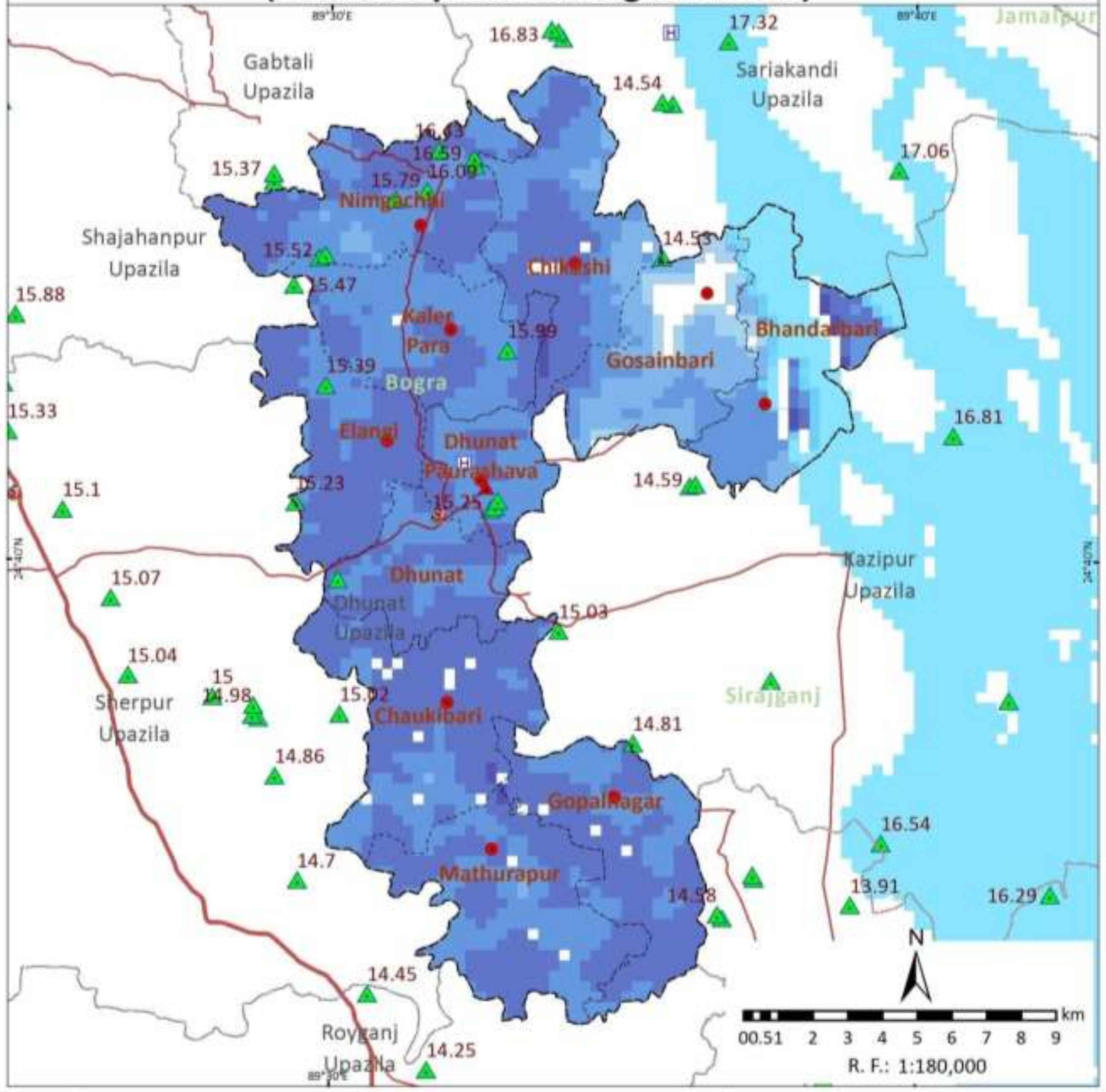
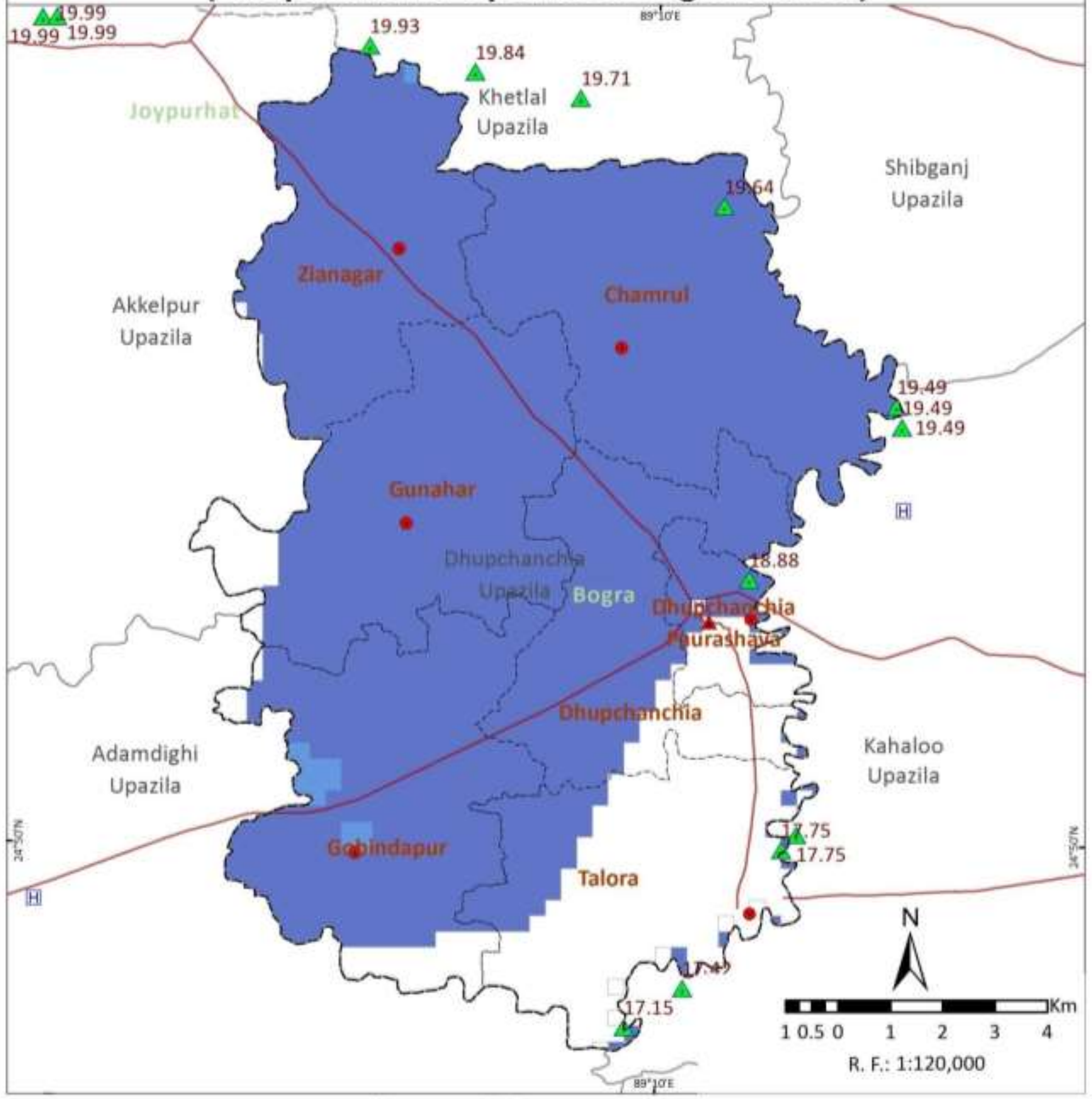
Flood Inundation Map for 25 Year Return Period
(Dhunat Upazila of Bogra District)



Flood Inundation Map for 25 Year Return Period
(Dhupchanchia Upazila of Bogra District)



Legend

Country Boundary	District Head Quarter	Flood depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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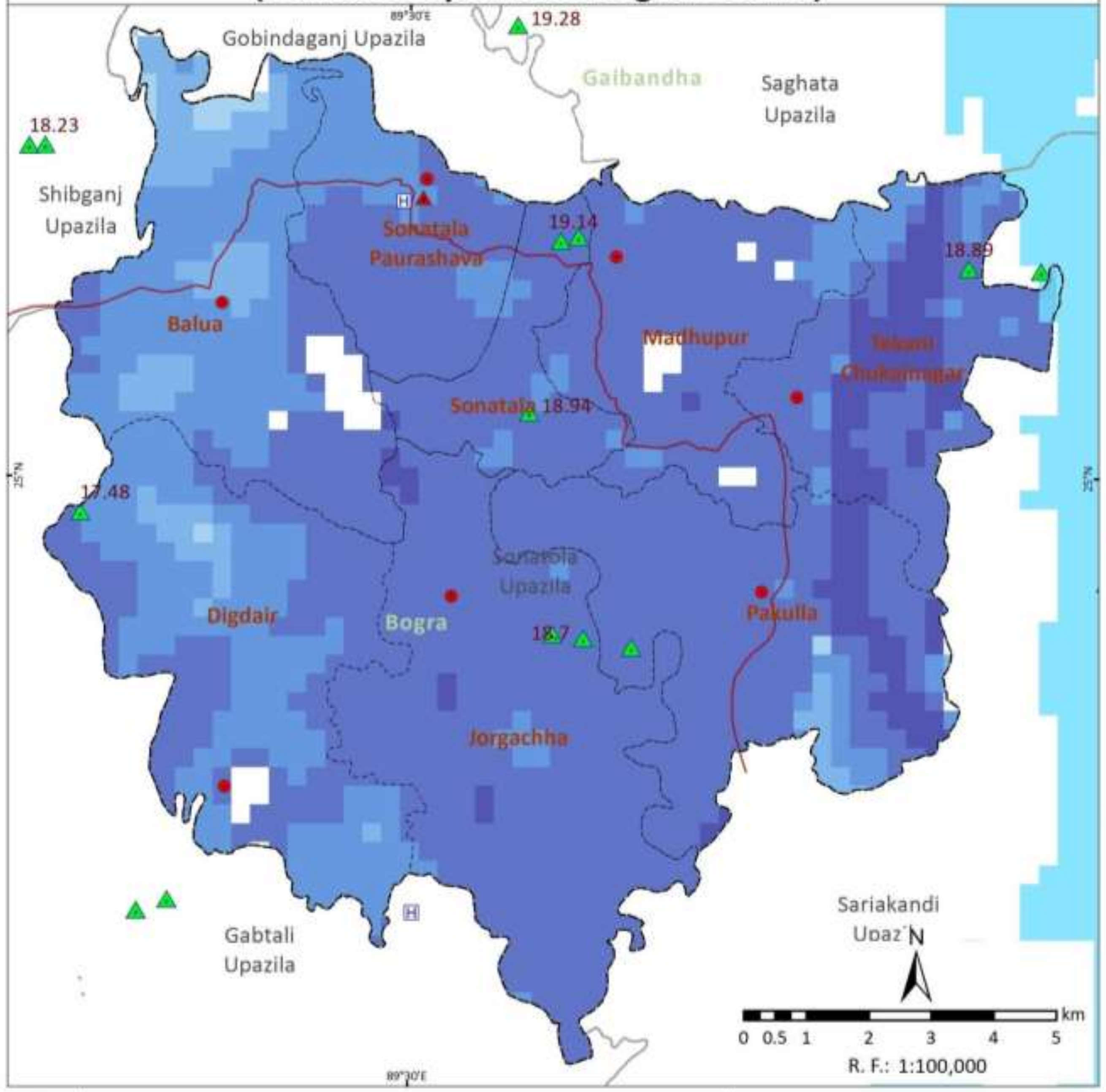
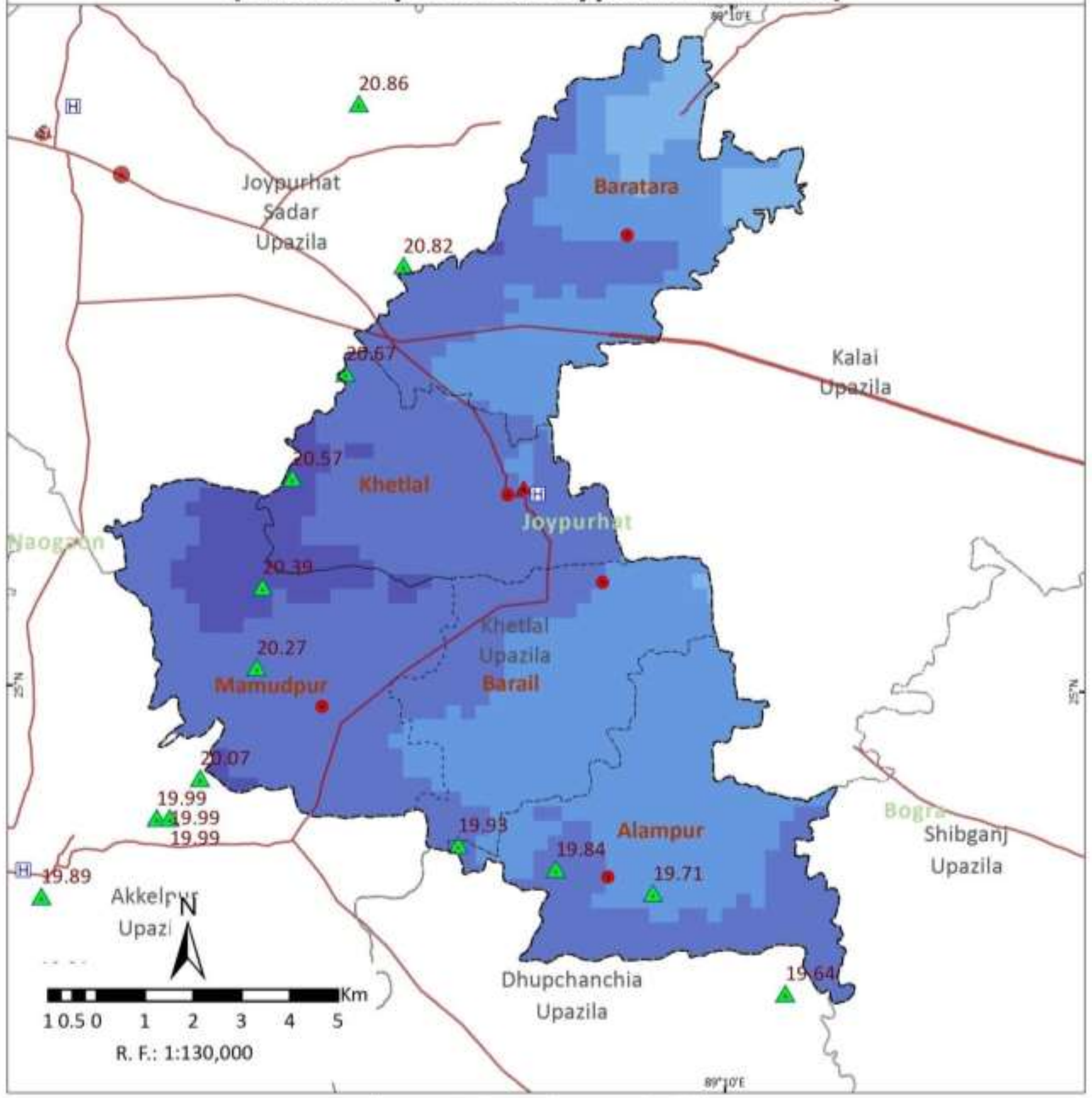
Flood Inundation Map for 25 Year Return Period
(Sonatola Upazila of Bogra District)



Flood Inundation Map for 25 Year Return Period
(Khetlal Upazila of Joypurhat District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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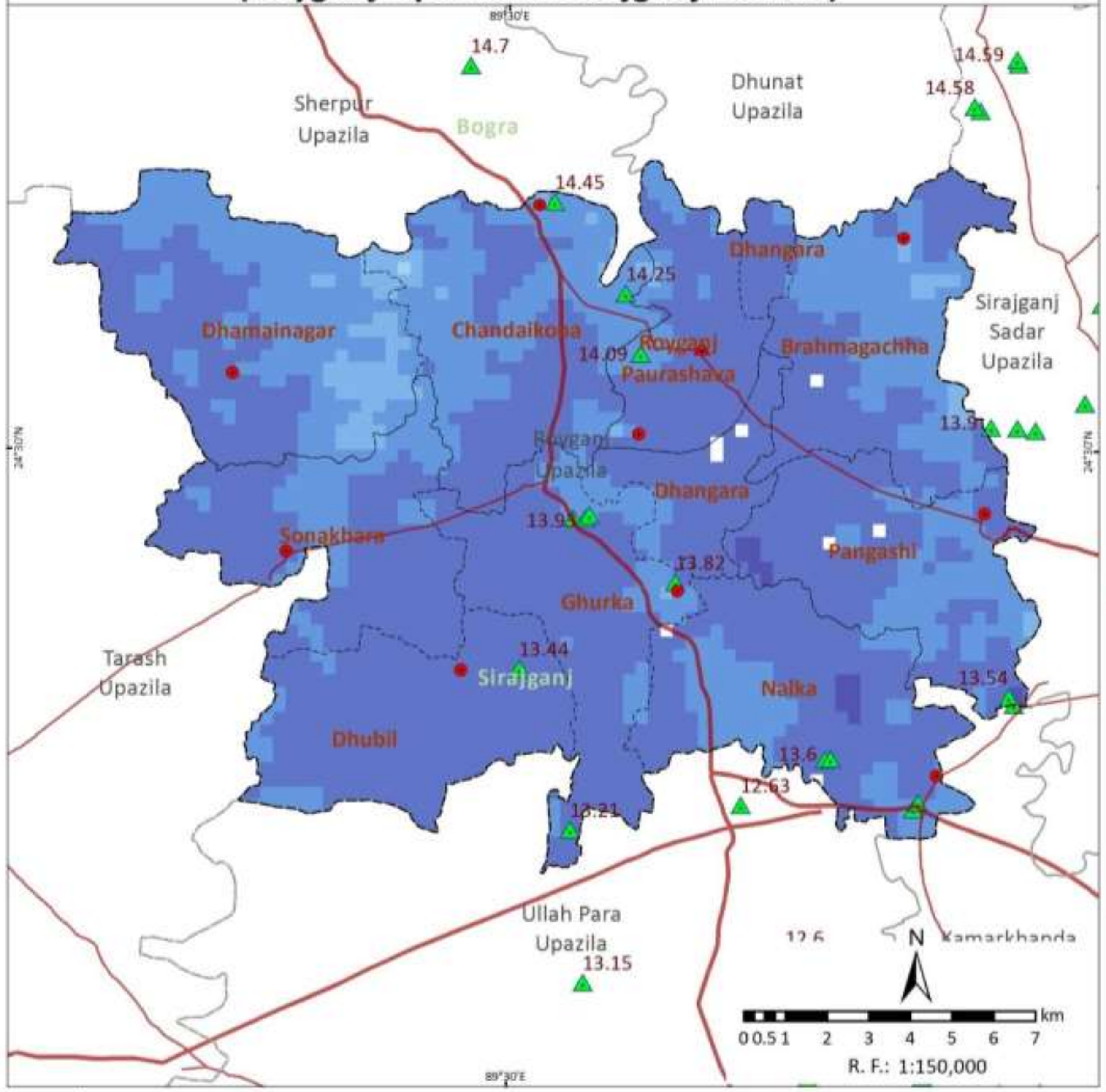
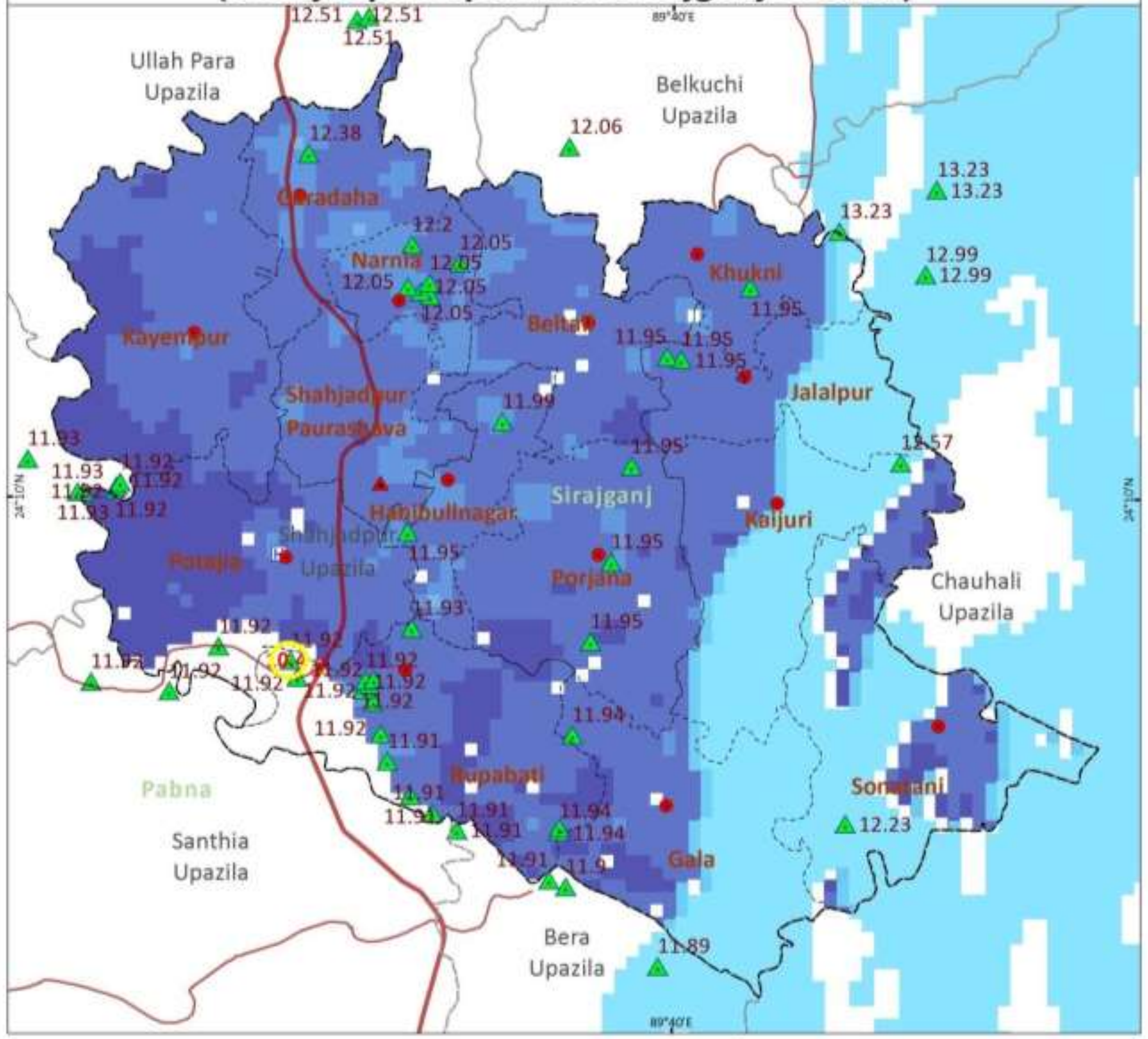
Flood Inundation Map for 25 Year Return Period
(Royganj Upazila of Sirajganj District)



Flood Inundation Map for 25 Year Return Period
(Shahjadpur Upazila of Sirajganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Baghabari	10.4	11.92	12.12	12.3	12.4

N
1 0.5 0 1 2 3 4 5 6 Km
R. F.: 1:160,000

Legend

Country Boundary	District Head Quarter	Flood depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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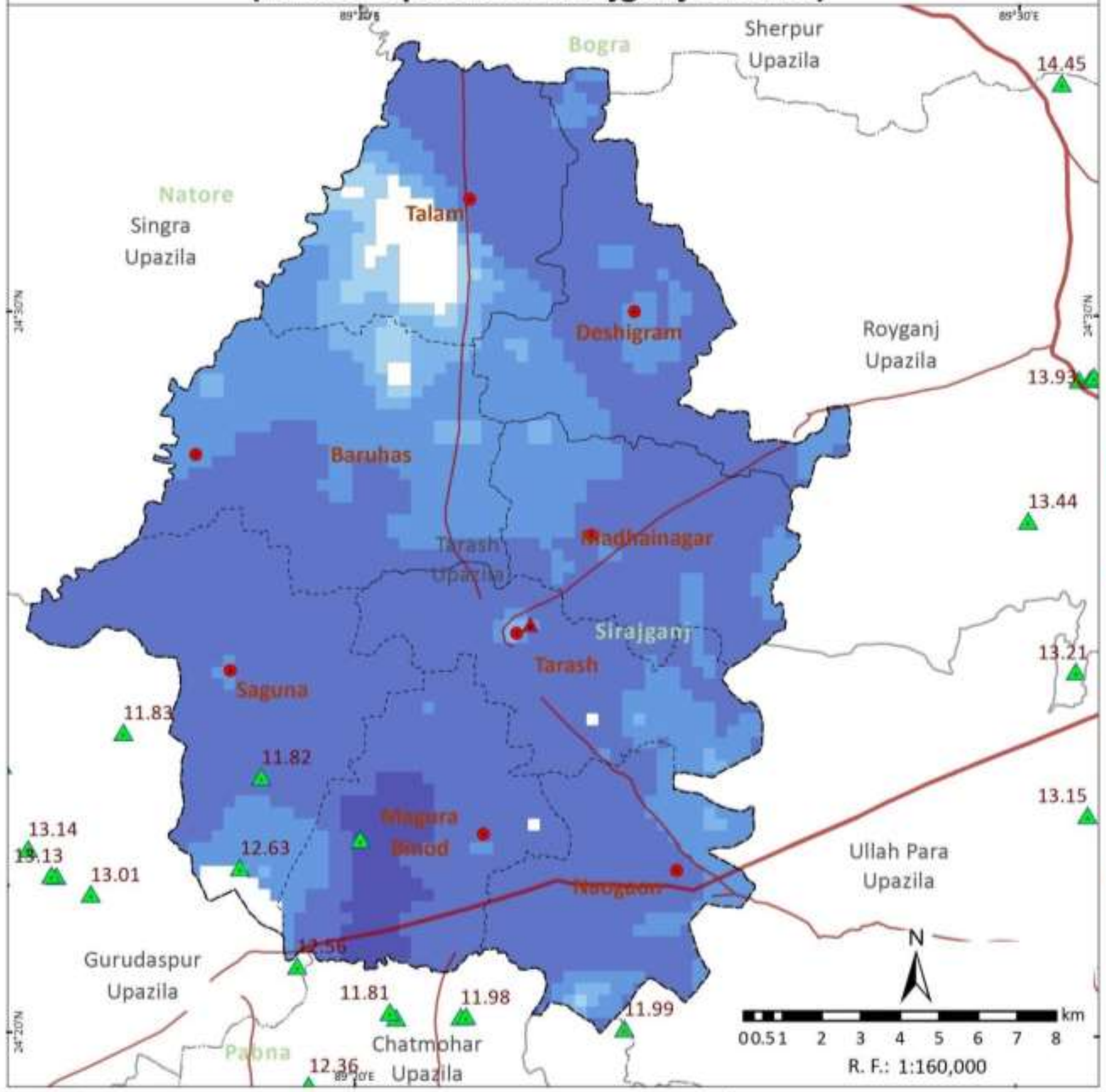
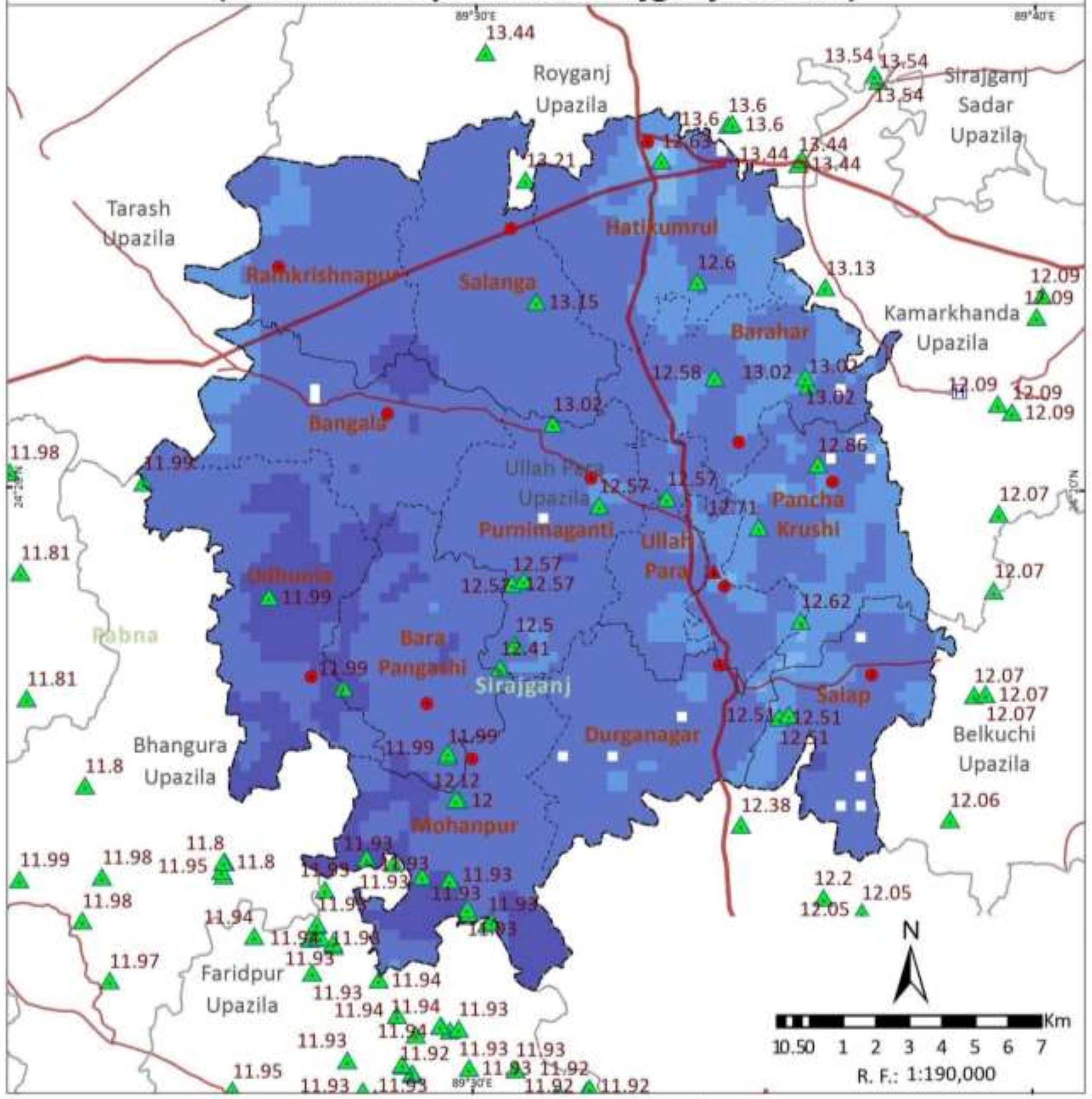
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Tarash Upazila of Sirajganj District)



Flood Inundation Map for 25 Year Return Period
(Ullah Para Upazila of Sirajganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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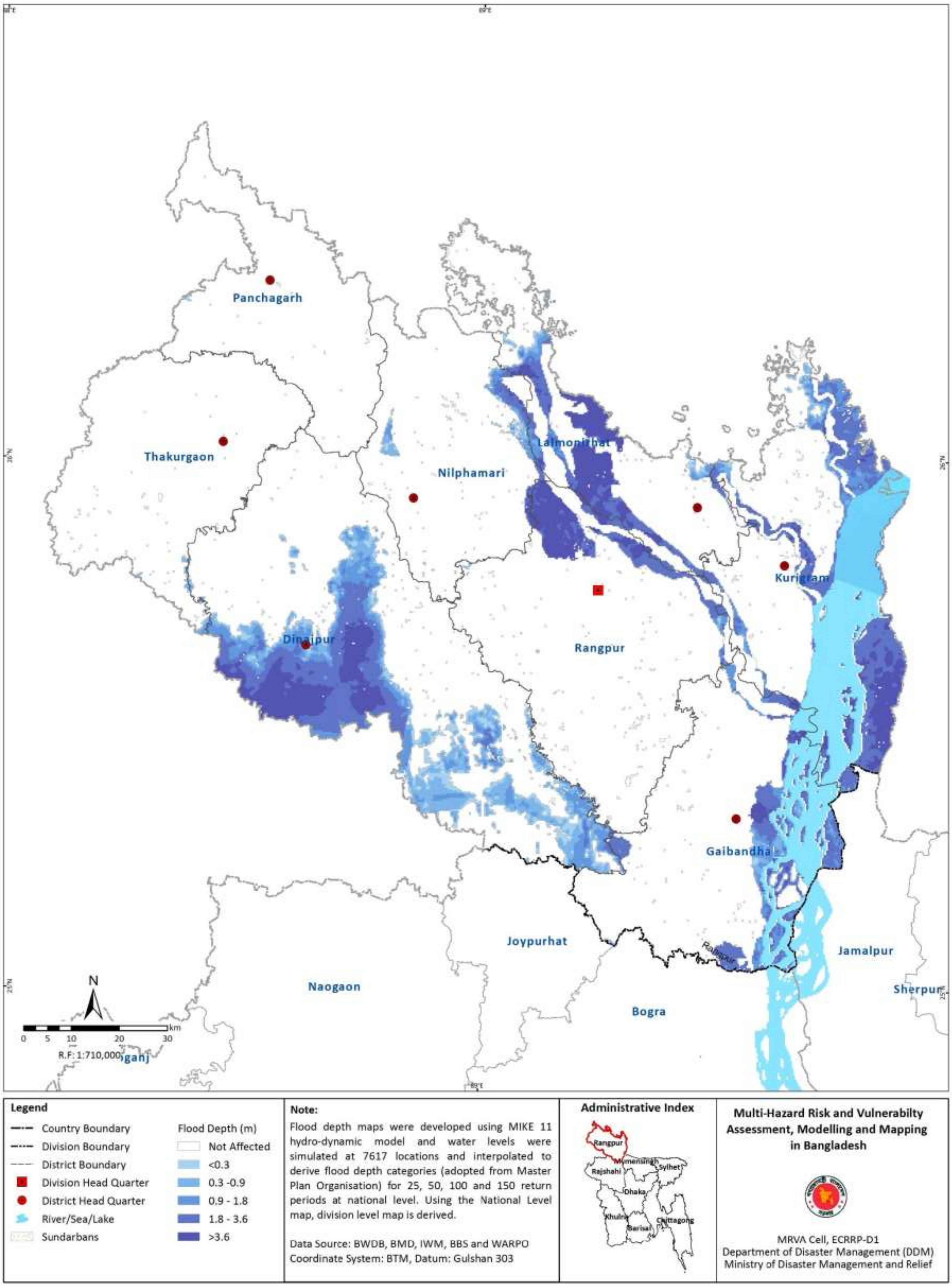
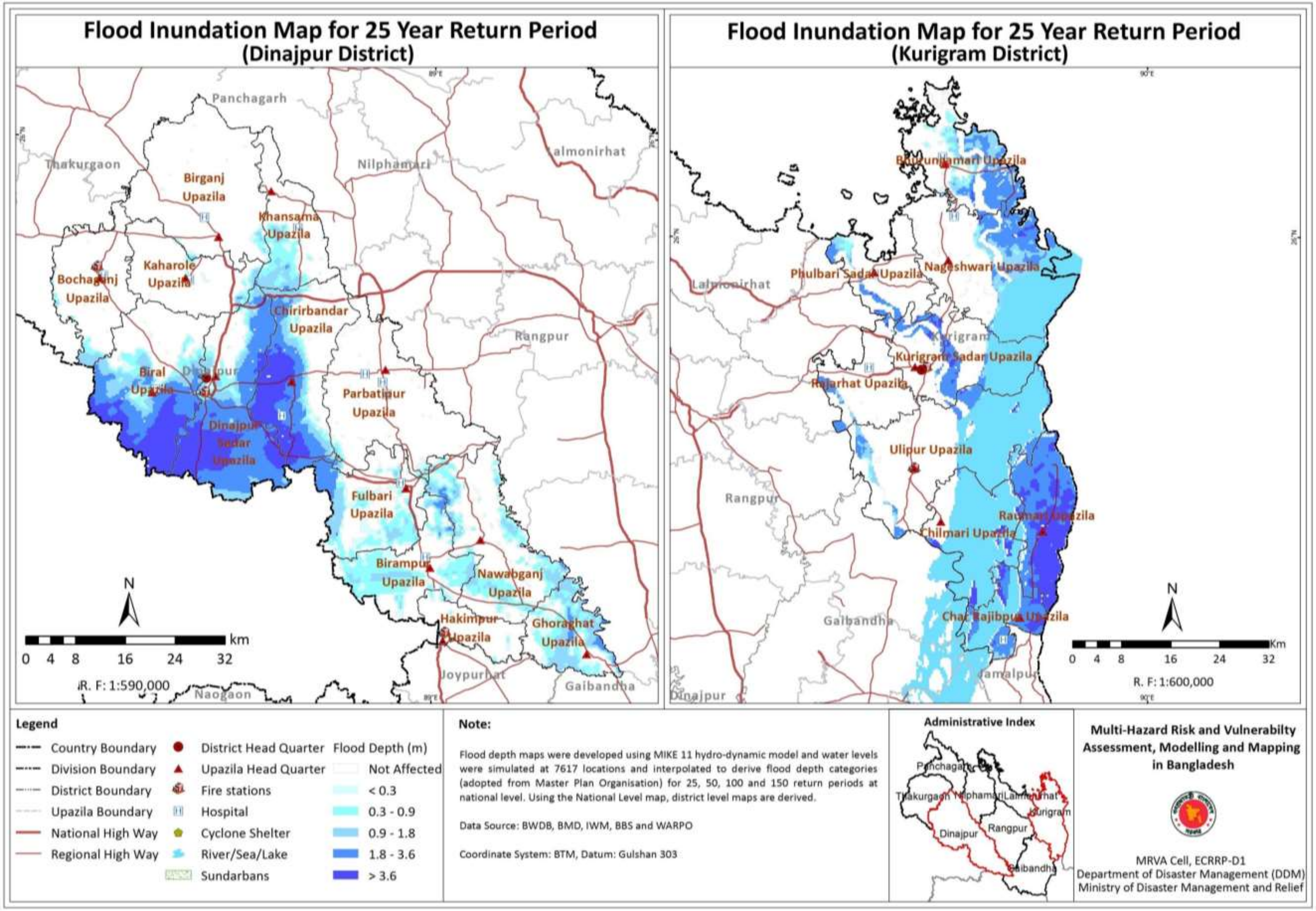
Flood Inundation Map for 25 Year Return Period
(Rangpur Division)





Flood Inundation Map for 25 Year Return Period
(Dinajpur District)
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Birganj Upazila
Khansama Upazila
Kaharole Upazila
Bochaganj Upazila
Chirirbandar Upazila
Rangpur
Biral Upazila
Dinajpur
Parbatipur Upazila
Dinajpur Sadar Upazila
Fulbari Upazila
Birampur Upazila
Nawabganj Upazila
Hakimpur Upazila
Ghoraghat Upazila
Joypurhat
Gaibandha
Naogaon
N
km
0 4 8 16 24 32
R. F: 1:590,000
Flood Inundation Map for 25 Year Return Period
(Kurigram District)
Bhurungamari Upazila
Phulbari Sadar Upazila
Nageshwari Upazila
Lalmonirhat
Kurigram
Kurigram Sadar Upazila
Rajarhat Upazila
Ulipur Upazila
Rangpur
Raumari Upazila
Chilmari Upazila
Char Rajibpur Upazila
Gaibandha
Jamalpur
Dinajpur
N
Km
0 4 8 16 24 32
R. F: 1:600,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
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Department of Disaster Management (DDM)
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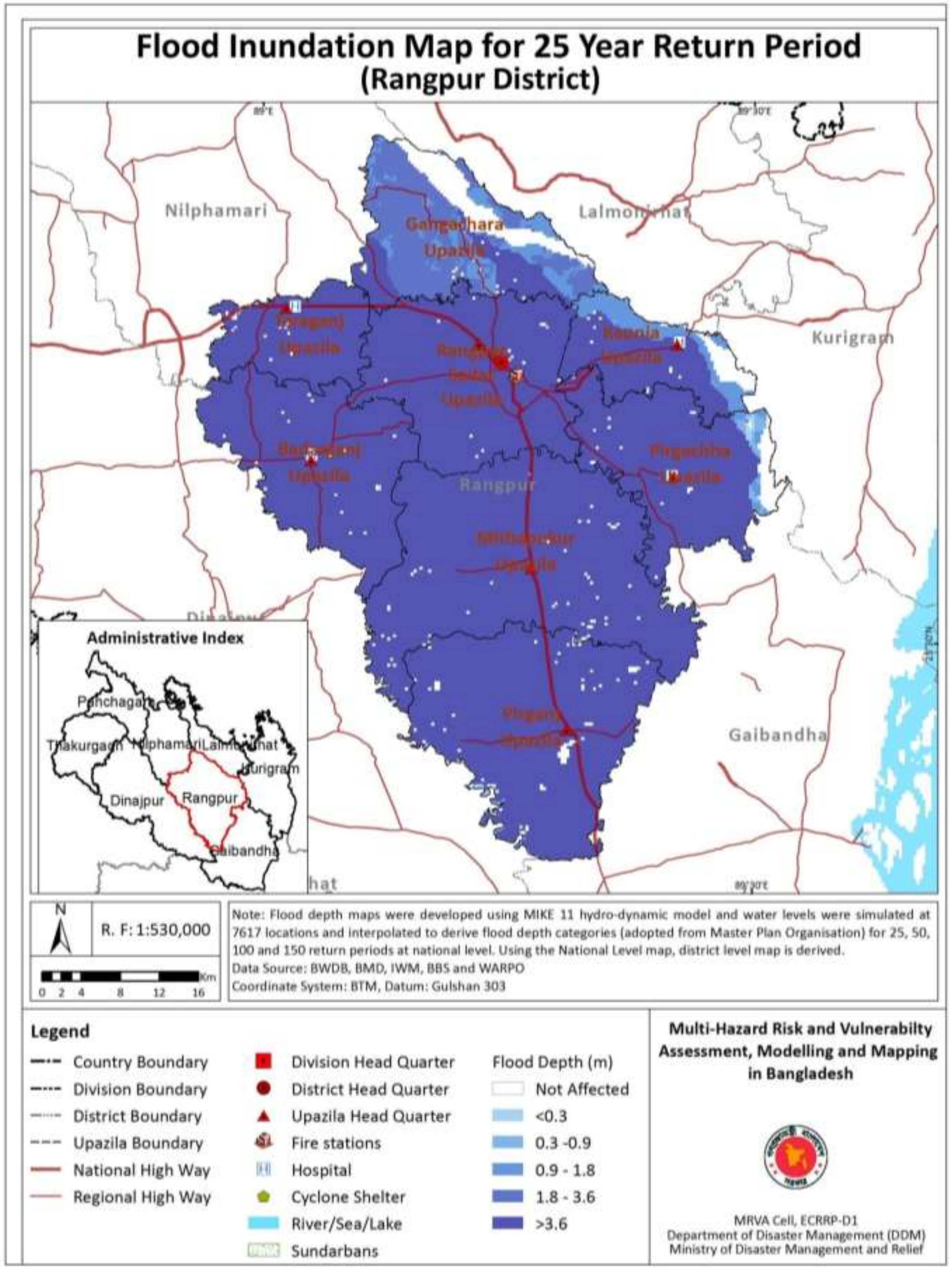
Flood Inundation Map for 25 Year Return Period
(Rangpur District)
Nilphamari
Lalmonirhat
Kurigram
Gaibandha
Rangpur
Gangachara Upazila
Rangpur Sadar Upazila
Kaunia Upazila
Pirgachha Upazila
Badarganj Upazila
Mithapukur Upazila
Pirganj Upazila
Administrative Index
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
N
R. F: 1:530,000
0 2 4 8 12 16 Km
Note: Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level map is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
<0.3
0.3 -0.9
0.9 - 1.8
1.8 - 3.6
>3.6
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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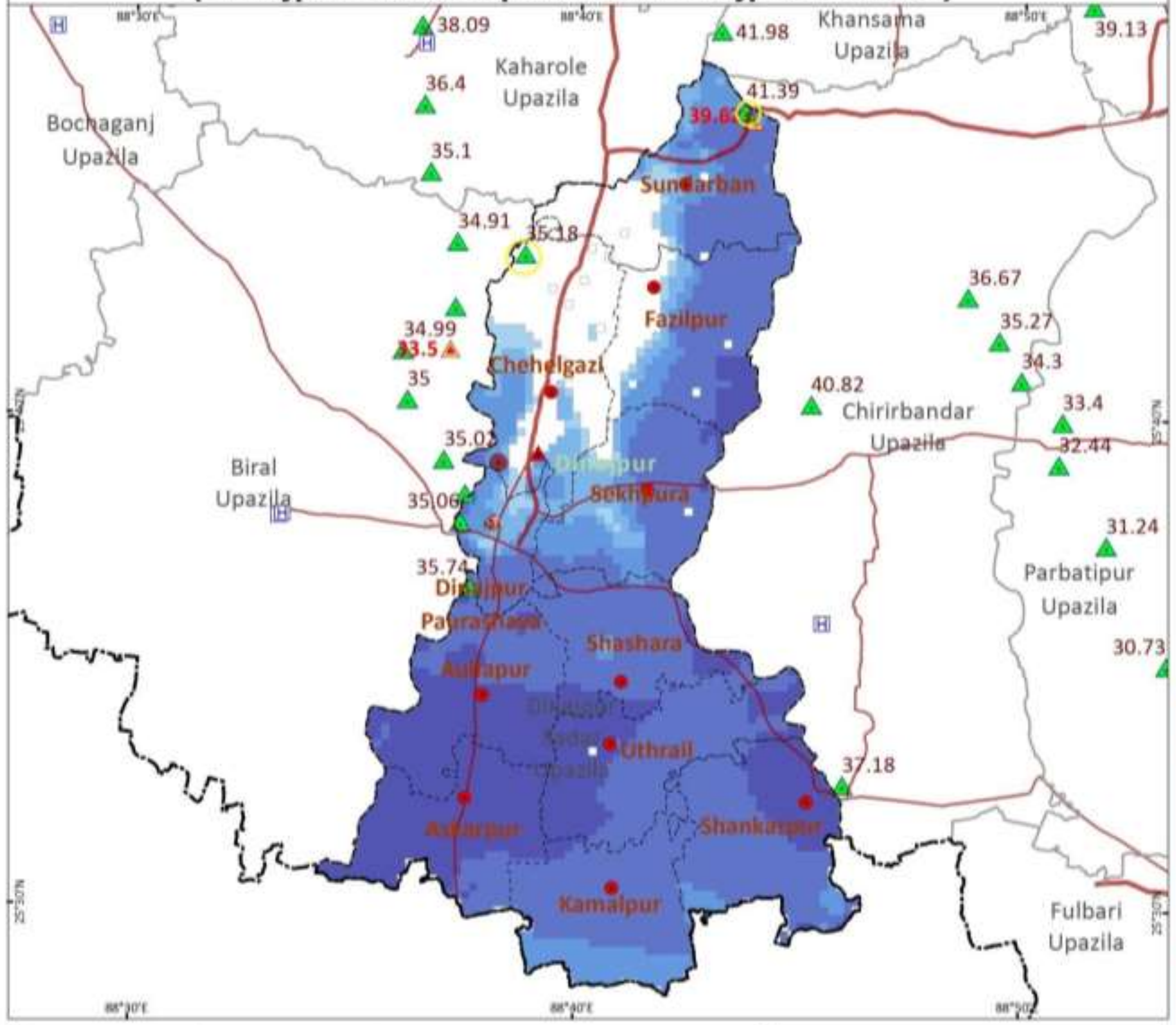
Flood Inundation Map for 25 Year Return Period
(Dinajpur Sadar Upazila of Dinajpur District)



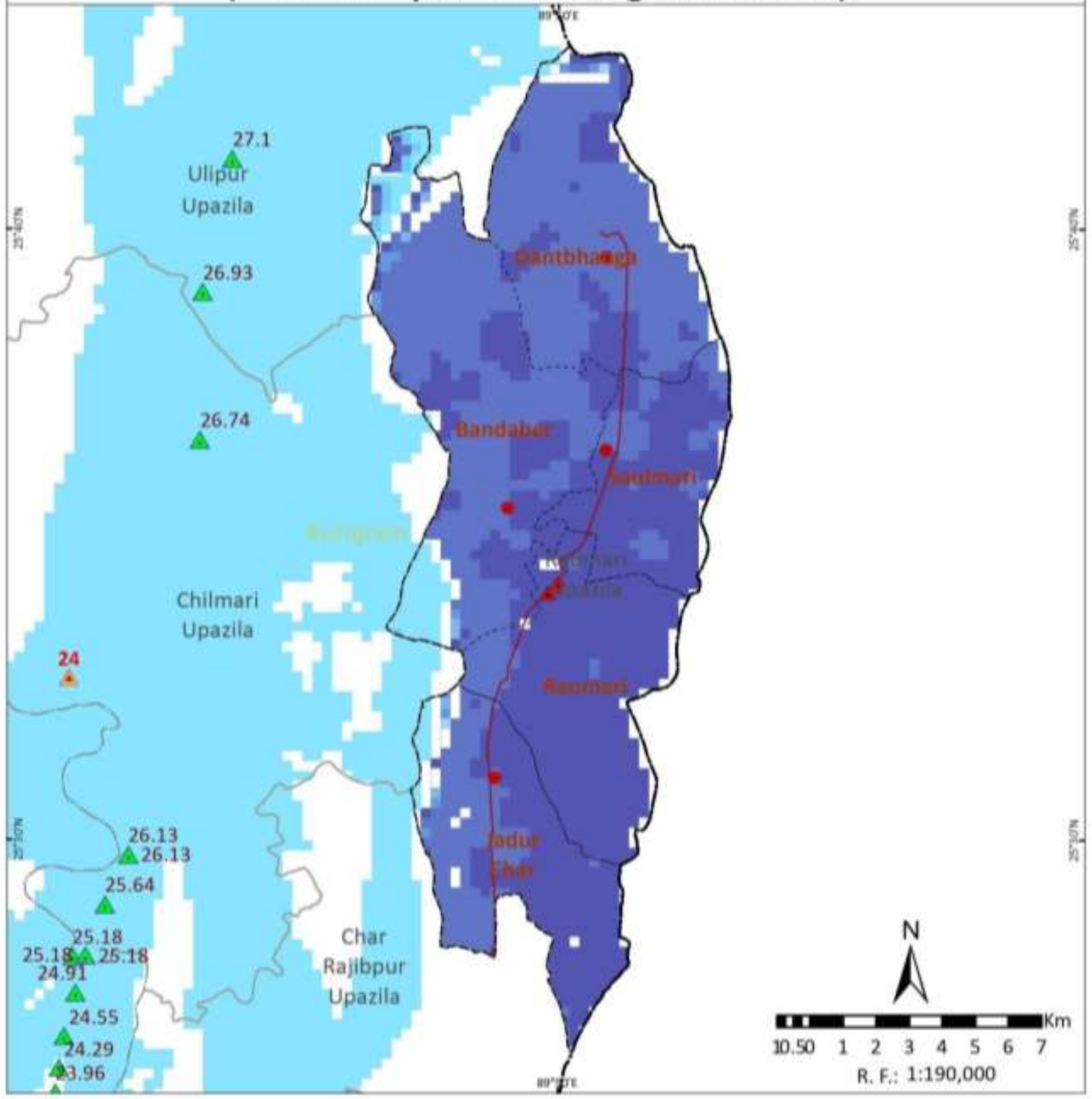
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Bhusirbandar	39.62	41.39	41.68	41.95	42.09
Dinajpur	33.5	35.18	35.44	35.67	35.8

N

0 0.5 1 2 3 4 5 6 7 8 9 km

R. F.: 1:250,000

Flood Inundation Map for 25 Year Return Period
(Raumari Upazila of Kurigram District)



N

1 0.5 0 1 2 3 4 5 6 7 Km

R. F.: 1:190,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)
- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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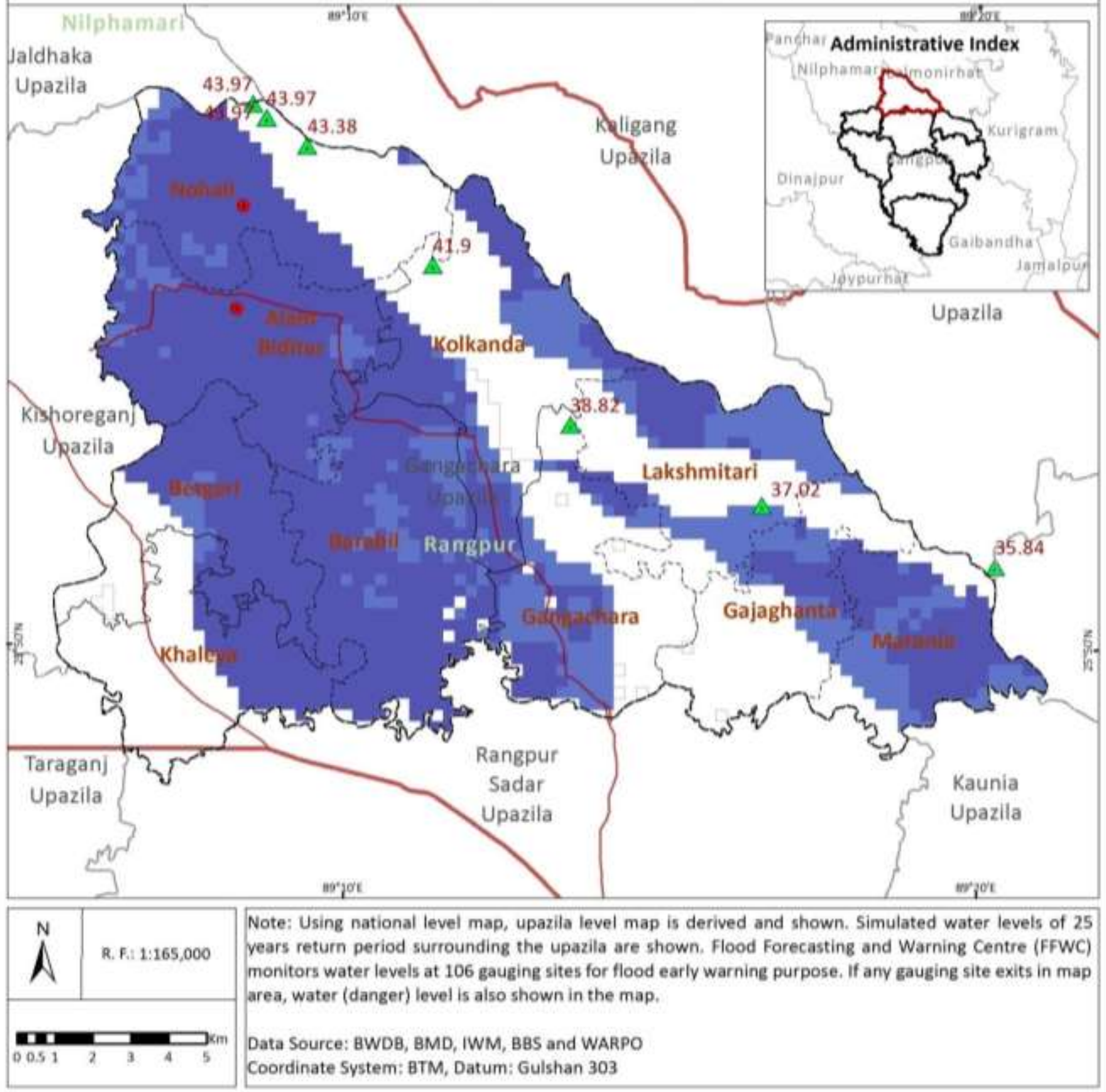
Flood Inundation Map for 25 Year Return Period
(Gangachara Upazila of Rangpur District)



Note: Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila_Boundary	Fire Station	0.3 - 0.9
Union Boundary	Hospital	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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Department of Disaster Management (DDM)
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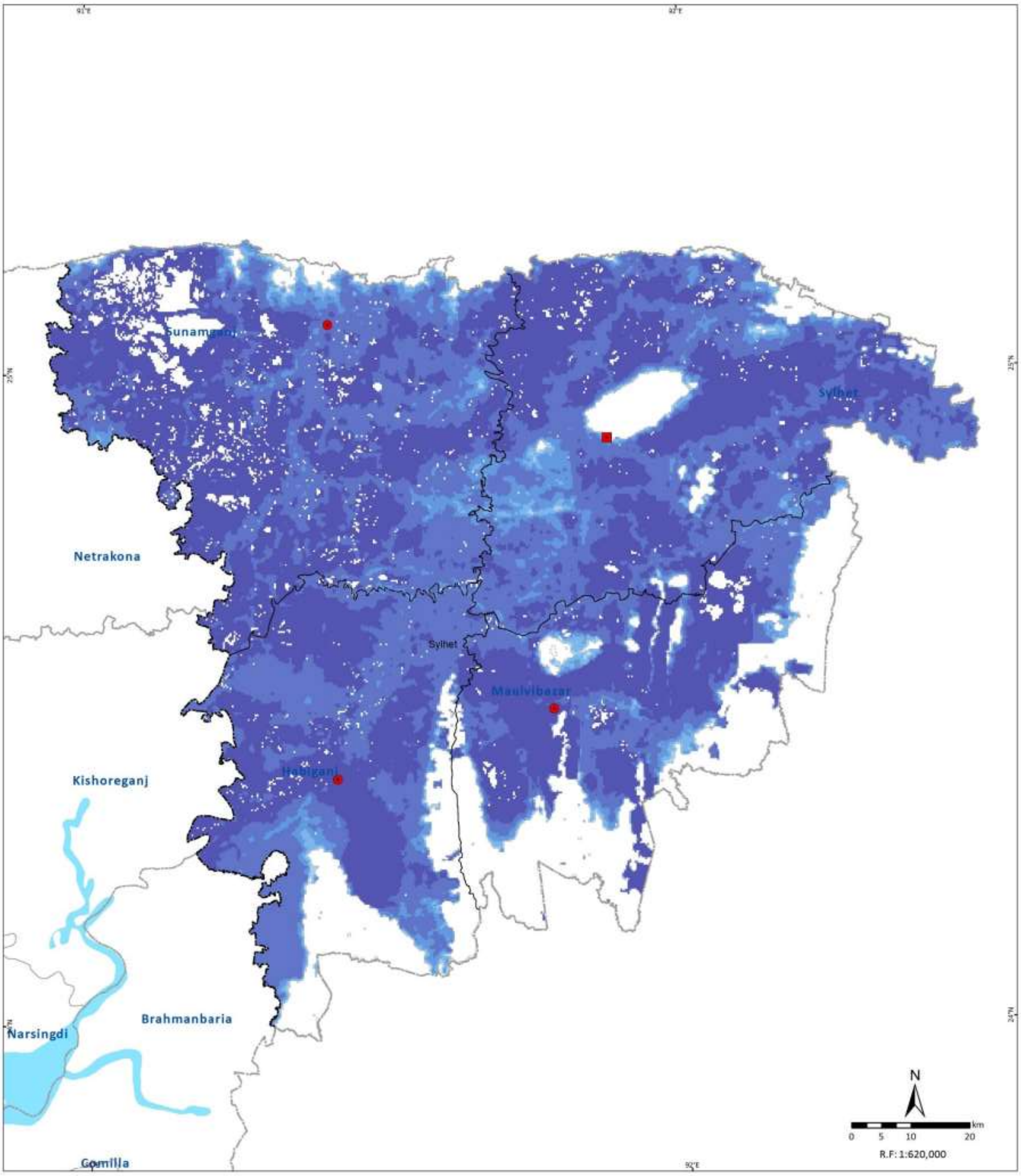
Flood Inundation Map for 25 Year Return Period
(Sylhet Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Flood Depth (m)

- Not Affected
- <0.3
- 0.3 -0.9
- 0.9 - 1.8
- 1.8 - 3.6
- >3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, division level map is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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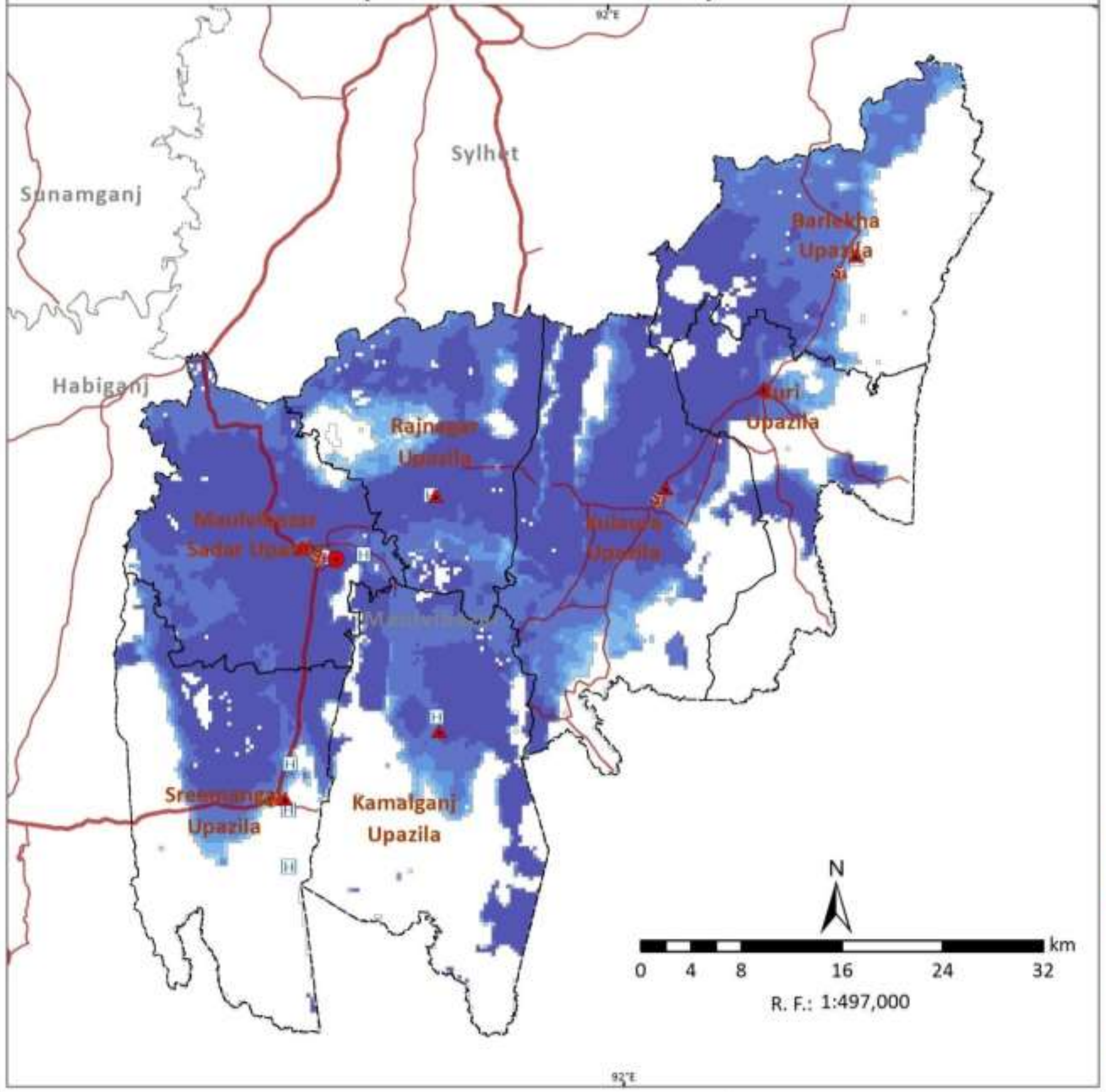
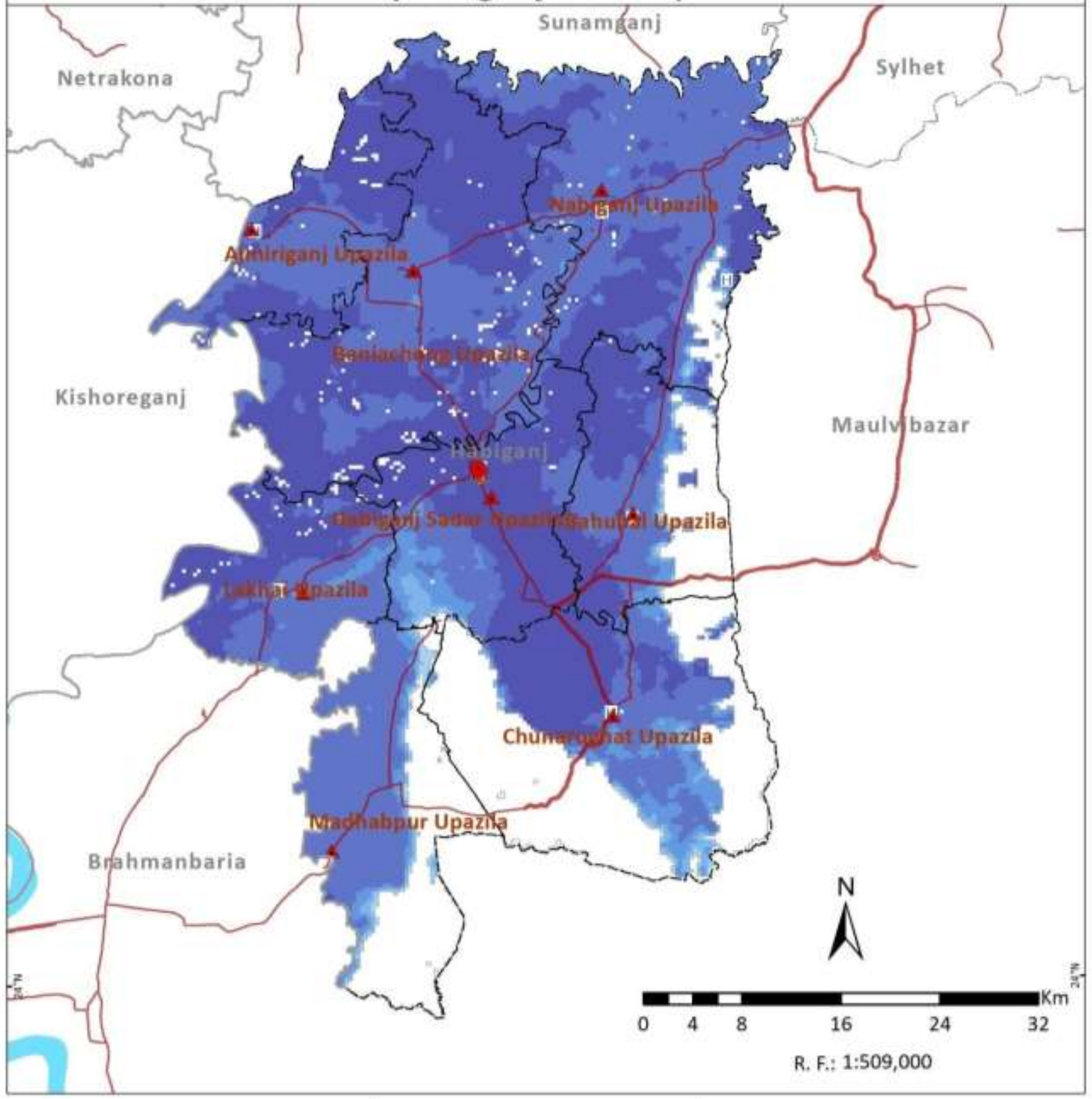
Flood Inundation Map for 25 Year Return Period
(Moulvibazar District)



Flood Inundation Map for 25 Year Return Period
(Habiganj District)



Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not Affected
District Boundary	Fire Station	< 0.3
Upazila Boundary	Hospital	0.3 - 0.9
National High Way	Cyclone Shelter	0.9 - 1.8
Regional High Way	River/Sea/Lake	1.8 - 3.6
	Sundarbans	> 3.6

Note:

Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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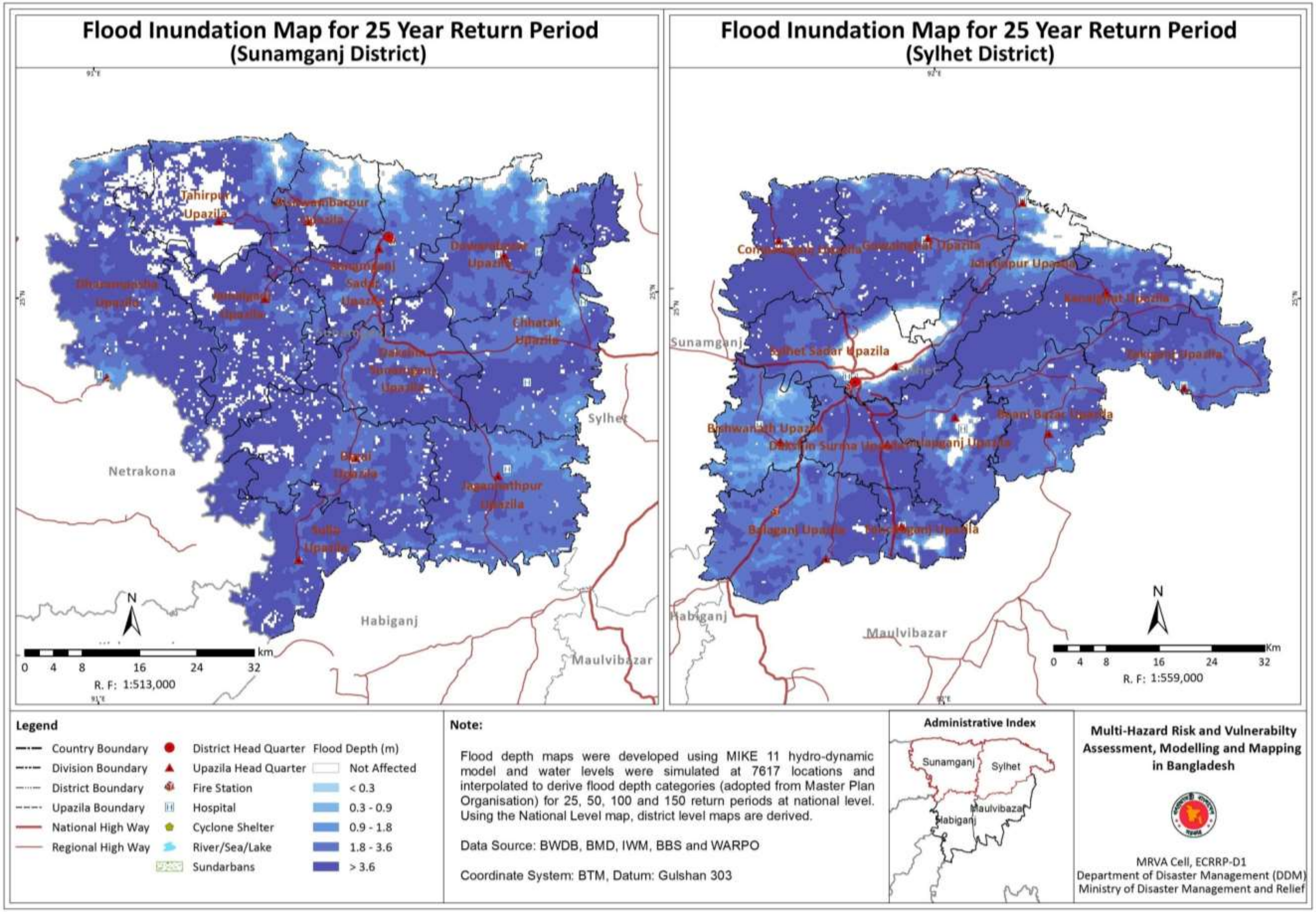

Flood Inundation Map for 25 Year Return Period
(Sunamganj District)
Tahirpur Upazila
Dharamapasha Upazila
Chhatak Upazila
Jagannathpur Upazila
Netrakona
Habiganj
Sylhet
Maulvibazar
R. F: 1:513,000
km
0 4 8 16 24 32
Flood Inundation Map for 25 Year Return Period
(Sylhet District)
Sylhet Sadar Upazila
Sunamganj
Habiganj
Maulvibazar
R. F: 1:559,000
Km
0 4 8 16 24 32
N
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Flood Depth (m)
Not Affected
< 0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Flood depth maps were developed using MIKE 11 hydro-dynamic model and water levels were simulated at 7617 locations and interpolated to derive flood depth categories (adopted from Master Plan Organisation) for 25, 50, 100 and 150 return periods at national level. Using the National Level map, district level maps are derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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Sylhet
Habiganj
Maulvibazar
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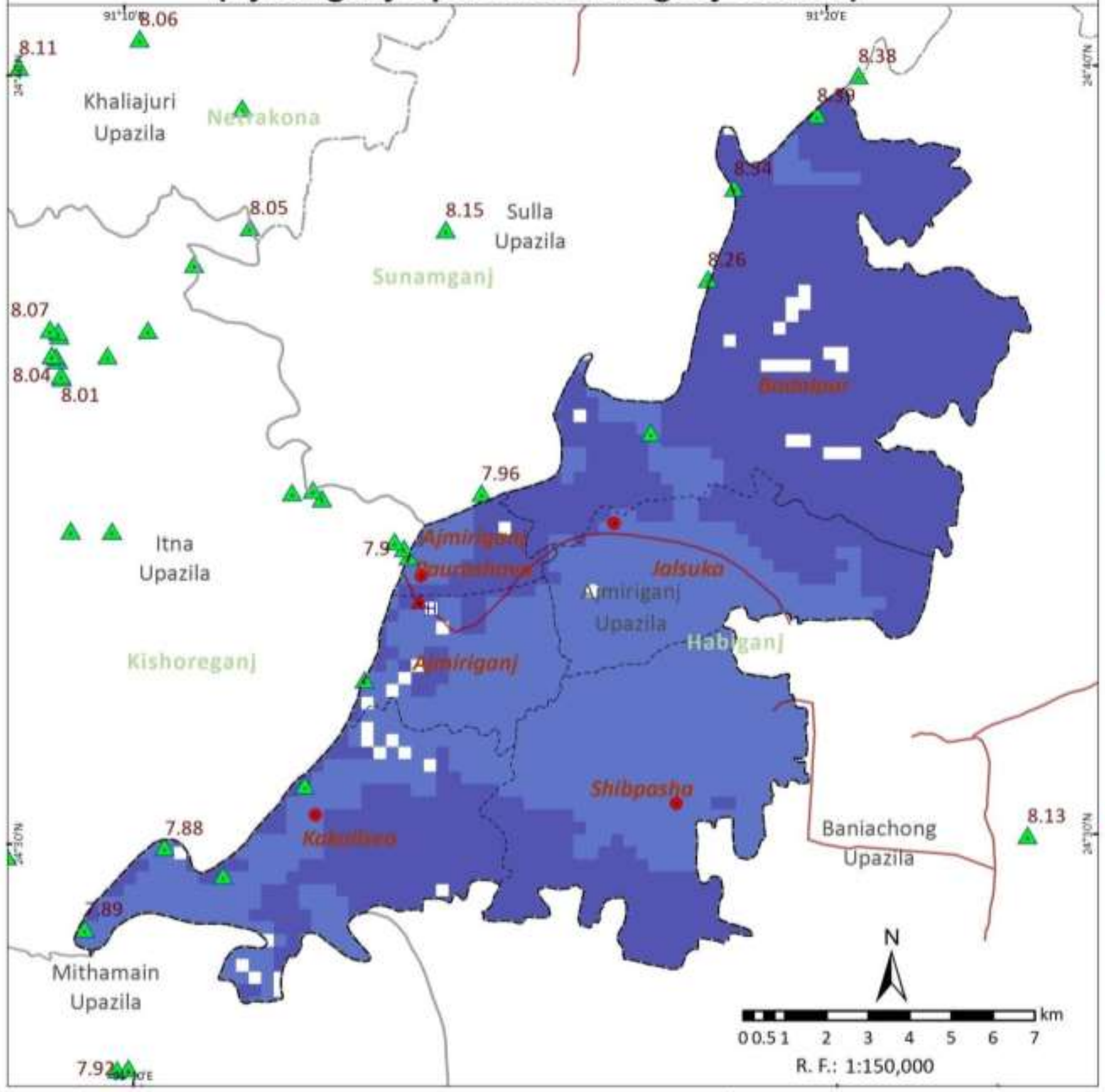
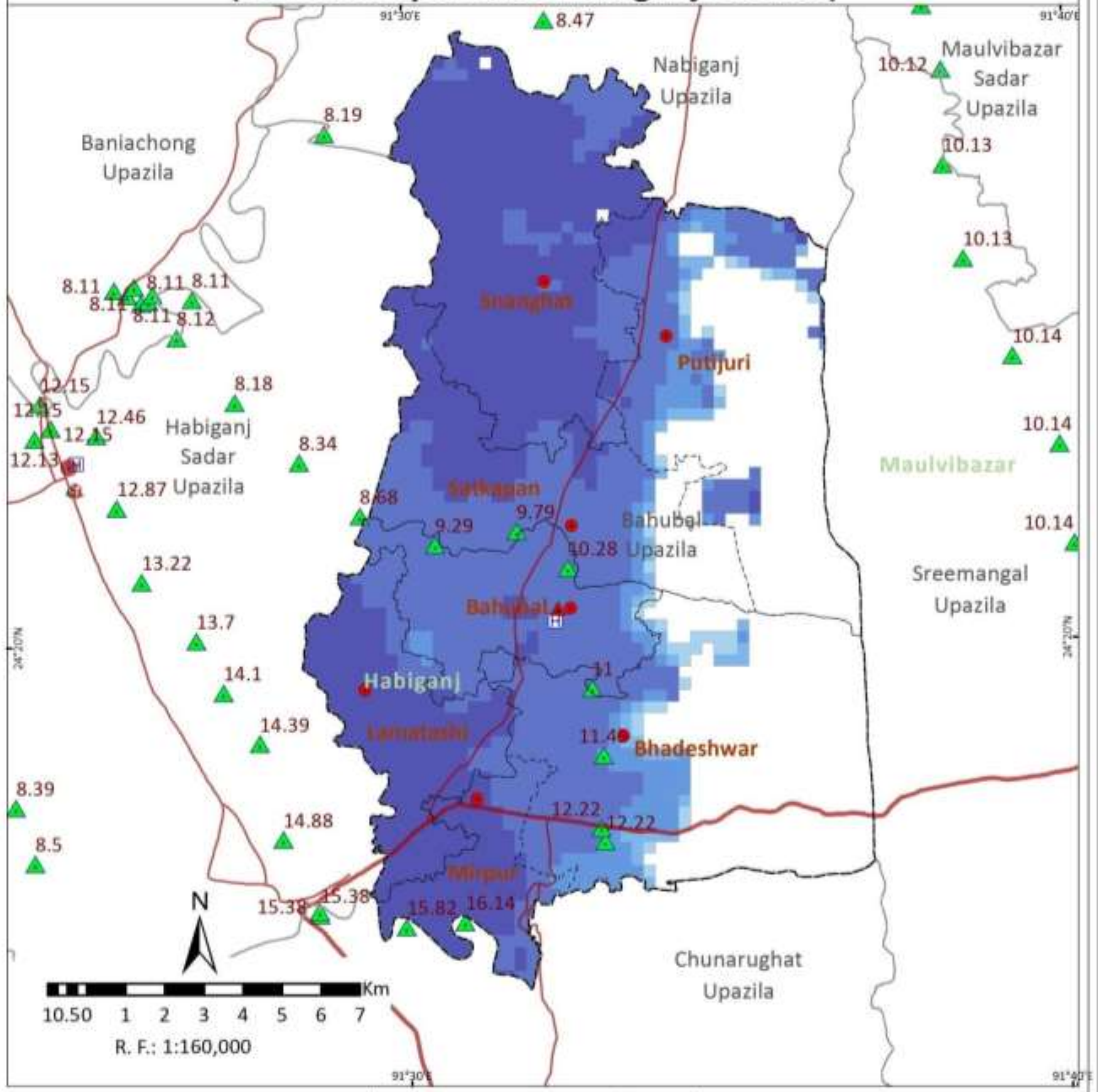
Flood Inundation Map for 25 Year Return Period
(Ajmiriganj Upazila of Habiganj District)



Flood Inundation Map for 25 Year Return Period
(Bahubal Upazila of Habiganj District)



Legend

─·─	Country Boundary	●	District Head Quarter	Flood depth (m)	
─··─	Division Boundary	▲	Upazila Head Quarter		Not affected
─···─	District Boundary	●	Union Head Quarter		<0.3
─ ─ ─	Upazila Boundary	H	Hospital		0.3 - 0.9
·····	Union Boundary		Fire stations		0.9 - 1.8
──	National High Way	▲	Water Level (m)		1.8 - 3.6
──	Regional High Way	▲	Danger level (m)		> 3.6
	River/Sea/Lake				
	Sundarbans				

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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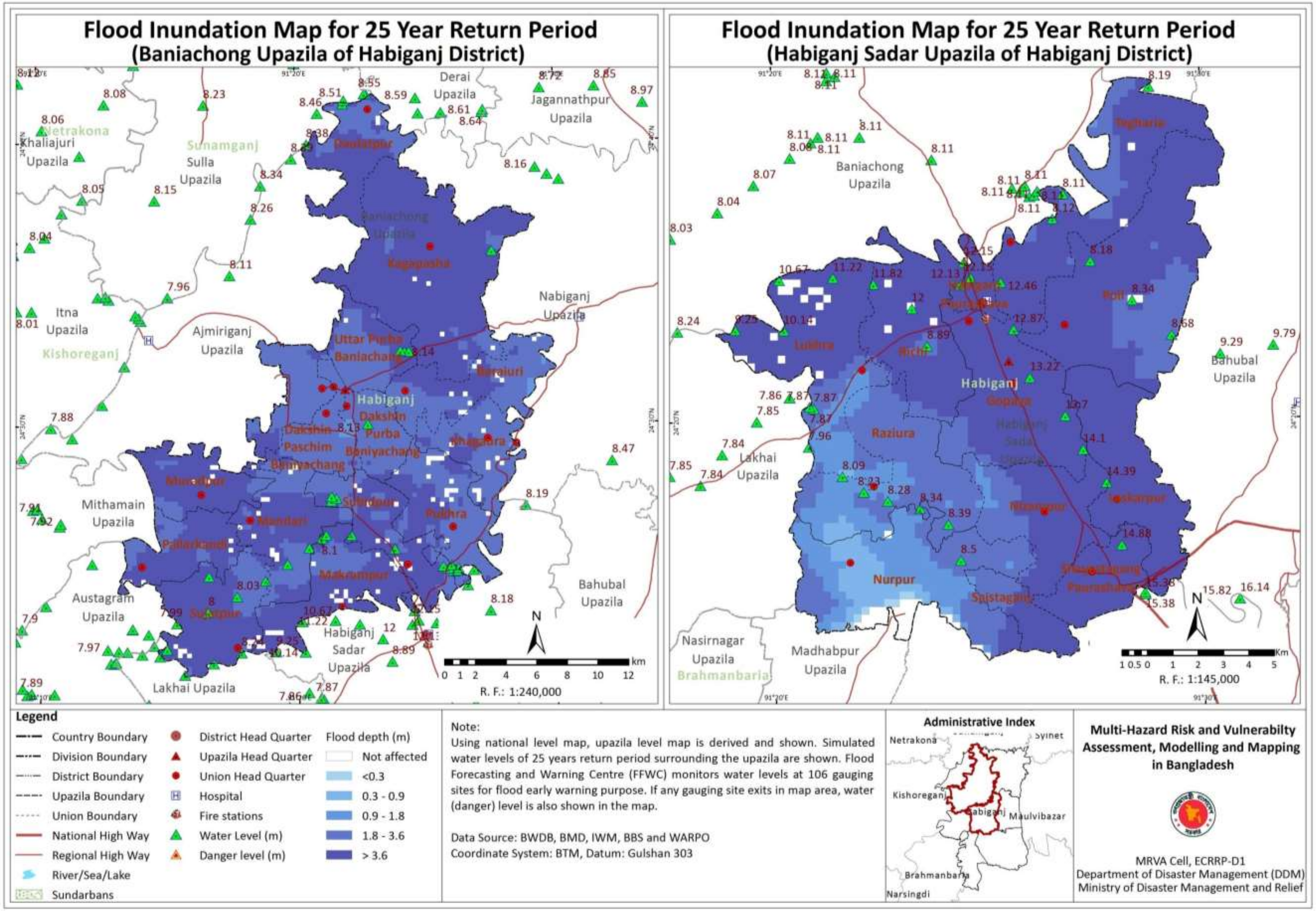
Flood Inundation Map for 25 Year Return Period
(Baniachong Upazila of Habiganj District)
Flood Inundation Map for 25 Year Return Period
(Habiganj Sadar Upazila of Habiganj District)
R. F.: 1:240,000
R. F.: 1:145,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire stations
Water Level (m)
Danger level (m)
Flood depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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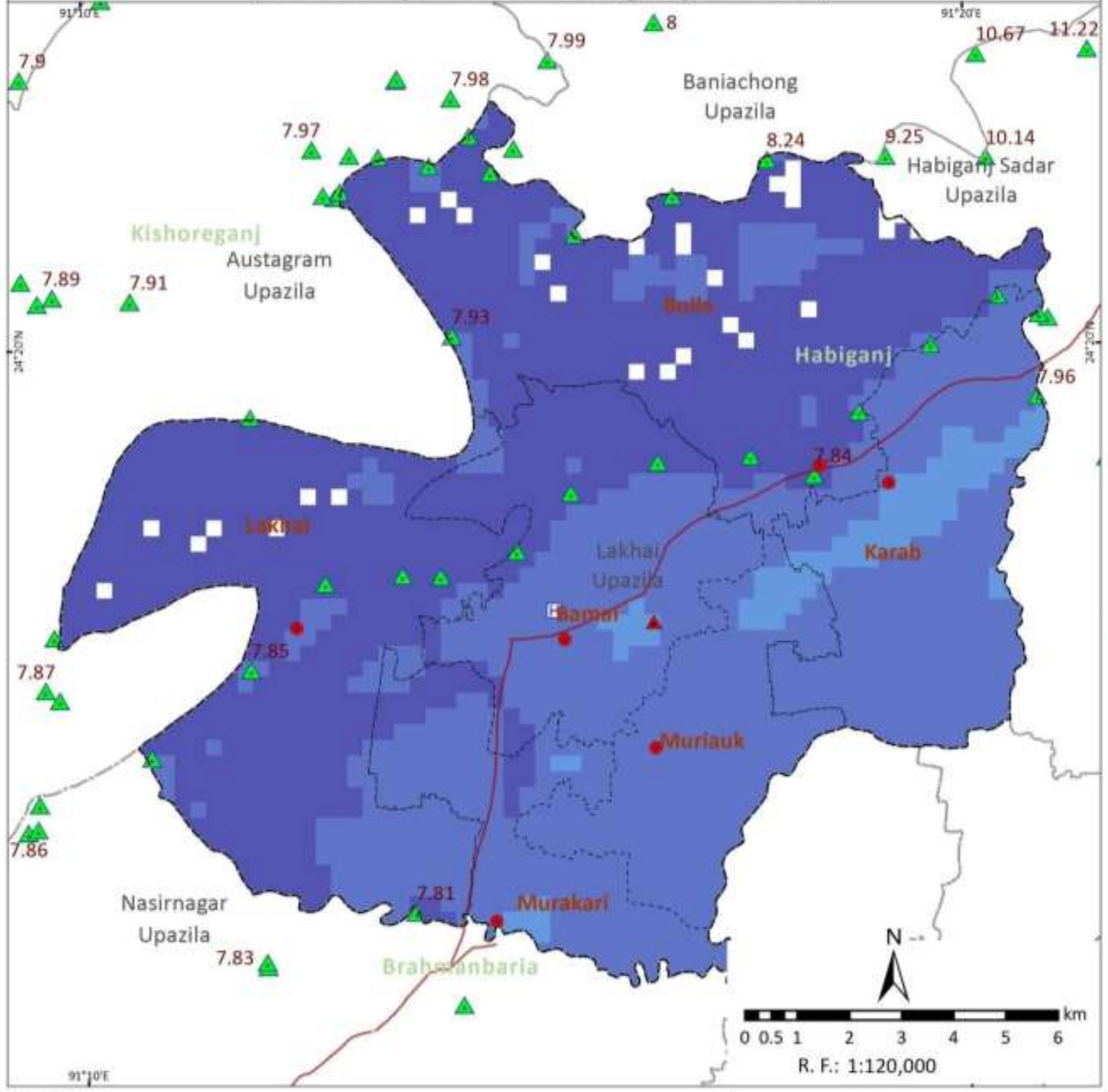
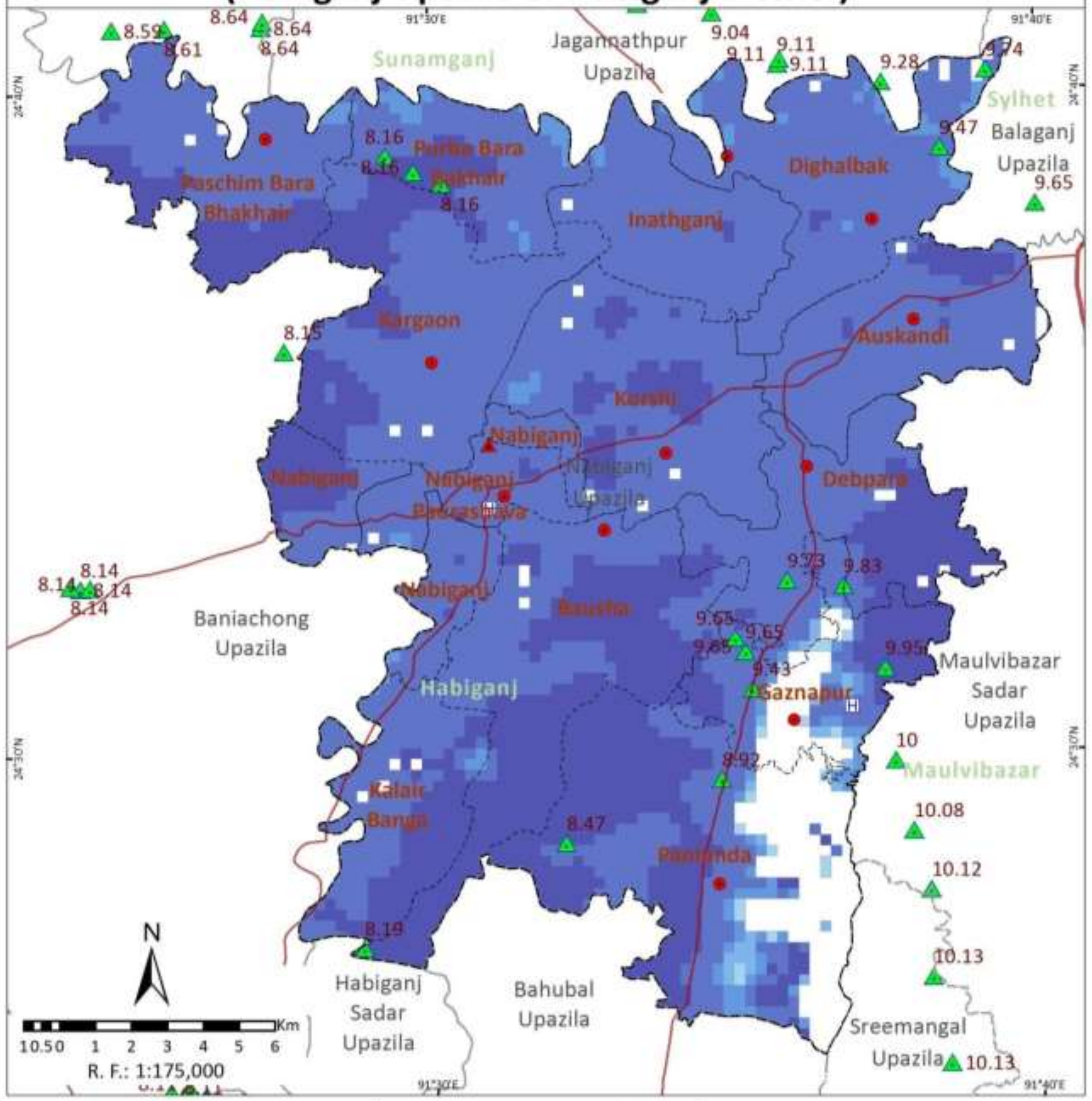
Flood Inundation Map for 25 Year Return Period
(Lakhai Upazila of Habiganj District)



Flood Inundation Map for 25 Year Return Period
(Nabiganj Upazila of Habiganj District)



Legend

— · —	Country Boundary	●	District Head Quarter	Flood depth (m)	
— ·· —	Division Boundary	▲	Upazila Head Quarter		Not affected
········	District Boundary	●	Union Head Quarter		<0.3
- - - -	Upazila Boundary	H	Hospital		0.3 - 0.9
.....	Union Boundary		Fire stations		0.9 - 1.8
—	National High Way	▲	Water Level (m)		1.8 - 3.6
—	Regional High Way	▲	Danger level (m)		> 3.6
	River/Sea/Lake				
	Sundarbans				

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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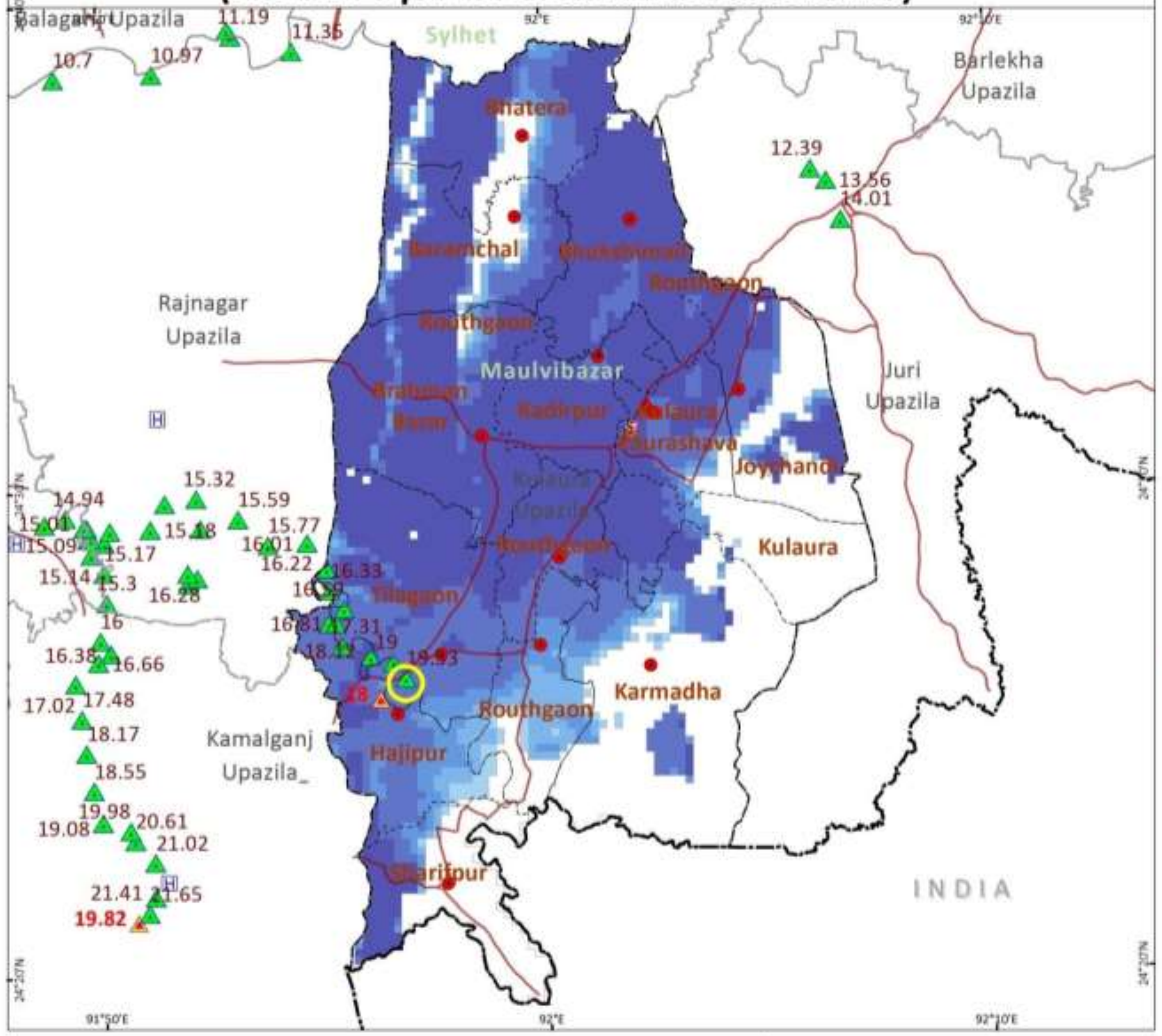
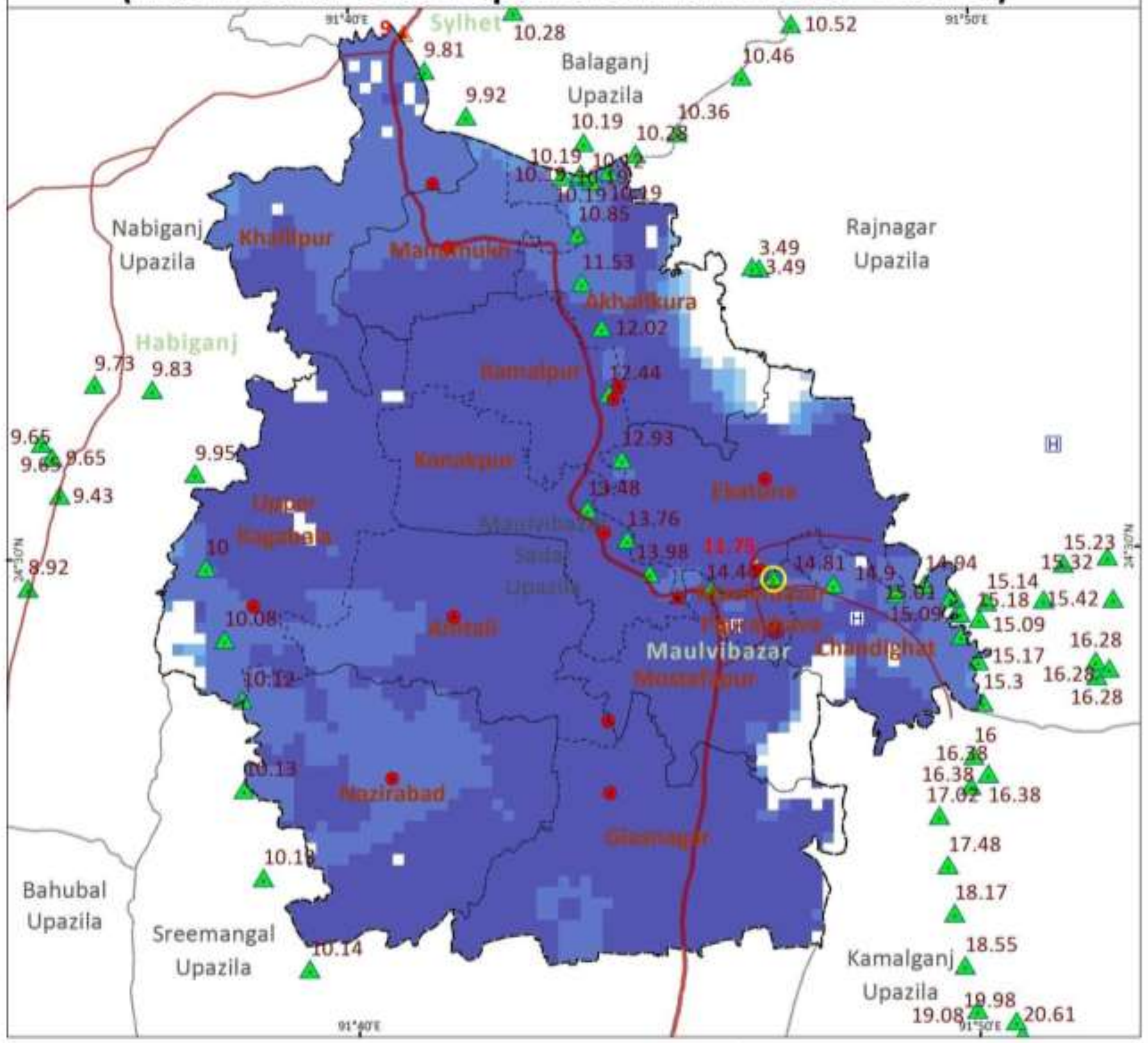
Flood Inundation Map for 25 Year Return Period
(Kulaura Upazila of Maulvibazar District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Manu-RB	18	19.53	19.76	19.96	20.07

R. F.: 1:250,000

Flood Inundation Map for 25 Year Return Period
(Maulvibazar Sadar Upazila of Maulvibazar District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Maulvibazar	11.75	14.44	14.74	15.02	15.17

R. F.: 1:180,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)
- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
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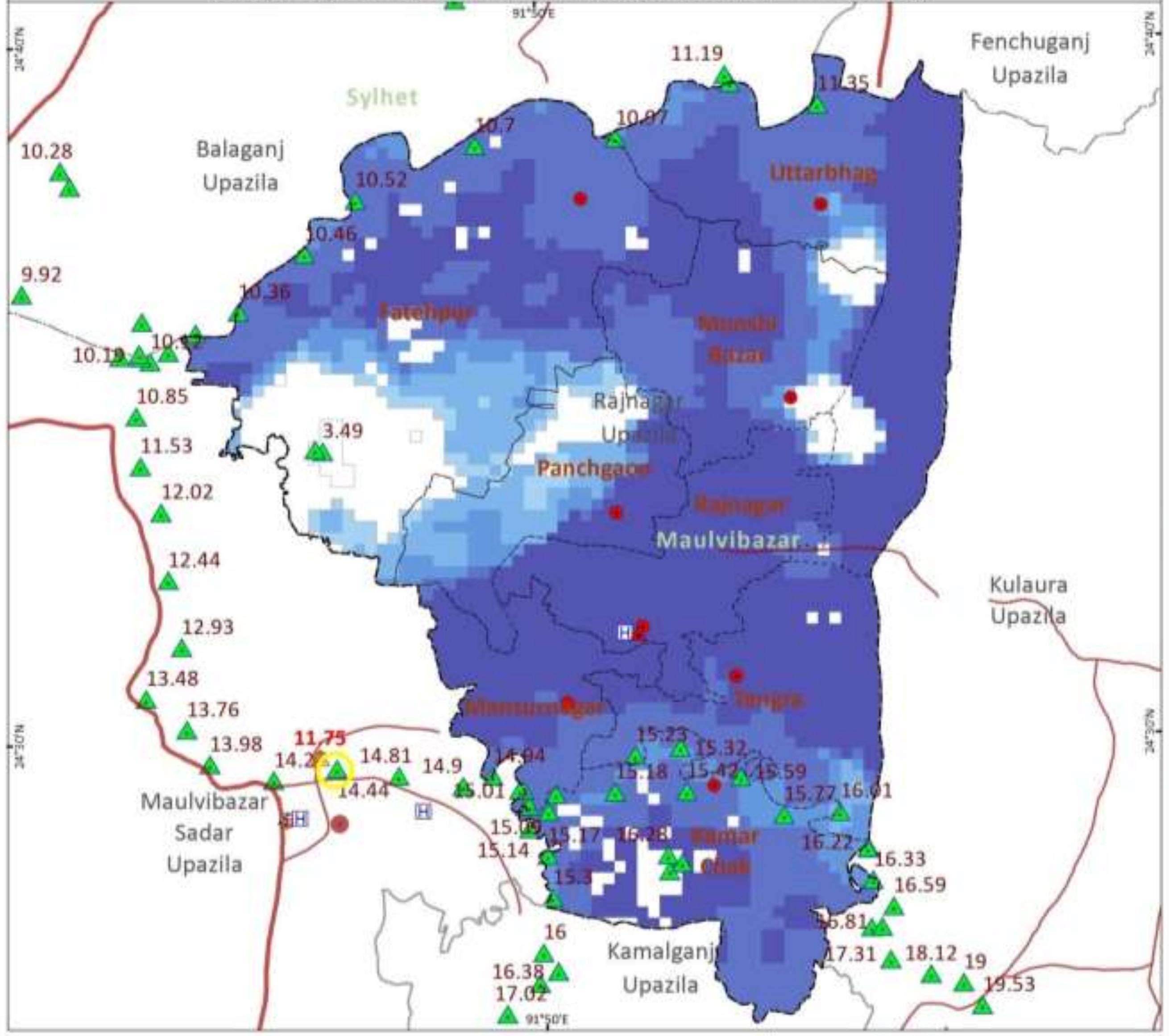
Flood Inundation Map for 25 Year Return Period
(Rajnagar Upazila of Maulvibazar District)



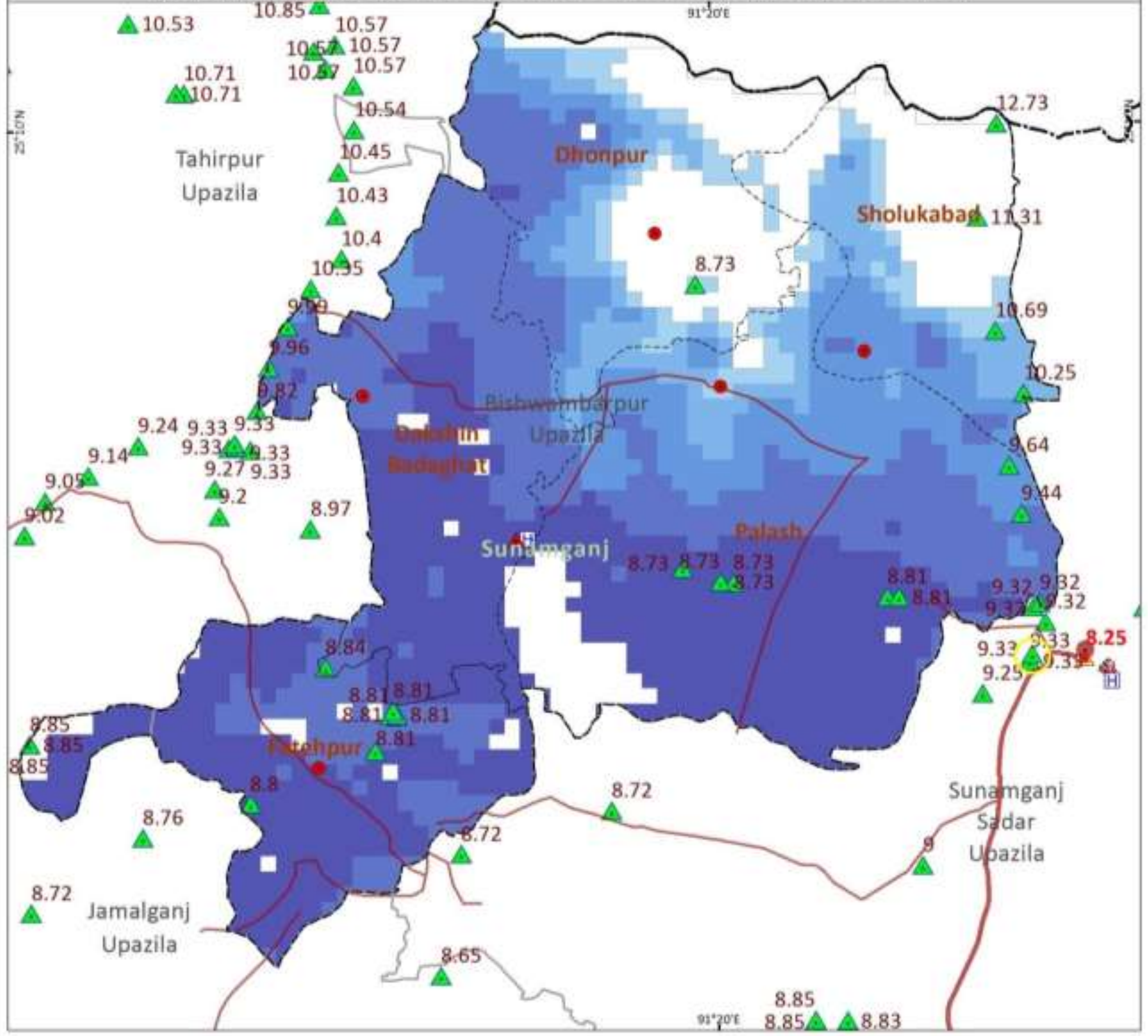
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Maulvibazar	11.75	14.44	14.74	15.02	15.17

N

00.51 2 3 4 5 6 7 km

R. F: 1:175,000

Flood Inundation Map for 25 Year Return Period
(Bishwambarpur Upazila of Sunamganj District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Sunamganj	8.25	9.33	9.46	9.57	9.64

N

1 0.5 0 1 2 3 4 5 Km

R. F: 1:130,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)
- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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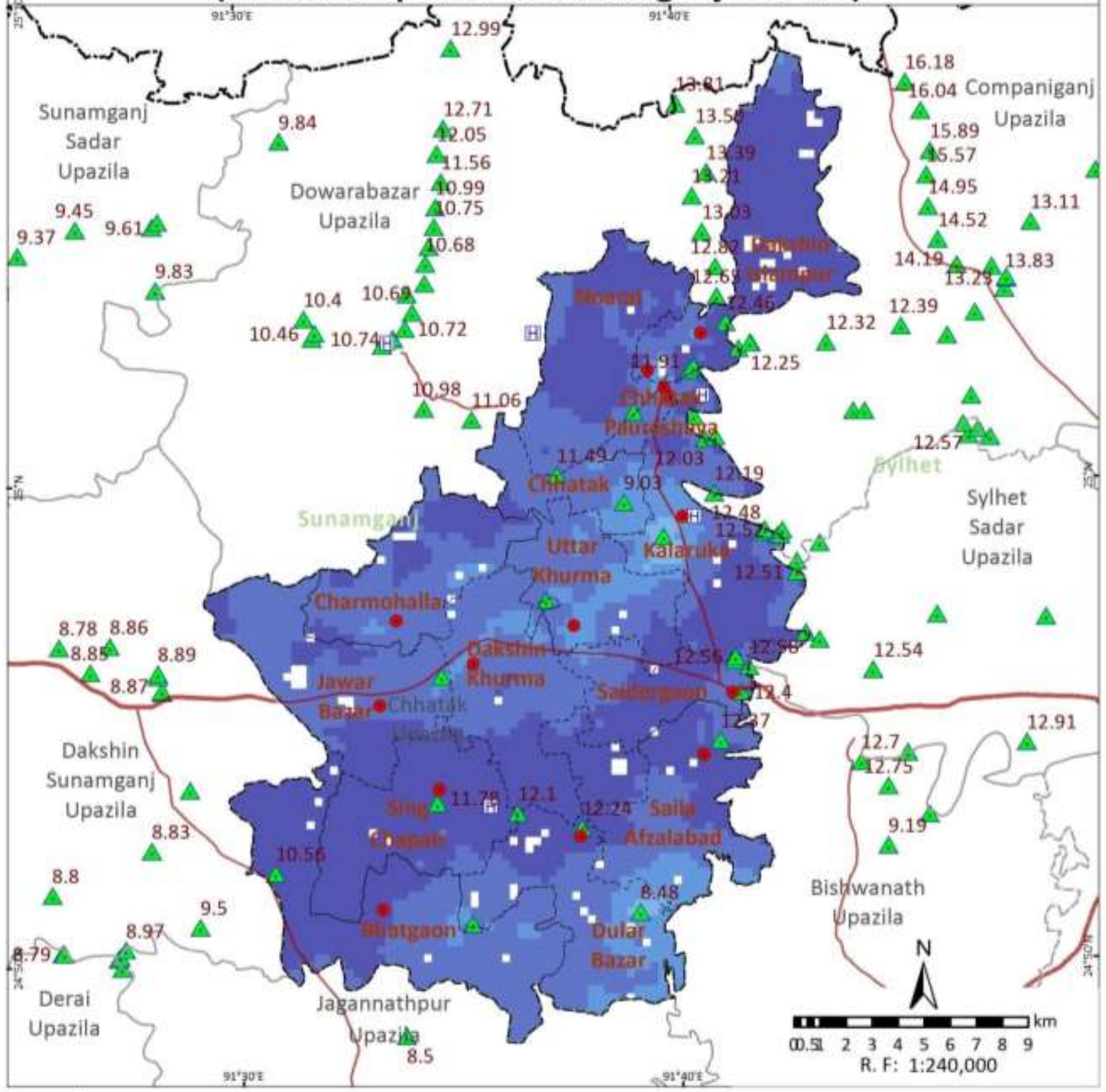
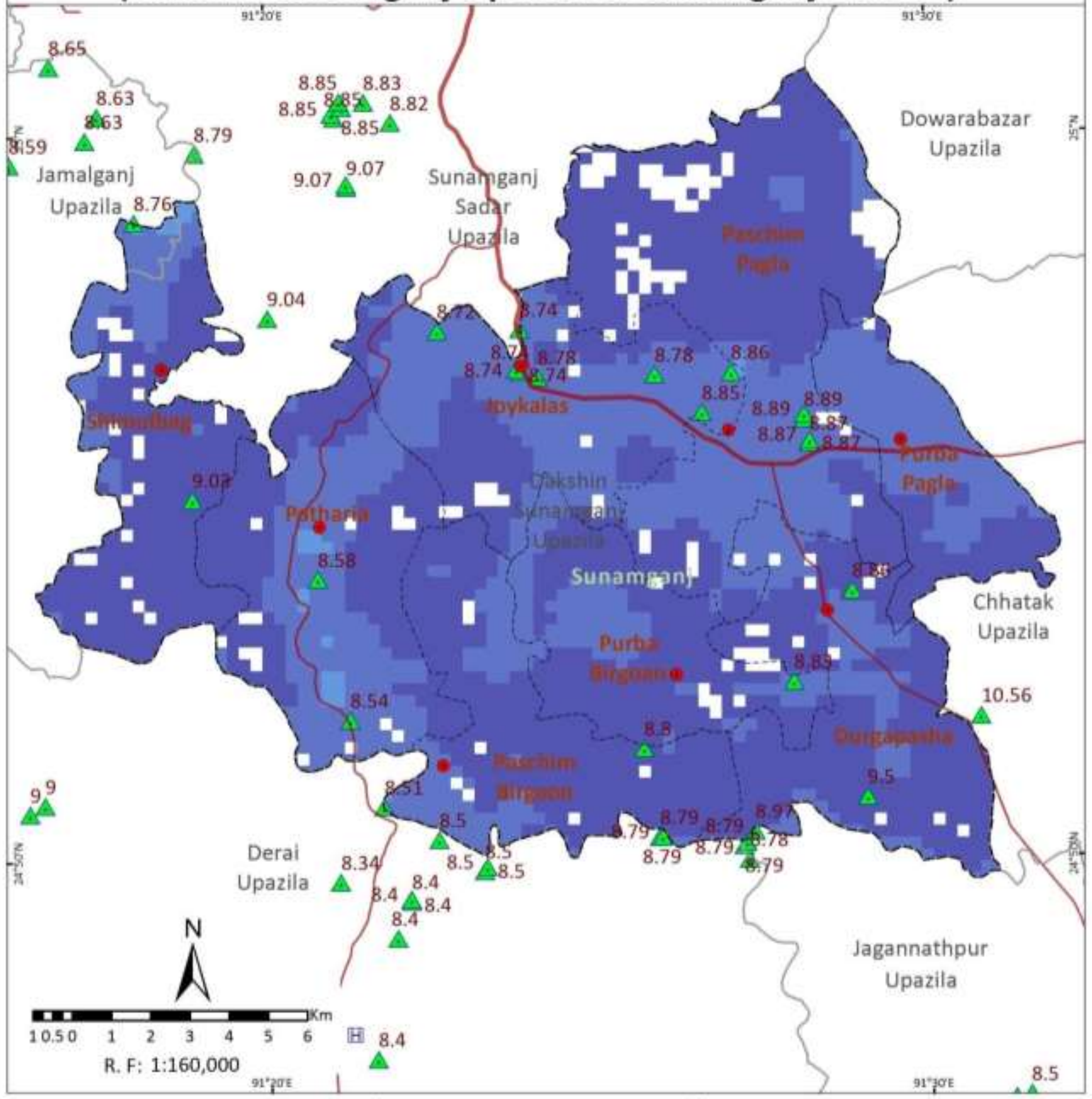
Flood Inundation Map for 25 Year Return Period
(Chhatak Upazila of Sunamganj District)



Flood Inundation Map for 25 Year Return Period
(Dakshin Sunamganj Upazila of Sunamganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
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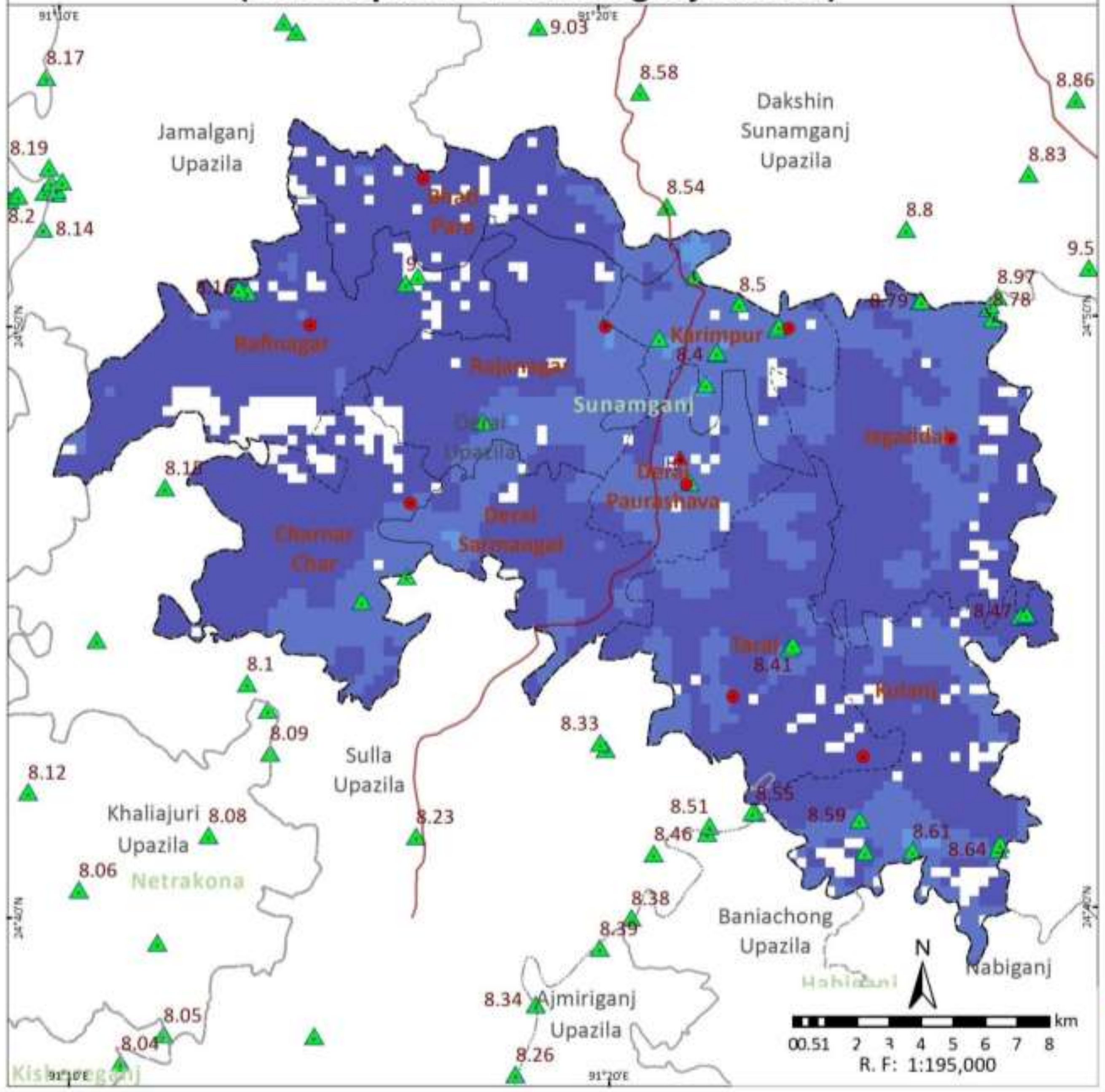
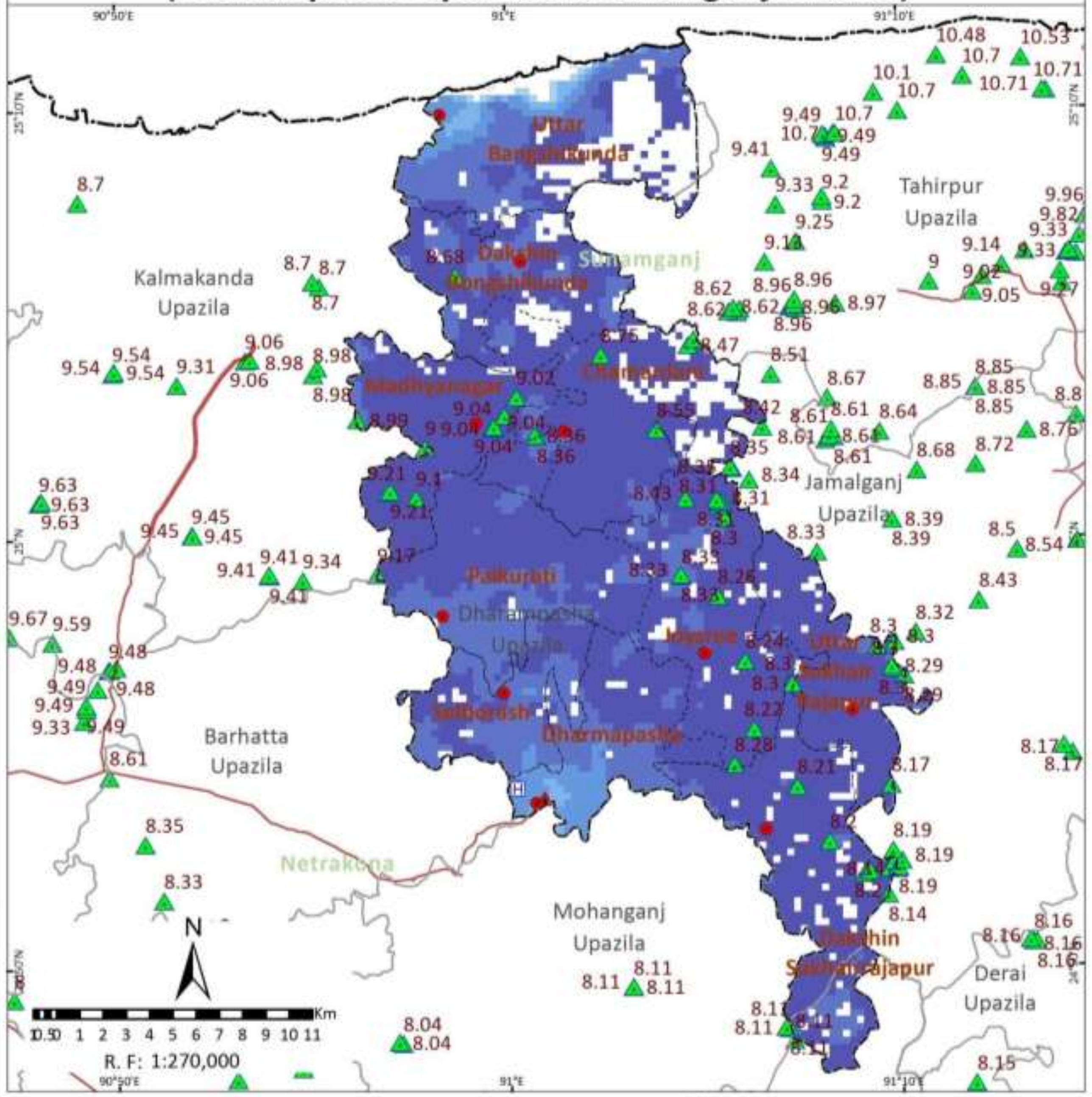
Flood Inundation Map for 25 Year Return Period (Derai Upazila of Sunamganj District)



Flood Inundation Map for 25 Year Return Period (Dharampasha Upazila of Sunamganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
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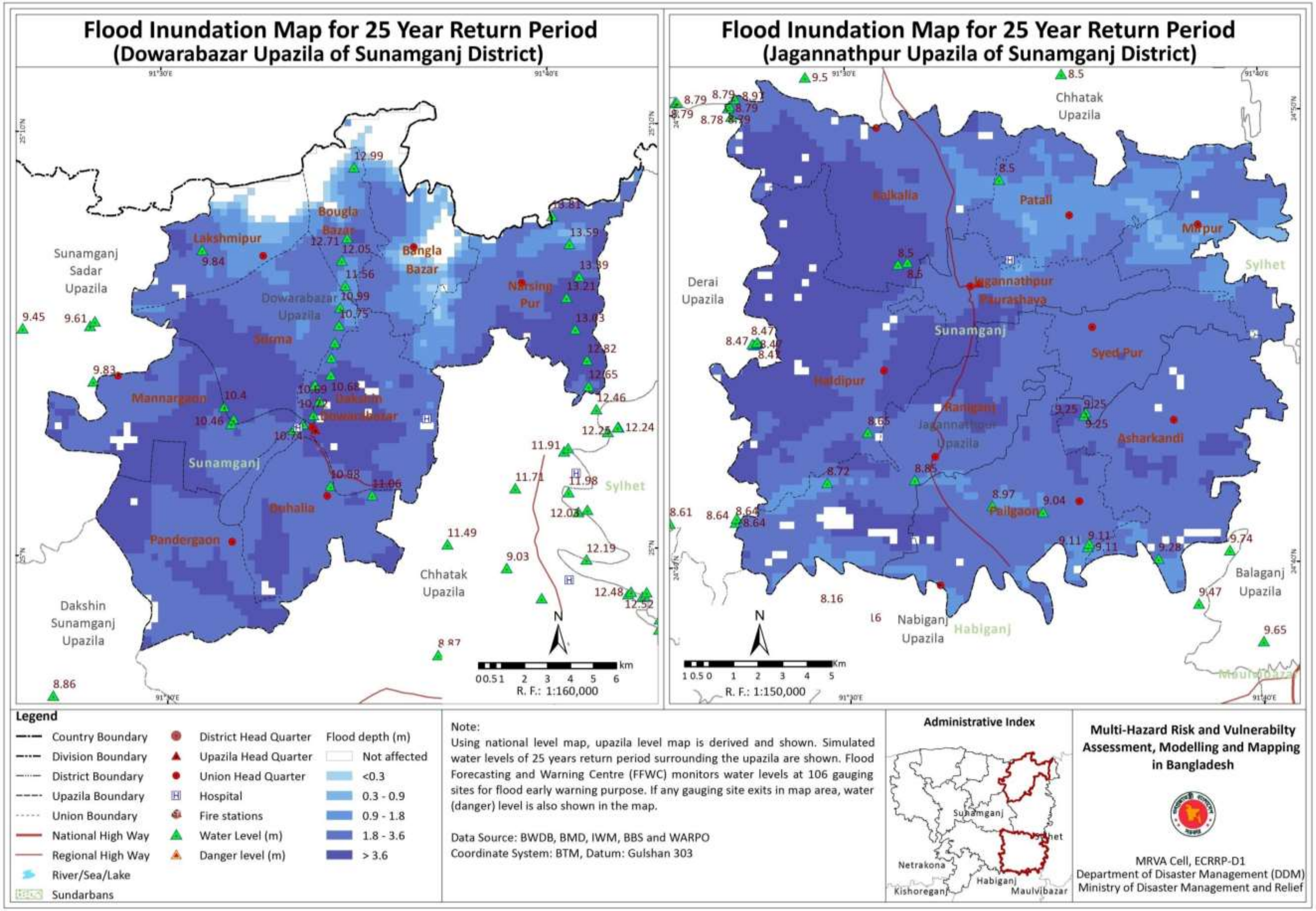

Flood Inundation Map for 25 Year Return Period
(Dowarabazar Upazila of Sunamganj District)
Sunamganj Sadar Upazila
Lakshmipur
Bougla Bazar
Bangla Bazar
Dowarabazar Upazila
Surma
Narsing Pur
Mannargaon
Dowarabazar
Sunamganj
Dohalia
Pandergaon
Dakshin Sunamganj Upazila
Chhatak Upazila
Sylhet
R. F.: 1:160,000
Flood Inundation Map for 25 Year Return Period
(Jagannathpur Upazila of Sunamganj District)
Chhatak Upazila
Kalkalia
Patali
Mirpur
Derai Upazila
Jagannathpur Paurashava
Sunamganj
Syed Pur
Haldipur
Raniganj
Jagannathpur Upazila
Asharkandi
Pailgaon
Balaganj Upazila
Nabiganj Upazila
Habiganj
Sylhet
R. F.: 1:150,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Union Head Quarter
Hospital
Fire stations
Water Level (m)
Danger level (m)
Flood depth (m)
Not affected
<0.3
0.3 - 0.9
0.9 - 1.8
1.8 - 3.6
> 3.6
Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.
Data Source: BWDB, BMD, IWM, BBS and WARPO
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Netrakona
Kishoreganj
Habiganj
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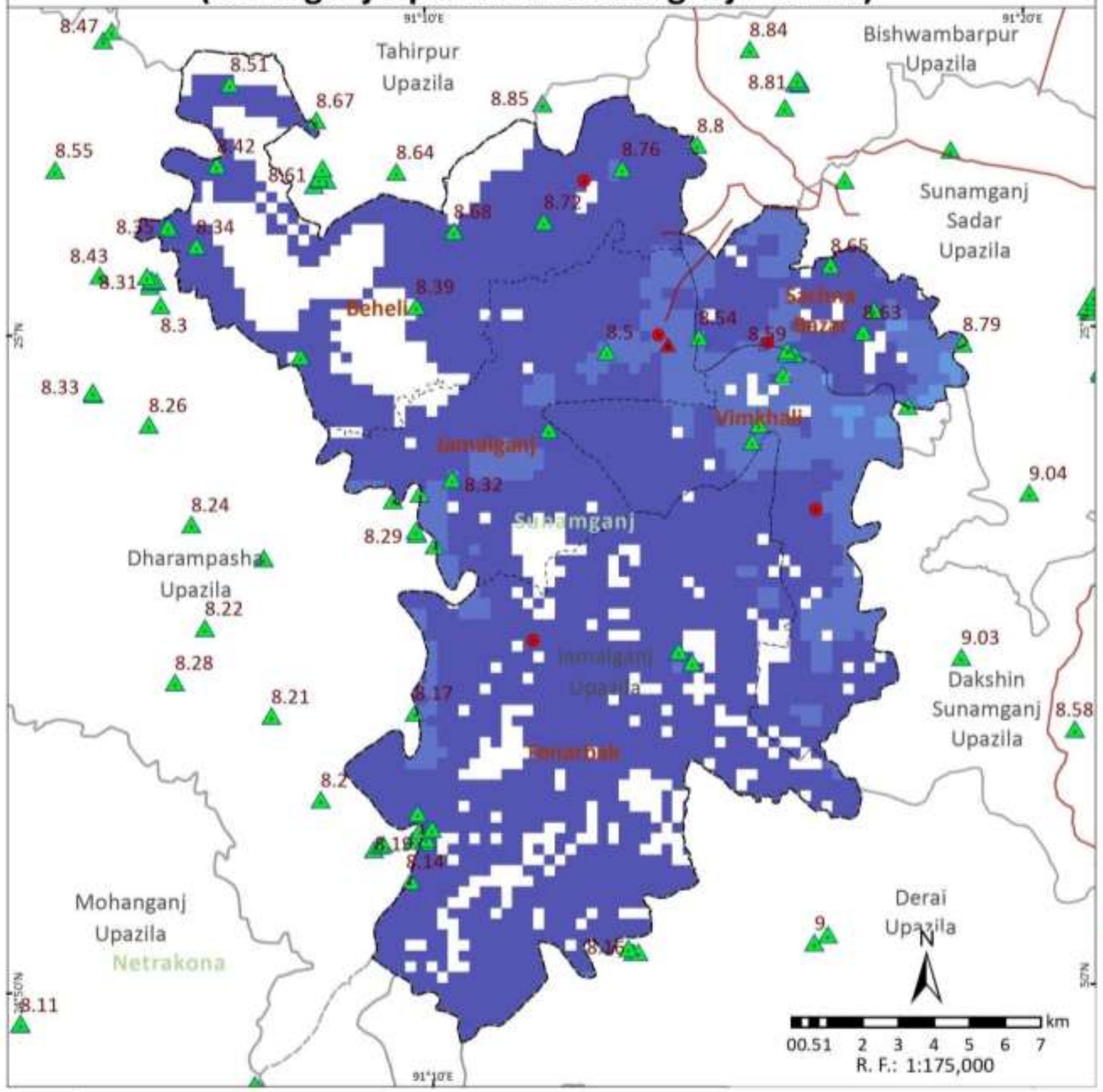
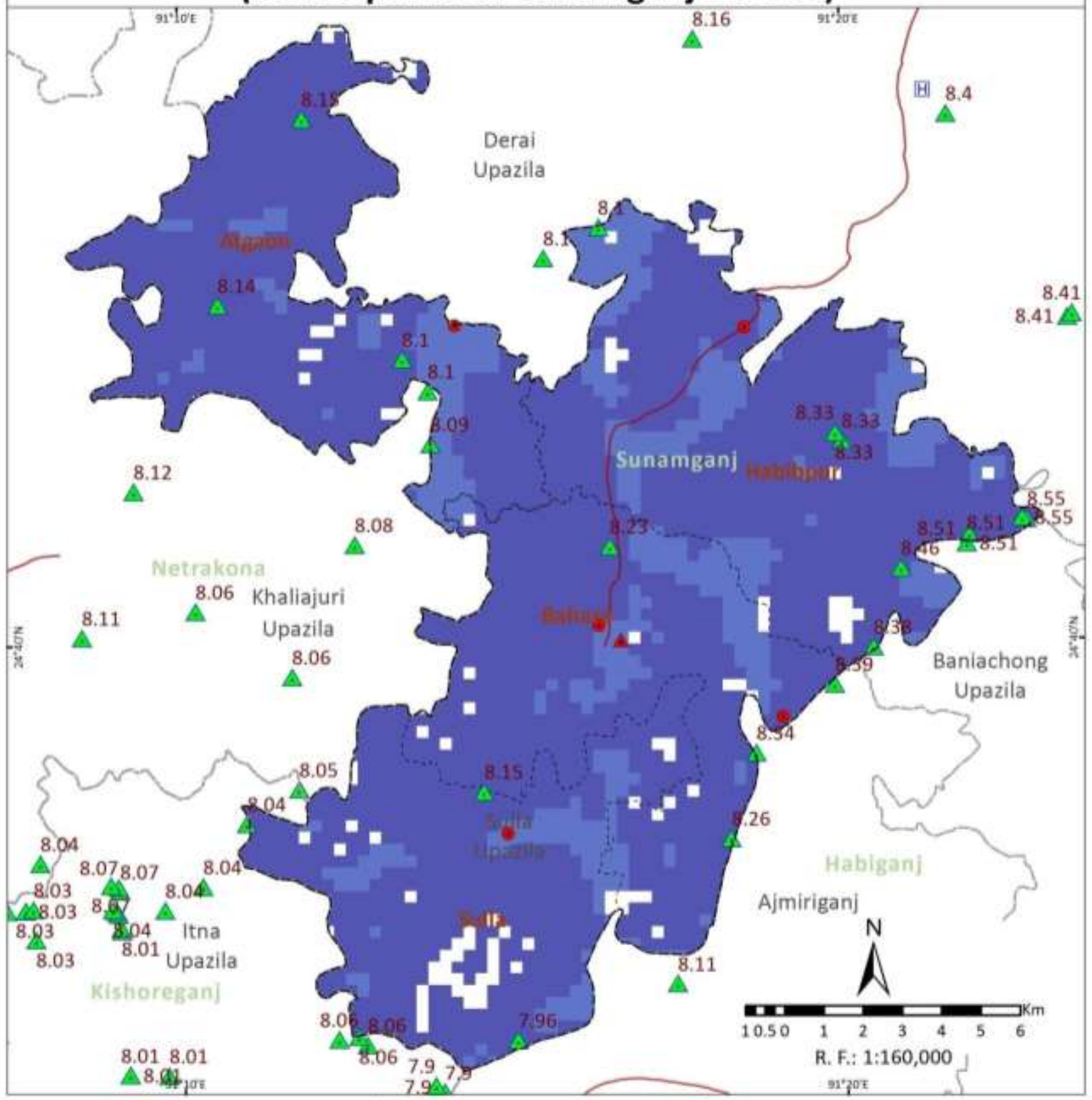
Flood Inundation Map for 25 Year Return Period
(Jamalganj Upazila of Sunamganj District)



Flood Inundation Map for 25 Year Return Period
(Sulla Upazila of Sunamganj District)



Legend

Country Boundary	District Head Quarter	Flood depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
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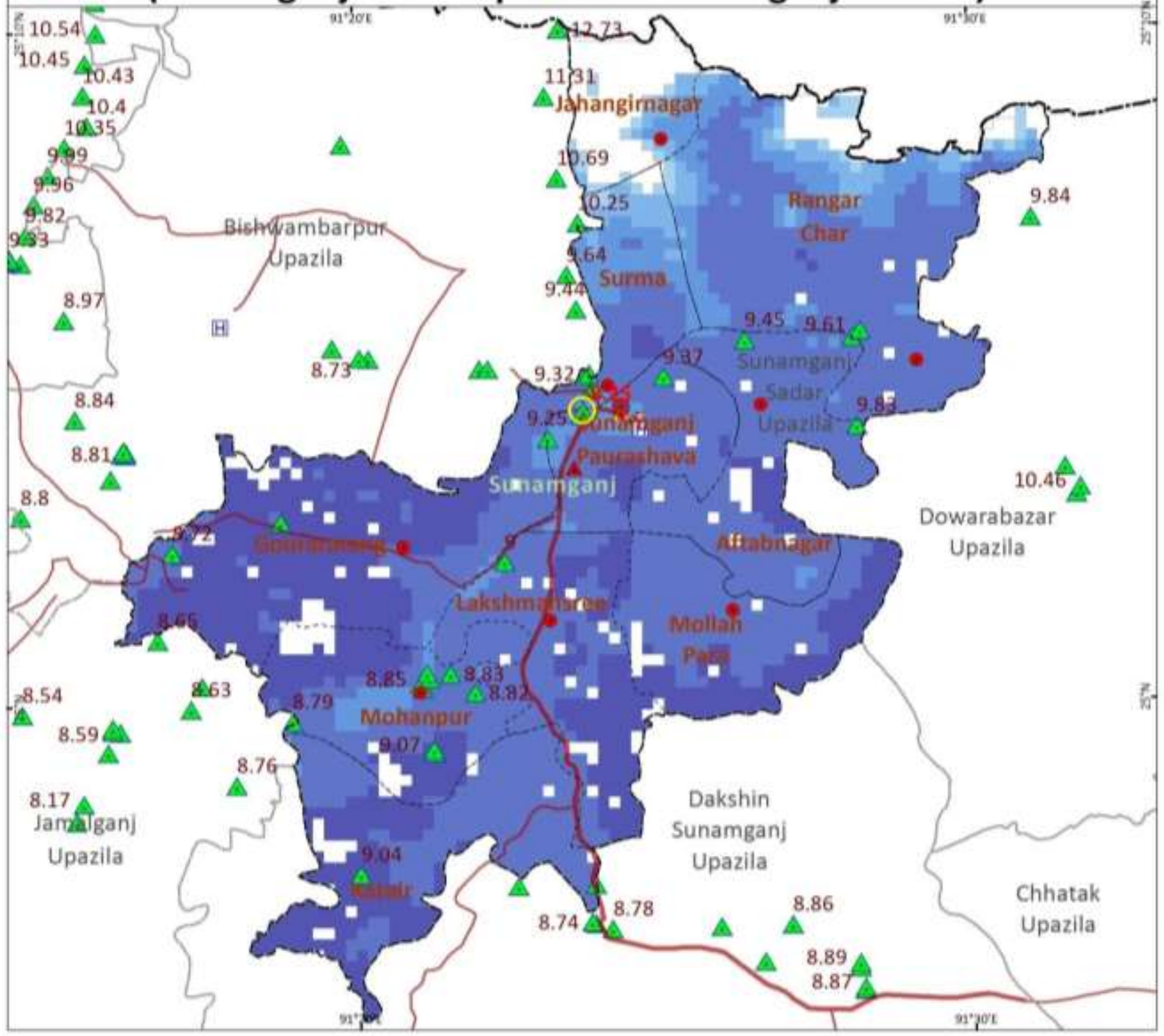
Flood Inundation Map for 25 Year Return Period
(Sunamganj Sadar Upazila of Sunamganj District)



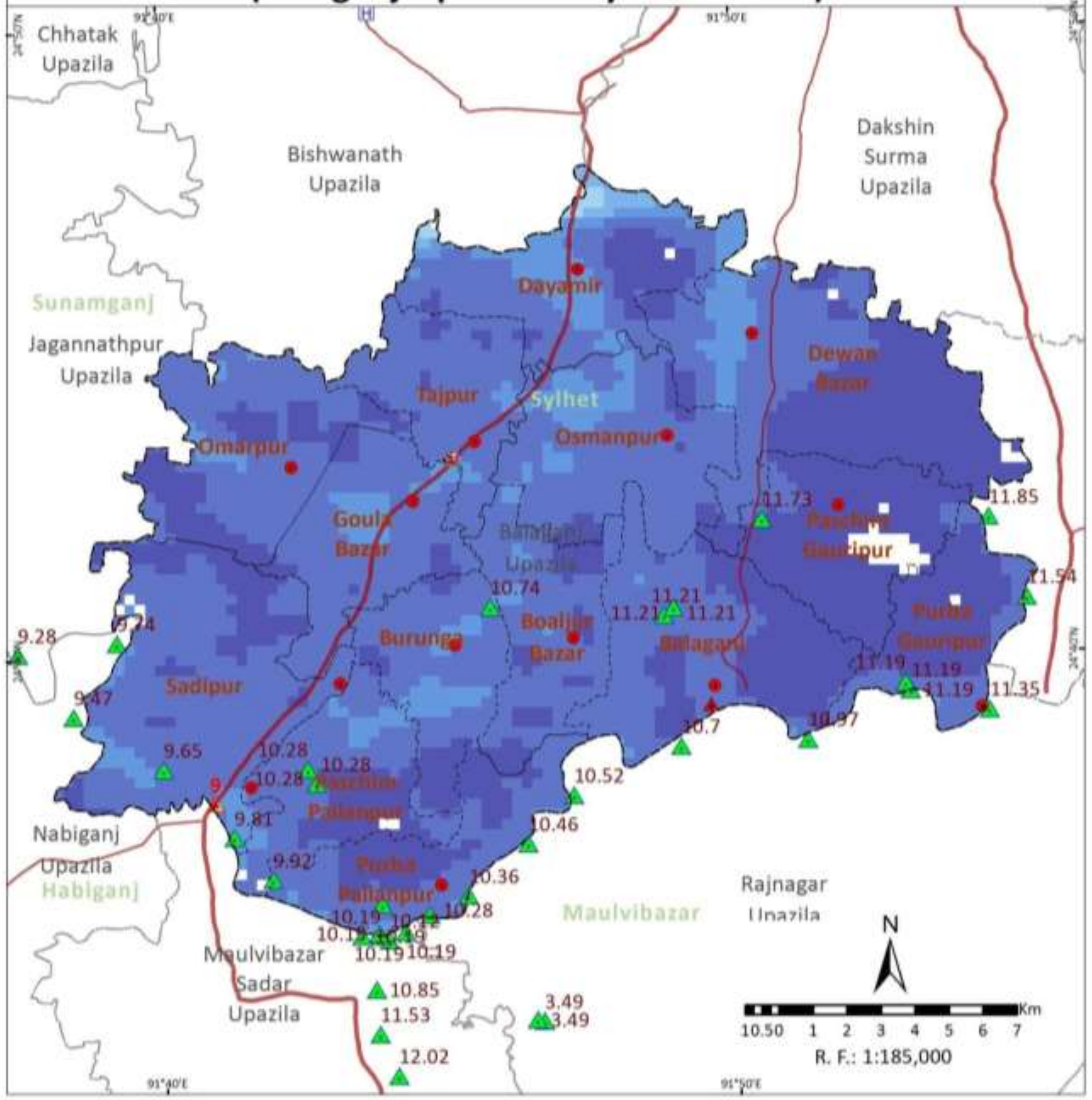
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Sunamganj	8.25	9.33	9.46	9.57	9.64

N

0 0.5 1 2 3 4 5 6 7 km

R. F: 1:180,000

Flood Inundation Map for 25 Year Return Period
(Balaganj Upazila of Sylhet District)



Legend

Country Boundary	District Head Quarter	Flood depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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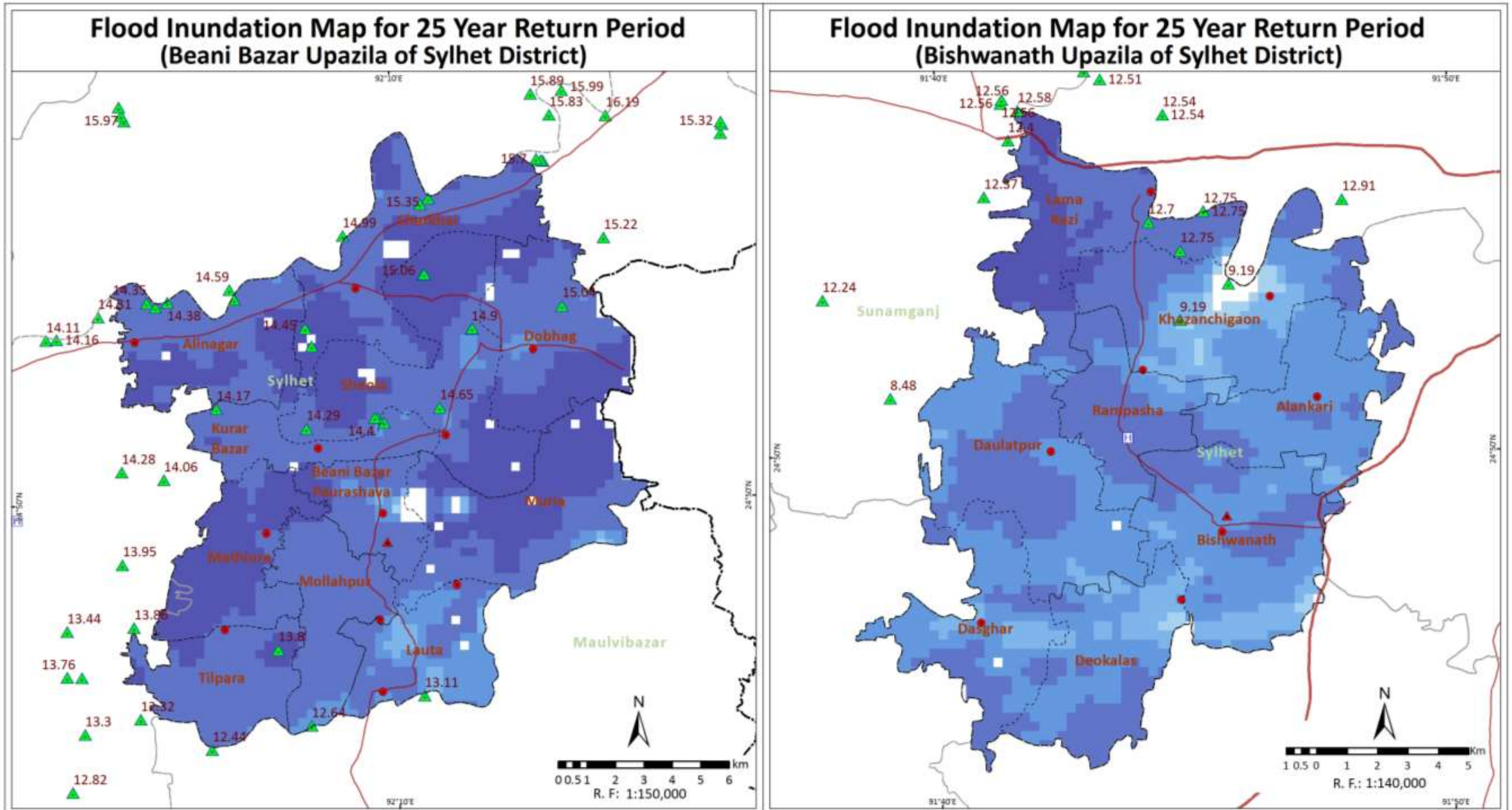

Legend

Country Boundary	District Head Quarter	**Flood depth (m)**
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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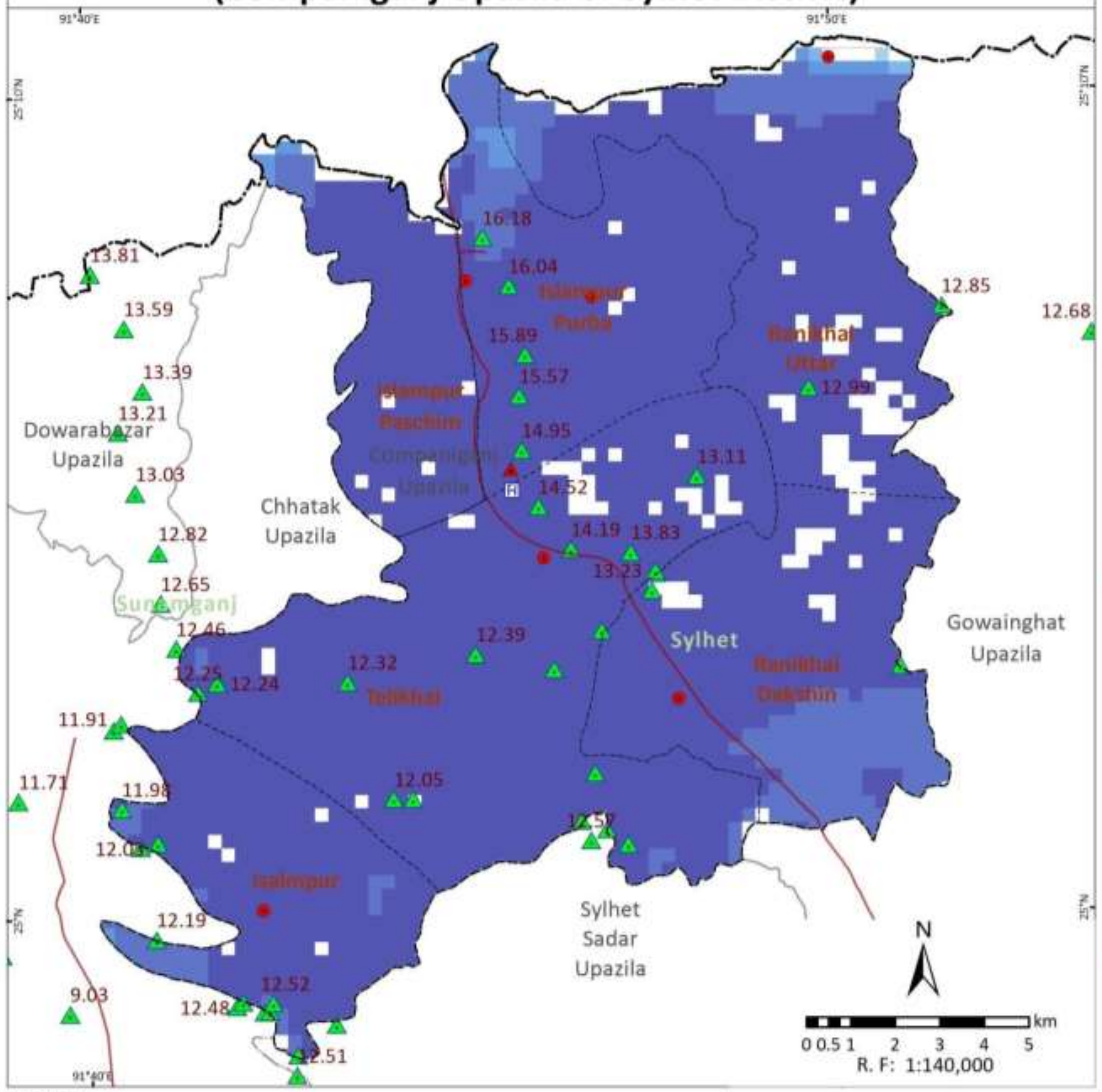
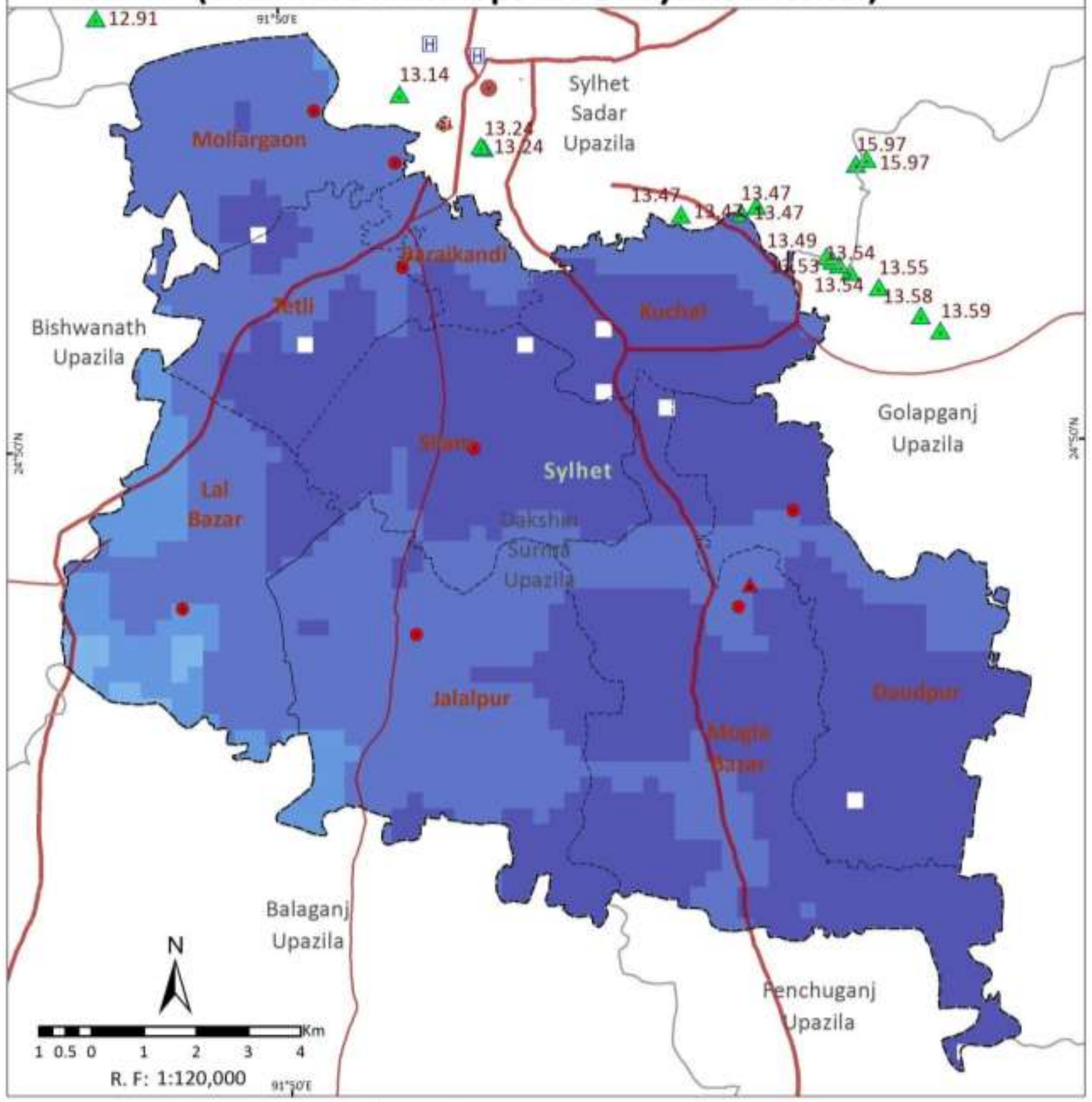
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Companiganj Upazila of Sylhet District)



Flood Inundation Map for 25 Year Return Period
(Dakshin Surma Upazila of Sylhet District)



Legend

Country Boundary	District Head Quarter
Division Boundary	Upazila Head Quarter
District Boundary	Union Head Quarter
Upazila Boundary	Hospital
Union Boundary	Fire stations
National High Way	Water Level (m)
Regional High Way	Danger level (m)
River/Sea/Lake	
Sundarbans	

Flood depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:

Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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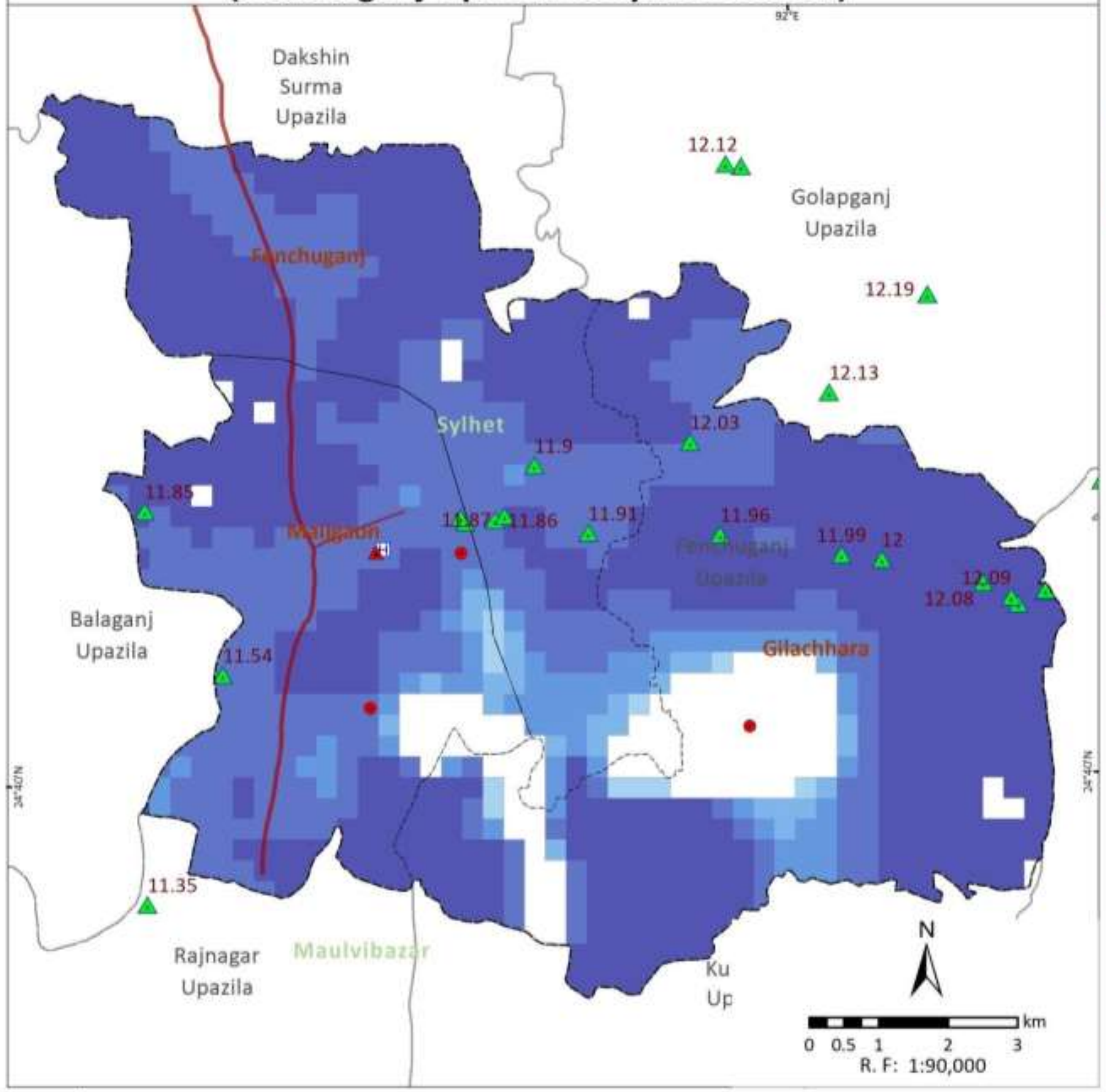
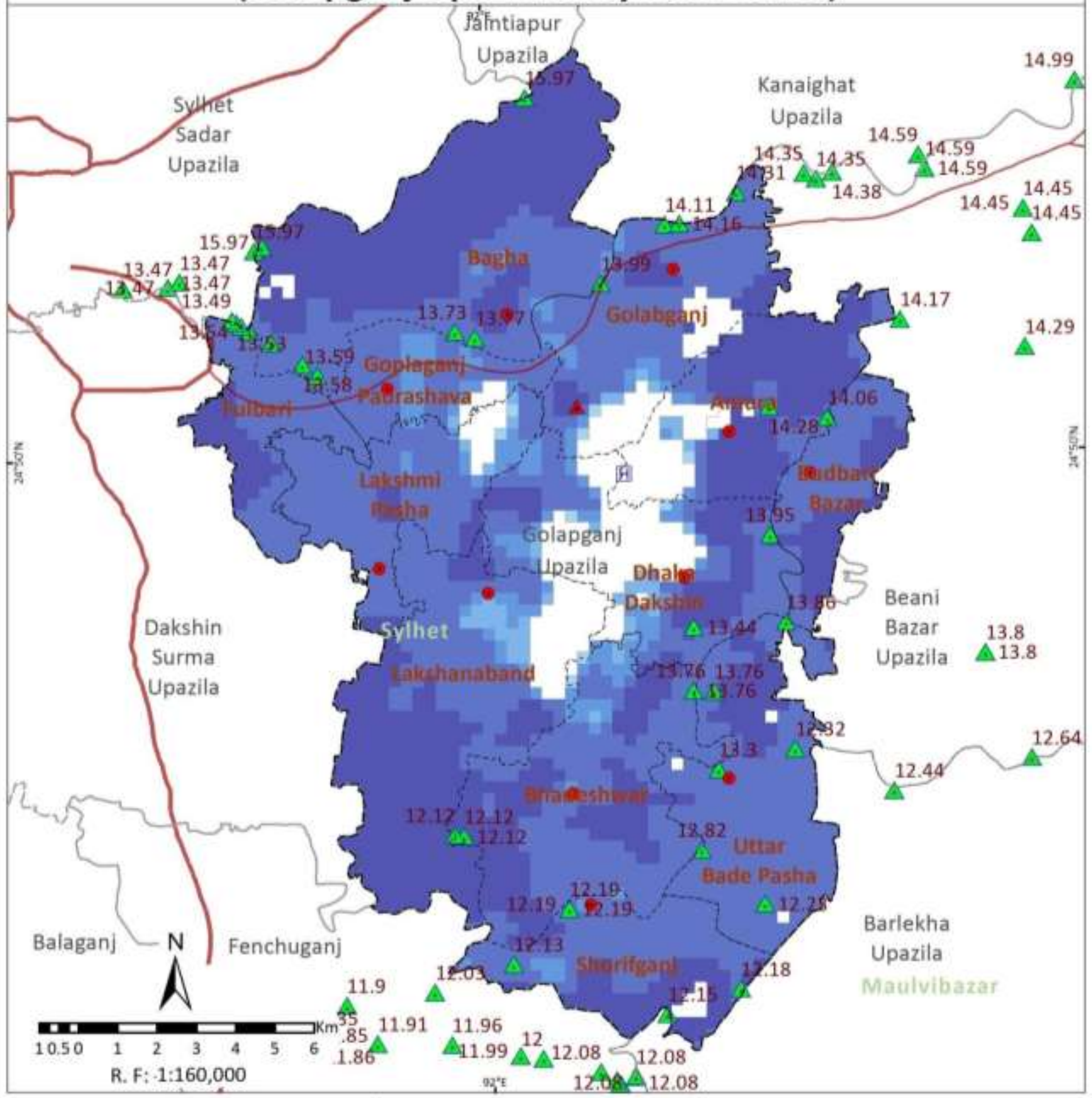
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Flood Inundation Map for 25 Year Return Period
(Fenchuganj Upazila of Sylhet District)



Flood Inundation Map for 25 Year Return Period
(Golapganj Upazila of Sylhet District)



Legend

Country Boundary	District Head Quarter	Flood depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
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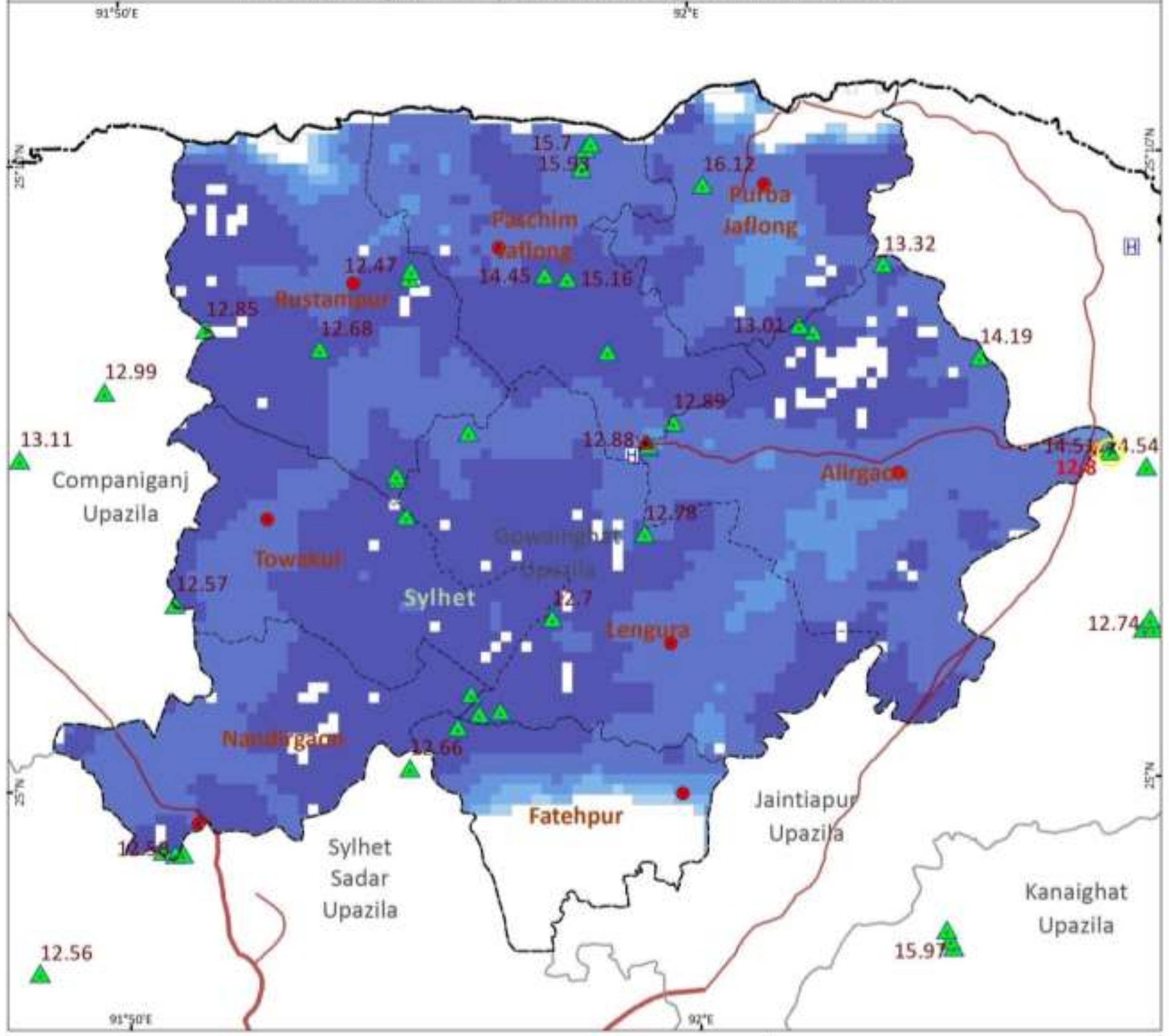
Flood Inundation Map for 25 Year Return Period
(Gowainghat Upazila of Sylhet District)



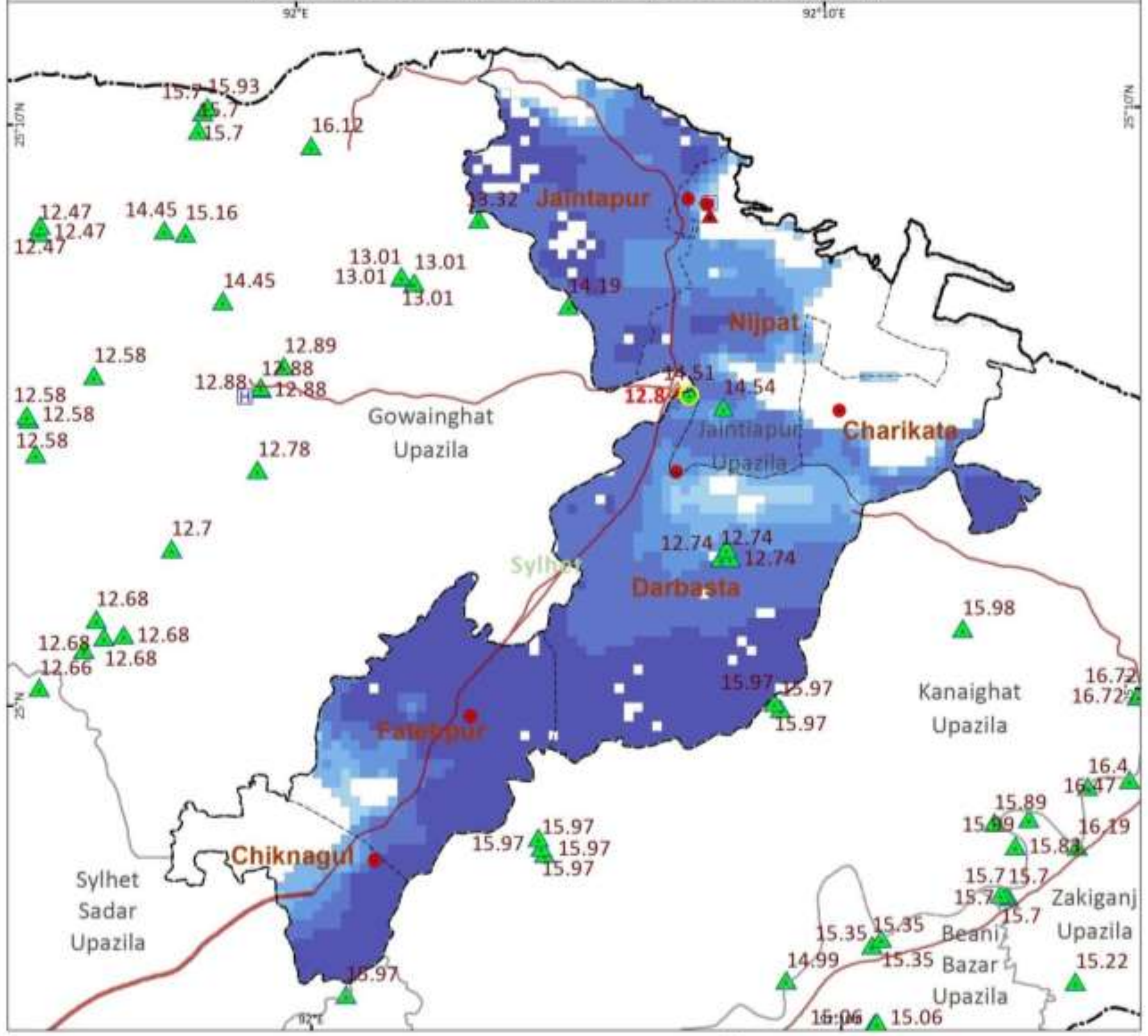
FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Sarighat	12.8	14.51	14.77	15	15.13

N

0 0.5 1 2 3 4 5 6 7 8 km

R. F: 1:195,000

Flood Inundation Map for 25 Year Return Period
(Jaintiapur Upazila of Sylhet District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Sarighat	12.8	14.51	14.77	15	15.13

N

1 0.5 0 1 2 3 4 5 6 7 8 Km

R. F: 1:210,000

Legend

Country Boundary	District Head Quarter	Flood depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila Boundary	Hospital	0.3 - 0.9
Union Boundary	Fire stations	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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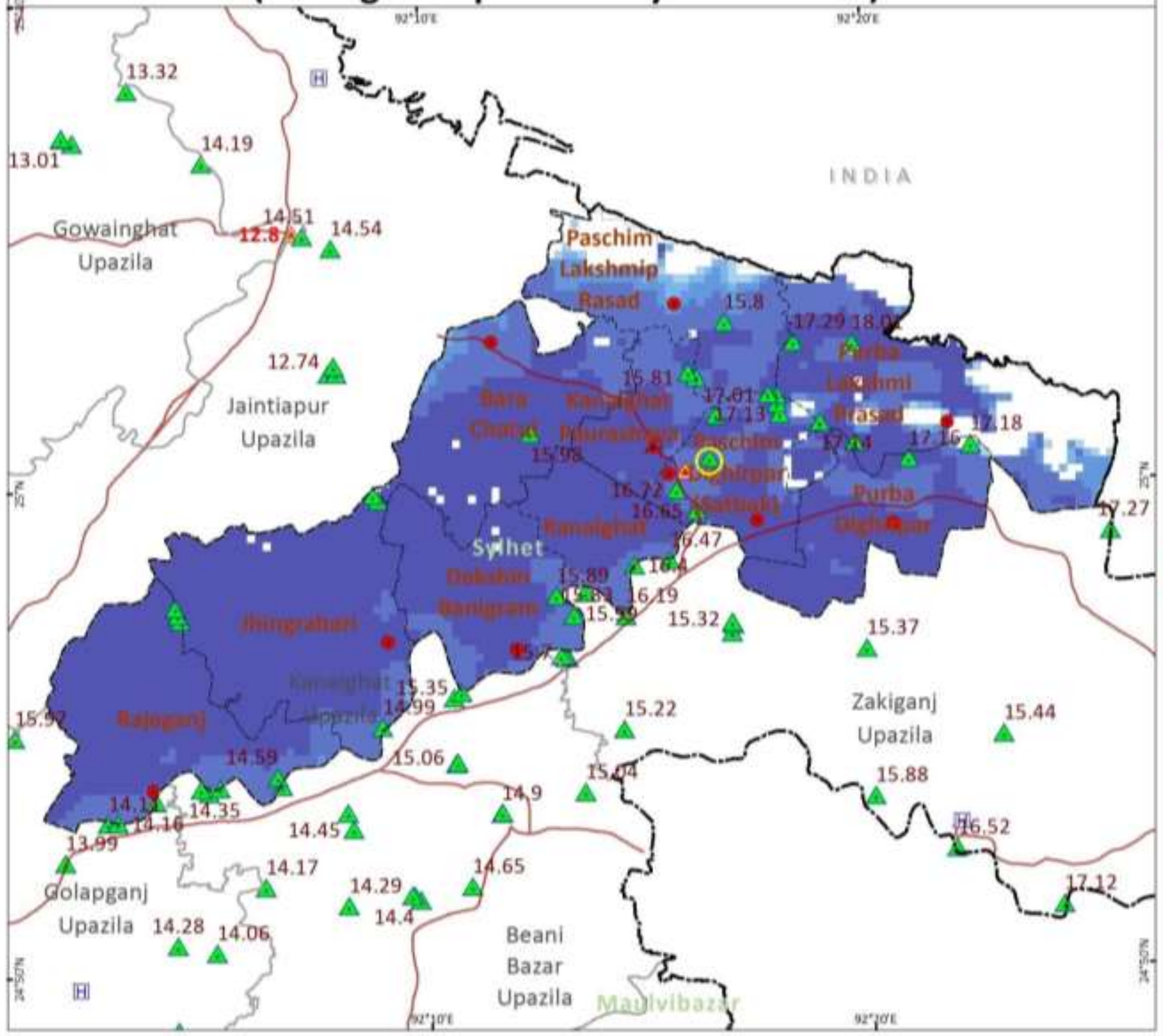
Ministry of Disaster Management and Relief

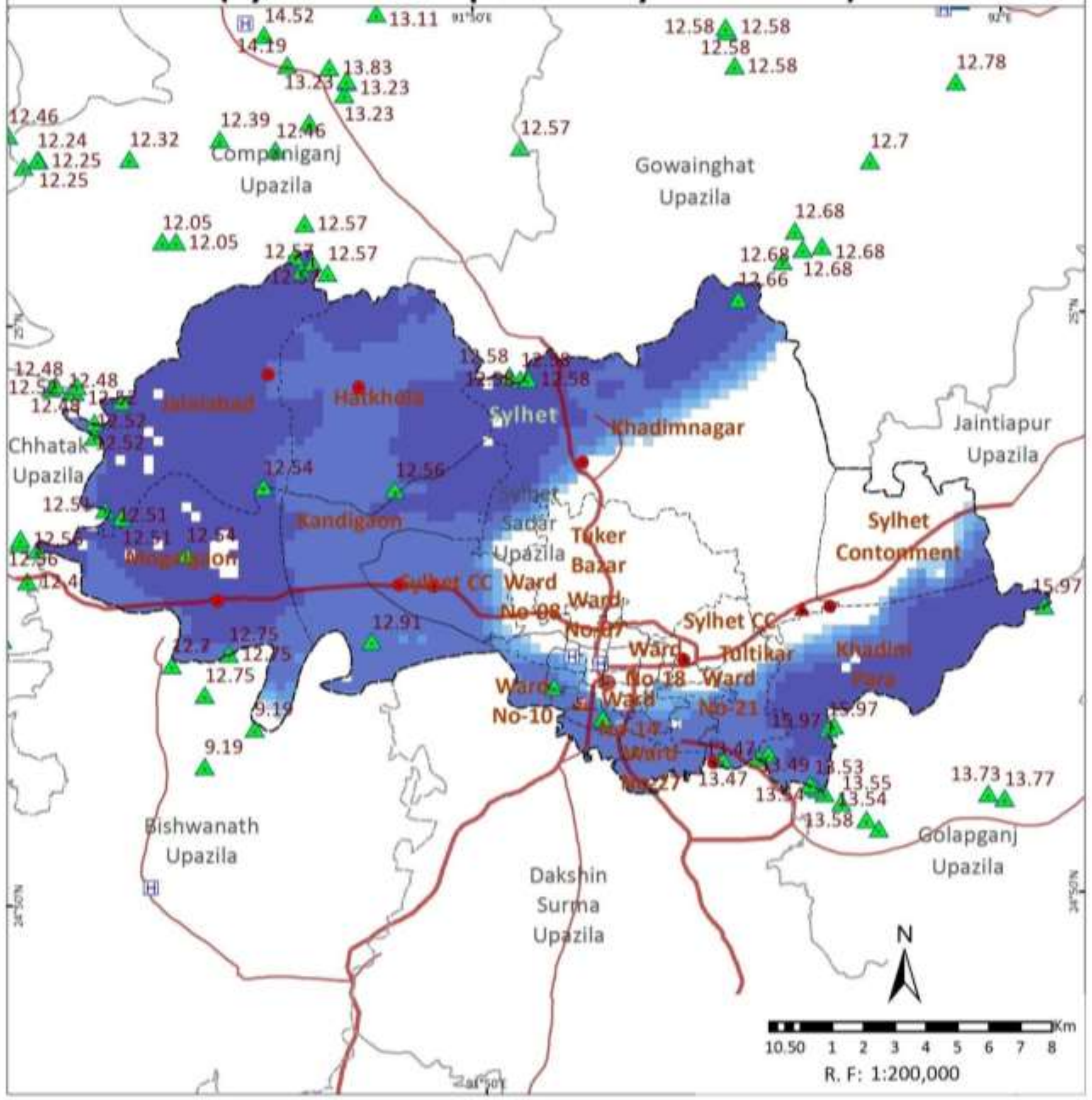


FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Kanaighat	13.2	16.89	17.09	17.28	17.38

N

0 0.5 1 2 3 4 5 6 7 8 9 10 km

R. F: 1:250,000



N

1 0.5 0 1 2 3 4 5 6 7 8 Km

R. F: 1:200,000

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- River/Sea/Lake
- Sundarbans
- District Head Quarter
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Fire stations
- Water Level (m)
- Danger level (m)

Flood depth (m)

- Not affected
- <0.3
- 0.3 - 0.9
- 0.9 - 1.8
- 1.8 - 3.6
- > 3.6

Note:
Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
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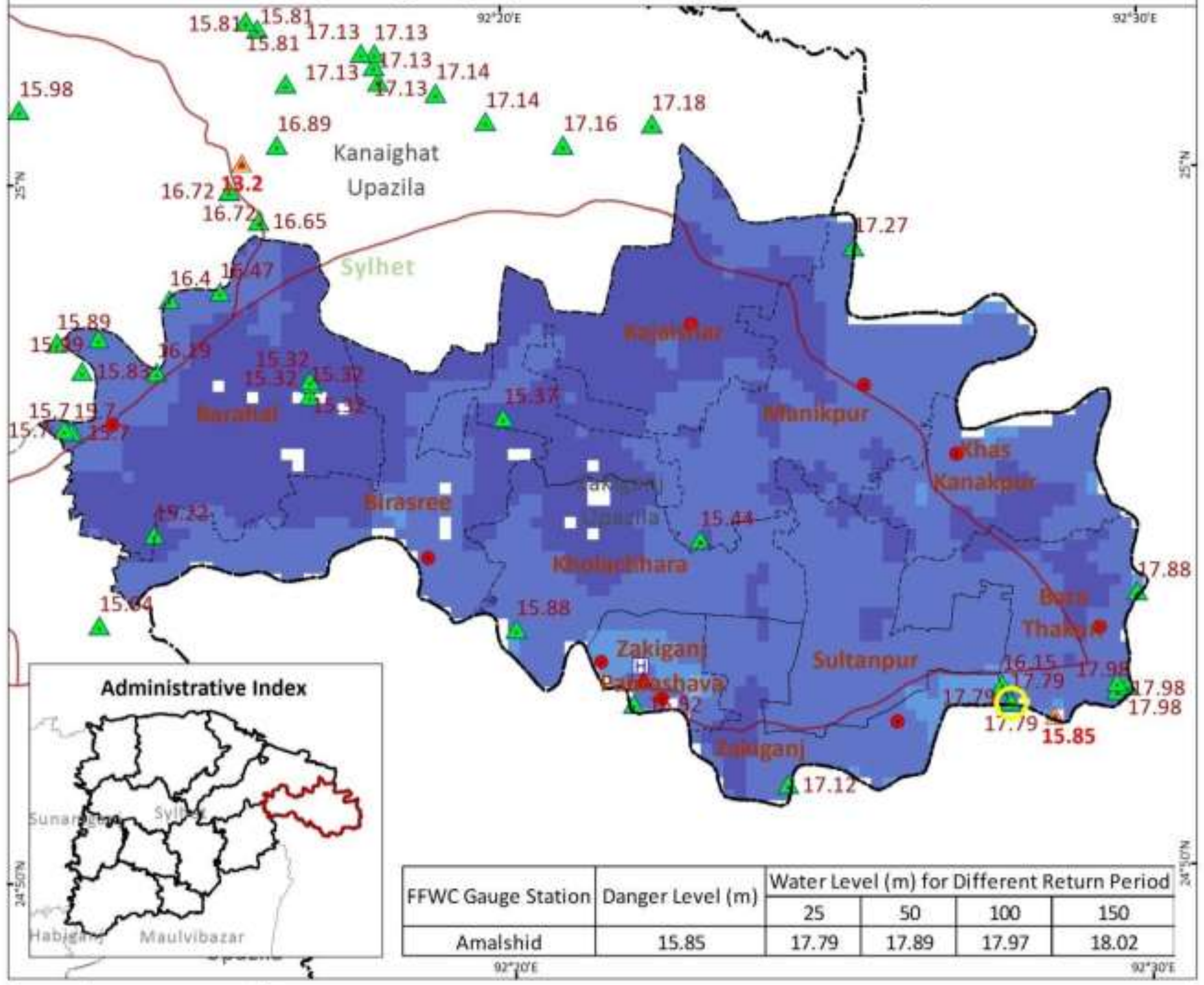
Flood Inundation Map for 25 Year Return Period
(Zakiganj Upazila of Sylhet District)



FFWC Gauge Station	Danger Level (m)	Water Level (m) for Different Return Period			
		25	50	100	150
Amalshid	15.85	17.79	17.89	17.97	18.02

N

R. F.: 1:180,000

0 0.5 1 2 3 4 5 Km

Note: Using national level map, upazila level map is derived and shown. Simulated water levels of 25 years return period surrounding the upazila are shown. Flood Forecasting and Warning Centre (FFWC) monitors water levels at 106 gauging sites for flood early warning purpose. If any gauging site exits in map area, water (danger) level is also shown in the map.

Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303

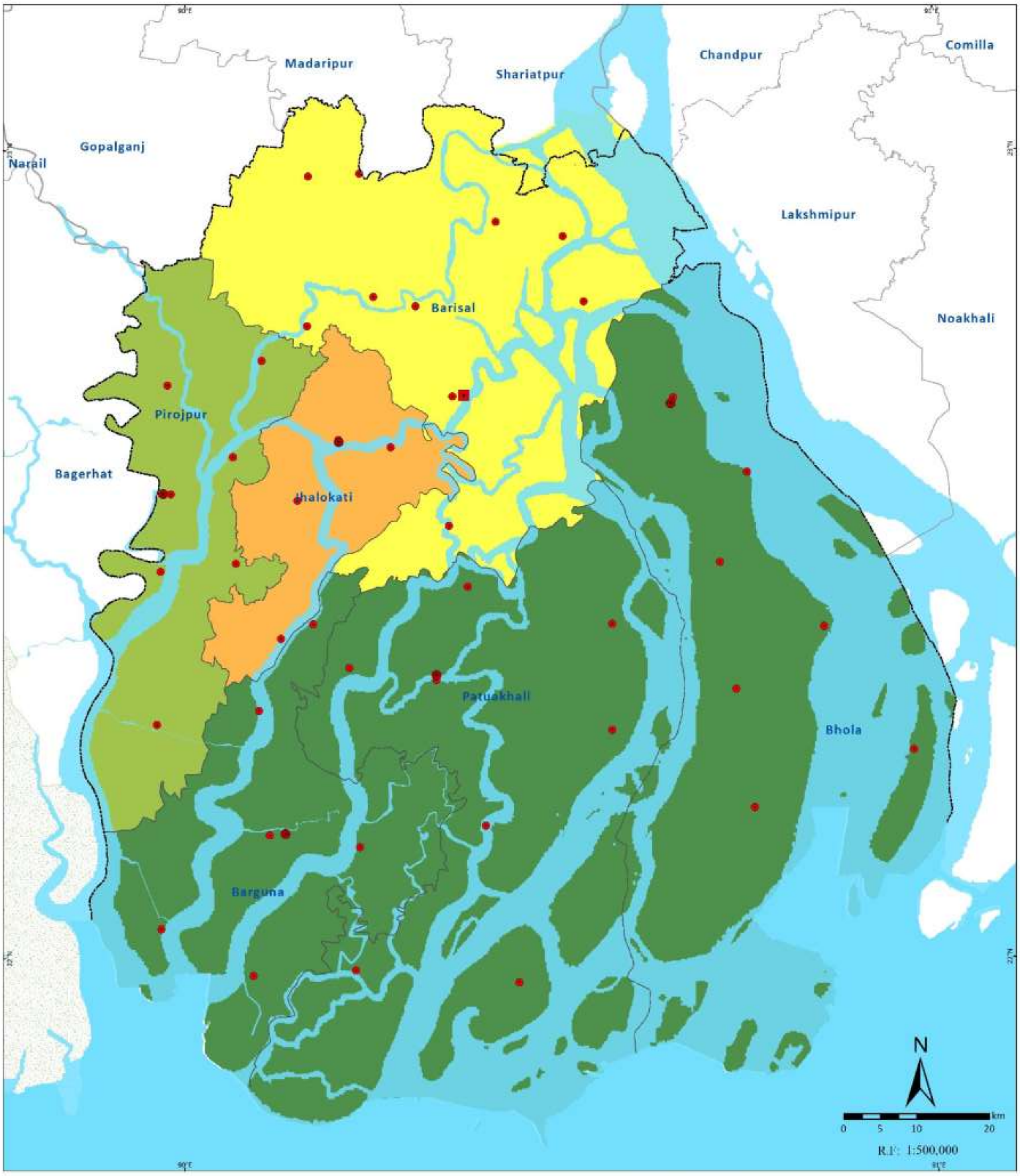
Legend

Country Boundary	District Head Quarter	Flood Depth (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Union Head Quarter	<0.3
Upazila_Boundary	Fire Station	0.3 - 0.9
Union Boundary	Hospital	0.9 - 1.8
National High Way	Water Level (m)	1.8 - 3.6
Regional High Way	Danger level (m)	> 3.6
River/Sea/Lake		
Sundarbans		

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard
(Barisal Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Risk Levels

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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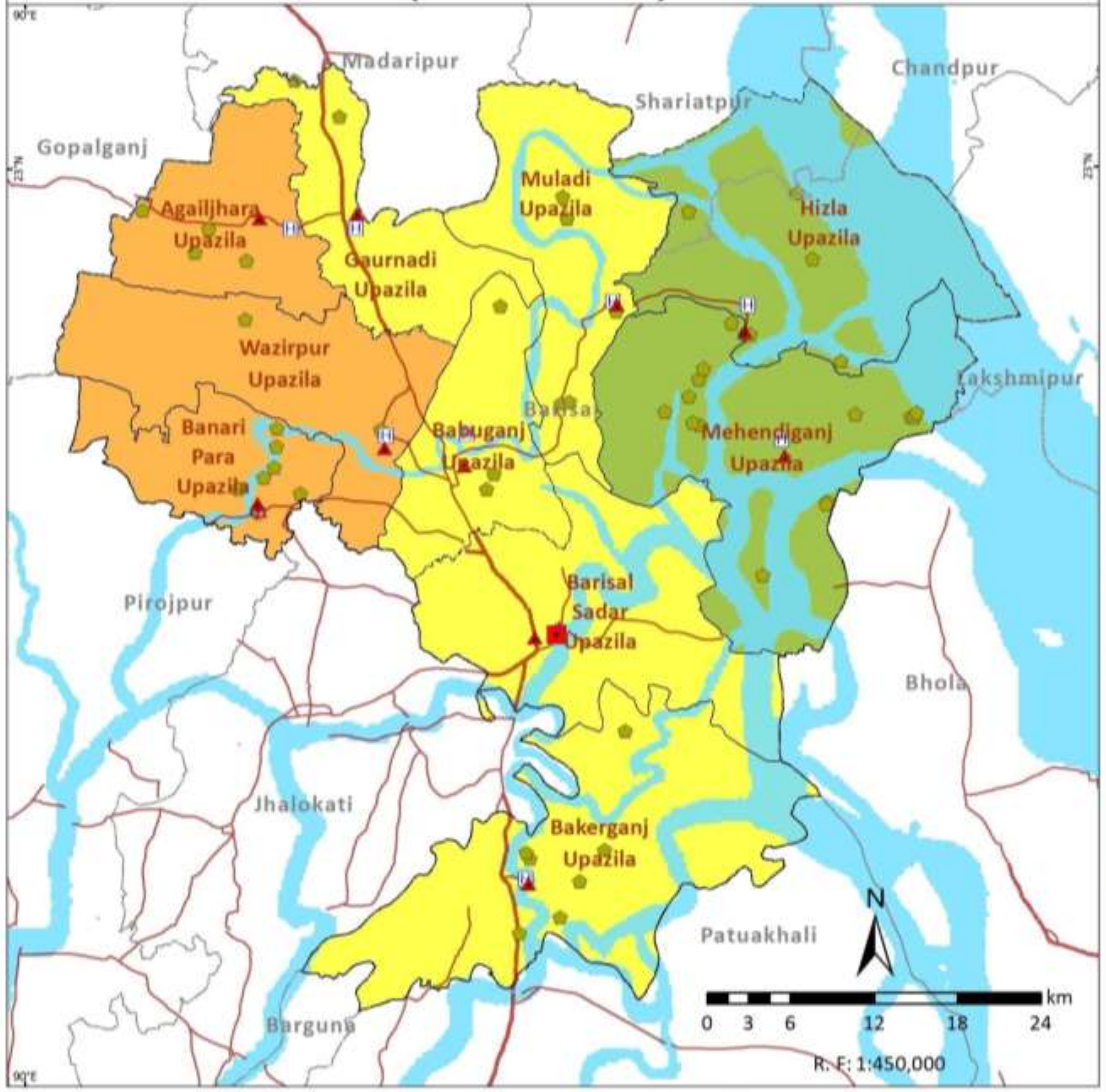
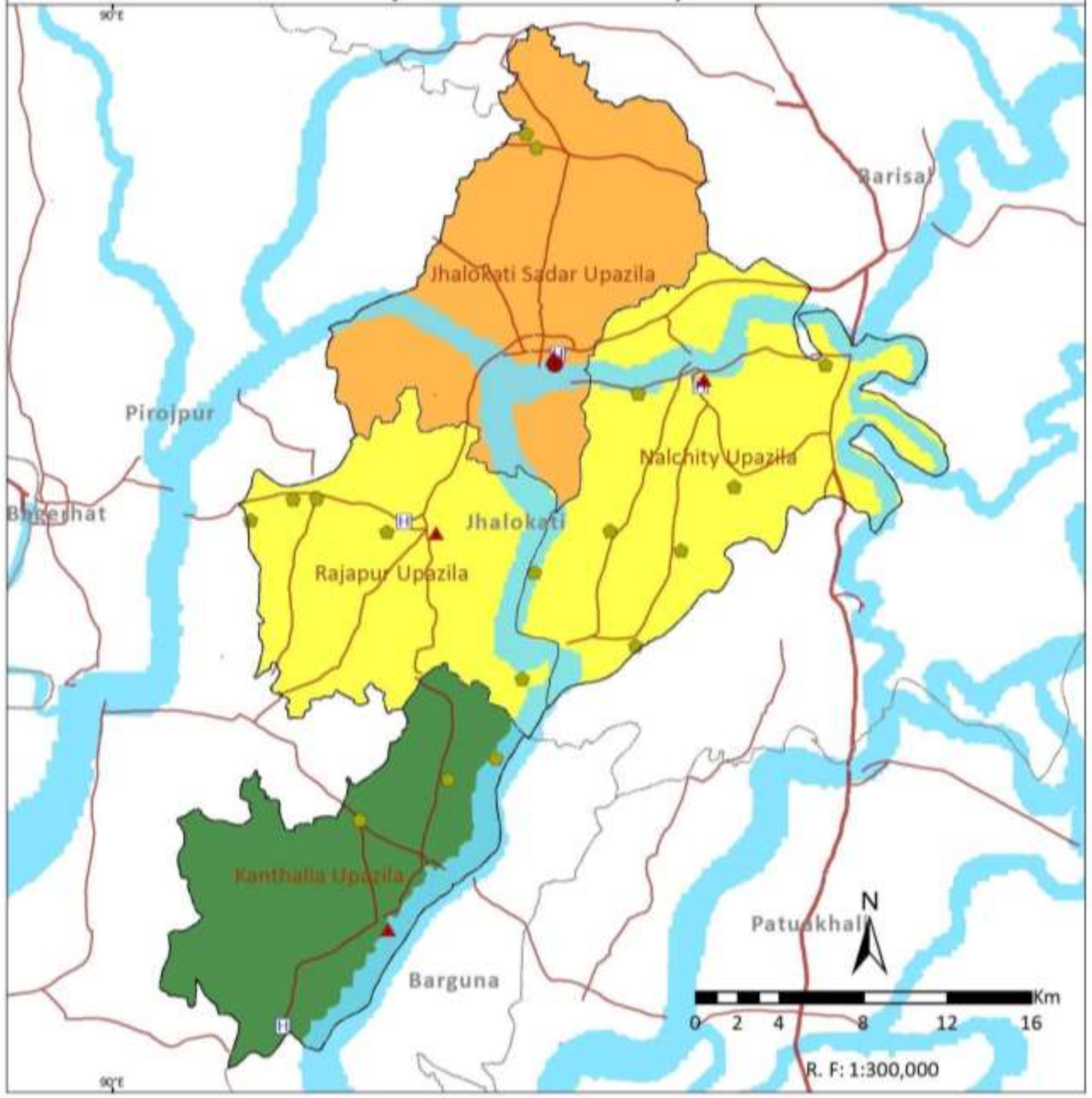
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard (Barisal District)



Exposure Category of Population to Flood Hazard (Jhalokati District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Category of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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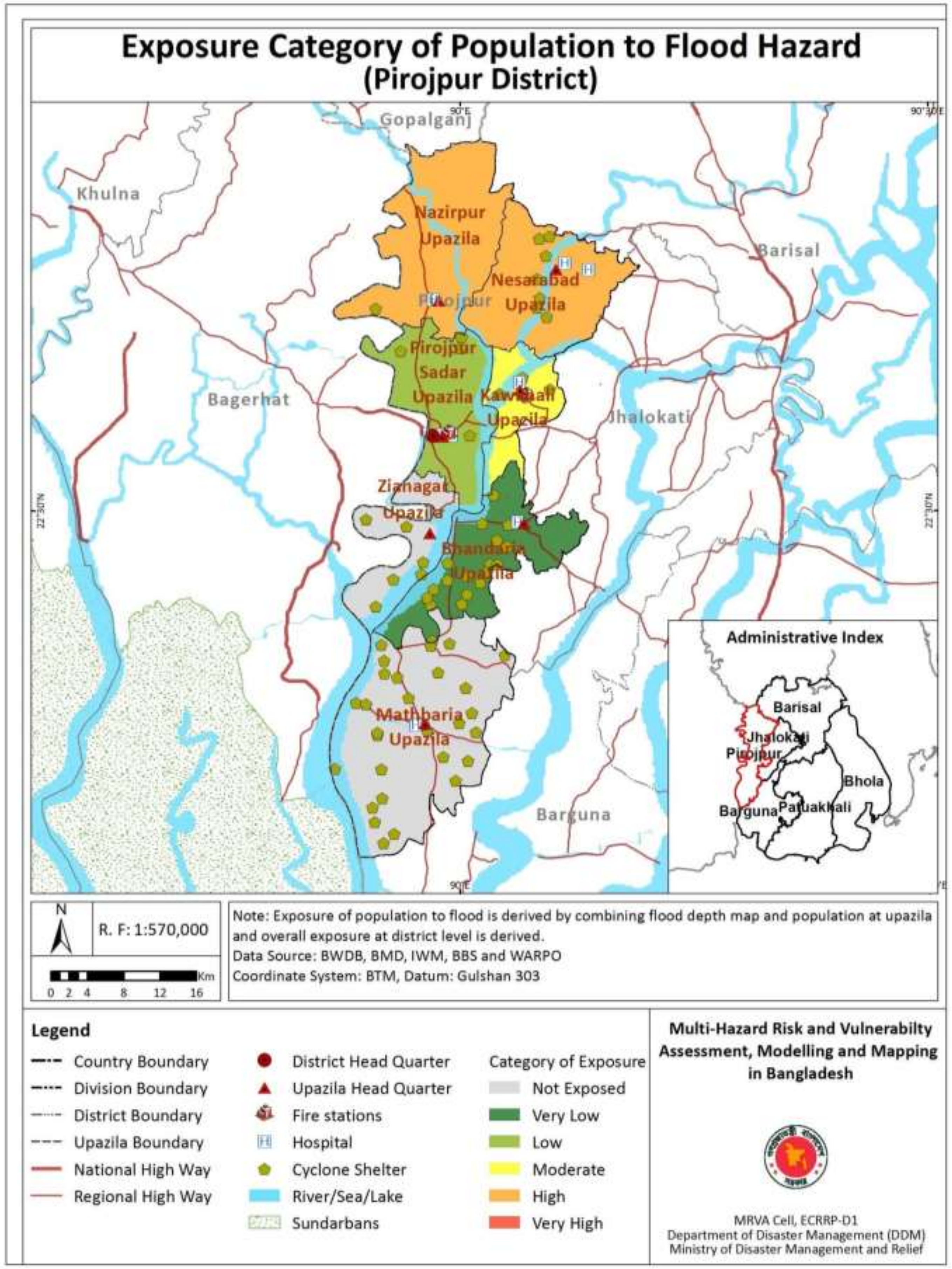
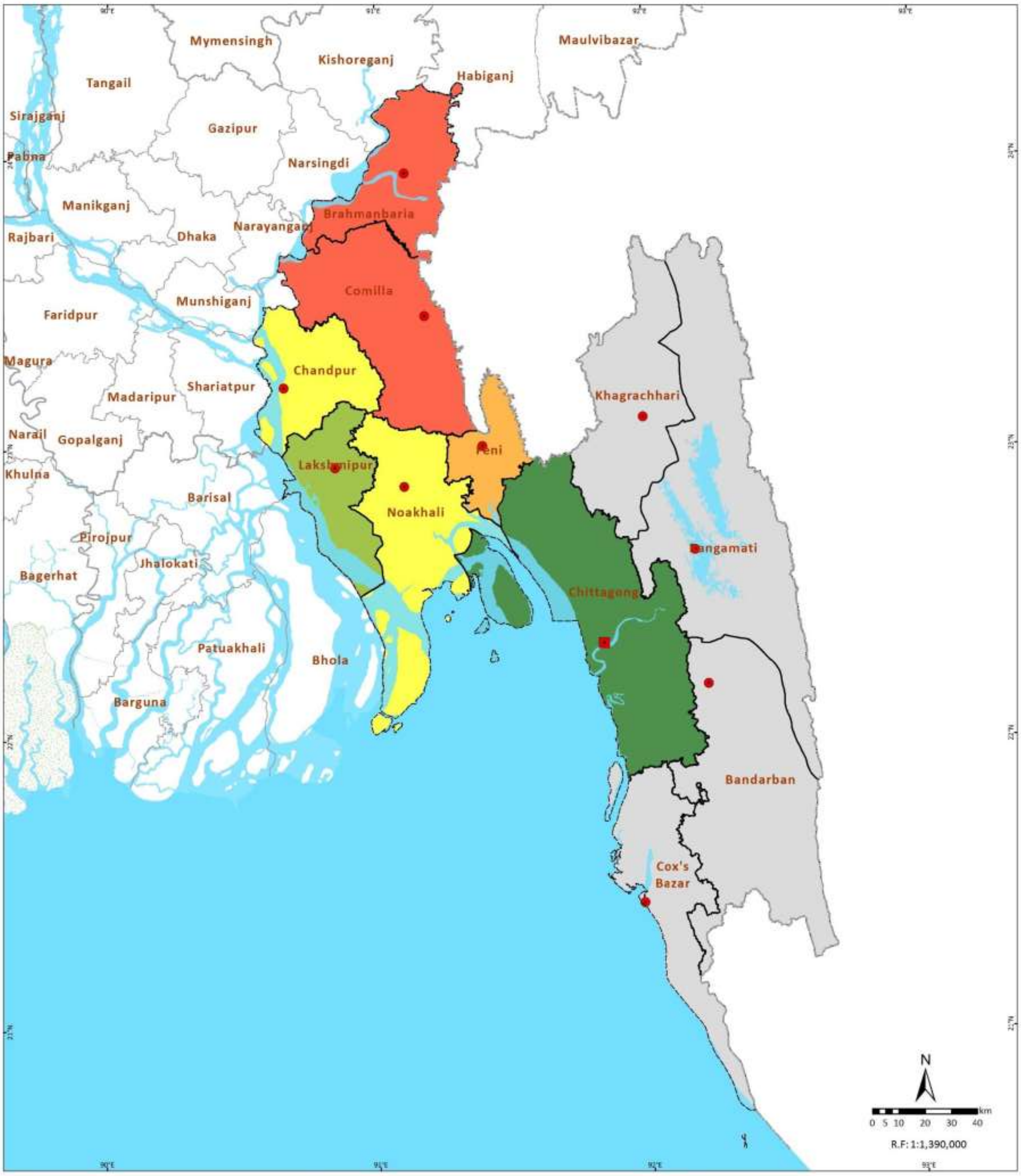

Exposure Category of Population to Flood Hazard
(Pirojpur District)
Gopalganj
Khulna
Nazirpur
Upazila
Nesarabad
Upazila
Barisal
Pirojpur
Sadar
Upazila
Kawkhali
Upazila
Bagerhat
Jhalokati
Zianagar
Upazila
Bhandaria
Upazila
Mathbaria
Upazila
Barguna
Administrative Index
Barisal
Jhalokati
Pirojpur
Bhola
Barguna
Patuakhali
N
R. F: 1:570,000
0 2 4 8 12 16 Km
Note: Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard
(Chittagong Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Risk Levels

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

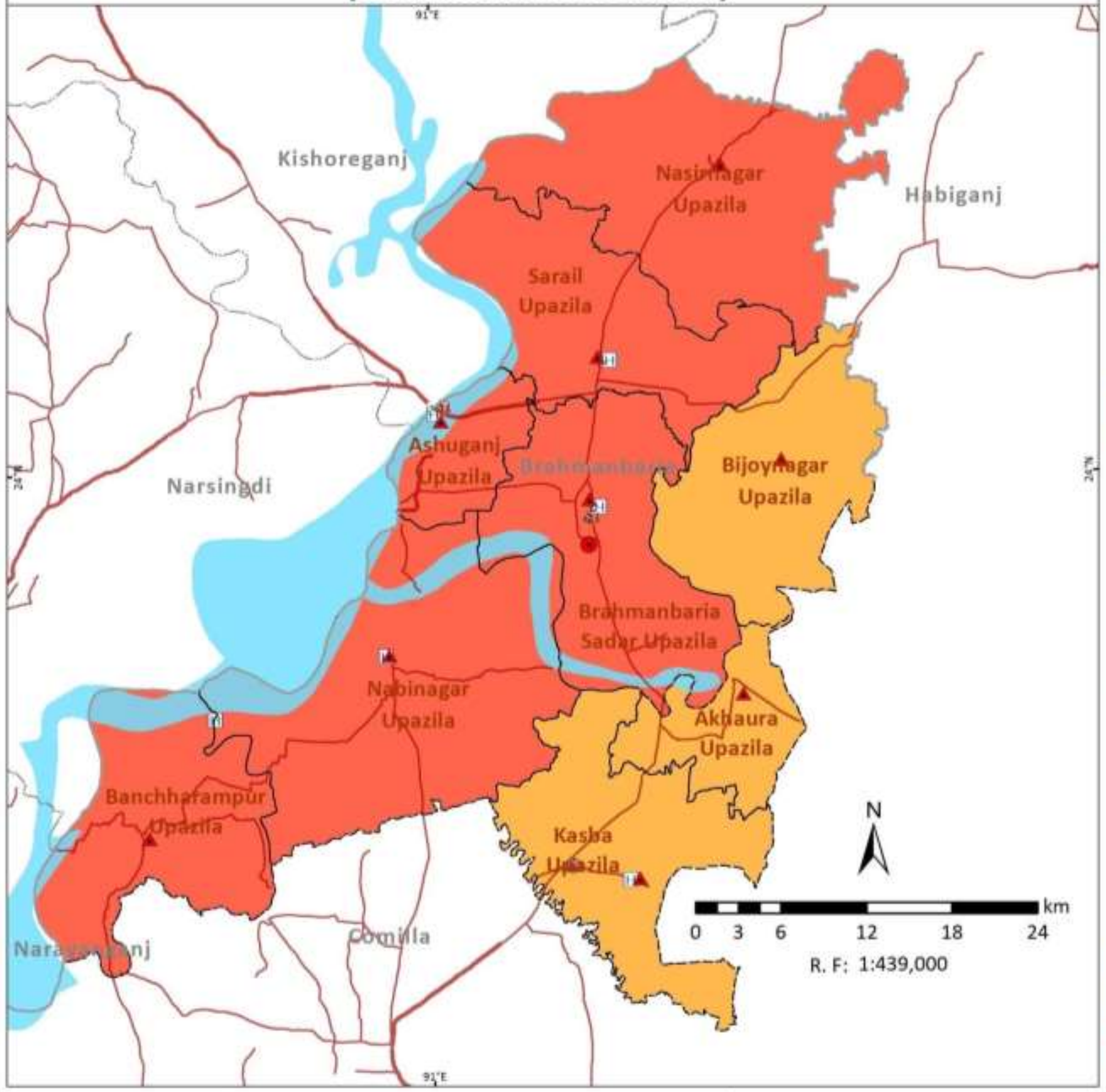
Administrative Index

Rangpur, Mymensingh, Sylhet, Rajshahi, Dhaka, Khulna, Barisal, Chittagong

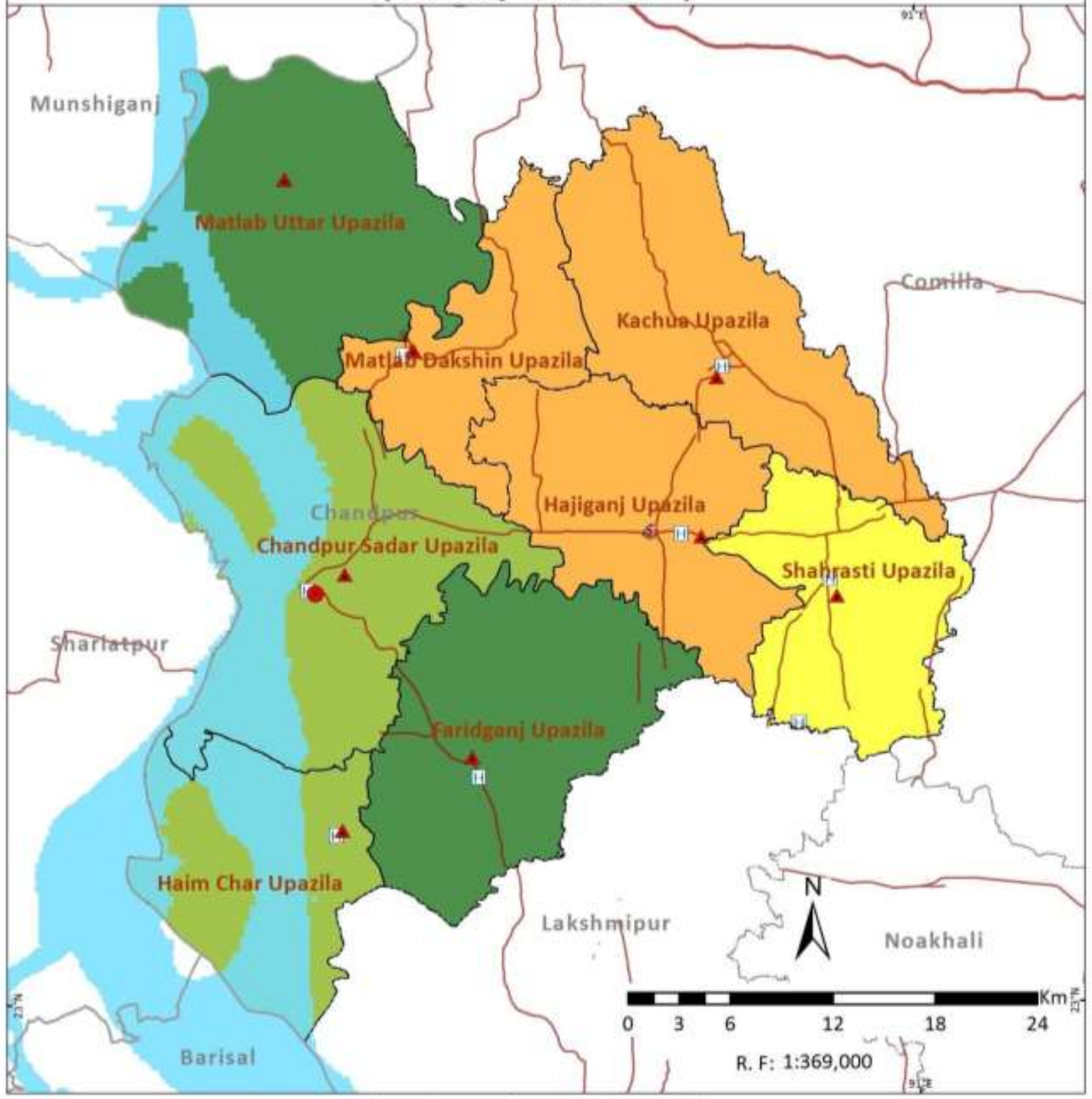
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard (Brahmanbaria District)



Exposure Category of Population to Flood Hazard (Chandpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Exposure Level

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

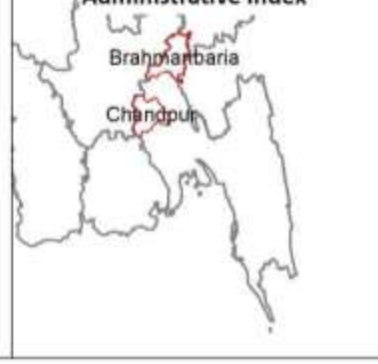
Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index



Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
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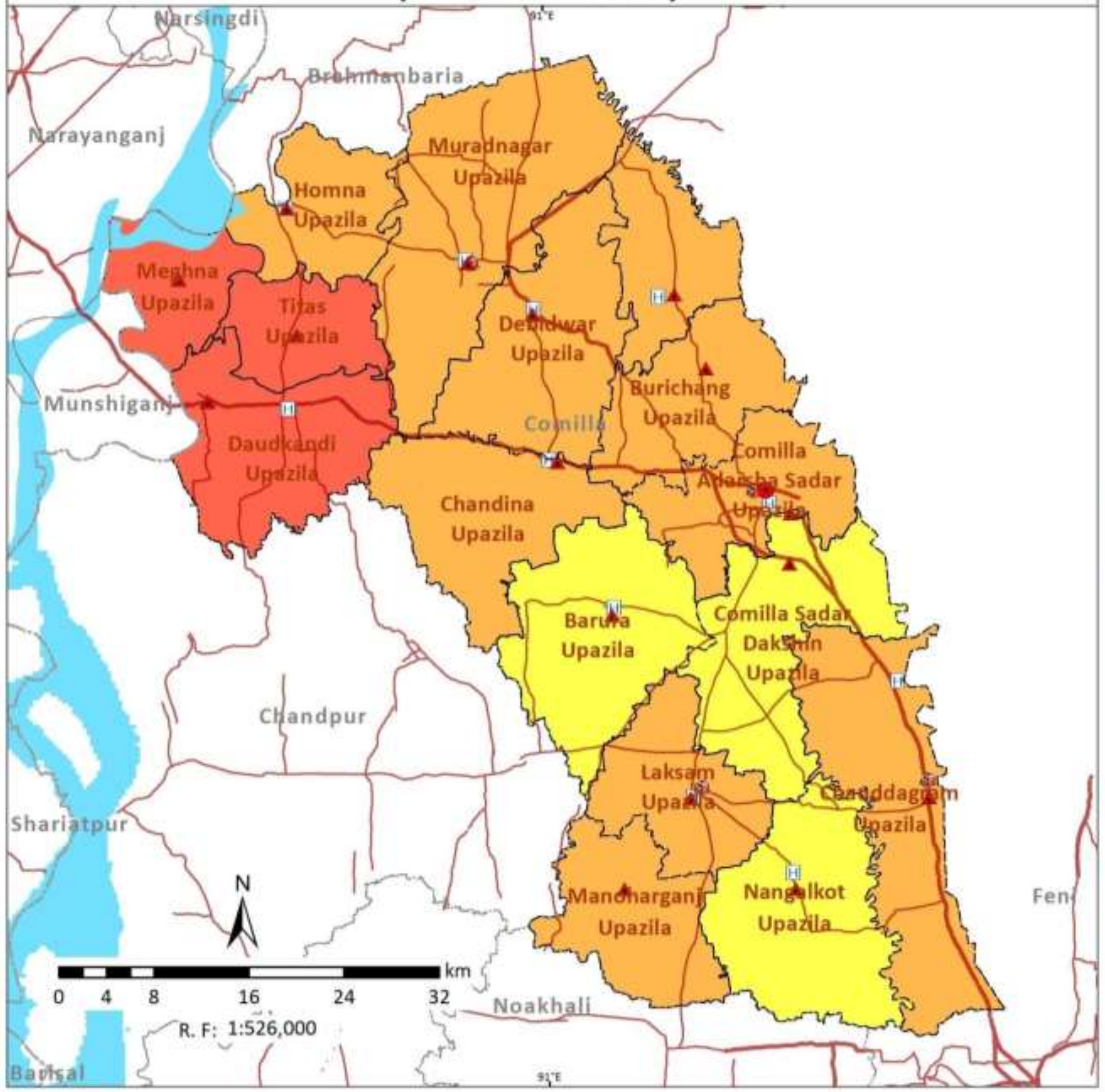
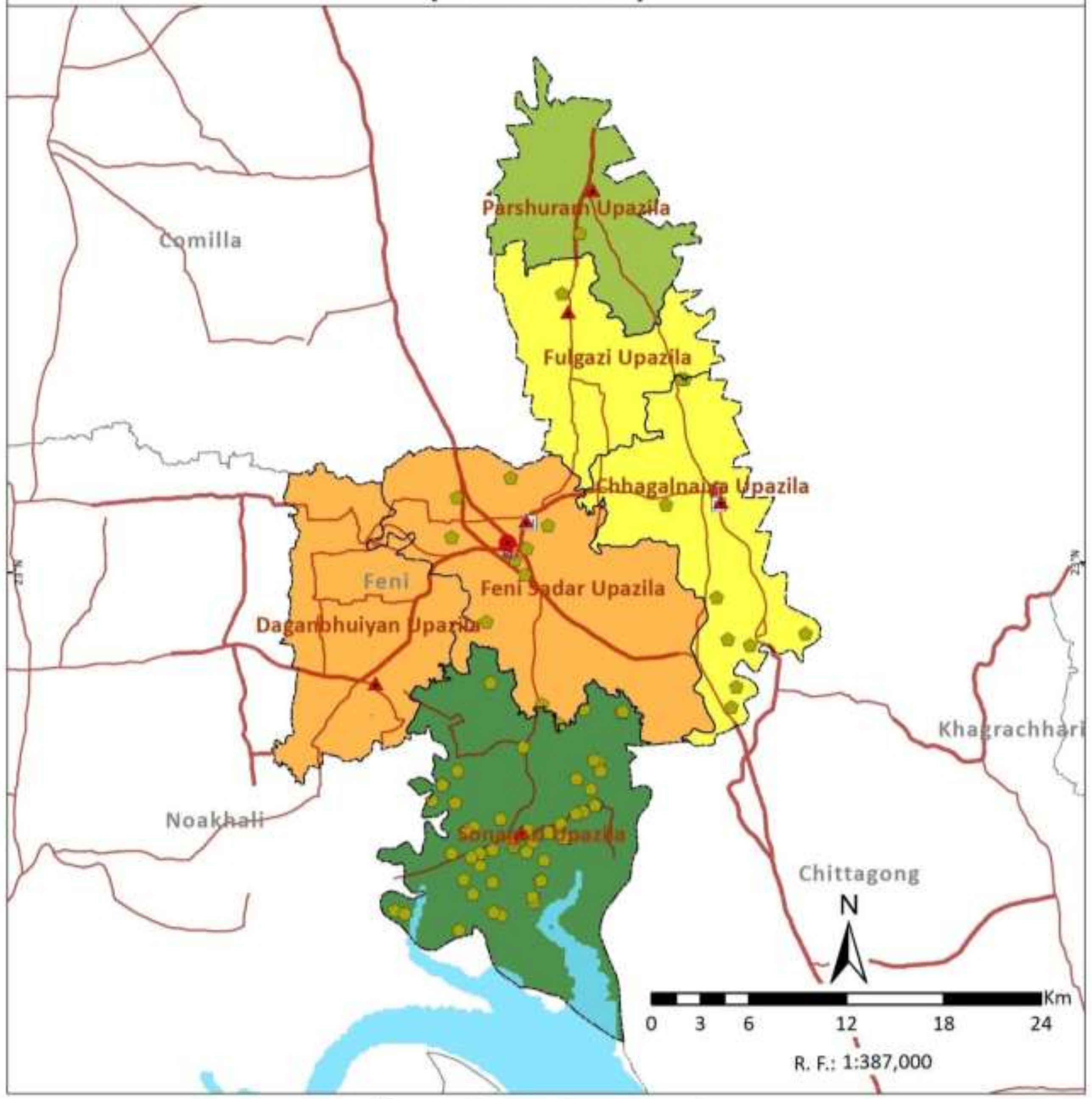
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard
(Comillal District)



Exposure Category of Population to Flood Hazard
(Feni District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Exposure Level

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
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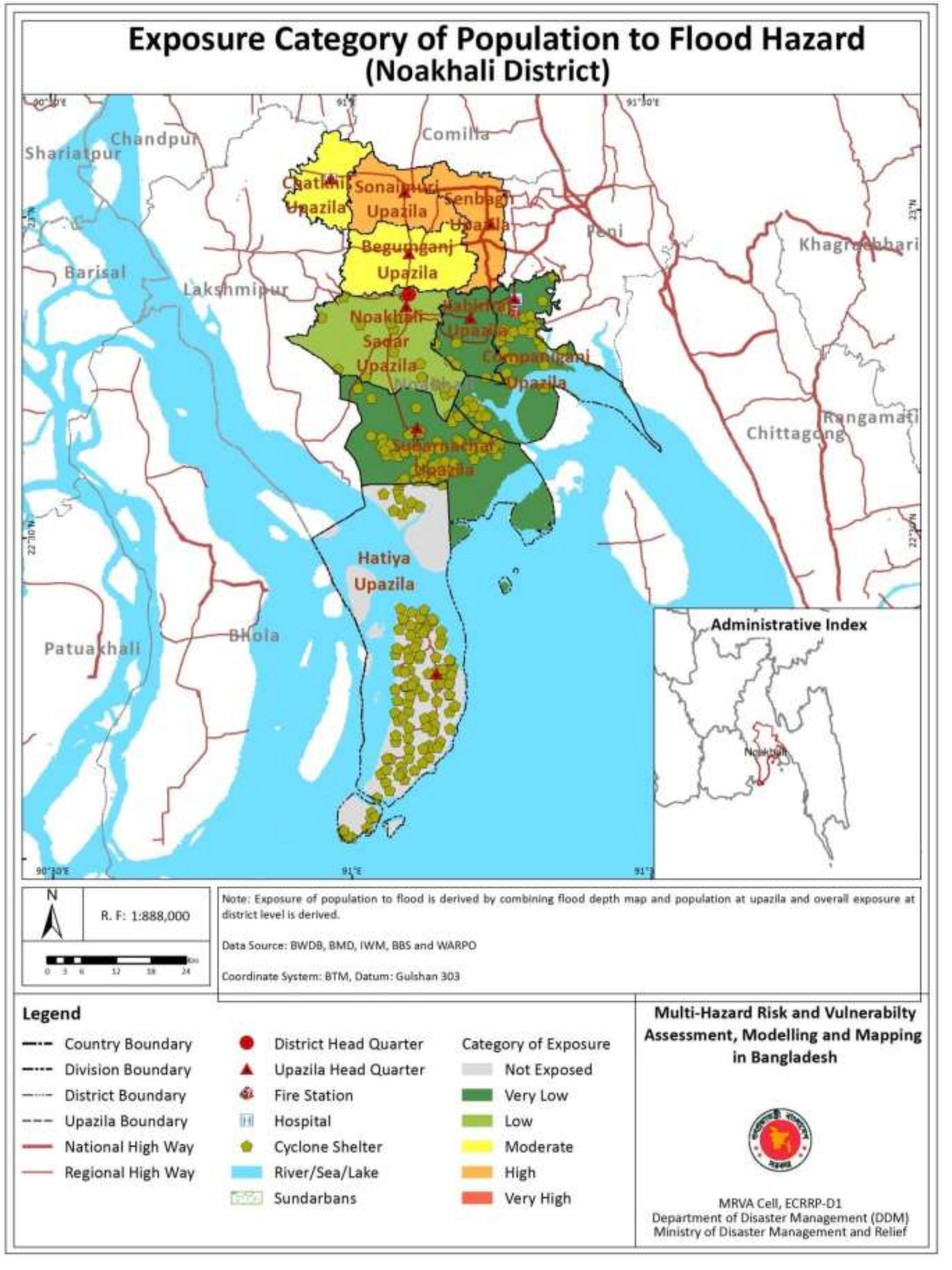
Exposure Category of Population to Flood Hazard
(Noakhali District)
Chandpur
Shariatpur
Comilla
Chatkhil Upazila
Sonaimuri Upazila
Senbagh Upazila
Begumganj Upazila
Feni
Khagrachhari
Barisal
Lakshmipur
Noakhali Sadar Upazila
Kabirhat Upazila
Companiganj Upazila
Subarnachar Upazila
Chittagong
Rangamati
Hatiya Upazila
Bhola
Patuakhali
Administrative Index
R. F: 1:888,000
Note: Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
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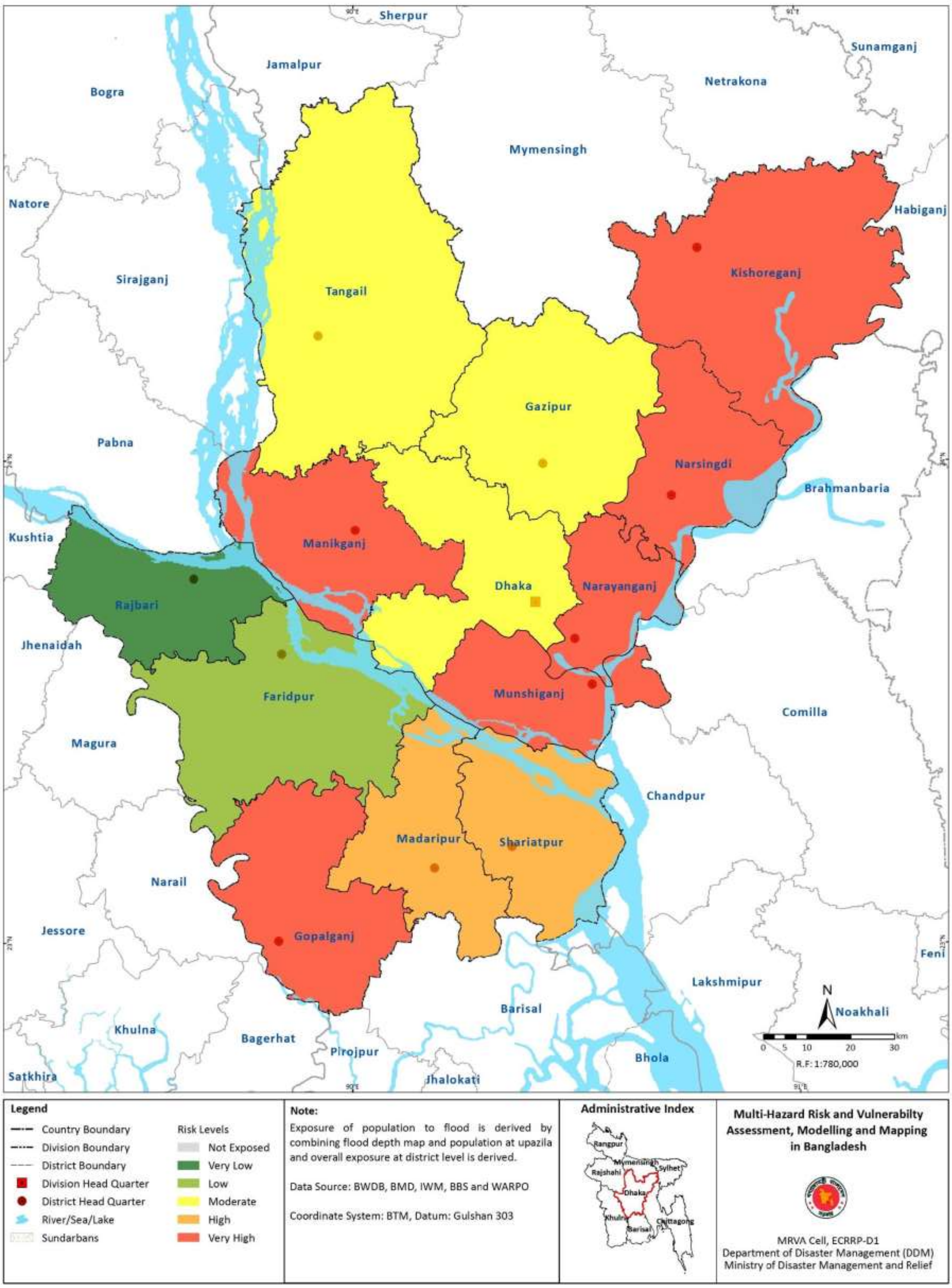
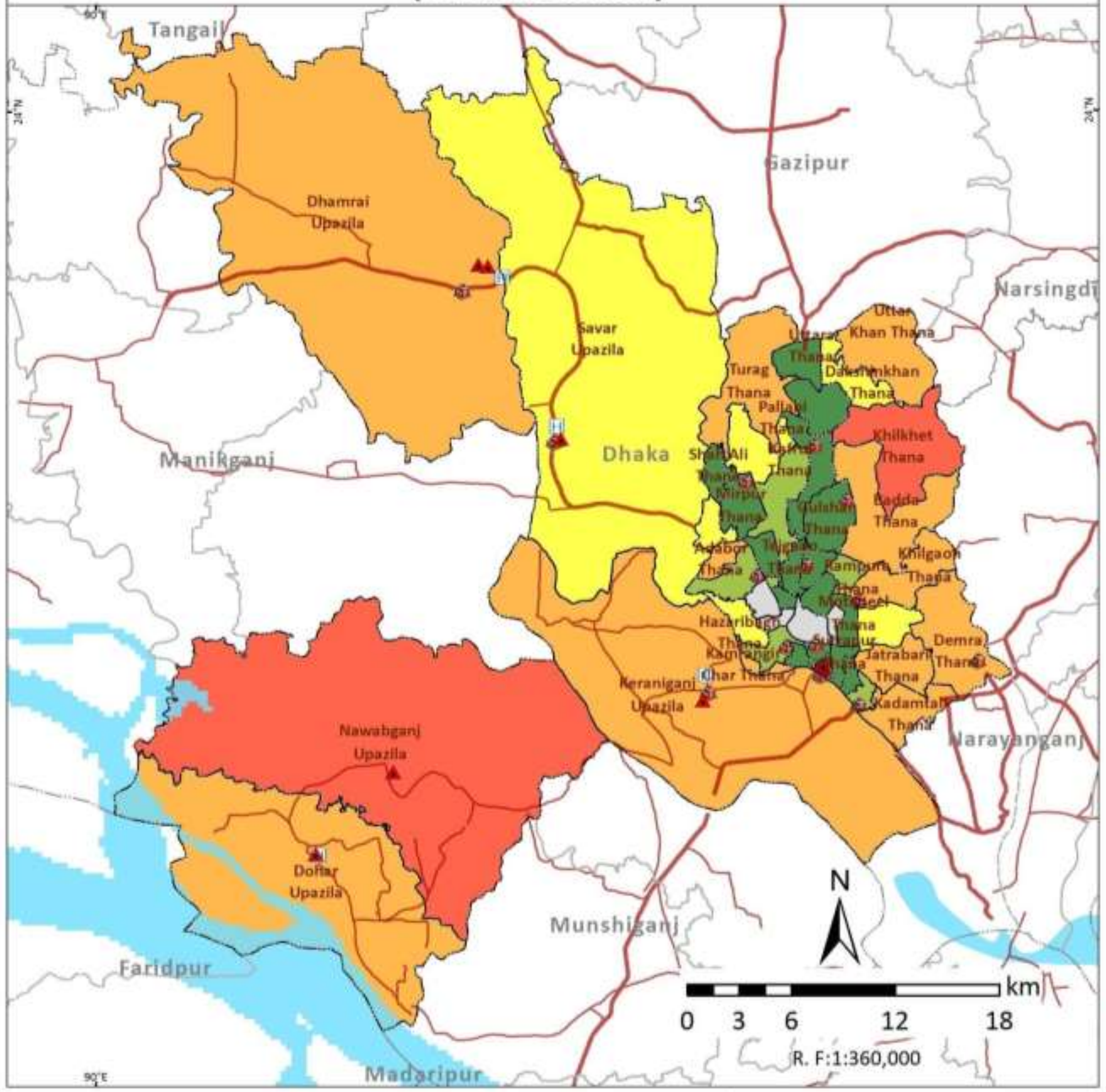
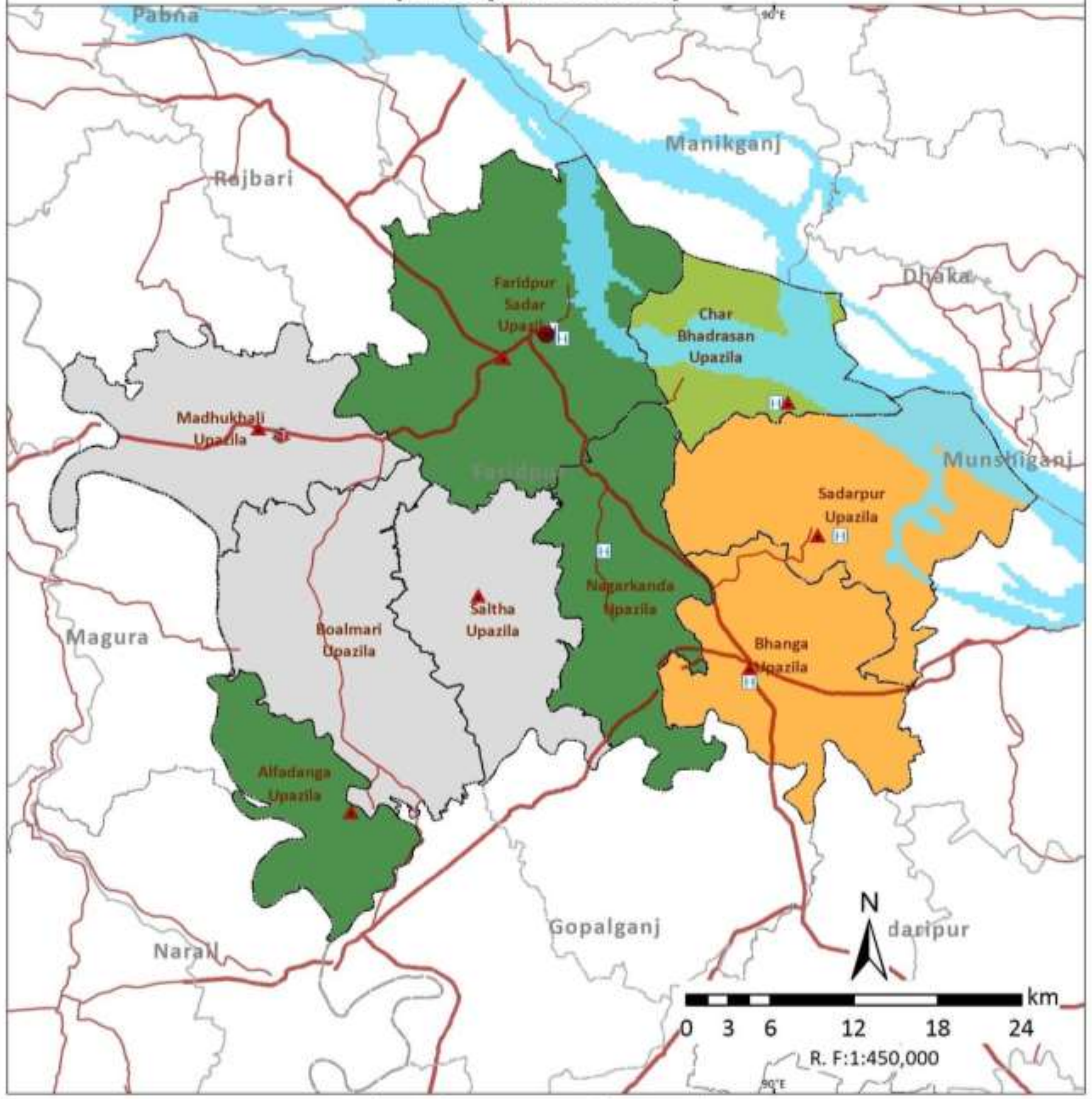
Exposure Category of Population to Flood Hazard
(Dhaka Division)



Exposure Category of Population to Flood Hazard
(Dhaka District)



Exposure Category of Population to Flood Hazard
(Faridpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Category of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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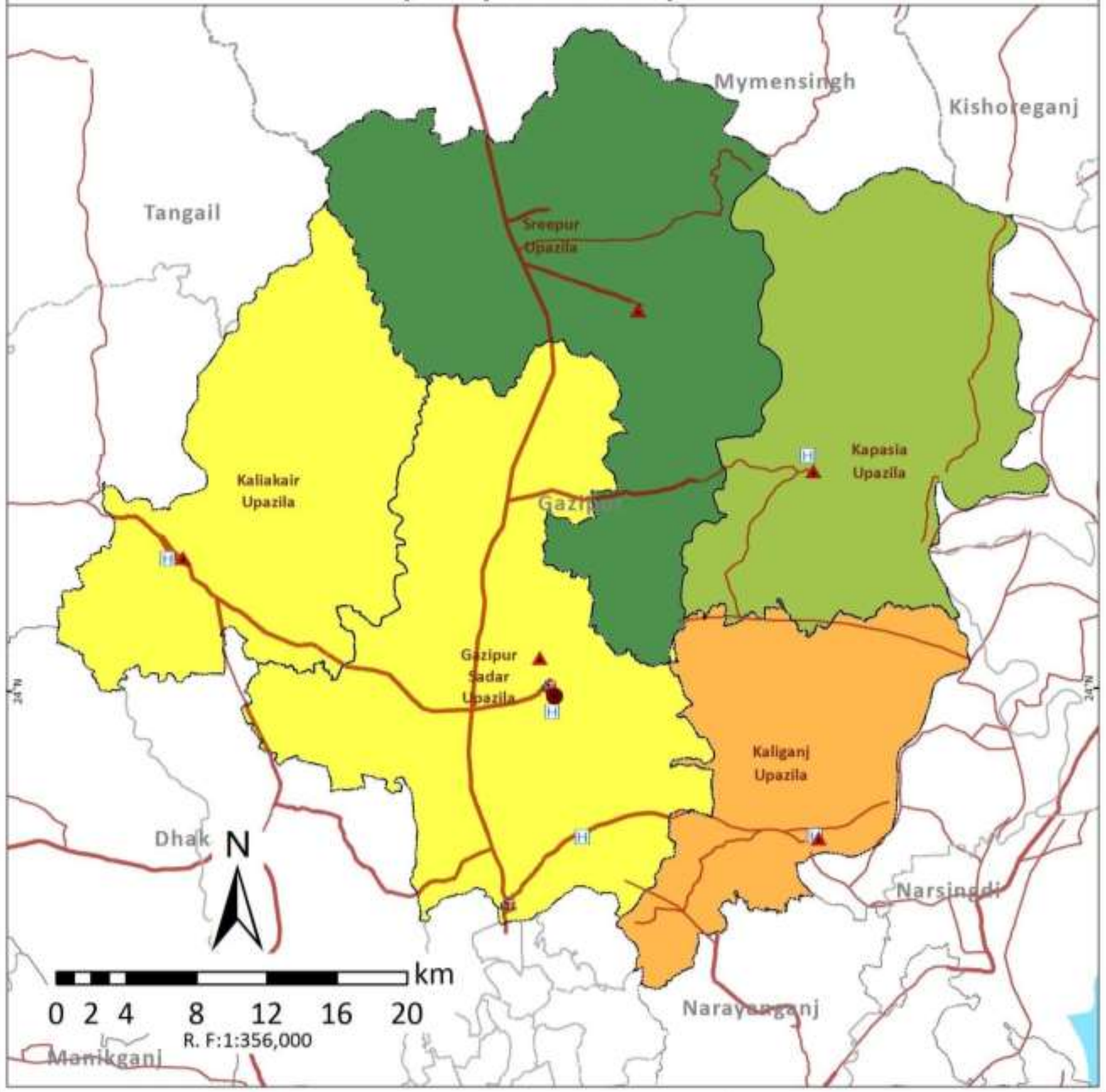
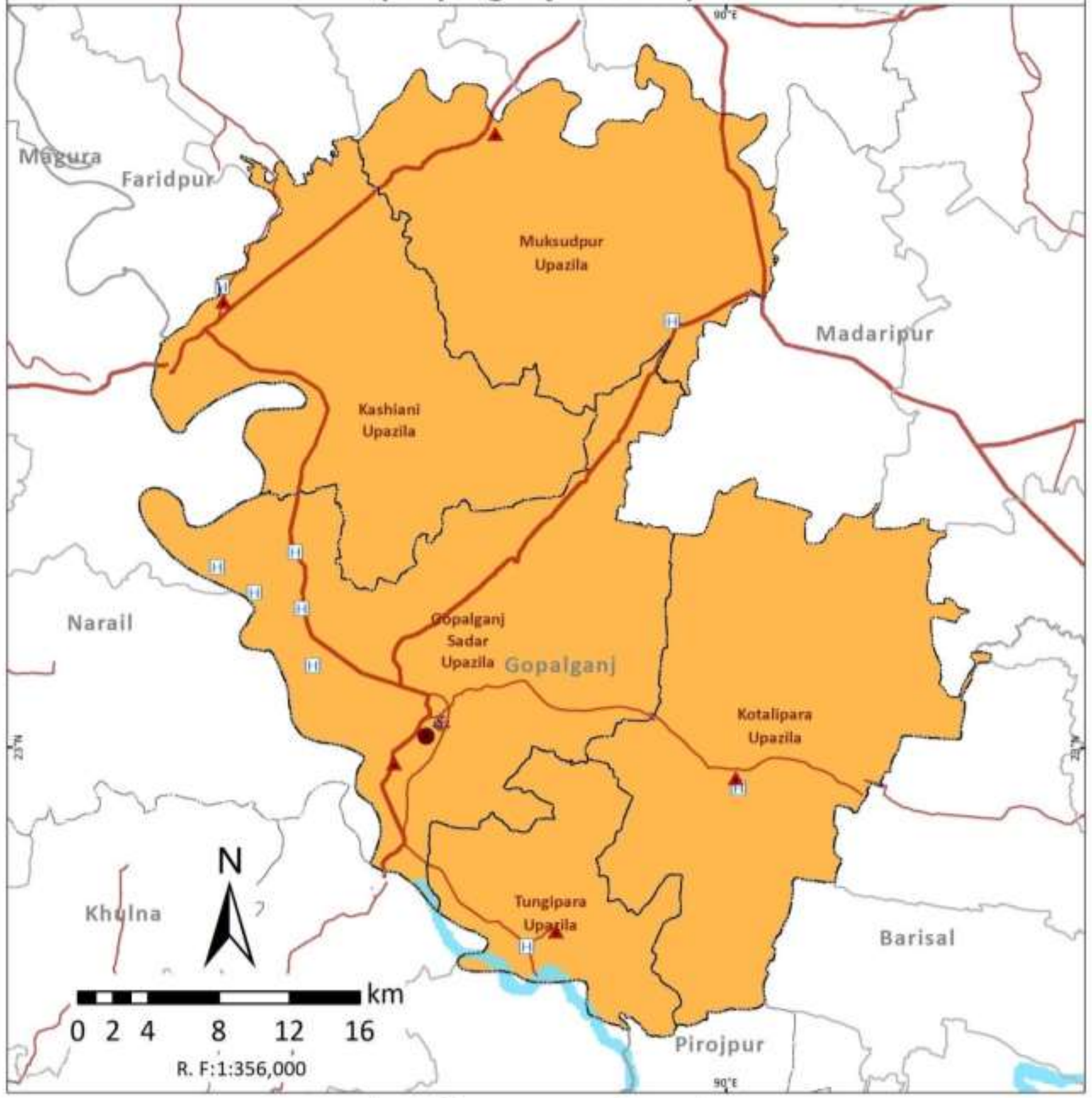
Exposure Category of Population to Flood Hazard
(Gazipur District)



Exposure Category of Population to Flood Hazard
(Gopalganj District)



Legend

Country Boundary	District Head Quarter	**Category of Exposure**
Division Boundary	Upazila Head Quarter	Not Exposed
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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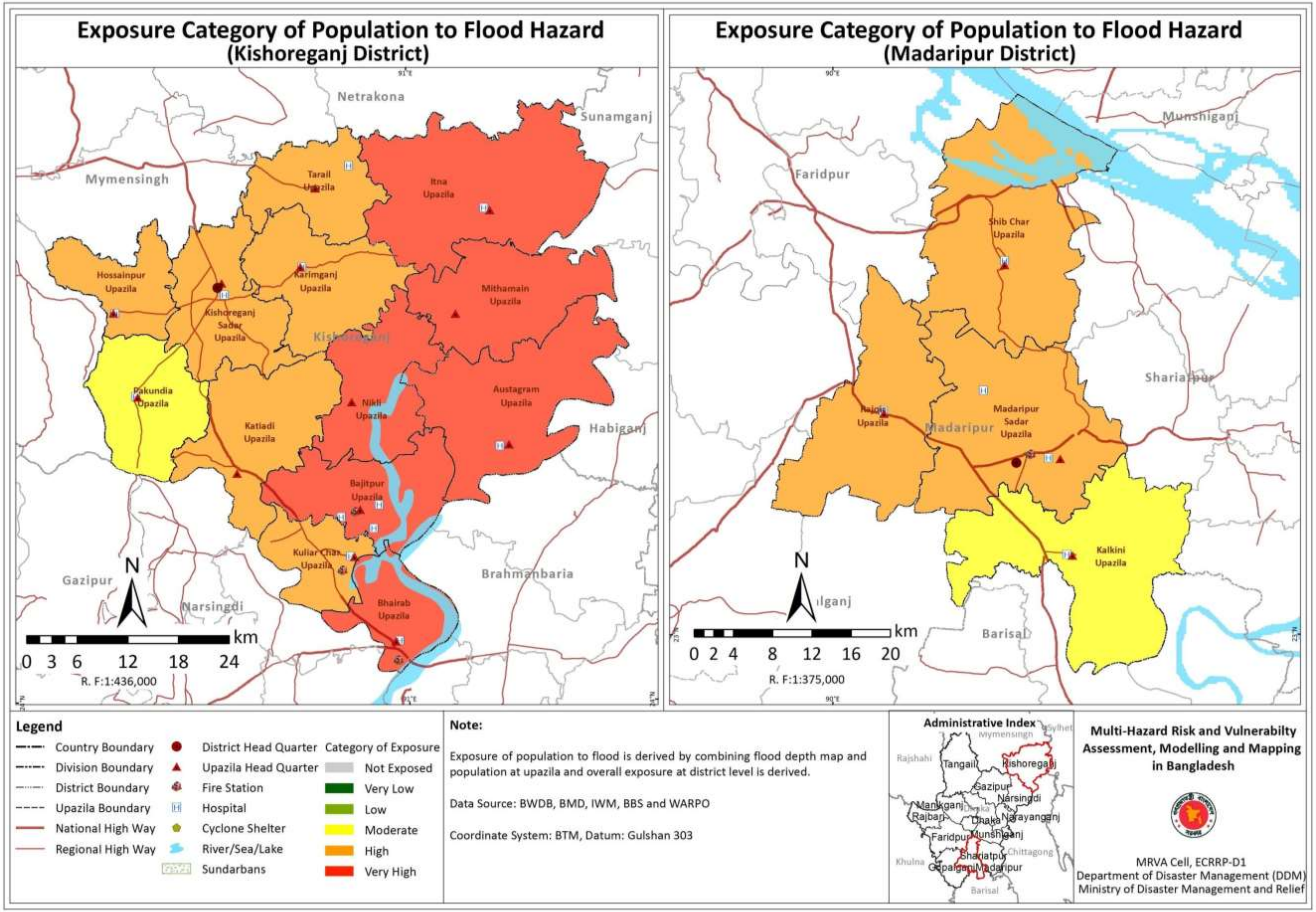
Exposure Category of Population to Flood Hazard
(Kishoreganj District)
Netrakona
Sunamganj
Mymensingh
Tarail Upazila
Itna Upazila
Hossainpur Upazila
Karimganj Upazila
Mithamain Upazila
Kishoreganj Sadar Upazila
Kishoreganj
Pakundia Upazila
Austagram Upazila
Nikli Upazila
Katiadi Upazila
Habiganj
Bajitpur Upazila
Kuliar Char Upazila
Brahmanbaria
Gazipur
Narsingdi
Bhairab Upazila
km
0 3 6 12 18 24
R. F:1:436,000
Exposure Category of Population to Flood Hazard
(Madaripur District)
Munshiganj
Faridpur
Shib Char Upazila
Shariatpur
Rajoir Upazila
Madaripur
Madaripur Sadar Upazila
Kalkini Upazila
Barisal
km
0 2 4 8 12 16 20
R. F:1:375,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Note:
Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Sylhet
Mymensingh
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Chittagong
Khulna
Shariatpur
Gopalganj
Madaripur
Barisal
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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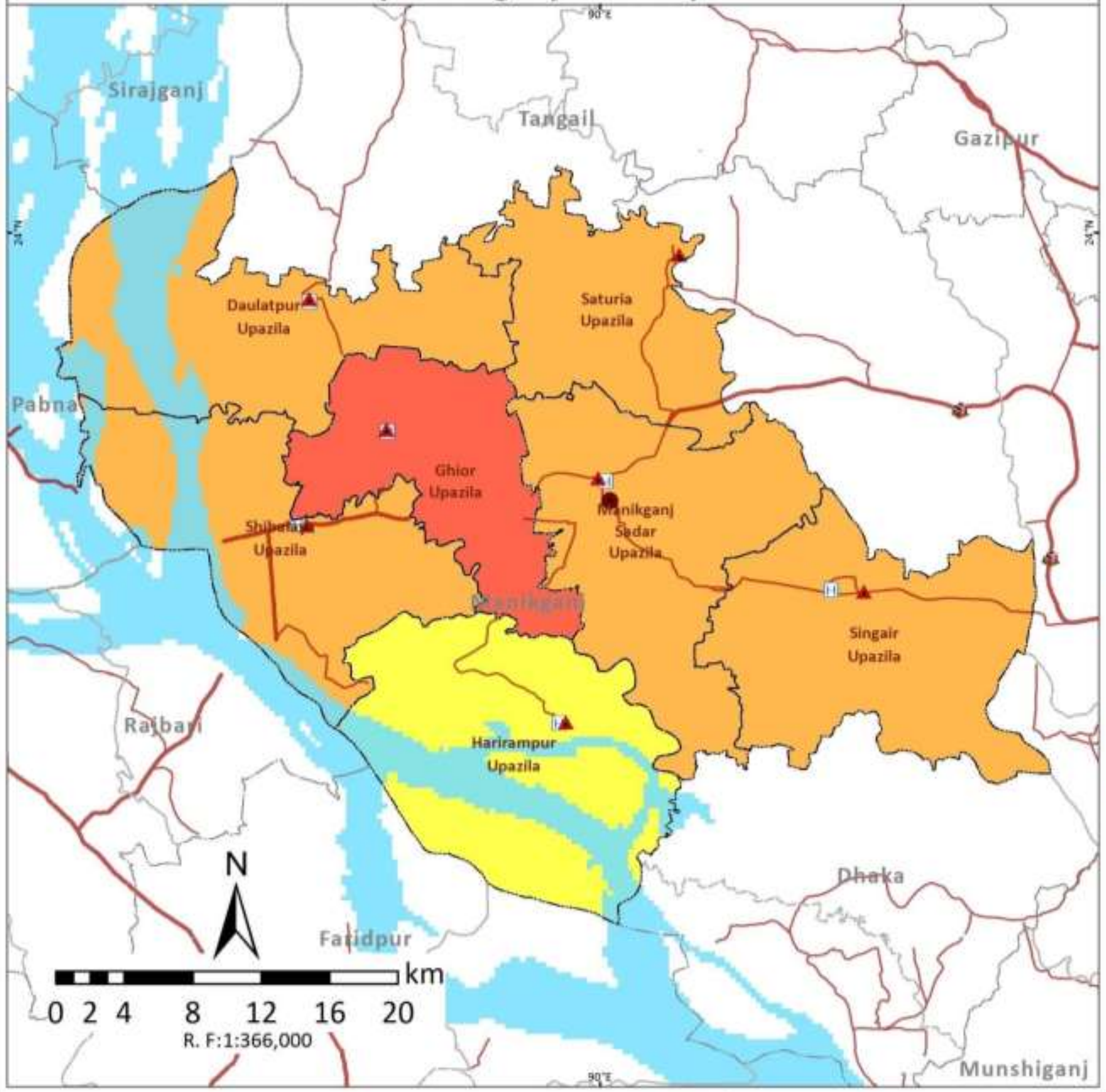
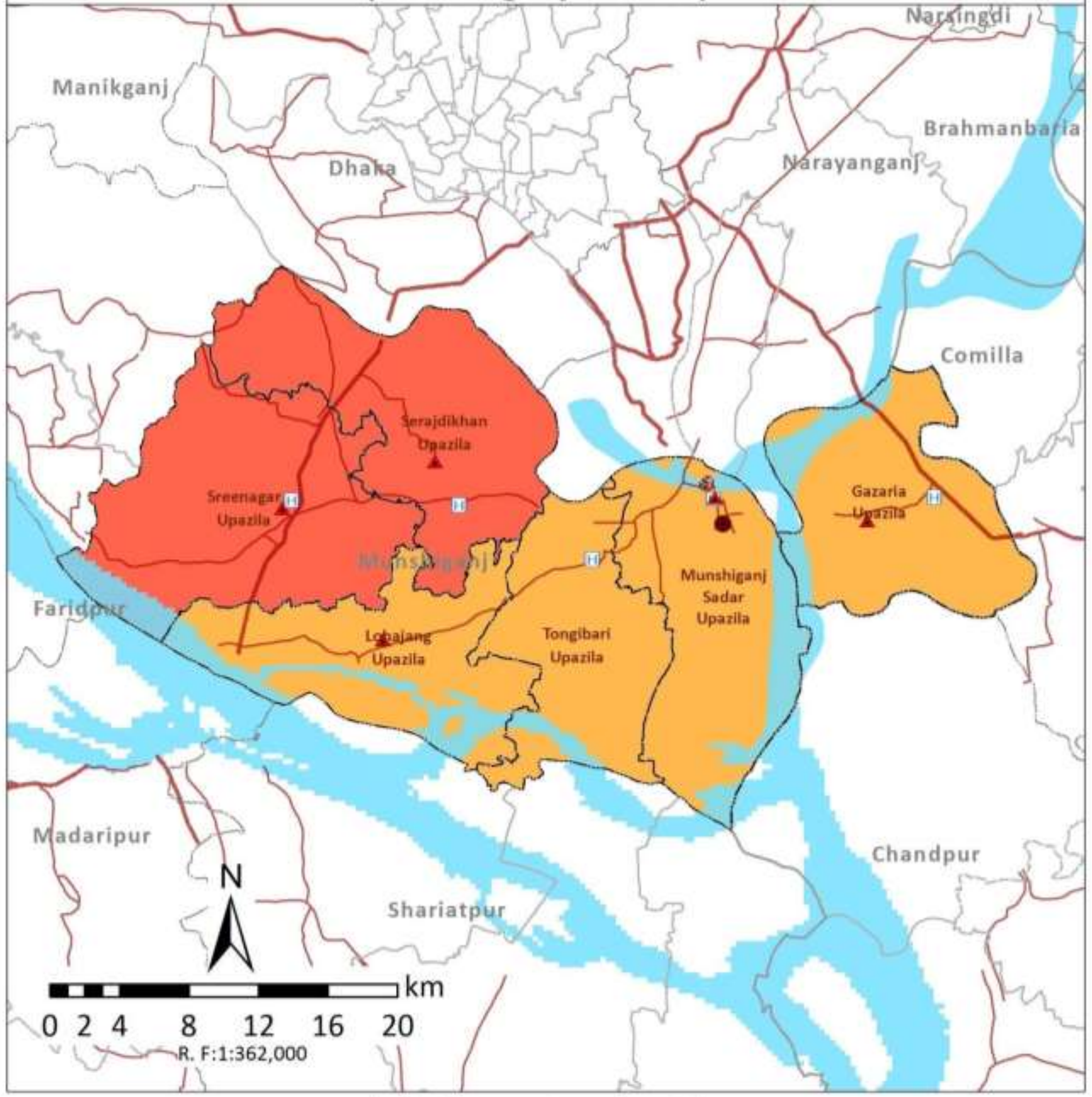
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard (Manikganj District)



Exposure Category of Population to Flood Hazard (Munshiganj District)



Legend

Country Boundary	District Head Quarter	Category of Exposure
Division Boundary	Upazila Head Quarter	Not Exposed
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

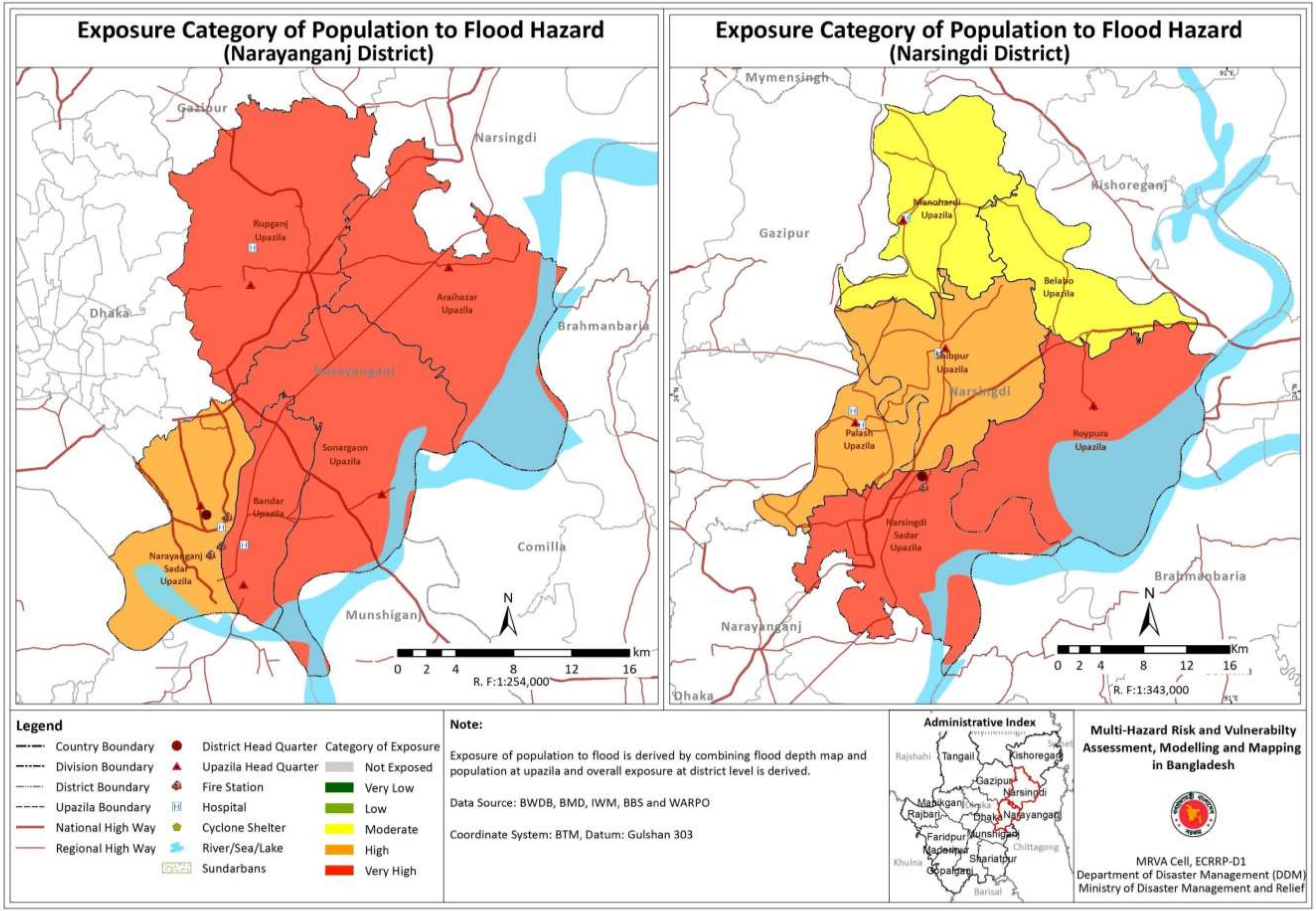
Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Exposure Category of Population to Flood Hazard
(Narayanganj District)
Gazipur
Narsingdi
Dhaka
Brahmanbaria
Comilla
Munshiganj
Narayanganj
Rupganj Upazila
Araihazar Upazila
Sonargaon Upazila
Bandar Upazila
Narayanganj Sadar Upazila
N
km
0 2 4 8 12 16
R. F:1:254,000
Exposure Category of Population to Flood Hazard
(Narsingdi District)
Mymensingh
Kishoreganj
Gazipur
Brahmanbaria
Narayanganj
Dhaka
Narsingdi
Manohardi Upazila
Belabo Upazila
Shibpur Upazila
Palash Upazila
Roypura Upazila
Narsingdi Sadar Upazila
N
Km
0 2 4 8 12 16
R. F:1:343,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Note:
Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Madaripur
Shariatpur
Chittagong
Khulna
Gopalganj
Barisal
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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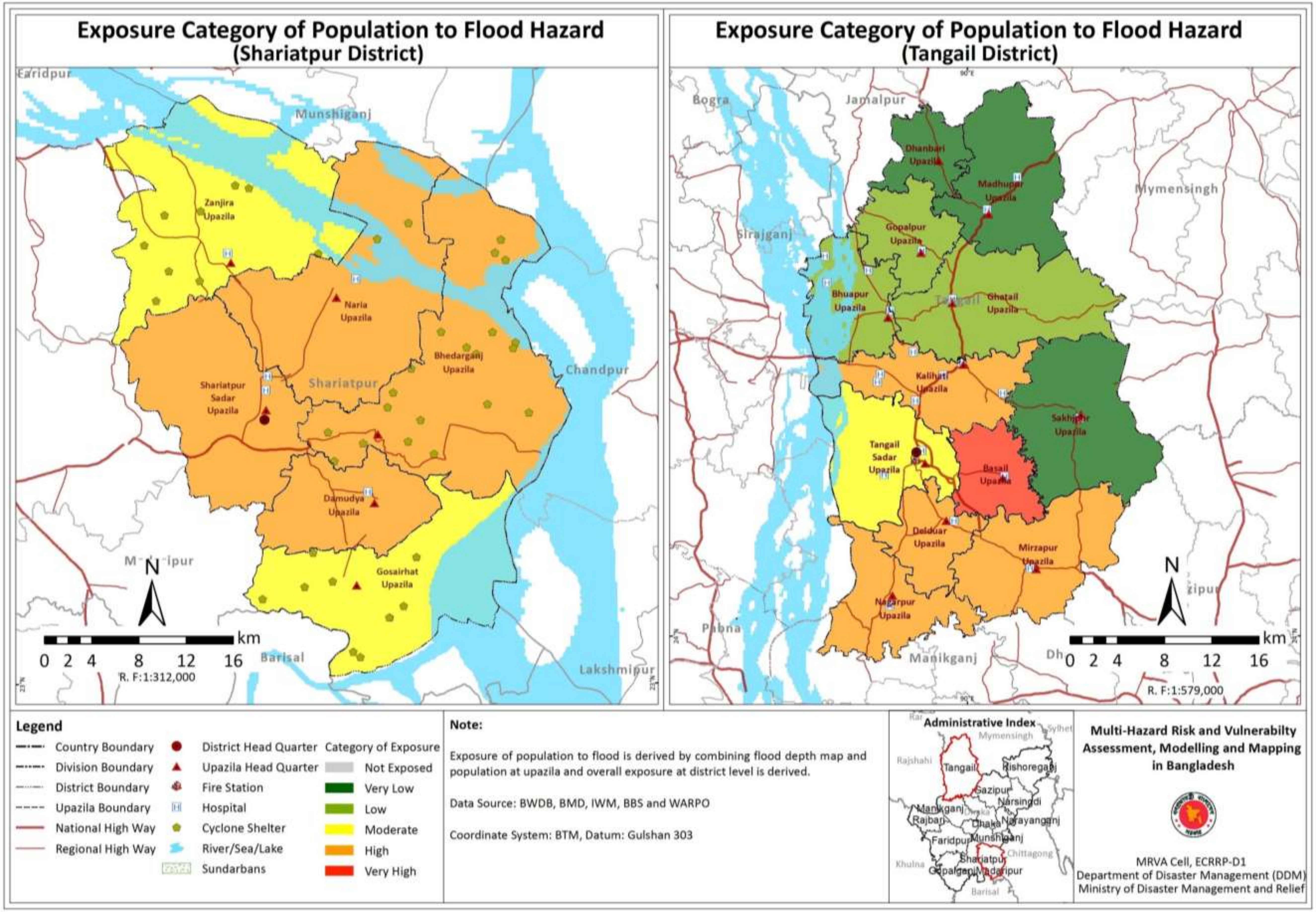
Exposure Category of Population to Flood Hazard
(Shariatpur District)
Faridpur
Munshiganj
Zanjira Upazila
Naria Upazila
Bhedarganj Upazila
Shariatpur Sadar Upazila
Shariatpur
Chandpur
Damudya Upazila
Gosairhat Upazila
Barisal
Lakshmipur
N
km
0 2 4 8 12 16
R. F:1:312,000
Exposure Category of Population to Flood Hazard
(Tangail District)
Bogra
Jamalpur
Dhanbari Upazila
Madhupur Upazila
Mymensingh
Gopalpur Upazila
Sirajganj
Bhuapur Upazila
Ghatail Upazila
Kalihati Upazila
Sakhipur Upazila
Tangail Sadar Upazila
Basail Upazila
Delduar Upazila
Mirzapur Upazila
Nagarpur Upazila
Pabna
Manikganj
N
km
0 2 4 8 12 16
R. F:1:579,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Note:
Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Mymensingh
Sylhet
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Shariatpur
Chittagong
Khulna
Gopalganj
Madaripur
Barisal
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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Department of Disaster Management (DDM)
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Exposure Category of Population to Flood Hazard
(Khulna Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Risk Levels

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

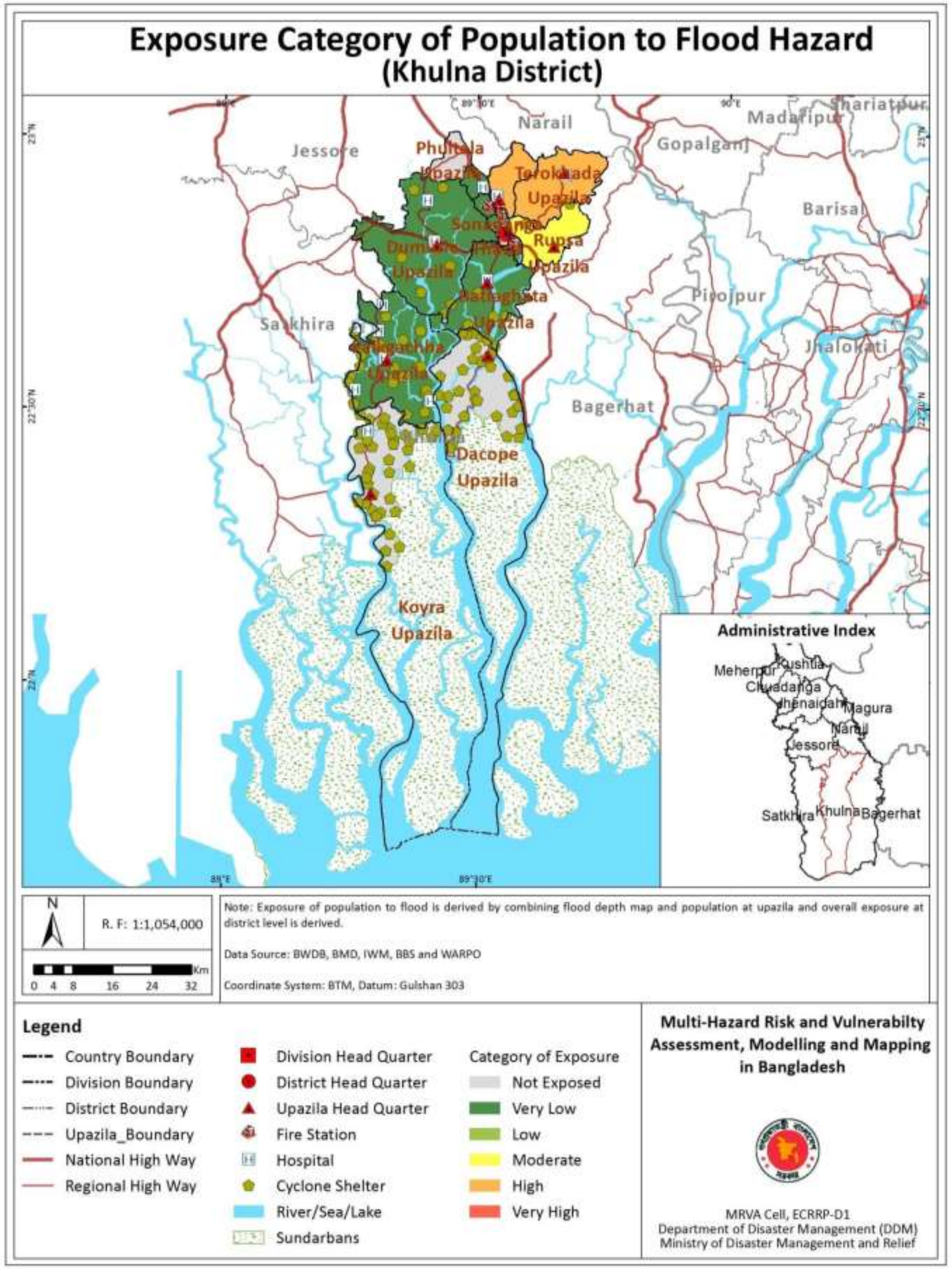
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Rangpur, Rajshahi, Mymensingh, Sylhet, Dhaka, Khulna, Barisal, Chittagong

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Exposure Category of Population to Flood Hazard
(Khulna District)
Narail
Jessore
Madaripur
Gopalganj
Barisal
Pirojpur
Jhalokati
Bagerhat
Dacope
Upazila
Koyra
Upazila
Administrative Index
Meherpur
Kushtia
Chuadanga
Jhenaidah
Magura
Narail
Jessore
Satkhira
Khulna
Bagerhat
R. F: 1:1,054,000
0 4 8 16 24 32 Km
Note: Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
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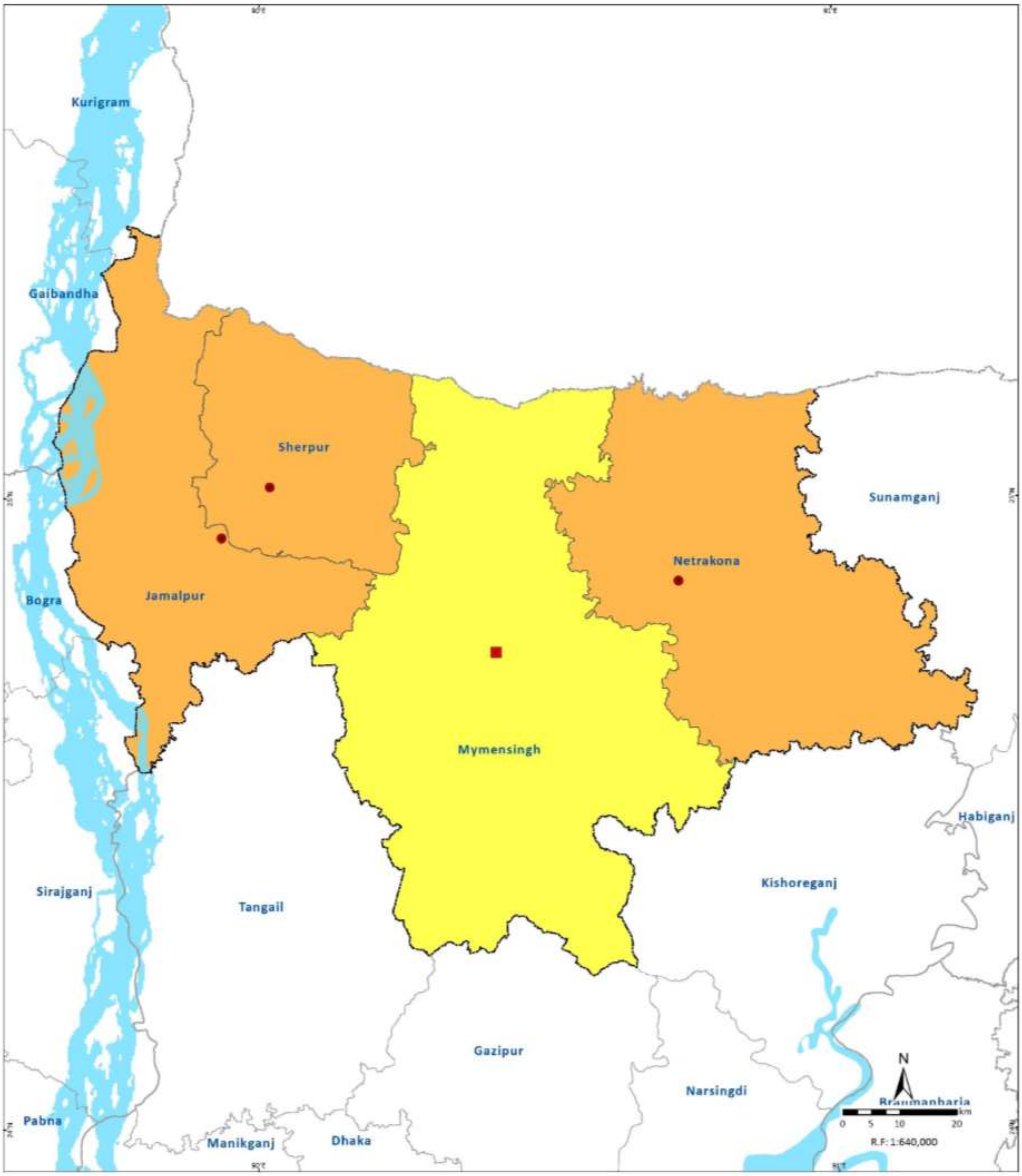
Exposure Category of Population to Flood Hazard
(Mymensingh Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Risk Levels

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
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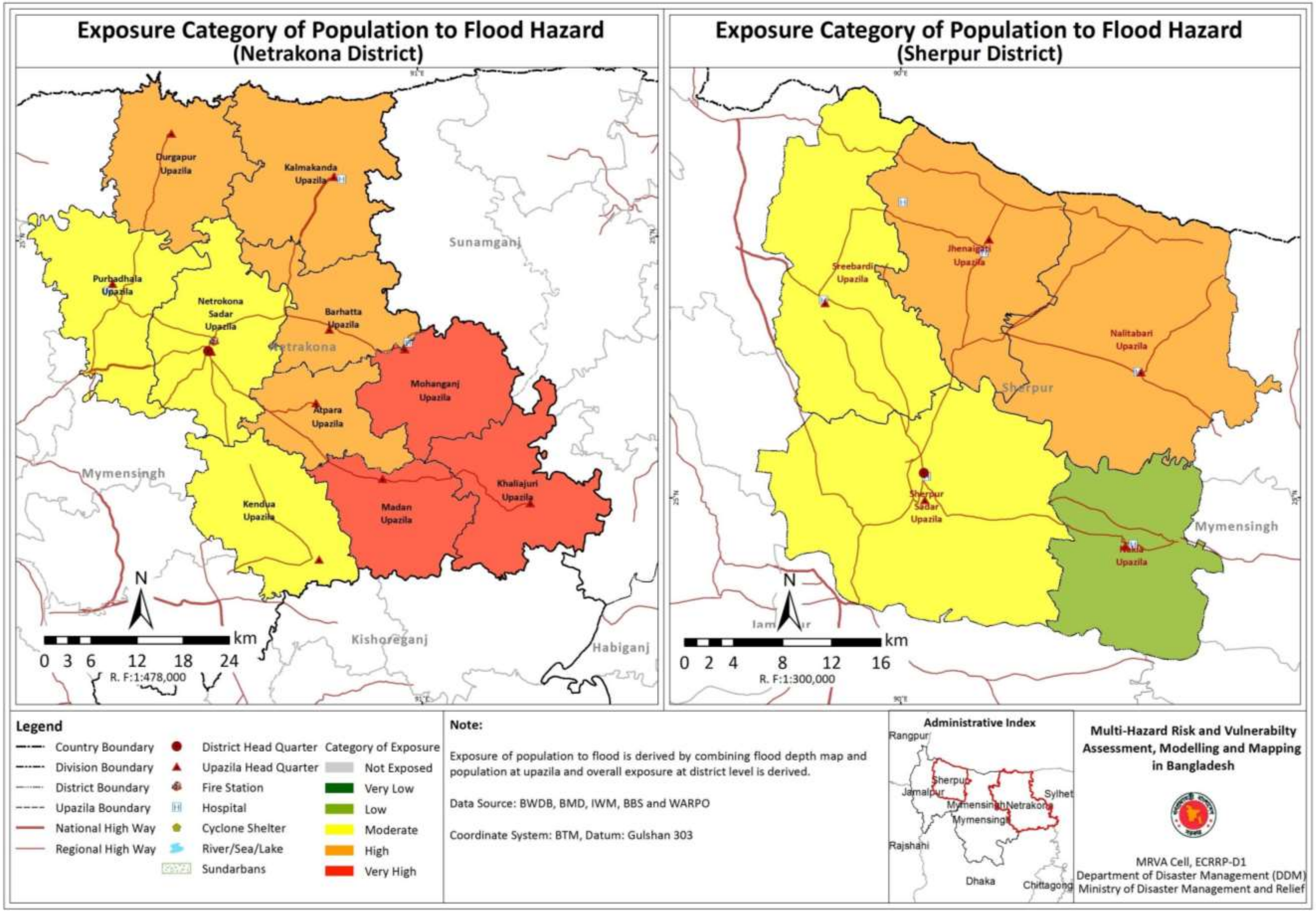
Exposure Category of Population to Flood Hazard
(Netrakona District)
Durgapur Upazila
Kalmakanda Upazila
Purbadhala Upazila
Netrokona Sadar Upazila
Barhatta Upazila
Atpara Upazila
Mohanganj Upazila
Khaliajuri Upazila
Madan Upazila
Kendua Upazila
Netrakona
Sunamganj
Mymensingh
Kishoreganj
Habiganj
N
km
0 3 6 12 18 24
R. F:1:478,000
Exposure Category of Population to Flood Hazard
(Sherpur District)
Sreebardi Upazila
Jhenaigati Upazila
Nalitabari Upazila
Sherpur
Sherpur Sadar Upazila
Nakla Upazila
Mymensingh
N
km
0 2 4 8 12 16
R. F:1:300,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Note:
Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Sherpur
Jamalpur
Mymensingh
Netrakona
Sylhet
Rajshahi
Dhaka
Chittagong
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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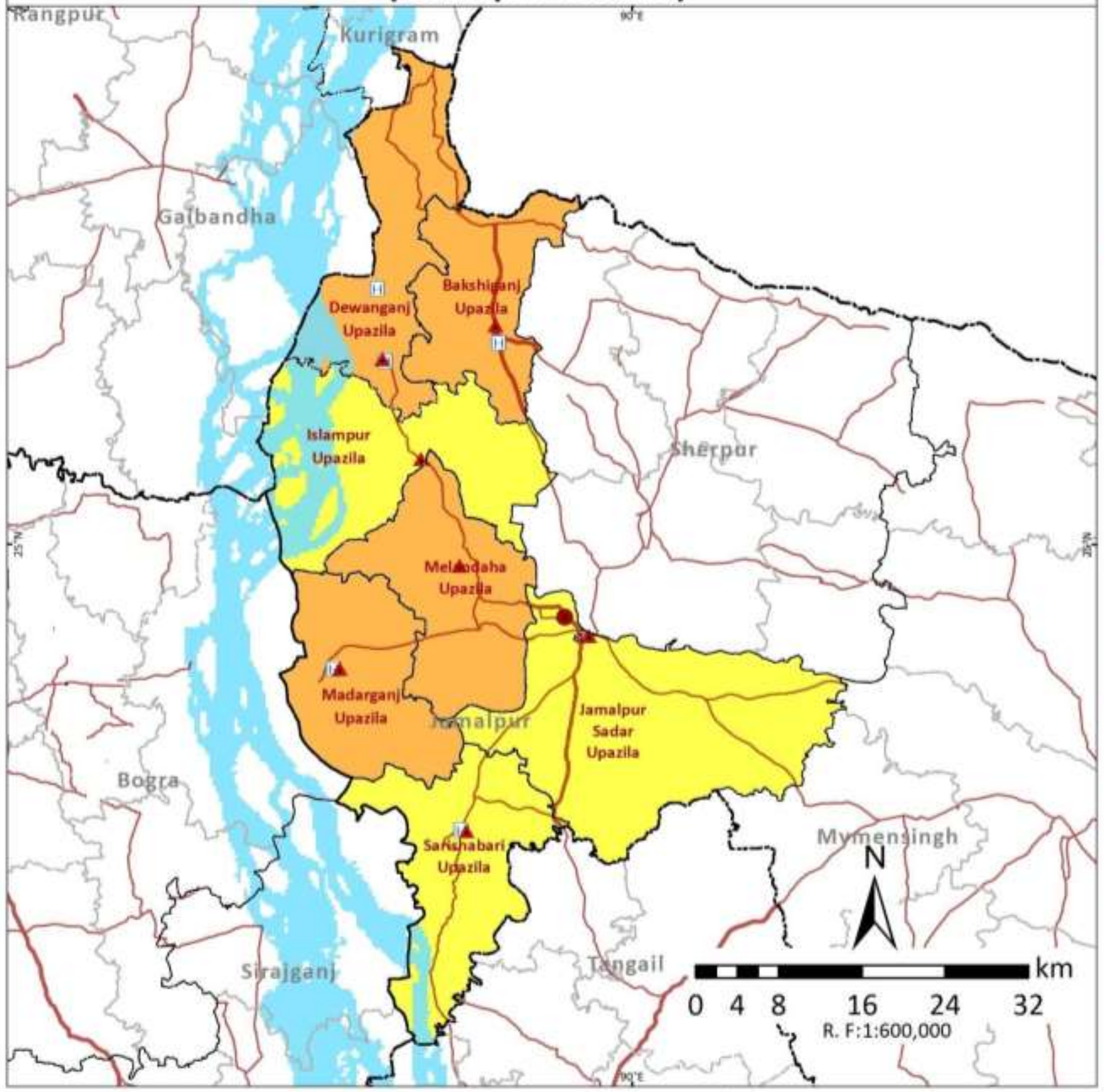
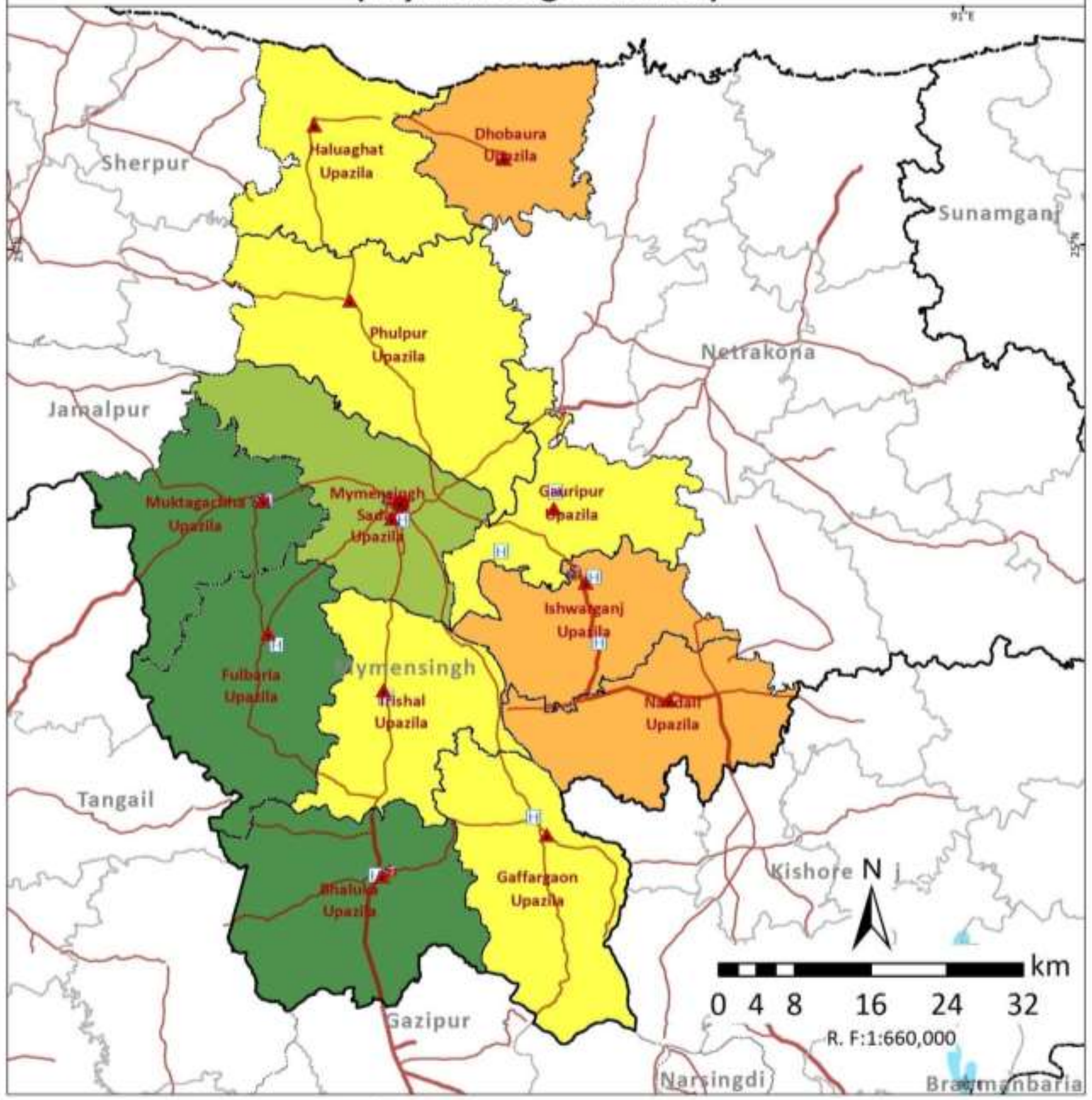
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard (Jamalpur District)



Exposure Category of Population to Flood Hazard (Mymensingh District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Category of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Rangpur, Sherpur, Jamalpur, Mymensingh, Netrakona, Sylhet, Rajshahi, Dhaka, Chittagong

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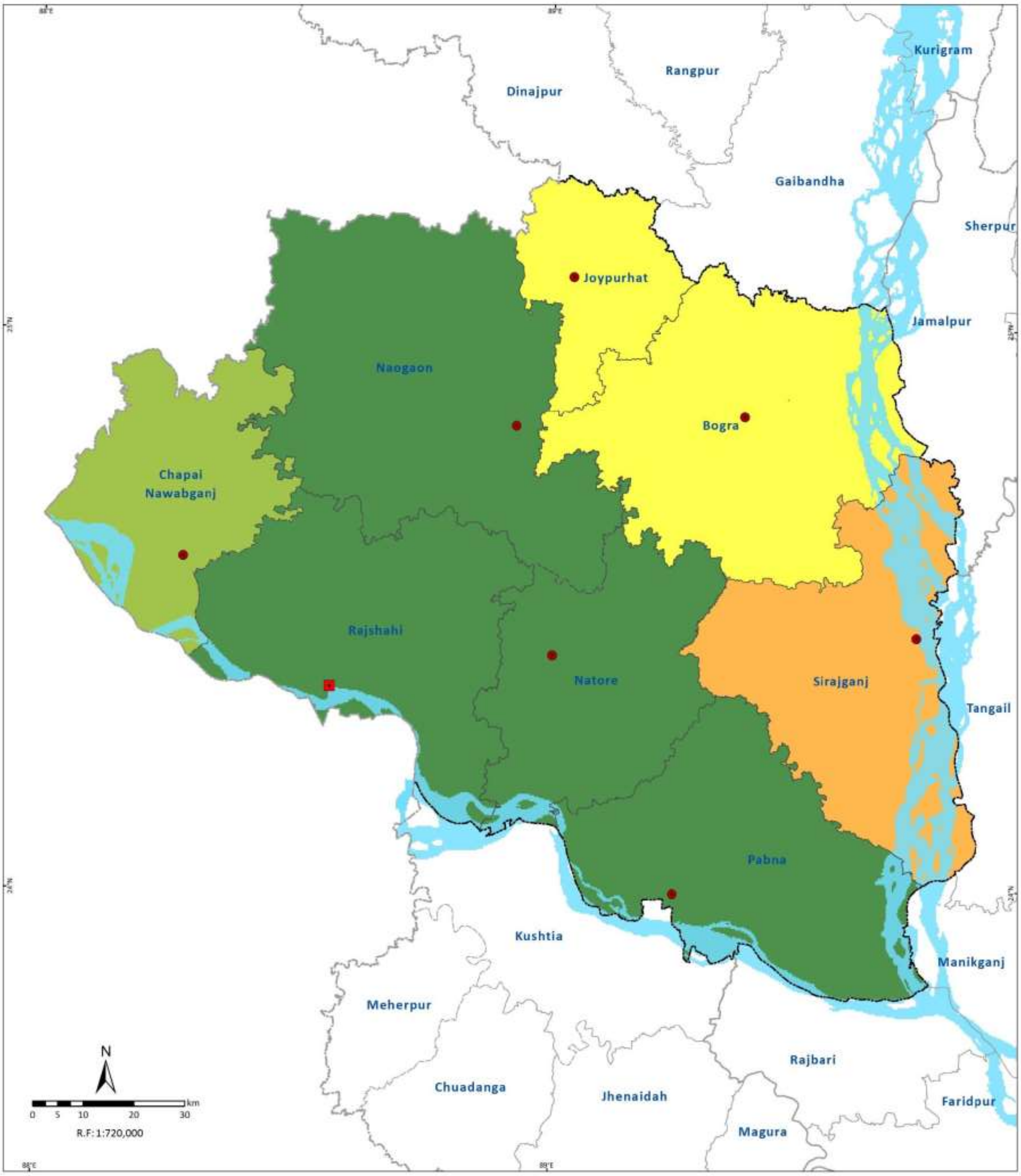
Exposure Category of Population to Flood Hazard
(Rajshahi Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Risk Levels

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Rangpur, Mymensingh, Sylhet, Rajshahi, Dhaka, Khulna, Barisal, Chittagong

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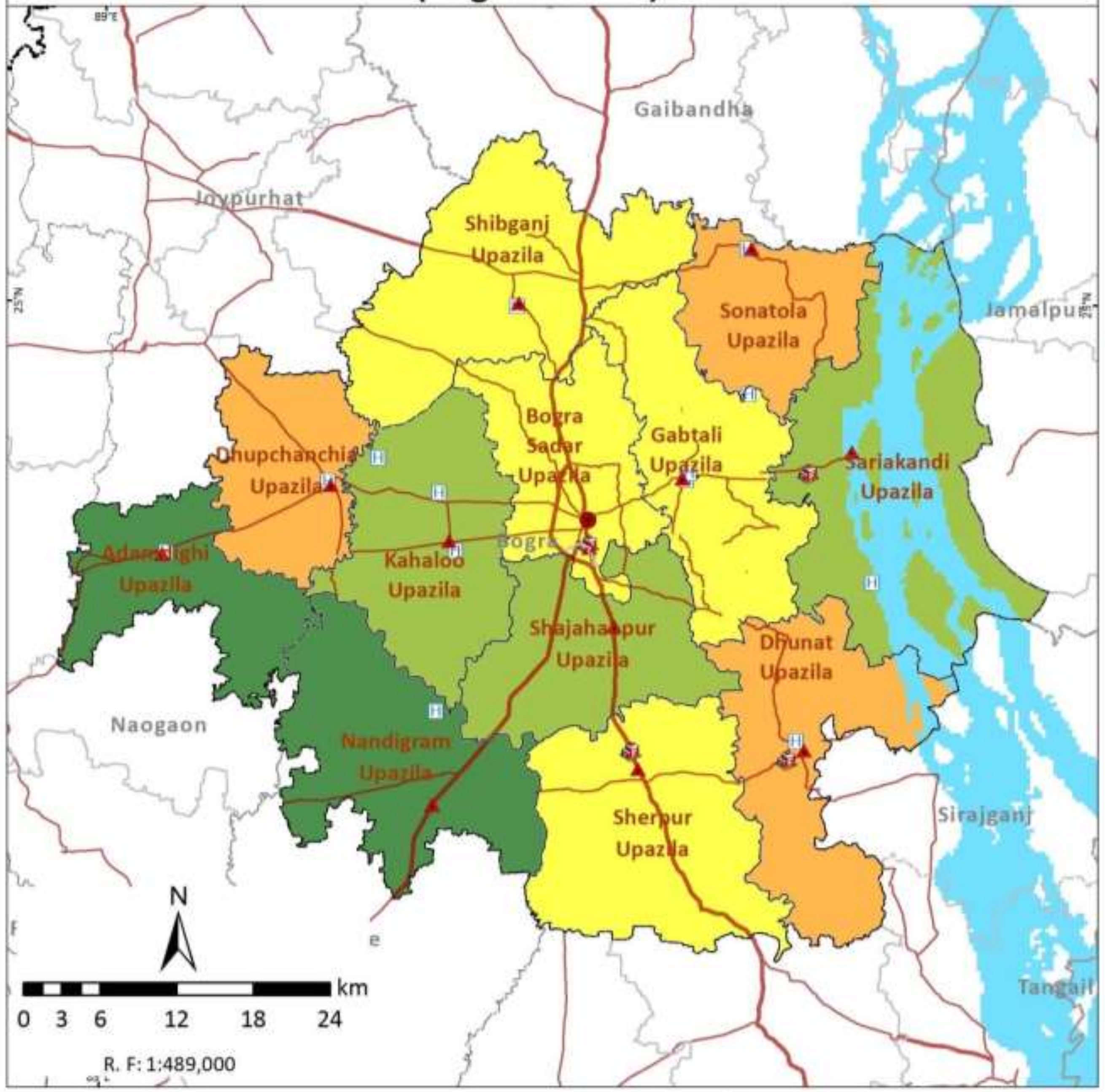
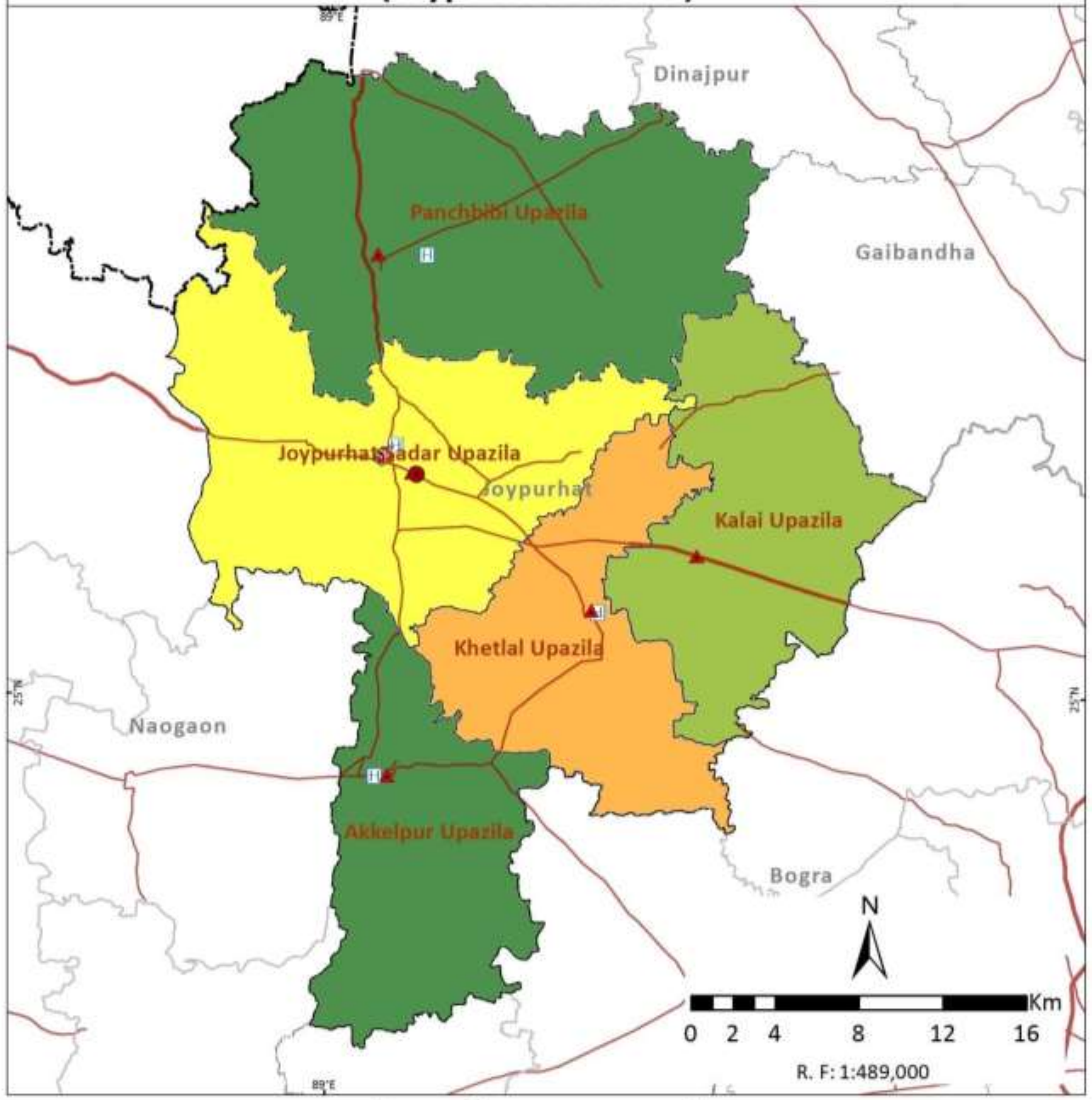
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard
(Bogra District)



Exposure Category of Population to Flood Hazard
(Joypurhat District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire stations
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Category of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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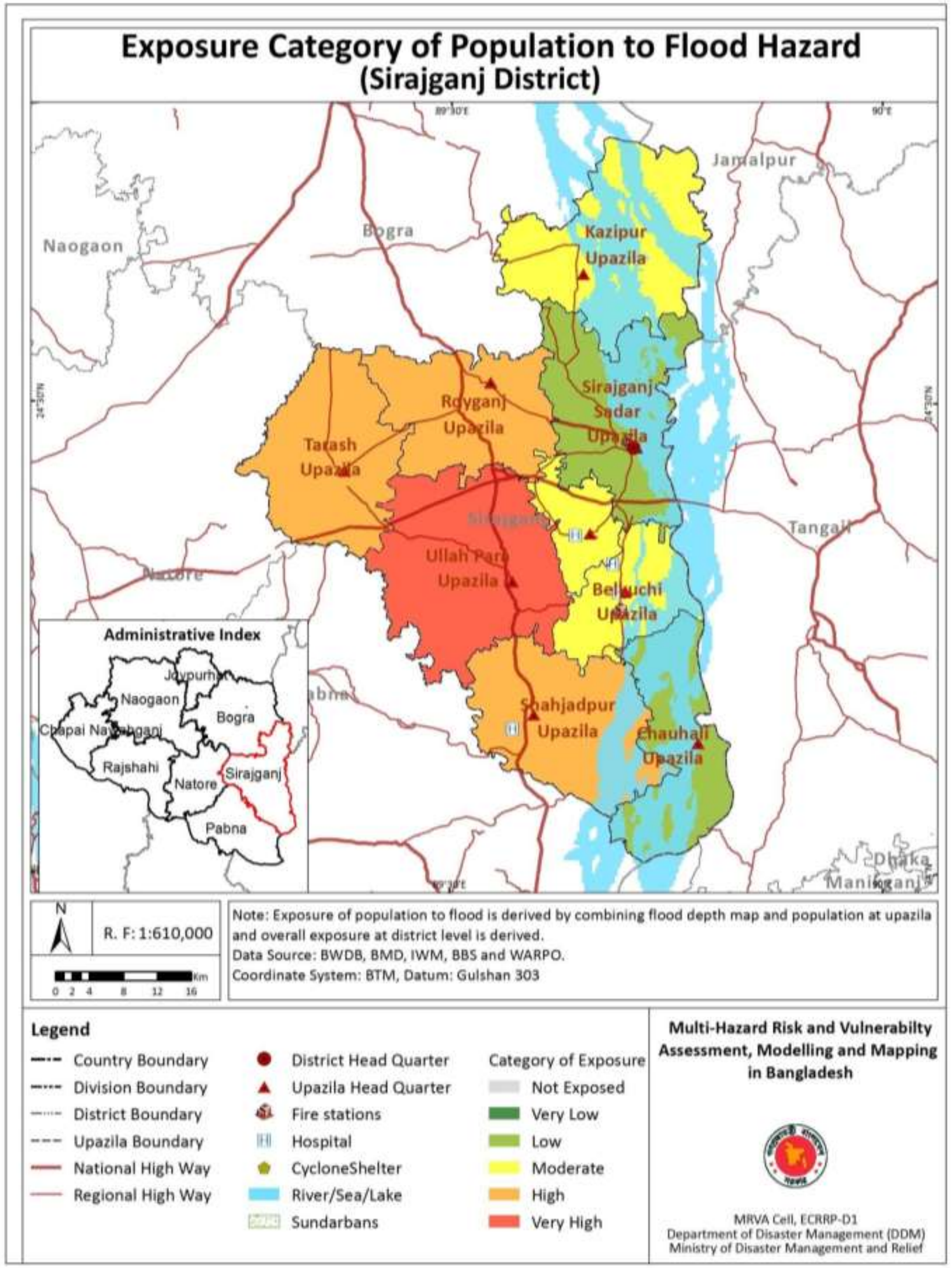
Exposure Category of Population to Flood Hazard
(Sirajganj District)
Jamalpur
Naogaon
Bogra
Kazipur Upazila
Sirajganj Sadar Upazila
Roygani Upazila
Tarash Upazila
Sirajganj
Ullah Para Upazila
Belkuchi Upazila
Tangail
Natore
Shahjadpur Upazila
Chauhali Upazila
Dhaka
Manikganj
Administrative Index
Joypurhat
Naogaon
Bogra
Chapai Nawabganj
Rajshahi
Natore
Sirajganj
Pabna
N
R. F: 1:610,000
0 2 4 8 12 16 Km
Note: Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO.
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
CycloneShelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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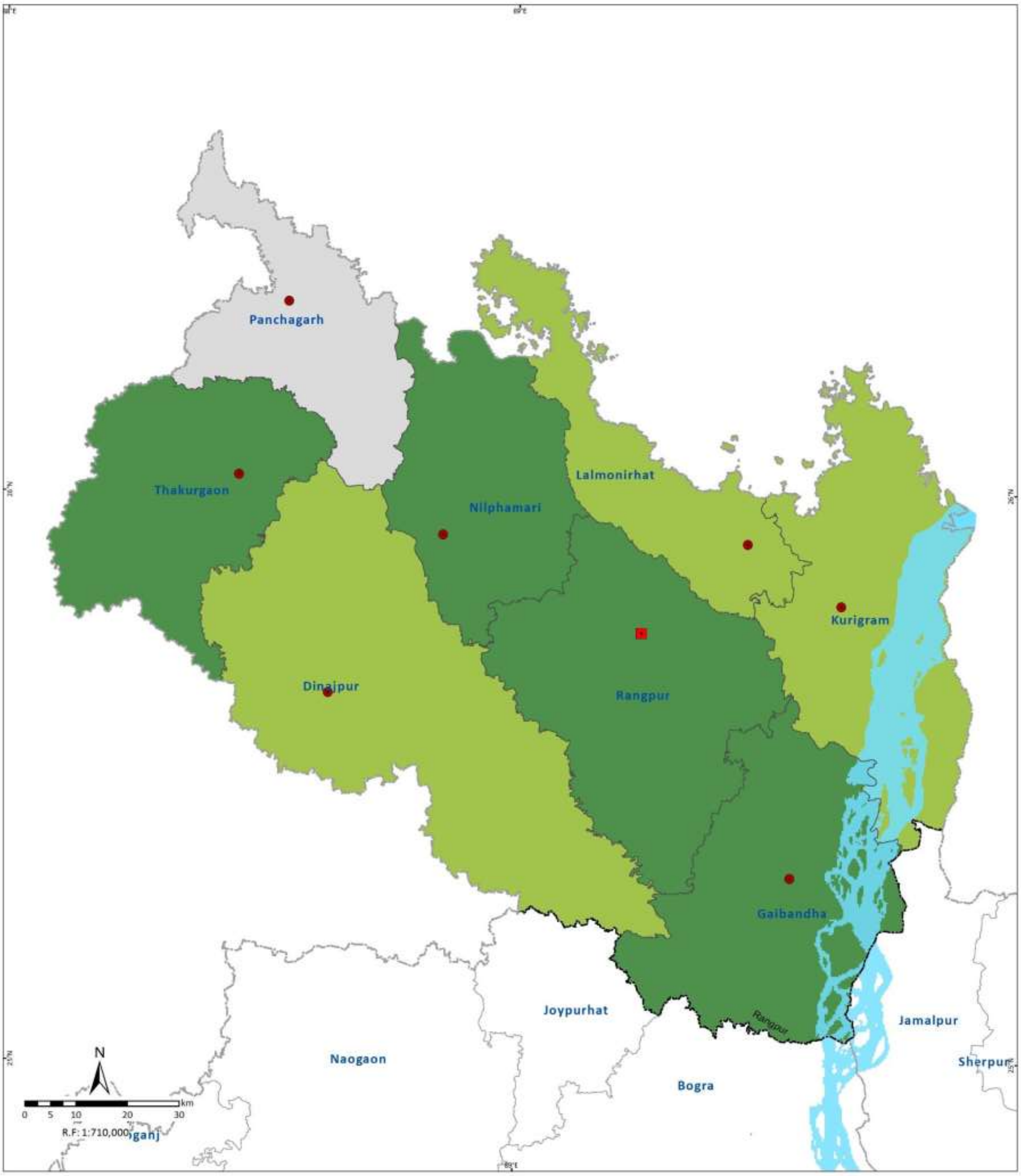
Exposure Category of Population to Flood Hazard
(Rangpur Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Risk Levels

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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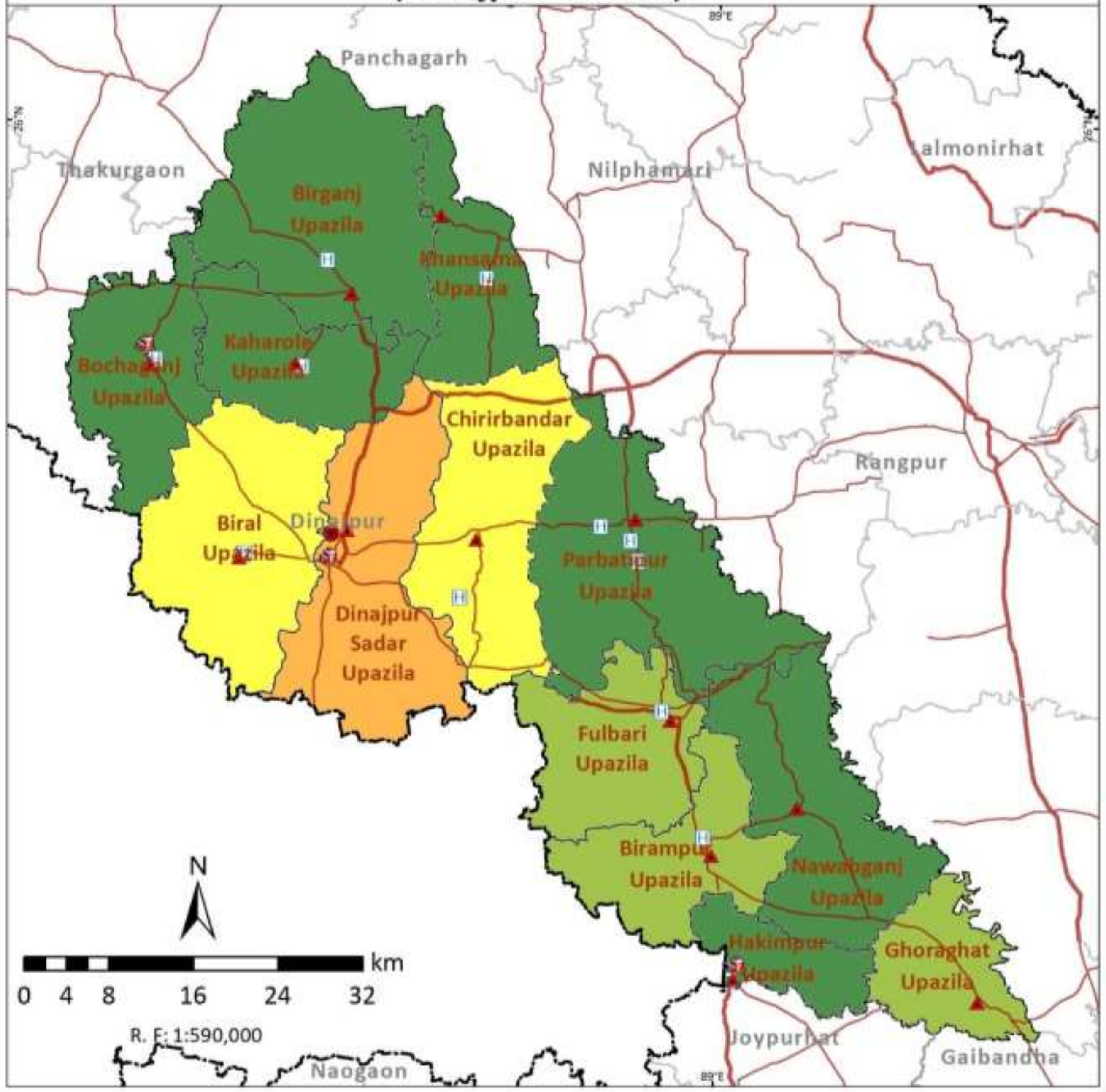
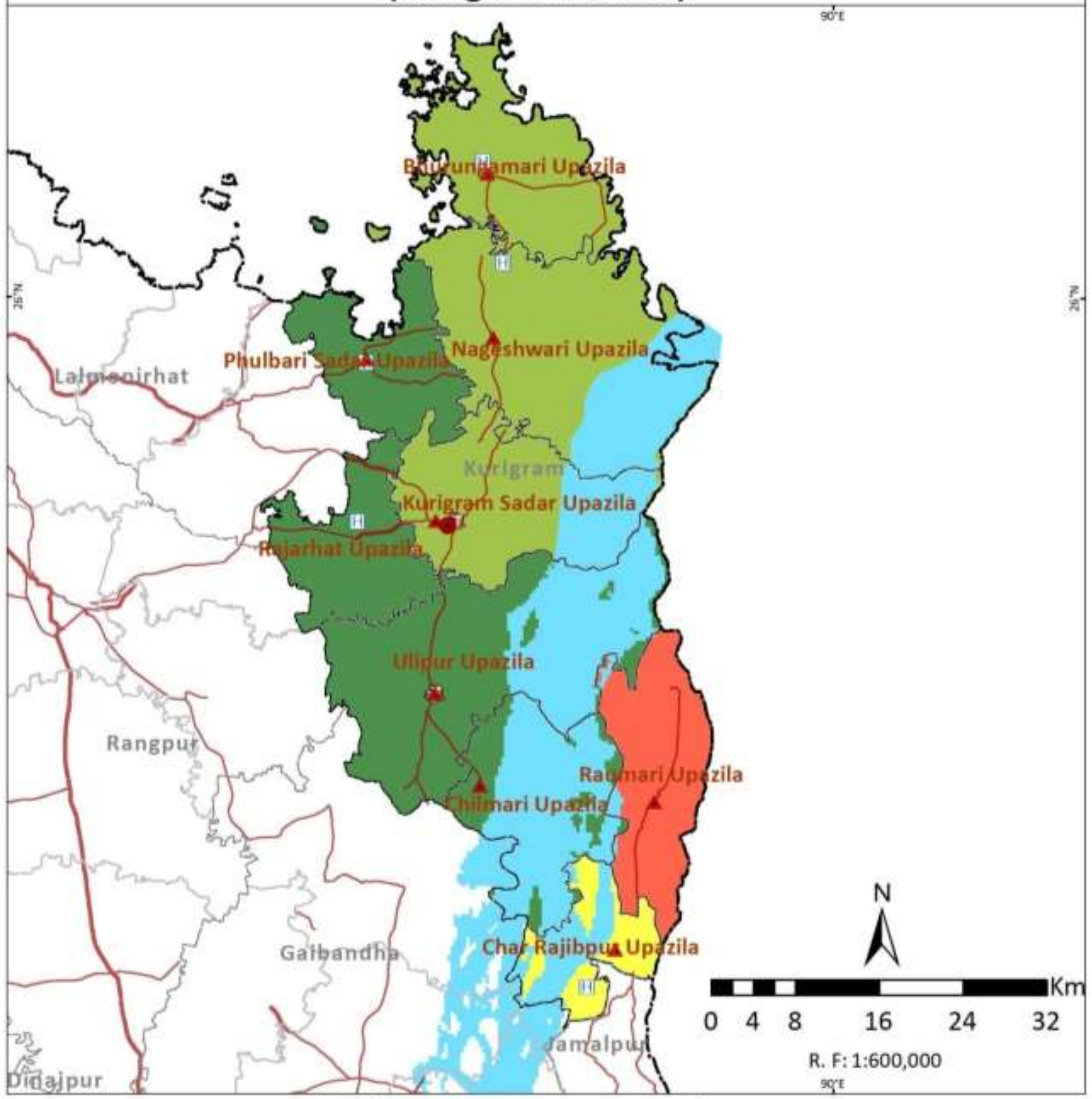
Exposure Category of Population to Flood Hazard
(Dinajpur District)



Exposure Category of Population to Flood Hazard
(Kurigram District)



Legend

Division Boundary	District Head Quarter	**Category of Exposure**
District Boundary	Upazila Head Quarter	Not Exposed
Country Boundary	Fire stations	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

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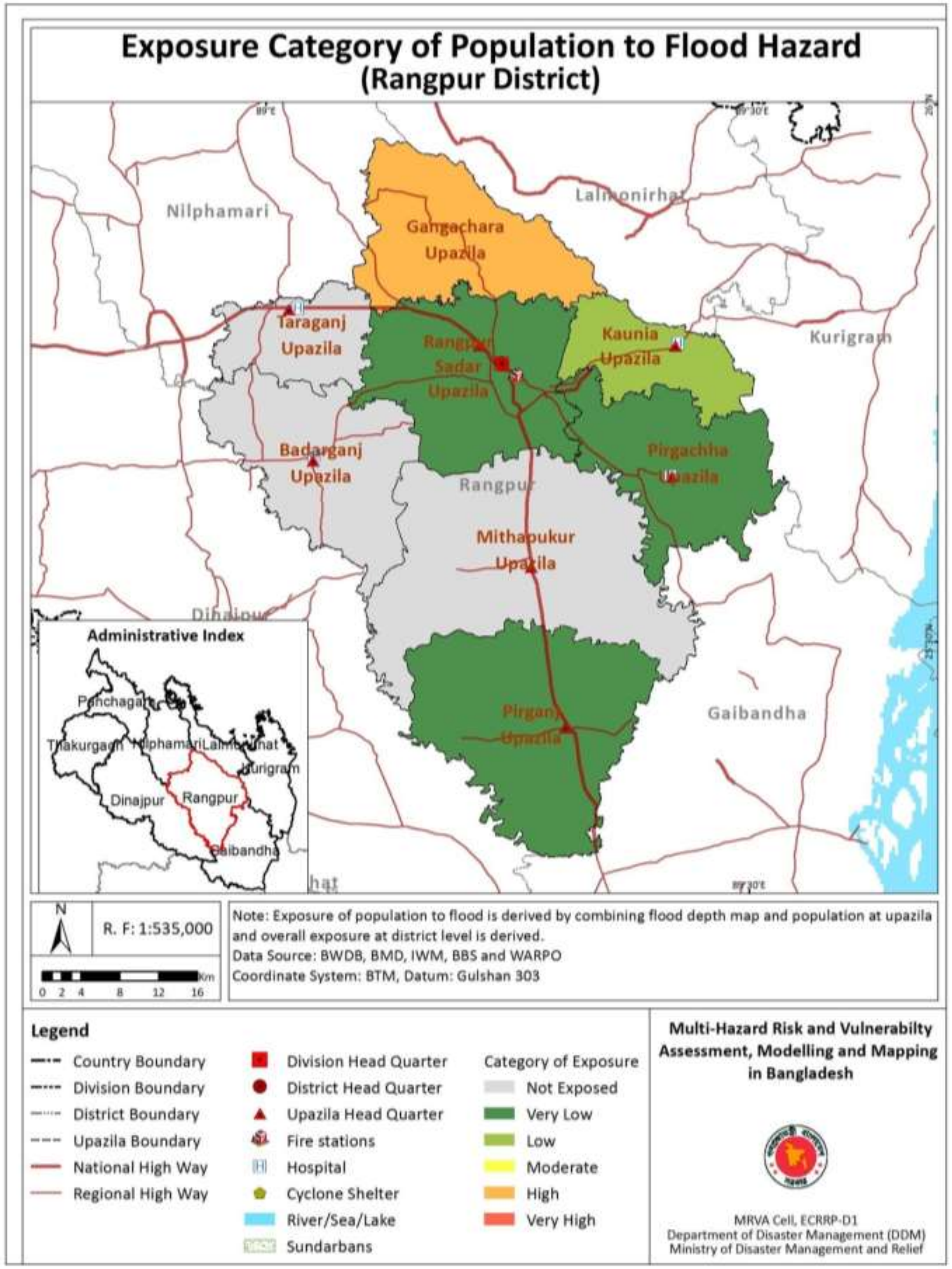
Exposure Category of Population to Flood Hazard
(Rangpur District)
Nilphamari
Lalmonirhat
Kurigram
Gangachara Upazila
Taraganj Upazila
Rangpur Sadar Upazila
Kaunia Upazila
Badarganj Upazila
Pirgachha Upazila
Rangpur
Mithapukur Upazila
Pirganj Upazila
Gaibandha
Dinajpur
Administrative Index
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
R. F: 1:535,000
Note: Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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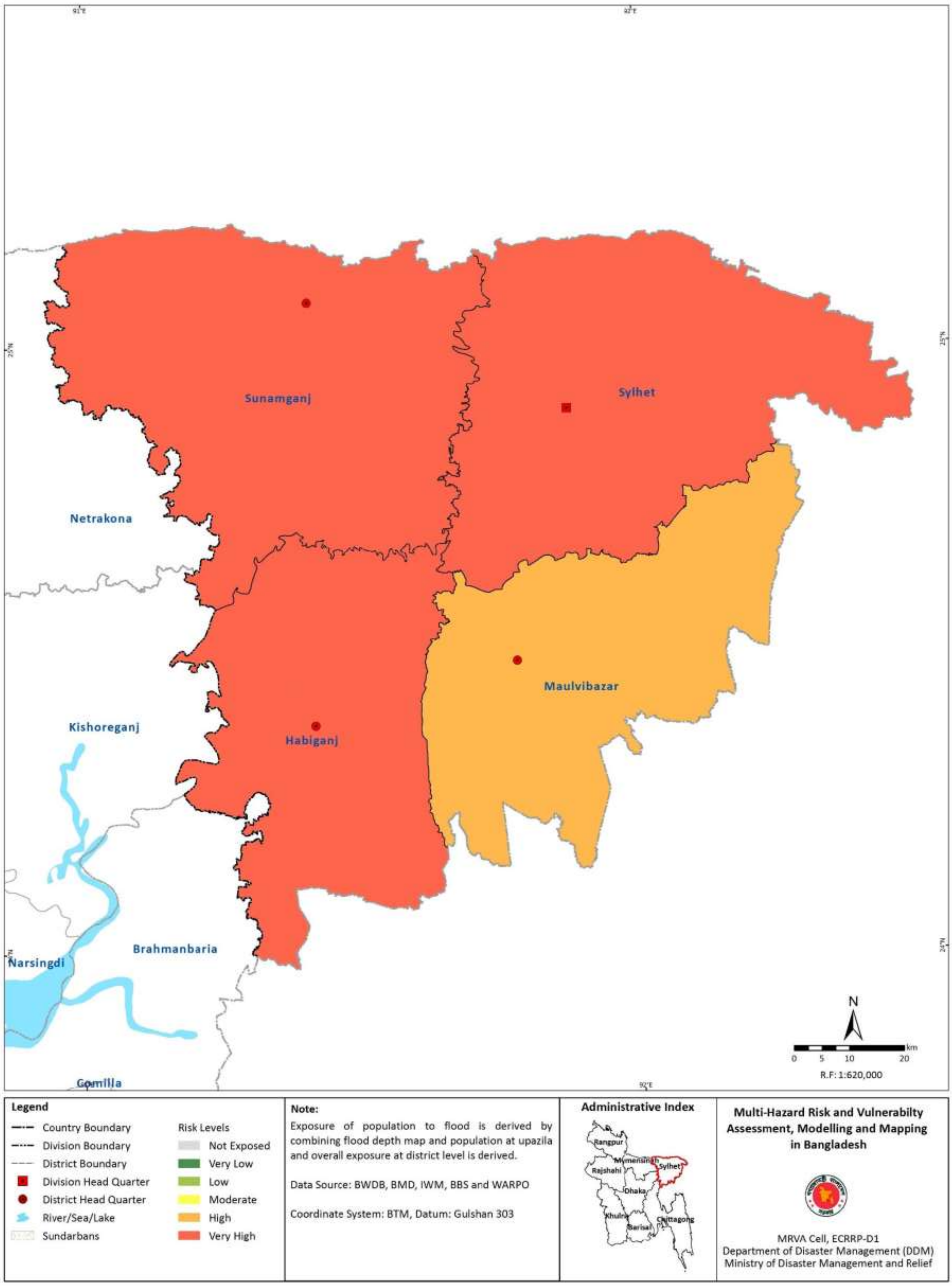
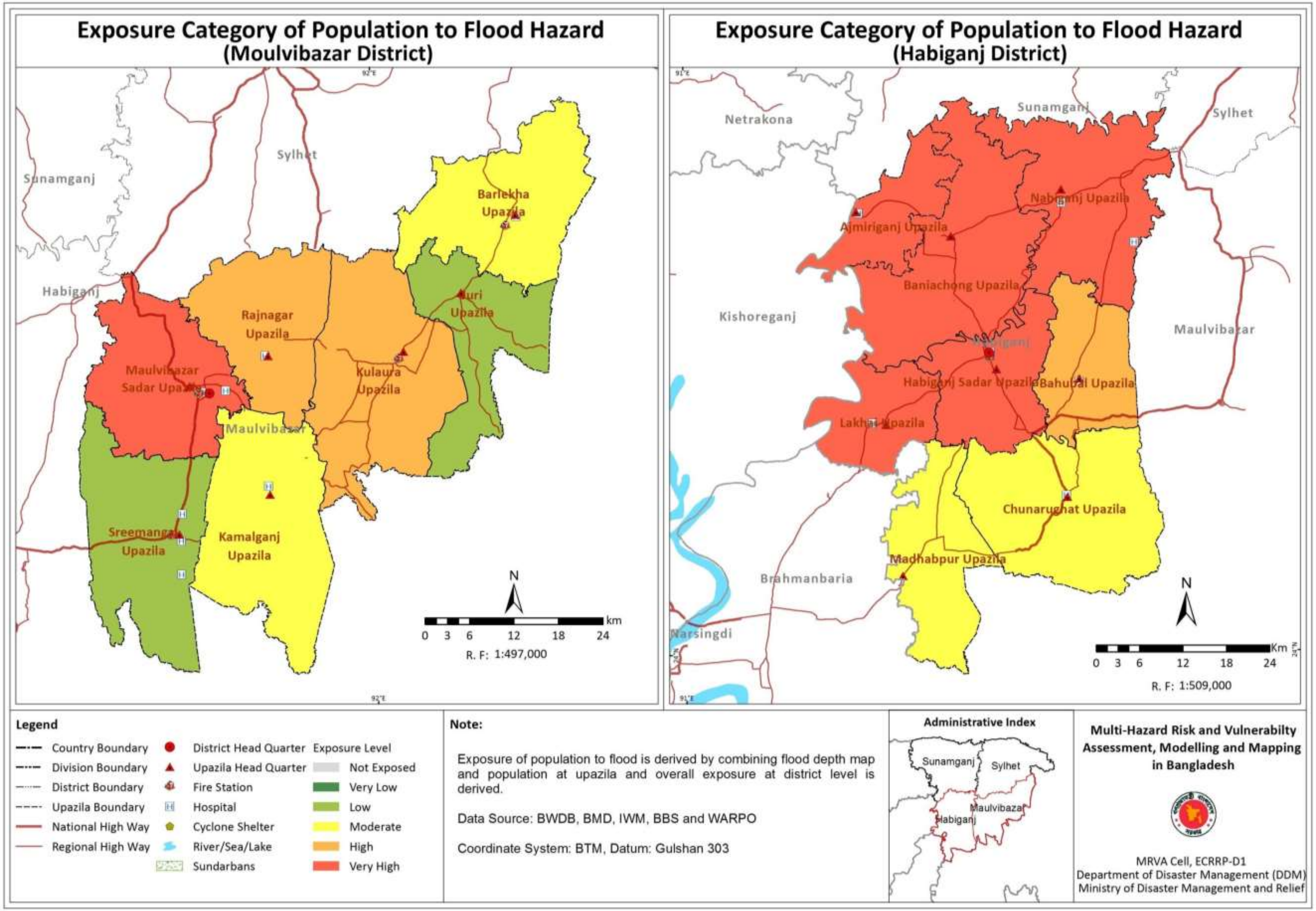
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Exposure Category of Population to Flood Hazard
(Sylhet Division)





Exposure Category of Population to Flood Hazard
(Moulvibazar District)
Sunamganj
Sylhet
Habiganj
Barlekha Upazila
Rajnagar Upazila
Kulaura Upazila
Juri Upazila
Maulvibazar Sadar Upazila
Maulvibazar
Sreemangal Upazila
Kamalganj Upazila
N
0 3 6 12 18 24 km
R. F: 1:497,000
Exposure Category of Population to Flood Hazard
(Habiganj District)
Netrakona
Sunamganj
Sylhet
Nabiganj Upazila
Ajmiriganj Upazila
Baniachong Upazila
Kishoreganj
Maulvibazar
Habiganj Sadar Upazila
Bahubal Upazila
Lakhai Upazila
Chunarughat Upazila
Madhabpur Upazila
Brahmanbaria
Narsingdi
N
0 3 6 12 18 24 Km
R. F: 1:509,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Exposure Level
Not Exposed
Very Low
Low
Moderate
High
Very High
Note:
Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Sunamganj
Sylhet
Habiganj
Maulvibazar
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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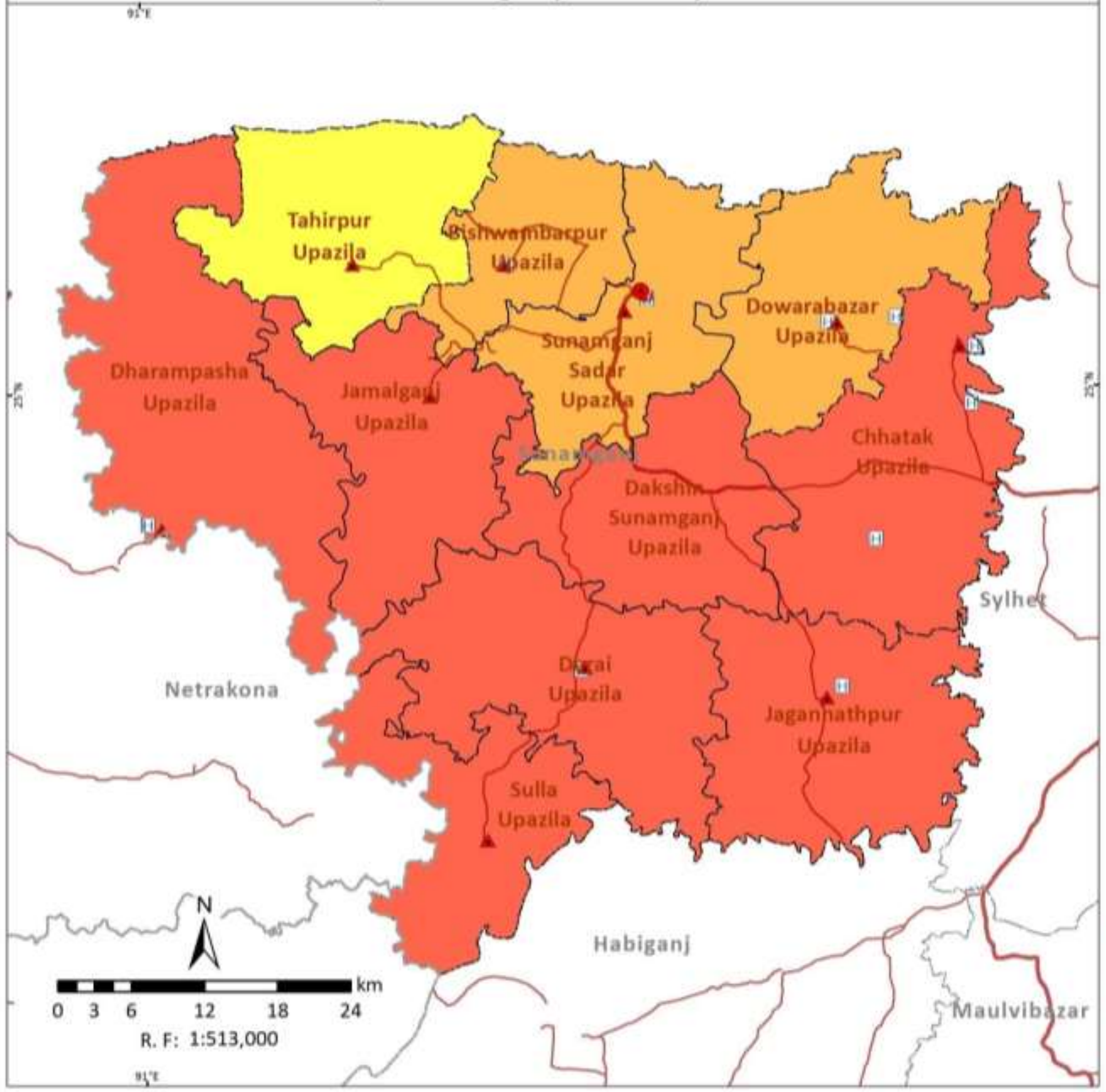
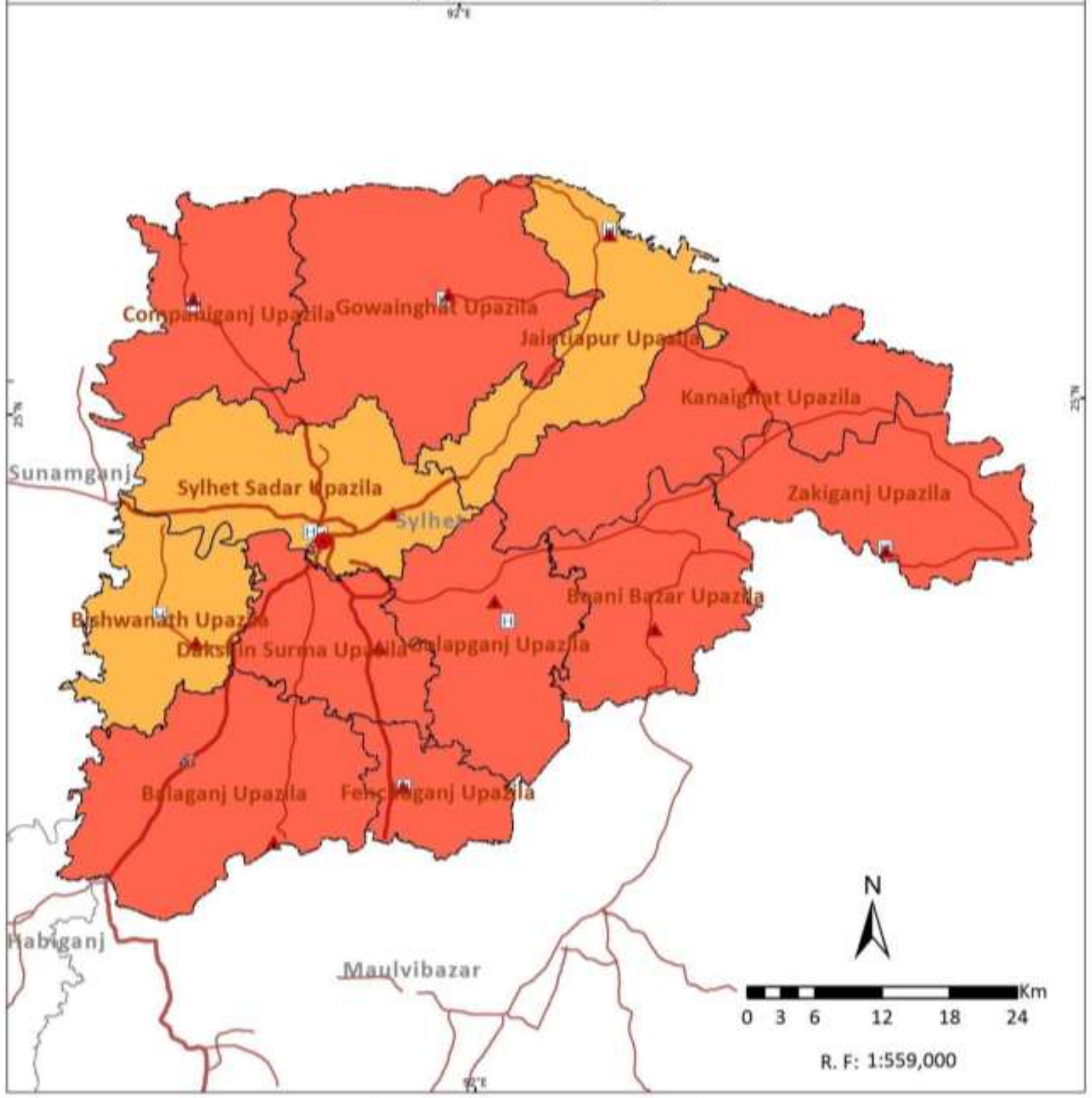
Exposure Category of Population to Flood Hazard
(Sunamganj District)



Exposure Category of Population to Flood Hazard
(Sylhet District)



Legend

Country Boundary	District Head Quarter	Exposure Level
Division Boundary	Upazila Head Quarter	Not Exposed
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Exposure of population to flood is derived by combining flood depth map and population at upazila and overall exposure at district level is derived.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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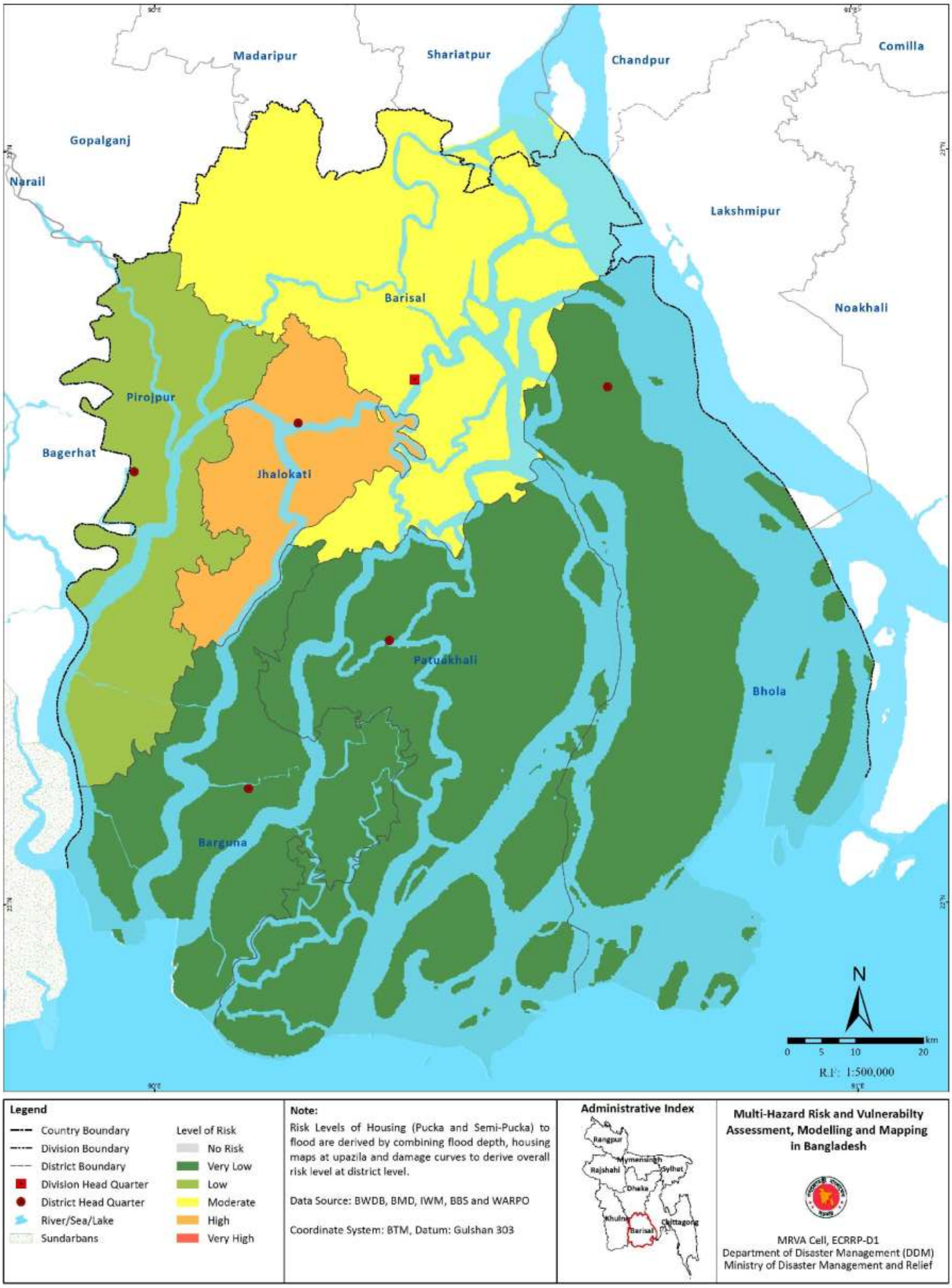
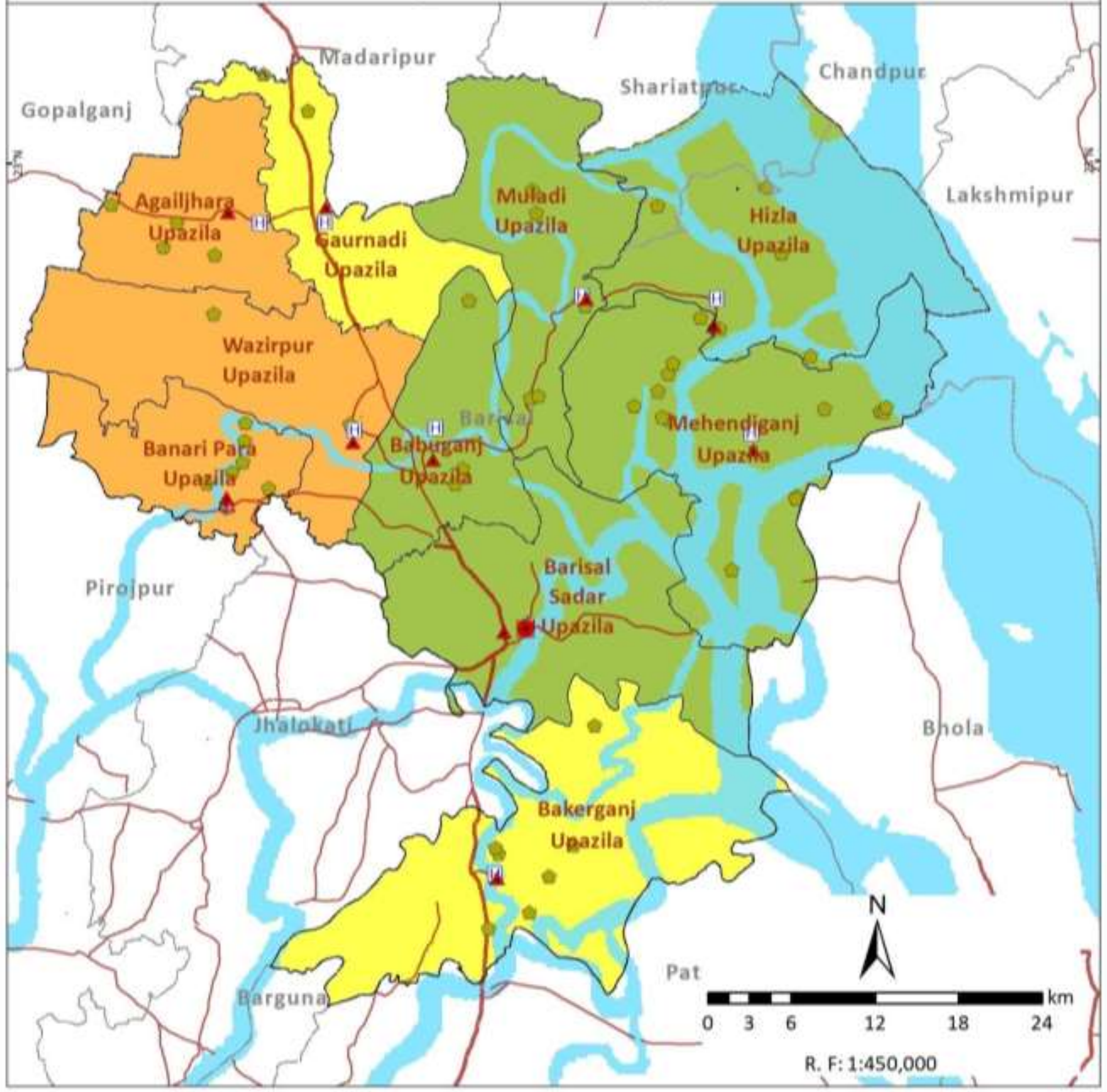
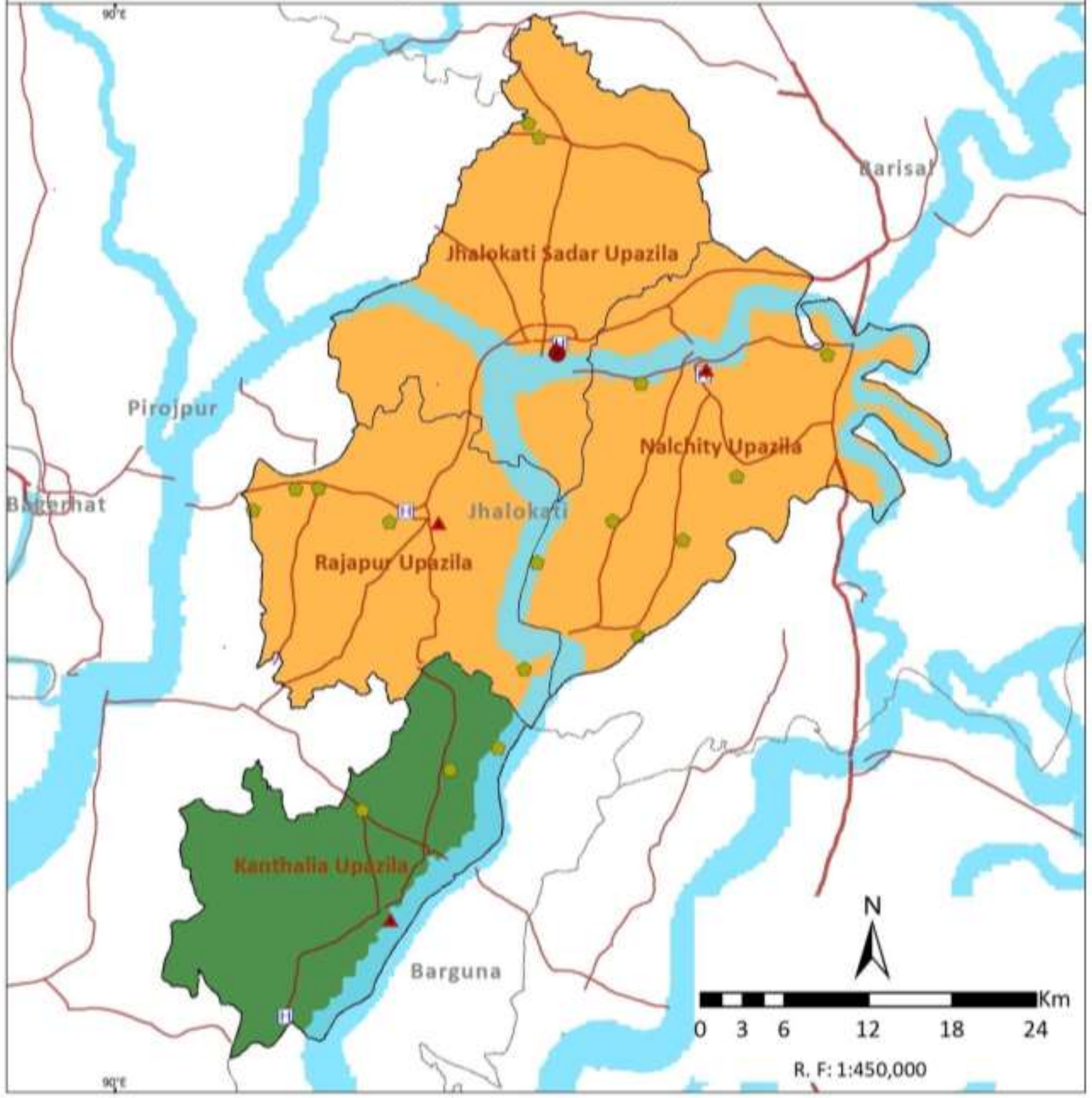
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Barisal Division)



Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Barisal District)



Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Jhalokati District)



Legend

Country Boundary	Division Head Quarter	**Level of Risk**
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Head Quarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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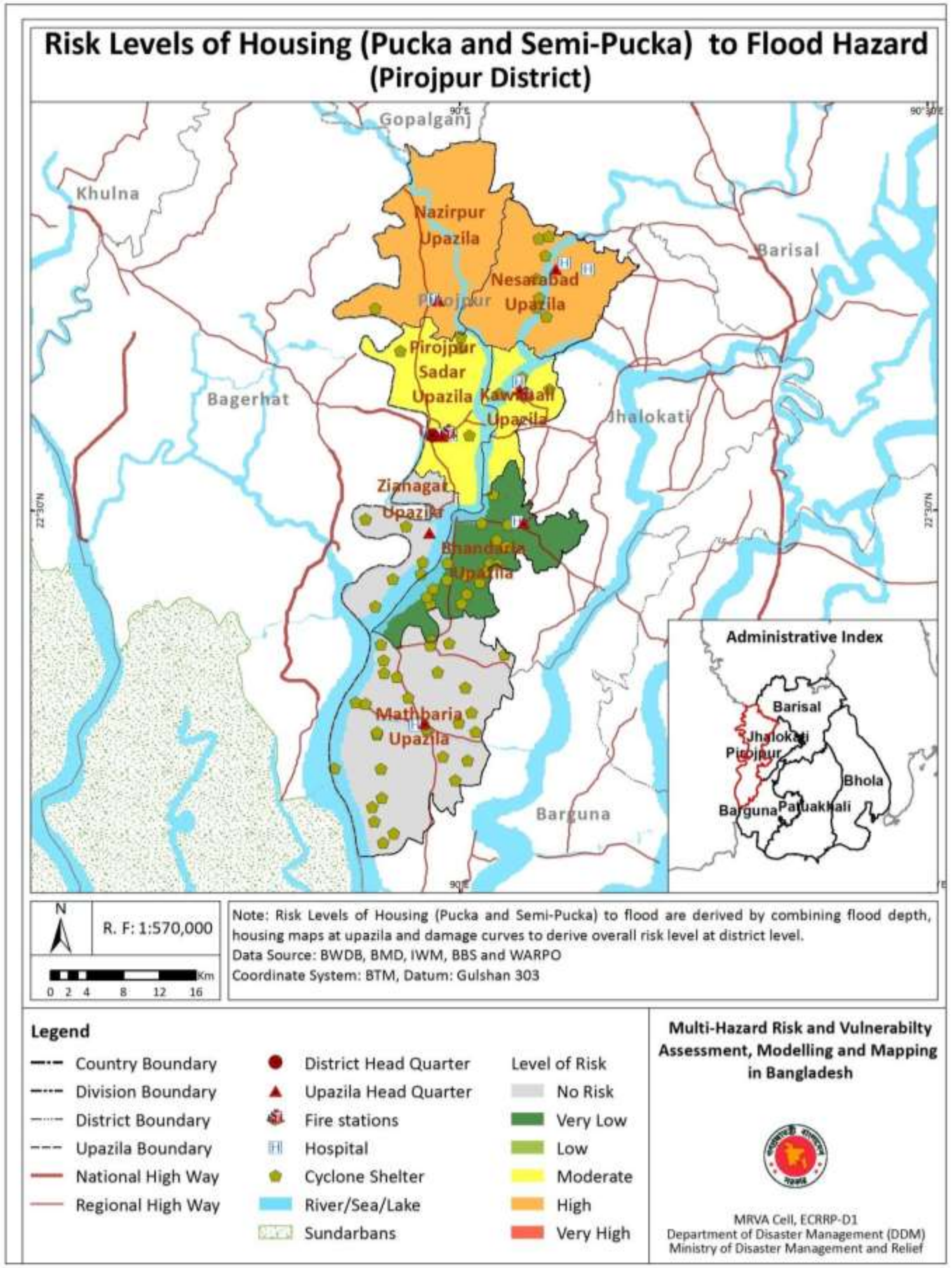
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Pirojpur District)
Gopalganj
Khulna
Barisal
Bagerhat
Jhalokati
Barguna
Nazirpur Upazila
Nesarabad Upazila
Pirojpur Sadar Upazila
Kawkhali Upazila
Zianagar Upazila
Bhandaria Upazila
Mathbaria Upazila
Administrative Index
Barisal
Jhalokati
Pirojpur
Bhola
Barguna
Patuakhali
R. F: 1:570,000
Note: Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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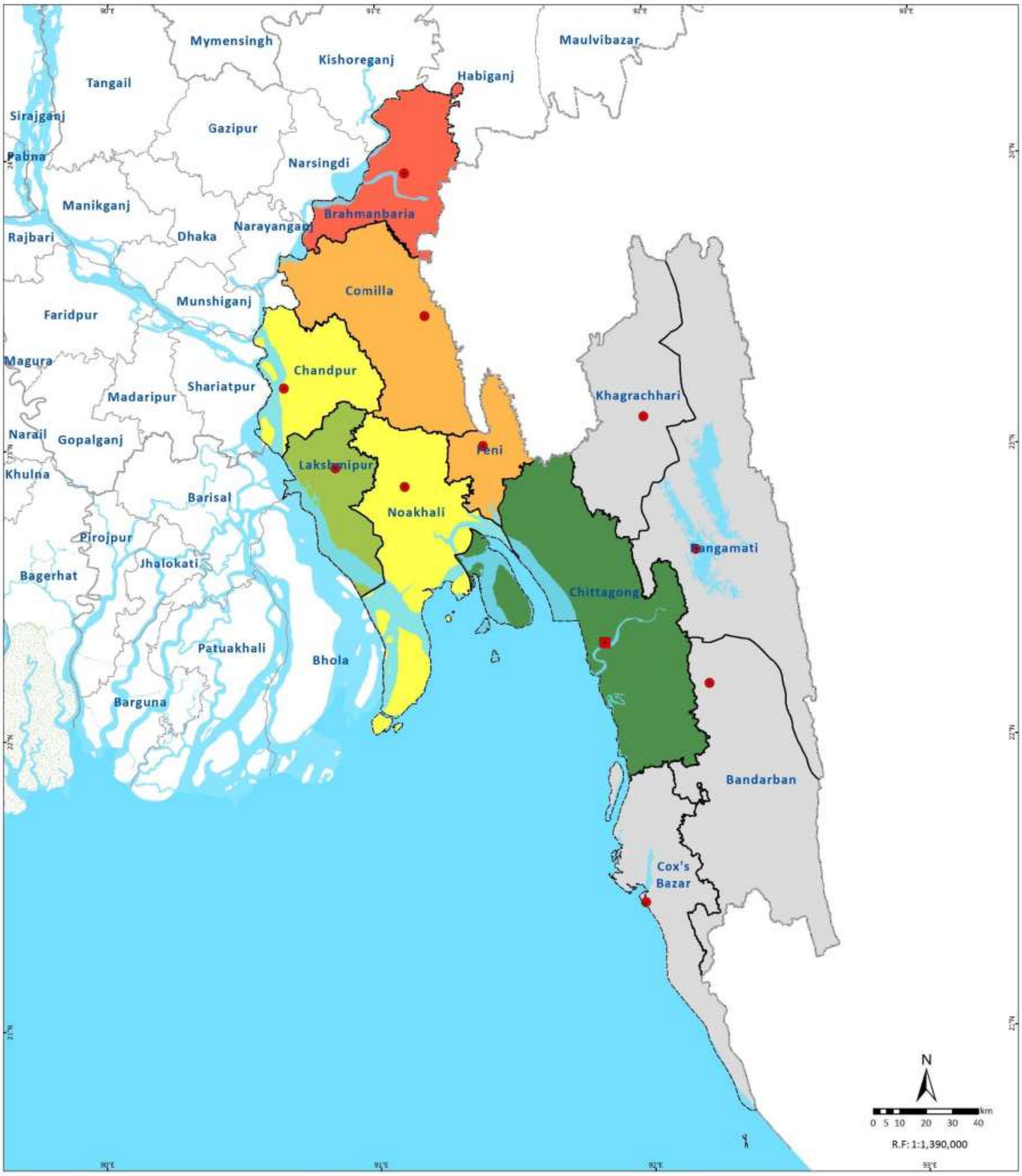
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Chittagong Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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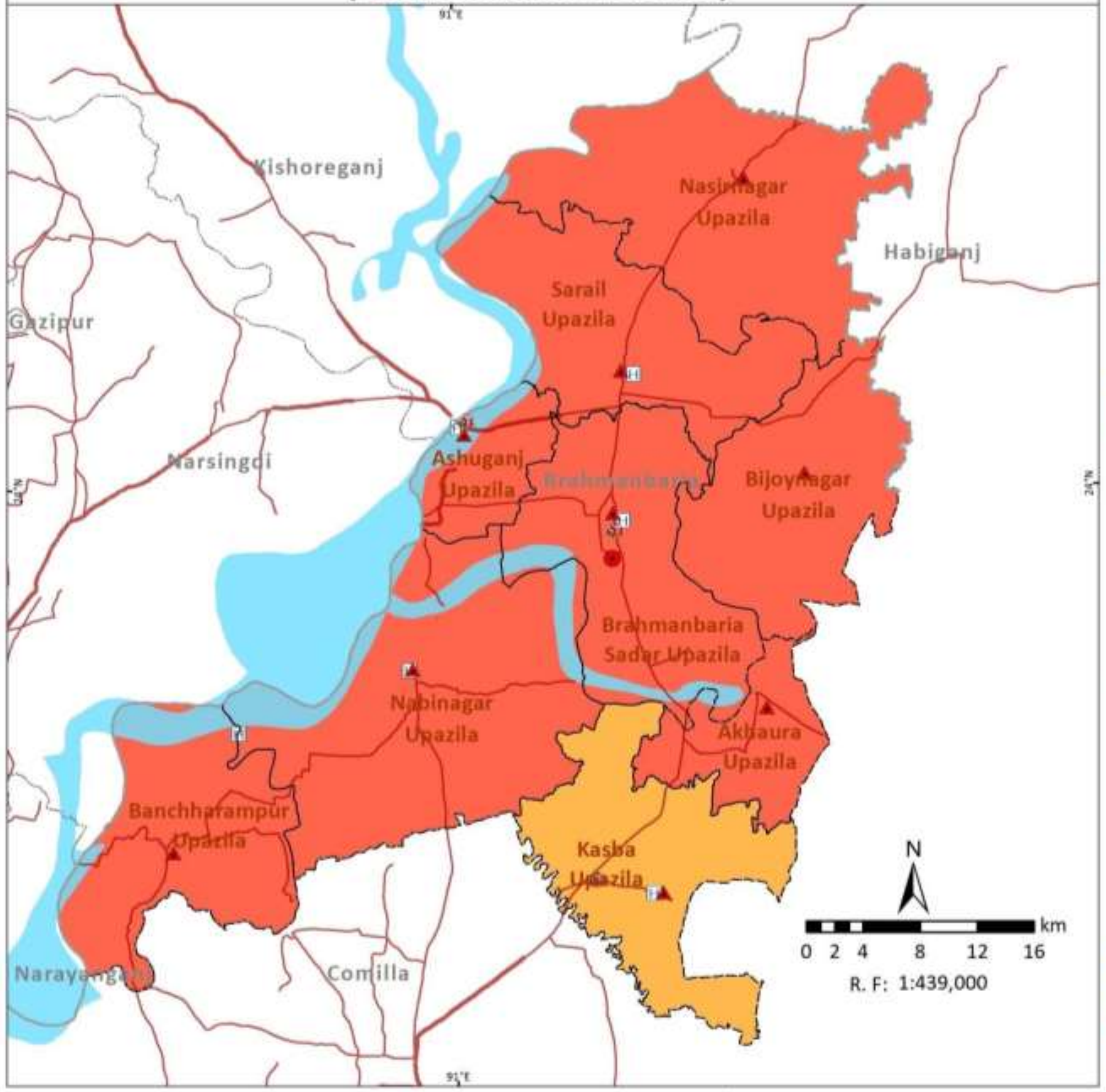
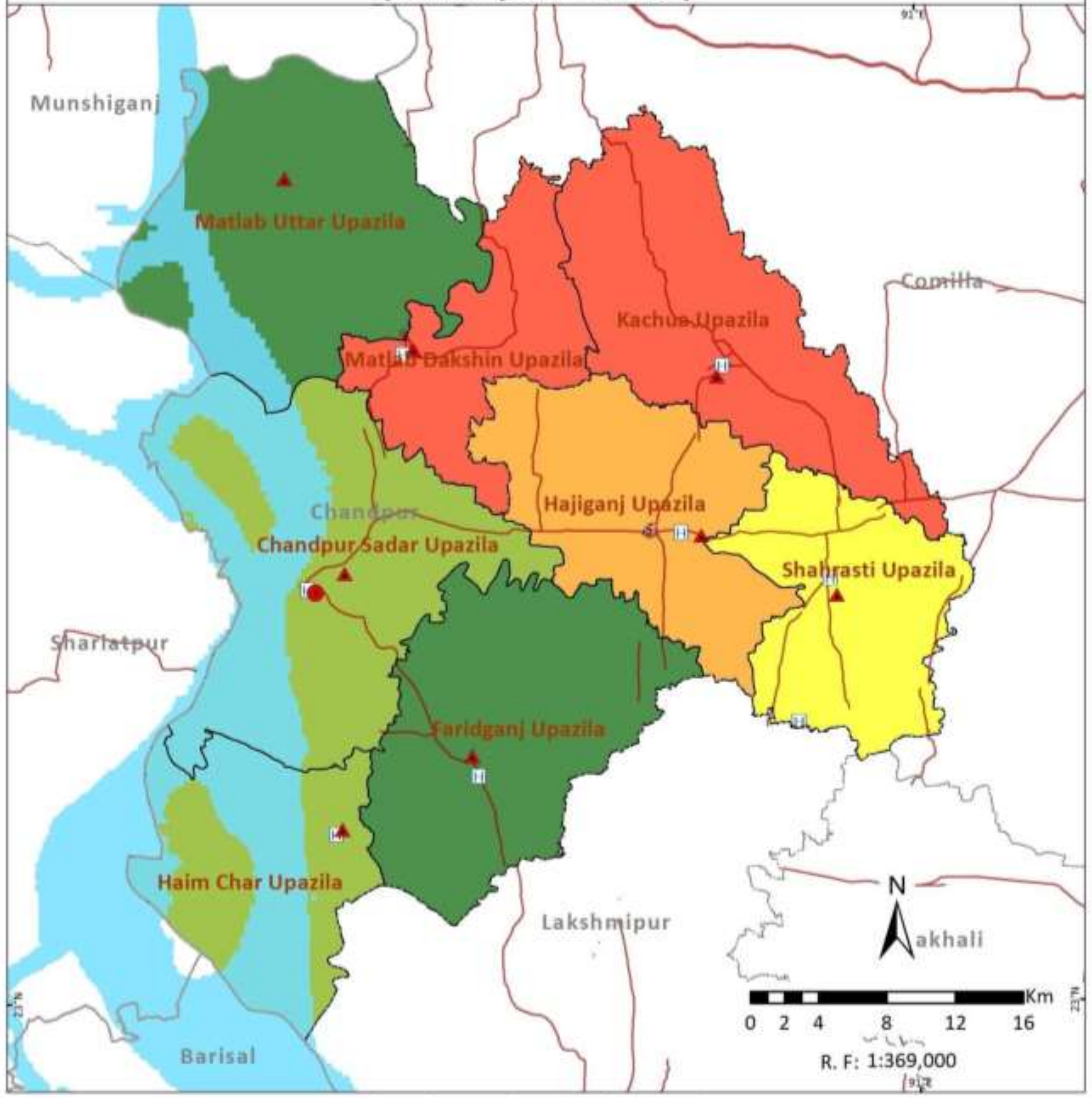
Ministry of Disaster Management and Relief





Legend

Country Boundary	District Head Quarter	**Levels of Risk**
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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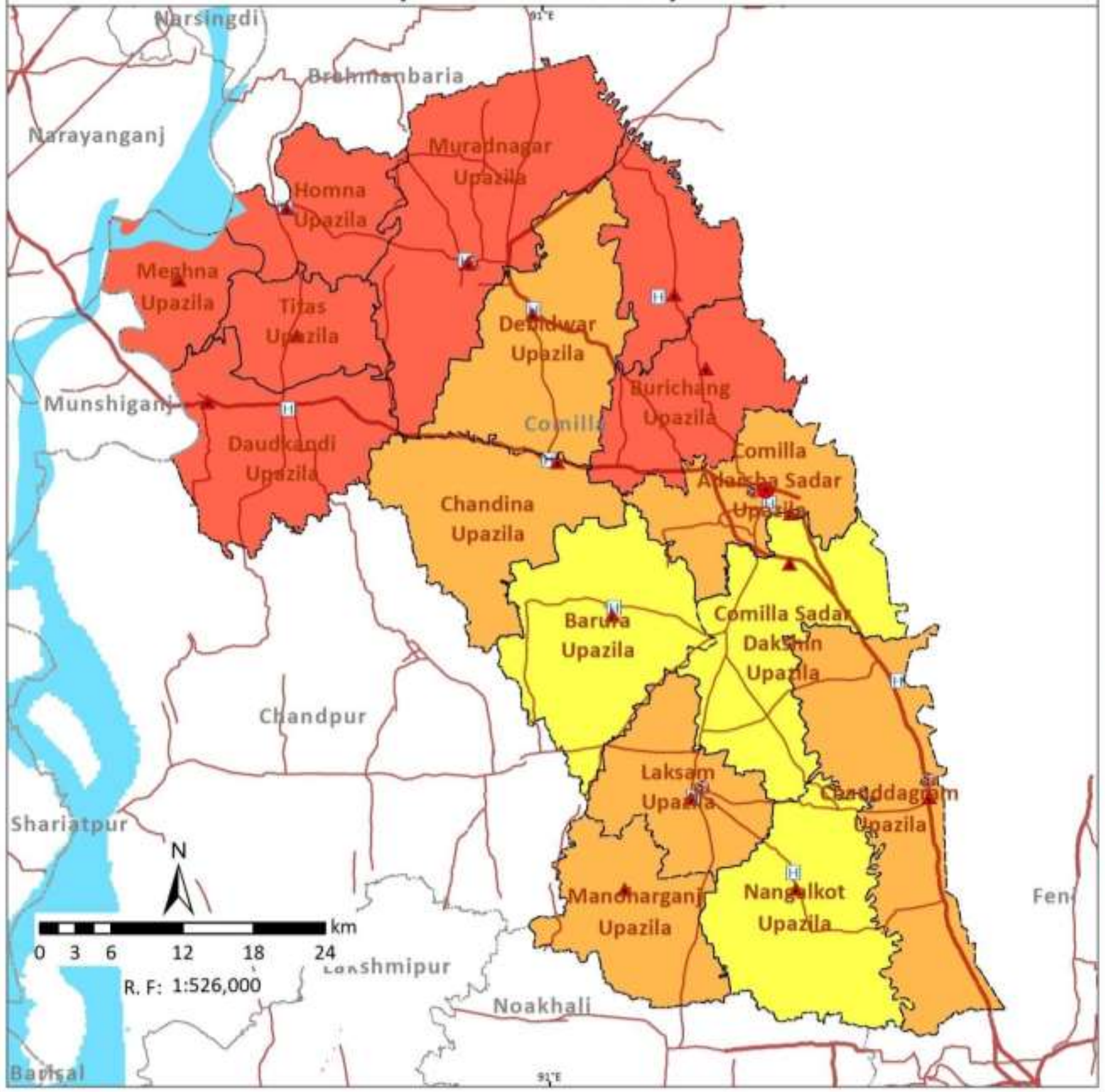
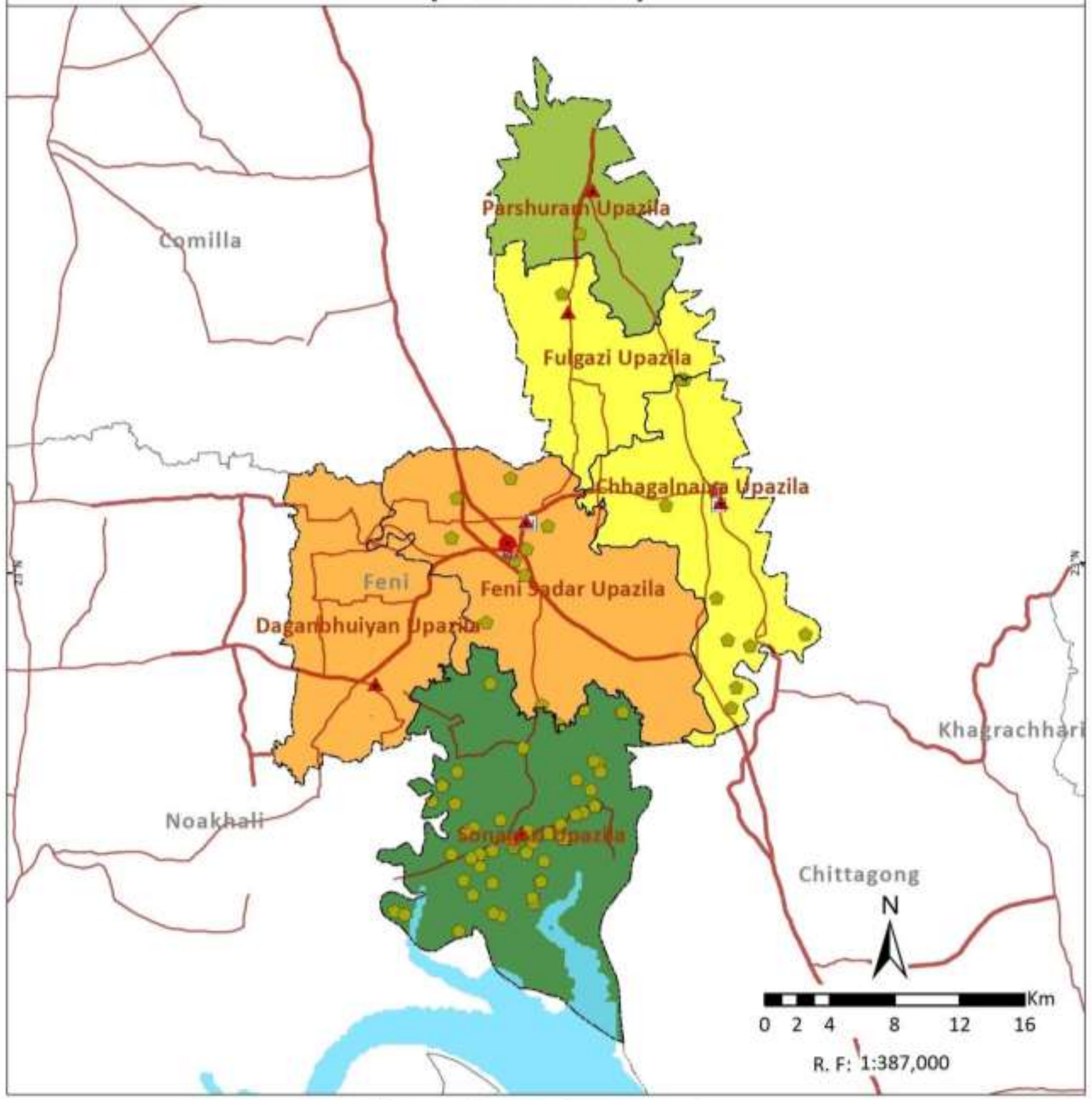
Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard (Comillal District)



Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard (Feni District)



Legend

Country Boundary		District Head Quarter		Levels of Risk	
Division Boundary		Upazila Head Quarter		No Risk	
District Boundary		Fire Station		Very Low	
Upazila Boundary		Hospital		Low	
National High Way		Cyclone Shelter		Moderate	
Regional High Way		River/Sea/Lake		High	
		Sundarbans		Very High	

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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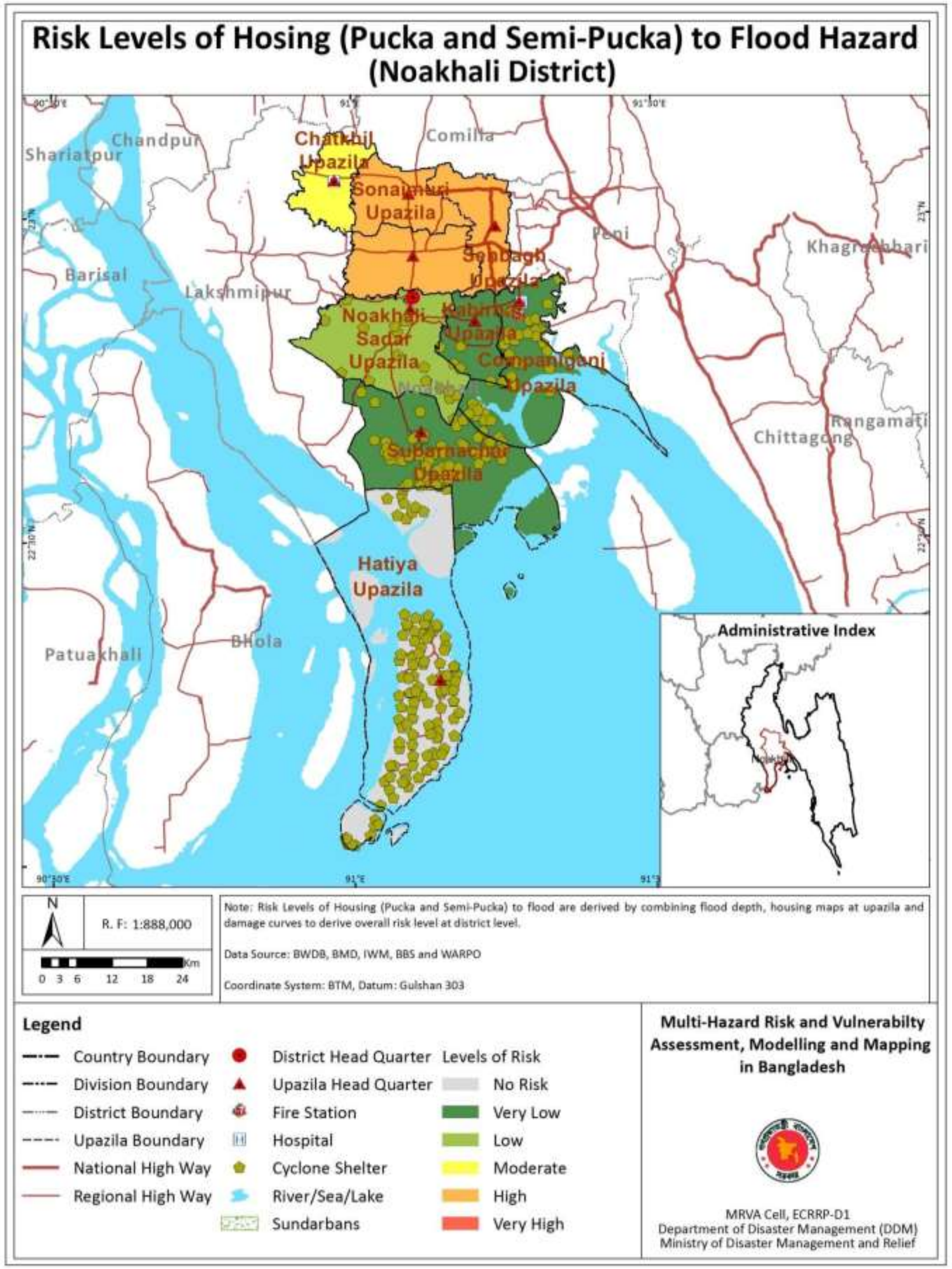

Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard
(Noakhali District)
Chatkhil Upazila
Sonaimuri Upazila
Senbagh Upazila
Noakhali Sadar Upazila
Companiganj Upazila
Subarnachar Upazila
Hatiya Upazila
Chandpur
Shariatpur
Comilla
Feni
Khagrachhari
Barisal
Lakshmipur
Chittagong
Rangamati
Bhola
Patuakhali
Administrative Index
N
R. F: 1:888,000
0 3 6 12 18 24 Km
Note: Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Levels of Risk
No Risk
Very Low
Low
Moderate
High
Very High
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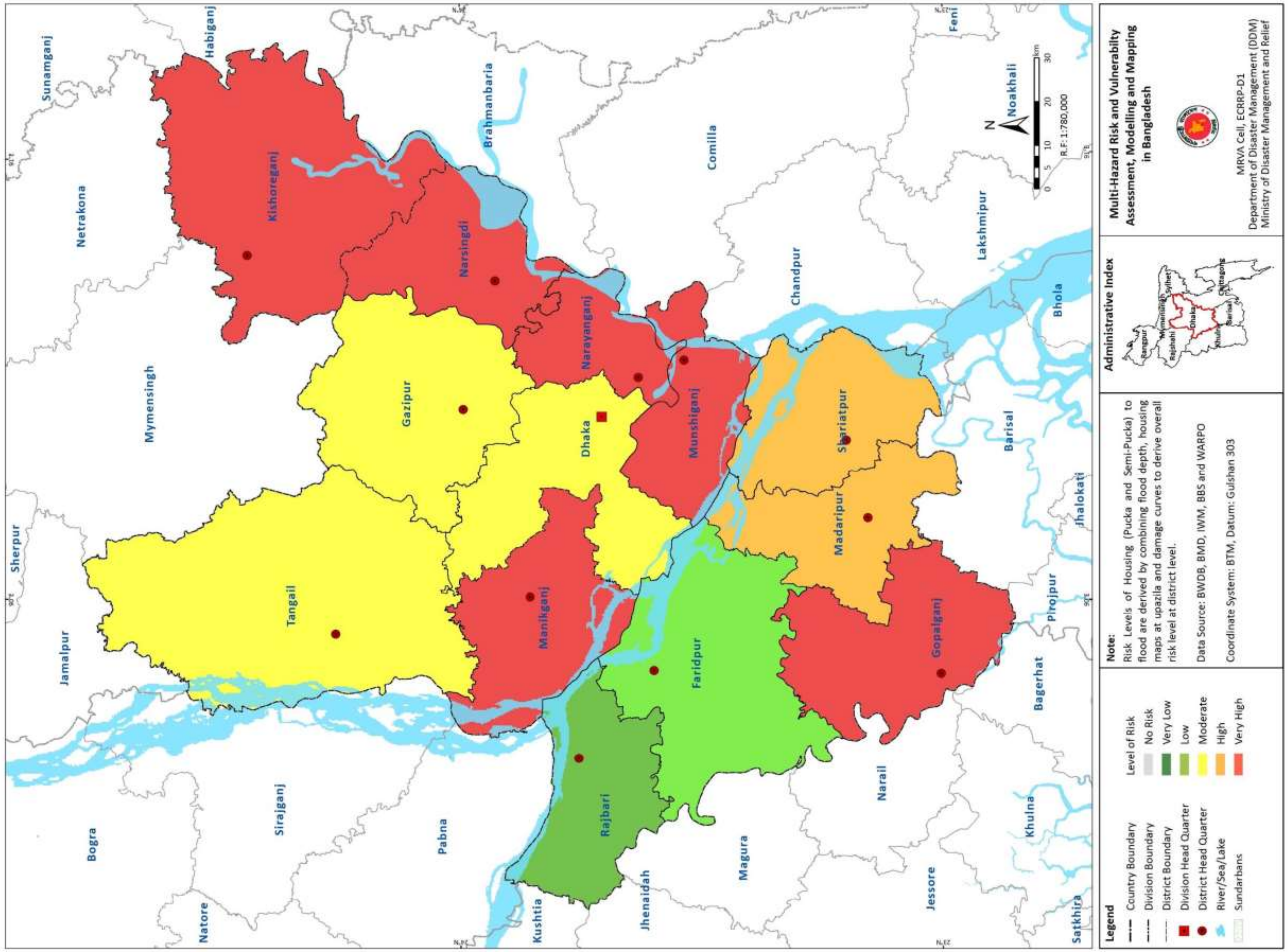
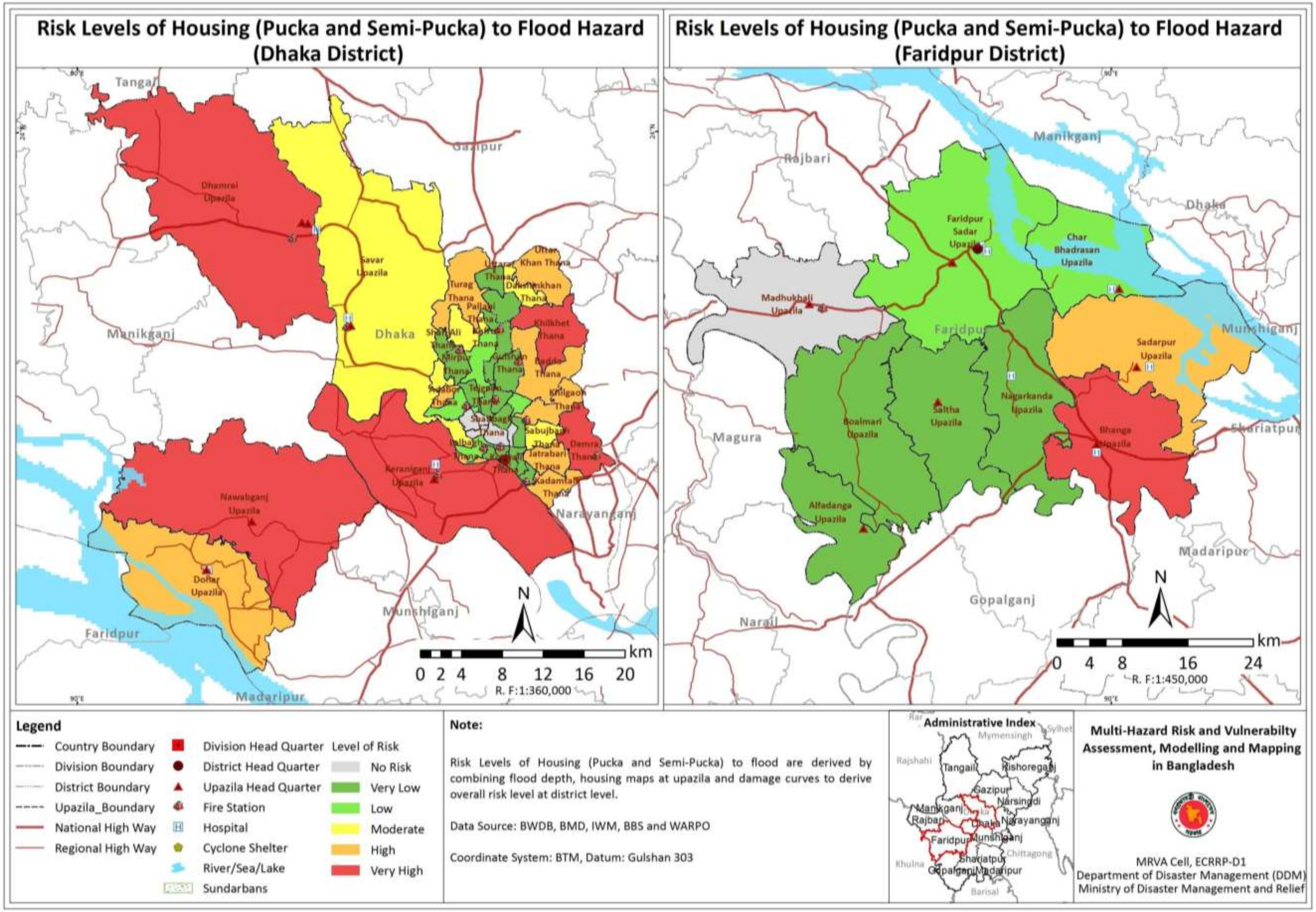
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Dhaka Division)





Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Dhaka District)
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Faridpur District)
Tangail
Gazipur
Dhamrai Upazila
Savar Upazila
Dhaka
Manikganj
Keraniganj Upazila
Nawabganj Upazila
Dohar Upazila
Narayanganj
Munshiganj
Faridpur
Madaripur
Rajbari
Dhaka
Faridpur Sadar Upazila
Char Bhadrasan Upazila
Madhukhali Upazila
Faridpur
Munshiganj
Sadarpur Upazila
Nagarkanda Upazila
Saltha Upazila
Boalmari Upazila
Bhanga Upazila
Shariatpur
Magura
Alfadanga Upazila
Madaripur
Gopalganj
Narail
N
0 2 4 8 12 16 20 km
R. F:1:360,000
0 4 8 16 24 km
R. F:1:450,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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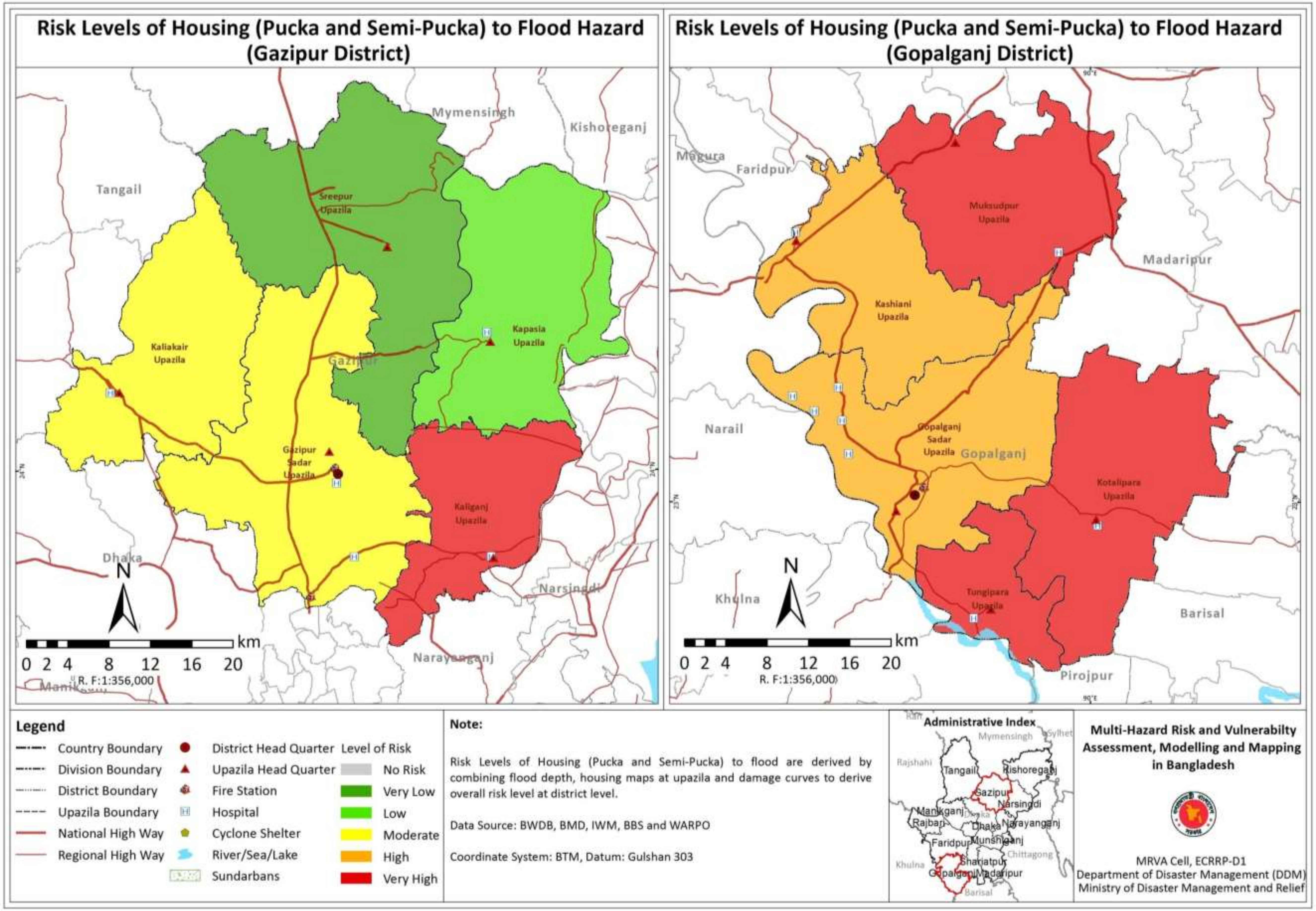
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Gazipur District)
Mymensingh
Kishoreganj
Tangail
Sreepur Upazila
Kapasia Upazila
Kaliakair Upazila
Gazipur
Gazipur Sadar Upazila
Kaliganj Upazila
Dhaka
Narsingdi
Narayanganj
N
0 2 4 8 12 16 20 km
R. F:1:356,000
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Gopalganj District)
Magura
Faridpur
Muksudpur Upazila
Madaripur
Kashiani Upazila
Narail
Gopalganj Sadar Upazila
Gopalganj
Kotalipara Upazila
Khulna
Tungipara Upazila
Barisal
Pirojpur
N
0 2 4 8 12 16 20 km
R. F:1:356,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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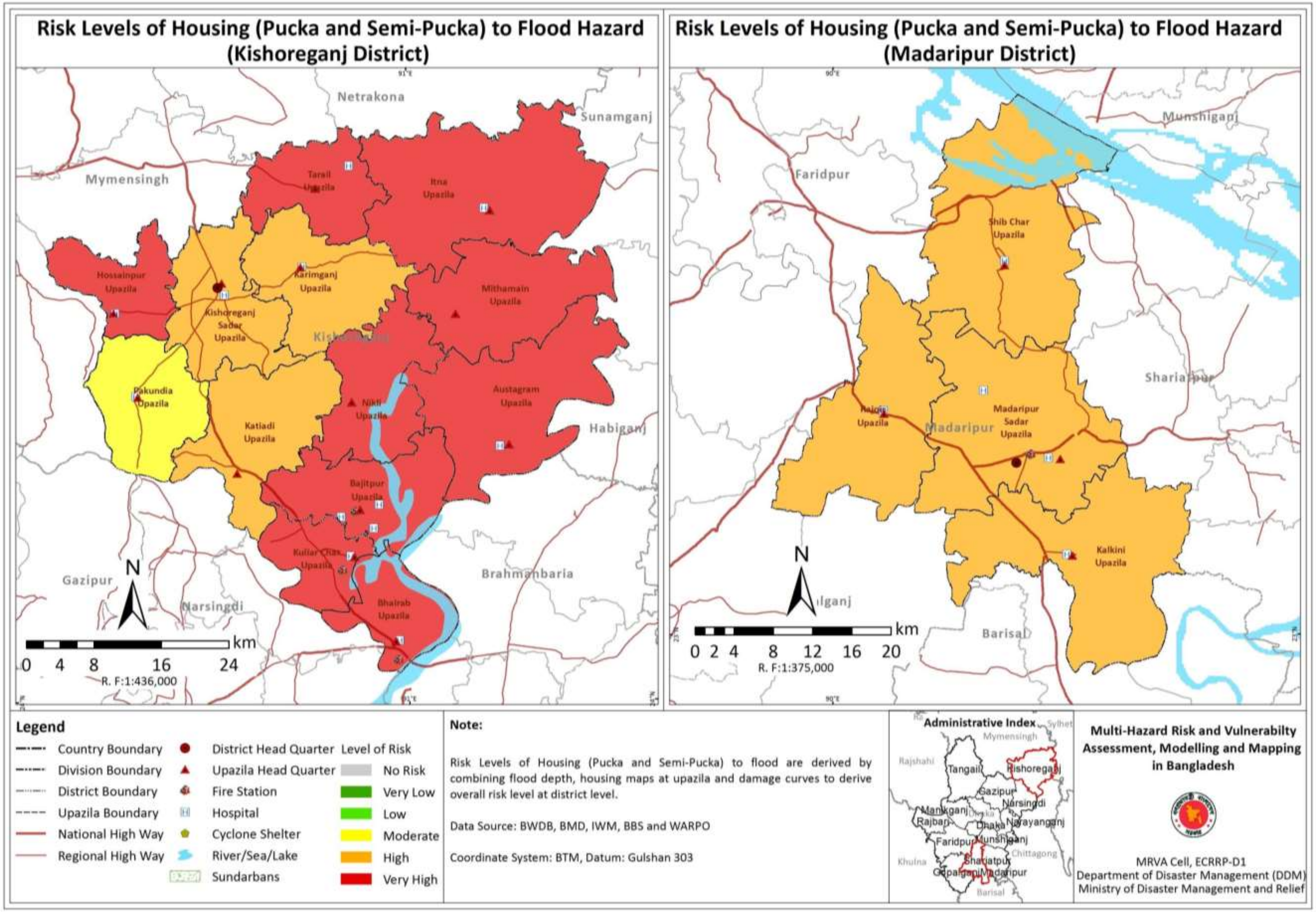
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Kishoreganj District)
Netrakona
Sunamganj
Mymensingh
Tarail Upazila
Itna Upazila
Hossainpur Upazila
Karimganj Upazila
Mithamain Upazila
Kishoreganj Sadar Upazila
Pakundia Upazila
Katiadi Upazila
Nikli Upazila
Austagram Upazila
Habiganj
Bajitpur Upazila
Kuliar Char Upazila
Bhairab Upazila
Brahmanbaria
Gazipur
Narsingdi
N
km
0 4 8 16 24
R. F:1:436,000
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Madaripur District)
Munshiganj
Faridpur
Shib Char Upazila
Shariatpur
Rajoir Upazila
Madaripur
Madaripur Sadar Upazila
Kalkini Upazila
Barisal
N
km
0 2 4 8 12 16 20
R. F:1:375,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Mymensingh
Sylhet
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Chittagong
Khulna
Shariatpur
Gopalganj
Madaripur
Barisal
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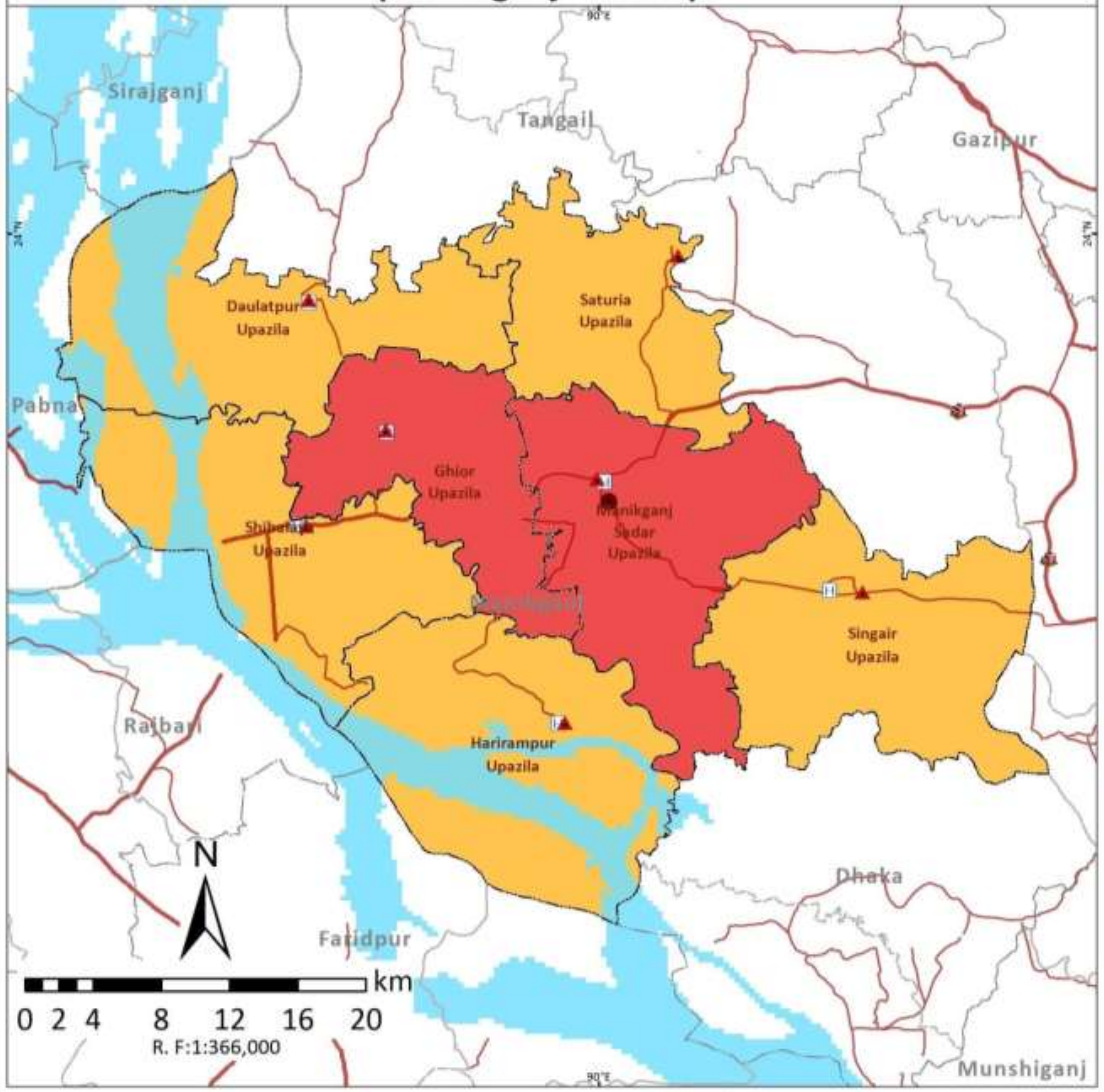
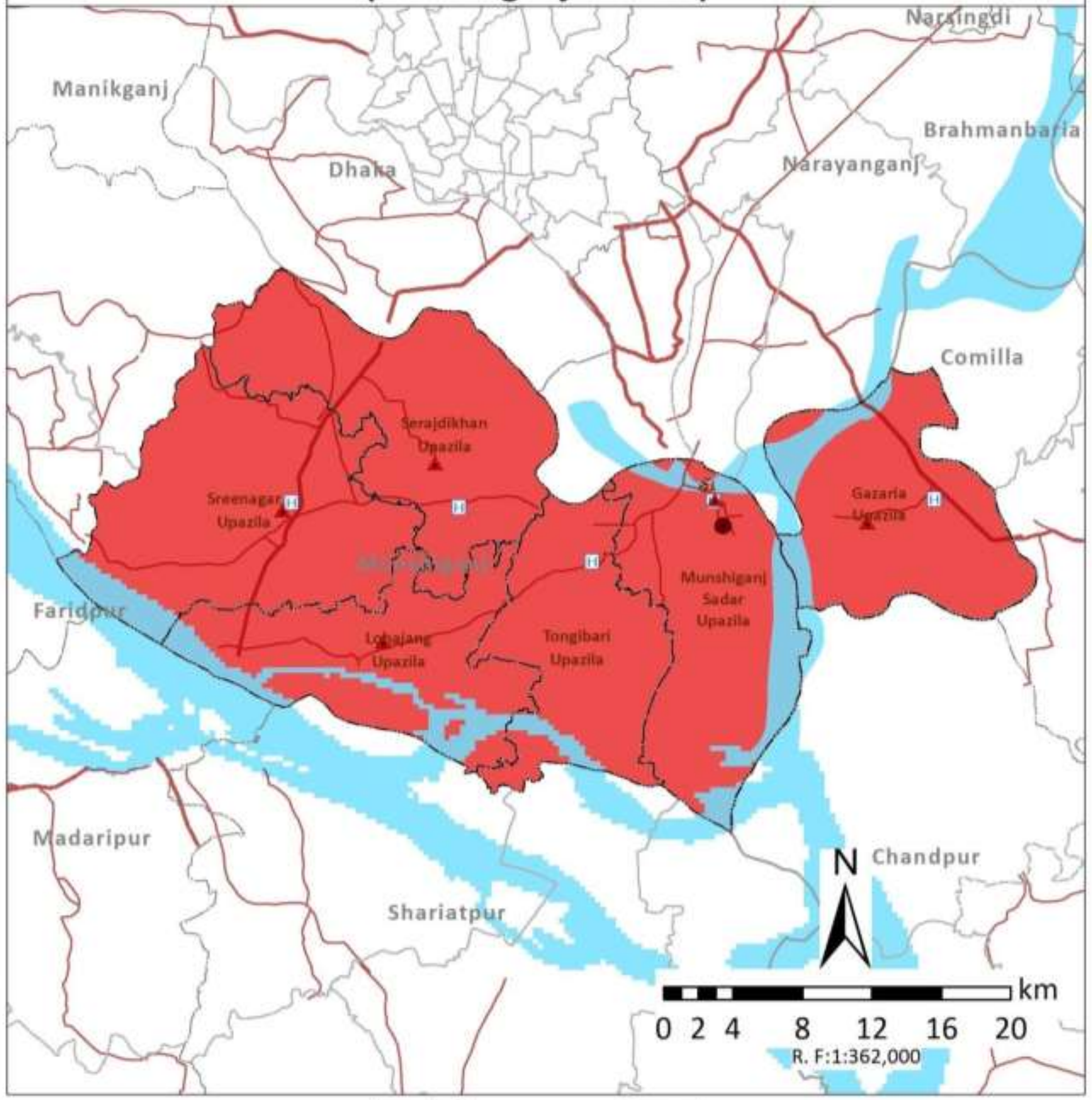
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Manikganj District)



Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Munshiganj District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

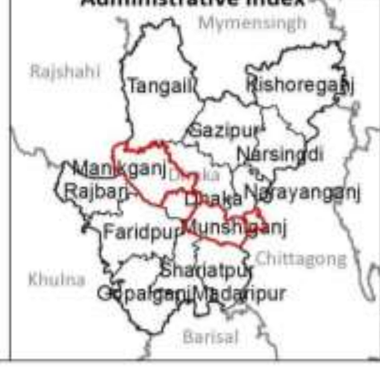
Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index



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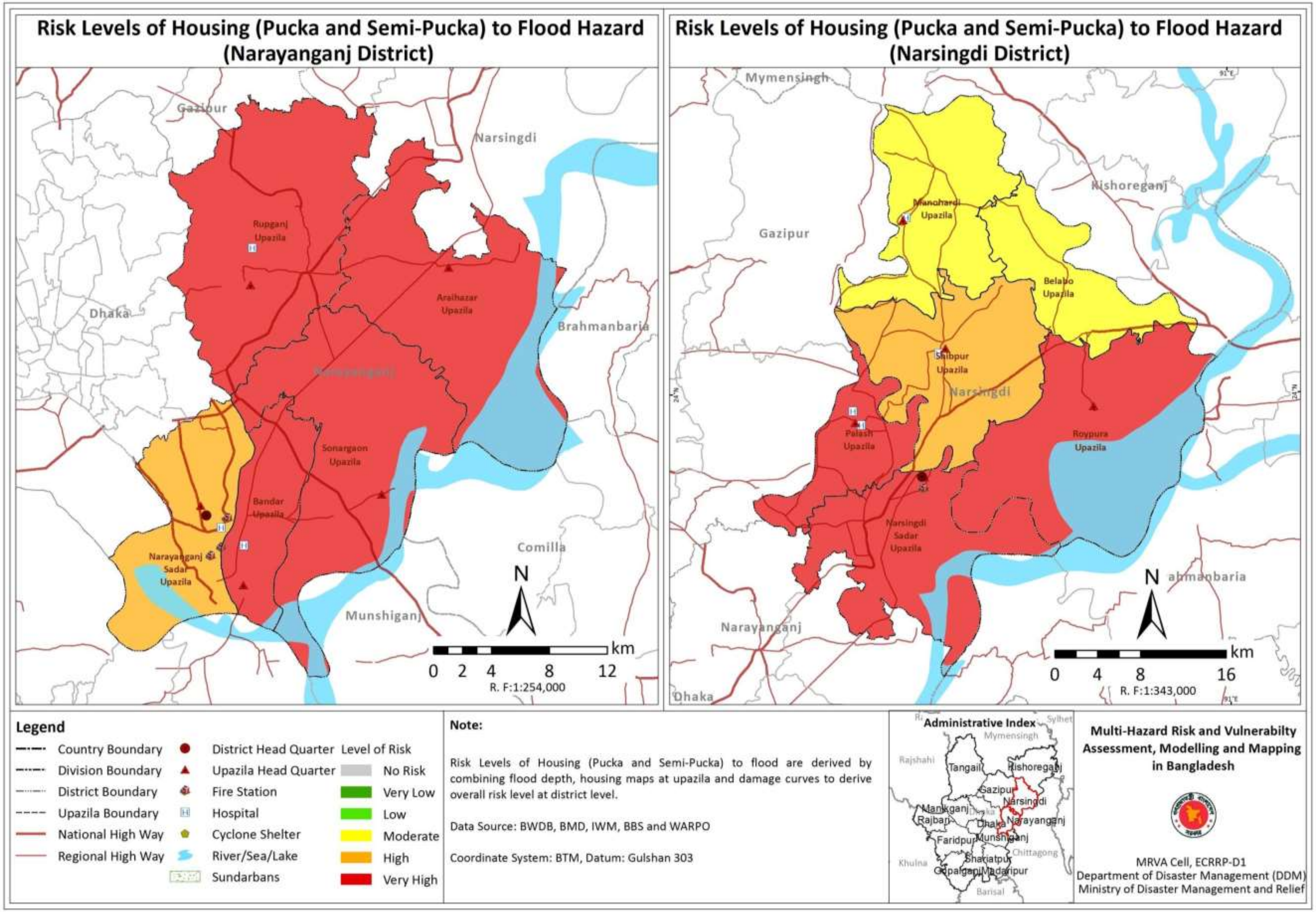
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Narayanganj District)
Gazipur
Narsingdi
Dhaka
Brahmanbaria
Comilla
Munshiganj
Rupganj Upazila
Araihazar Upazila
Sonargaon Upazila
Bandar Upazila
Narayanganj Sadar Upazila
N
0 2 4 8 12 km
R. F:1:254,000
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Narsingdi District)
Mymensingh
Kishoreganj
Gazipur
Narayanganj
Dhaka
Monohardi Upazila
Belabo Upazila
Shibpur Upazila
Palash Upazila
Roypura Upazila
Narsingdi Sadar Upazila
Narsingdi
N
0 4 8 16 km
R. F:1:343,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Mymensingh
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Shariatpur
Gopalganj
Madaripur
Khulna
Chittagong
Barisal
Sylhet
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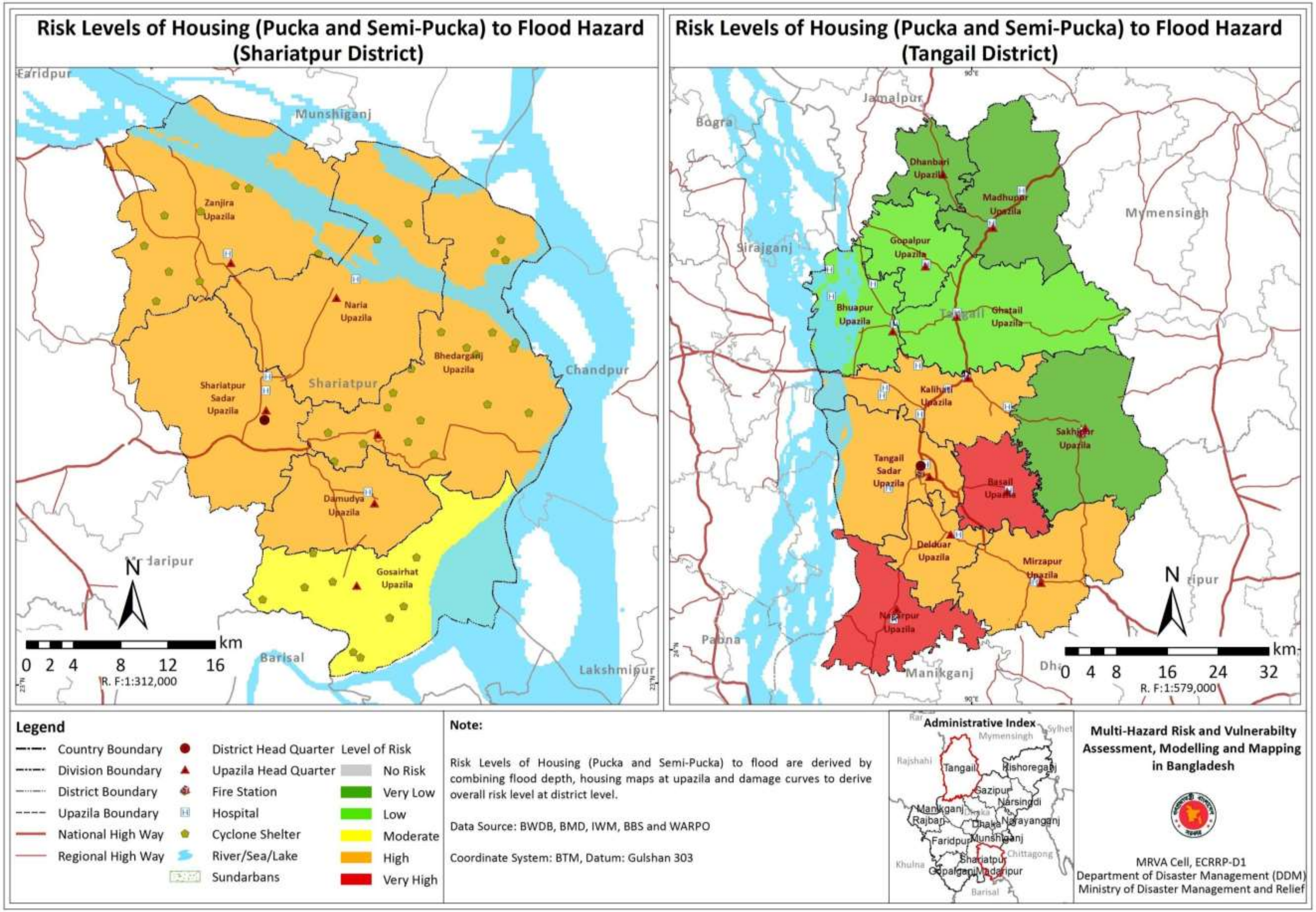

Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Shariatpur District)
Faridpur
Munshiganj
Zanjira Upazila
Naria Upazila
Bhedarganj Upazila
Shariatpur Sadar Upazila
Shariatpur
Chandpur
Damudya Upazila
Gosairhat Upazila
Barisal
Lakshmipur
km
0 2 4 8 12 16
R. F:1:312,000
N
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Tangail District)
Jamalpur
Bogra
Dhanbari Upazila
Madhupur Upazila
Mymensingh
Sirajganj
Gopalpur Upazila
Bhuapur Upazila
Tangail
Ghatail Upazila
Kalihati Upazila
Sakhipur Upazila
Tangail Sadar Upazila
Basail Upazila
Delduar Upazila
Mirzapur Upazila
Nagarpur Upazila
Pabna
Manikganj
km
0 4 8 16 24 32
R. F:1:579,000
N
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
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Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Khulna Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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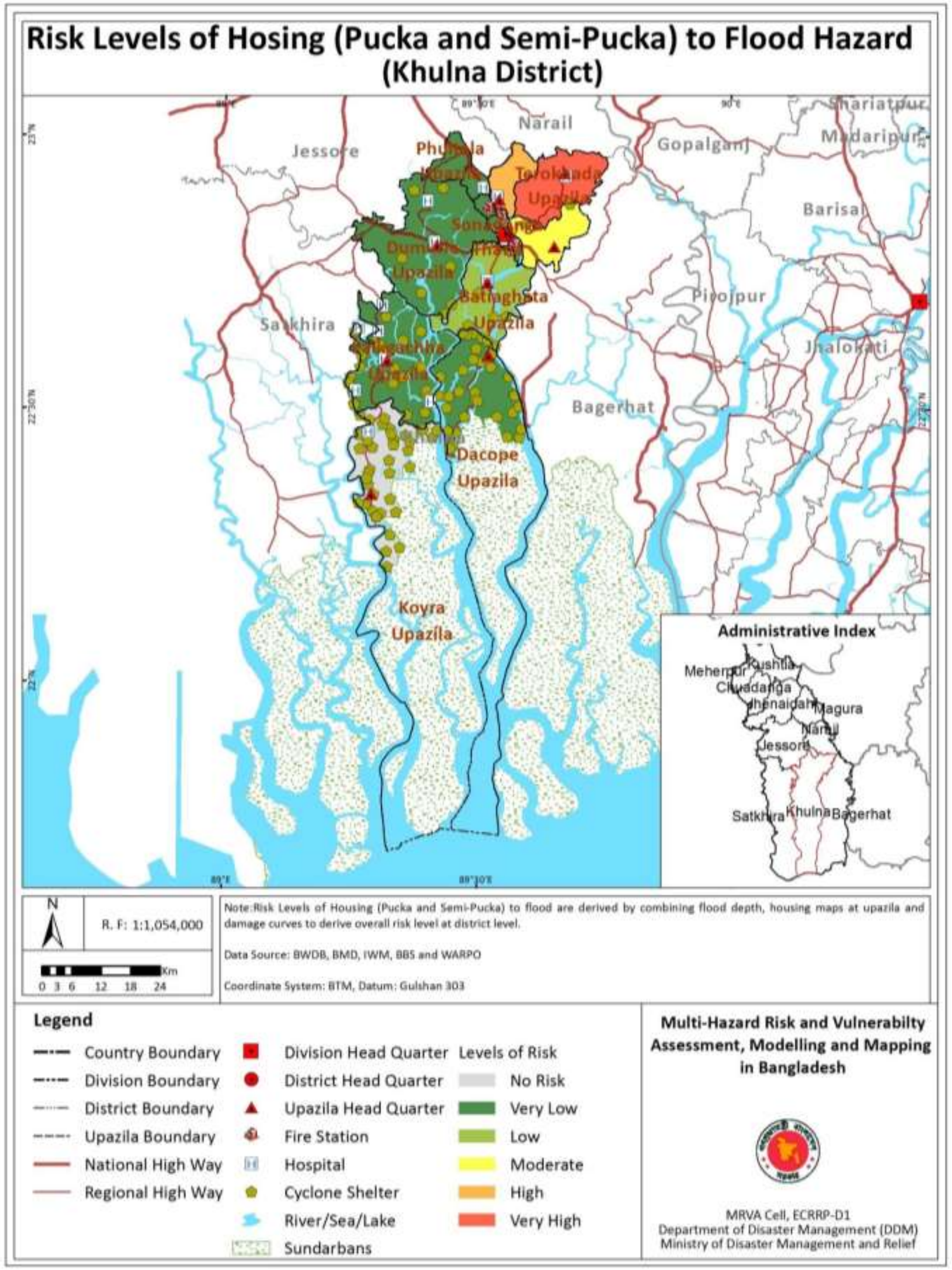
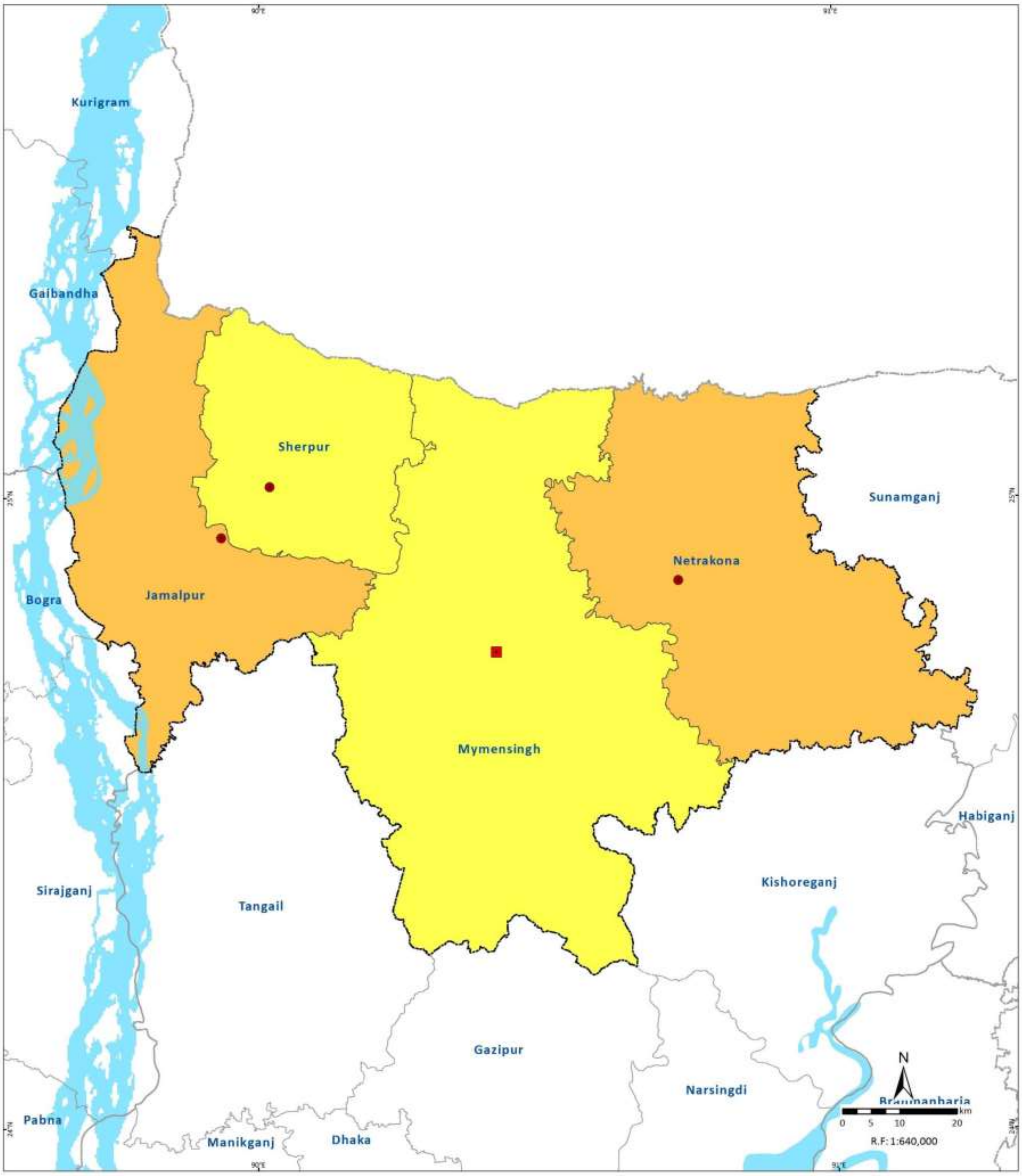

Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard
(Khulna District)
Narail
Jessore
Gopalganj
Madaripur
Barisal
Pirojpur
Jhalokati
Satkhira
Bagerhat
Dacope
Upazila
Koyra
Upazila
Administrative Index
Meherpur
Kushtia
Chuadanga
Jhenaidah
Magura
Narail
Jessore
Satkhira
Khulna
Bagerhat
N
R. F: 1:1,054,000
Km
0 3 6 12 18 24
Note:Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Levels of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Mymensingh Division)



Legend
- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk
- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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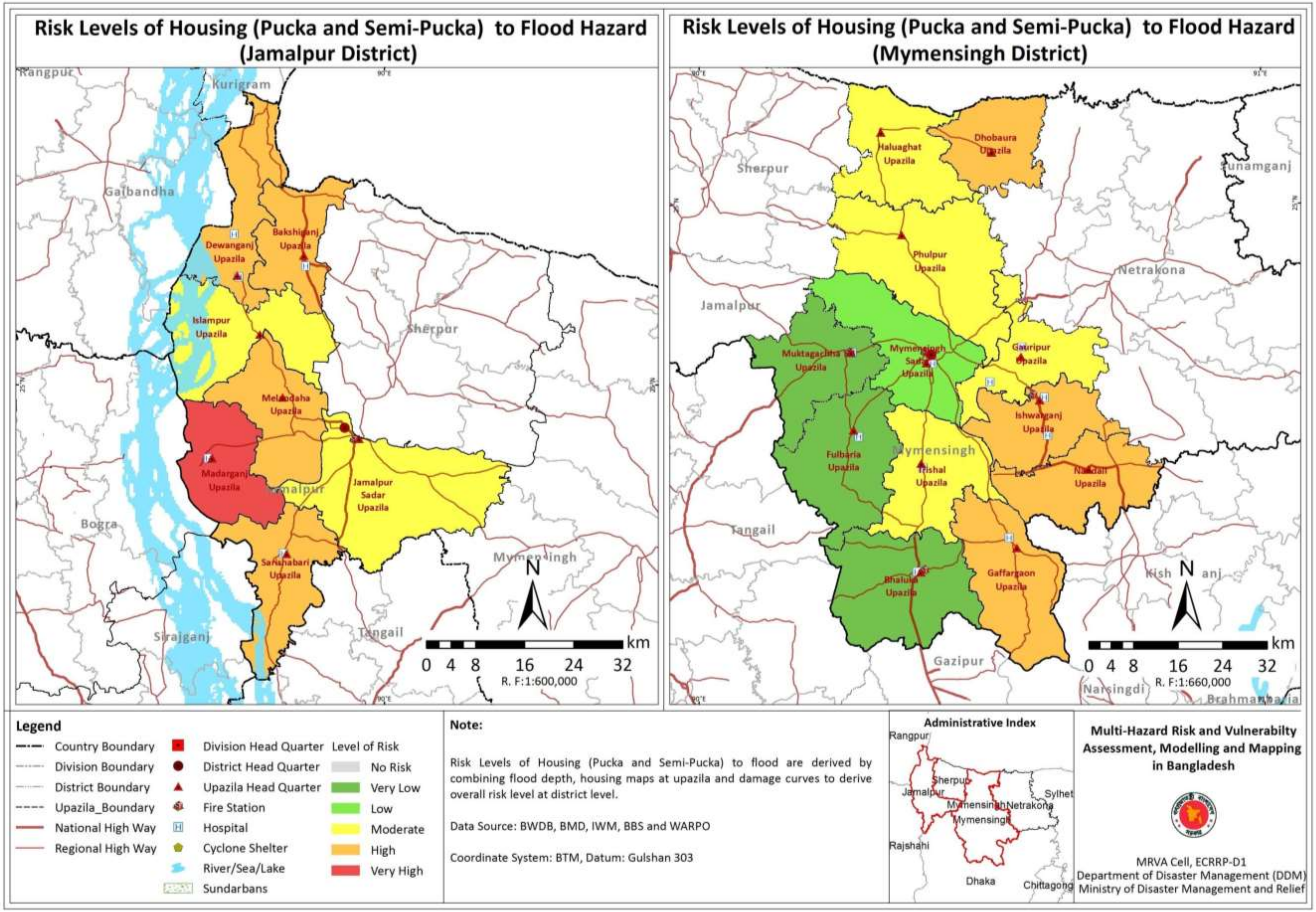
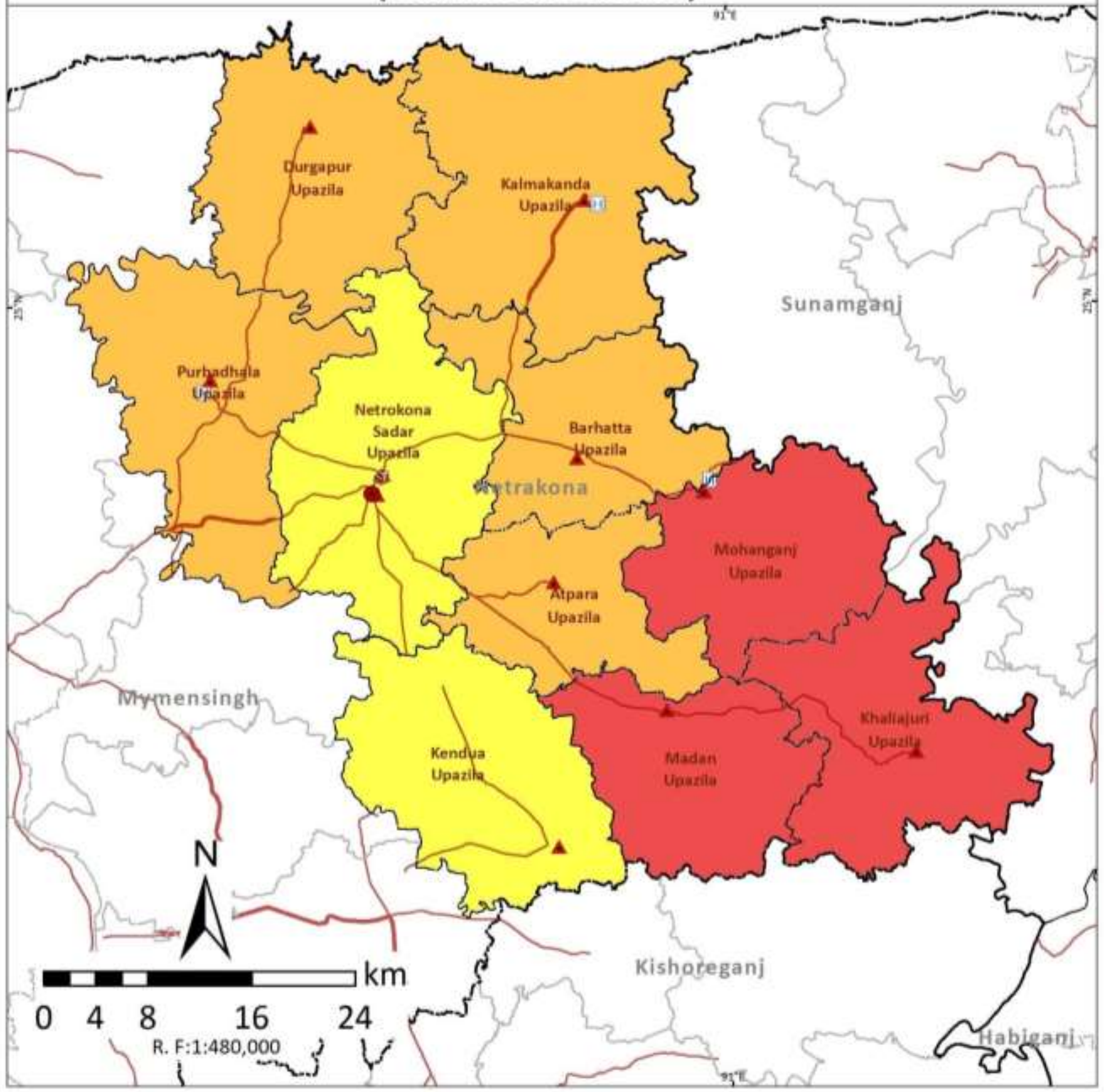
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

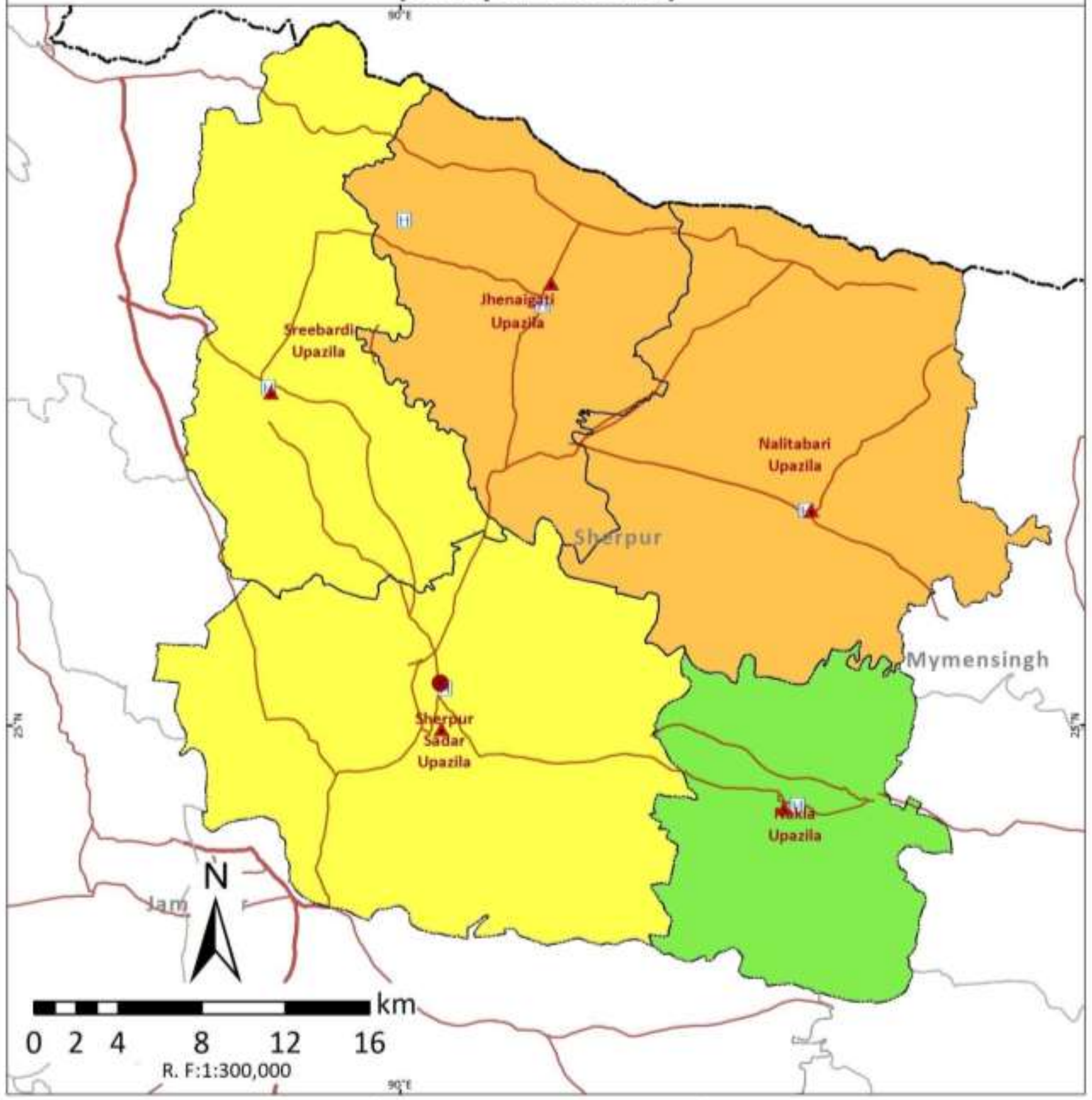
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Jamalpur District)
Rangpur
Kurigram
Gaibandha
Dewanganj Upazila
Bakshiganj Upazila
Islampur Upazila
Sherpur
Melandaha Upazila
Madarganj Upazila
Jamalpur
Jamalpur Sadar Upazila
Bogra
Sarishabari Upazila
Mymensingh
Sirajganj
Tangail
N
0 4 8 16 24 32 km
R. F:1:600,000
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Mymensingh District)
Haluaghat Upazila
Dhobaura Upazila
Sherpur
Sunamganj
Phulpur Upazila
Netrakona
Jamalpur
Muktagachha Upazila
Mymensingh Sadar Upazila
Gauripur Upazila
Ishwarganj Upazila
Fulbaria Upazila
Mymensingh
Trishal Upazila
Nandail Upazila
Tangail
Bhaluka Upazila
Gaffargaon Upazila
Kishoreganj
Gazipur
Narsingdi
Brahmanbaria
N
0 4 8 16 24 32 km
R. F:1:660,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Sherpur
Jamalpur
Mymensingh
Netrakona
Sylhet
Rajshahi
Dhaka
Chittagong
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Netrakona District)



Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Sherpur District)



Legend

Country Boundary	District Head Quarter	Level of Risk	
Division Boundary	Upazila Head Quarter		No Risk
District Boundary	Fire Station		Very Low
Upazila Boundary	Hospital		Low
National High Way	Cyclone Shelter		Moderate
Regional High Way	River/Sea/Lake		High
	Sundarbans		Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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MRVA Cell, ECRRP-D1
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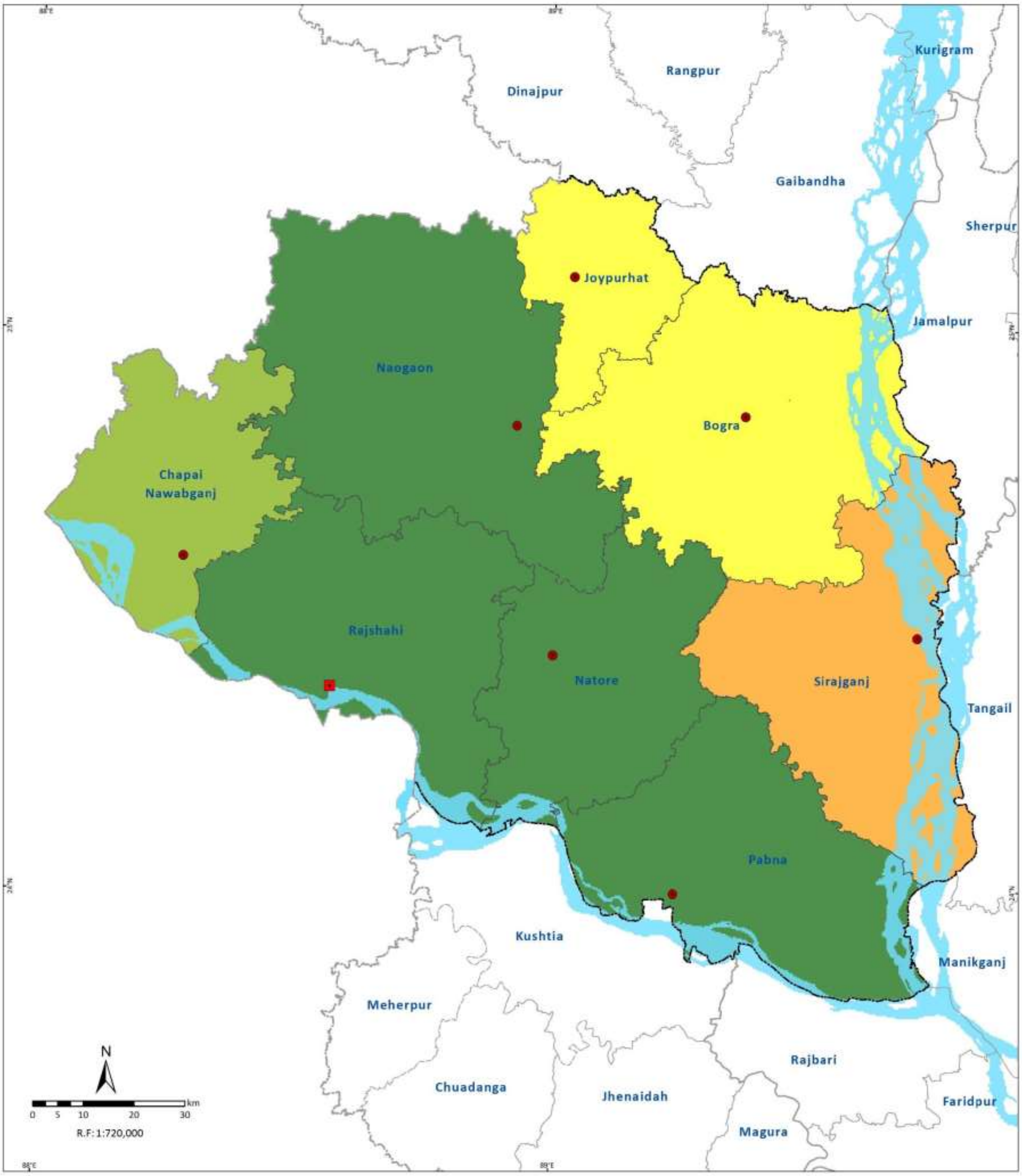
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Rajshahi Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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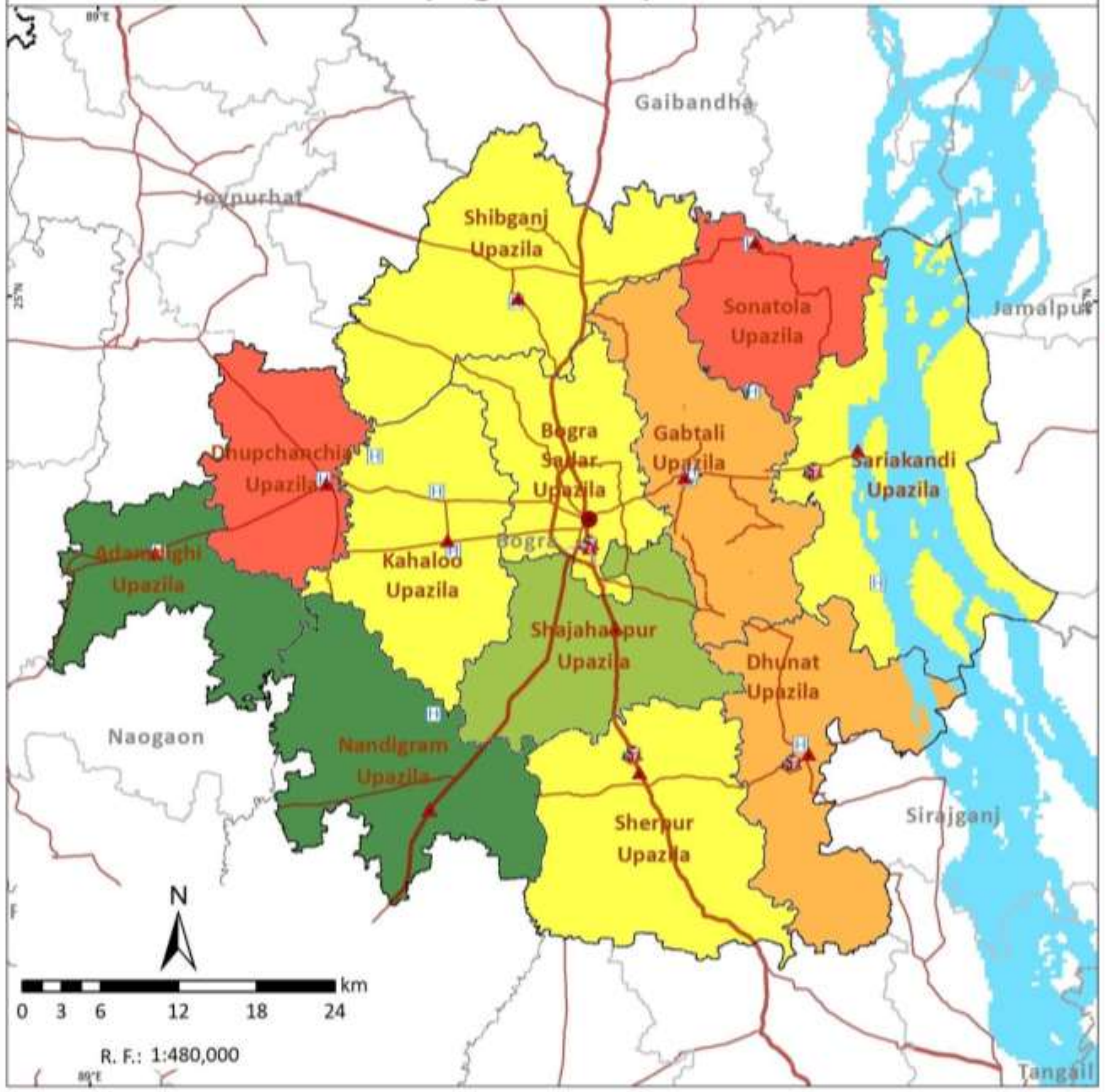
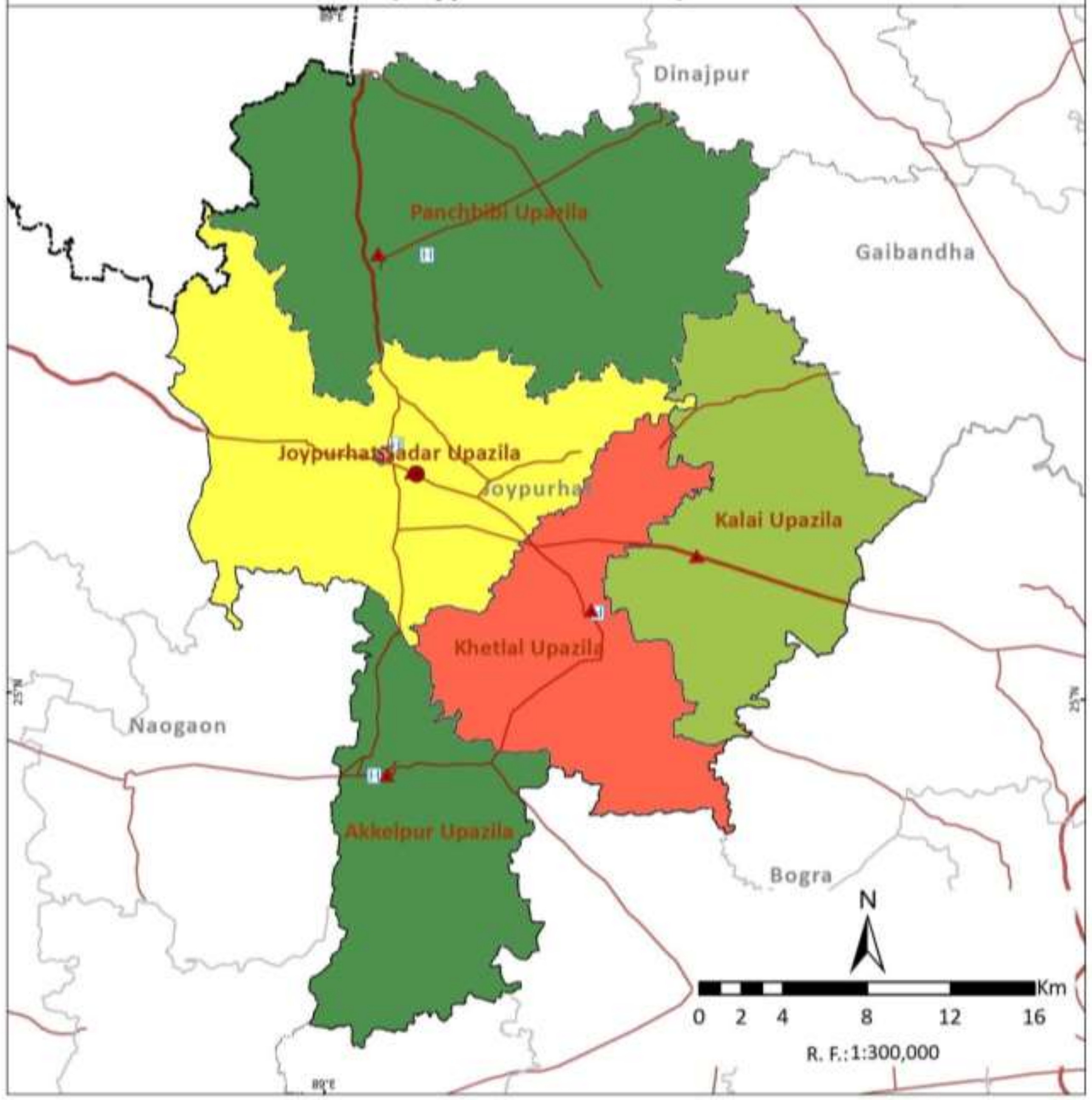
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Bogra District)



Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard (Joypurhat District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire stations
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

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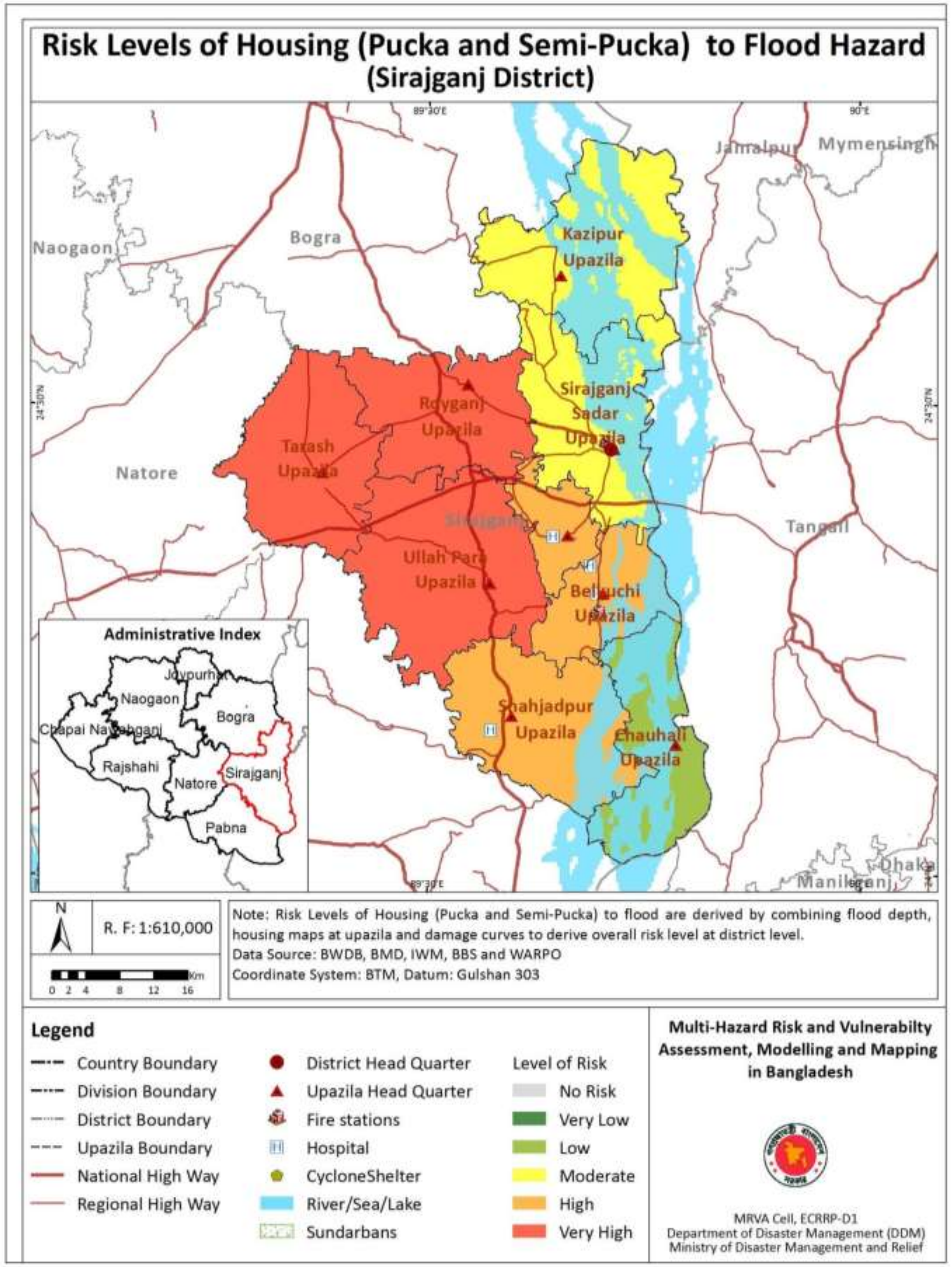
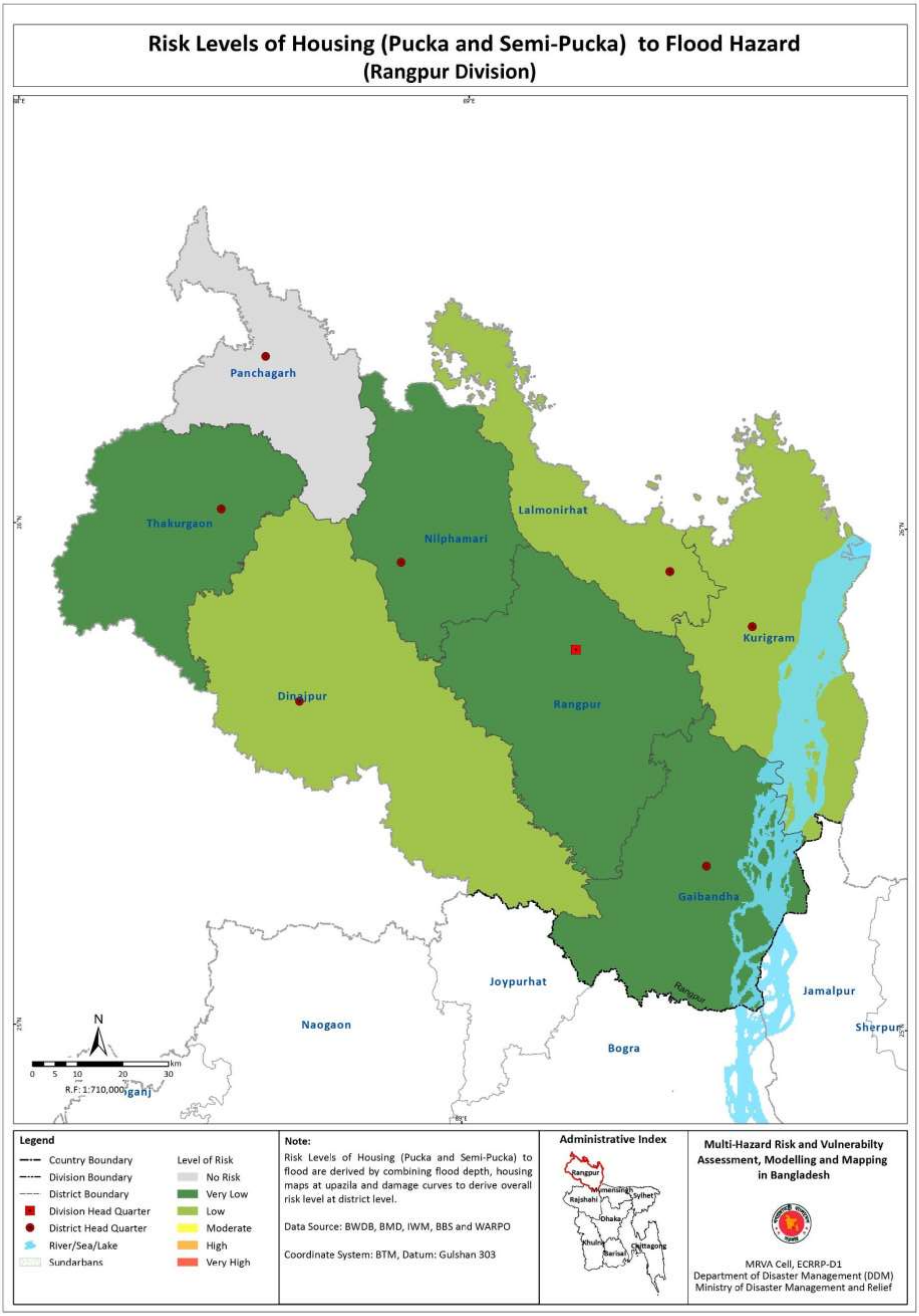
Ministry of Disaster Management and Relief


Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Sirajganj District)
Jamalpur
Mymensingh
Naogaon
Bogra
Kazipur Upazila
Sirajganj Sadar Upazila
Royganj Upazila
Tarash Upazila
Natore
Tangail
Ullah Para Upazila
Belkuchi Upazila
Shahjadpur Upazila
Chauhali Upazila
Dhaka
Manikganj
Administrative Index
Joypurhat
Naogaon
Bogra
Chapai Nawabganj
Rajshahi
Sirajganj
Natore
Pabna
N
R. F: 1:610,000
Km
0 2 4 8 12 16
Note: Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
CycloneShelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Rangpur Division)
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
Joypurhat
Jamalpur
Sherpur
Naogaon
Bogra
N
0 5 10 20 30 km
R.F: 1:710,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Rajshahi
Mymensingh
Sylhet
Dhaka
Khulna
Barisal
Chittagong
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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Department of Disaster Management (DDM)
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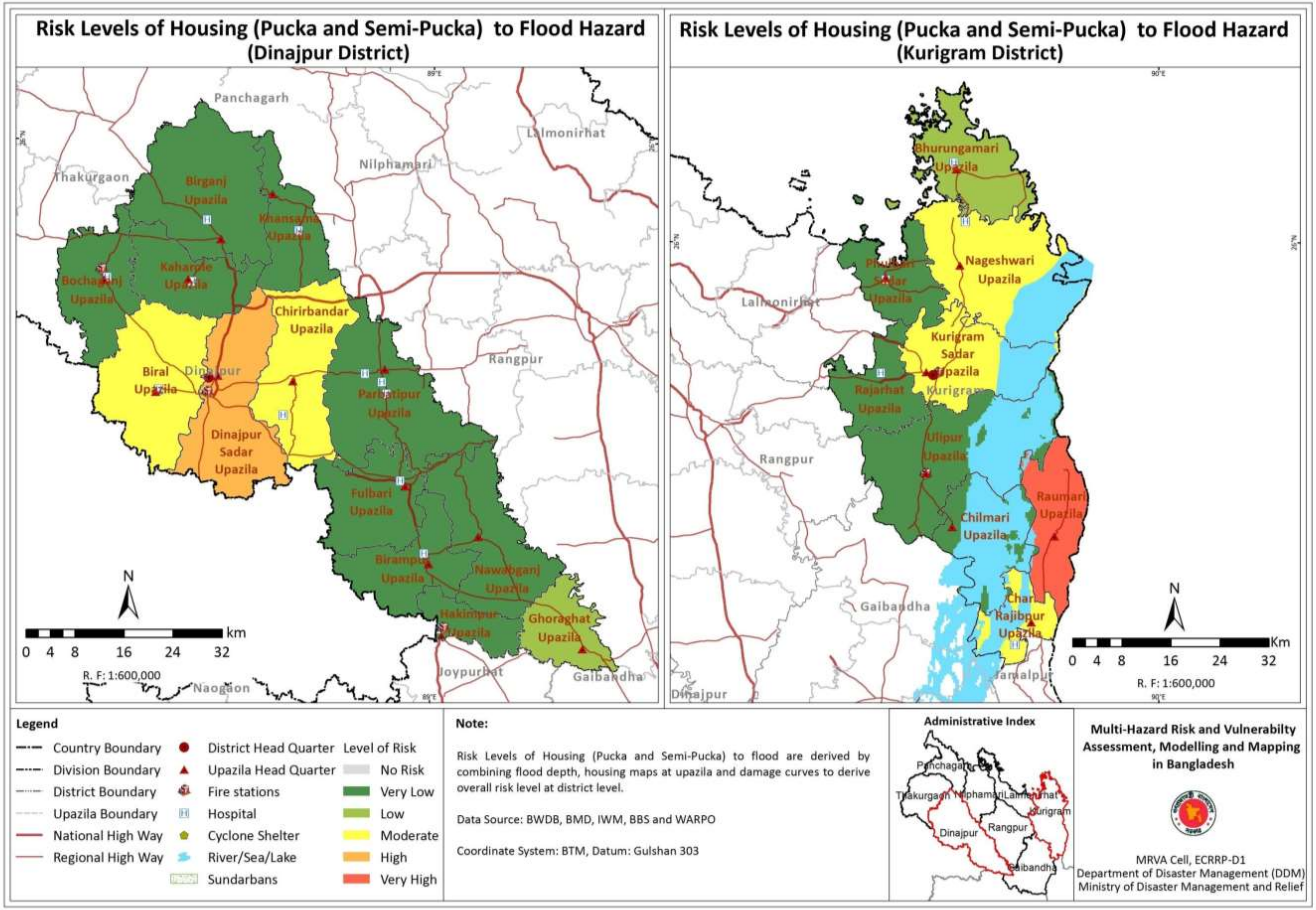
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Dinajpur District)
Panchagarh
Lalmonirhat
Nilphamari
Thakurgaon
Birganj Upazila
Khansama Upazila
Kaharole Upazila
Bochaganj Upazila
Chirirbandar Upazila
Biral Upazila
Dinajpur
Rangpur
Parbatipur Upazila
Dinajpur Sadar Upazila
Fulbari Upazila
Birampur Upazila
Nawabganj Upazila
Hakimpur Upazila
Ghoraghat Upazila
Joypurhat
Gaibandha
Naogaon
N
km
0 4 8 16 24 32
R. F: 1:600,000
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Kurigram District)
Bhurungamari Upazila
Nageshwari Upazila
Phulbari Sadar Upazila
Lalmonirhat
Kurigram Sadar Upazila
Kurigram
Rajarhat Upazila
Ulipur Upazila
Rangpur
Raumari Upazila
Chilmari Upazila
Char Rajibpur Upazila
Gaibandha
Jamalpur
Dinajpur
N
Km
0 4 8 16 24 32
R. F: 1:600,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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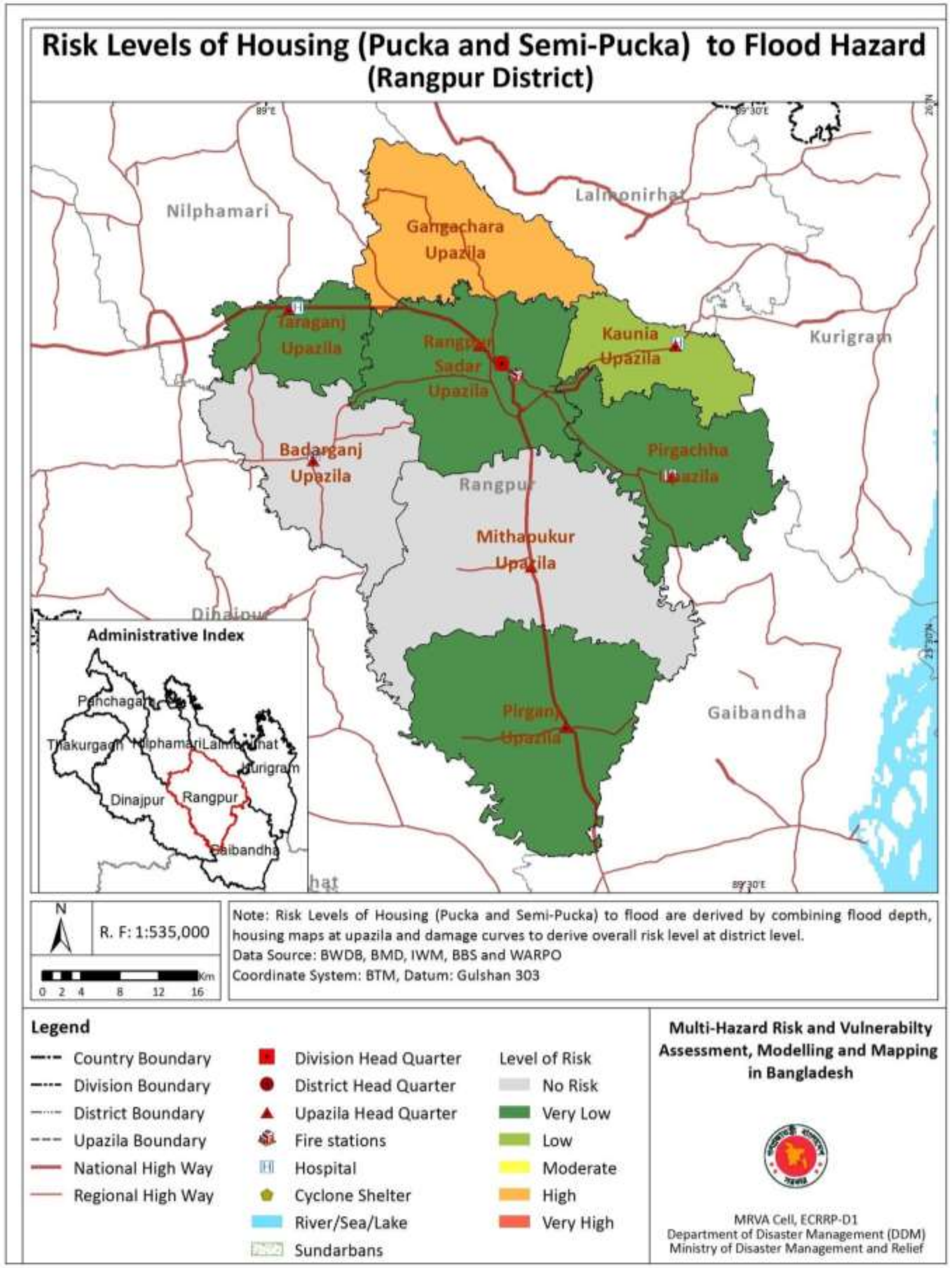
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Rangpur District)
Nilphamari
Lalmonirhat
Kurigram
Gaibandha
Rangpur
Gangachara Upazila
Taraganj Upazila
Rangpur Sadar Upazila
Kaunia Upazila
Badarganj Upazila
Pirgachha Upazila
Mithapukur Upazila
Pirganj Upazila
Administrative Index
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
R. F: 1:535,000
Note: Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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Department of Disaster Management (DDM)
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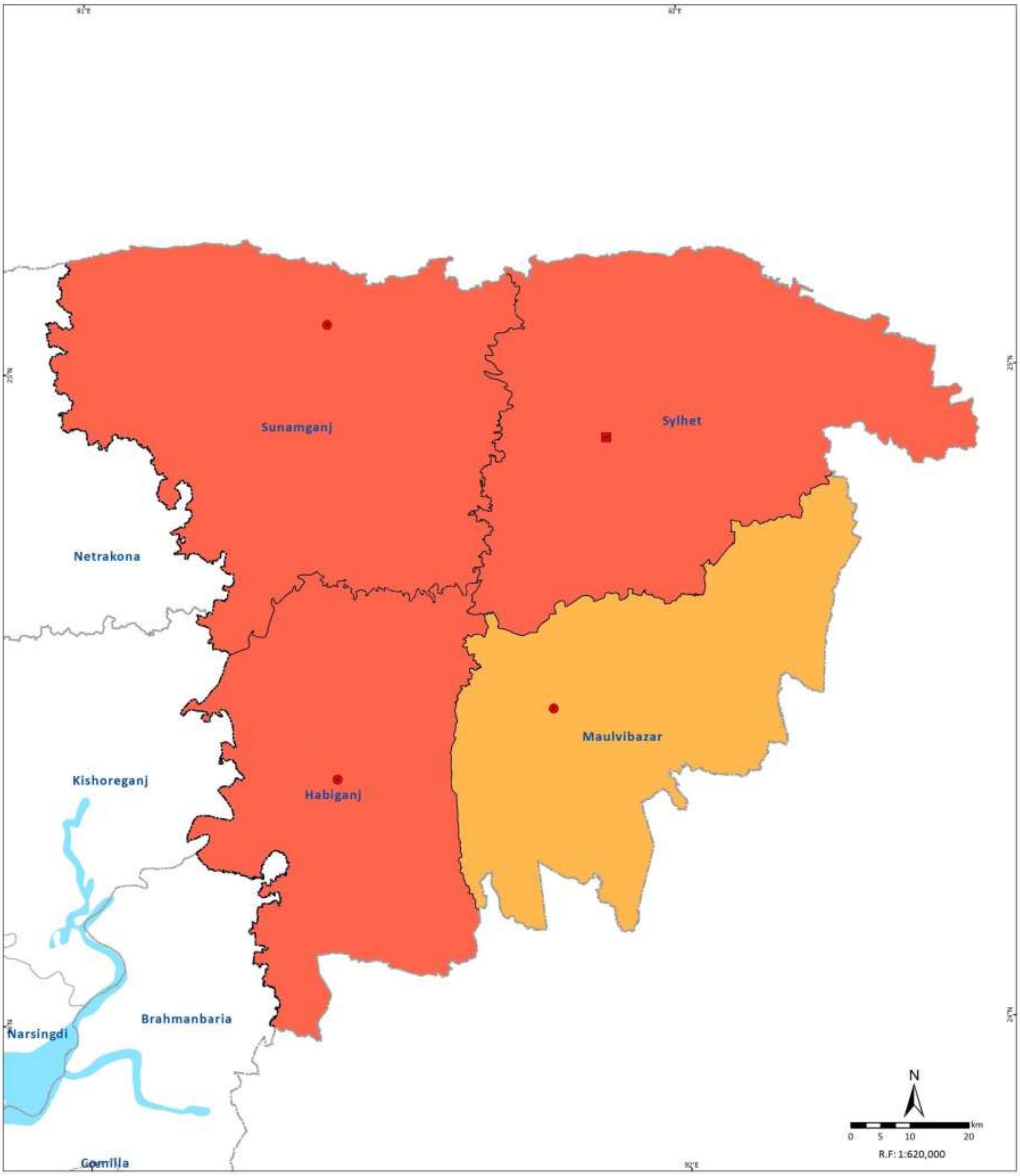
Risk Levels of Housing (Pucka and Semi-Pucka) to Flood Hazard
(Sylhet Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

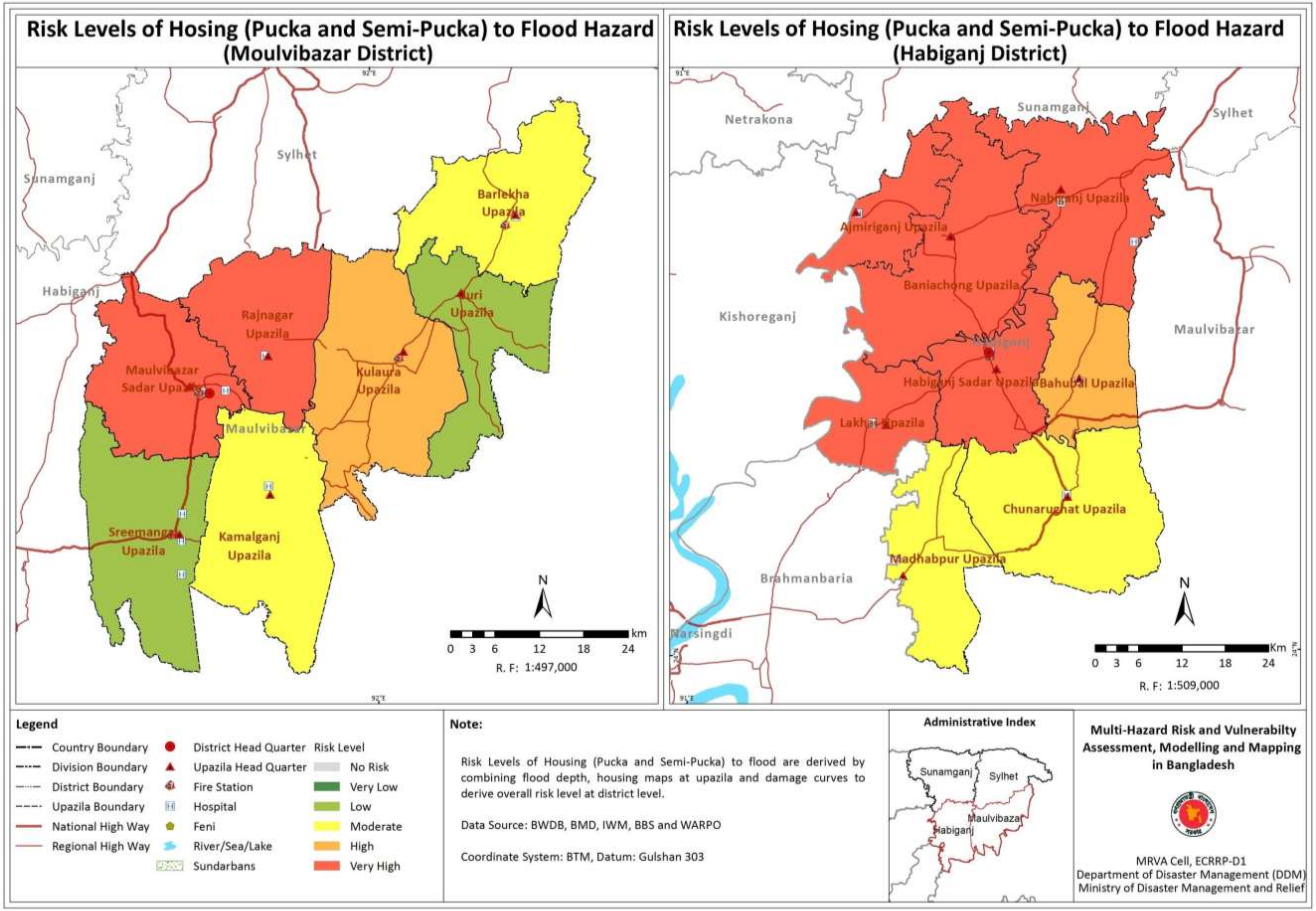
Data Source: BWDB, BMD, IWM, BBS and WARPO

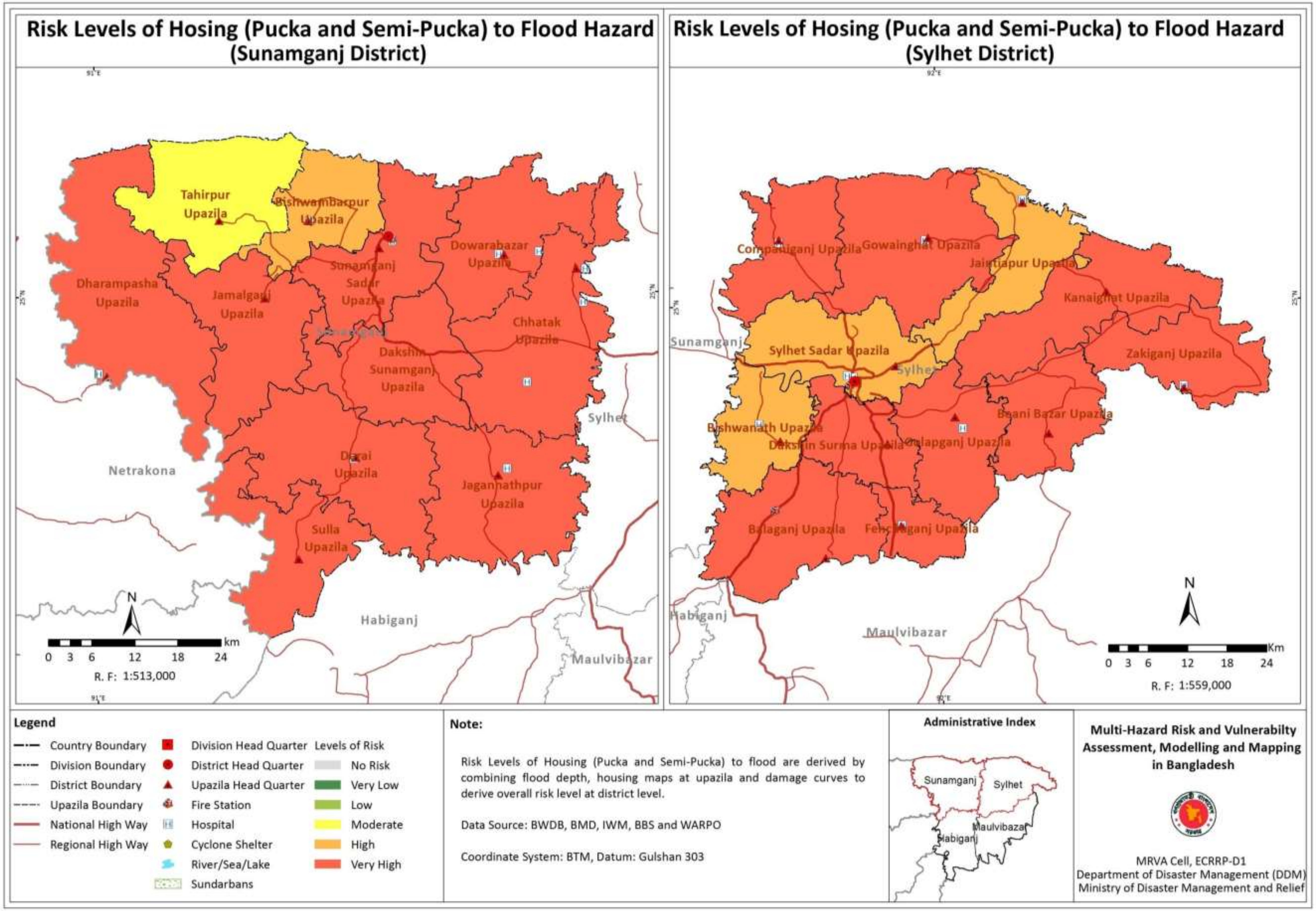
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard
(Moulvibazar District)
Sunamganj
Sylhet
Habiganj
Barlekha Upazila
Juri Upazila
Rajnagar Upazila
Kulaura Upazila
Maulvibazar Sadar Upazila
Maulvibazar
Sreemangal Upazila
Kamalganj Upazila
N
0 3 6 12 18 24 km
R. F: 1:497,000
Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard
(Habiganj District)
Netrakona
Sunamganj
Sylhet
Nabiganj Upazila
Ajmiriganj Upazila
Baniachong Upazila
Kishoreganj
Maulvibazar
Habiganj Sadar Upazila
Bahubal Upazila
Lakhai Upazila
Chunarughat Upazila
Madhabpur Upazila
Brahmanbaria
Narsingdi
N
0 3 6 12 18 24 Km
R. F: 1:509,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Feni
River/Sea/Lake
Sundarbans
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Sunamganj
Sylhet
Maulvibazar
Habiganj
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief



Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard
(Sunamganj District)
Risk Levels of Hosing (Pucka and Semi-Pucka) to Flood Hazard
(Sylhet District)
Tahirpur Upazila
Bishwambarpur Upazila
Dharampasha Upazila
Jamalganj Upazila
Sunamganj Sadar Upazila
Dowarabazar Upazila
Chhatak Upazila
Dakshin Sunamganj Upazila
Derai Upazila
Jagannathpur Upazila
Sulla Upazila
Netrakona
Habiganj
Sylhet
Maulvibazar
0 3 6 12 18 24 km
R. F: 1:513,000
Companiganj Upazila
Gowainghat Upazila
Jaintiapur Upazila
Kanaighat Upazila
Sylhet Sadar Upazila
Zakiganj Upazila
Bishwanath Upazila
Dakshin Surma Upazila
Golapganj Upazila
Beani Bazar Upazila
Balaganj Upazila
Fenchuganj Upazila
Sunamganj
Habiganj
Maulvibazar
0 3 6 12 18 24 Km
R. F: 1:559,000
N
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Levels of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Sunamganj
Sylhet
Maulvibazar
Habiganj
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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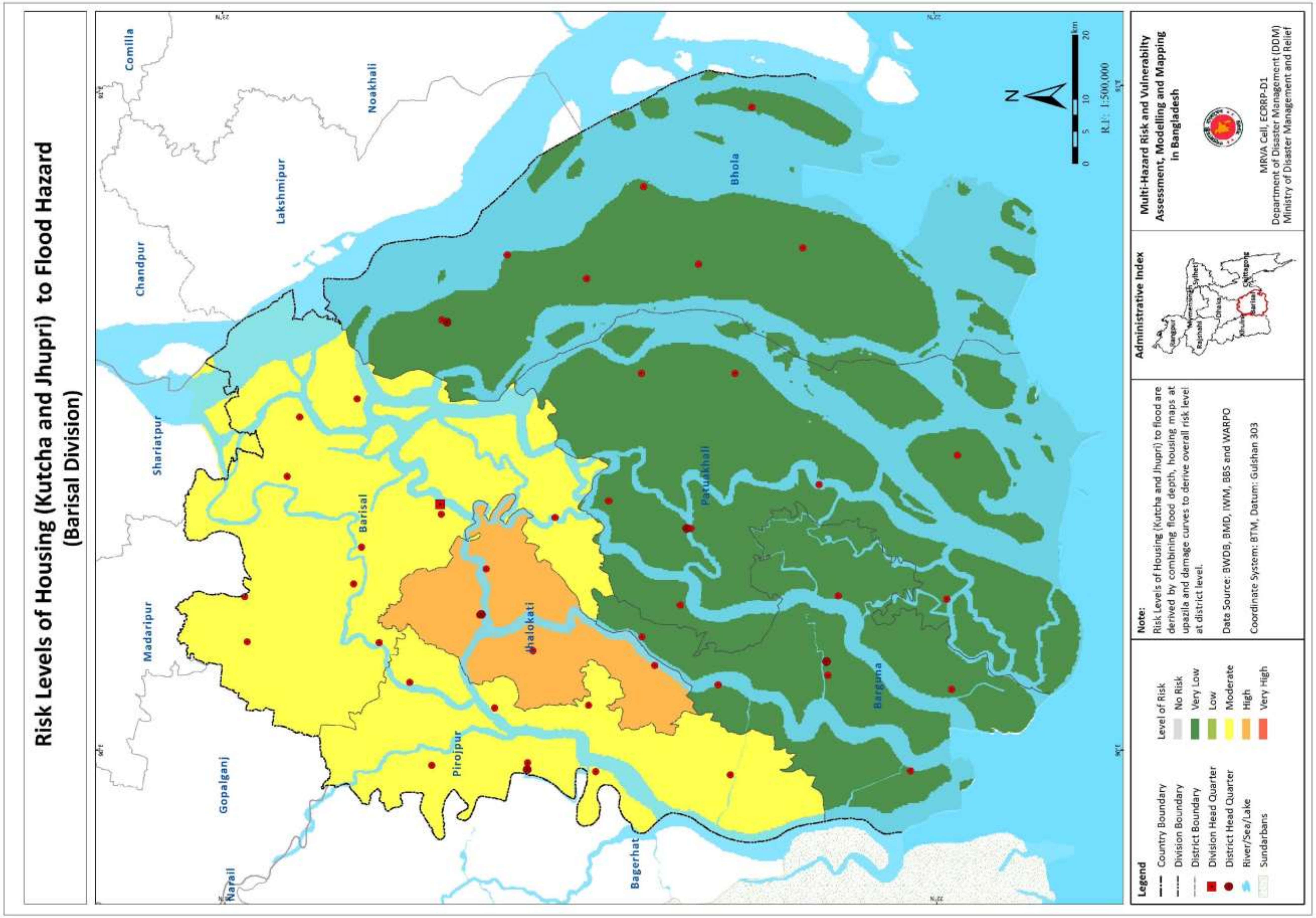
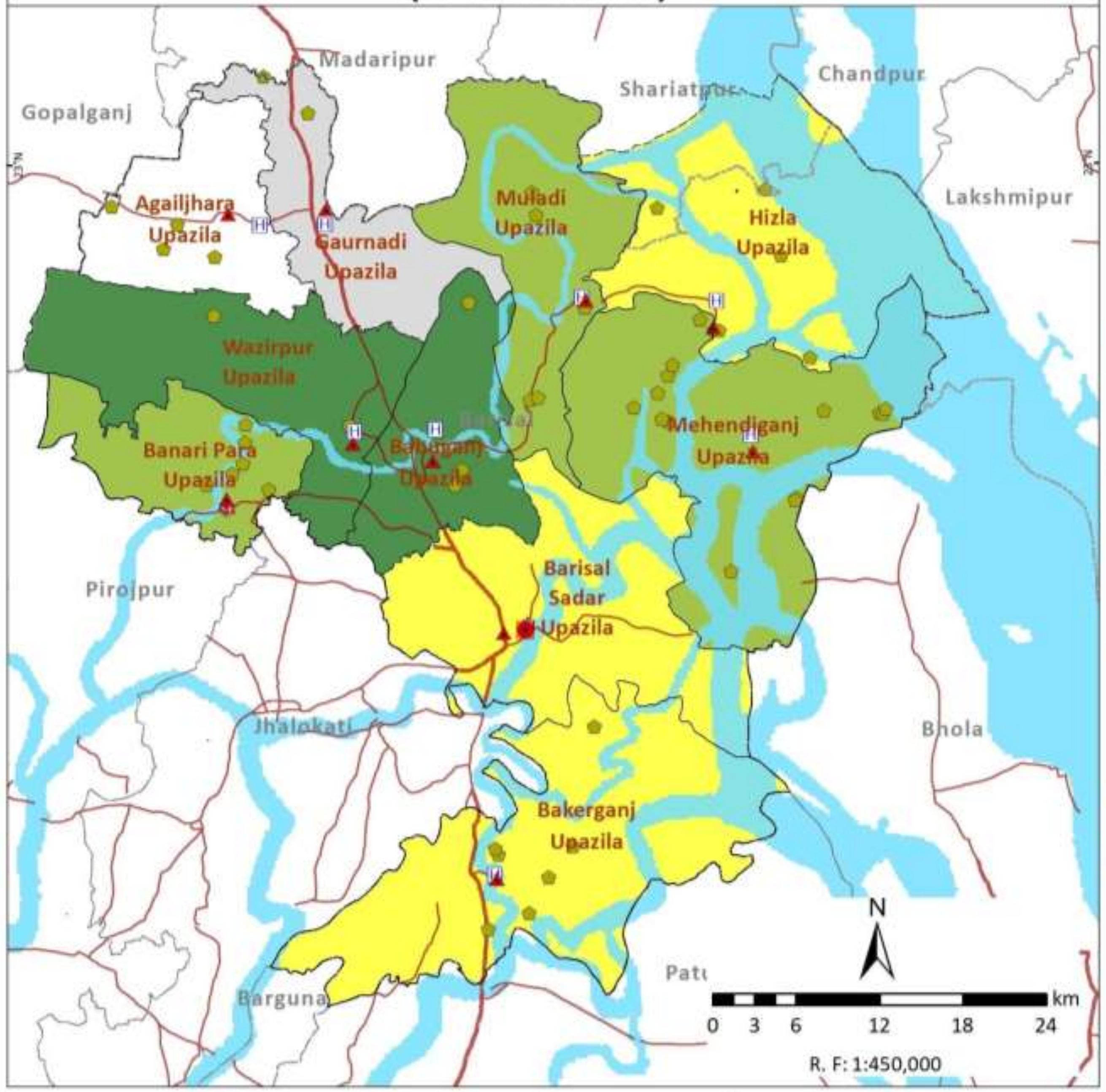
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

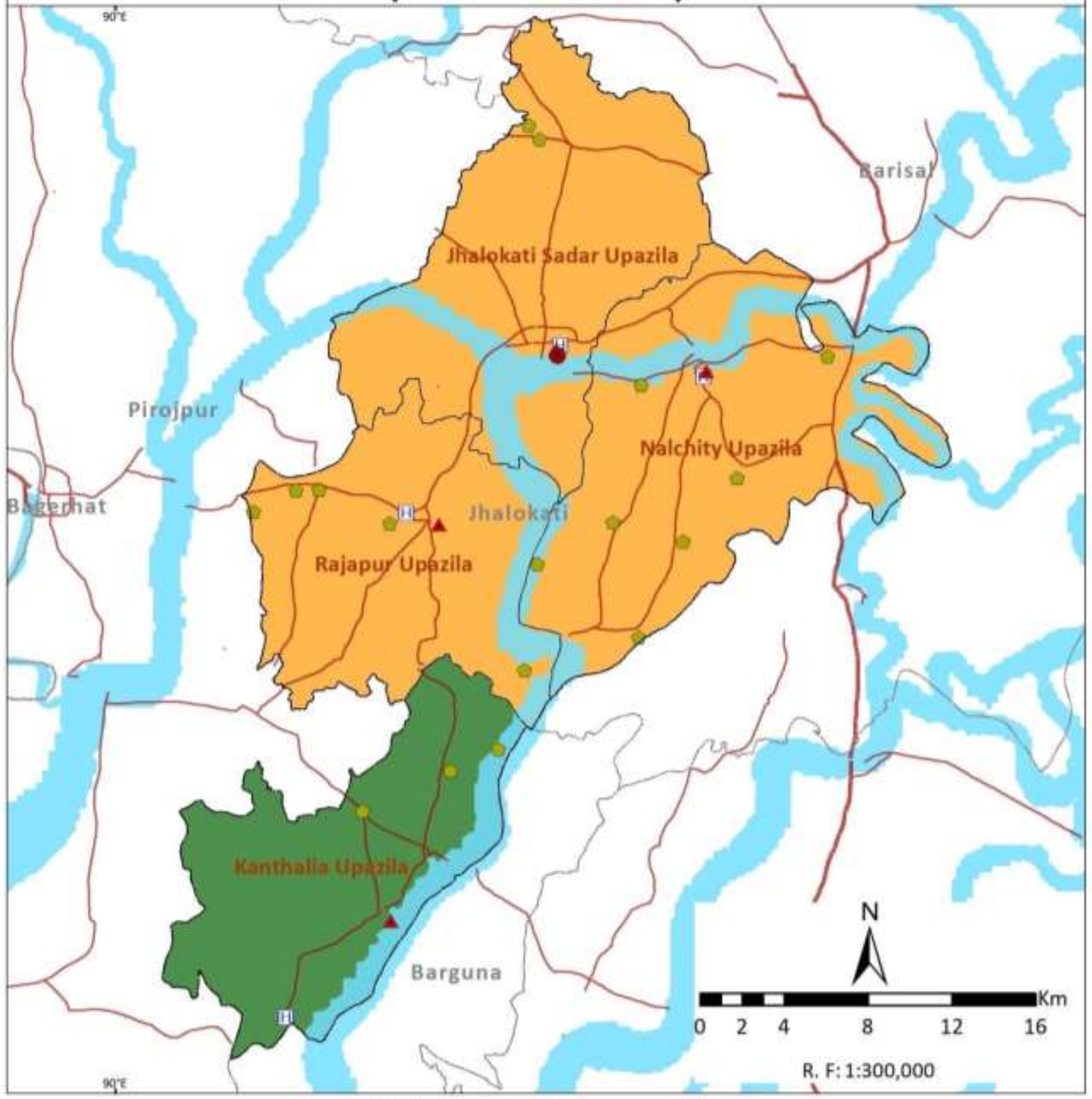


Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Barisal Division)
Comilla
Noakhali
Lakshmipur
Chandpur
Shariatpur
Madaripur
Gopalganj
Narail
Bagerhat
Bhola
Barisal
Patuakhali
Jhalokati
Pirojpur
Barguna
N
0 5 10 20 km
R.F: 1:500,000
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief
Administrative Index
Rangpur
Mymensingh
Sylhet
Rajshahi
Dhaka
Khulna
Barisal
Chittagong
Note:
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High

Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Barisal District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Jhalokati District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

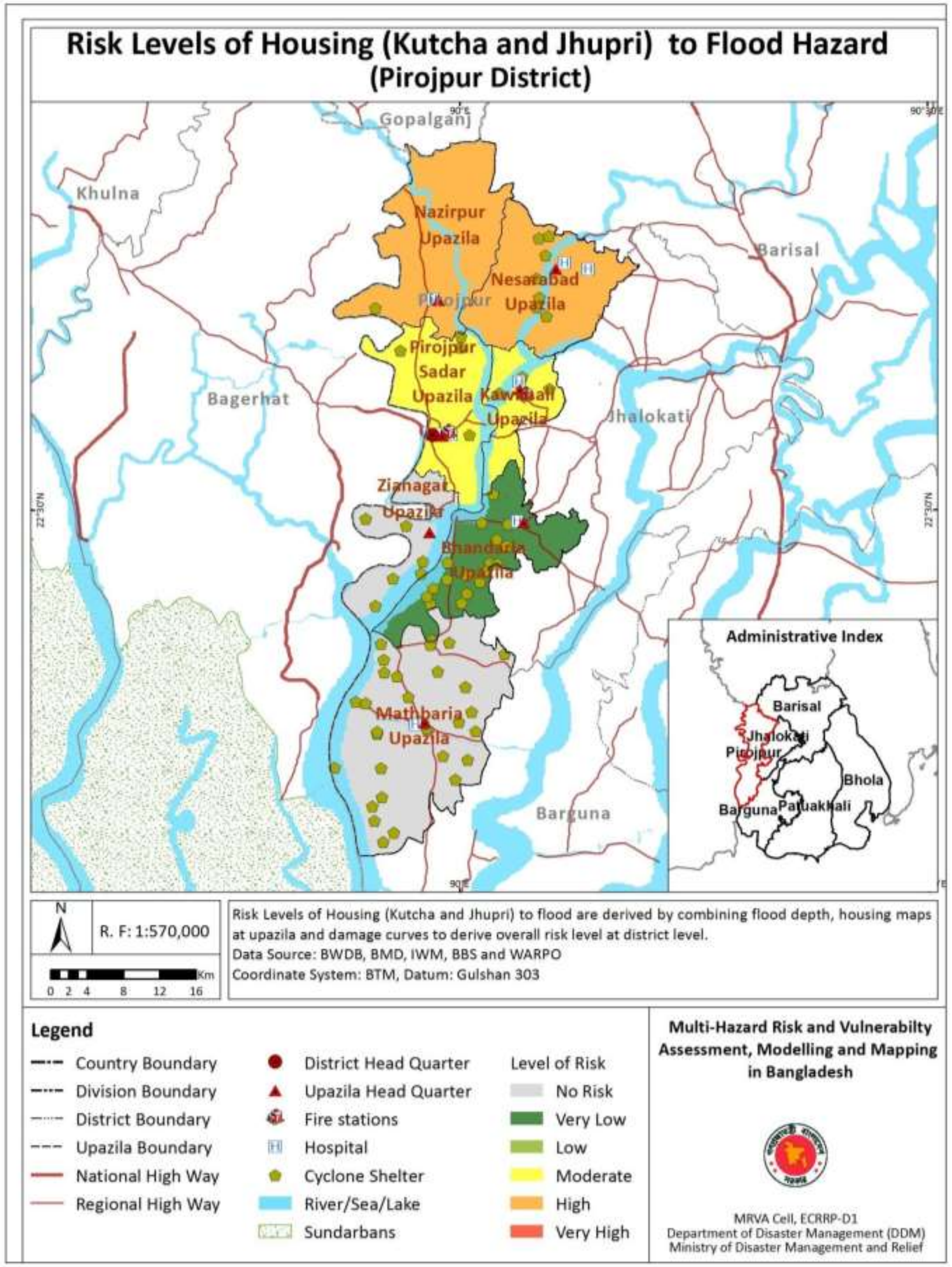
Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Pirojpur District)
Gopalganj
Khulna
Barisal
Bagerhat
Jhalokati
Barguna
Nazirpur
Upazila
Nesarabad
Upazila
Pirojpur
Sadar
Upazila
Kawkhali
Upazila
Zianagar
Upazila
Bhandaria
Upazila
Mathbaria
Upazila
Administrative Index
Barisal
Jhalokati
Pirojpur
Bhola
Barguna
Patuakhali
N
R. F: 1:570,000
0 2 4 8 12 16
Km
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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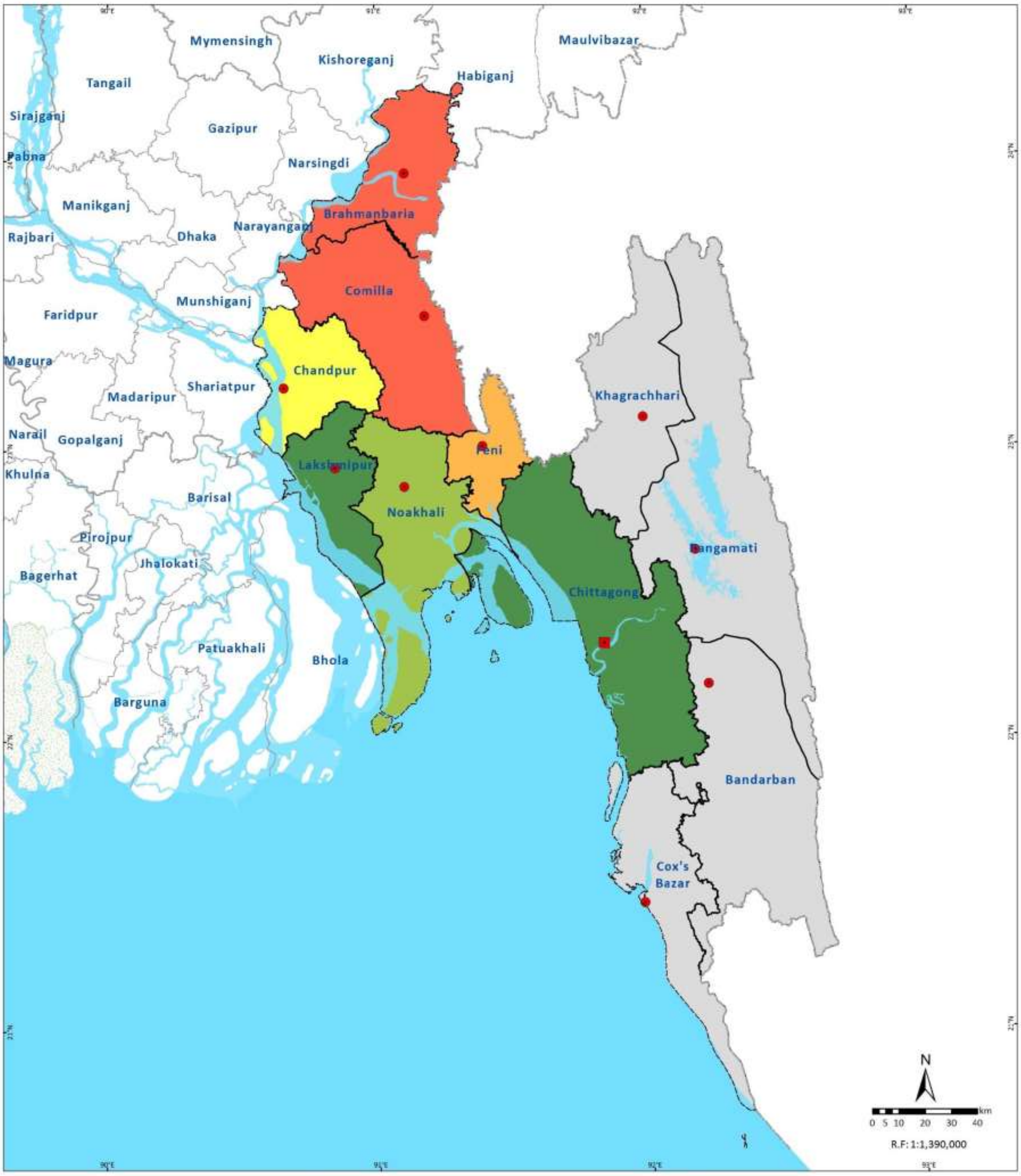
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Chittagong Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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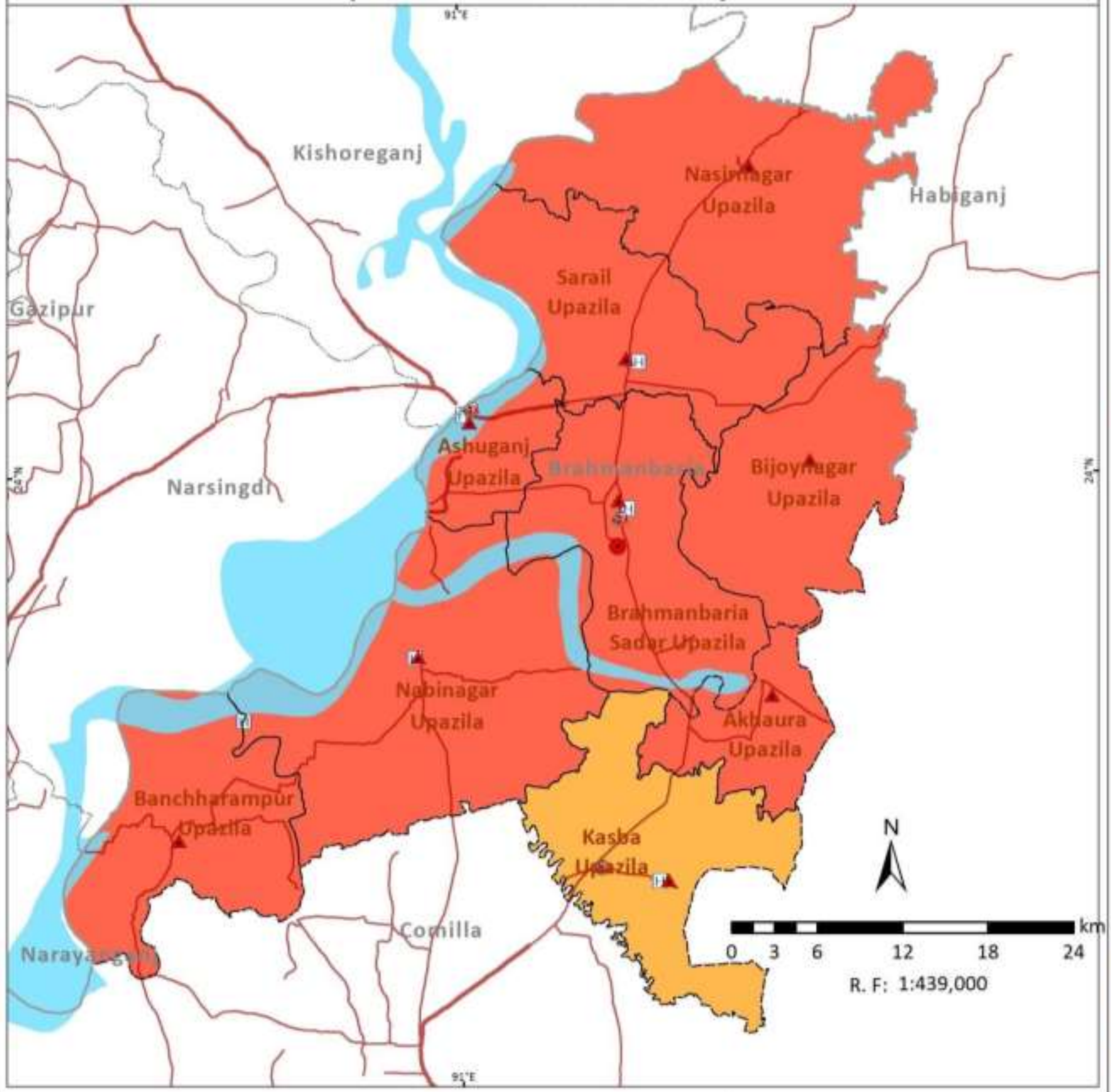
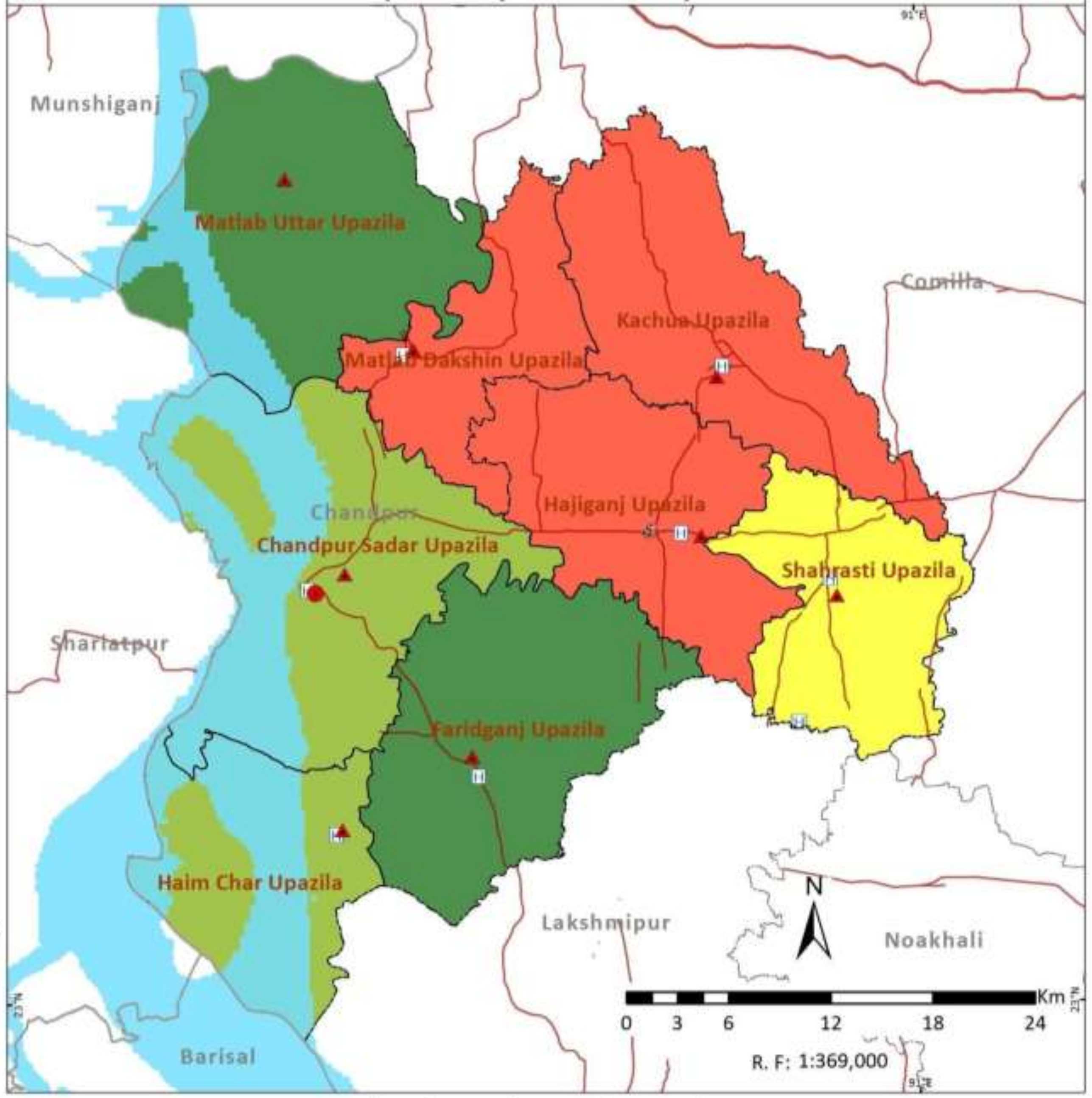
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard (Brahmanbaria District)



Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard (Chandpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila_Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Levels of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

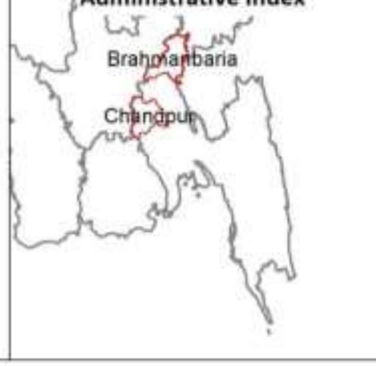
Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

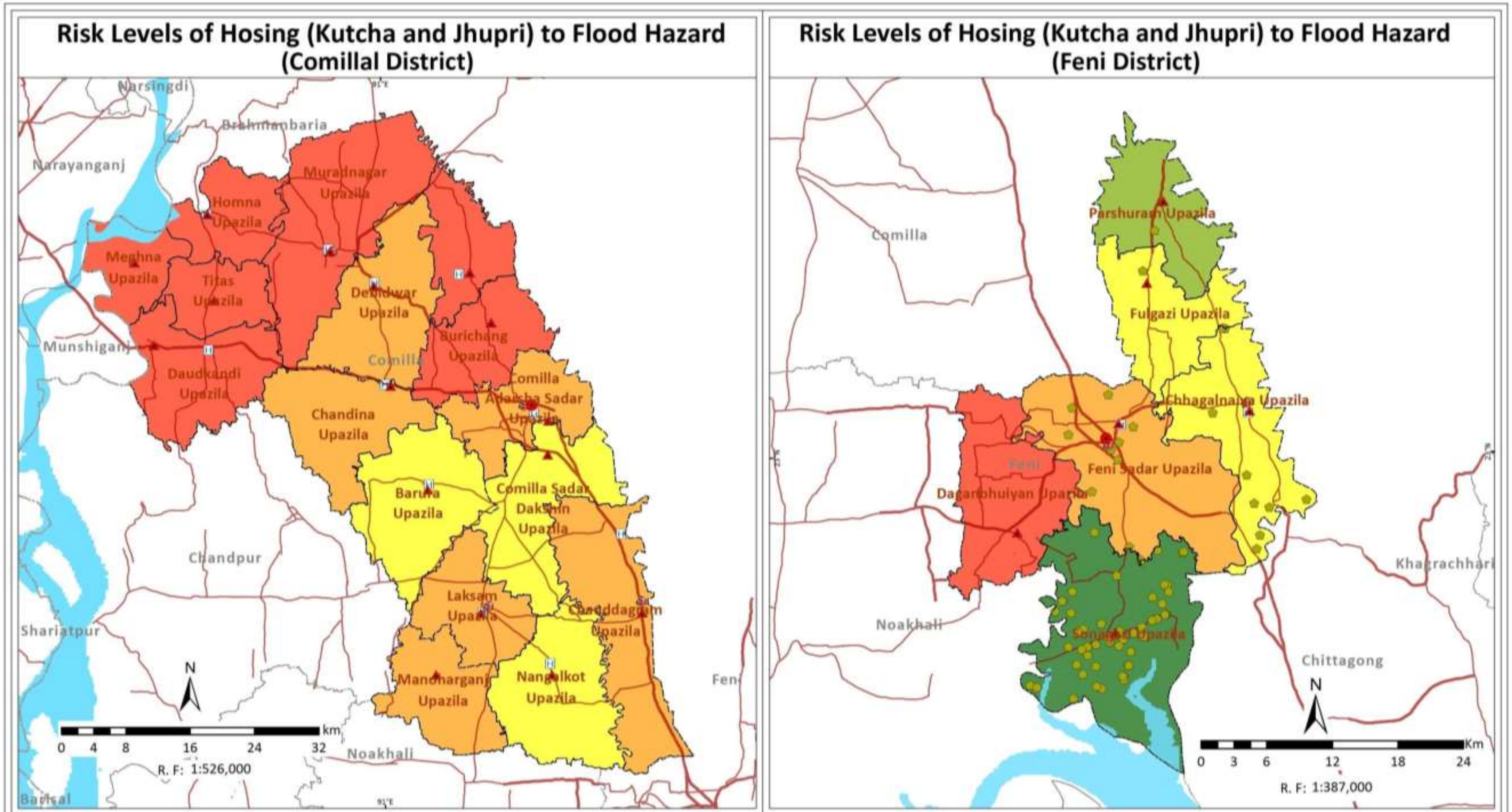
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index



Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief



Legend

Country Boundary	District Head Quarter	Levels of Risk
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila_Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Comilla
Chandpur

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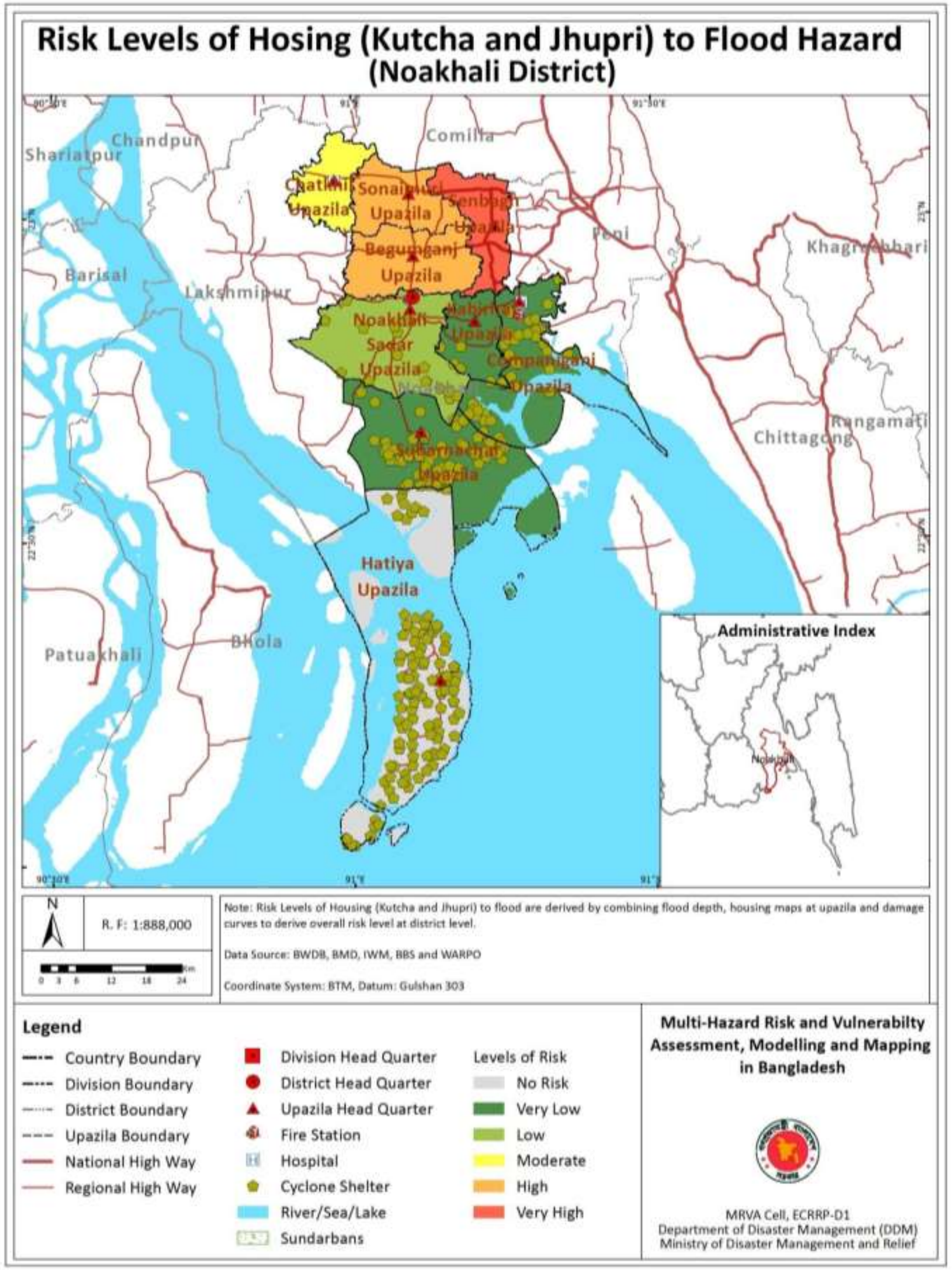
Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard
(Noakhali District)
Chandpur
Shariatpur
Comilla
Chatkhil Upazila
Sonaimuri Upazila
Senbag Upazila
Begumganj Upazila
Feni
Khagrachhari
Barisal
Lakshmipur
Noakhali Sadar Upazila
Kabirhat Upazila
Companiganj Upazila
Subarnachar Upazila
Chittagong
Rangamati
Hatiya Upazila
Patuakhali
Bhola
Administrative Index
Noakhali
N
R. F: 1:888,000
0 3 6 12 18 24
Km
Note: Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Levels of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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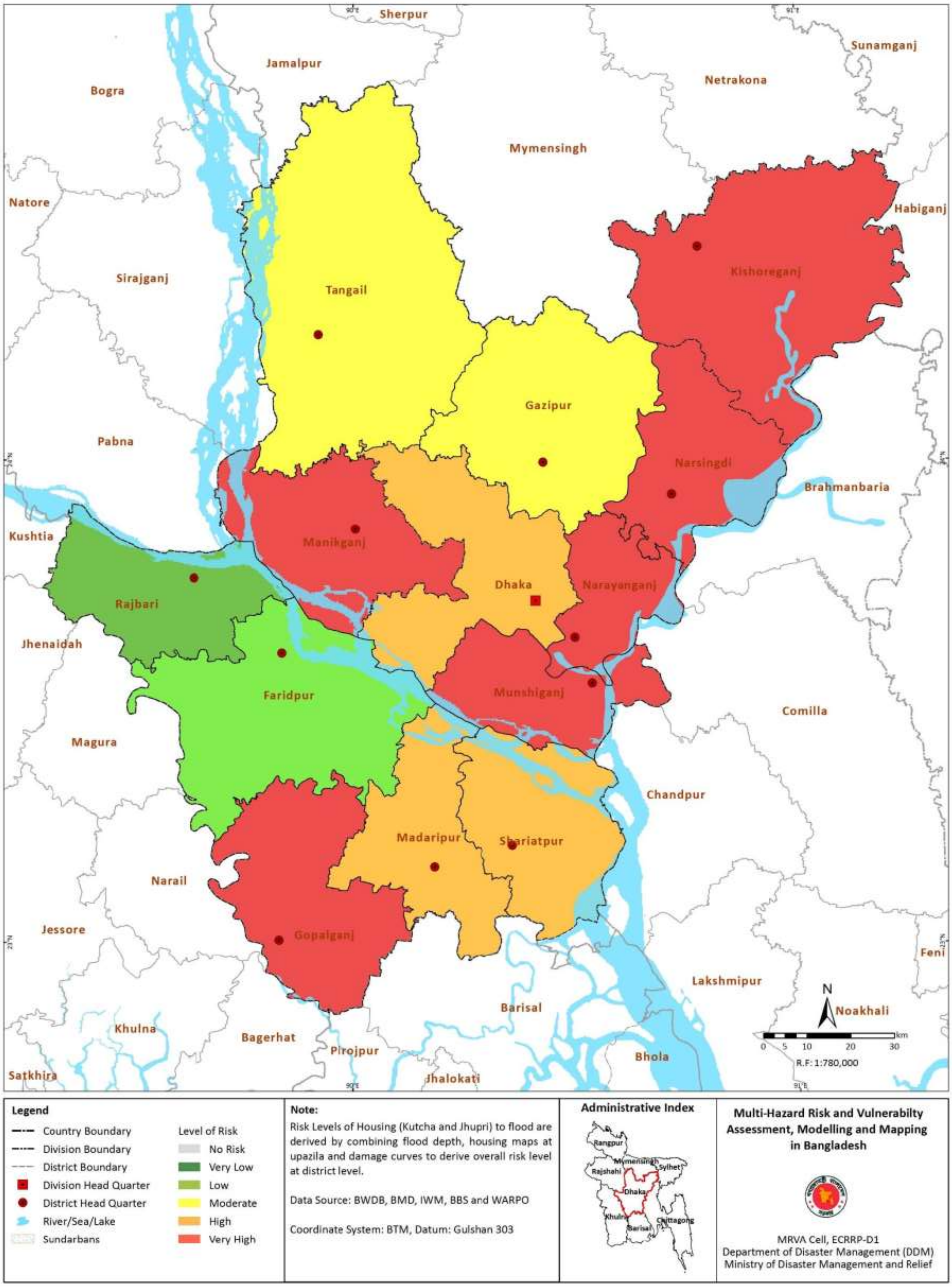
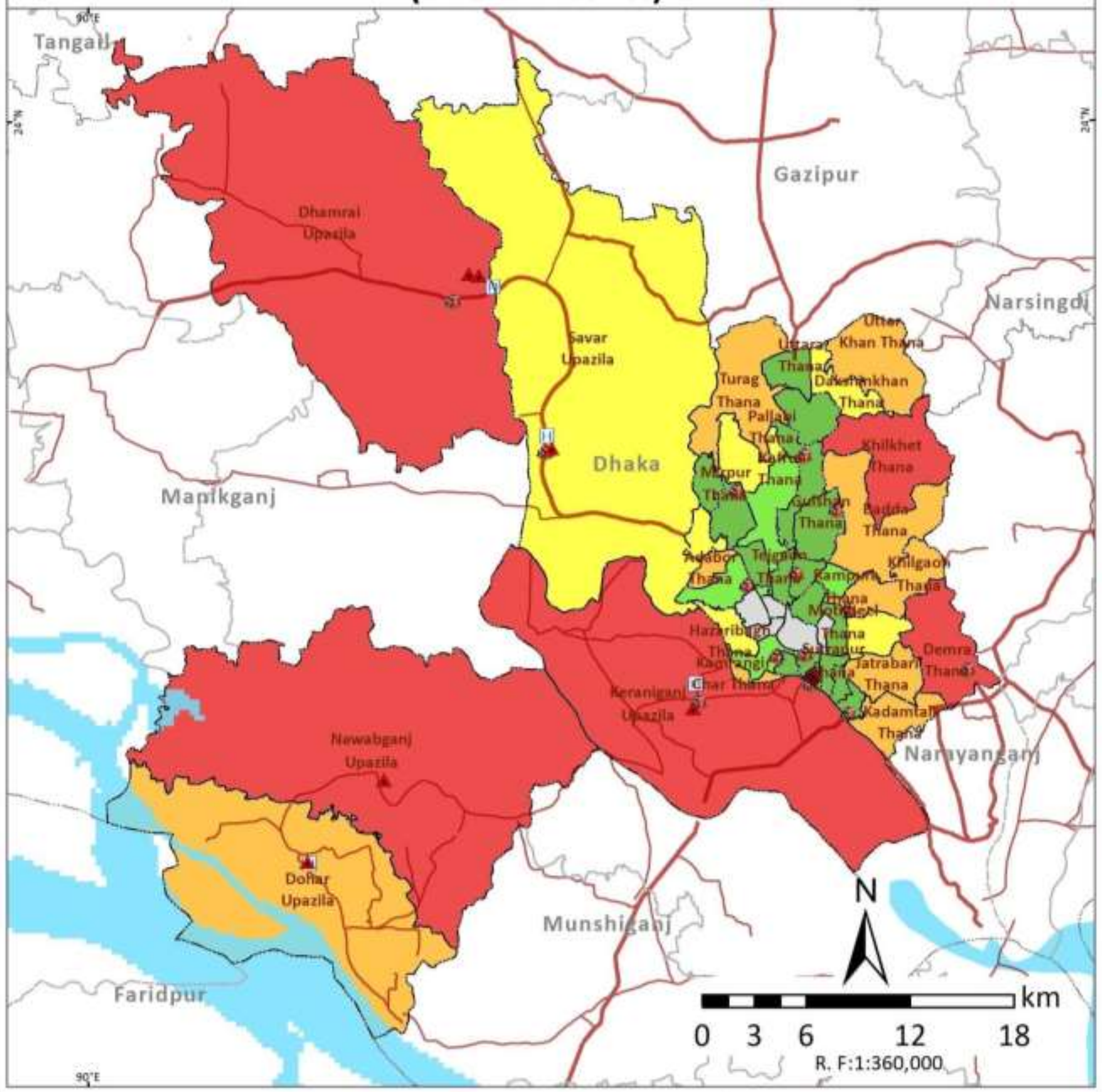
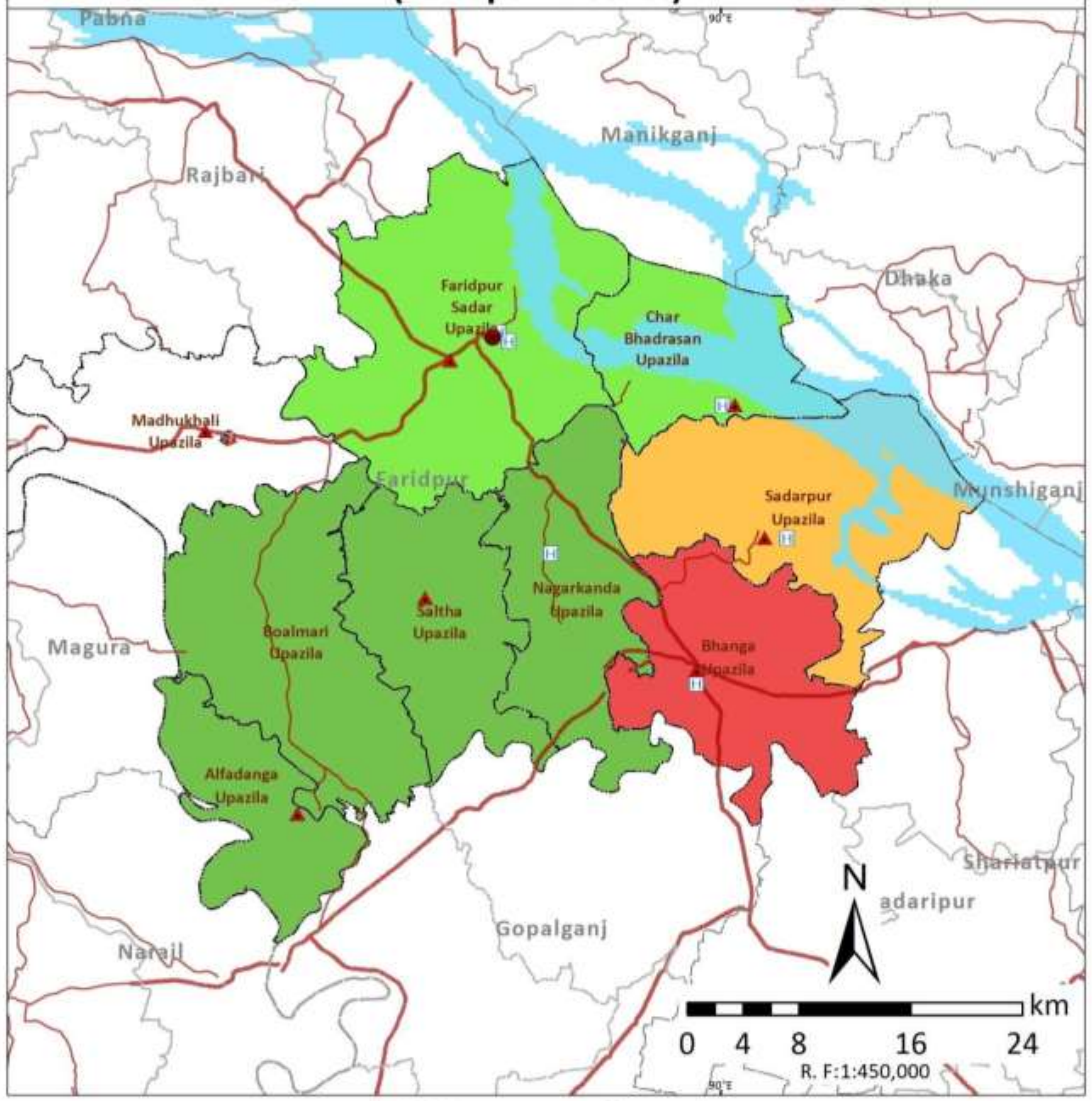
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Dhaka Division)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Dhaka District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Faridpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila_Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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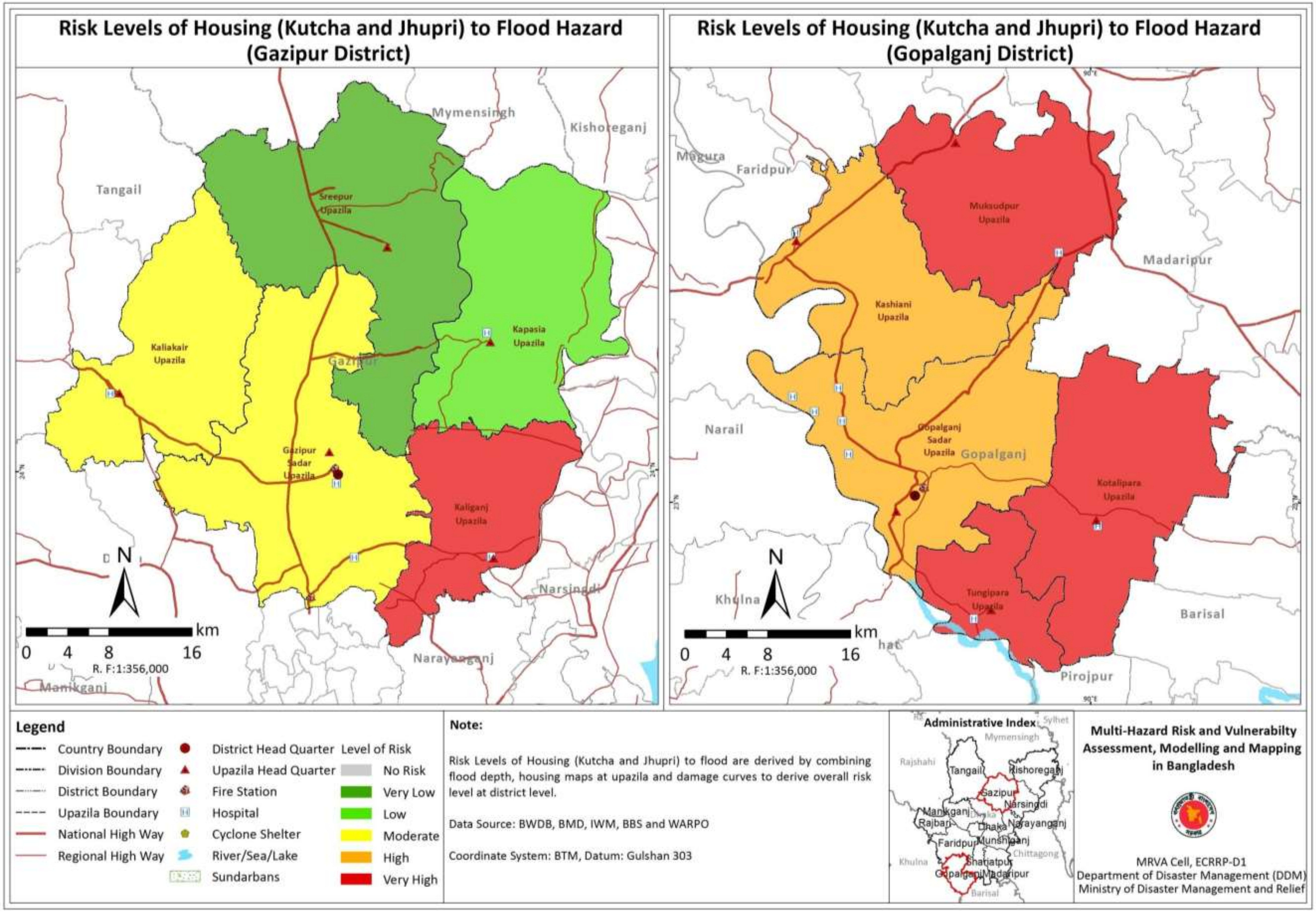

Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Gazipur District)
Mymensingh
Kishoreganj
Tangail
Sreepur Upazila
Kapasia Upazila
Kaliakair Upazila
Gazipur
Gazipur Sadar Upazila
Kaliganj Upazila
Narsingdi
Narayanganj
Manikganj
N
km
0 4 8 16
R. F:1:356,000
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Gopalganj District)
Magura
Faridpur
Muksudpur Upazila
Madaripur
Kashiani Upazila
Narail
Gopalganj Sadar Upazila
Gopalganj
Kotalipara Upazila
Tungipara Upazila
Khulna
Barisal
Pirojpur
N
km
0 4 8 16
R. F:1:356,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Shariatpur
Gopalganj
Madaripur
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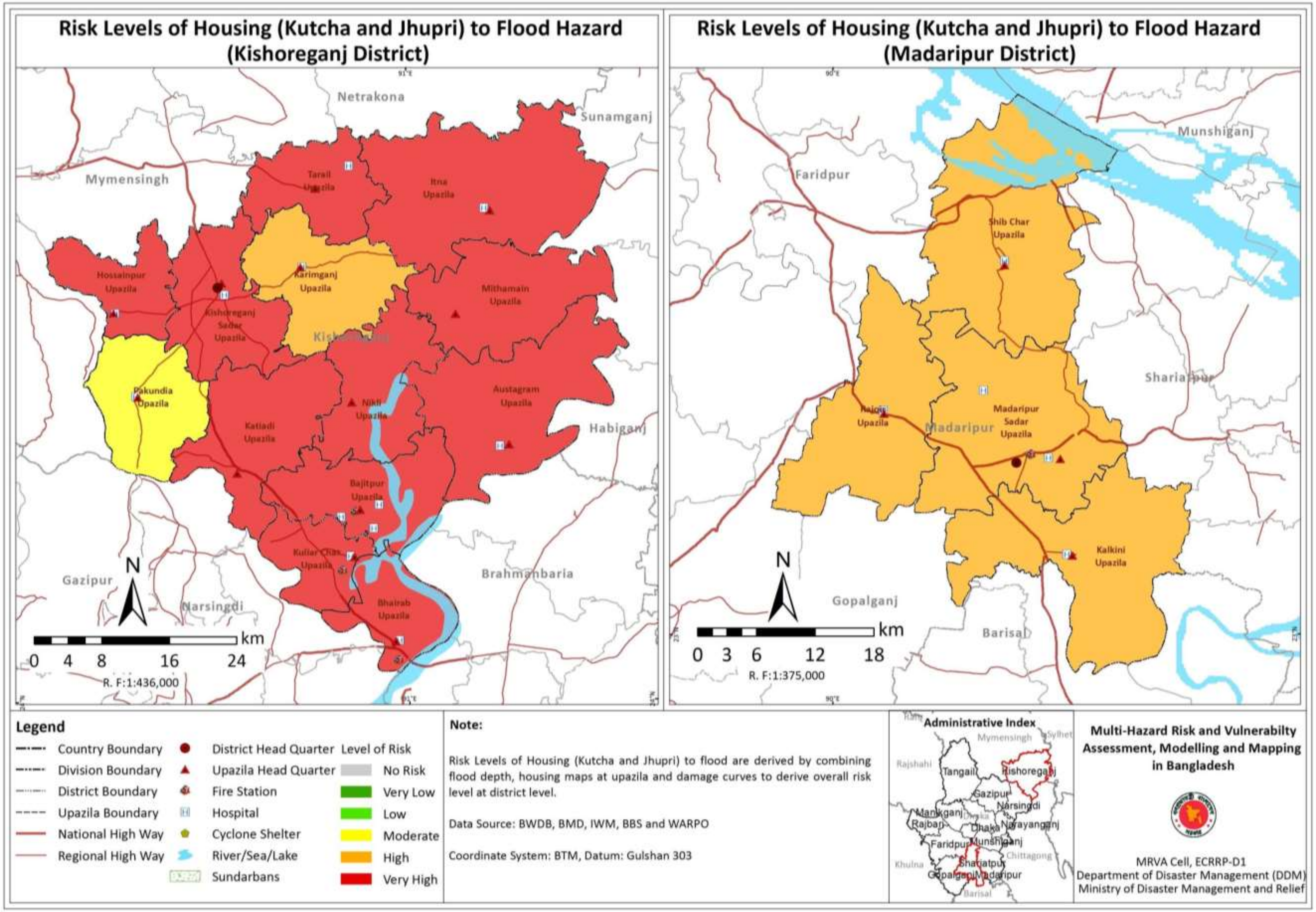
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Kishoreganj District)
Netrakona
Sunamganj
Mymensingh
Tarail Upazila
Itna Upazila
Hossainpur Upazila
Karimganj Upazila
Mithamain Upazila
Kishoreganj Sadar Upazila
Kishoreganj
Pakundia Upazila
Austagram Upazila
Nikli Upazila
Katiadi Upazila
Habiganj
Bajitpur Upazila
Kuliar Char Upazila
Brahmanbaria
Gazipur
Narsingdi
Bhairab Upazila
km
0 4 8 16 24
R. F:1:436,000
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Madaripur District)
Munshiganj
Faridpur
Shib Char Upazila
Shariatpur
Rajoir Upazila
Madaripur
Madaripur Sadar Upazila
Kalkini Upazila
Gopalganj
Barisal
km
0 3 6 12 18
R. F:1:375,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Mymensingh
Sylhet
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Chittagong
Khulna
Shariatpur
Gopalganj
Madaripur
Barisal
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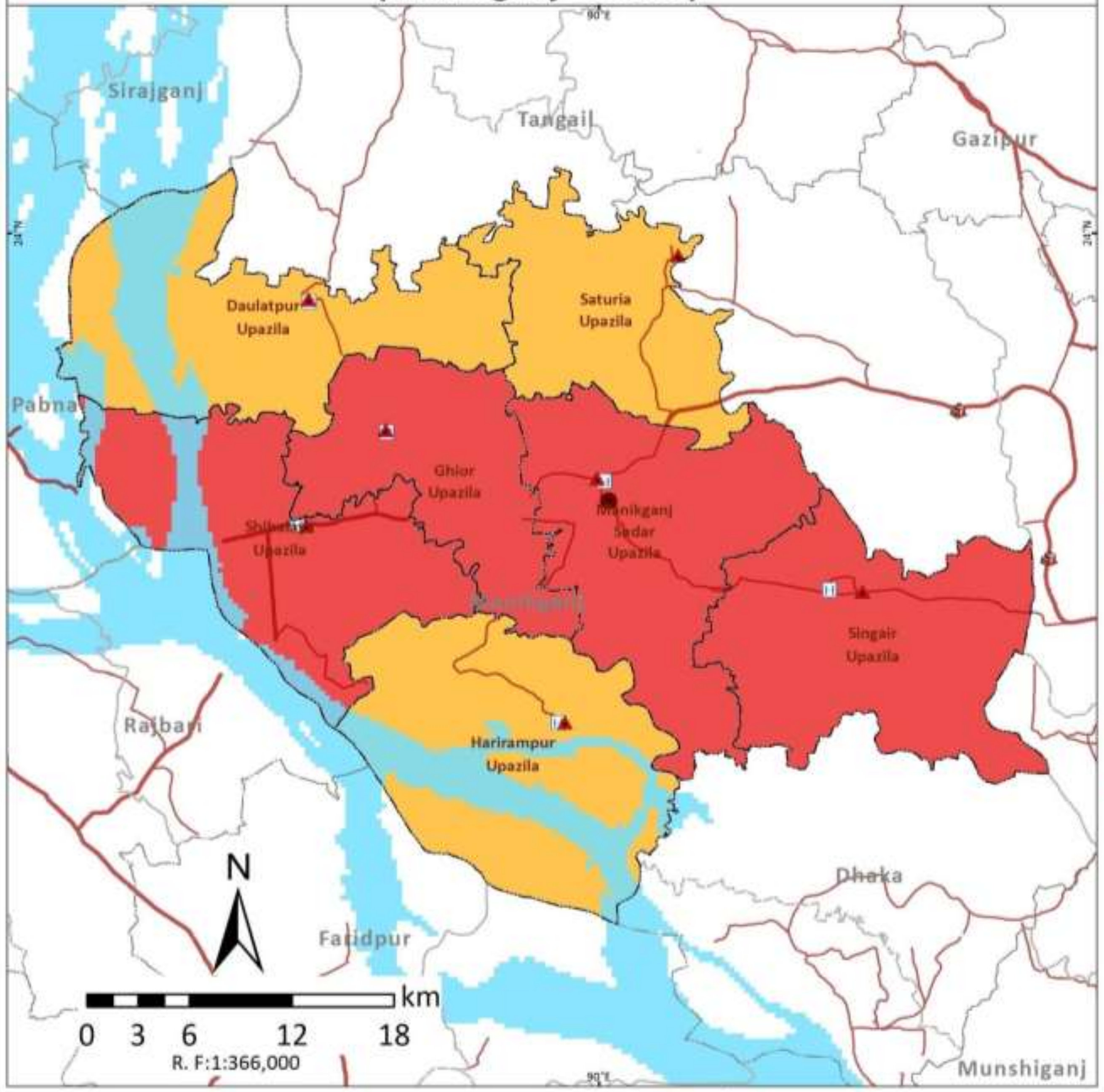
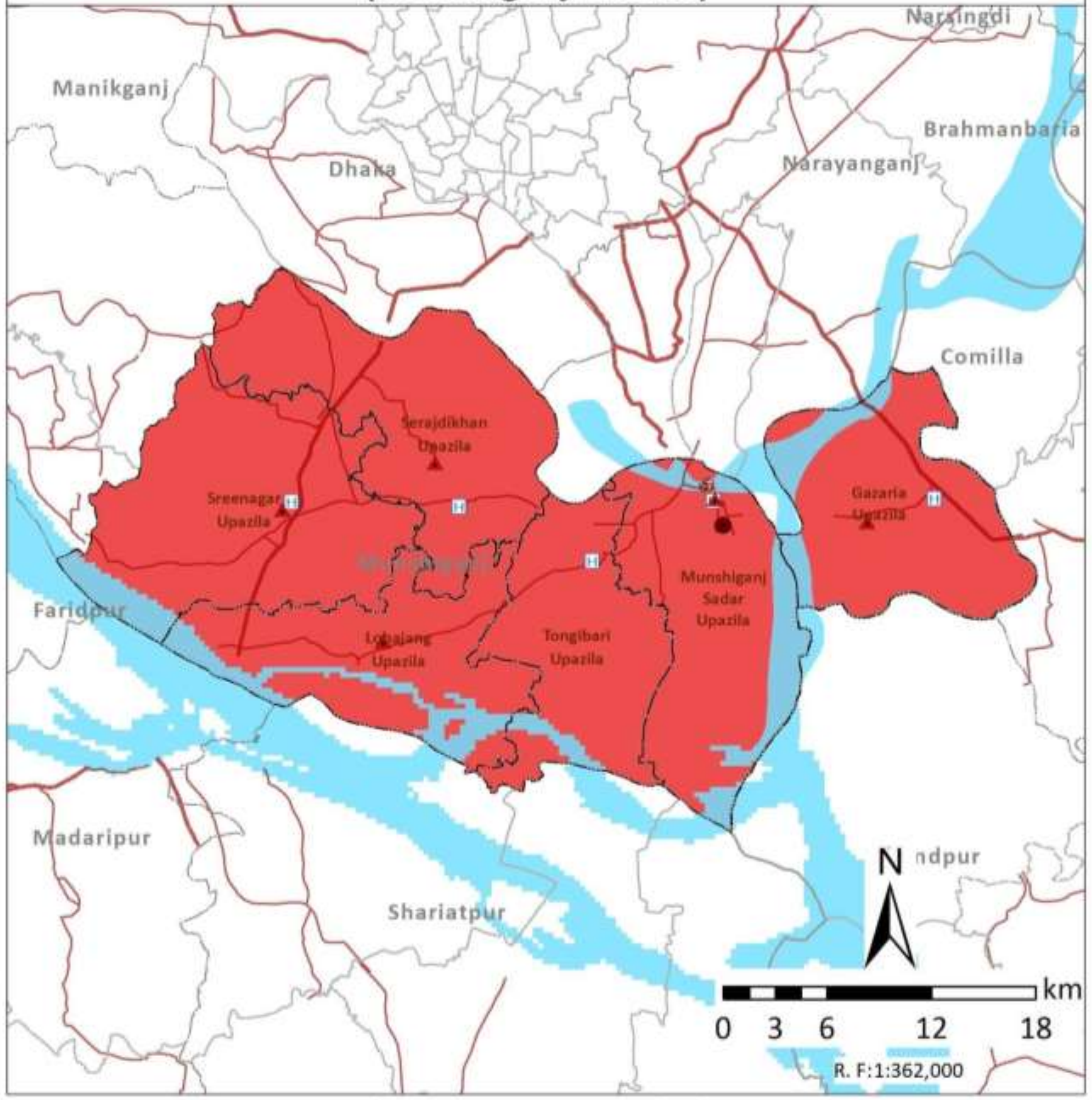
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Manikganj District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Munshiganj District)



Legend

Country Boundary	District Head Quarter	Level of Risk	
Division Boundary	Upazila Head Quarter		No Risk
District Boundary	Fire Station		Very Low
Upazila Boundary	Hospital		Low
National High Way	Cyclone Shelter		Moderate
Regional High Way	River/Sea/Lake		High
	Sundarbans		Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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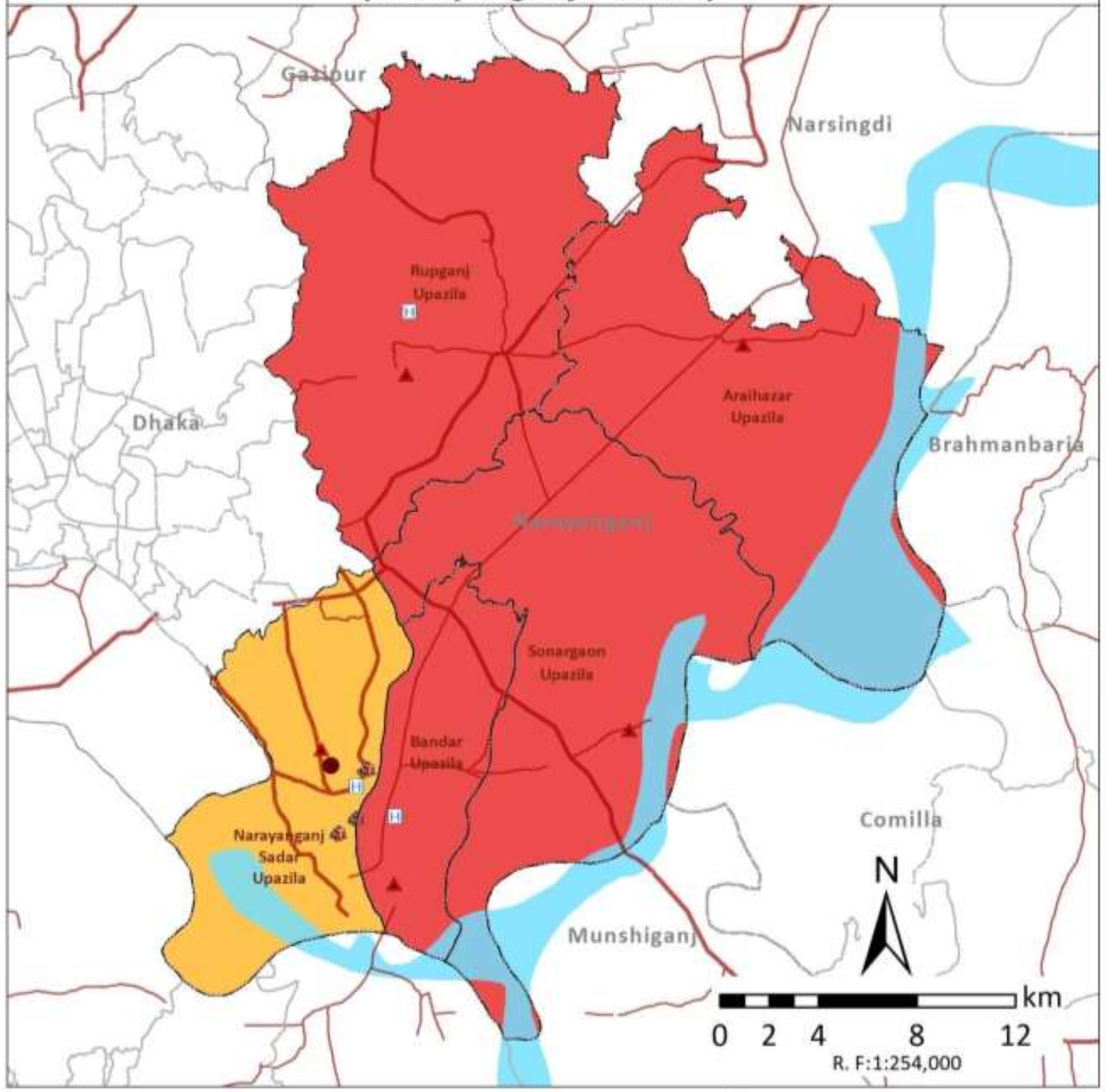
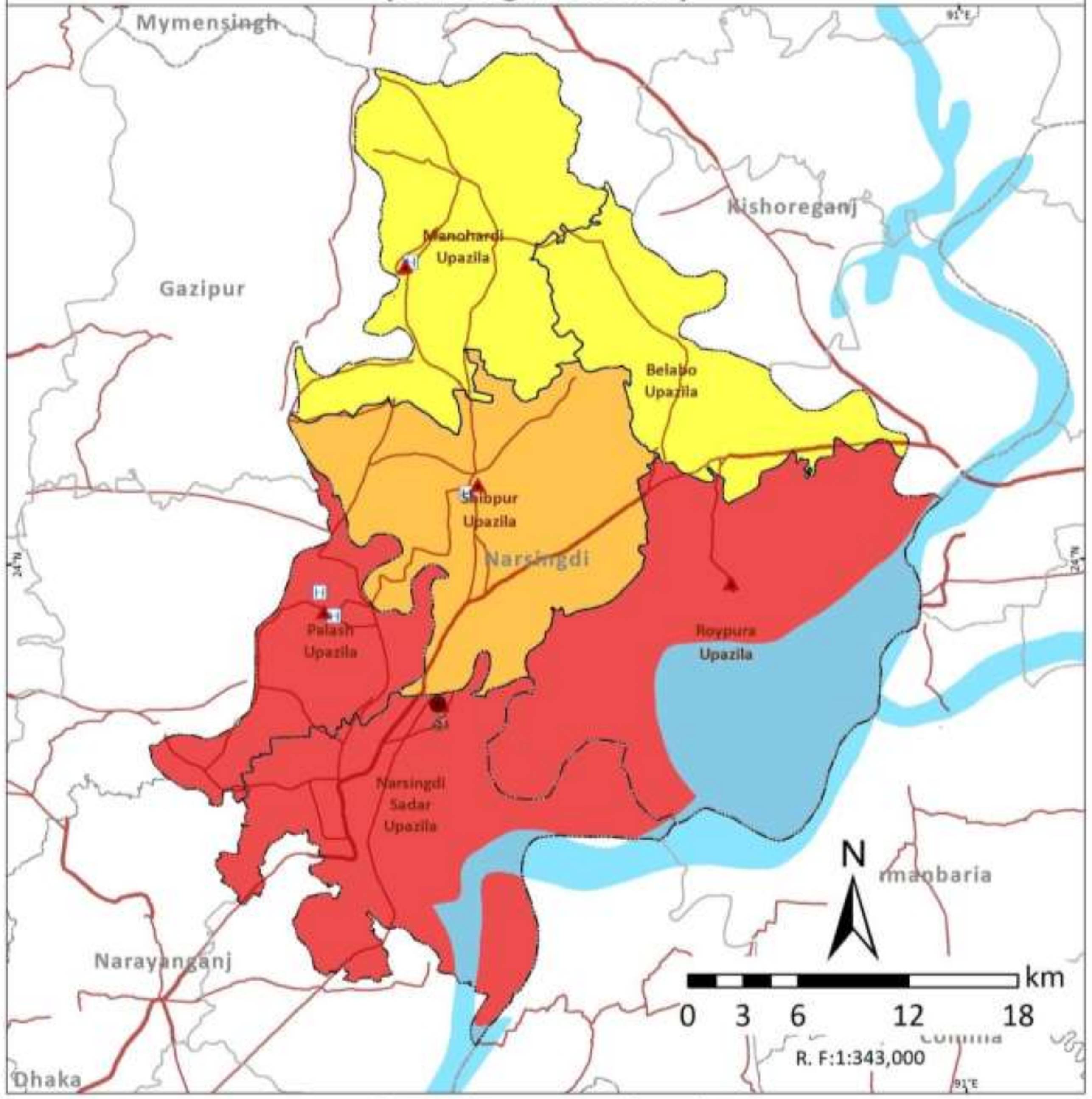
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Narayanganj District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Narsingdi District)



Legend

Country Boundary	District Head Quarter	Level of Risk	
Division Boundary	Upazila Head Quarter		No Risk
District Boundary	Fire Station		Very Low
Upazila Boundary	Hospital		Low
National High Way	Cyclone Shelter		Moderate
Regional High Way	River/Sea/Lake		High
	Sundarbans		Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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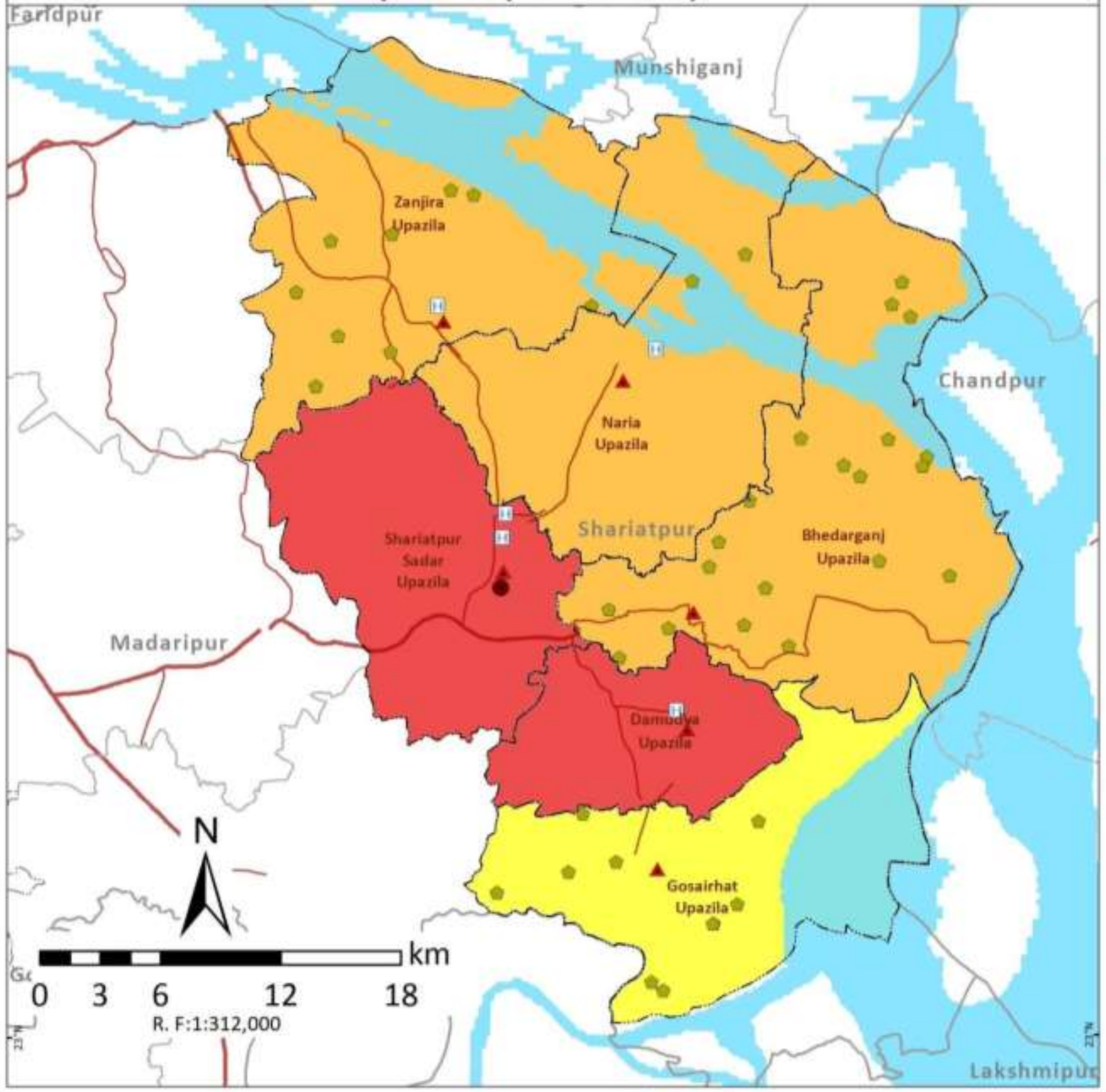
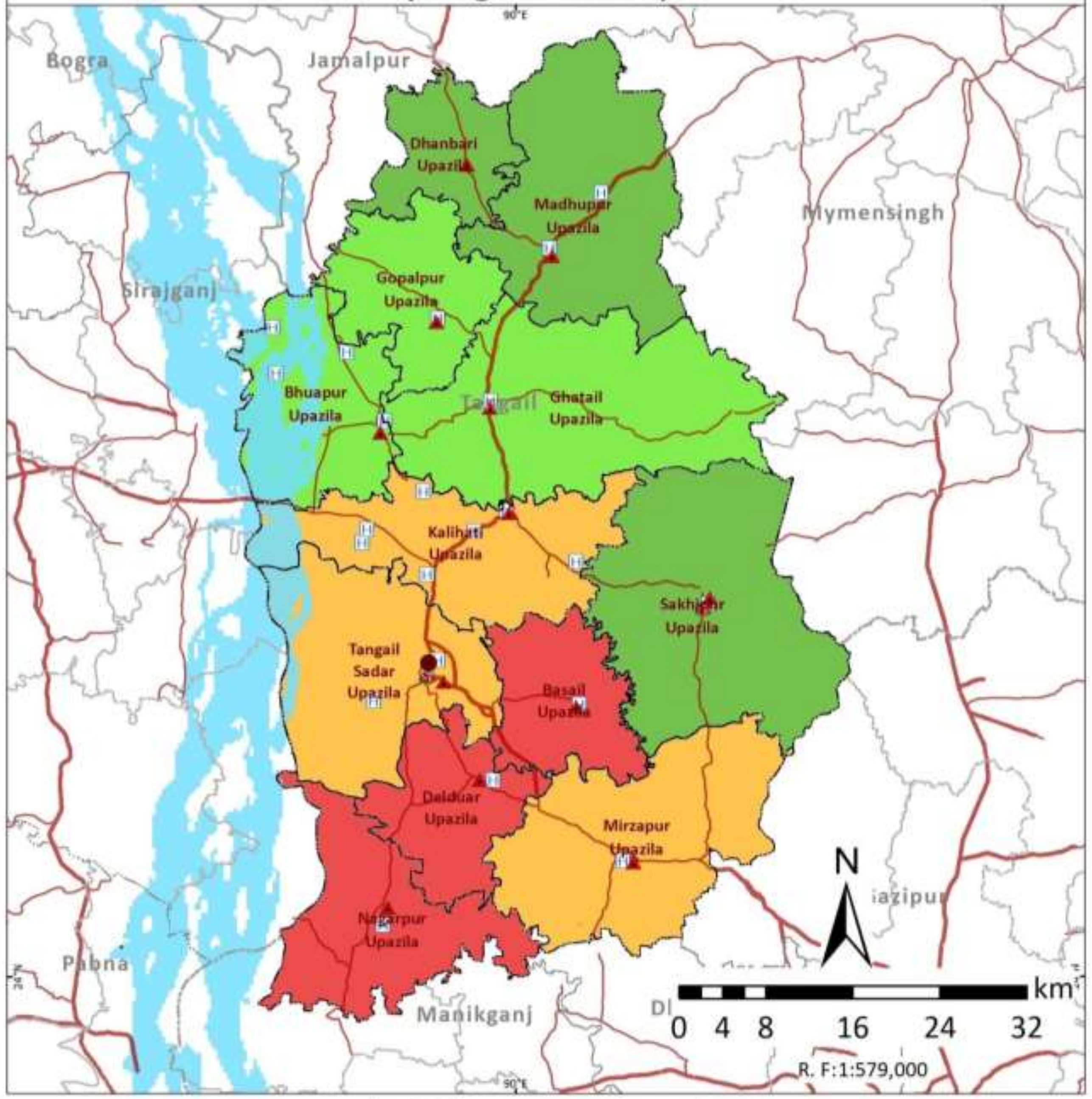
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Shariatpur District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Tangail District)



Legend

Country Boundary	District Head Quarter	Level of Risk
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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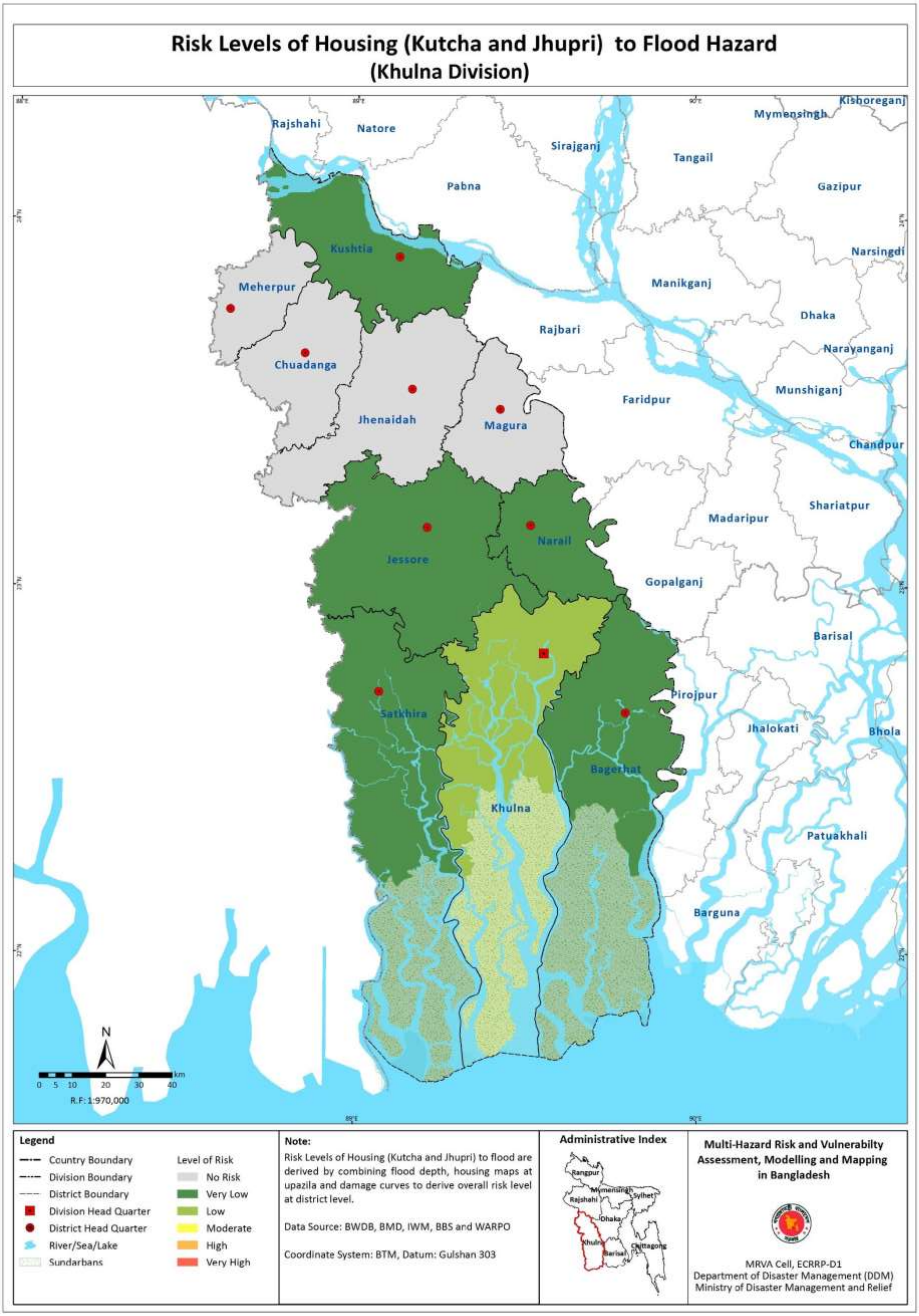
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Khulna Division)
Rajshahi
Natore
Sirajganj
Tangail
Mymensingh
Kishoreganj
Pabna
Gazipur
Kushtia
Narsingdi
Meherpur
Manikganj
Dhaka
Rajbari
Chuadanga
Narayanganj
Jhenaidah
Magura
Faridpur
Munshiganj
Chandpur
Shariatpur
Madaripur
Jessore
Narail
Gopalganj
Barisal
Pirojpur
Satkhira
Jhalokati
Bhola
Bagerhat
Khulna
Patuakhali
Barguna
N
0 5 10 20 30 40 km
R.F: 1:970,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Mymensingh
Sylhet
Rajshahi
Dhaka
Khulna
Barisal
Chittagong
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
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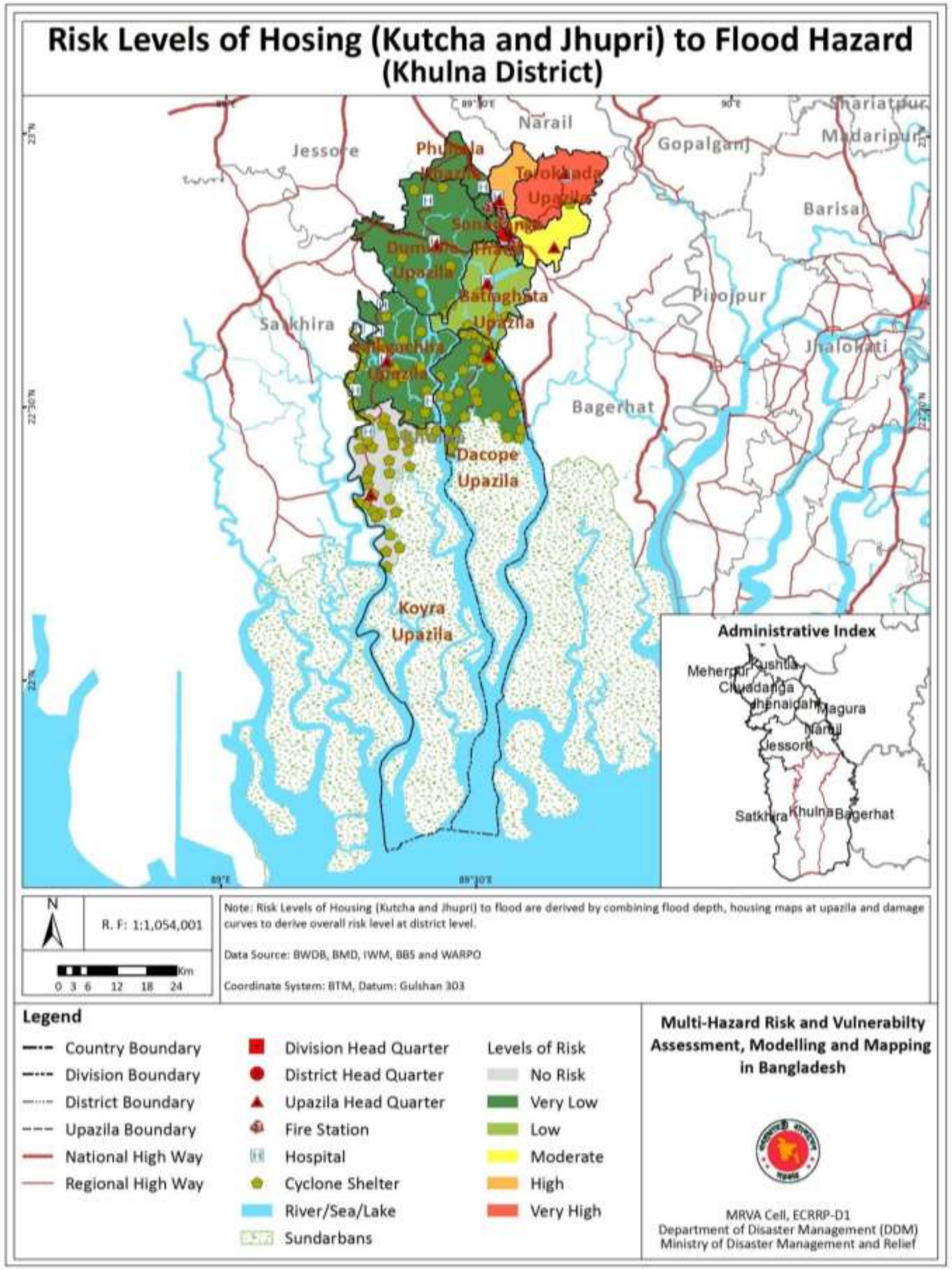
Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard
(Khulna District)
Narail
Jessore
Gopalganj
Madaripur
Barisal
Pirojpur
Jhalokati
Bagerhat
Dacope
Upazila
Koyra
Upazila
Administrative Index
Meherpur
Kushtia
Chuadanga
Jhenaidah
Magura
Narail
Jessore
Satkhira
Khulna
Bagerhat
N
R. F: 1:1,054,001
Km
0 3 6 12 18 24
Note: Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Levels of Risk
No Risk
Very Low
Low
Moderate
High
Very High
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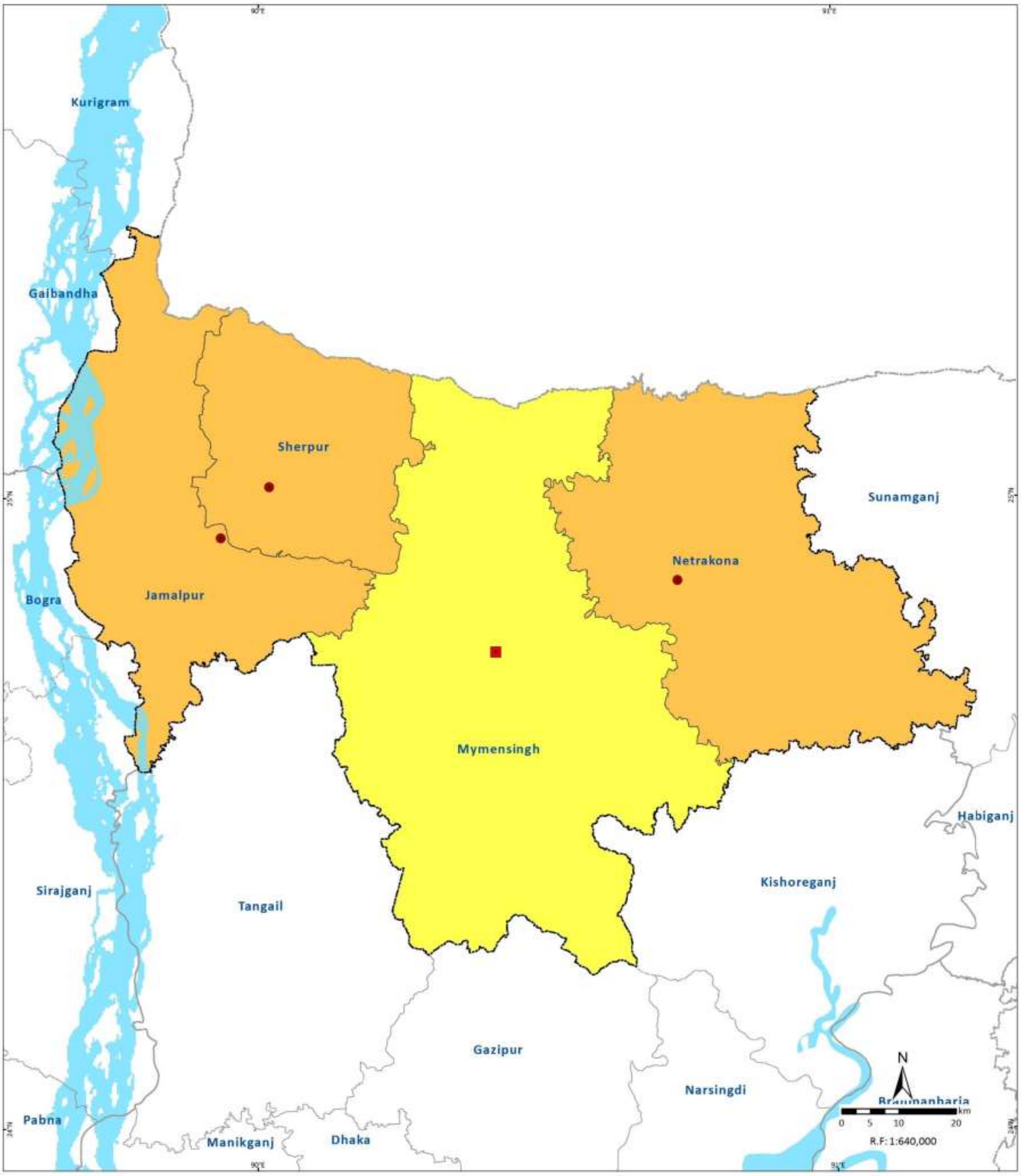
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Mymensingh Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Rangpur, Rajshahi, Mymensingh, Sylhet, Dhaka, Khulna, Barisal, Chittagong

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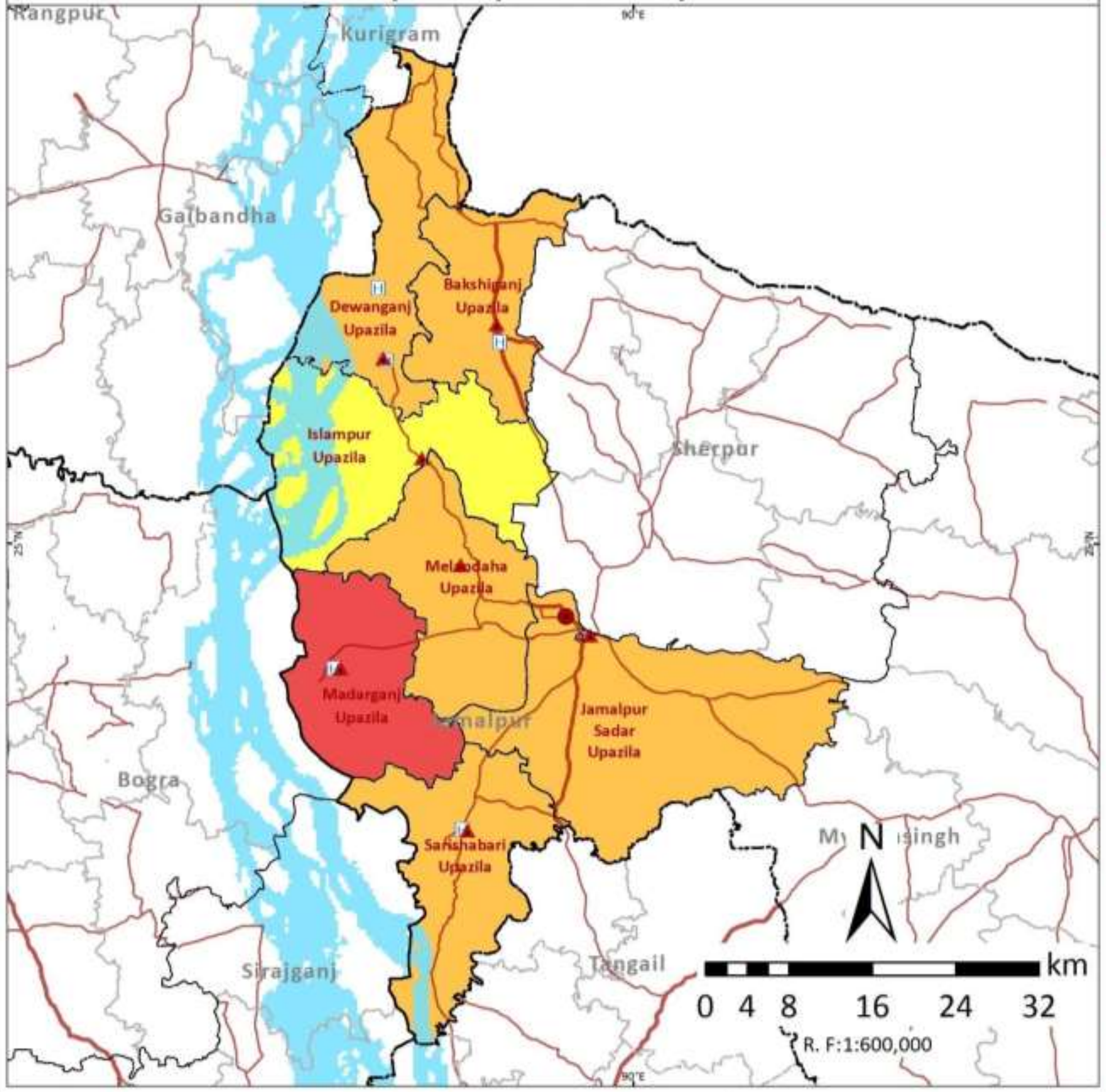
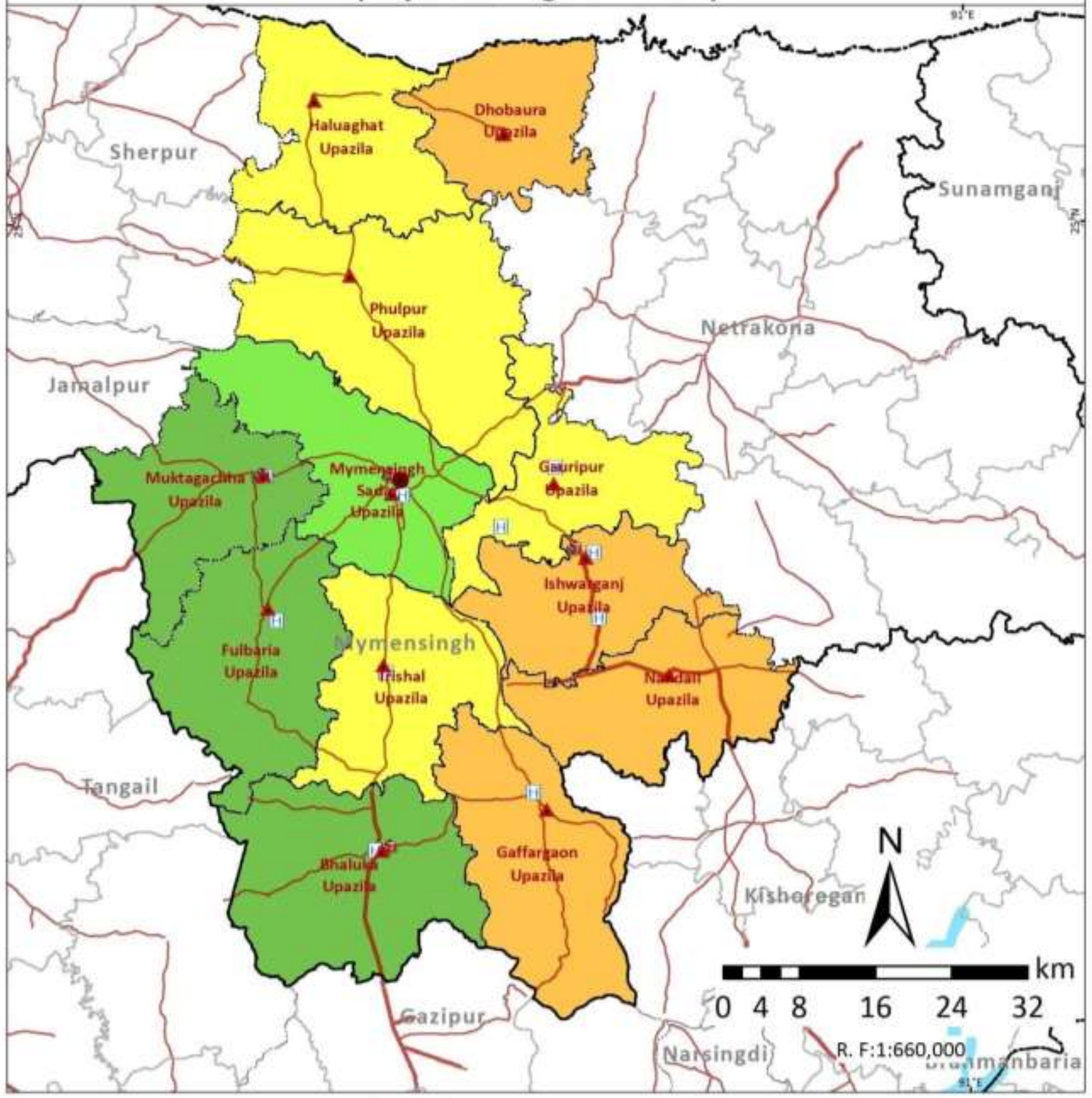
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Jamalpur District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Mymensingh District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila_Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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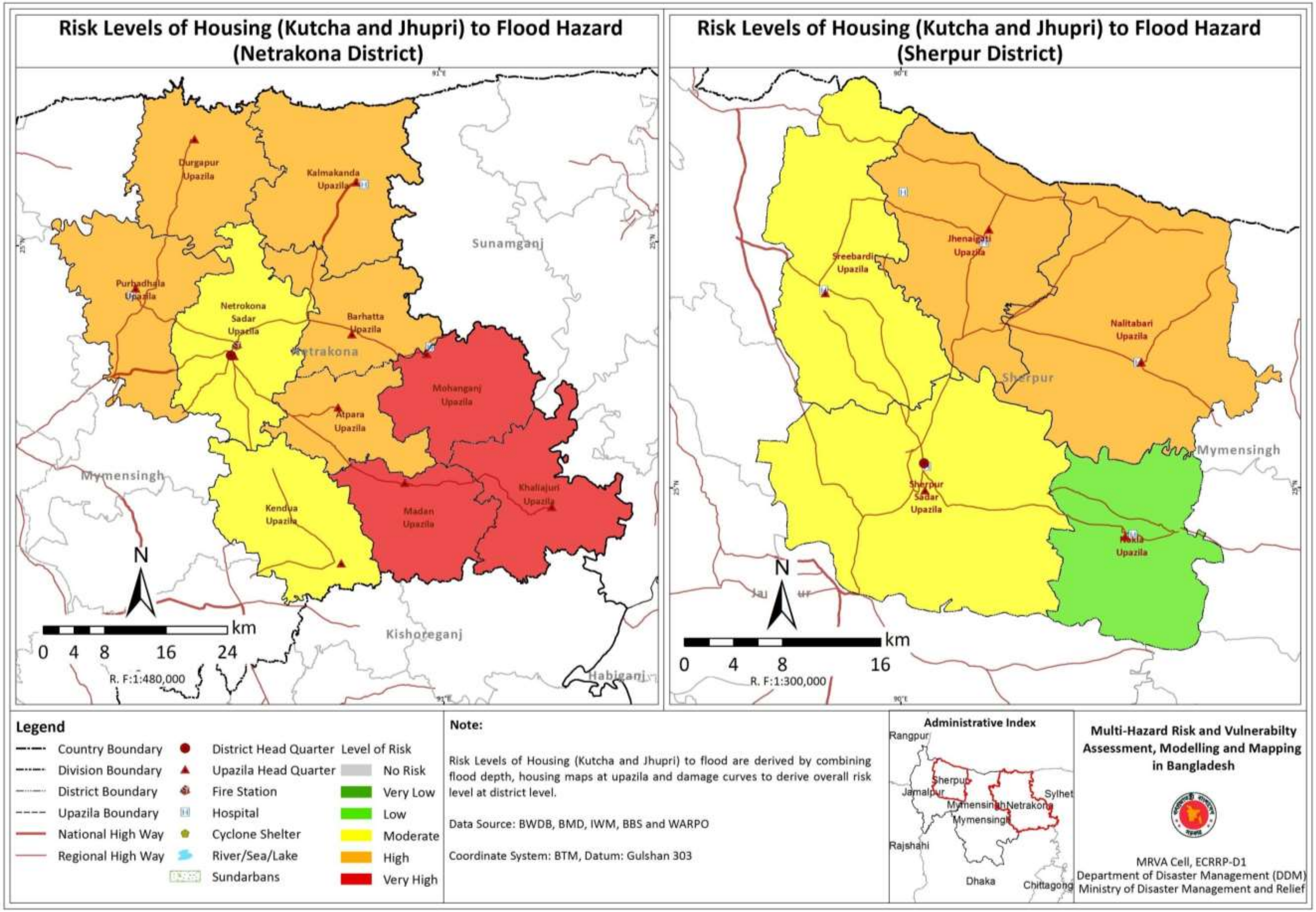
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Netrakona District)
Durgapur Upazila
Kalmakanda Upazila
Purbadhala Upazila
Netrokona Sadar Upazila
Barhatta Upazila
Netrakona
Sunamganj
Mohanganj Upazila
Atpara Upazila
Khaliajuri Upazila
Madan Upazila
Kendua Upazila
Mymensingh
Kishoreganj
Habiganj
N
km
0 4 8 16 24
R. F:1:480,000
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Sherpur District)
Sreebardi Upazila
Jhenaigati Upazila
Nalitabari Upazila
Sherpur
Mymensingh
Sherpur Sadar Upazila
Nokla Upazila
N
km
0 4 8 16
R. F:1:300,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Sherpur
Jamalpur
Mymensingh
Netrakona
Sylhet
Rajshahi
Dhaka
Chittagong
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
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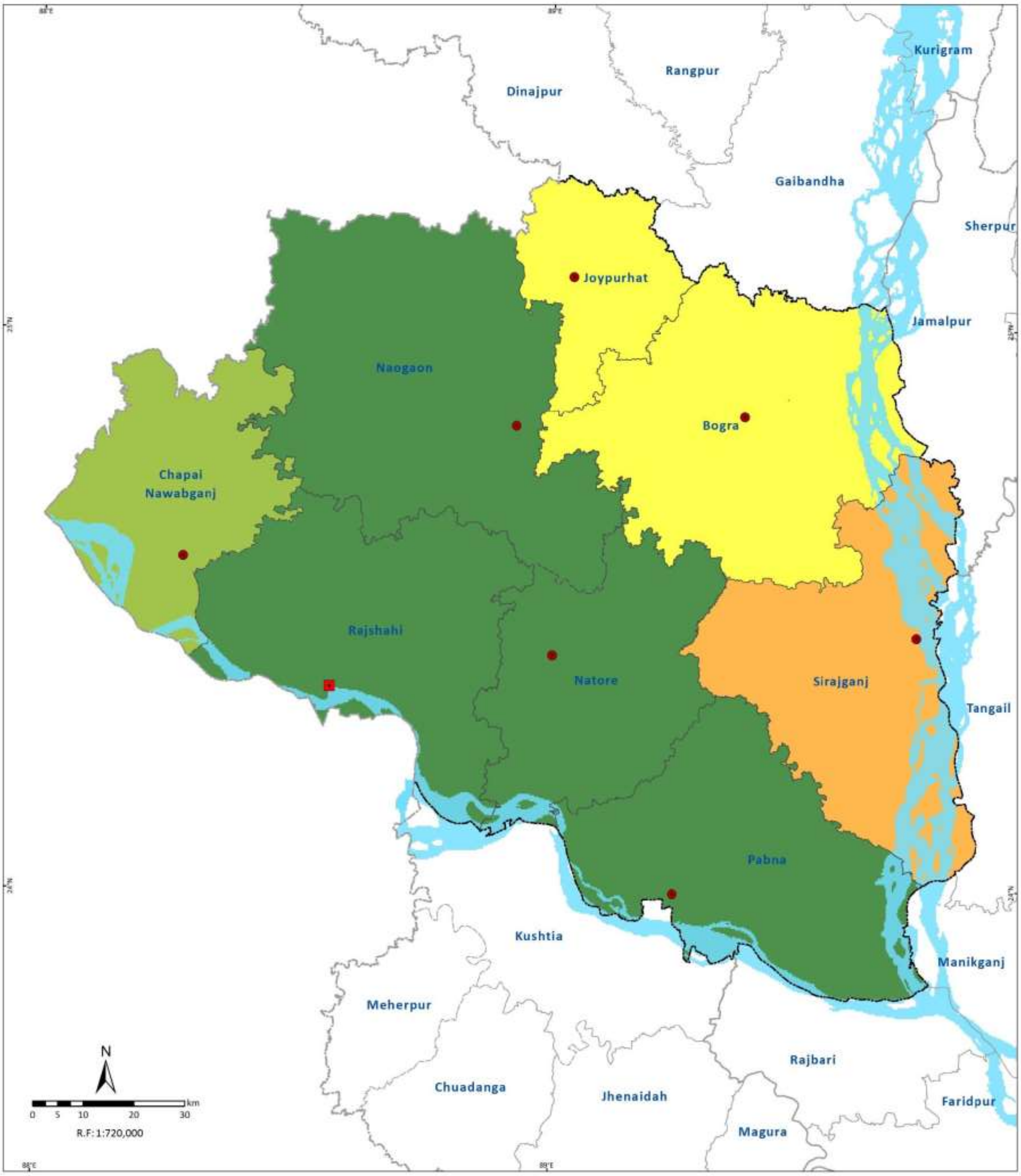
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Rajshahi Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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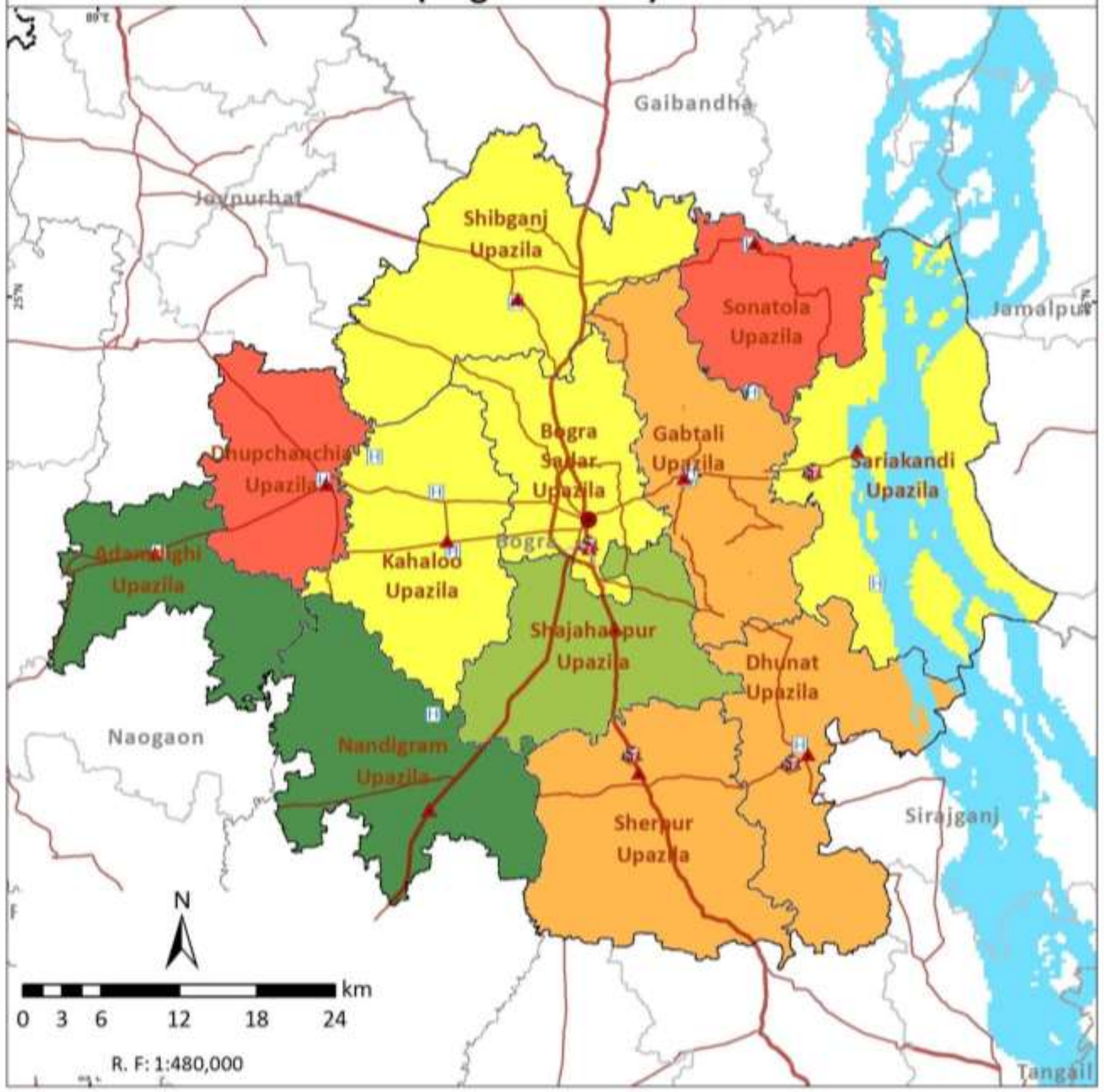
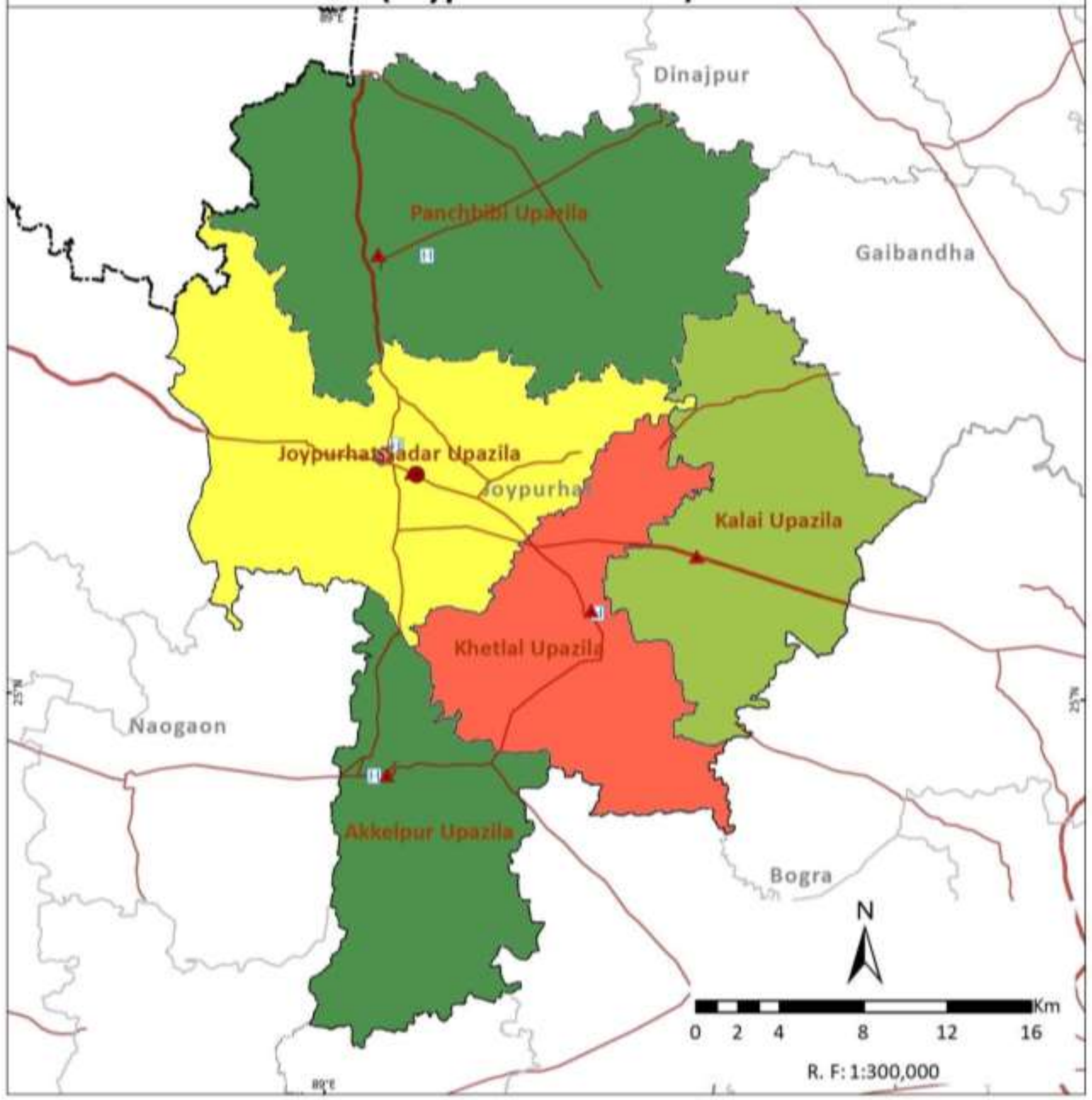
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Bogra District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Joypurhat District)



Legend

Country Boundary	District Head Quarter	Level of Risk
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire stations	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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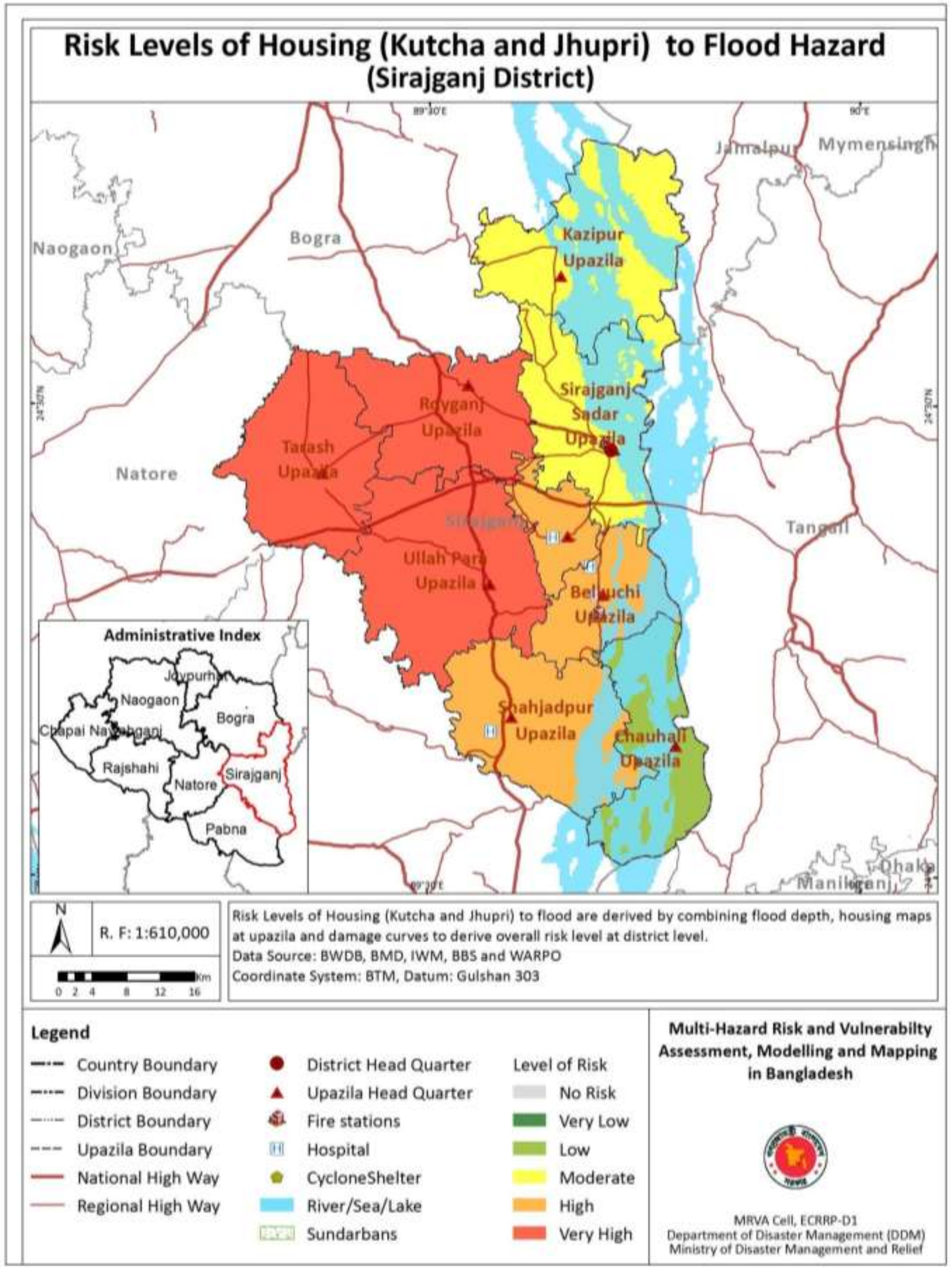
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Sirajganj District)
Naogaon
Bogra
Natore
Jamalpur
Mymensingh
Tangail
Manikganj
Dhaka
Kazipur Upazila
Roygani Upazila
Tarash Upazila
Sirajganj Sadar Upazila
Sirajganj
Ullah Para Upazila
Belkuchi Upazila
Shahjadpur Upazila
Chauhali Upazila
Administrative Index
Joypurhat
Naogaon
Bogra
Chapai Nawabganj
Rajshahi
Natore
Sirajganj
Pabna
N
R. F: 1:610,000
0 2 4 8 12 16 Km
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
CycloneShelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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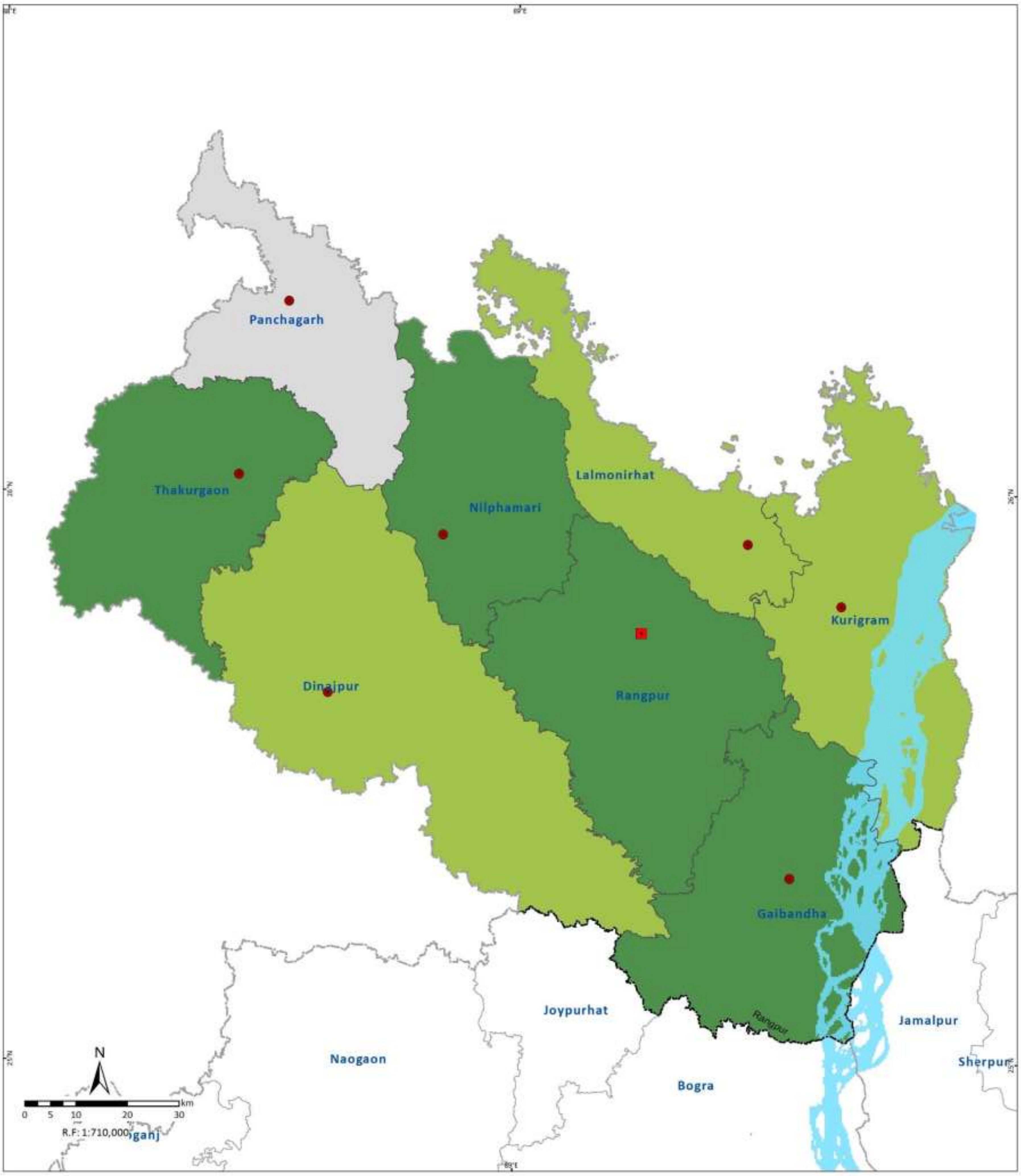
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Rangpur Division)



Legend
- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk
- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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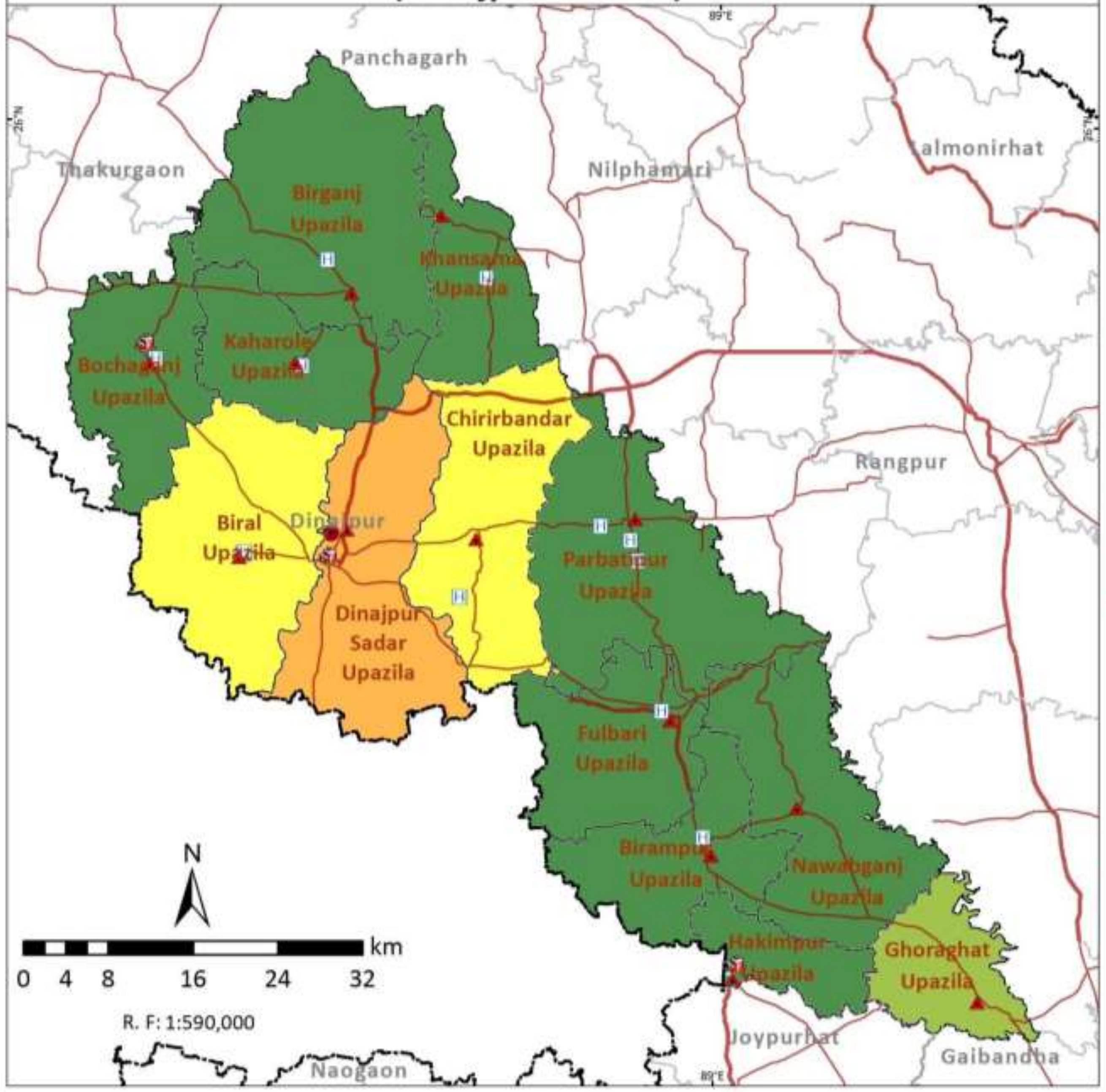
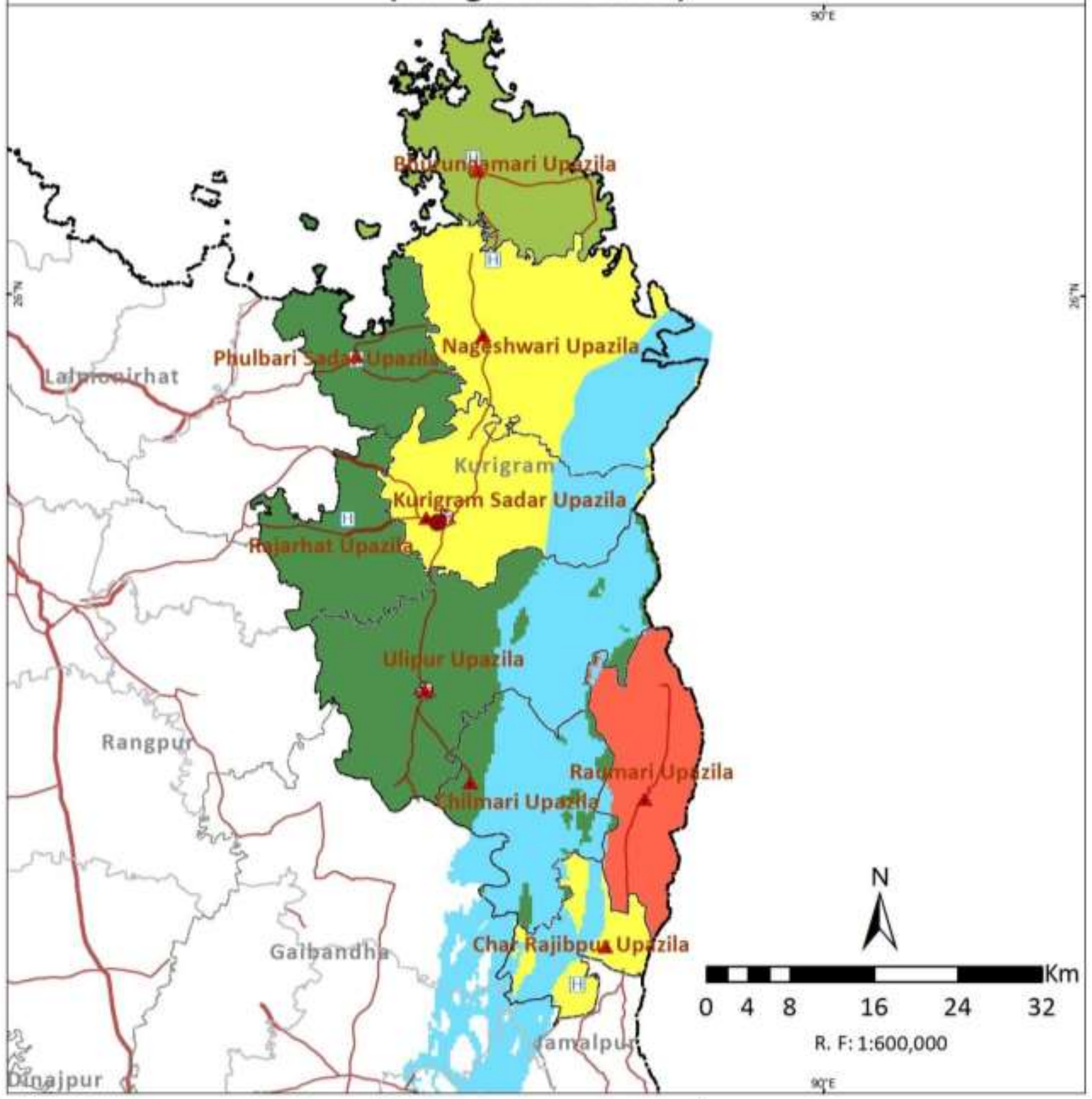
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Dinajpur District)



Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard (Kurigram District)



Legend

Country Boundary	District Head Quarter	Level of Risk
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire stations	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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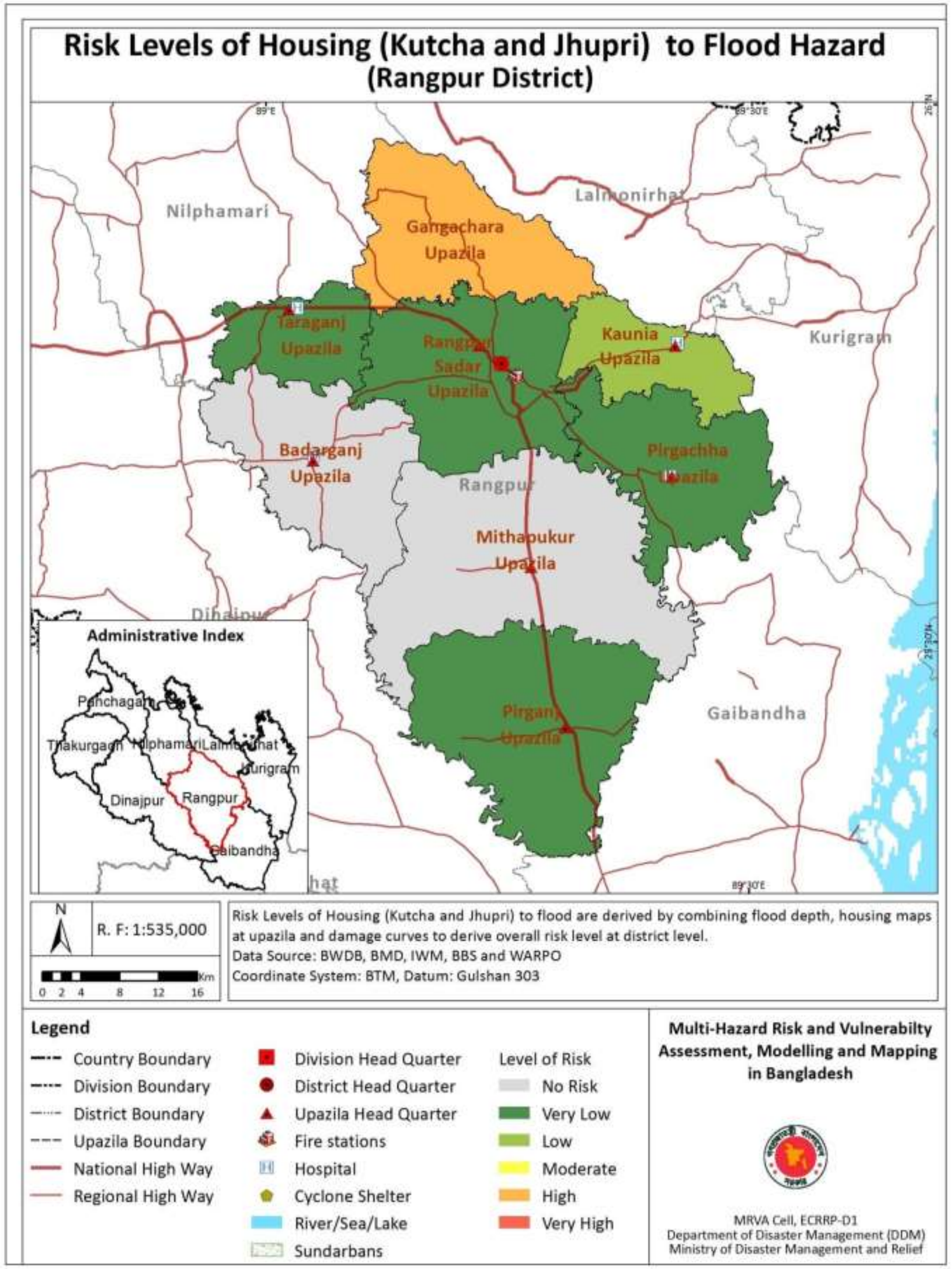
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Rangpur District)
Nilphamari
Lalmonirhat
Gangachara Upazila
Taraganj Upazila
Rangpur Sadar Upazila
Kaunia Upazila
Kurigram
Badarganj Upazila
Pirgachha Upazila
Rangpur
Mithapukur Upazila
Pirganj Upazila
Gaibandha
Administrative Index
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
R. F: 1:535,000
Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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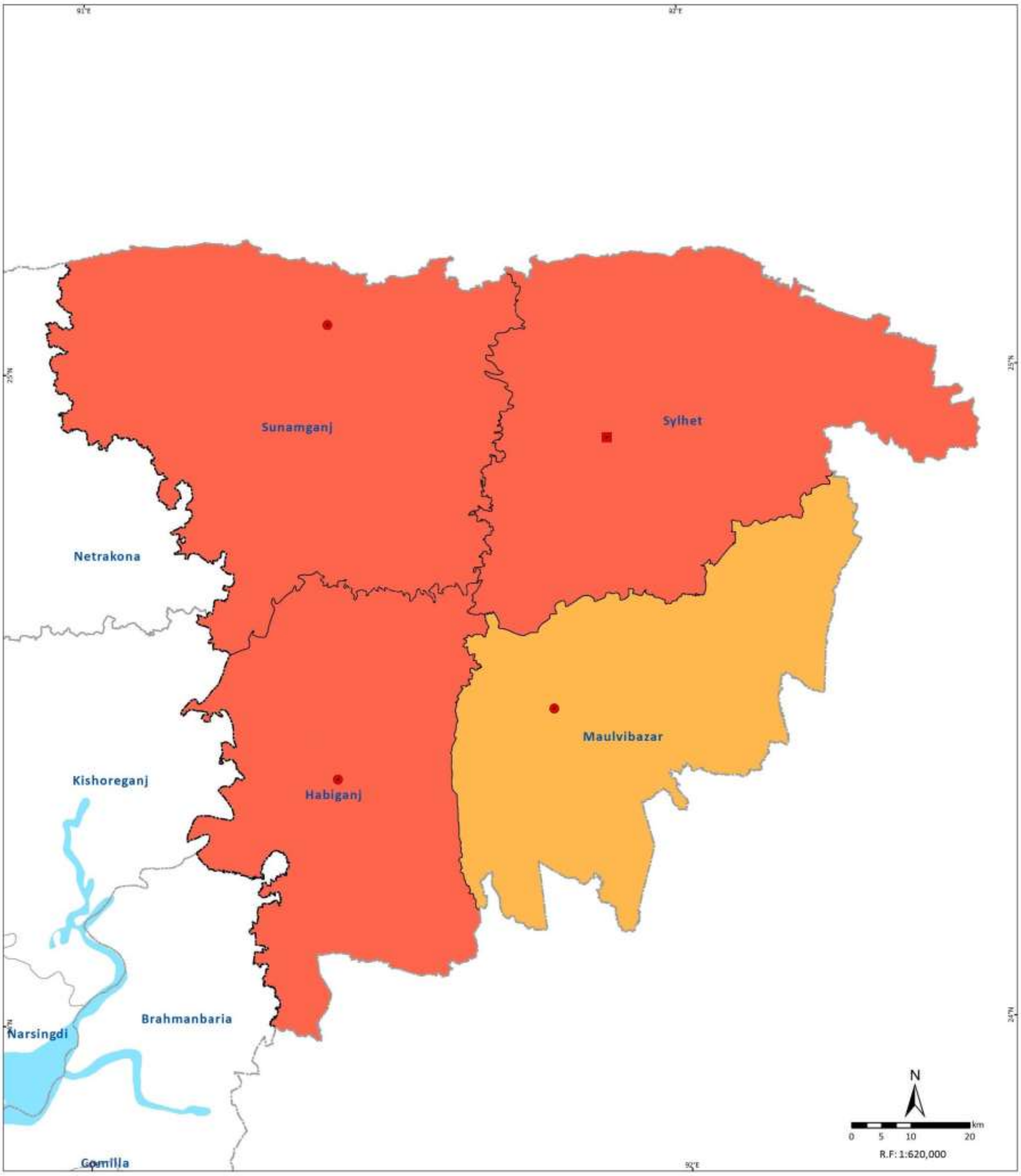
Risk Levels of Housing (Kutcha and Jhupri) to Flood Hazard
(Sylhet Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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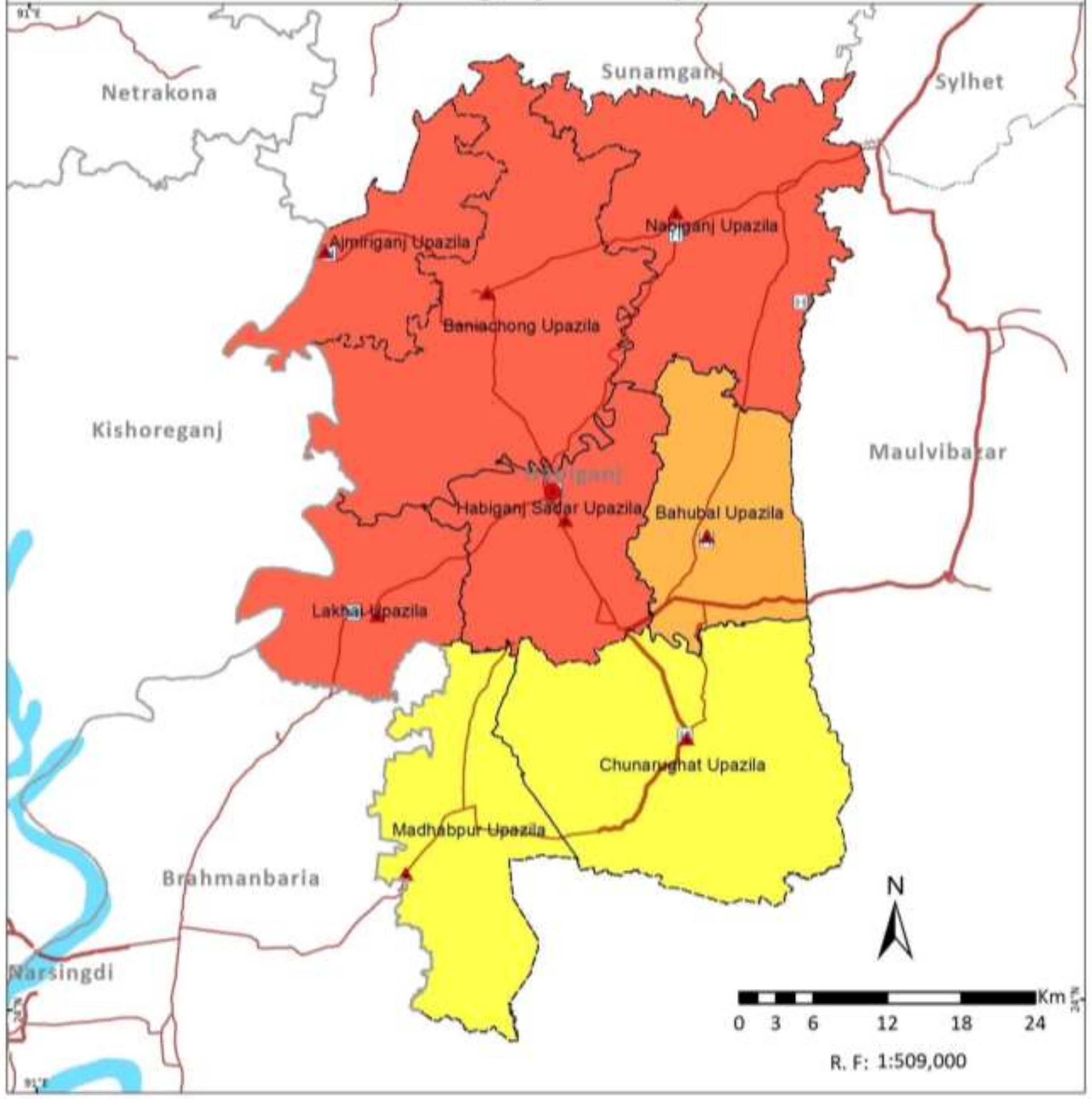
Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard (Moulvibazar District)

Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard (Habiganj District)



Legend

Country Boundary		District Head Quarter		Levels of Risk	
Division Boundary		Upazila Head Quarter			No Risk
District Boundary		Fire Station			Very Low
Upazila_Boundary		Hospital			Low
National High Way		Cyclone Shelter			Moderate
Regional High Way		River/Sea/Lake			High
		Sundarbans			Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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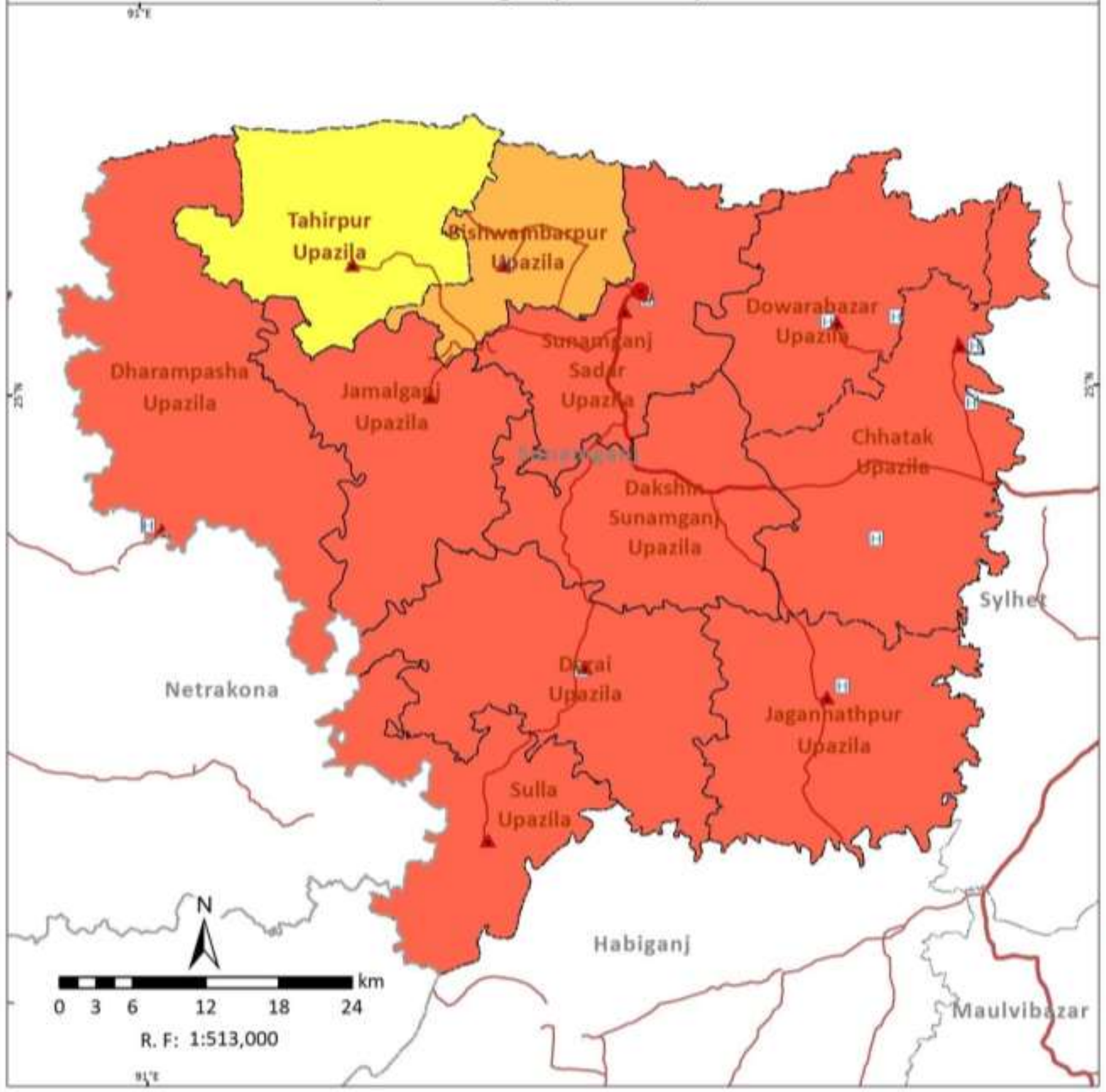
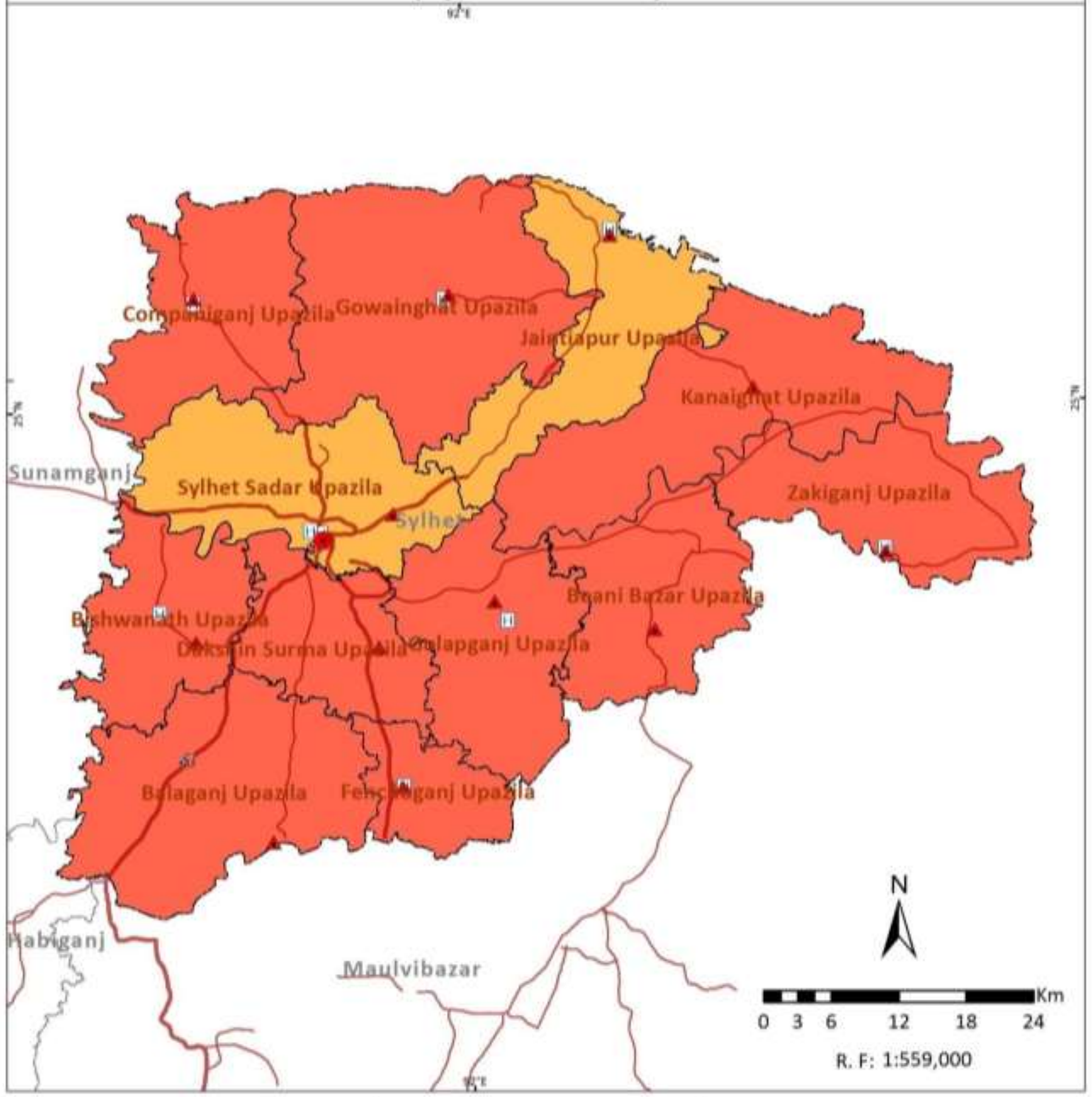
Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard (Sunamganj District)



Risk Levels of Hosing (Kutcha and Jhupri) to Flood Hazard (Sylhet District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Feni
- River/Sea/Lake
- Sundarbans

Levels of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to flood are derived by combining flood depth, housing maps at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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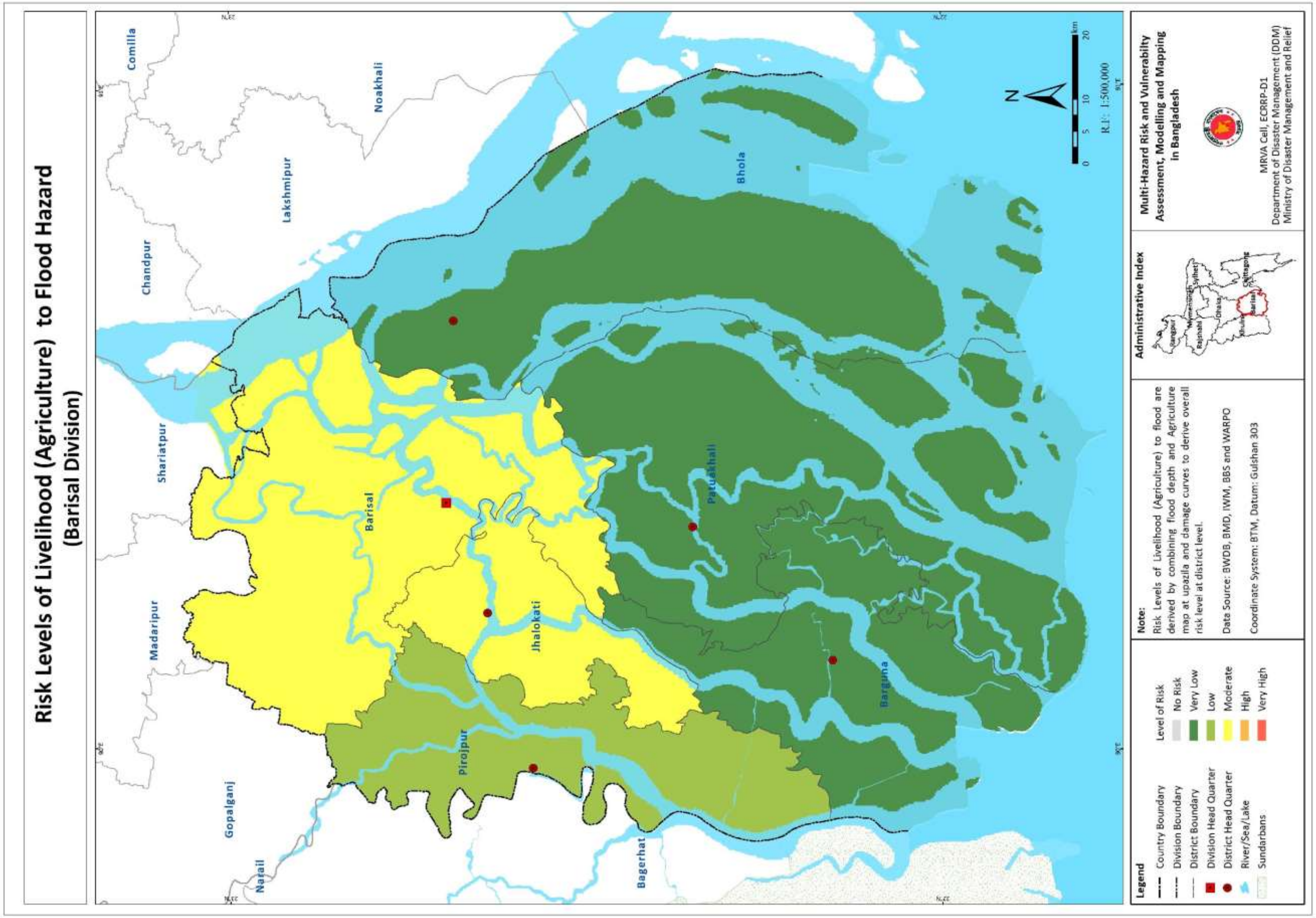
Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Barisal Division)
Comilla
Noakhali
Lakshmipur
Chandpur
Shariatpur
Madaripur
Gopalganj
Narail
Bagerhat
Barisal
Jhalokati
Pirojpur
Patuakhali
Barguna
Bhola
N
0 5 10 20 km
R.F: 1:500,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Rajshahi
Mymensingh
Sylhet
Dhaka
Khulna
Barisal
Chittagong
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
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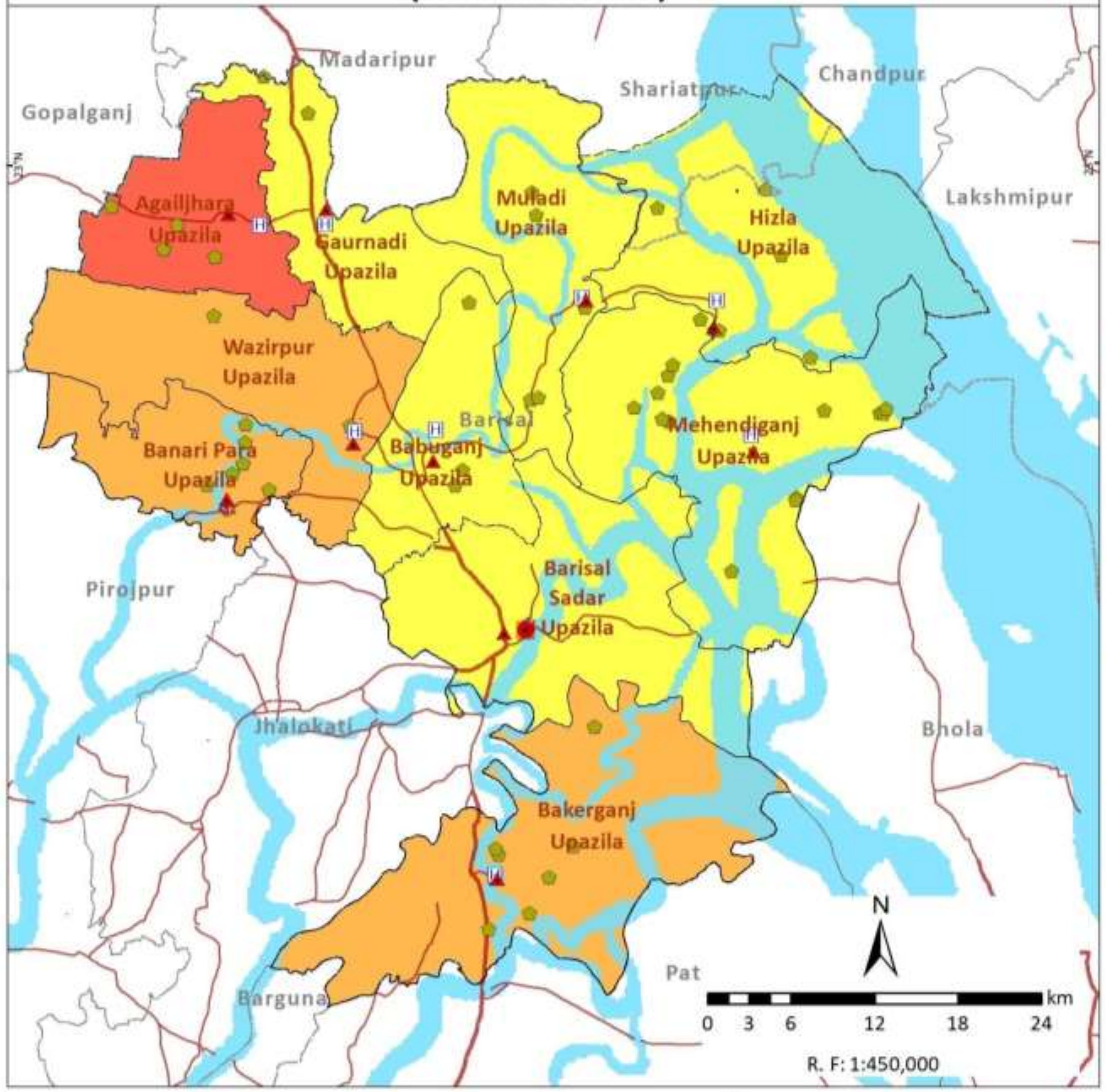
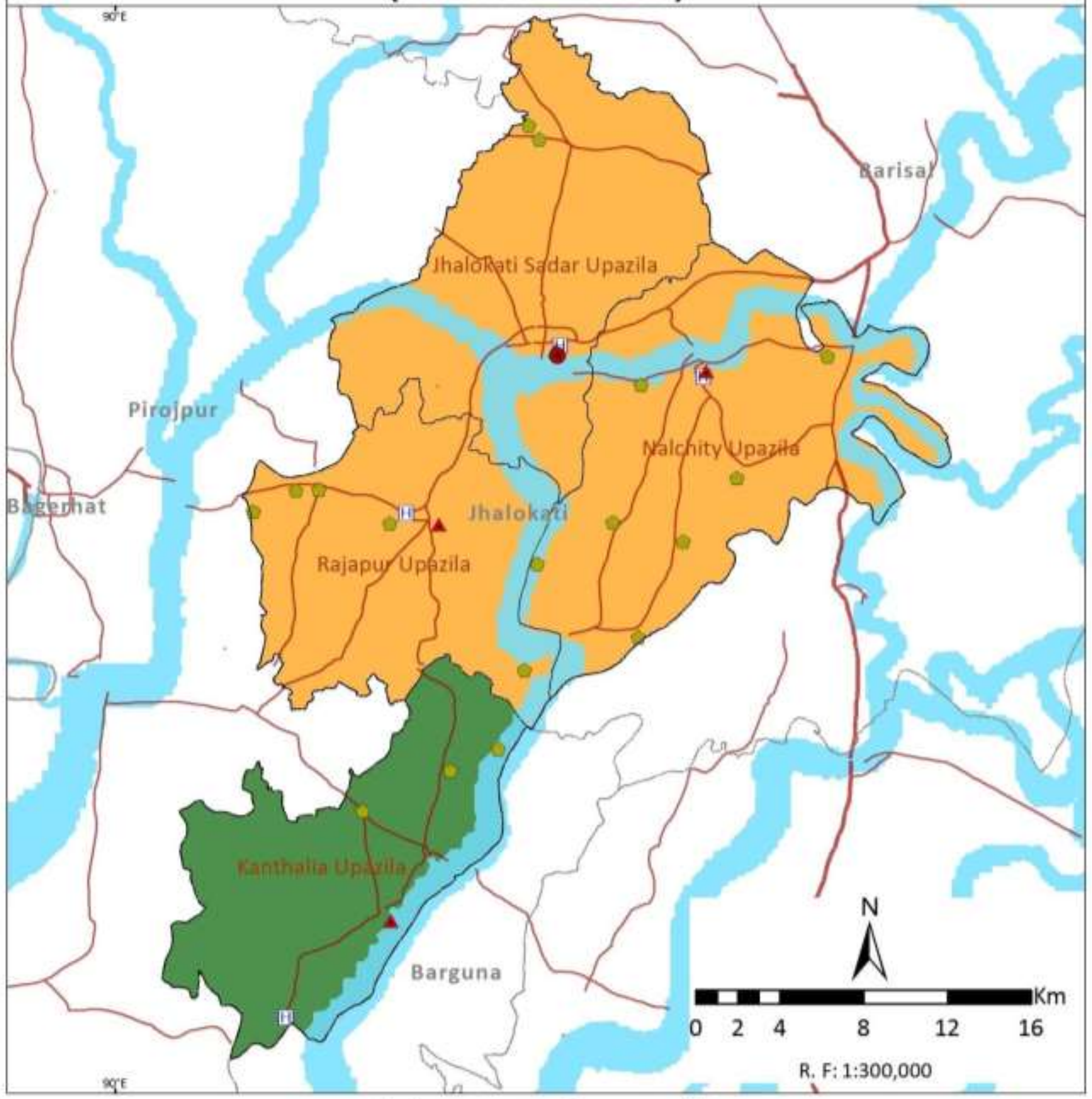
Risk Levels of Livelihood (Agriculture) to Flood Hazard (Barisal District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Jhalokati District)



Legend

Country Boundary	Division Head Quarter	Level of Risk
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Head Quarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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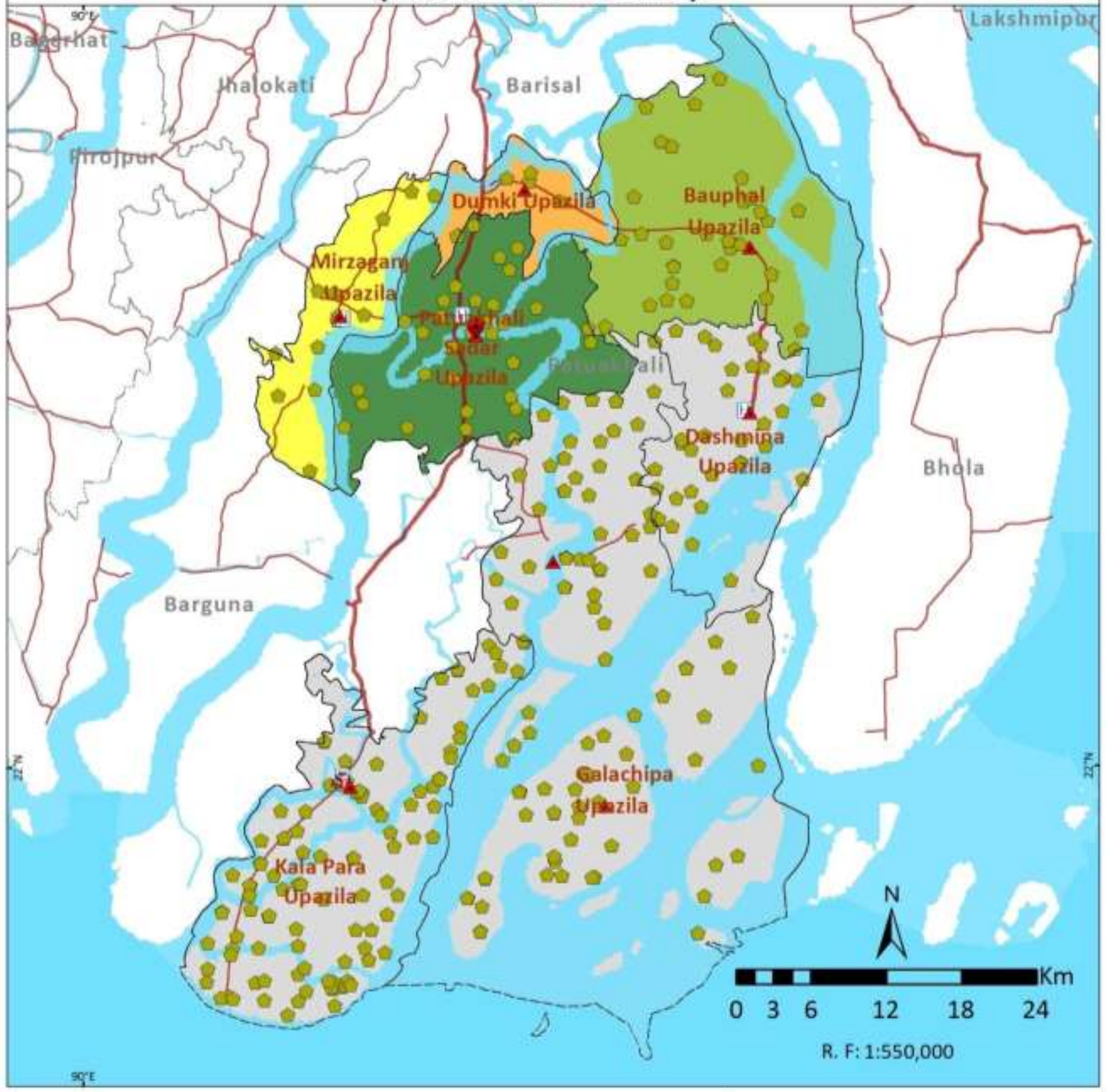
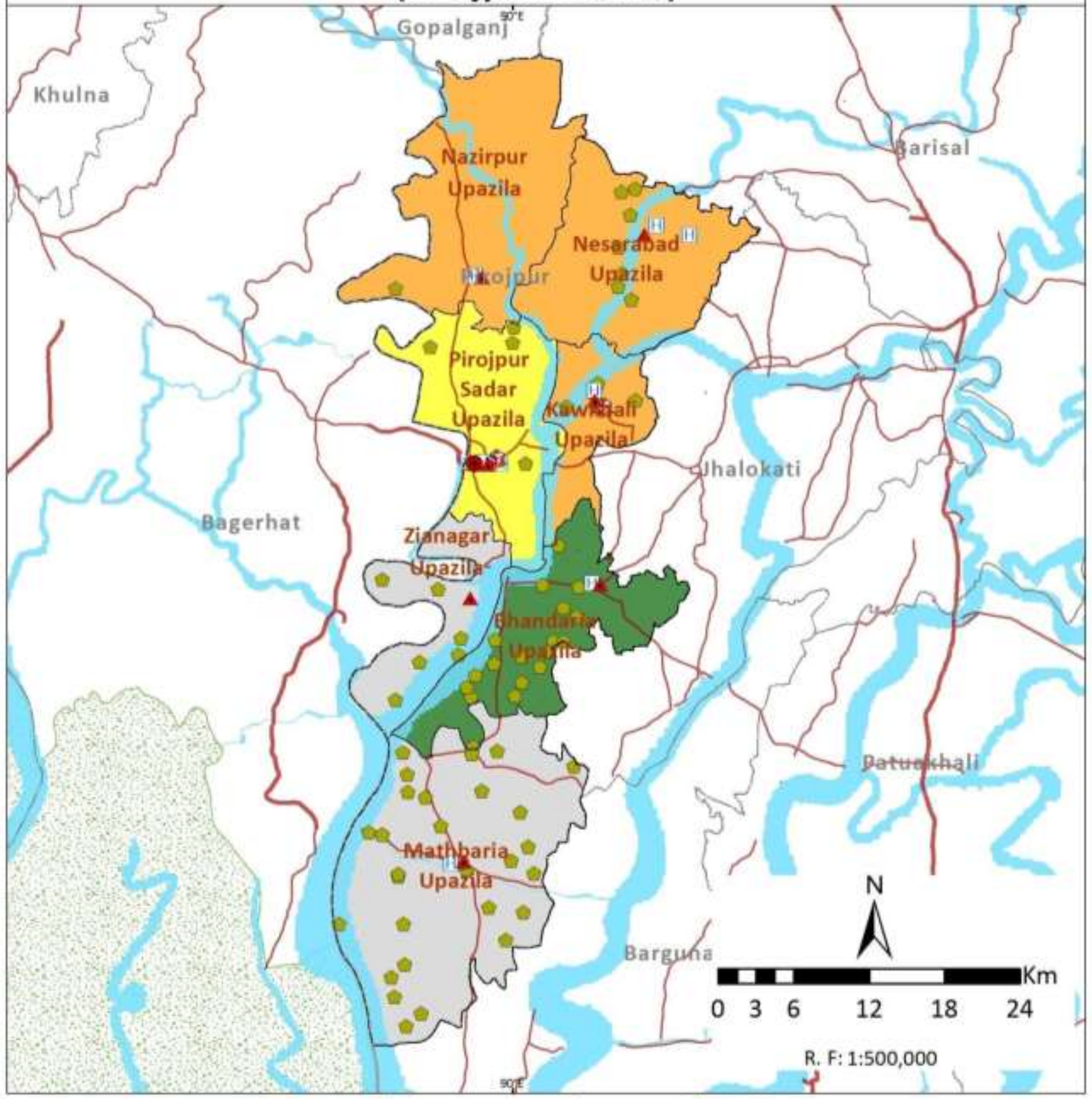
Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Patuakhali District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Pirojpur District)



Legend

Country Boundary	District Head Quarter	Level of Risk
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire stations	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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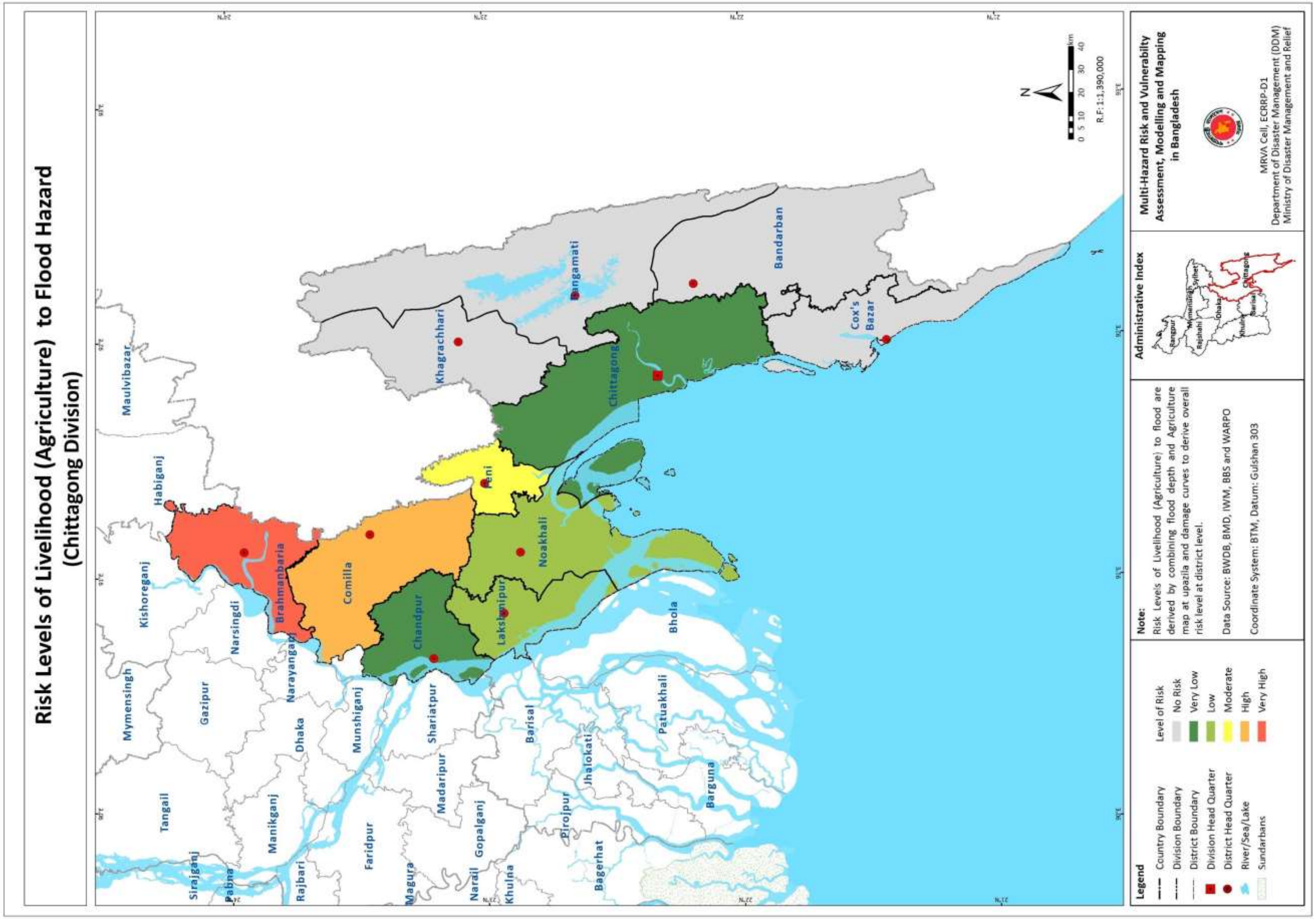

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Chittagong Division)
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
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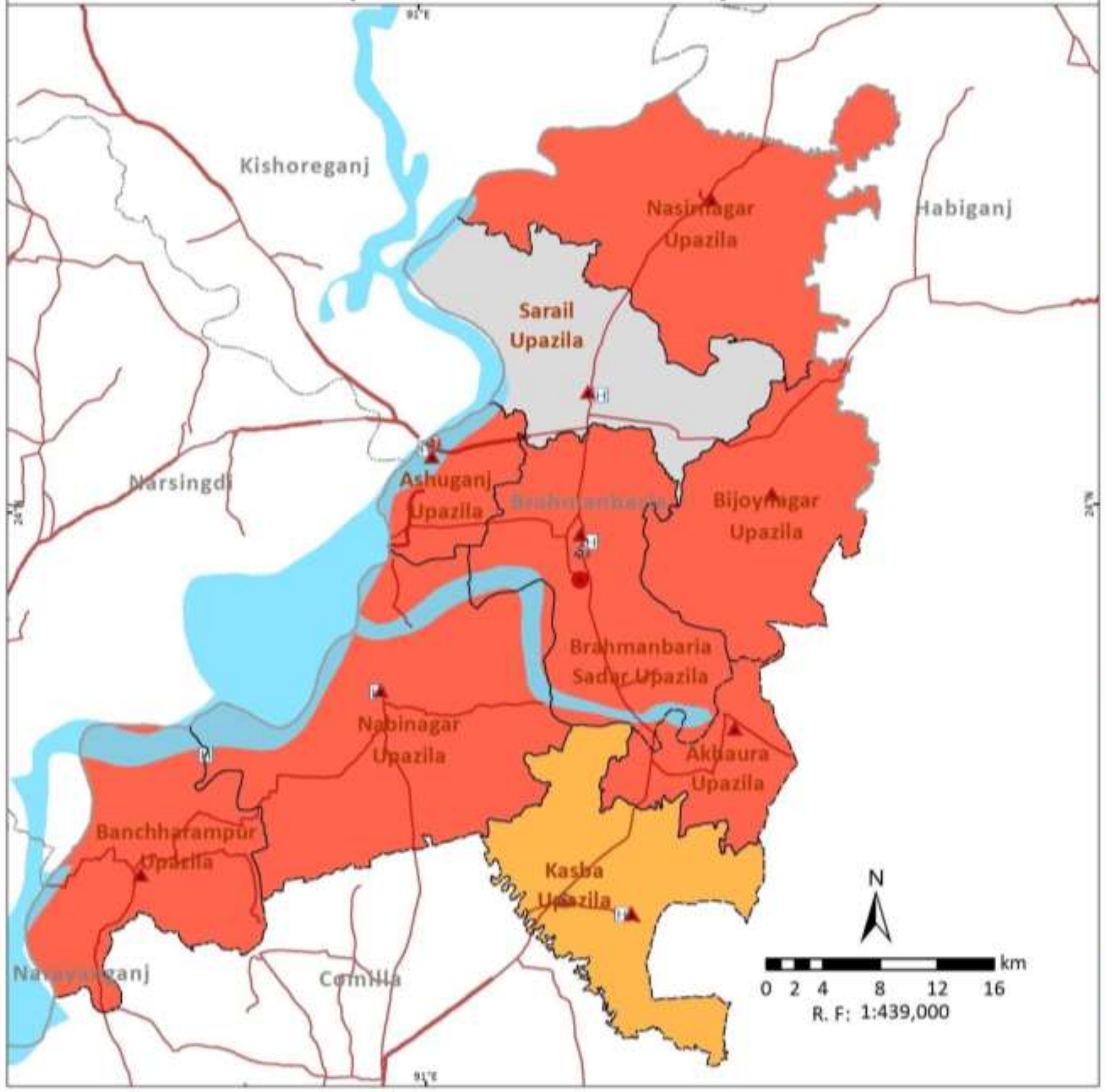
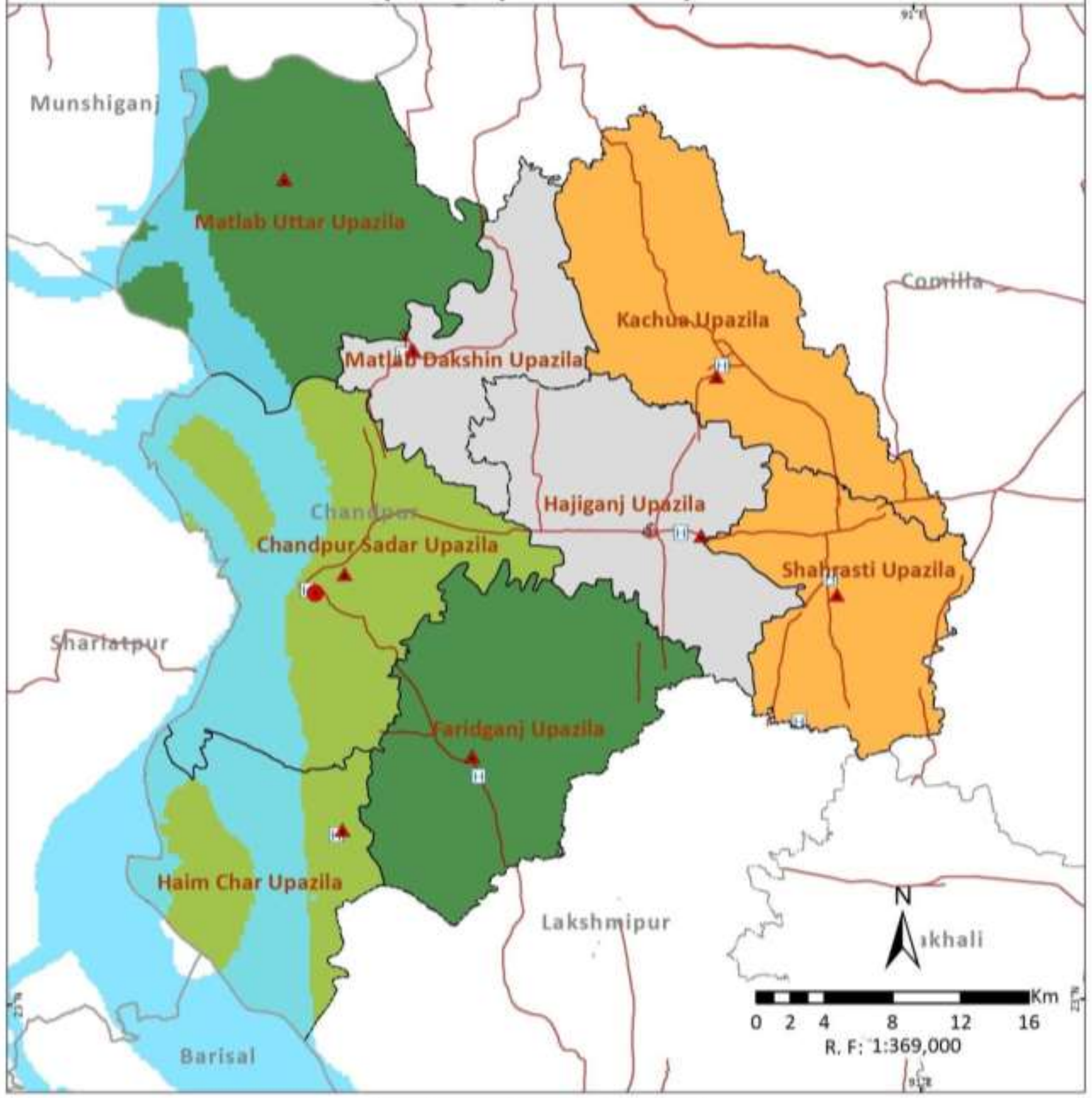
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief
R.F:1:1,390,000
0 5 10 20 30 40
km
N
Khagrachhari
Rangamati
Bandarban
Chittagong
Cox's Bazar
Feni
Noakhali
Comilla
Brahmanbaria
Chandpur
Lakshmipur
Bhola
Maulvibazar
Habiganj
Kishoreganj
Mymensingh
Narsingdi
Gazipur
Narayanganj
Dhaka
Munshiganj
Shariatpur
Madaripur
Barisal
Patuakhali
Jhalokati
Barguna
Pirojpur
Bagerhat
Gopalganj
Faridpur
Rajbari
Manikganj
Tangail
Sirajganj
Pabna
Magura
Narail
Khulna

Risk Levels of Livelihood (Agriculture) to Flood Hazard (Brahmanbaria District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Chandpur District)



Legend

Country Boundary	District Head Quarter	**Levels of Risk**
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila_Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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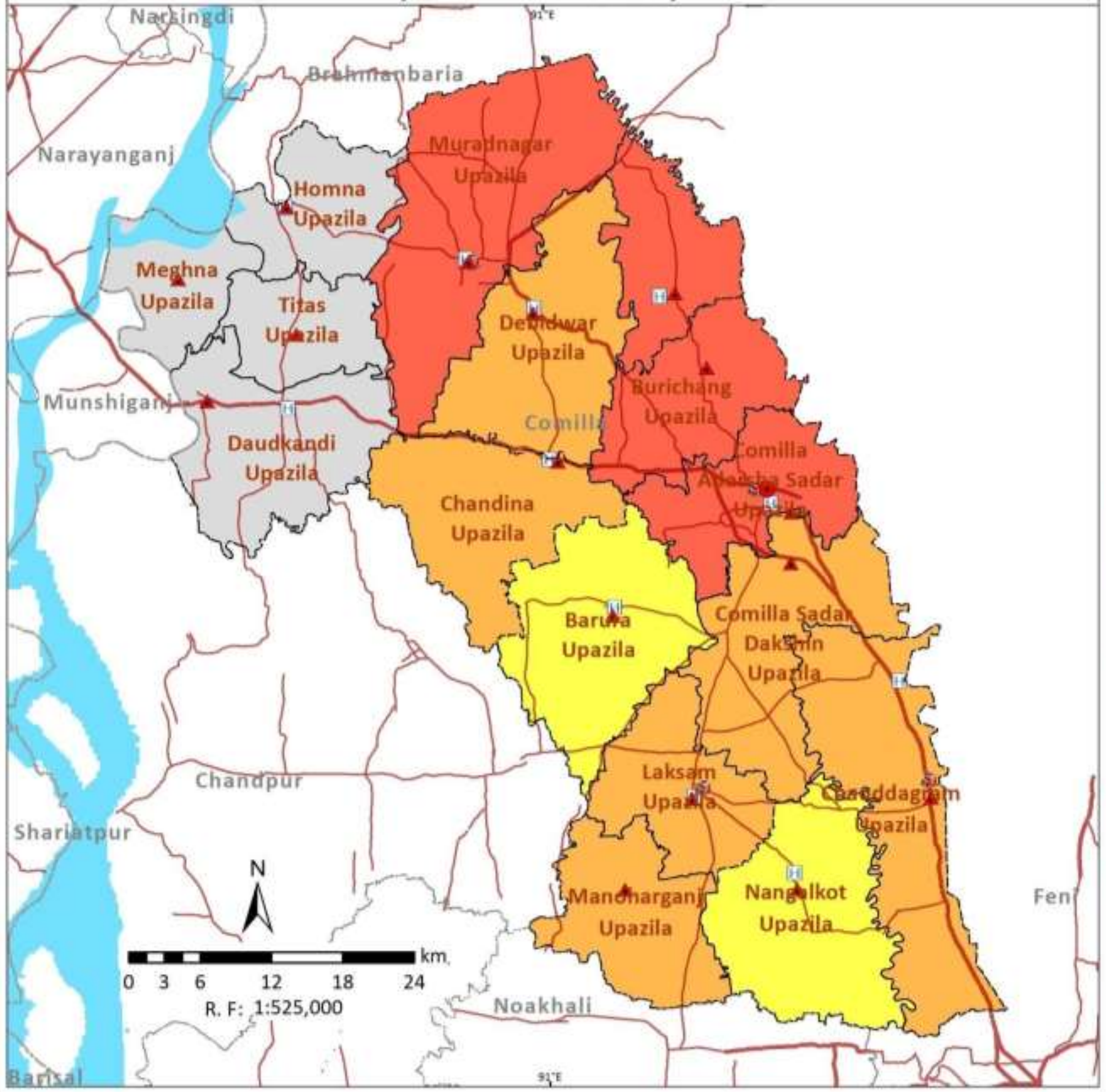
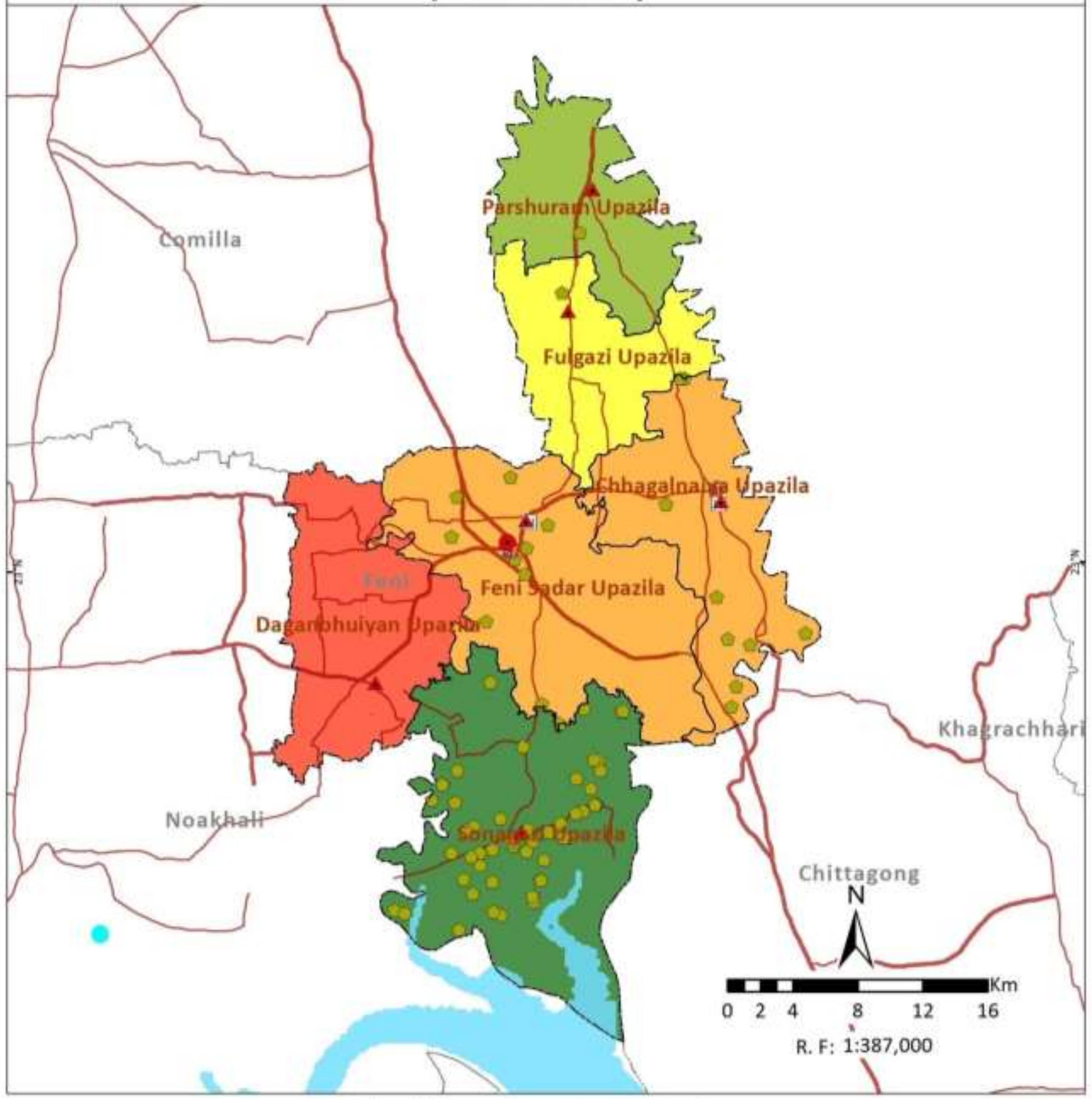
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard (Comillal District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Feni District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Levels of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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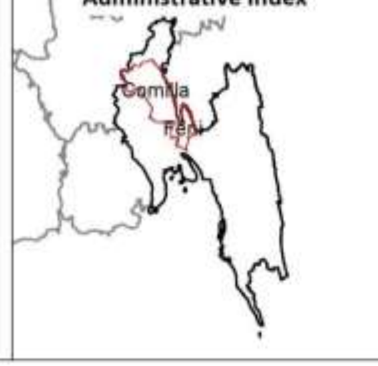
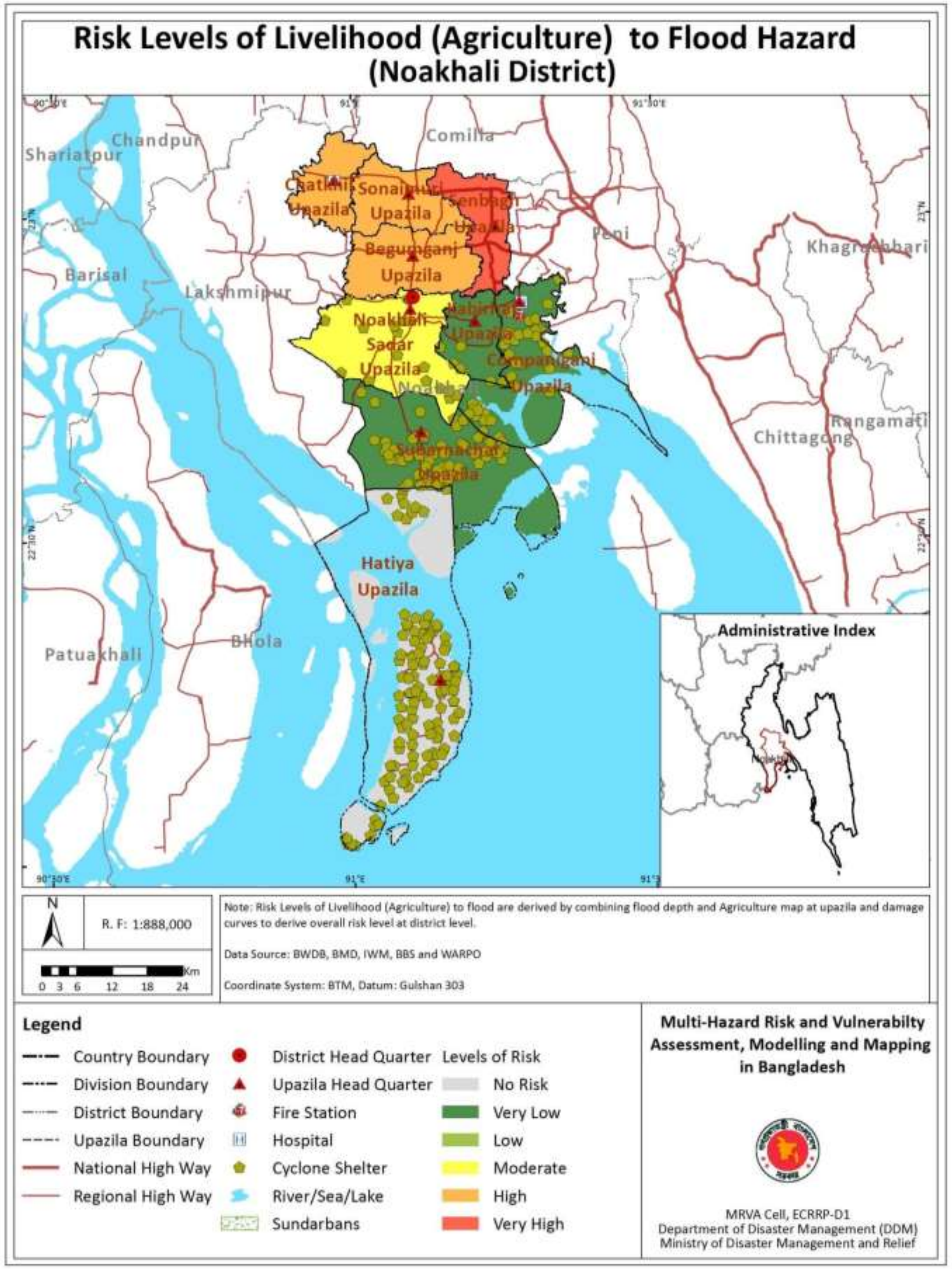


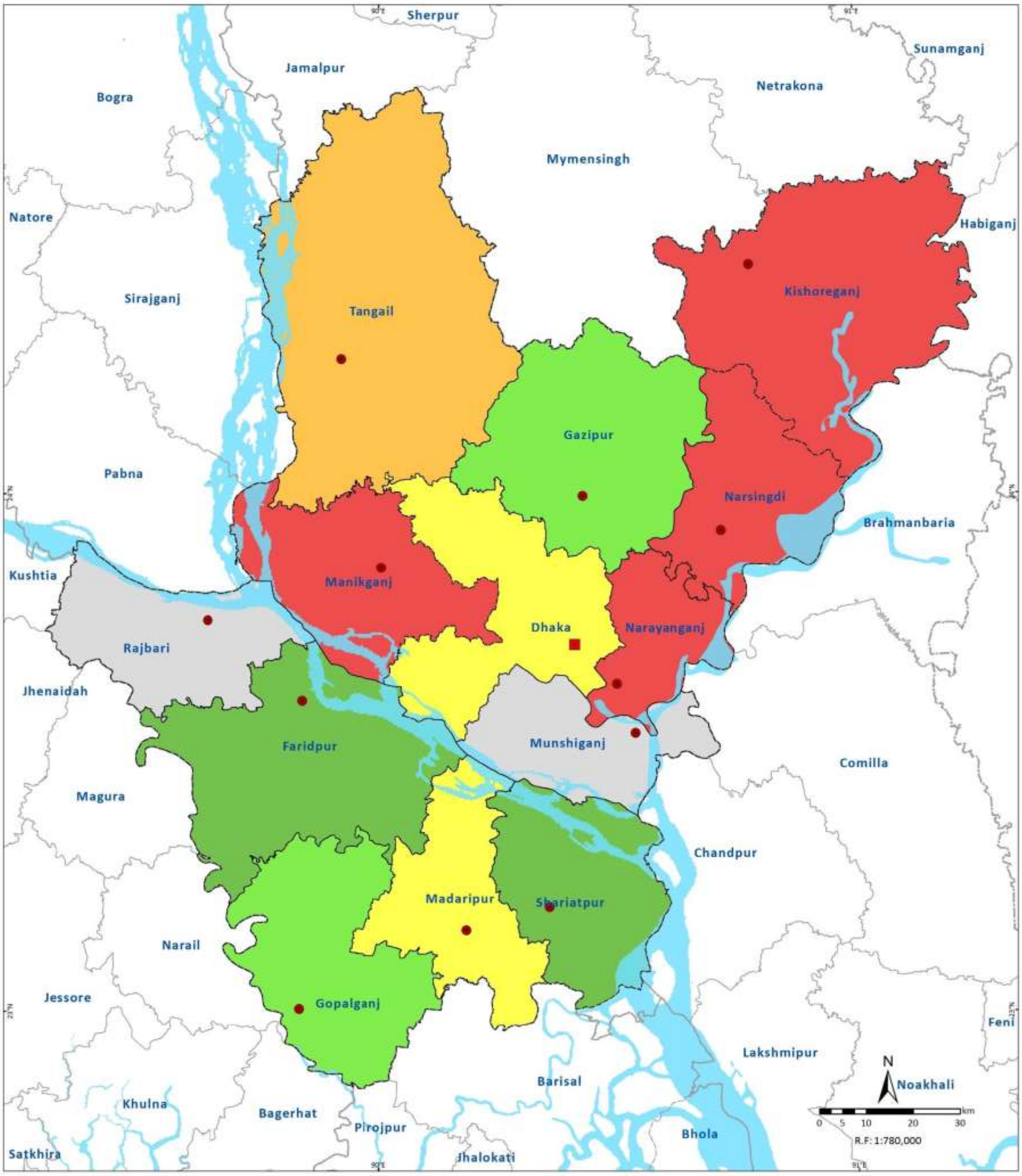
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief



Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Noakhali District)
Shariatpur
Chandpur
Comilla
Feni
Khagrachhari
Barisal
Lakshmipur
Chatkhil Upazila
Sonaimuri Upazila
Begumganj Upazila
Noakhali Sadar Upazila
Companiganj Upazila
Hatiya Upazila
Rangamati
Chittagong
Bhola
Patuakhali
Administrative Index
N
R. F: 1:888,000
0 3 6 12 18 24 Km
Note: Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Levels of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Dhaka Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

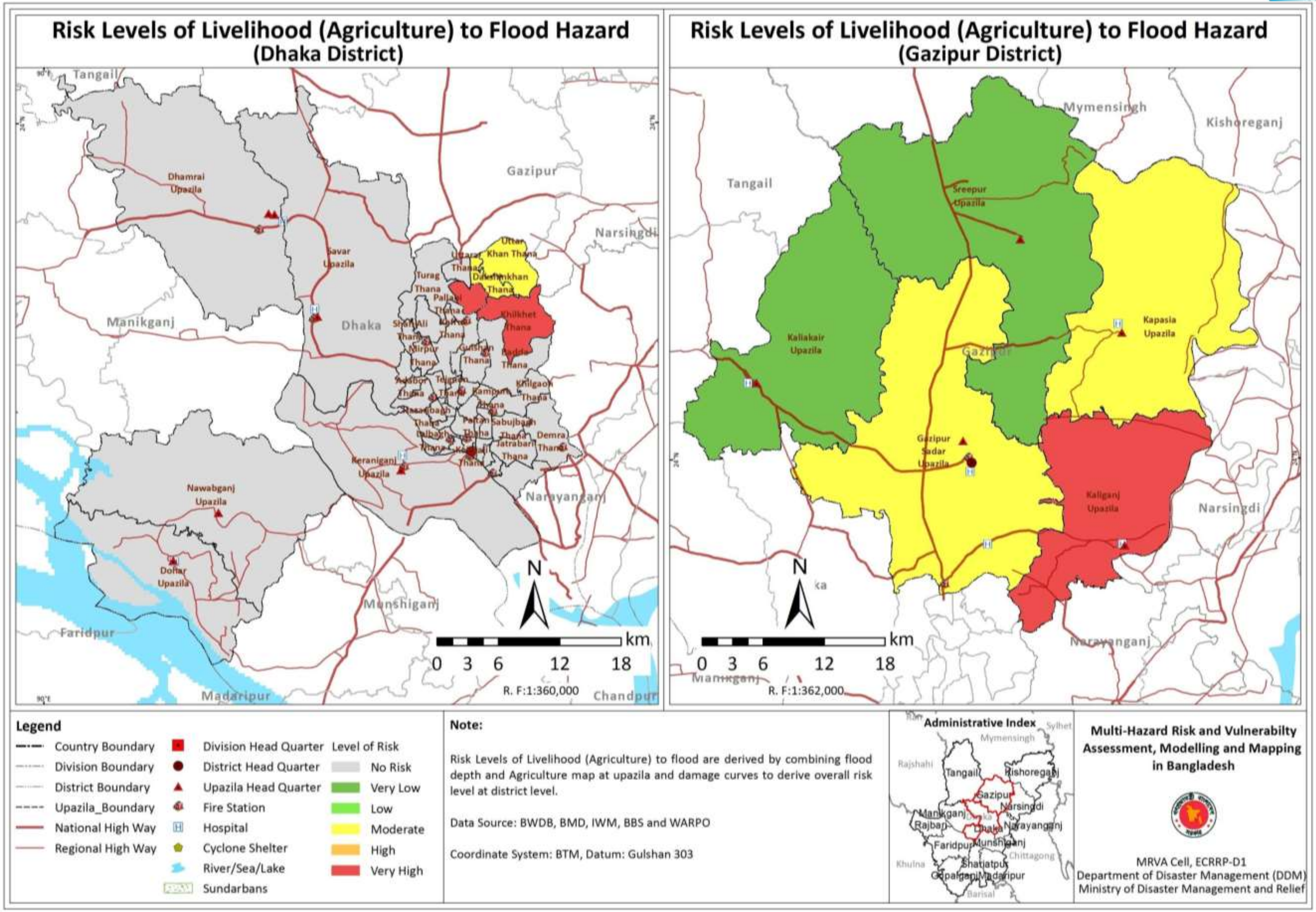
Data Source: BWDB, BMD, IWM, BBS and WARPO

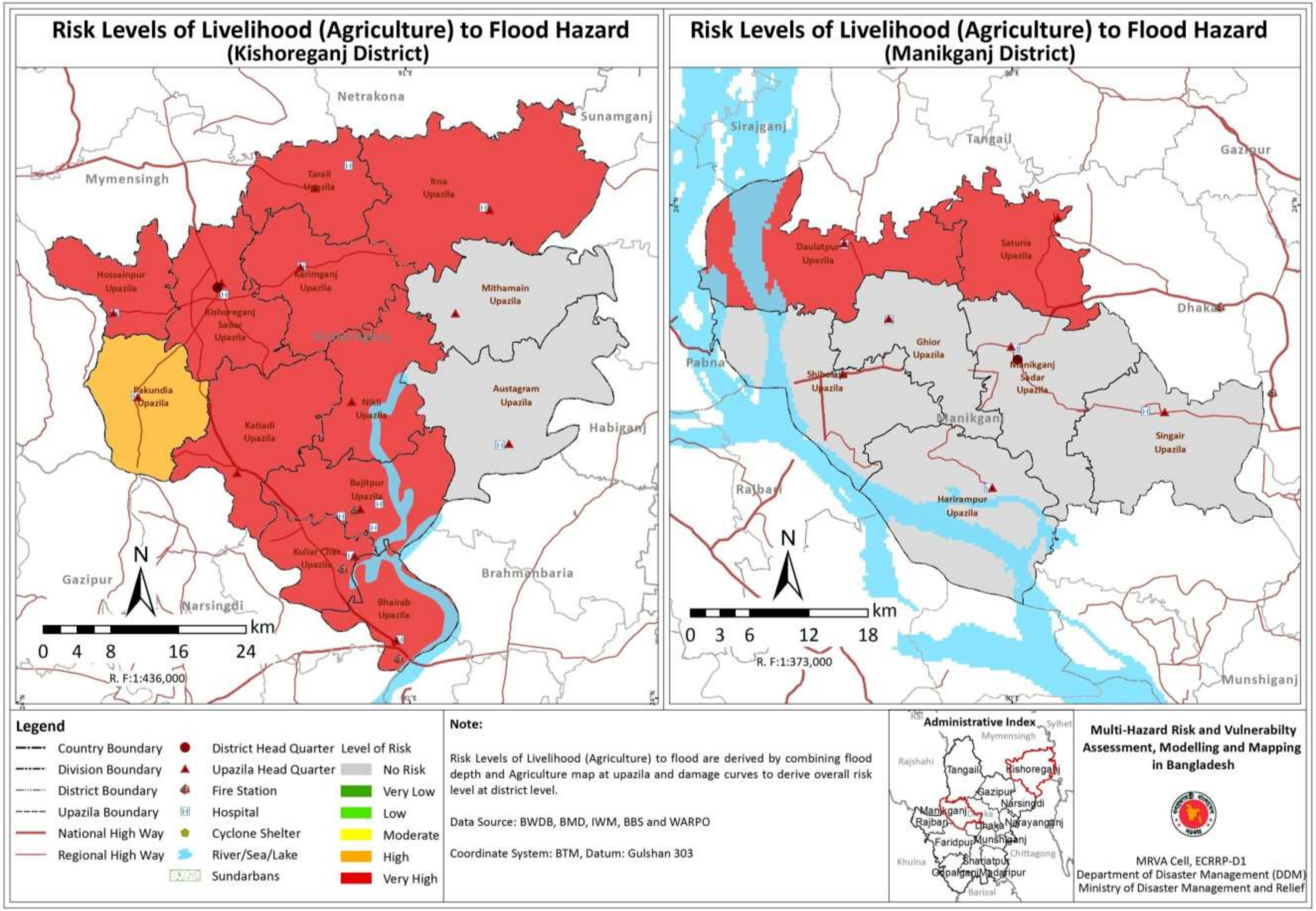
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

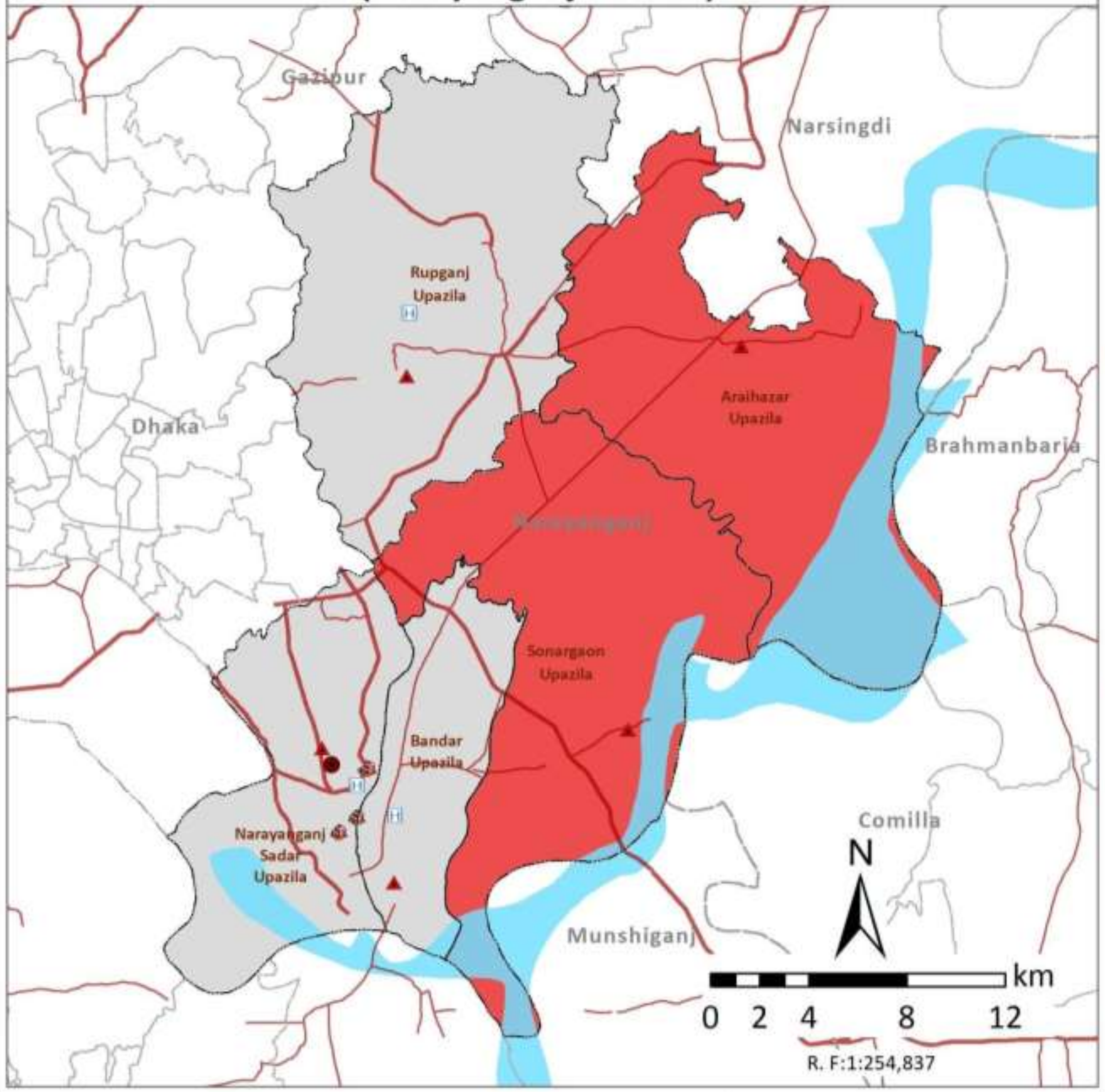
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

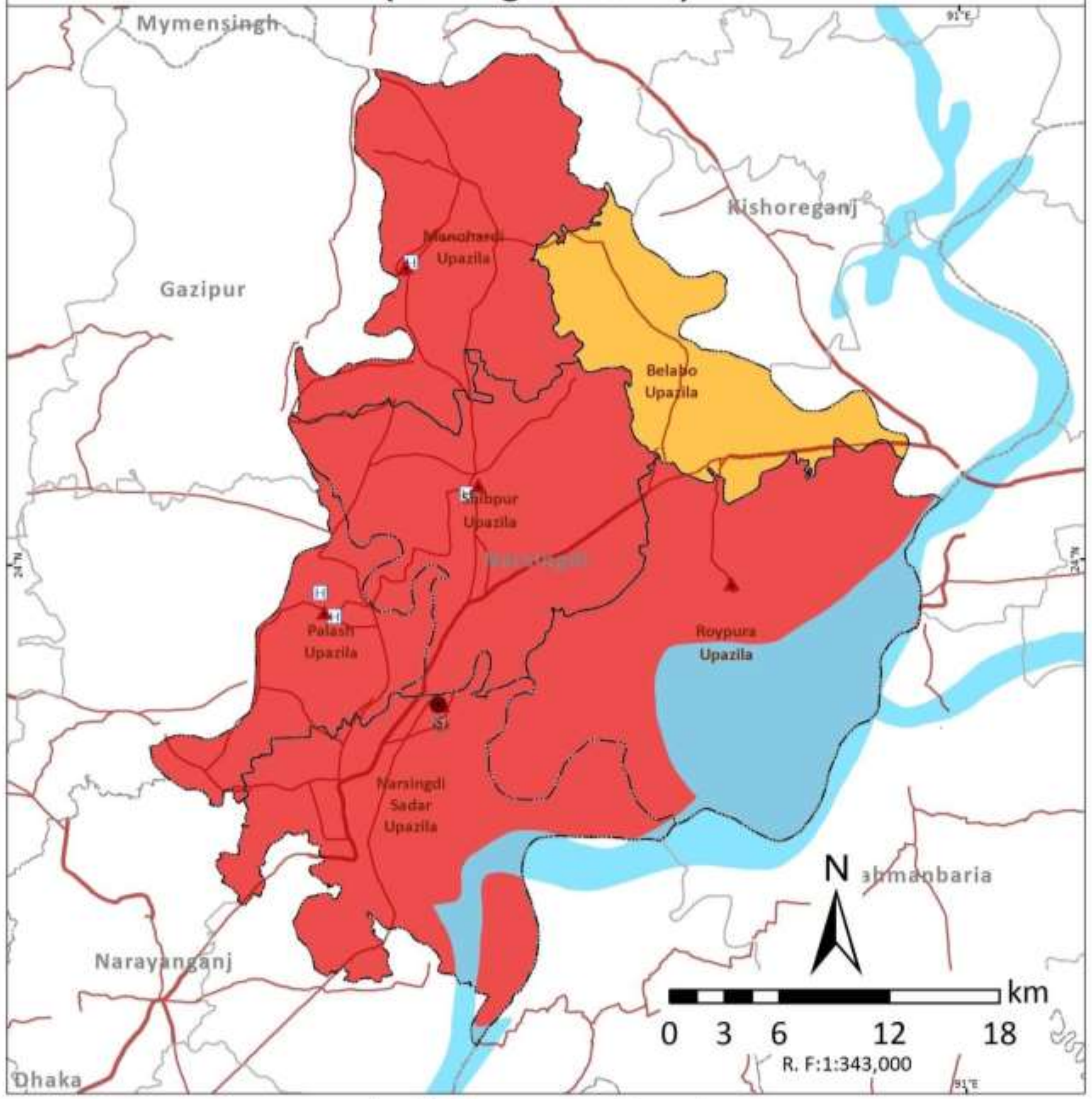

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Dhaka District)
Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Gazipur District)
Tangail
Gazipur
Narsingdi
Manikganj
Dhaka
Dhamrai Upazila
Savar Upazila
Keraniganj Upazila
Nawabganj Upazila
Dohar Upazila
Narayanganj
Munshiganj
Faridpur
Madaripur
Chandpur
Mymensingh
Kishoreganj
Sreepur Upazila
Kaliakair Upazila
Kapasia Upazila
Gazipur Sadar Upazila
Kaliganj Upazila
N
0 3 6 12 18 km
R. F:1:360,000
R. F:1:362,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Kishoreganj District)
Netrakona
Sunamganj
Mymensingh
Tarail Upazila
Itna Upazila
Hossainpur Upazila
Karimganj Upazila
Kishoreganj Sadar Upazila
Mithamain Upazila
Pakundia Upazila
Katiadi Upazila
Nikli Upazila
Austagram Upazila
Habiganj
Bajitpur Upazila
Kuliar Char Upazila
Bhairab Upazila
Gazipur
Narsingdi
Brahmanbaria
N
0 4 8 16 24 km
R. F:1:436,000
Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Manikganj District)
Sirajganj
Tangail
Gazipur
Daulatpur Upazila
Saturia Upazila
Dhaka
Pabna
Ghior Upazila
Shibalaya Upazila
Manikganj Sadar Upazila
Manikganj
Singair Upazila
Rajbari
Harirampur Upazila
N
0 3 6 12 18 km
R. F:1:373,000
Munshiganj
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Mymensingh
Sylhet
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Dhaka
Narayanganj
Rajbari
Faridpur
Munshiganj
Chittagong
Khulna
Shariatpur
Gopalganj
Madaripur
Barisal
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Narayanganj District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Narsingdi District)



Legend

Country Boundary	District Head Quarter	Level of Risk	
Division Boundary	Upazila Head Quarter		No Risk
District Boundary	Fire Station		Very Low
Upazila Boundary	Hospital		Low
National High Way	Cyclone Shelter		Moderate
Regional High Way	River/Sea/Lake		High
	Sundarbans		Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

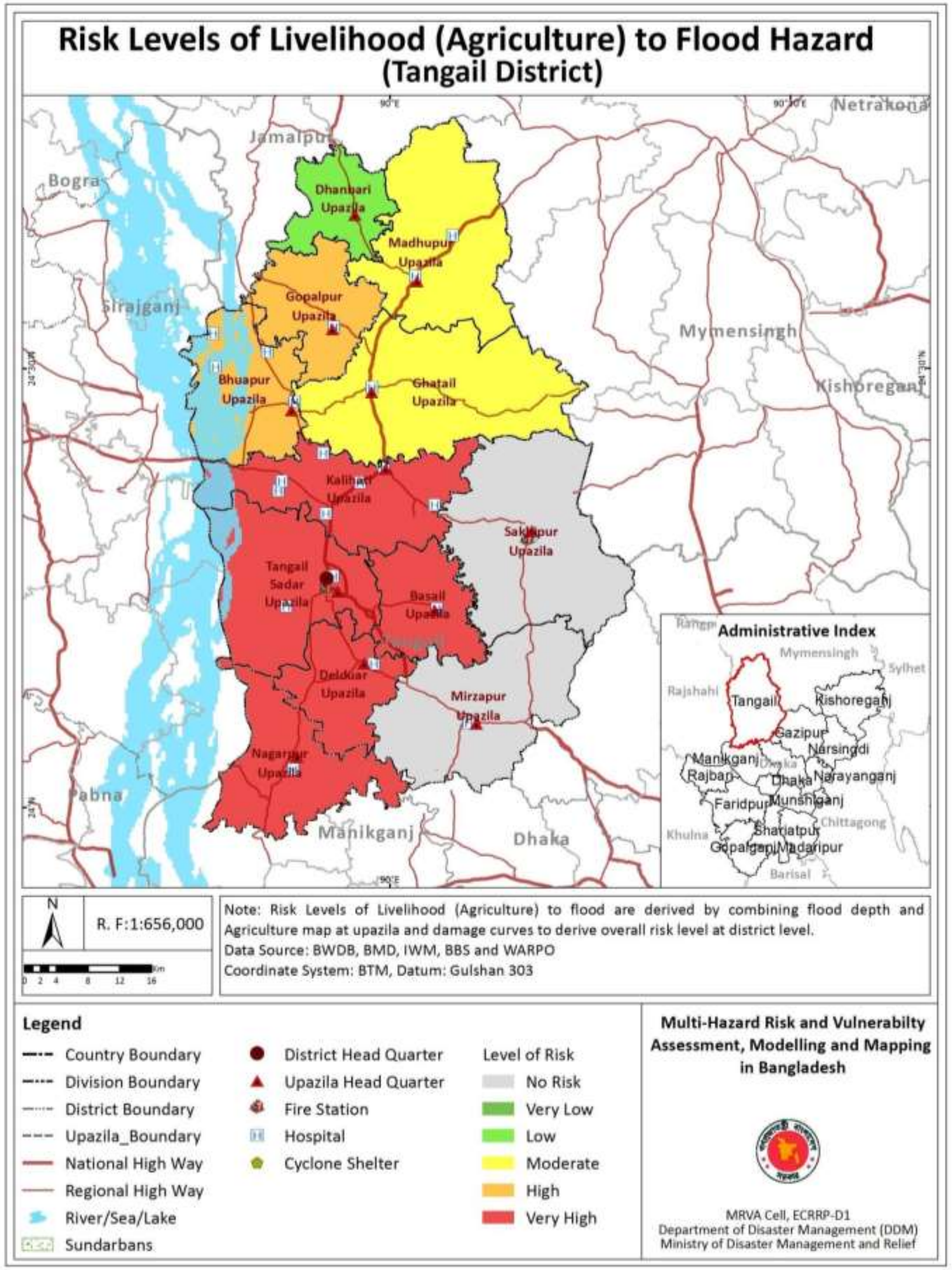
Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Tangail District)
Jamalpur
Bogra
Sirajganj
Pabna
Manikganj
Dhaka
Mymensingh
Netrakona
Kishoreganj
Dhanbari Upazila
Madhupur Upazila
Gopalpur Upazila
Bhuapur Upazila
Ghatail Upazila
Kalihati Upazila
Sakhipur Upazila
Tangail Sadar Upazila
Basail Upazila
Delduar Upazila
Mirzapur Upazila
Nagarpur Upazila
Administrative Index
Mymensingh
Sylhet
Rajshahi
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Rajbari
Dhaka
Narayanganj
Faridpur
Munshiganj
Chittagong
Khulna
Shariatpur
Gopalganj
Madaripur
Barisal
N
R. F:1:656,000
Note: Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
River/Sea/Lake
Sundarbans
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
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Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Khulna Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
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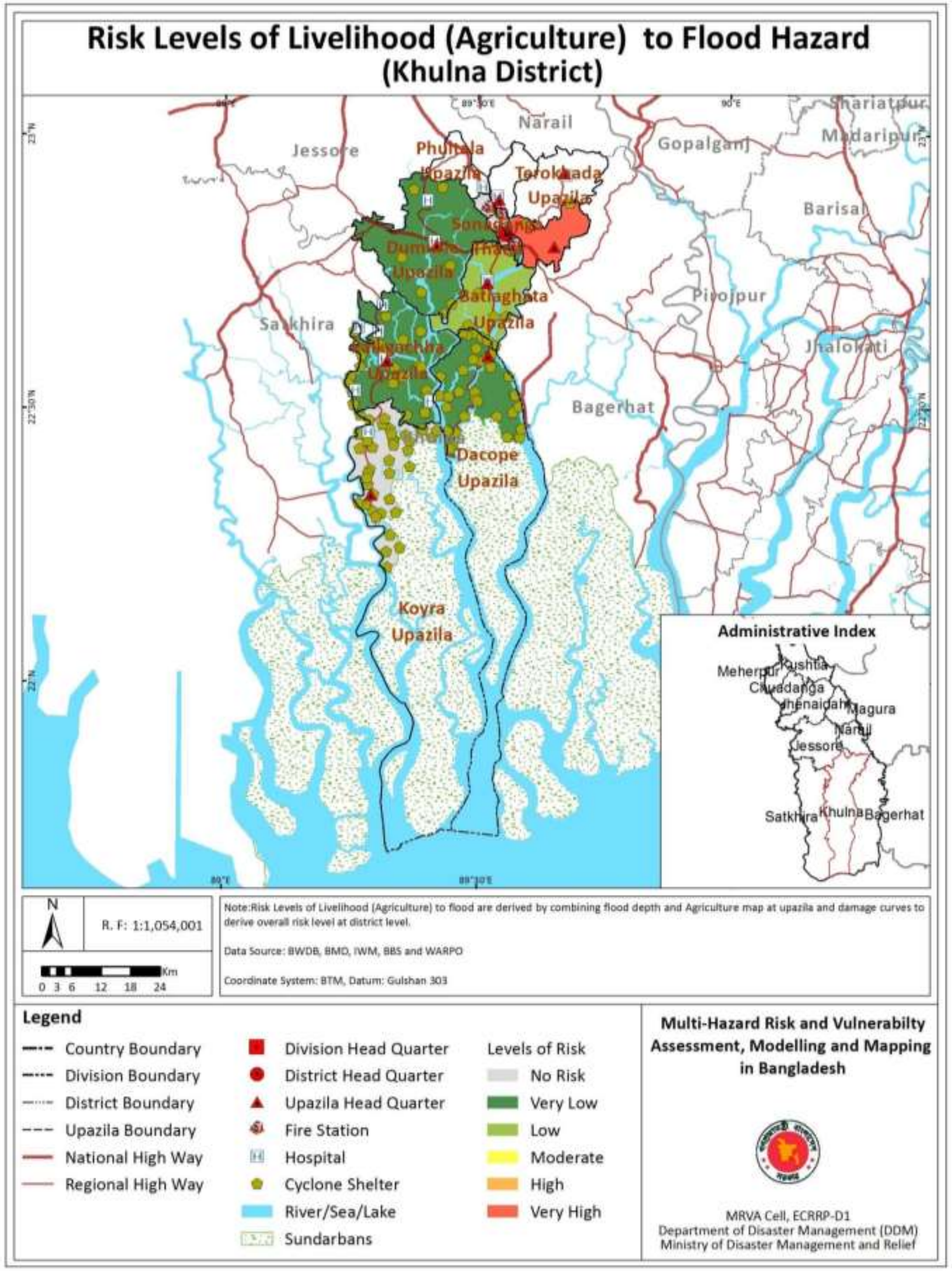
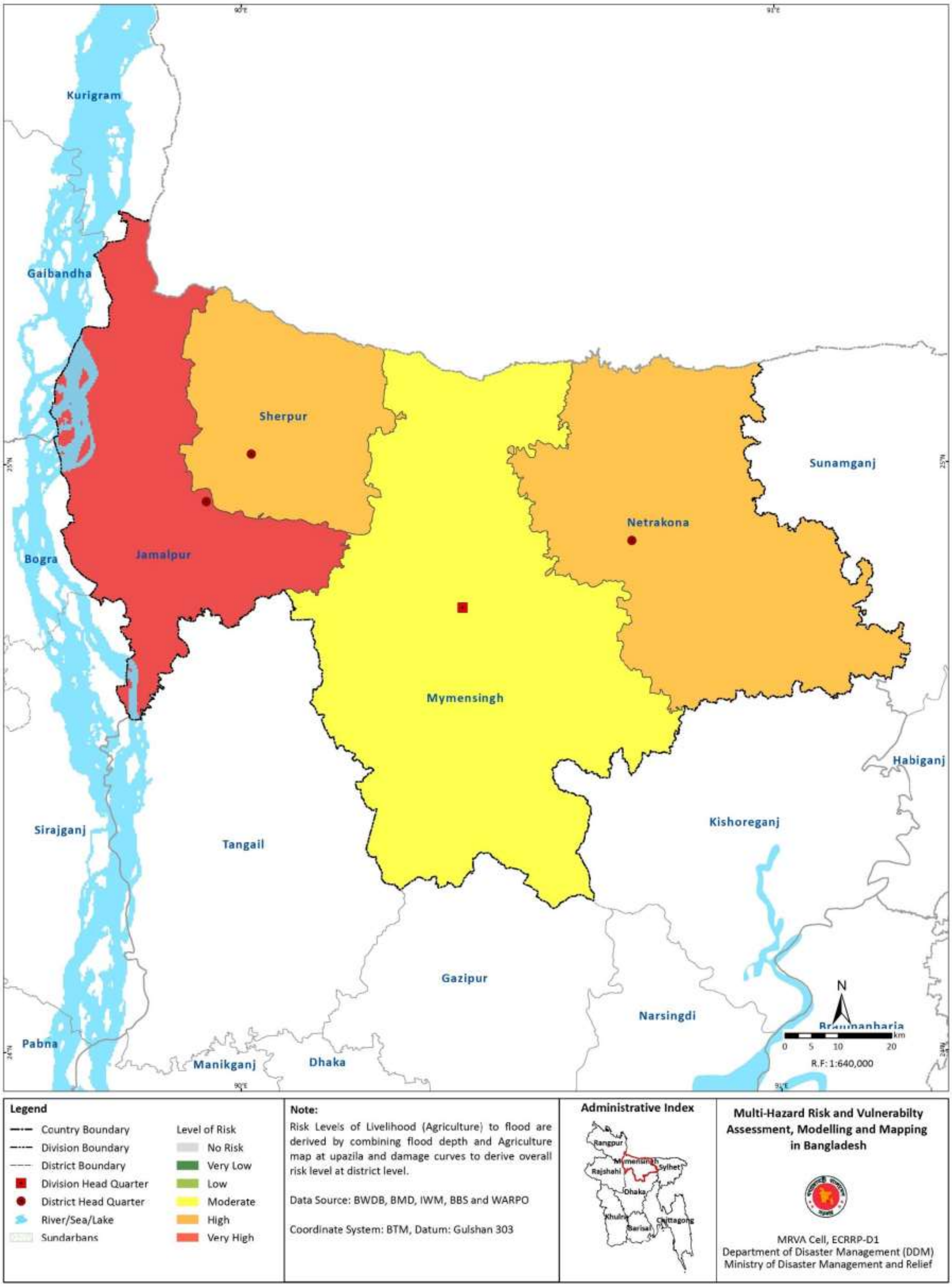
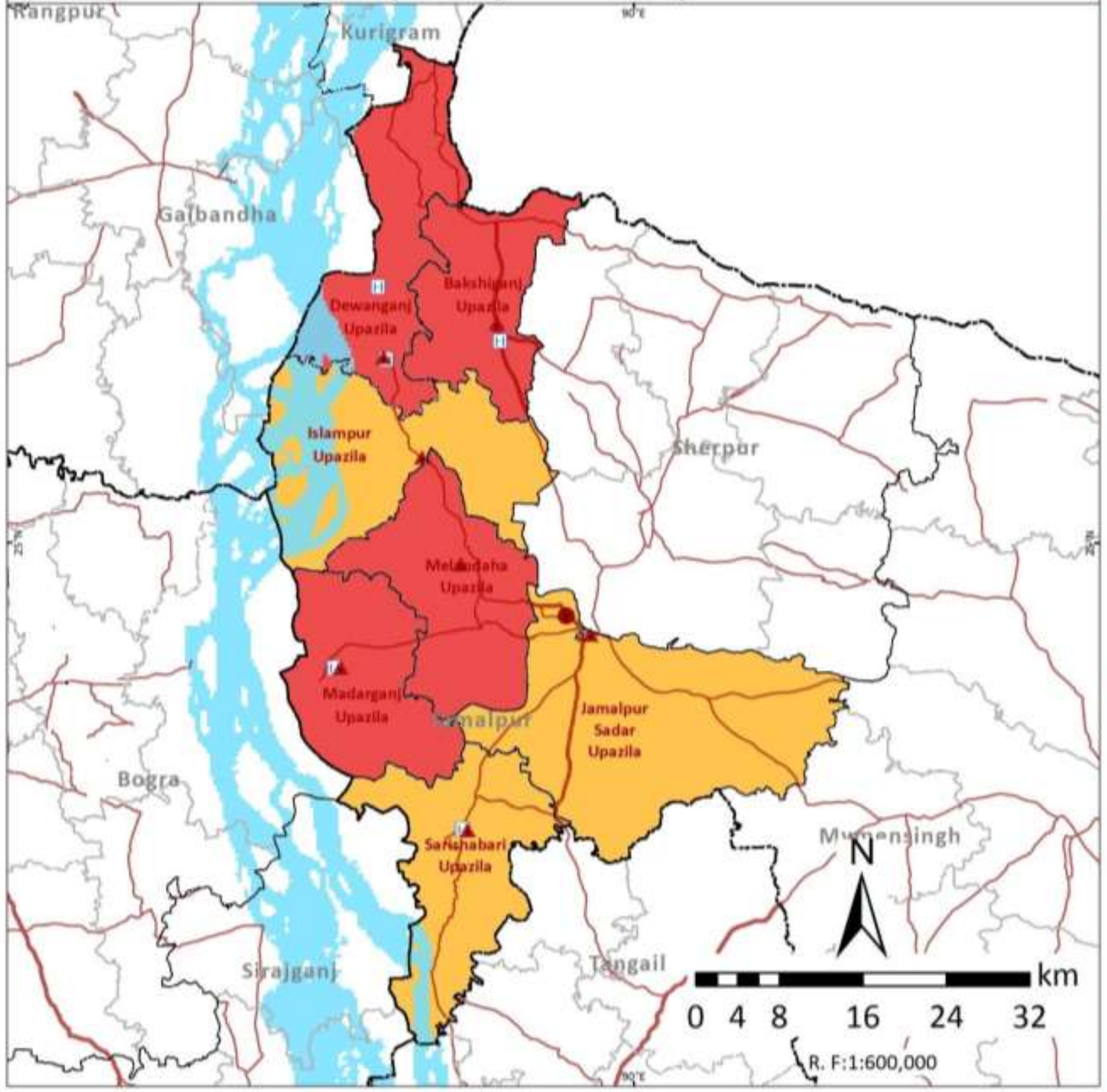
Ministry of Disaster Management and Relief


Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Khulna District)
Jessore
Narail
Gopalganj
Shariatpur
Madaripur
Barisal
Pirojpur
Jhalokati
Satkhira
Bagerhat
Phultala Upazila
Terokhada Upazila
Batiaghata Upazila
Dumuria Upazila
Dacope Upazila
Koyra Upazila
Administrative Index
Meherpur
Kushtia
Chuadanga
Jhenaidah
Magura
Narail
Jessore
Satkhira
Khulna
Bagerhat
N
R. F: 1:1,054,001
0 3 6 12 18 24 Km
Note:Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Levels of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

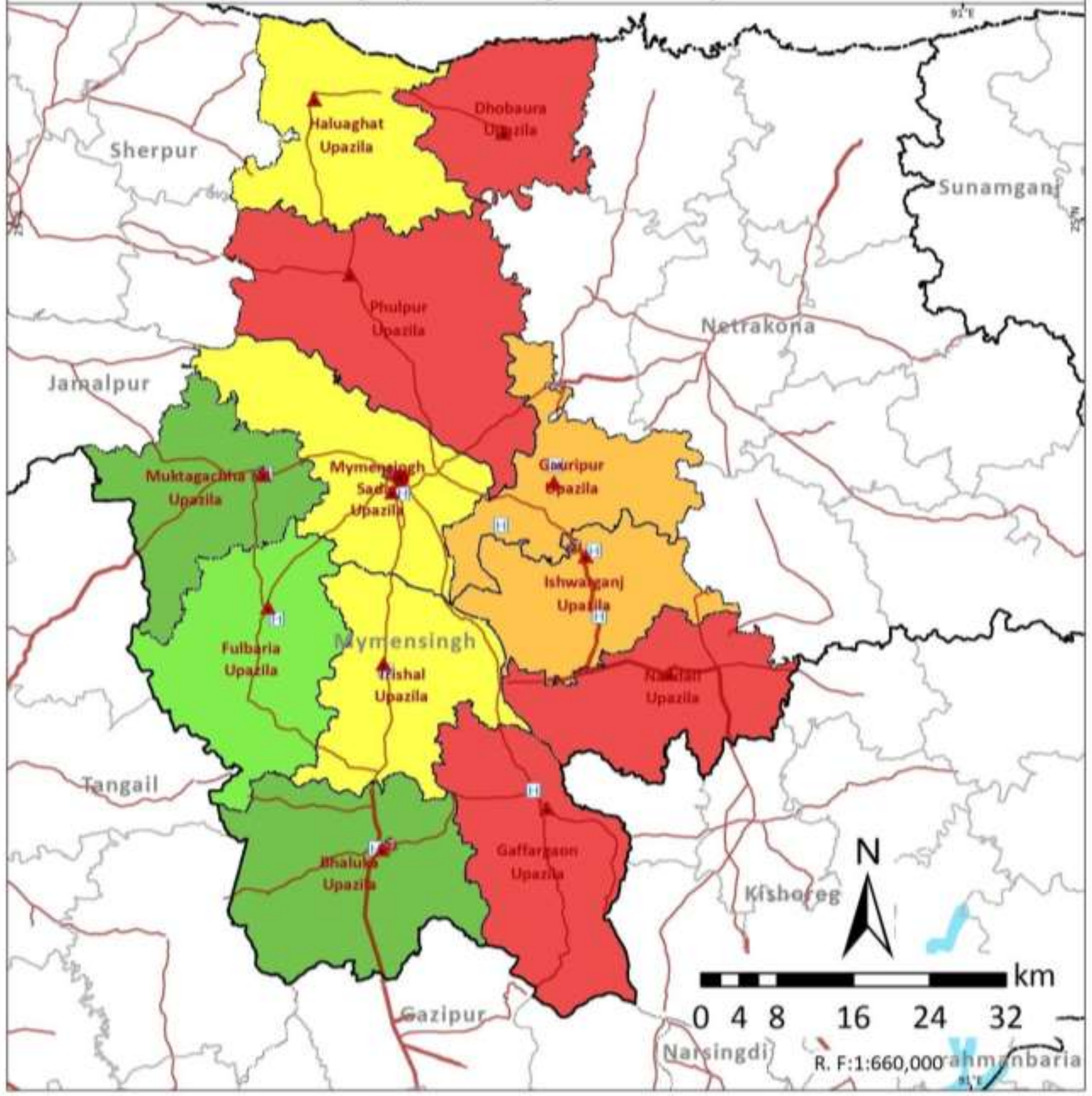
Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Mymensingh Division)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Jamalpur District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Mymensingh District)



Legend

Country Boundary	Division Head Quarter	**Level of Risk**
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Head Quarter	Very Low
Upazila_Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

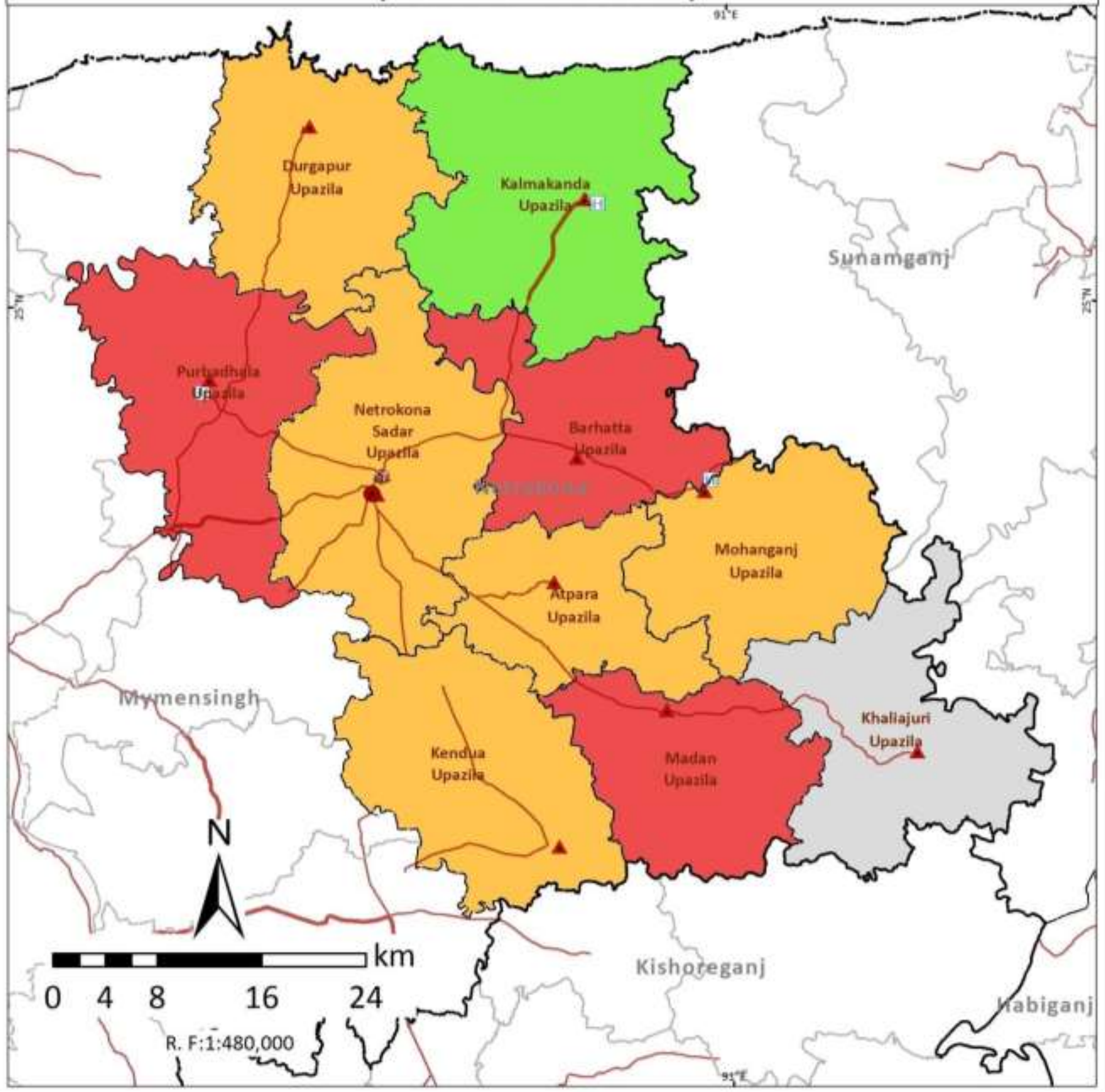
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

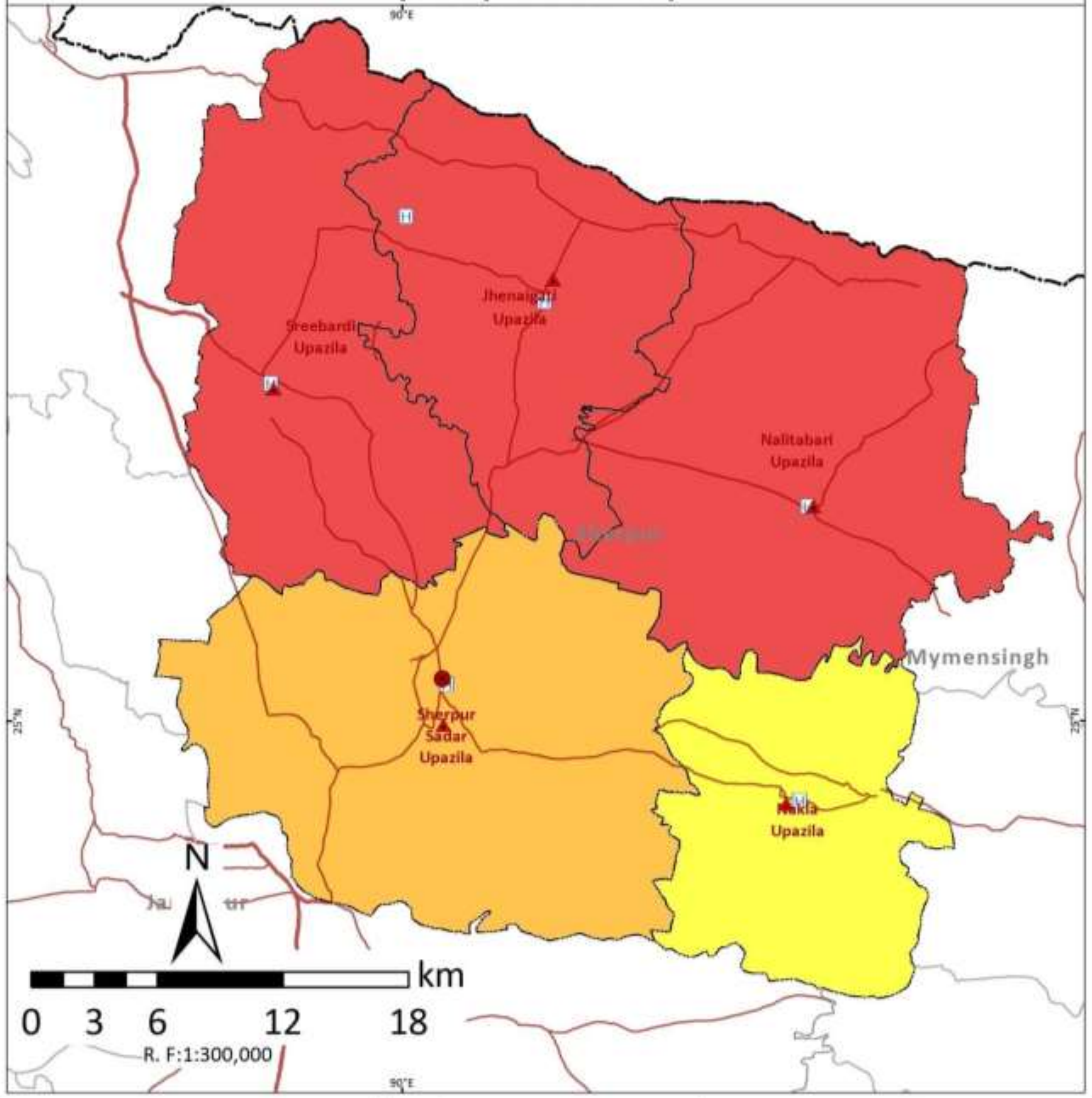
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard (Netrakona District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Sherpur District)



Legend

Country Boundary		District Head Quarter	Level of Risk	
Division Boundary		Upazila Head Quarter		No Risk
District Boundary		Fire Station		Very Low
Upazila Boundary		Hospital		Low
National High Way		Cyclone Shelter		Moderate
Regional High Way		River/Sea/Lake		High
		Sundarbans		Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

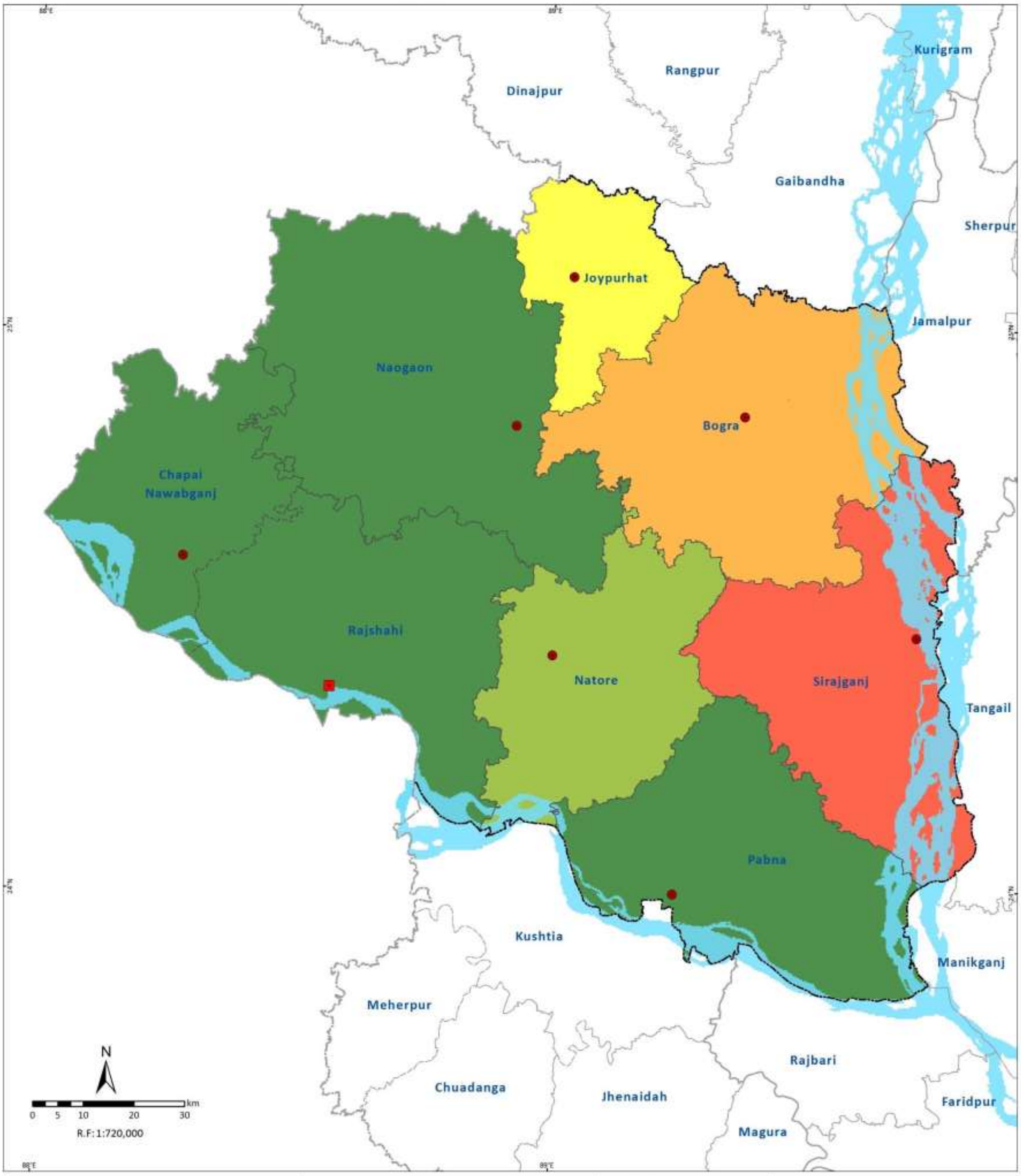
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Rajshahi Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

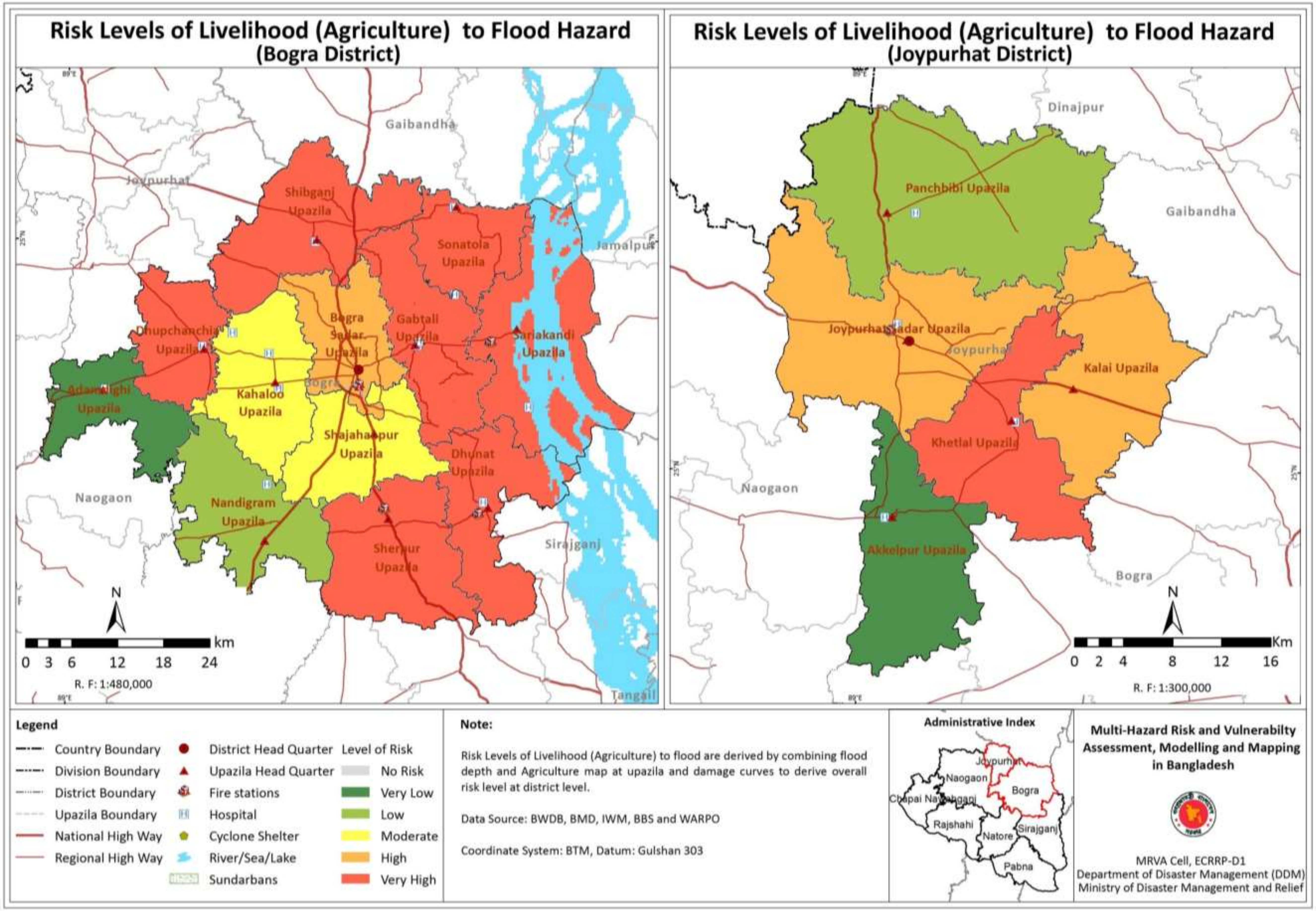
Data Source: BWDB, BMD, IWM, BBS and WARPO

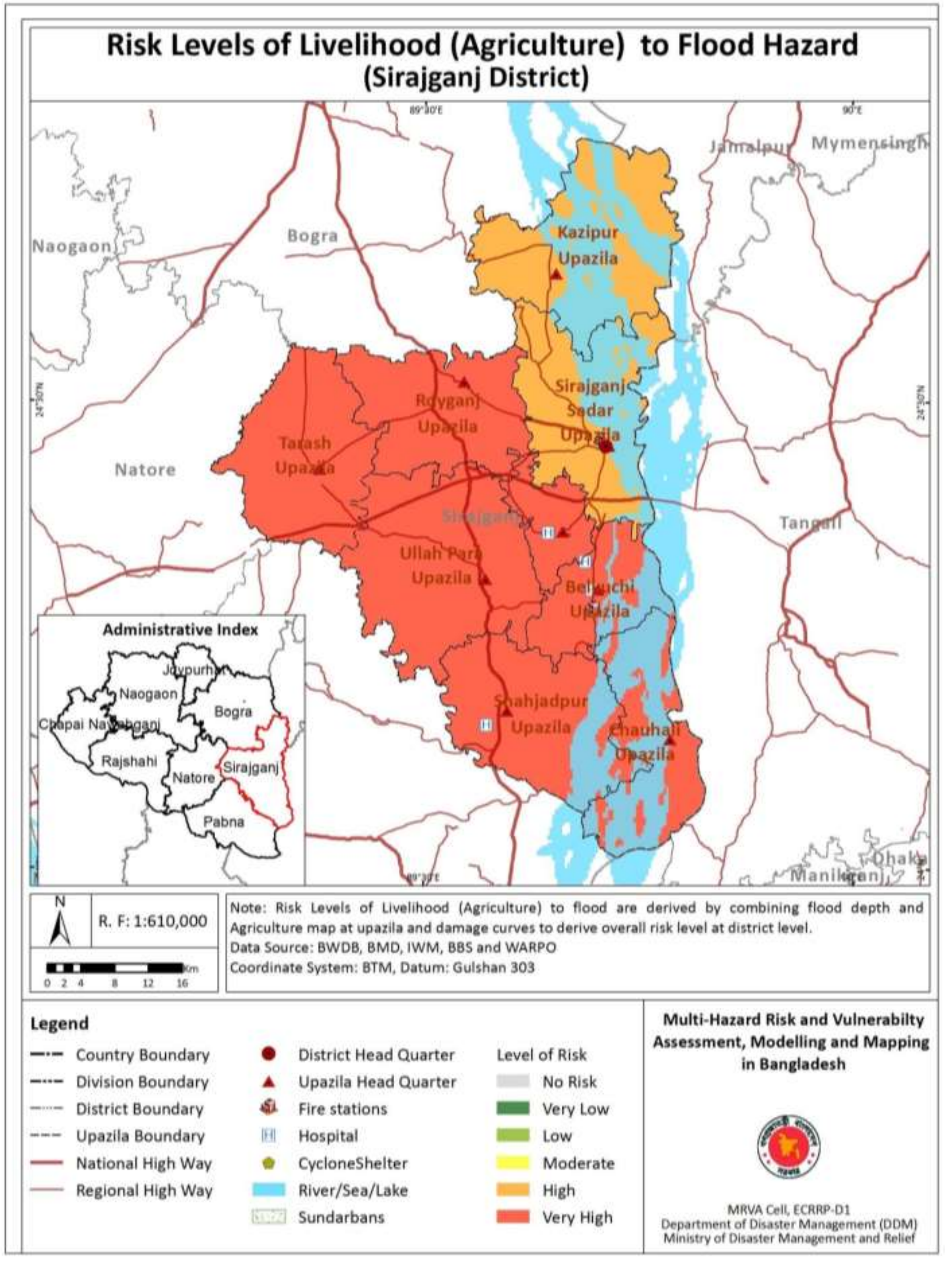
Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

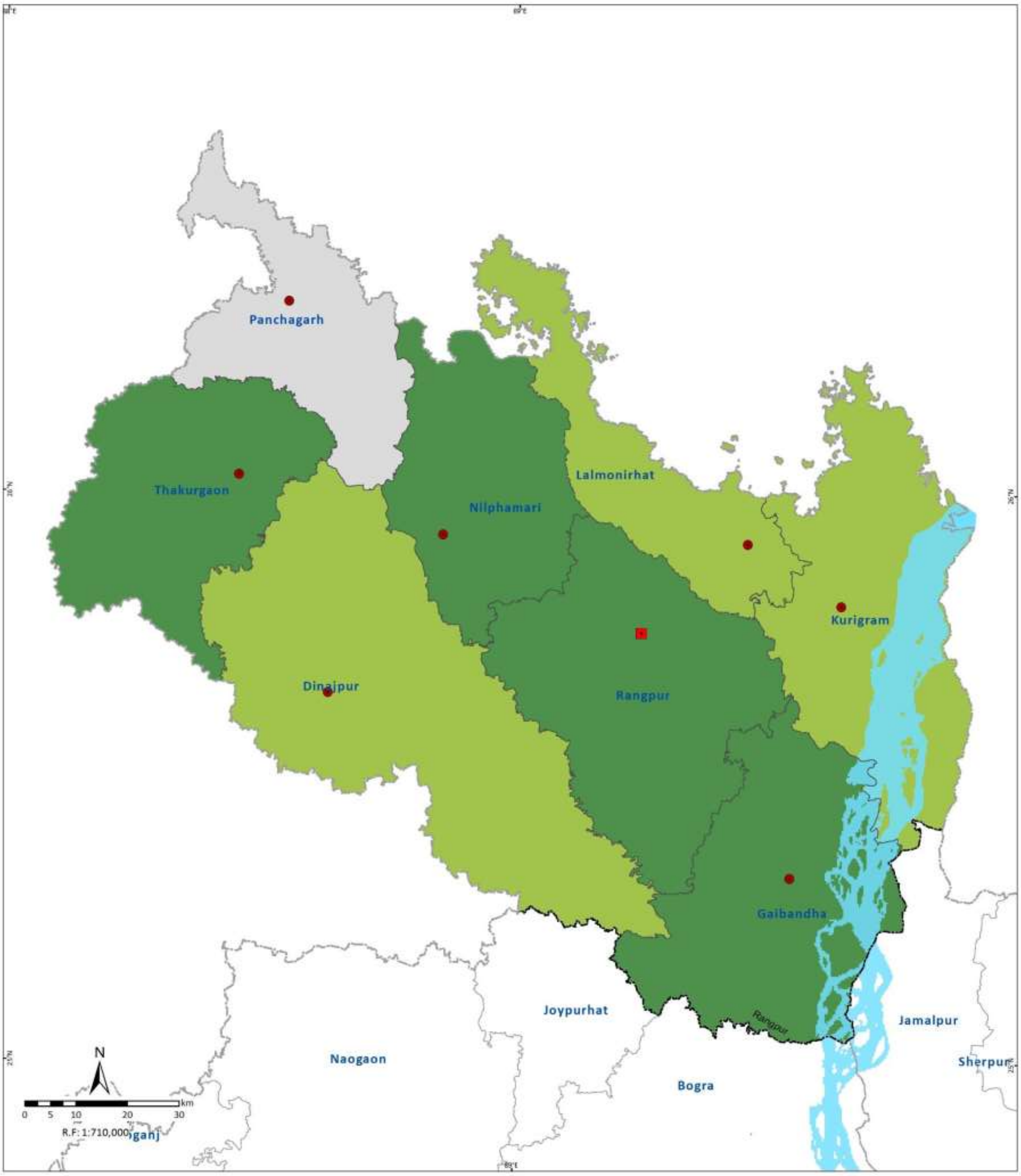
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Bogra District)
Gaibandha
Joypurhat
Jamalpur
Naogaon
Sirajganj
Tangail
Shibganj Upazila
Sonatola Upazila
Dhupchanchia Upazila
Adamdighi Upazila
Bogra Sadar Upazila
Gabtali Upazila
Sariakandi Upazila
Kahaloo Upazila
Shajahanpur Upazila
Dhunat Upazila
Nandigram Upazila
Sherpur Upazila
N
km
0 3 6 12 18 24
R. F: 1:480,000
Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Joypurhat District)
Dinajpur
Gaibandha
Naogaon
Bogra
Panchbibi Upazila
Joypurhat Sadar Upazila
Joypurhat
Kalai Upazila
Khetlal Upazila
Akkelpur Upazila
N
Km
0 2 4 8 12 16
R. F: 1:300,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Joypurhat
Naogaon
Bogra
Chapai Nawabganj
Rajshahi
Natore
Sirajganj
Pabna
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief



Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Sirajganj District)
Jamalpur
Mymensingh
Naogaon
Bogra
Kazipur Upazila
Sirajganj Sadar Upazila
Royganj Upazila
Tarash Upazila
Natore
Tangail
Sirajganj
Ullah Para Upazila
Belkuchi Upazila
Shahjadpur Upazila
Chauhali Upazila
Manikganj
Dhaka
Administrative Index
Joypurhat
Naogaon
Bogra
Chapai Nawabganj
Rajshahi
Natore
Sirajganj
Pabna
R. F: 1:610,000
Note: Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
CycloneShelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Rangpur Division)



Legend

Country Boundary	Level of Risk
Division Boundary	No Risk
District Boundary	Very Low
Division Head Quarter	Low
District Head Quarter	Moderate
River/Sea/Lake	High
Sundarbans	Very High

Note:
Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

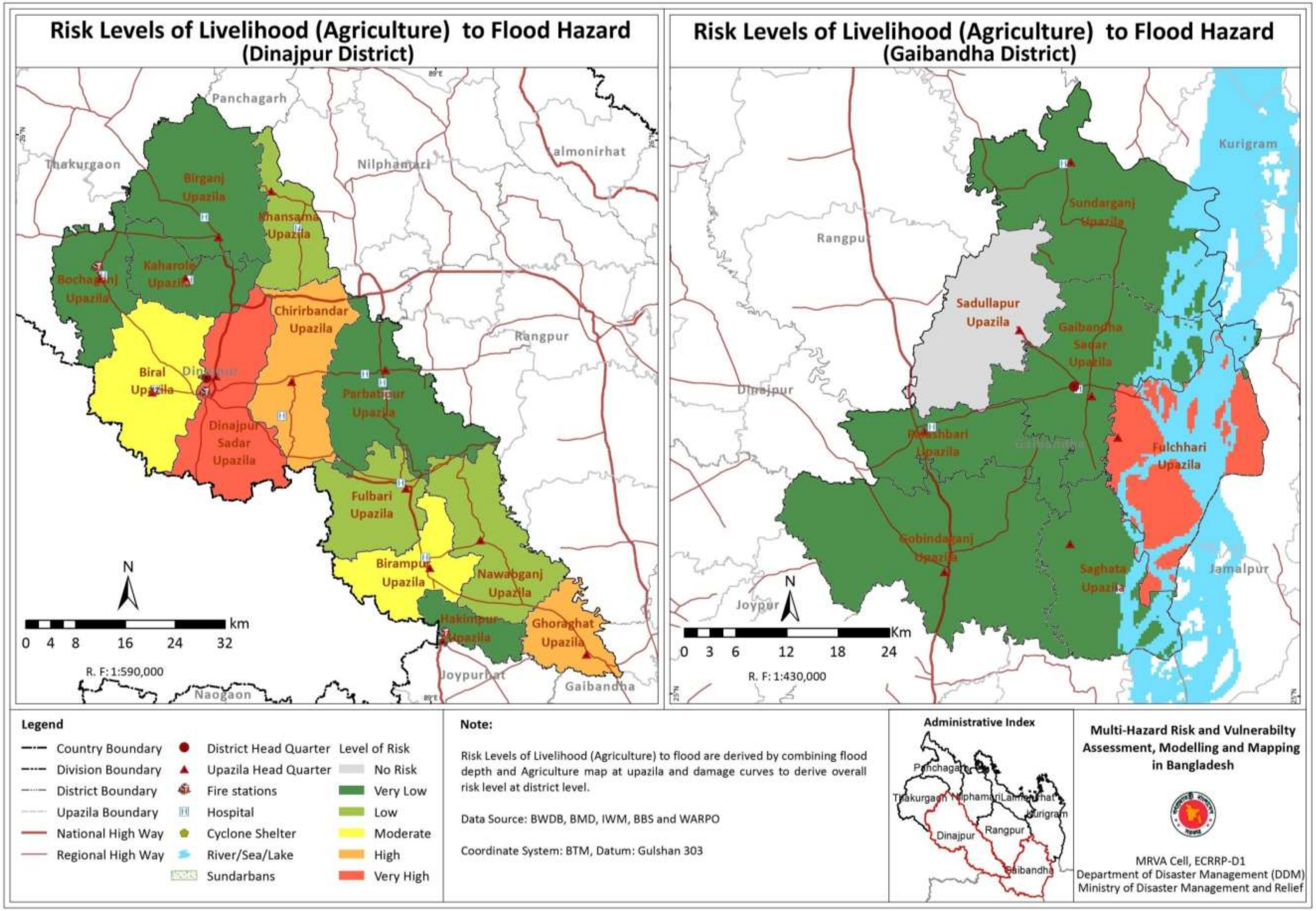
Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

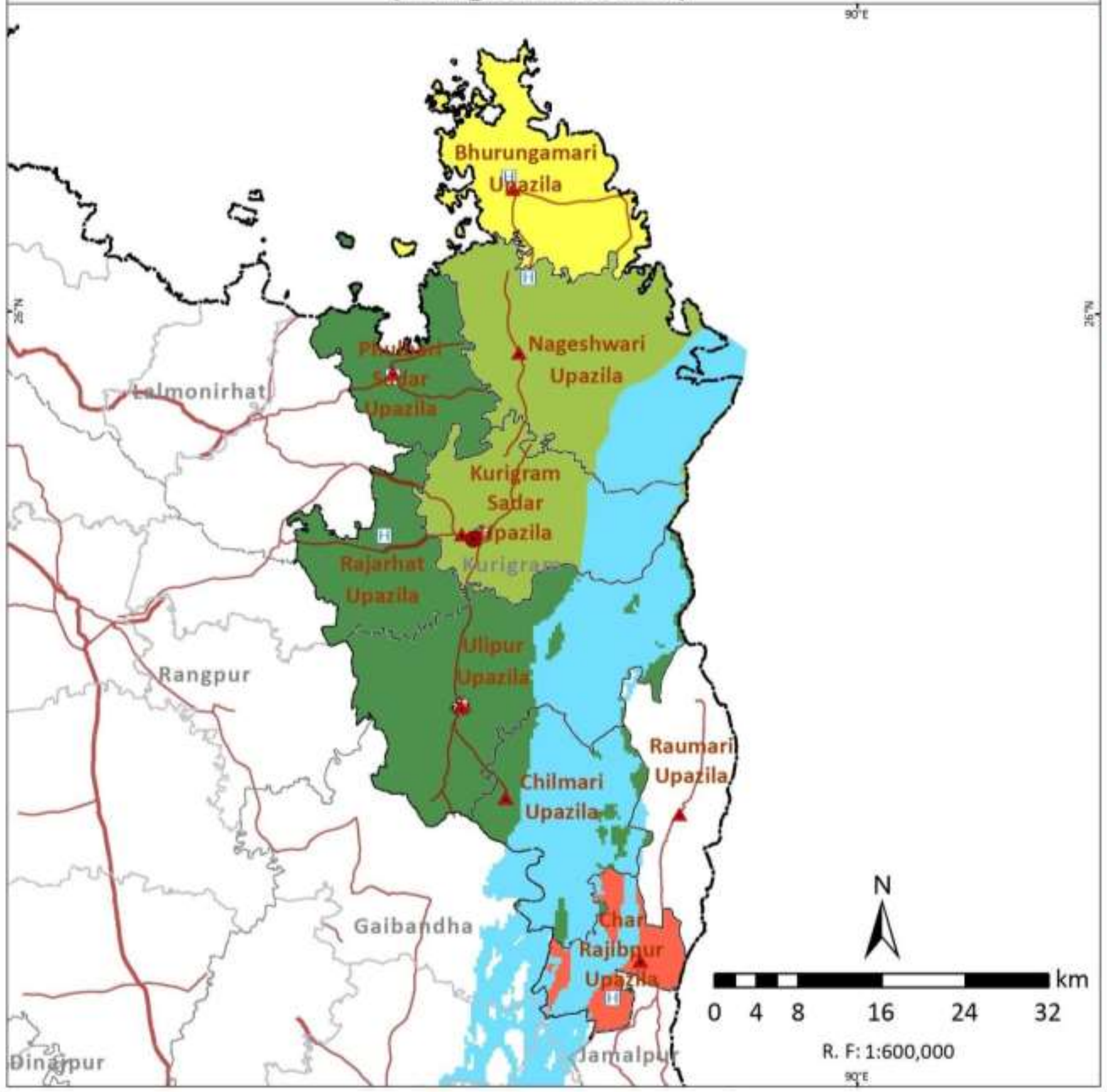
Administrative Index

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

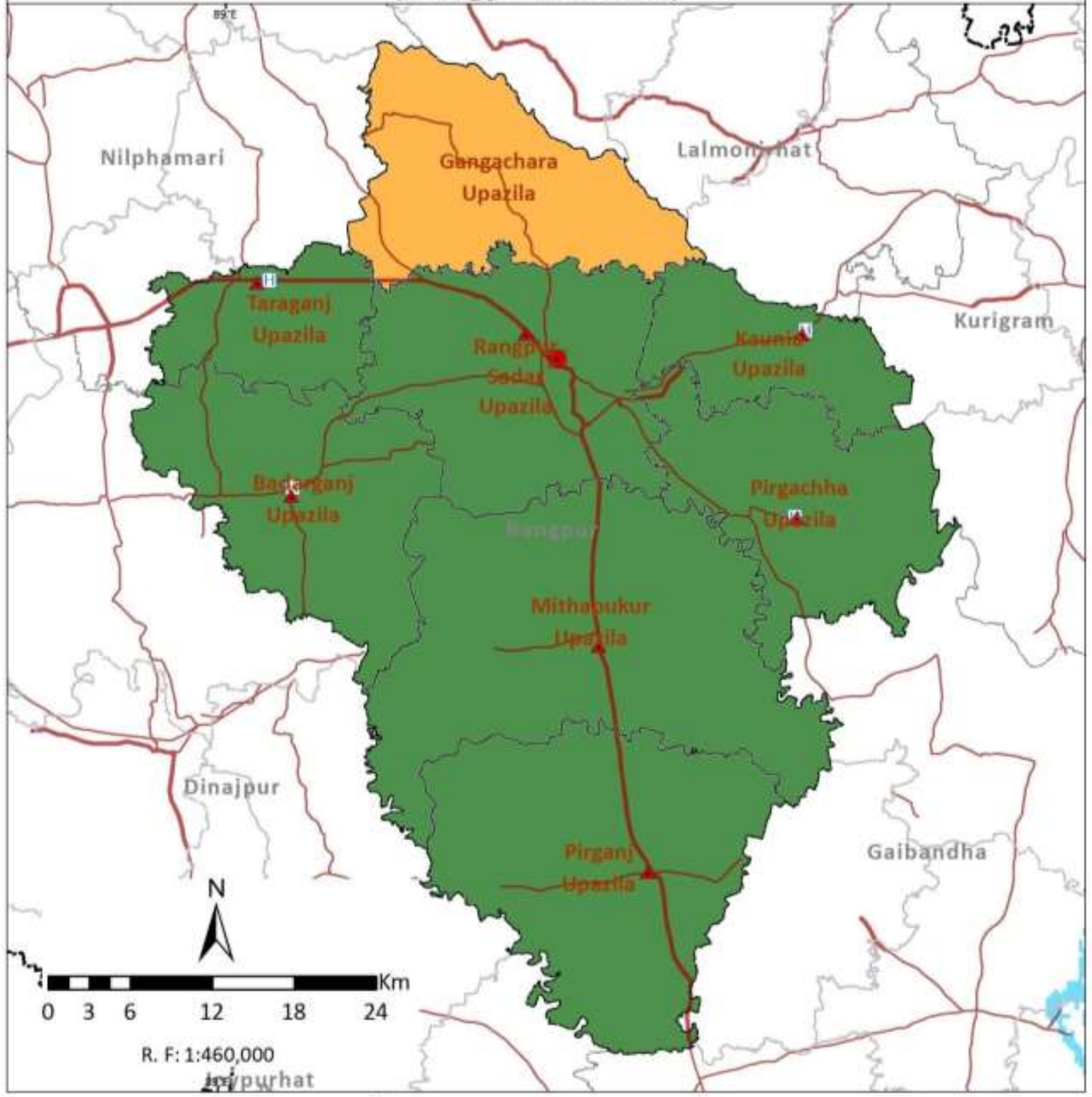
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Dinajpur District)
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Rangpur
Birganj Upazila
Khansama Upazila
Kaharole Upazila
Bochaganj Upazila
Chirirbandar Upazila
Biral Upazila
Dinajpur
Dinajpur Sadar Upazila
Parbatipur Upazila
Fulbari Upazila
Birampur Upazila
Nawabganj Upazila
Hakimpur Upazila
Ghoraghat Upazila
Joypurhat
Gaibandha
Naogaon
N
0 4 8 16 24 32 km
R. F: 1:590,000
Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Gaibandha District)
Kurigram
Rangpur
Sundarganj Upazila
Sadullapur Upazila
Gaibandha Sadar Upazila
Dinajpur
Palashbari Upazila
Fulchhari Upazila
Gobindaganj Upazila
Saghata Upazila
Jamalpur
Joypur
N
0 3 6 12 18 24 Km
R. F: 1:430,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Level of Risk
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.
Data Source: BWDB, BMD, IWM, BBS and WARPO
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Panchagarh
Thakurgaon
Nilphamari
Lalmonirhat
Kurigram
Dinajpur
Rangpur
Gaibandha
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Kurigram District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Rangpur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire stations
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Level of Risk
- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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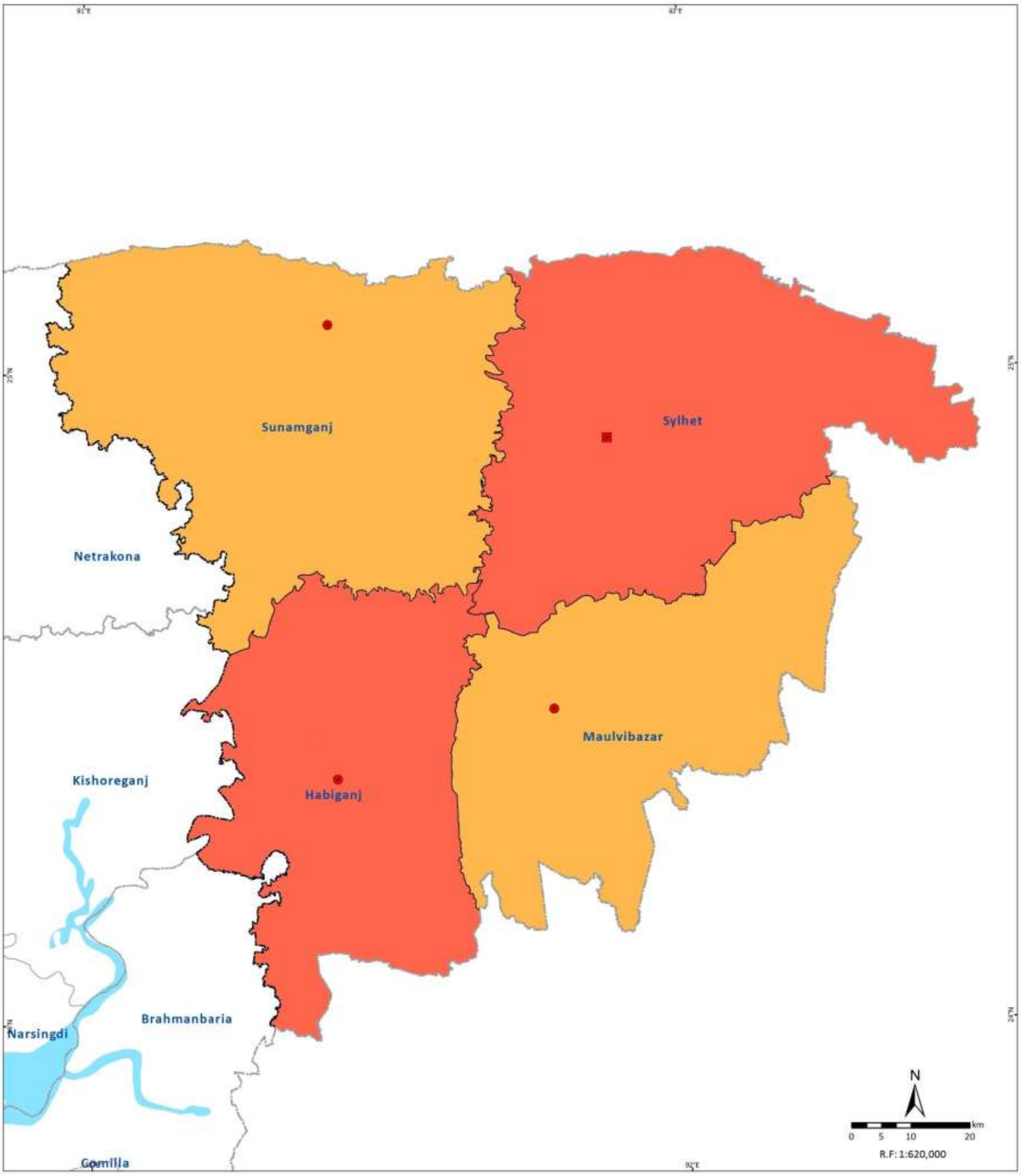
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard
(Sylhet Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Level of Risk

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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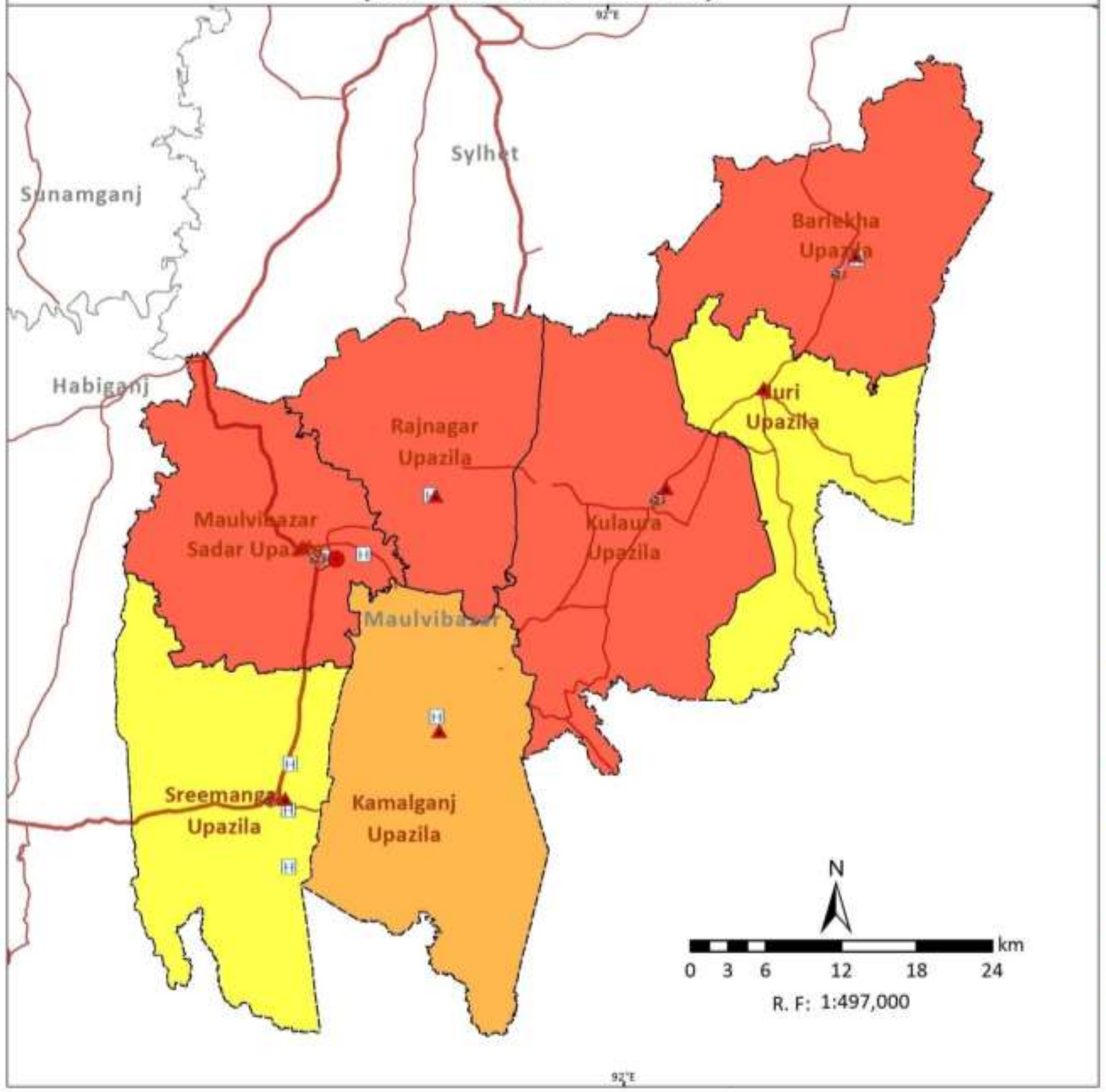
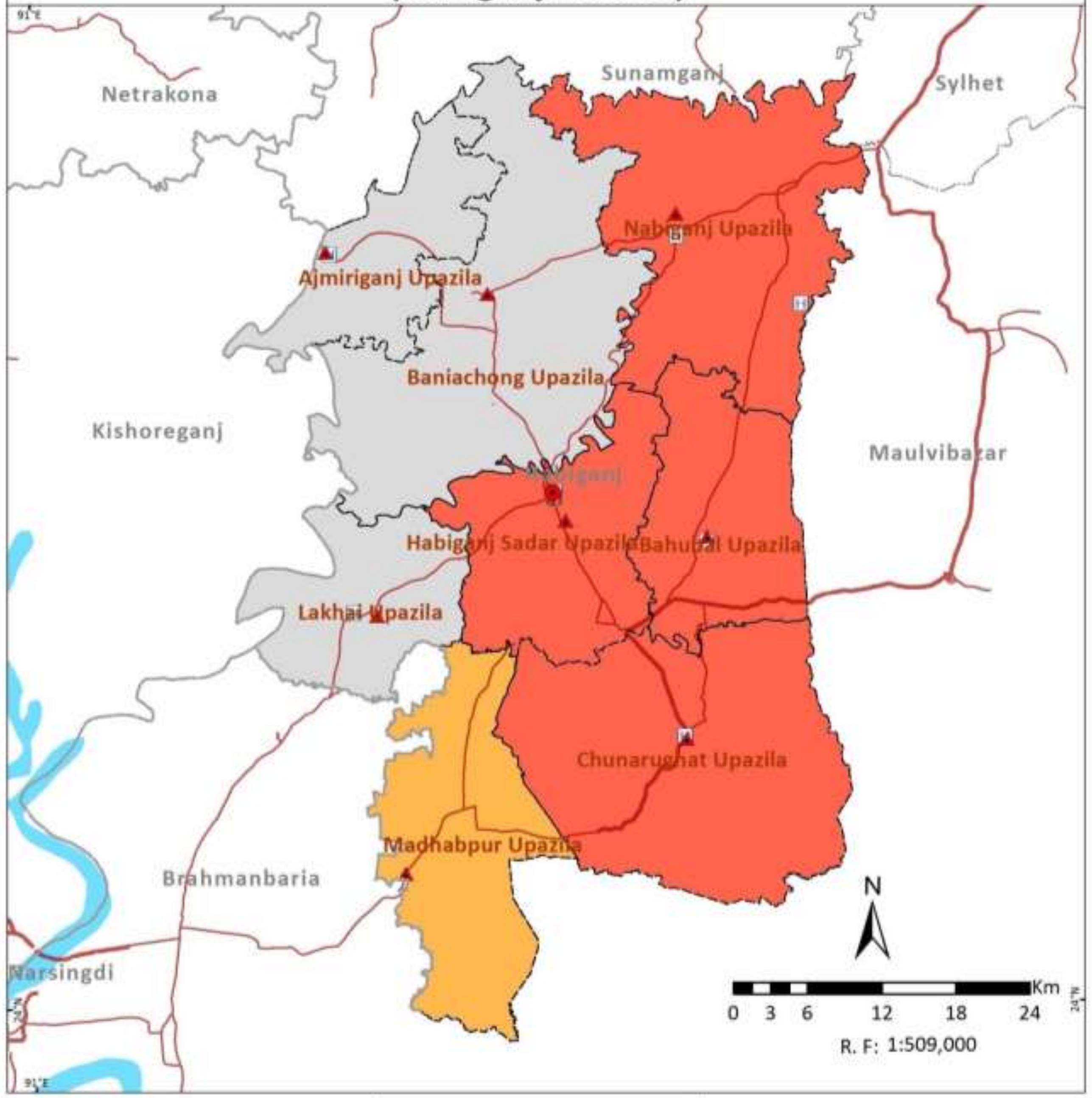
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard (Moulvibazar District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Habiganj District)



Legend

Country Boundary	District Head Quarter	**Levels of Risk**
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila_Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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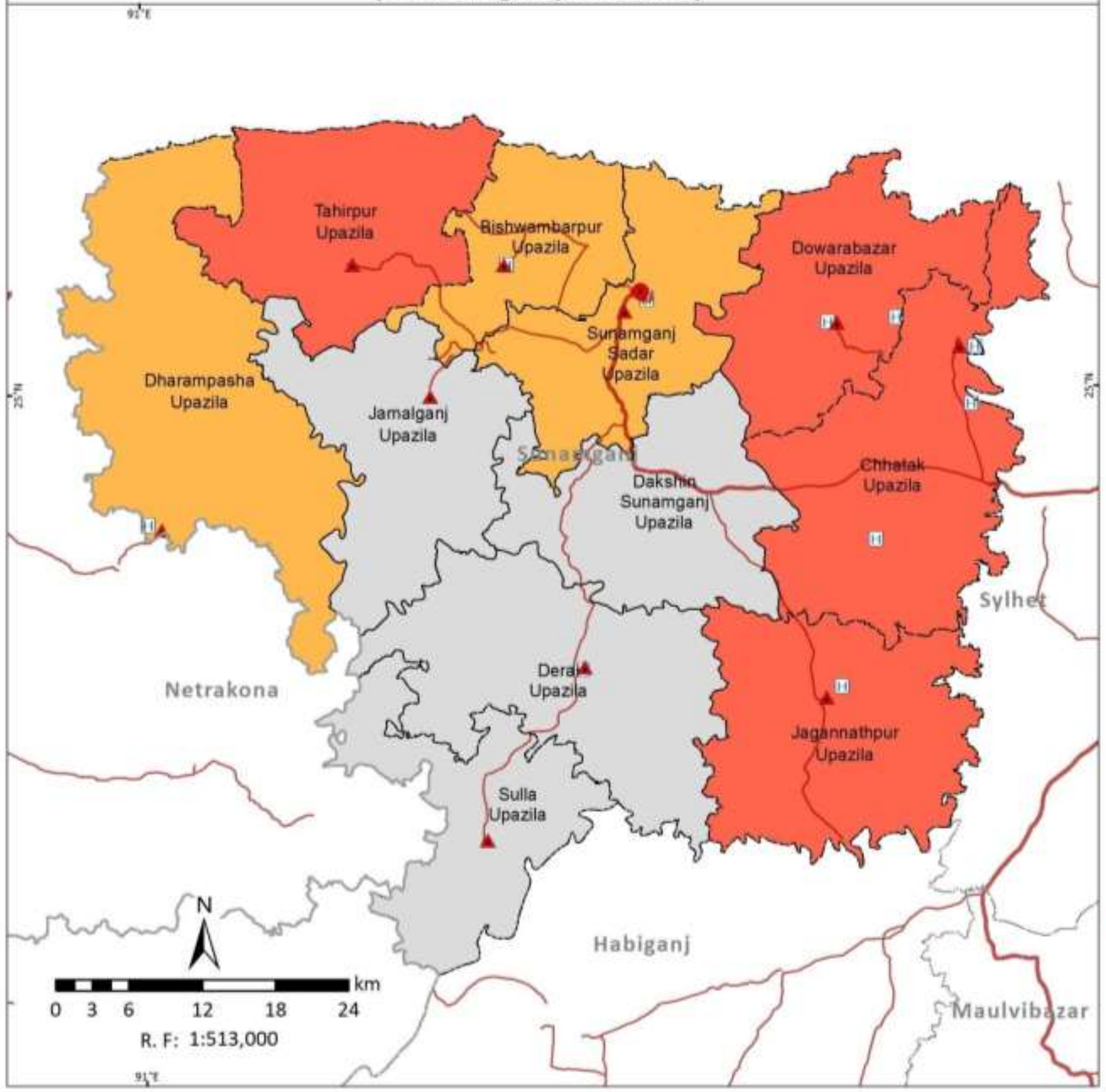
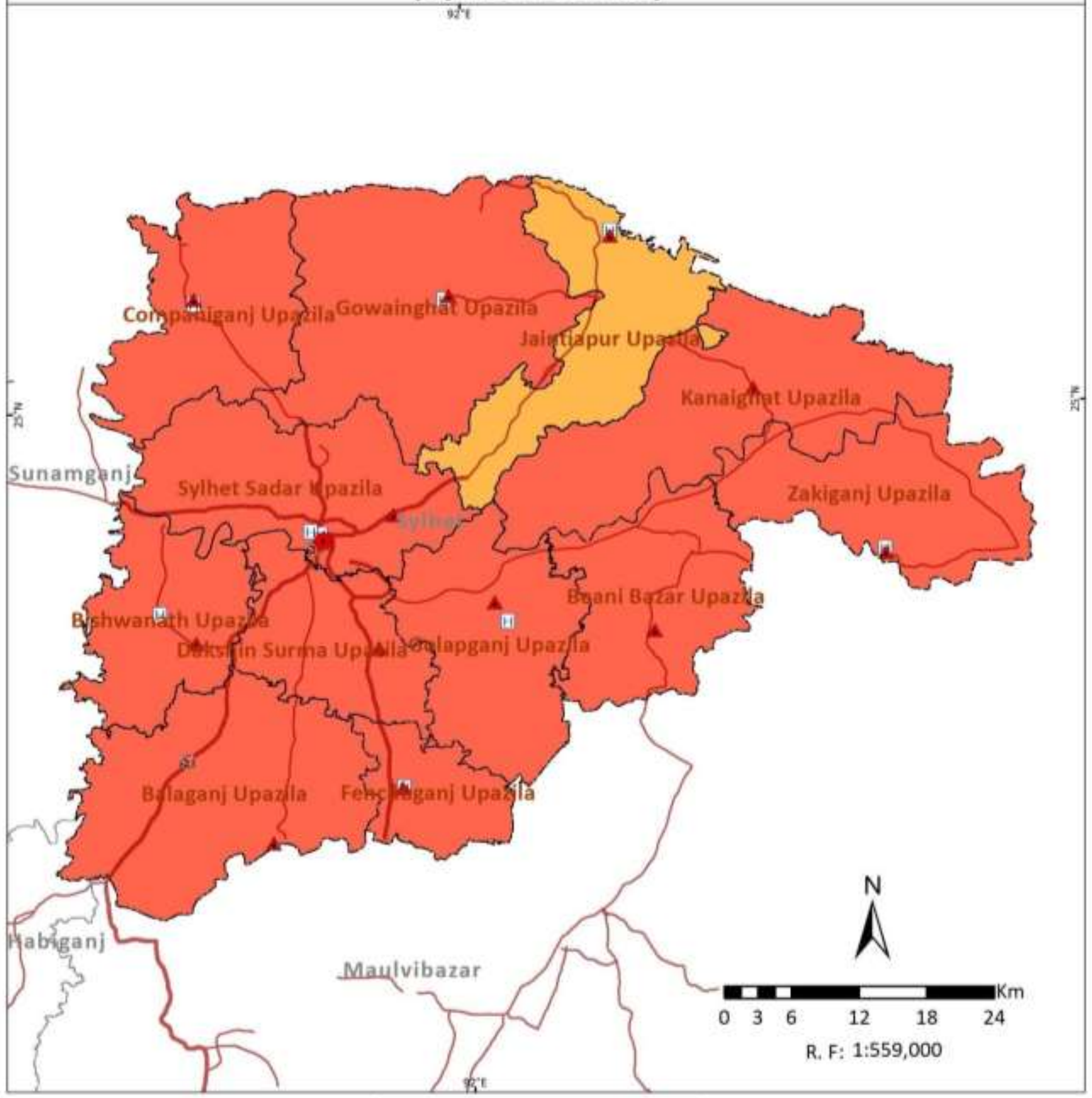
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Livelihood (Agriculture) to Flood Hazard (Sunamganj District)



Risk Levels of Livelihood (Agriculture) to Flood Hazard (Sylhet District)



Legend

Country Boundary	Division Head Quarter	**Levels of Risk**
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Head Quarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Risk Levels of Livelihood (Agriculture) to flood are derived by combining flood depth and Agriculture map at upazila and damage curves to derive overall risk level at district level.

Data Source: BWDB, BMD, IWM, BBS and WARPO

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

STORM SURGE

3 Storm Surge

The geographic location of Bangladesh on the globe and climatological settings make the entire southern boundary exposed to the Bay of Bengal / Indian Ocean Though this sea-resource has definitely immense economic importance, however, at the same time it is a curse. Nearly every year, whether it is less severe or devastating, cyclones hit the coast of Bangladesh and cause a heavy toll to lives and properties. Of the hazards that regularly occur in Bangladesh, the deadliest is the cyclone, particularly with respect to loss of lives. Although available technology advances provide opportunity to monitor the formation and movement of cyclones closely, impact of it is furious. Due to rapid population growth and development pressure, there are numerous poor people living in coastal areas, with a constant fear of cyclone hazards.

Over period of time, the measures taken by the Government of Bangladesh has reduced the number of causality, however it is important to understand the effect of cyclone induces storm surge in the coastal area. A more detailed report on Flood Hazard Assessment is given below.

3.1 Methodology

Storm surge hazard assessment means finding storm surge height at a specific location to make storm surge inundation depth maps for the entire coastal area for practical use by relevant stakeholders. The storm surge inundation depth value can be calculated by subtracting the existing bed level from model simulated surge level. Therefore, it follows the following relation.

Storm surge height (m) = Cyclone-induced storm surge levels (mPWD) – land levels at respective location (mPWD)

Mathematical models, capable of producing/computing storm surge levels by simulating historical cyclone data, can assess surge levels with respect to some datum (m PWD). Bay of Bengal Model (BoBM) storm surge model and Coastal DEM are used to assess storm surge hazard and using ArcGIS software storm surge inundation maps are prepared. Methodology adopted is shown in figure 3.1.

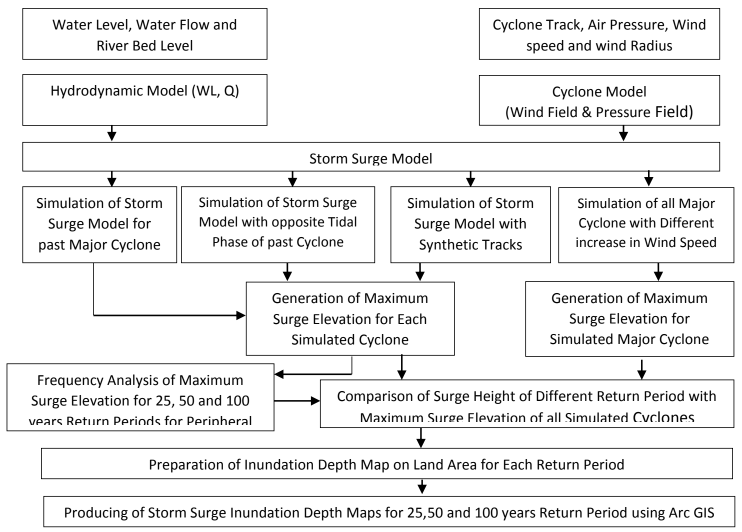


Figure 3.1: Methods and steps adopted for cyclone-induced storm surge maps

3.2 Map Content

The storm surge hazard maps consist of inundation depth (m) due to cyclone in seven categories. Storm surge height categories adopted in this study are given in Table 3.1.

3.1: Cyclone-induced storm surge inundation depth categories

Inundation depth categories due to storm surge (m)	Storm surge Categories	Symbol used in maps
No Inundation	Not affected	
< 1.0 m	Very shallow	
1.0 - 1.5	Shallow	
1.5 - 2.0	Medium	
2.0 - 3.0	High	
3.0 - 4.0	Very high	
4.0 - 5.0	Extremely high	
> 5.0	Extremely very high	

3.3 Analysis of Storm Surge Hazard

Storm surge inundation maps have been prepared for 25, 50 and 100 year return periods. The area (Km^2) and percentage of storm surge inundation for different return periods is given in table 3.2.

Table 3.2: Area and percentage of storm surge inundation for different return periods

Return Period	25 year		50 year		100 year	
Storm Surge Inundation Depth (m)	**Area (Km^2)**	**Percentage (%)**	**Area (Km^2)**	**Percentage (%)**	**Area (Km^2)**	**Percentage (%)**
< 1.0	7428.31	48.86	3300.20	16.94	1210.24	5.10
1.0 – 1.5	3511.63	23.10	4225.17	21.69	3664.04	15.44
1.5 – 2.0	1786.82	11.75	3845.63	19.74	5113.44	21.54
2.0 – 3.0	1625.52	10.69	4756.65	24.42	5526.22	23.28
3.0 – 4.0	523.83	3.45	2433.20	12.49	3563.62	15.01
4.0 – 5.0	203.06	1.34	593.40	3.05	2492.98	10.50
>5.0	123.83	0.81	324.88	1.67	2167.42	9.13
Total Area	15203.00		19479.13		23737.96	

Since 50 year return period maps are used for exposure of population and risk assessment of housing and livelihood, division and district-wise analysis of storm surge hazard given here. Division-wise storm surge map analysis is given in Table 3.3 and figure 3.2, at district level is given in table 3.5.

Table 3.3: Percentage of affected area due to cyclone induced storm surge (50-year) in divisions

Division / Depth	Storm surge Depth Vs. percentage of storm surge affected area							Not Affected area
	< 1.0 m	1.0 - 1.5 m	1.5 - 2.0 m	2.0 - 3.0 m	3.0 - 4.0 m	4.0 - 5.0 m	> 5.0 m	
Barisal	25.37	38.29	44.49	48.98	50.66	51.06	51.05	48.95
Chittagong	4.75	7.17	9.1	11.7	12.53	12.89	13.2	86.78
Dhaka	0.45	0.61	0.71	0.8	0.81	0.82	0.82	99.18
Khulna	10.79	14.15	15.63	16.33	16.4	16.4	16.39	83.61

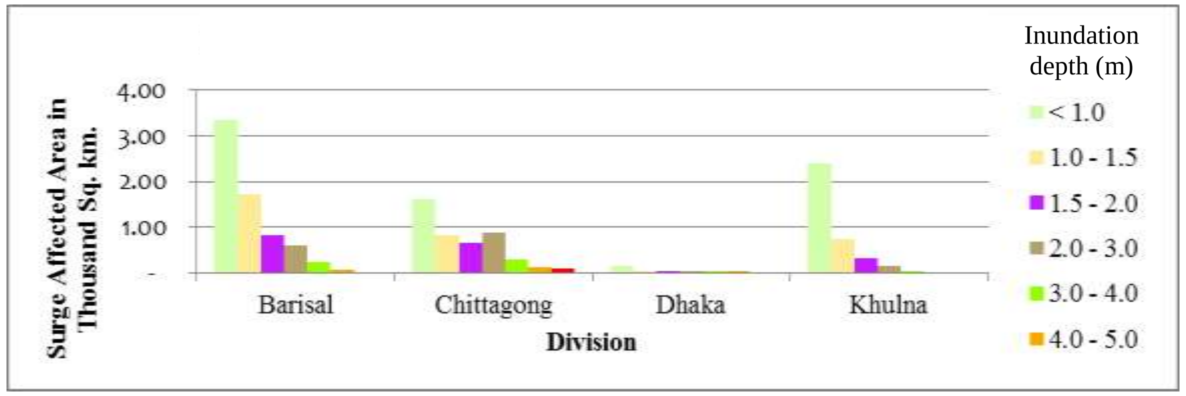


Table 3.4: Area affected (km^2) due to cyclone induced storm surge (50-year) in districts

District	Storm surge Depth and Area affected (km^2)							Not Affected Area (km^2)
	< 1.0 m	1.0 - 1.5 m	1.5 - 2.0 m	2.0 - 3.0 m	3.0 - 4.0 m	4.0 - 5.0 m	> 5.0 m	
Barguna	631.8	874.9	935.6	955.9	959.5	959.6	959.6	698.6
Barisal	639.2	1128.2	1314.3	1443.3	1479.4	1483.3	1483.3	1,035.0
Bhola	455.1	585.9	743.6	1032.3	1150	1195.7	1195.7	979.5
Jhalokati	431.3	565.2	578	587.6	587.6	587.6	587.6	119.2
Patuakhali	566.6	1060.3	1368.3	1516.9	1582.3	1586.2	1586.2	1,057.4
Pirojpur	648.7	878.2	974.1	982.7	984.1	984.1	984.1	291.0
Chandpur	39.1	54.5	65.4	94.9	107.1	110.5	110.5	1,305.5
Chittagong	443.3	799.7	1078.8	1313.8	1388.9	1423.3	1481.8	3,269.4
Cox's Bazar	371.9	482.4	516.3	524.6	524.9	524.9	524.9	1,877.1
Feni	142.7	177.8	202.1	252	264.8	269.3	279.8	685.1
Lakshmipur	225.4	314.5	373.9	415.9	439.2	453.6	453.7	672.1
Noakhali	461.2	718.1	1009.8	1614.6	1795.9	1871.1	1914.5	1,293.9
Gopalganj	47.7	48.3	48.7	48.7	48.7	48.7	48.7	1,420.1
Madaripur	0.3	0.3	0.3	0.3	0.3	0.3	0.3	1,125.4
Shariatpur	85.1	131.1	158.6	184.9	188.4	191.3	191.3	912.0
Bagerhat	1,189.2	1536.7	1624	1670.2	1674	1674	1674	1,992.1
Khulna	573.8	839	988.5	1054.8	1063	1063	1063	2,750.0
Narail	0.2	0.2	0.2	0.2	0.2	0.2	0.2	967.7
Satkhira	639.5	780.2	875.4	916.9	919.5	919.5	919.5	2,382.8

Note: Other districts are not affected by Cyclone induced storm surge.

3.4 Storm Surge Maps

Storm surge hazard maps at national level is shown for 25, 50 and 100 year return periods. As Exposure of Population, Risk of Housing and Livelihood is assessed for storm surge hazard of 50 year return period, storm surge hazard maps at division, district and upazila / thana are presented in this Risk Atlas. Number of storm surge hazard maps presented is given table 3.5.

3.4.1 Storm Surge Hazard maps

Table 3.5: Number of Storm Surge Hazard maps presented in Risk Atlas

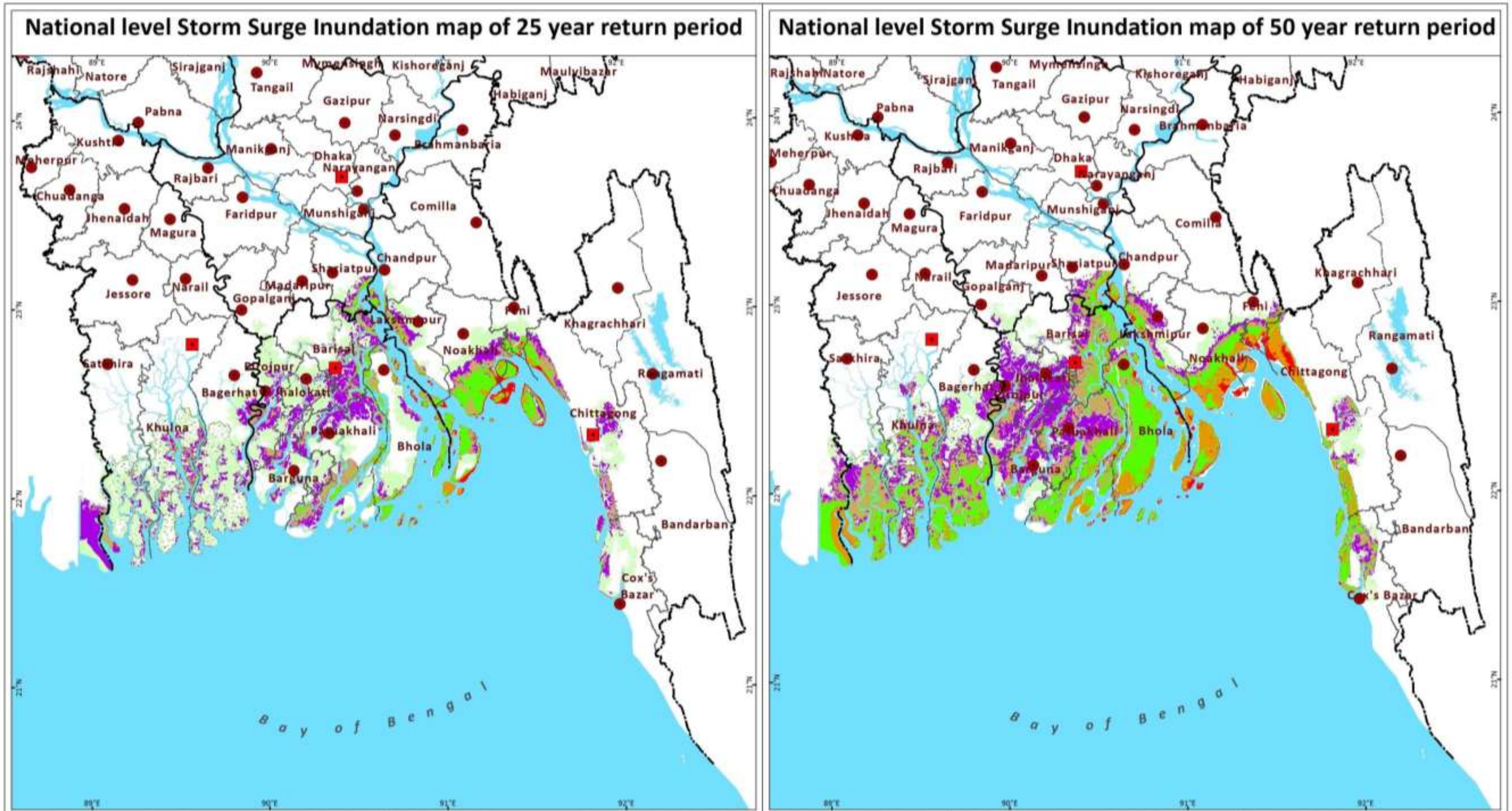
Division	Districts	Upazilas /Thanas
Barisal	2	3
Chittagong	2	2
Total	4	5

3.4.2 Storm Surge Exposure and Risk maps

Maps representing exposure of Population, Risk of Housing and Livelihood for storm surge hazard of 50 years return period at division and district level is shown in table 3.6.

Table 3.6: Exposure of Population, Risk of Housing and Livelihood maps at division and district level presented in Risk Atlas

Division	Number of Districts			
	Population Exposure	Housing at Risk (Packa and Semi-Packa)	Housing at Risk (Kutcha and Jhupri)	Livelihood
Barisal	2	1	2	6
Chittagong	2	2	2	5
Khulna	0	0	0	1
Total	4	3	4	12



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

N

0 15 30 60 90 120 Km

R. F.: 1:2,500,000

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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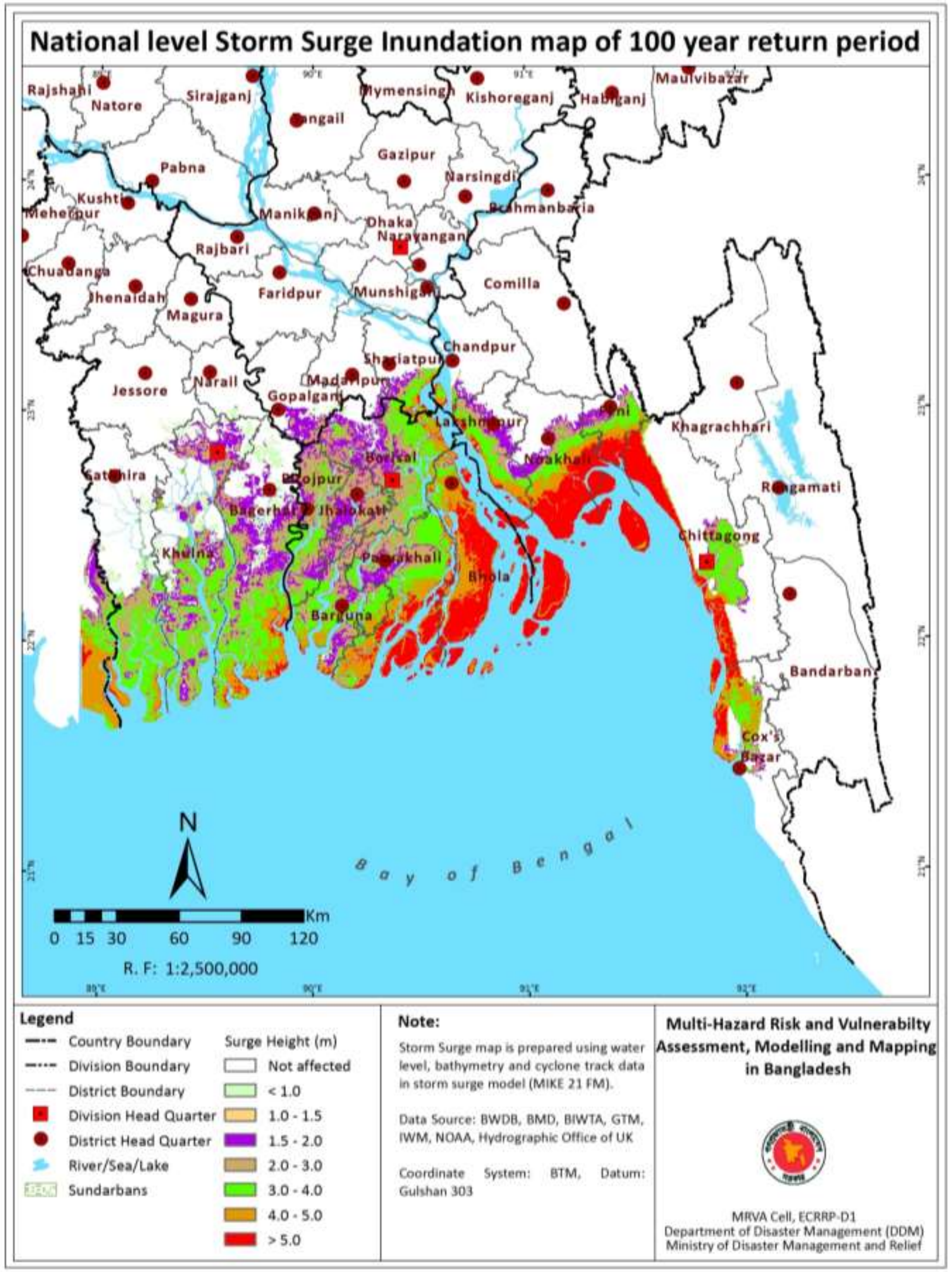
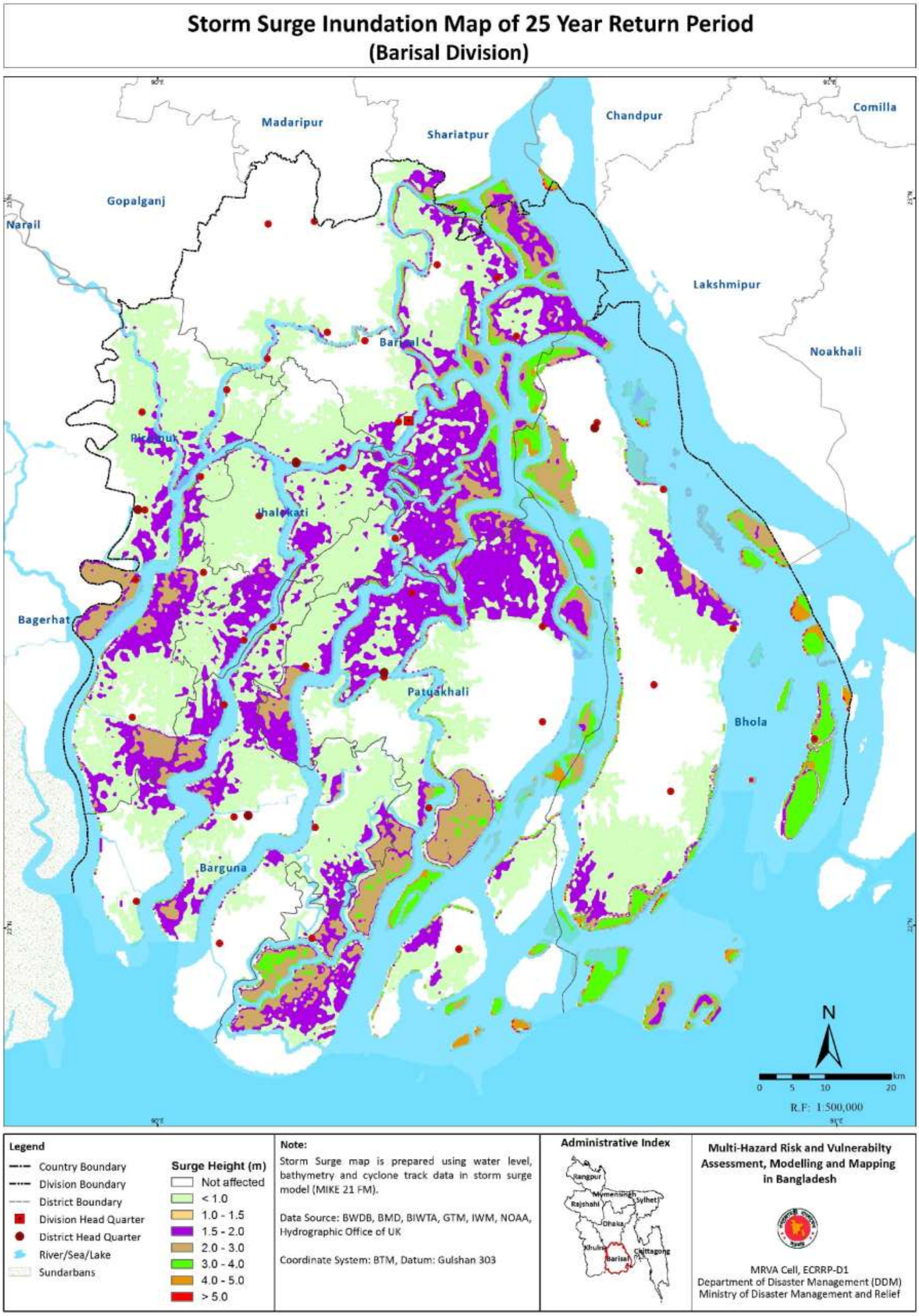
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


National level Storm Surge Inundation map of 100 year return period
Rajshahi
Natore
Sirajganj
Tangail
Mymensingh
Kishoreganj
Habiganj
Maulvibazar
Pabna
Gazipur
Narsingdi
Kushtia
Meherpur
Manikganj
Dhaka
Brahmanbaria
Narayanganj
Rajbari
Chuadanga
Faridpur
Munshiganj
Comilla
Jhenaidah
Magura
Chandpur
Shariatpur
Jessore
Narail
Madaripur
Gopalganj
Laxshmipur
Feni
Khagrachhari
Satkhira
Barisal
Noakhali
Pirojpur
Rangamati
Bagerhat
Jhalokati
Chittagong
Khulna
Patuakhali
Bhola
Barguna
Bandarban
Cox's Bazar
N
Bay of Bengal
0 15 30 60 90 120 Km
R. F: 1:2,500,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Surge Height (m)
Not affected
< 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
4.0 - 5.0
> 5.0
Note:
Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM).
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK
Coordinate System: BTM, Datum: Gulshan 303
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief


Storm Surge Inundation Map of 25 Year Return Period
(Barisal Division)
Madaripur
Shariatpur
Chandpur
Comilla
Gopalganj
Narail
Lakshmipur
Noakhali
Barisal
Pirojpur
Jhalokati
Bagerhat
Patuakhali
Bhola
Barguna
N
0 5 10 20 km
R.F: 1:500,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Surge Height (m)
Not affected
< 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
4.0 - 5.0
> 5.0
Note:
Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM).
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Rajshahi
Mymensingh
Sylhet
Dhaka
Khulna
Barisal
Chittagong
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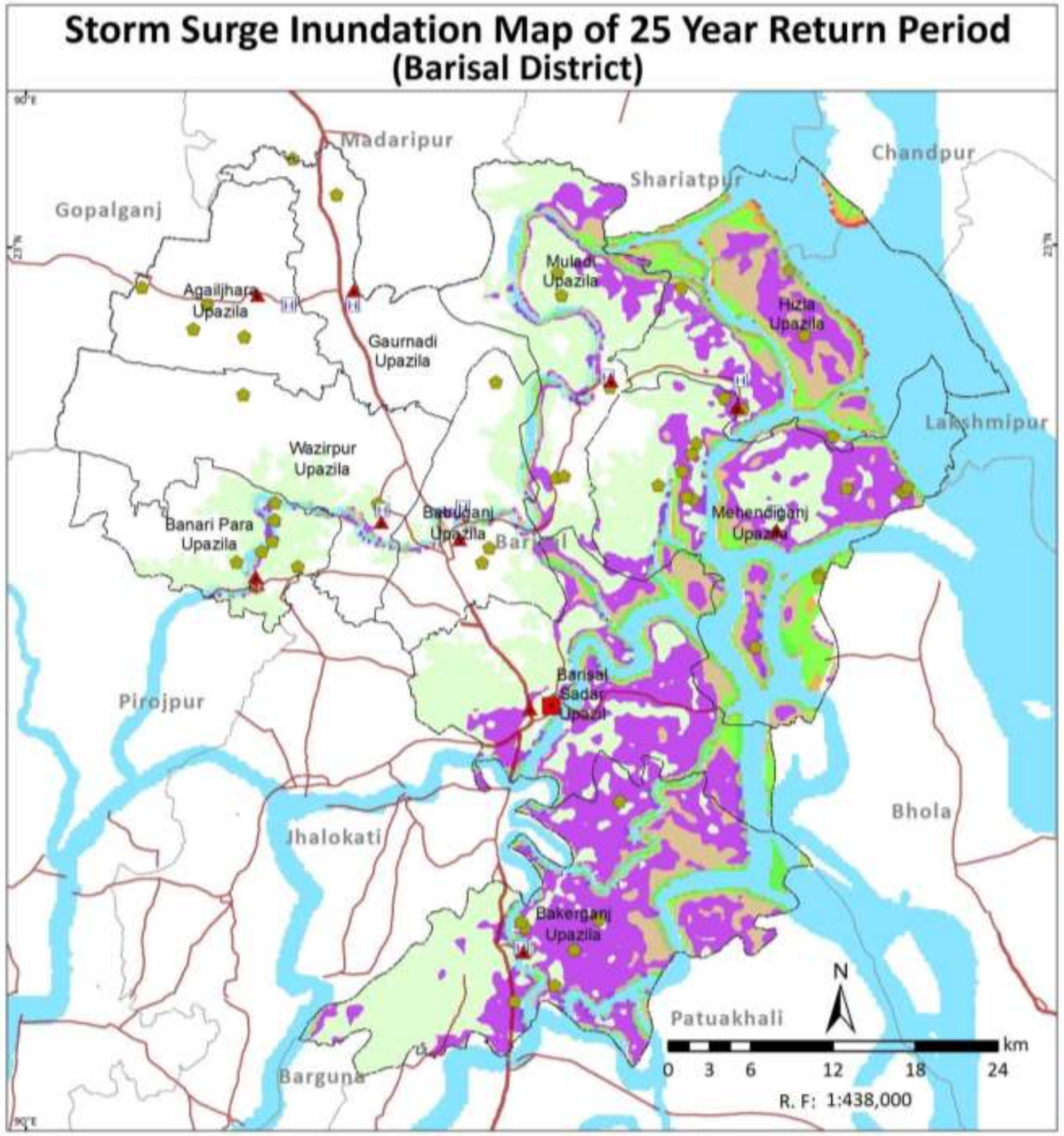
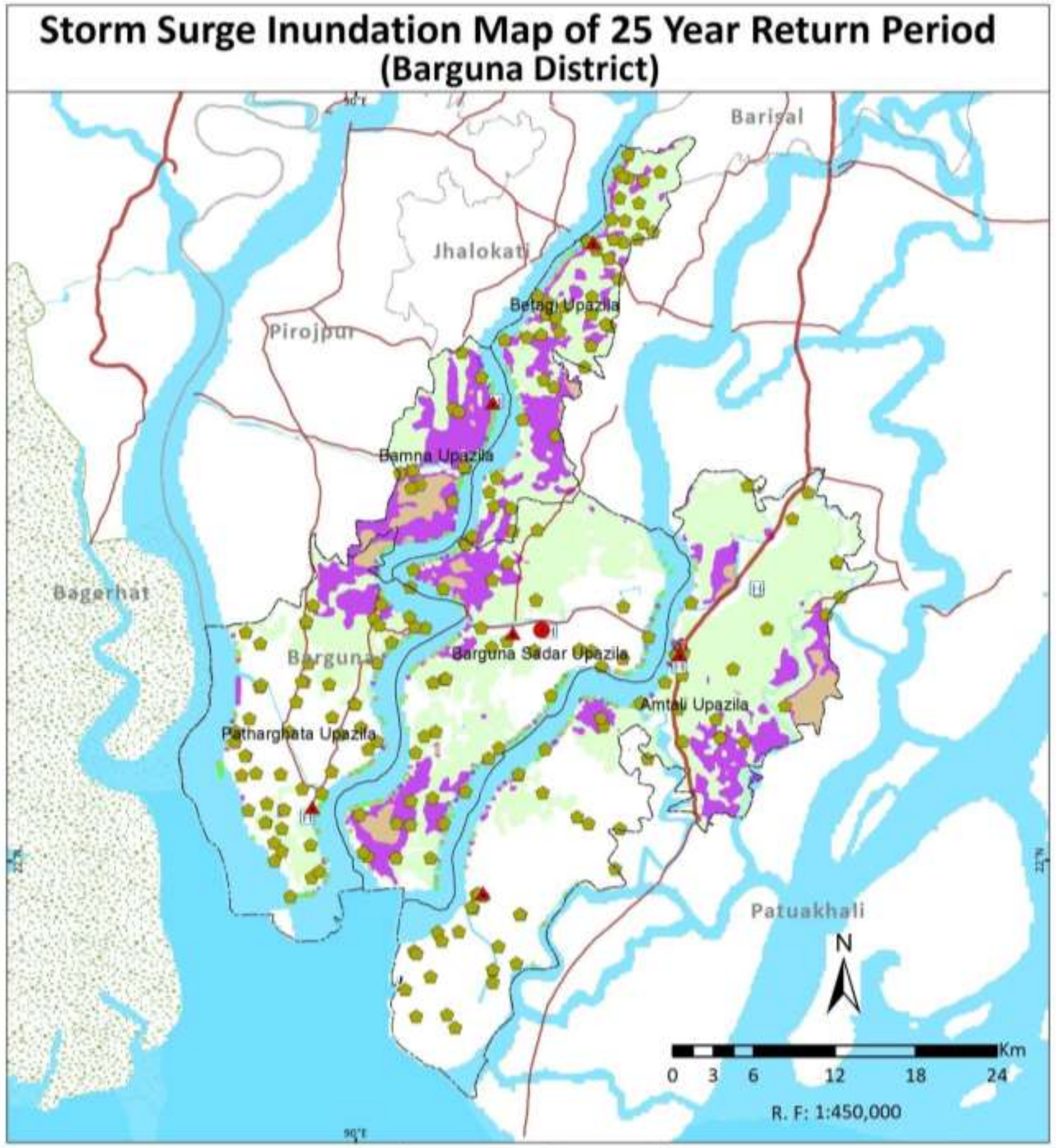
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief





Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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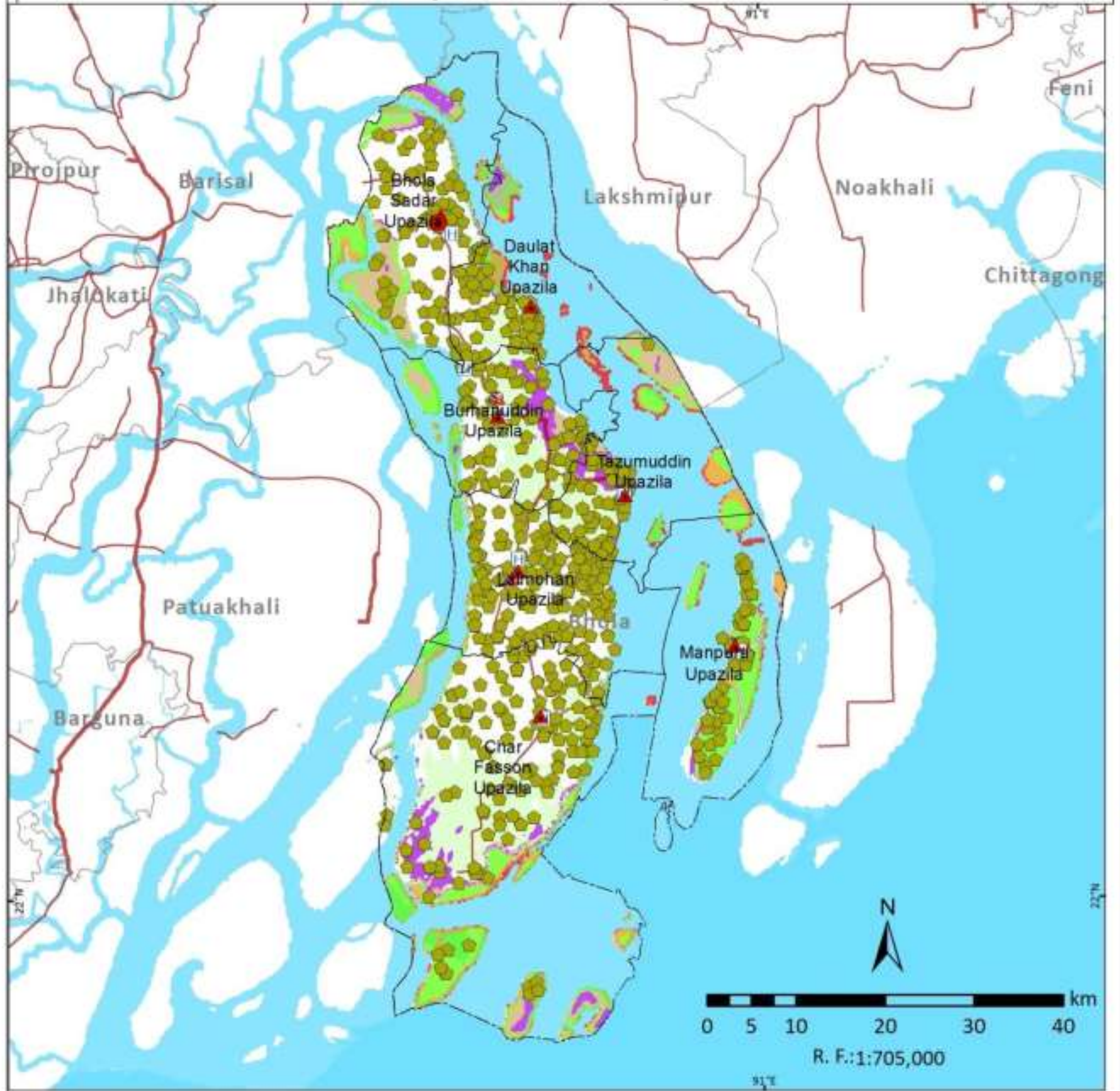
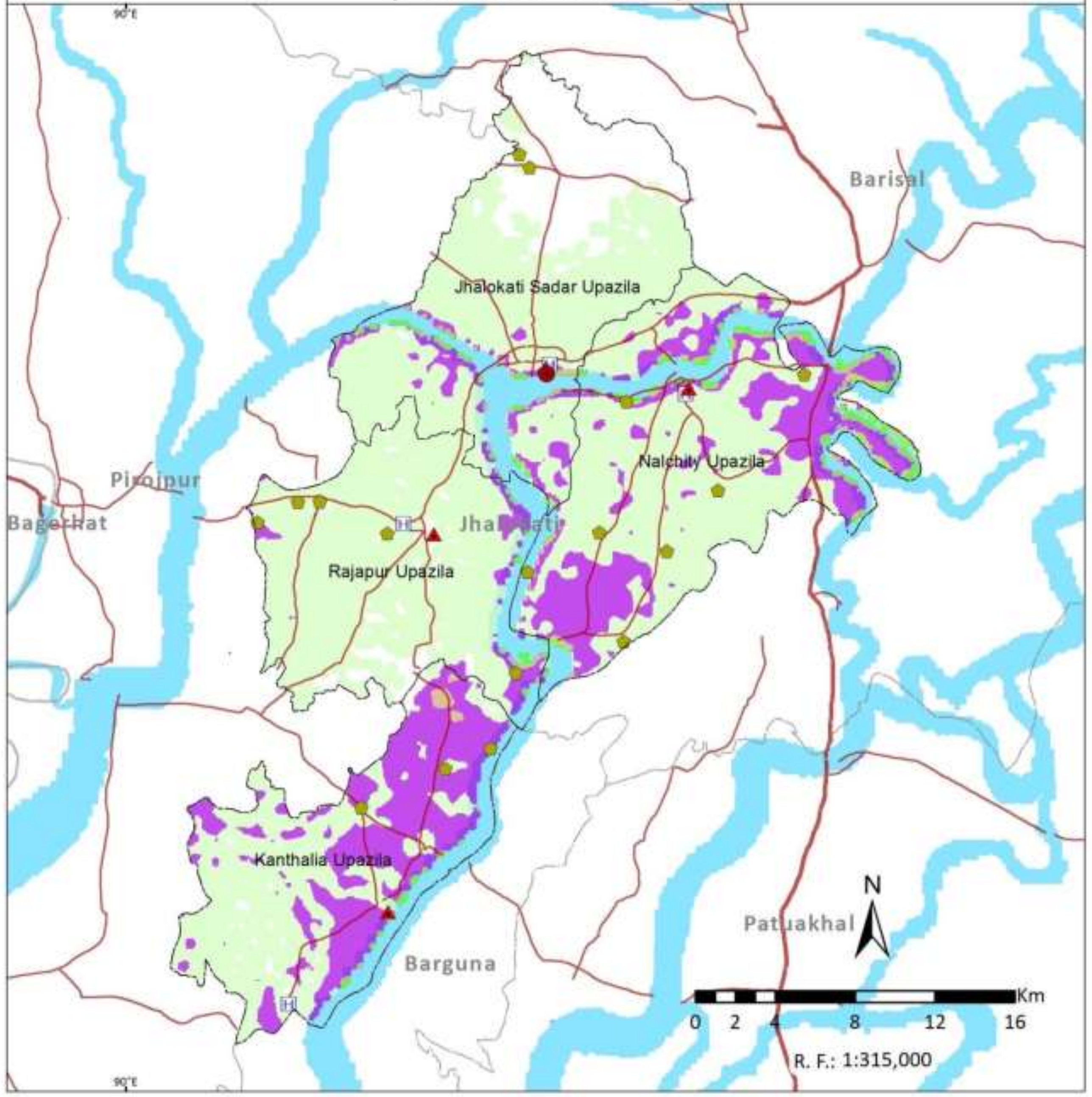
Ministry of Disaster Management and Relief

Storm Surge Inundation Map of 25 Year Return Period
(Bhola District)



Storm Surge Inundation Map of 25 Year Return Period
(Jhalokati District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Distrct Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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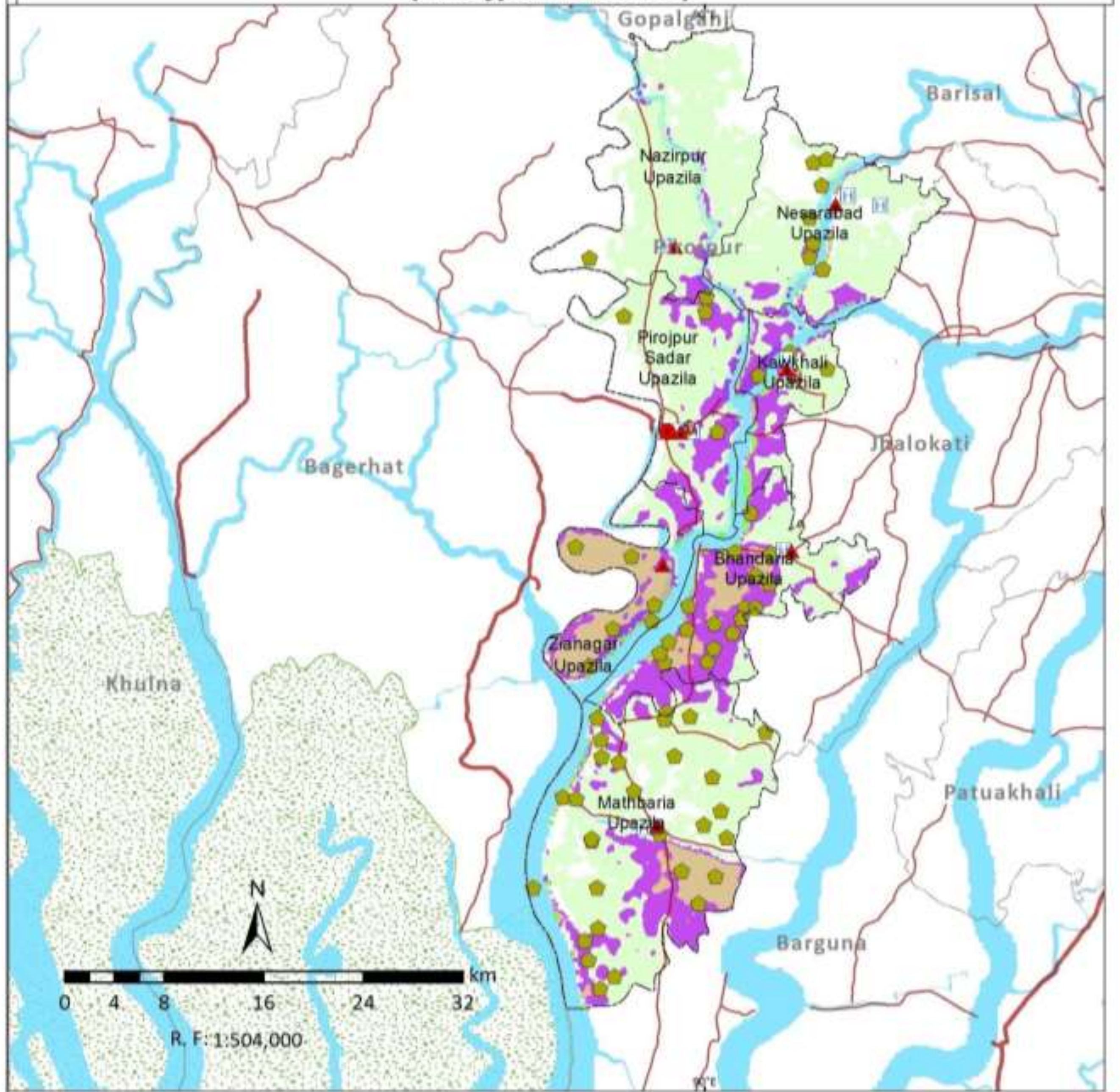
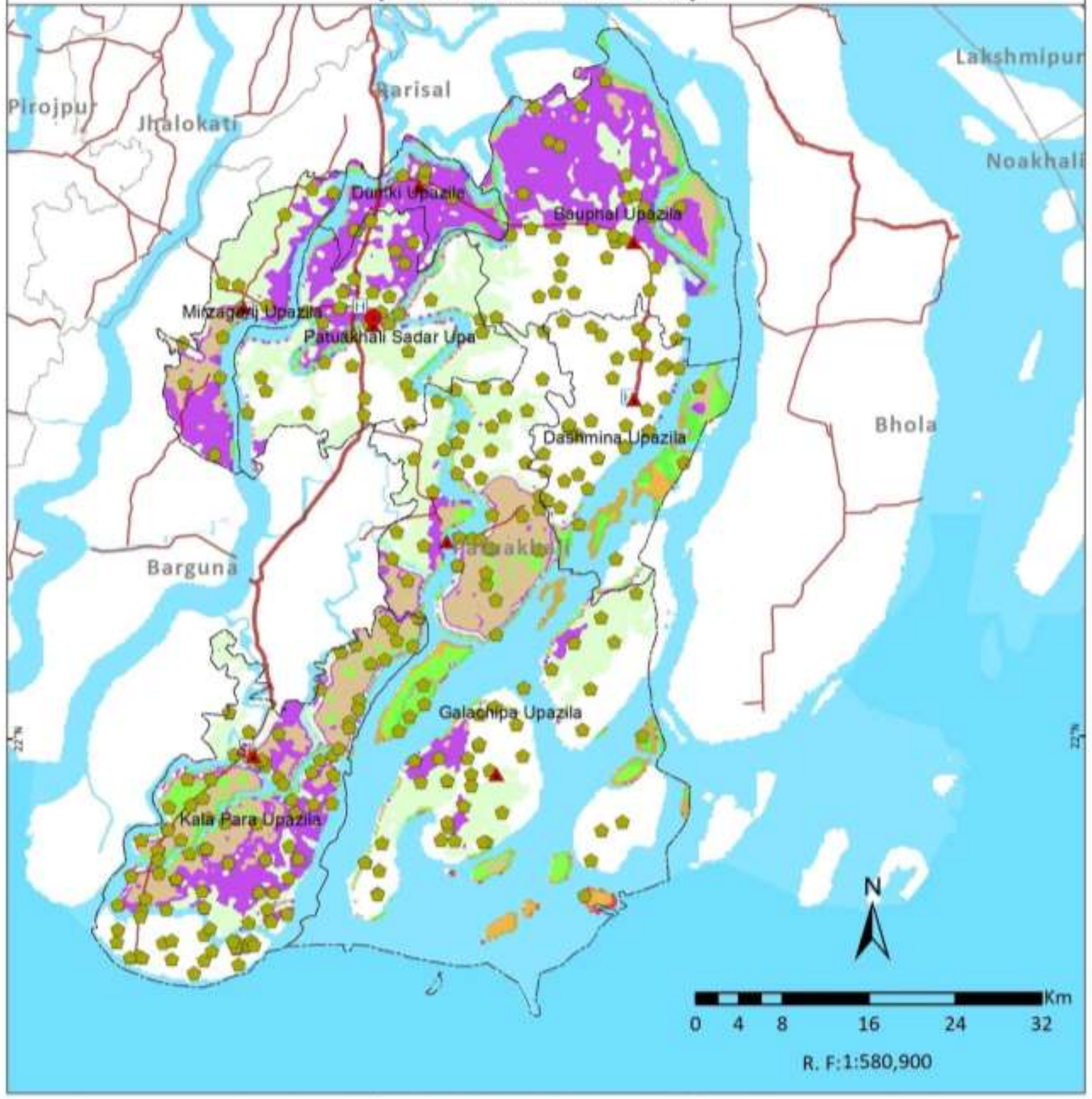
Storm Surge Inundation Map of 25 Year Return Period
(Pirojpur District)



Storm Surge Inundation Map of 25 Year Return Period
(Patuakhali District)



Legend

Country Boundary	District Head Quarter	Surge Height (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Fire Station	< 1.0
Upazila Boundary	Hospital	1.0 - 1.5
National High Way	Cyclone Shelter	1.5 - 2.0
Regional High Way	River/Sea/Lake	2.0 - 3.0
	Sundarbans	3.0 - 4.0
		4.0 - 5.0
		> 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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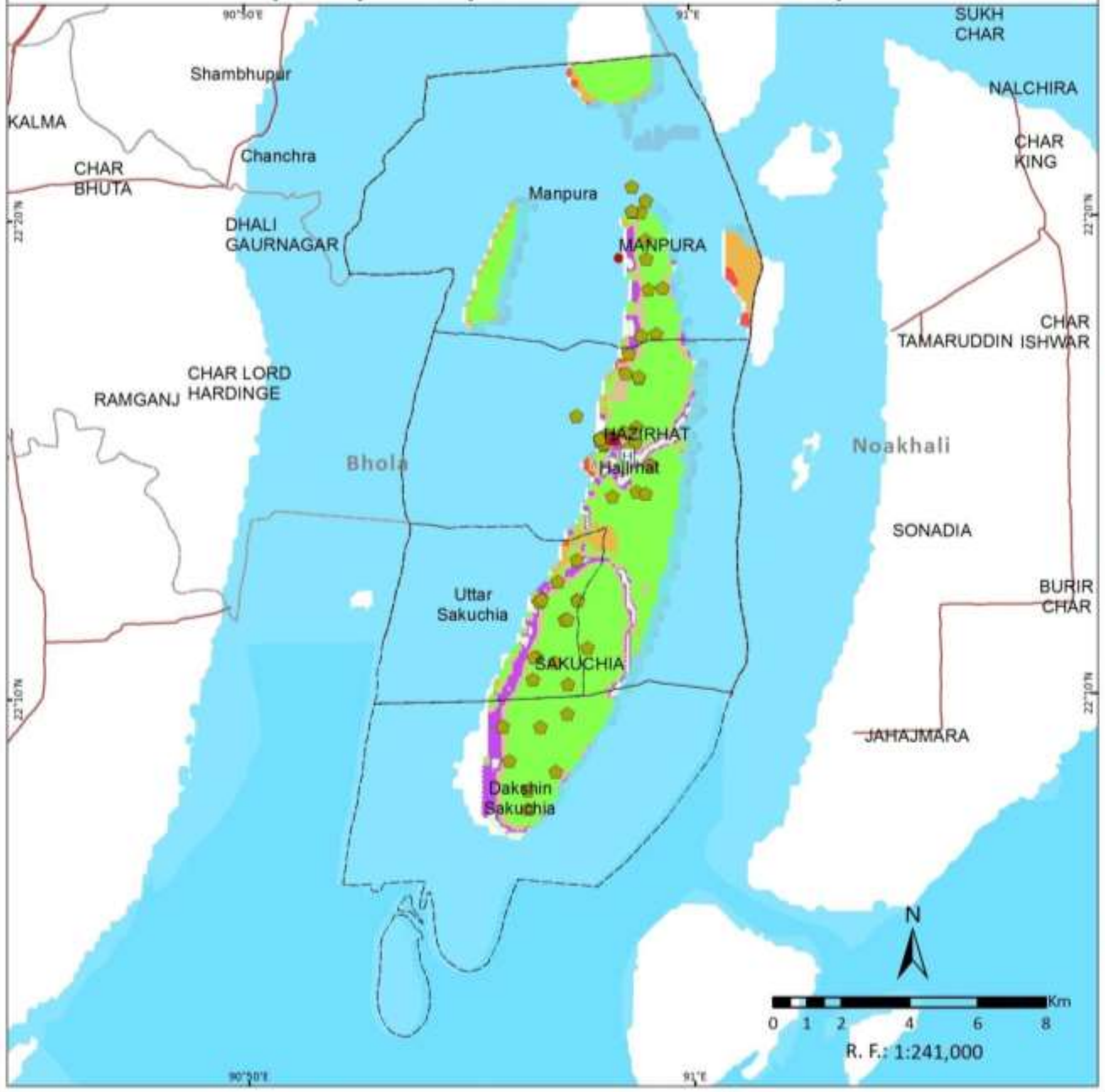
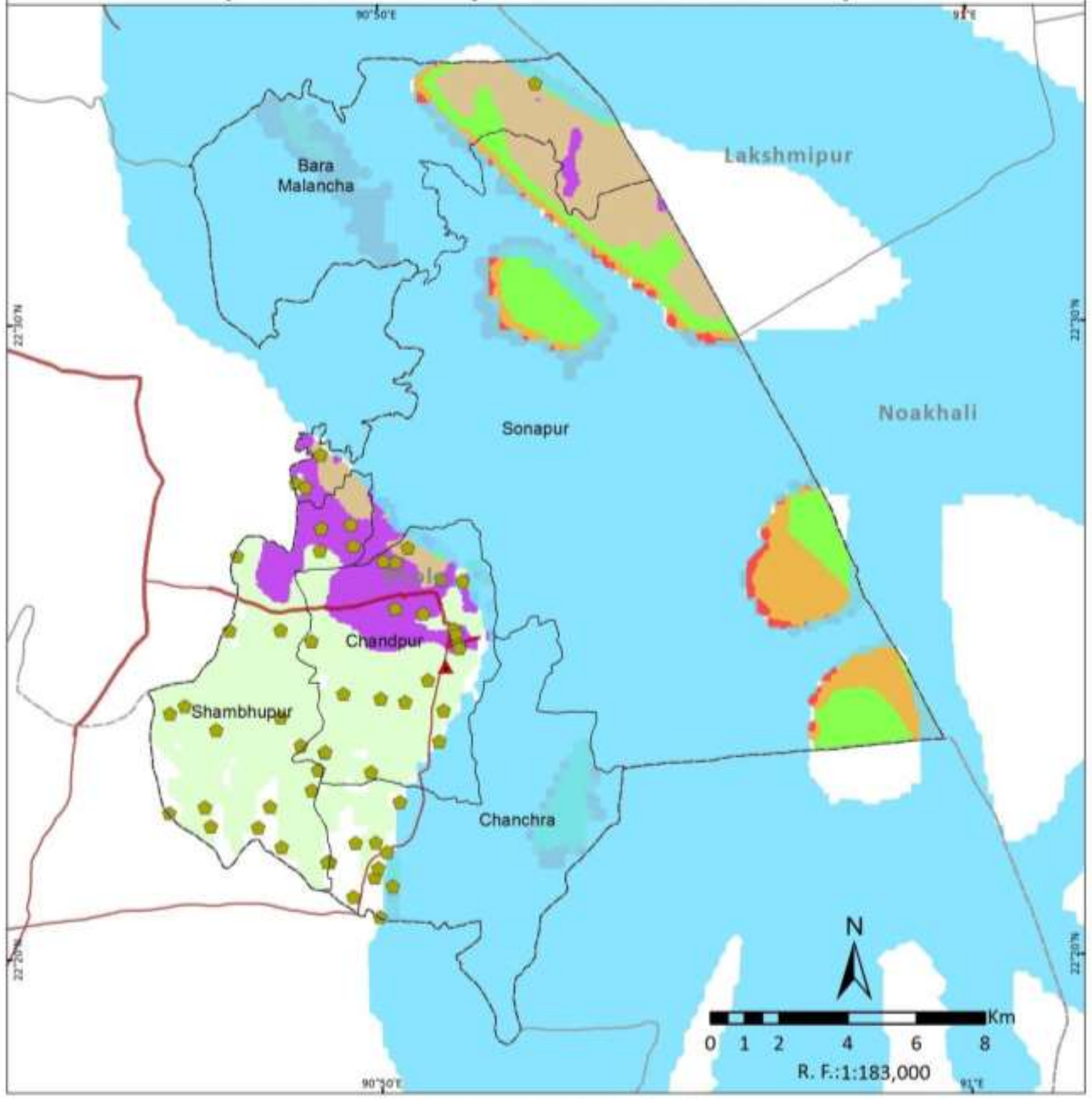
Storm Surge Inundation Map of 25 Year Return Period
(Manpura Upazila of Bhola District)



Storm Surge Inundation Map of 25 Year Return Period
(Tazumuddin Upazila of Bhola District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- Union Boundary
- National High Way
- Regional High Way
- Upazila Head Quarter
- Union Head Quarter
- Hospital
- Cyclone Shelter
- Fire Station
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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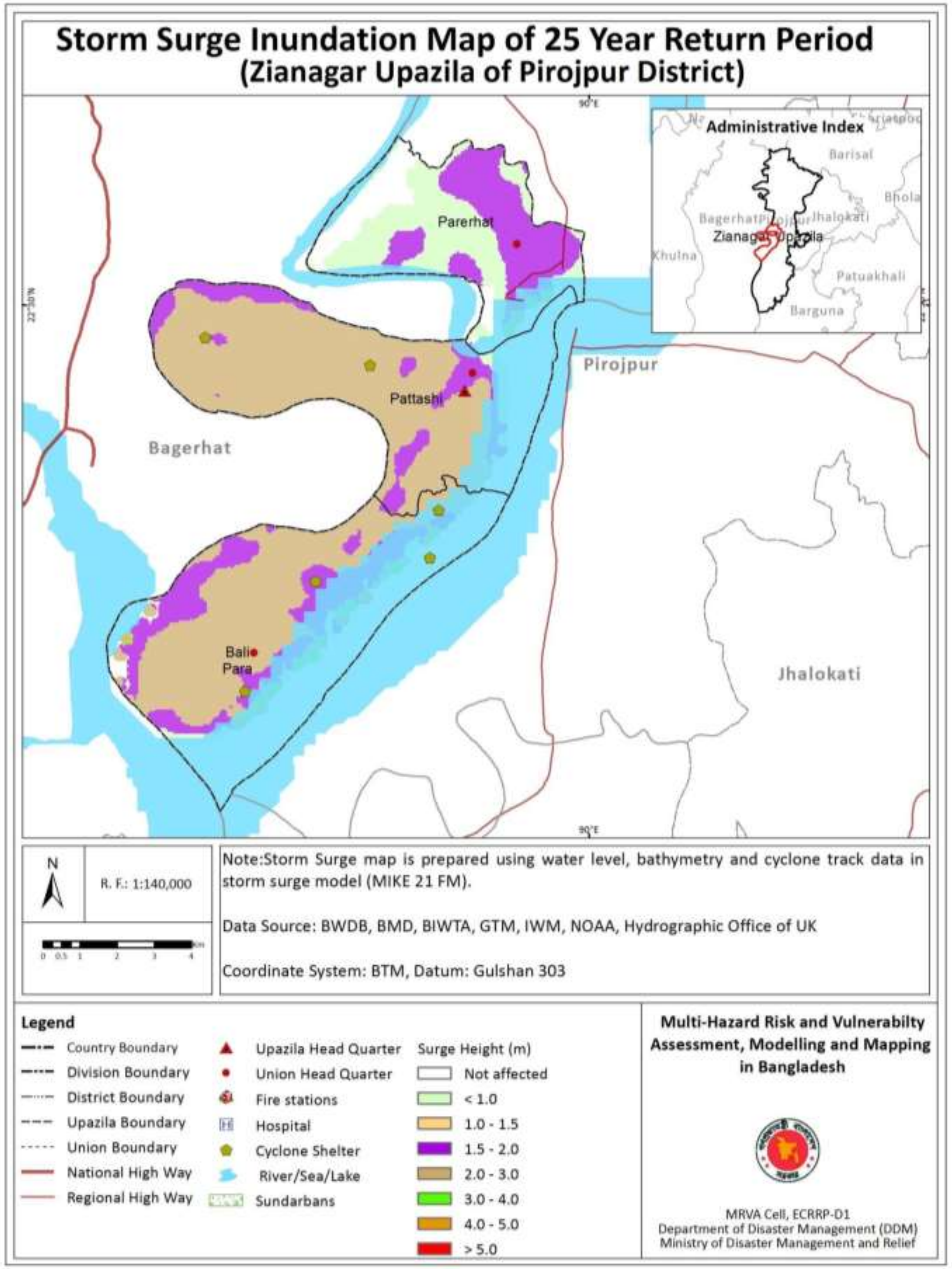
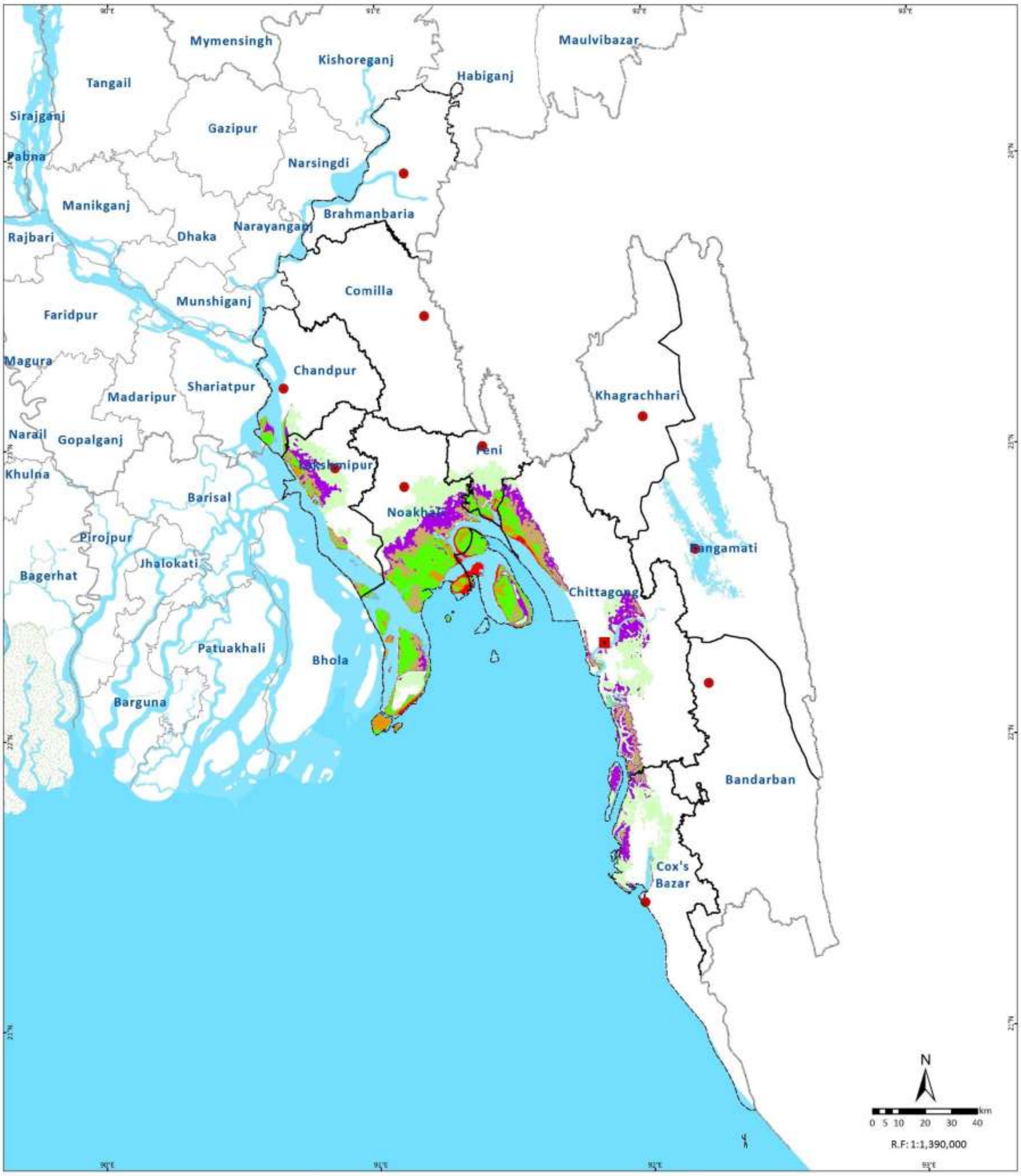

Storm Surge Inundation Map of 25 Year Return Period
(Zianagar Upazila of Pirojpur District)
Administrative Index
Barisal
Bhola
Bagerhat
Jhalokati
Zianagar Upazila
Khulna
Patuakhali
Barguna
Parerhat
Pirojpur
Pattashi
Bagerhat
Bali Para
Jhalokati
N
R. F.: 1:140,000
Note:Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM).
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
Upazila Head Quarter
Union Head Quarter
Fire stations
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Surge Height (m)
Not affected
< 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
4.0 - 5.0
> 5.0
Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh
MRVA Cell, ECRRP-D1
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Storm Surge Inundation Map of 25 Year Return Period
(Chittagong Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM).

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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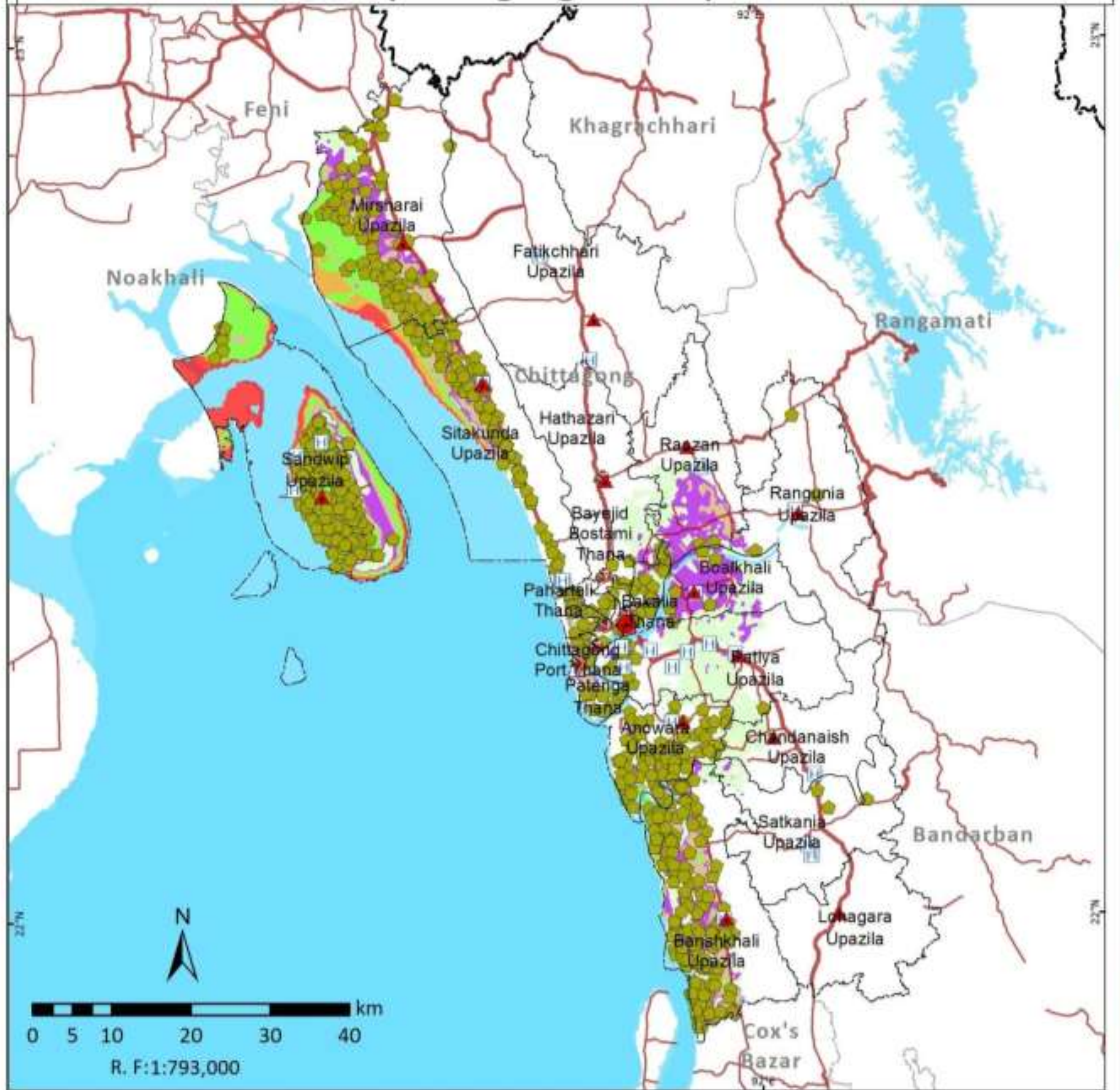
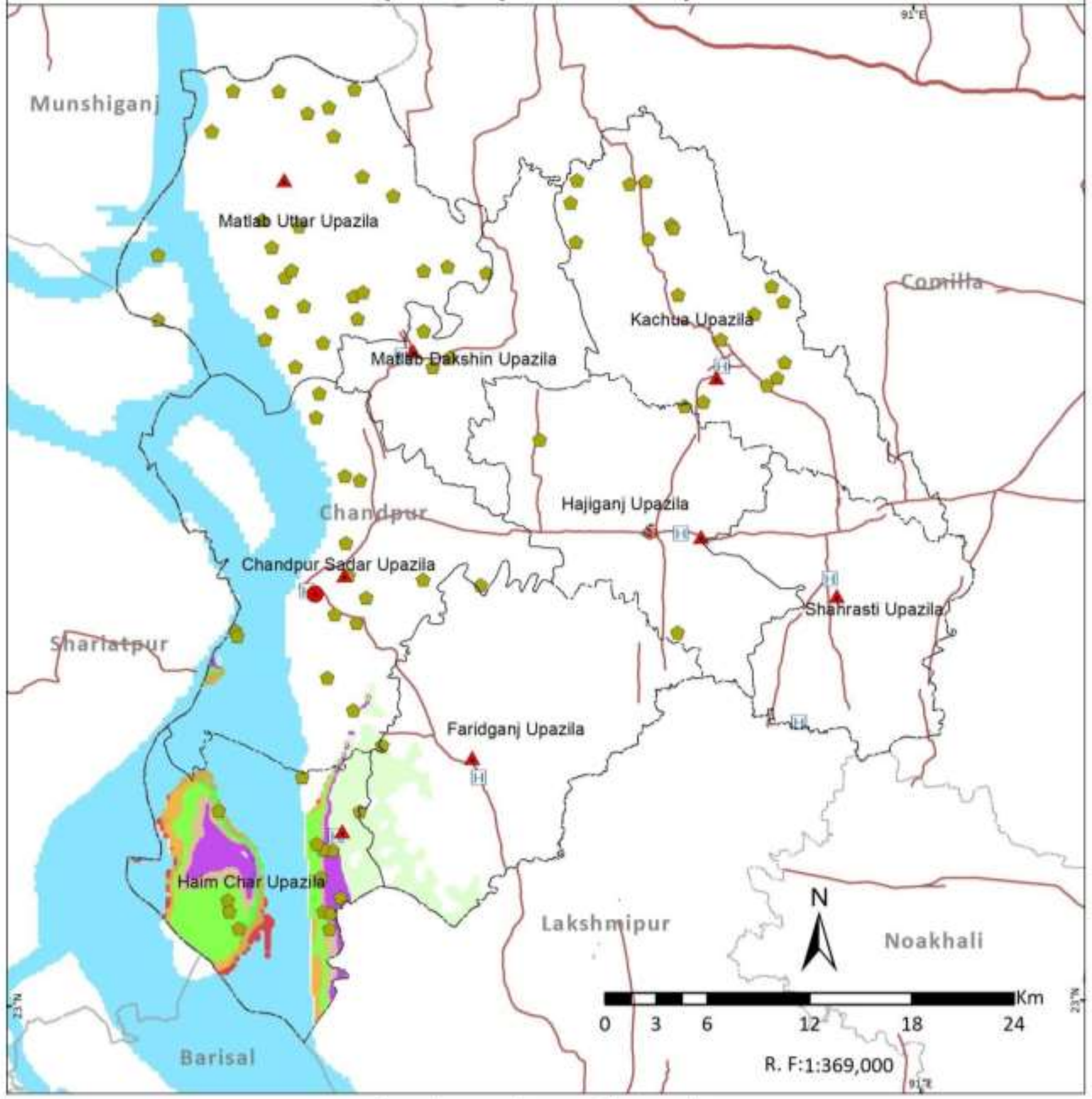
Storm Surge Inundation Map of 25 Year Return Period (Chittagong District)



Storm Surge Inundation Map of 25 Year Return Period (Chandpur District)



Legend

Country Boundary	Division Head Quarter	**Surge Height (m)**
Division Boundary	District Head Quarter	Not affected
District Boundary	Upazila Head Quarter	< 1.0
Upazila Boundary	Fire Station	1.0 - 1.5
National High Way	Hospital	1.5 - 2.0
Regional High Way	Cyclone Shelter	2.0 - 3.0
	River/Sea/Lake	3.0 - 4.0
	Sundarbans	4.0 - 5.0
		> 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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Department of Disaster Management (DDM)
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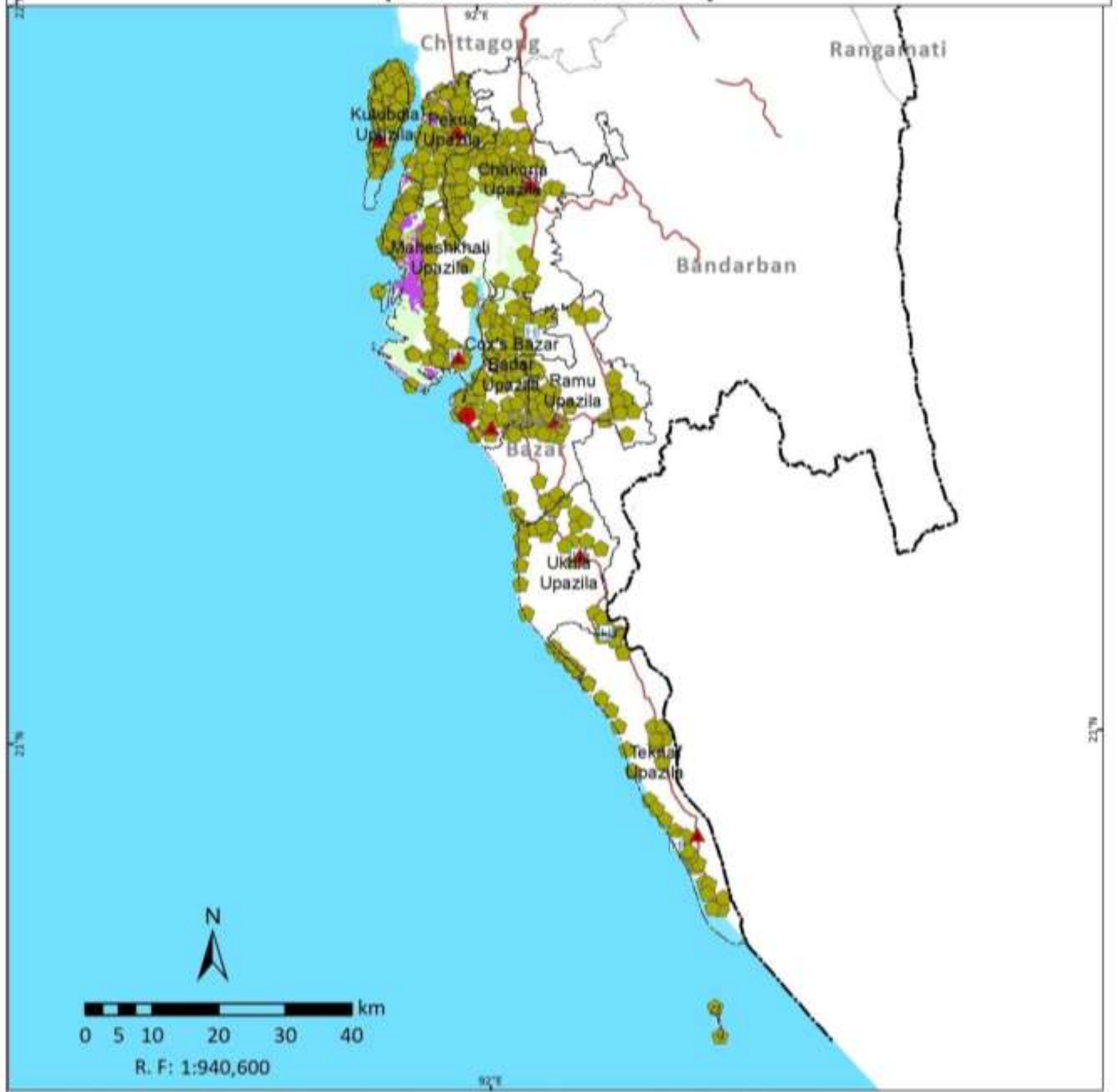
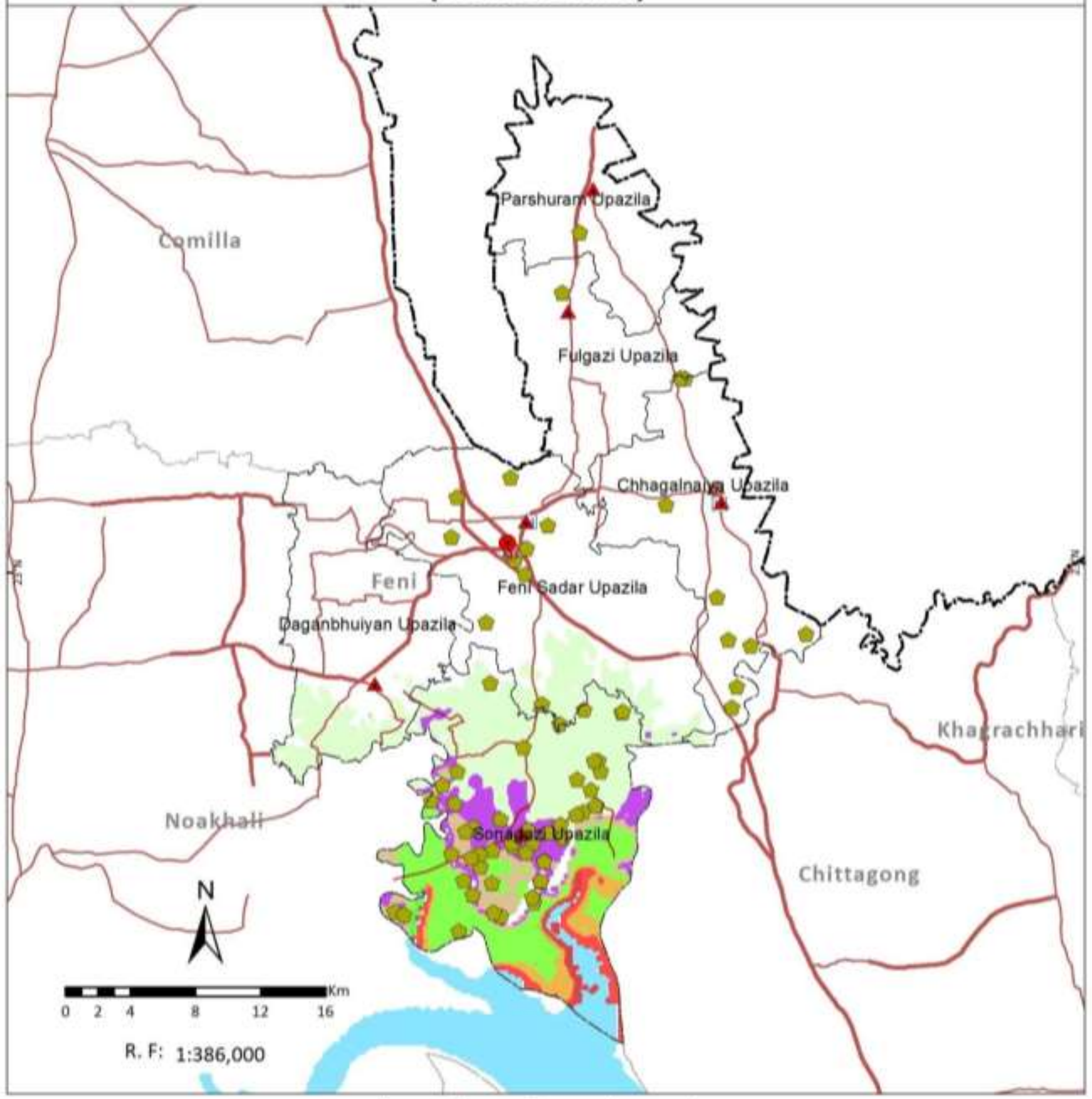
Storm Surge Inundation Map of 25 Year Return Period
(Cox's Bazar District)



Storm Surge Inundation Map of 25 Year Return Period
(Feni District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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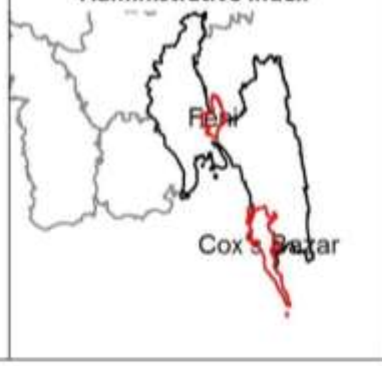

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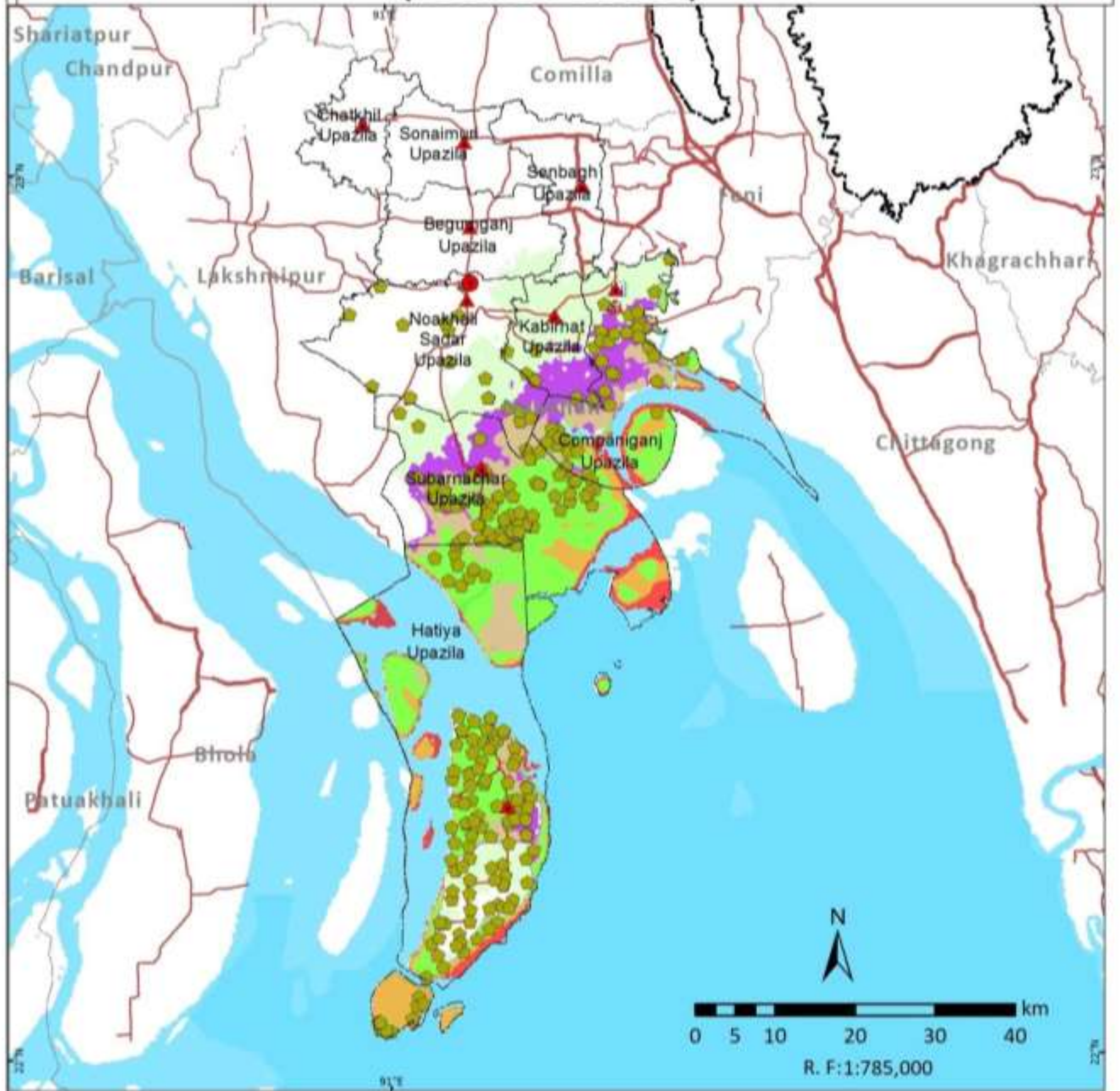
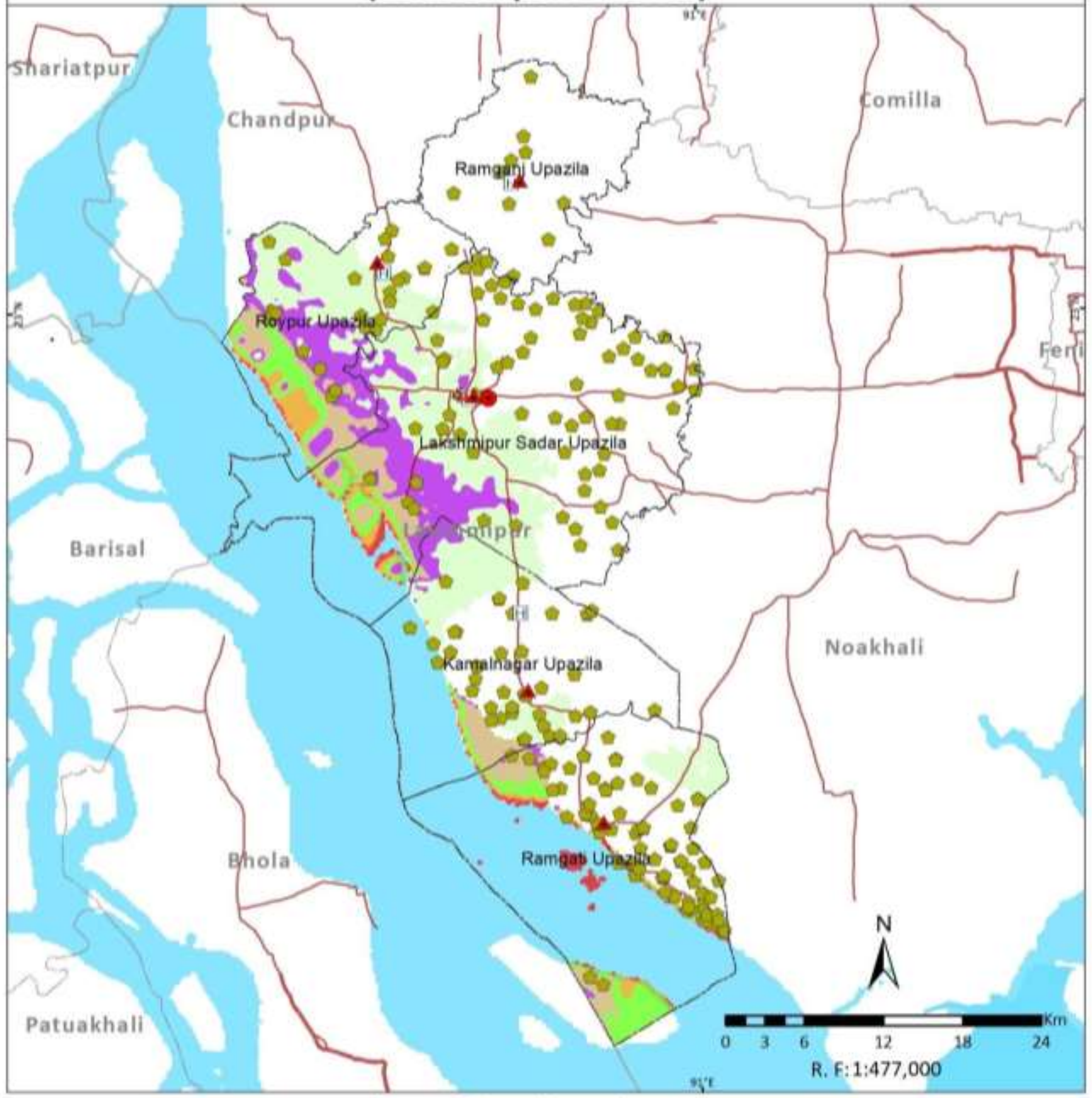
Storm Surge Inundation Map of 25 Year Return Period (Noakhali District)



Storm Surge Inundation Map of 25 Year Return Period (Lakshmipur District)



Legend

Country Boundary	District Head Quarter	Surge Height (m)
Division Boundary	Upazila Head Quarter	Not affected
District Boundary	Fire Station	< 1.0
Upazila Boundary	Hospital	1.0 - 1.5
National High Way	Cyclone Shelter	1.5 - 2.0
Regional High Way	River/Sea/Lake	2.0 - 3.0
	Sundarbans	3.0 - 4.0
		4.0 - 5.0
		> 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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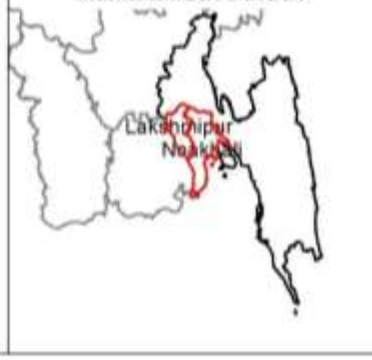

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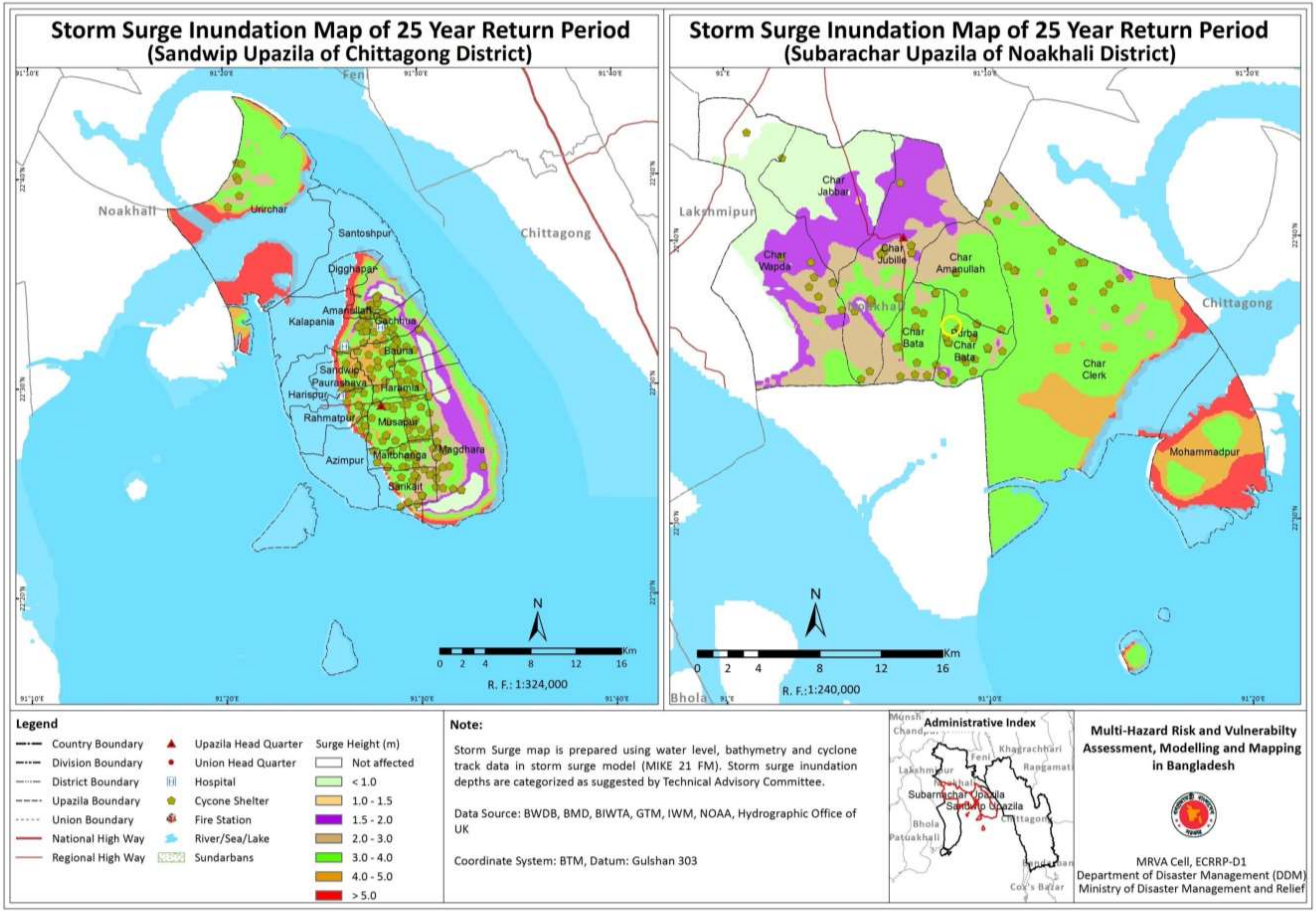
Storm Surge Inundation Map of 25 Year Return Period
(Sandwip Upazila of Chittagong District)
Storm Surge Inundation Map of 25 Year Return Period
(Subarachar Upazila of Noakhali District)
Noakhali
Urirchar
Santoshpur
Chittagong
Digghapar
Amanullah
Kalapania
Gachhua
Bauria
Sandwip Paurashava
Haramia
Harispur
Rahmatpur
Musapur
Magdhara
Azimpur
Maitbhanga
Sarikait
Feni
Lakshmipur
Char Jabbar
Char Wapda
Char Jubille
Char Amanullah
Char Bata
Purba Char Bata
Char Clerk
Mohammadpur
Bhola
N
Km
0 2 4 8 12 16
R. F.: 1:324,000
R. F.:1:240,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
Union Boundary
National High Way
Regional High Way
Upazila Head Quarter
Union Head Quarter
Hospital
Cycone Shelter
Fire Station
River/Sea/Lake
Sundarbans
Surge Height (m)
Not affected
< 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
4.0 - 5.0
> 5.0
Note:
Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Subarnachar Upazila
Sandwip Upazila
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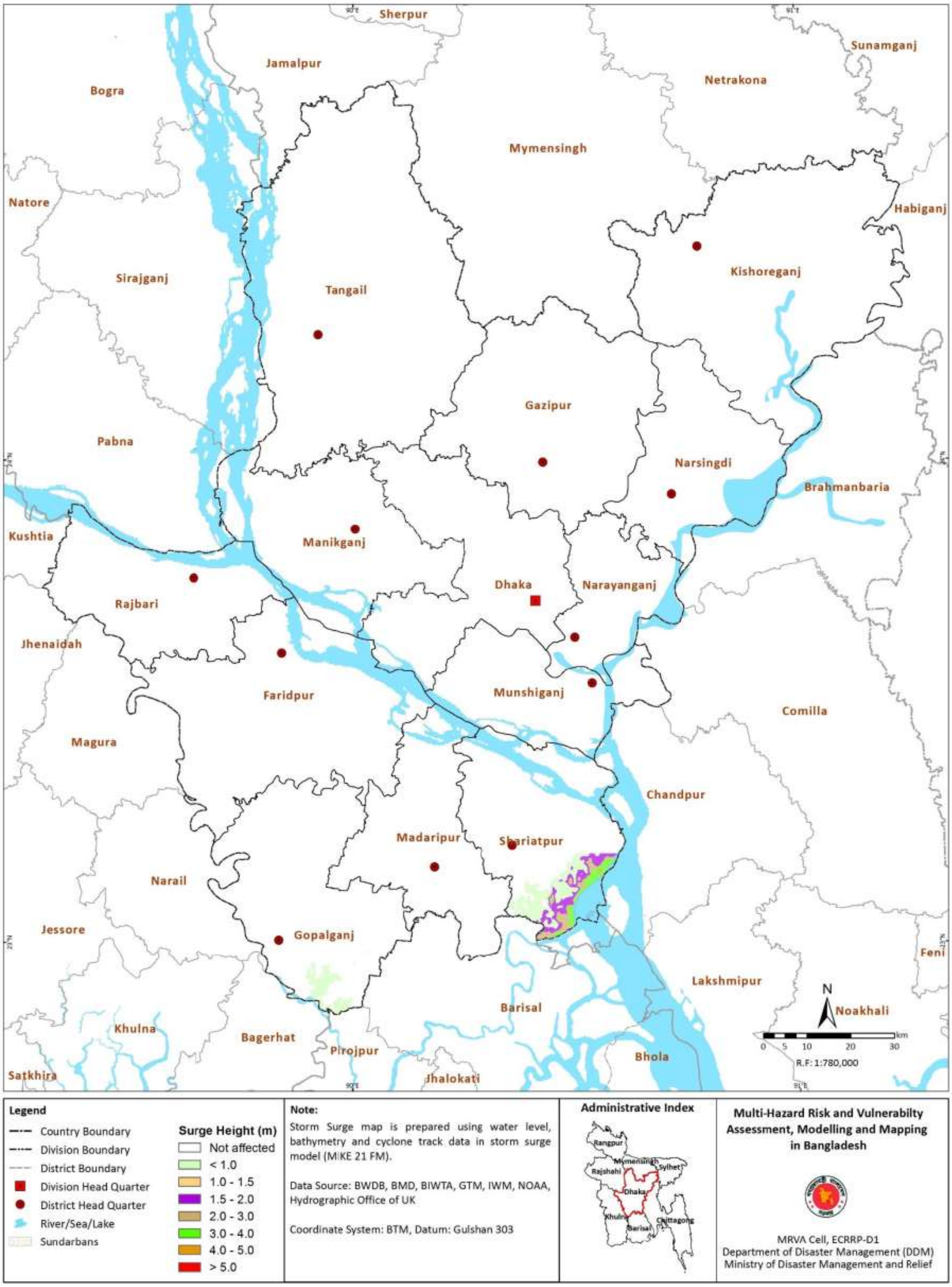
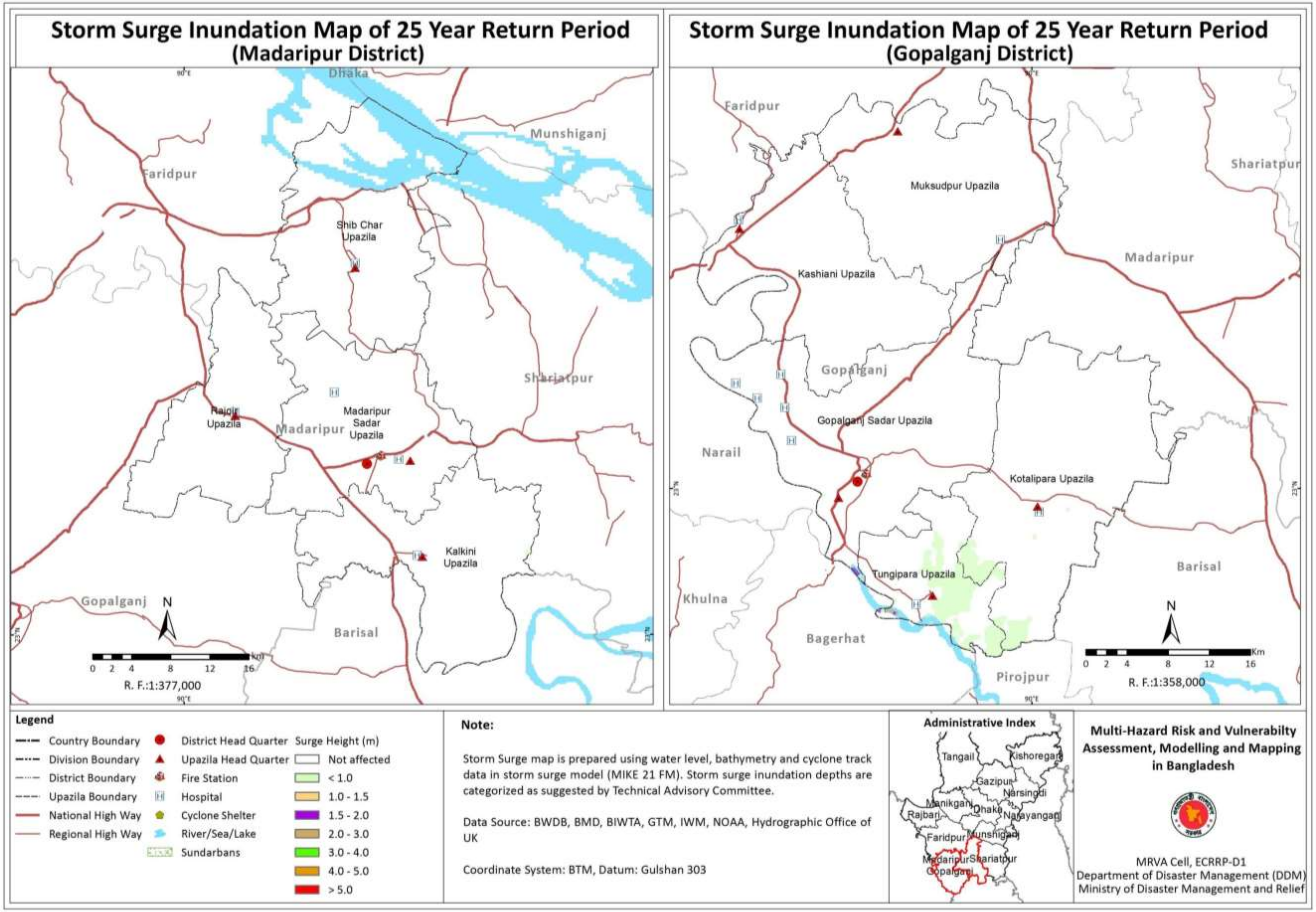
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Storm Surge Inundation Map of 25 Year Return Period
(Dhaka Division)




Storm Surge Inundation Map of 25 Year Return Period
(Madaripur District)
Dhaka
Munshiganj
Faridpur
Shib Char Upazila
Shariatpur
Rajoir Upazila
Madaripur
Madaripur Sadar Upazila
Kalkini Upazila
Gopalganj
Barisal
N
0 2 4 8 12 16 km
R. F.:1:377,000
Storm Surge Inundation Map of 25 Year Return Period
(Gopalganj District)
Faridpur
Muksudpur Upazila
Shariatpur
Kashiani Upazila
Madaripur
Gopalganj
Gopalganj Sadar Upazila
Narail
Kotalipara Upazila
Tungipara Upazila
Khulna
Barisal
Bagerhat
Pirojpur
N
0 2 4 8 12 16 Km
R. F.:1:358,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Surge Height (m)
Not affected
< 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
4.0 - 5.0
> 5.0
Note:
Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Dhaka
Narayanganj
Rajbari
Faridpur
Munshiganj
Madaripur
Shariatpur
Gopalganj
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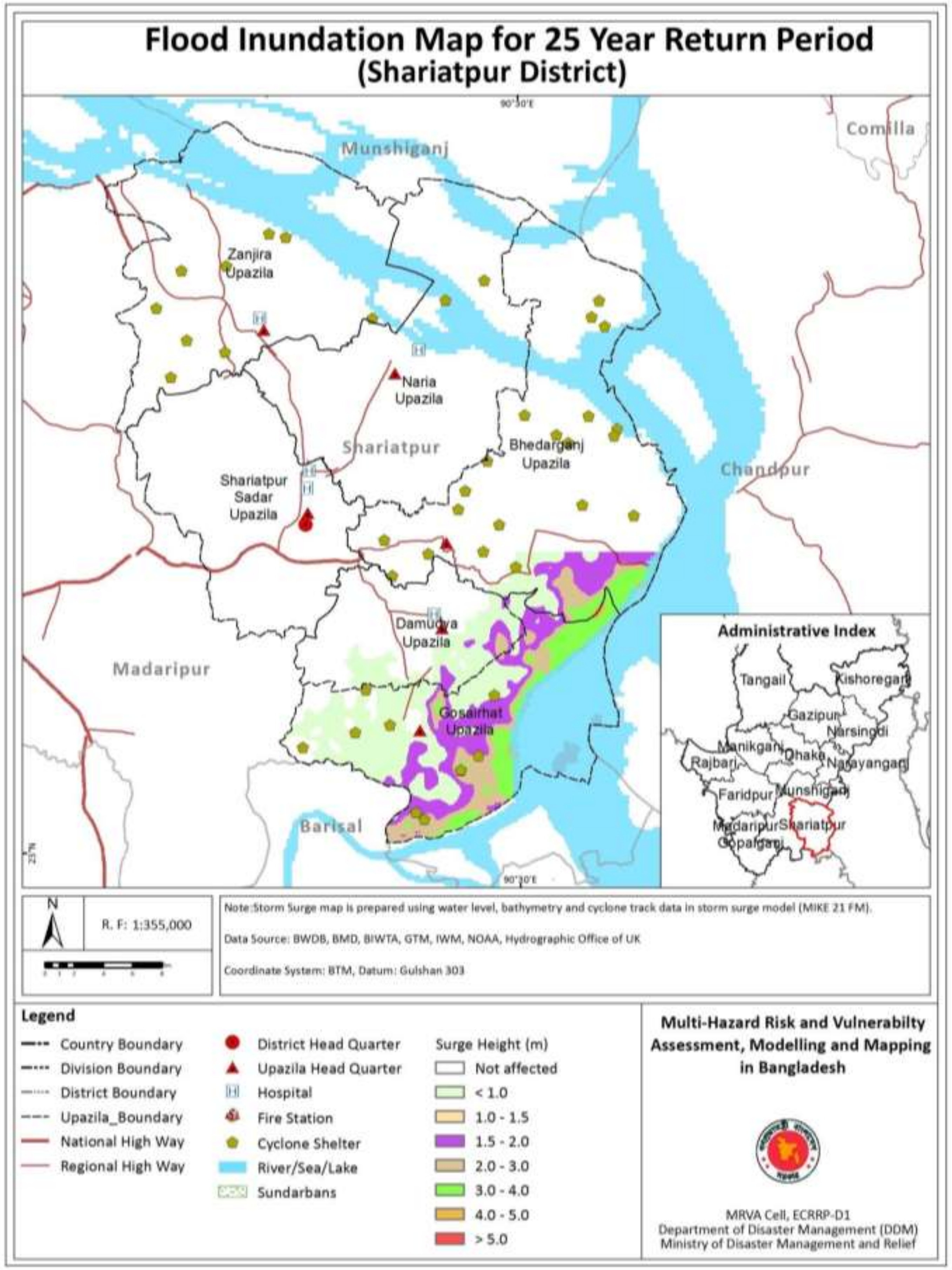
Ministry of Disaster Management and Relief



Flood Inundation Map for 25 Year Return Period
(Shariatpur District)
Munshiganj
Comilla
Zanjira Upazila
Naria Upazila
Shariatpur
Bhedarganj Upazila
Chandpur
Shariatpur Sadar Upazila
Damudya Upazila
Madaripur
Gosairhat Upazila
Barisal
Administrative Index
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Dhaka
Rajbari
Narayanganj
Faridpur
Munshiganj
Madaripur
Shariatpur
Gopalganj
R. F: 1:355,000
Note:Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM).
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Hospital
Fire Station
Cyclone Shelter
River/Sea/Lake
Sundarbans
Surge Height (m)
Not affected
< 1.0
1.0 - 1.5
1.5 - 2.0
2.0 - 3.0
3.0 - 4.0
4.0 - 5.0
> 5.0
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Storm Surge Inundation Map of 25 Year Return Period
(Khulna Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM).

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index

Rangpur
Mymensingh
Sylhet
Rajshahi
Dhaka
Khulna
Barisal
Chittagong

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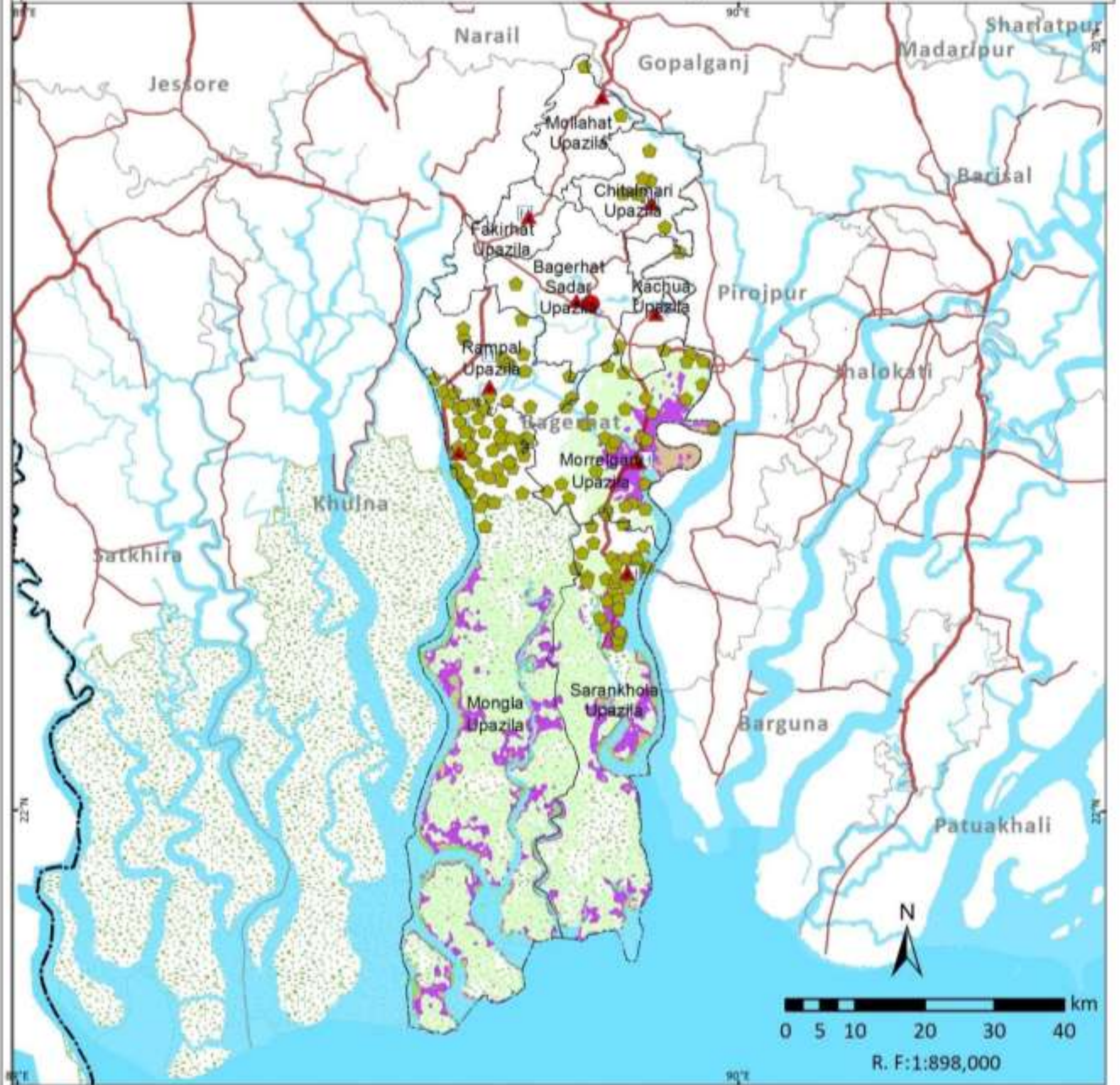
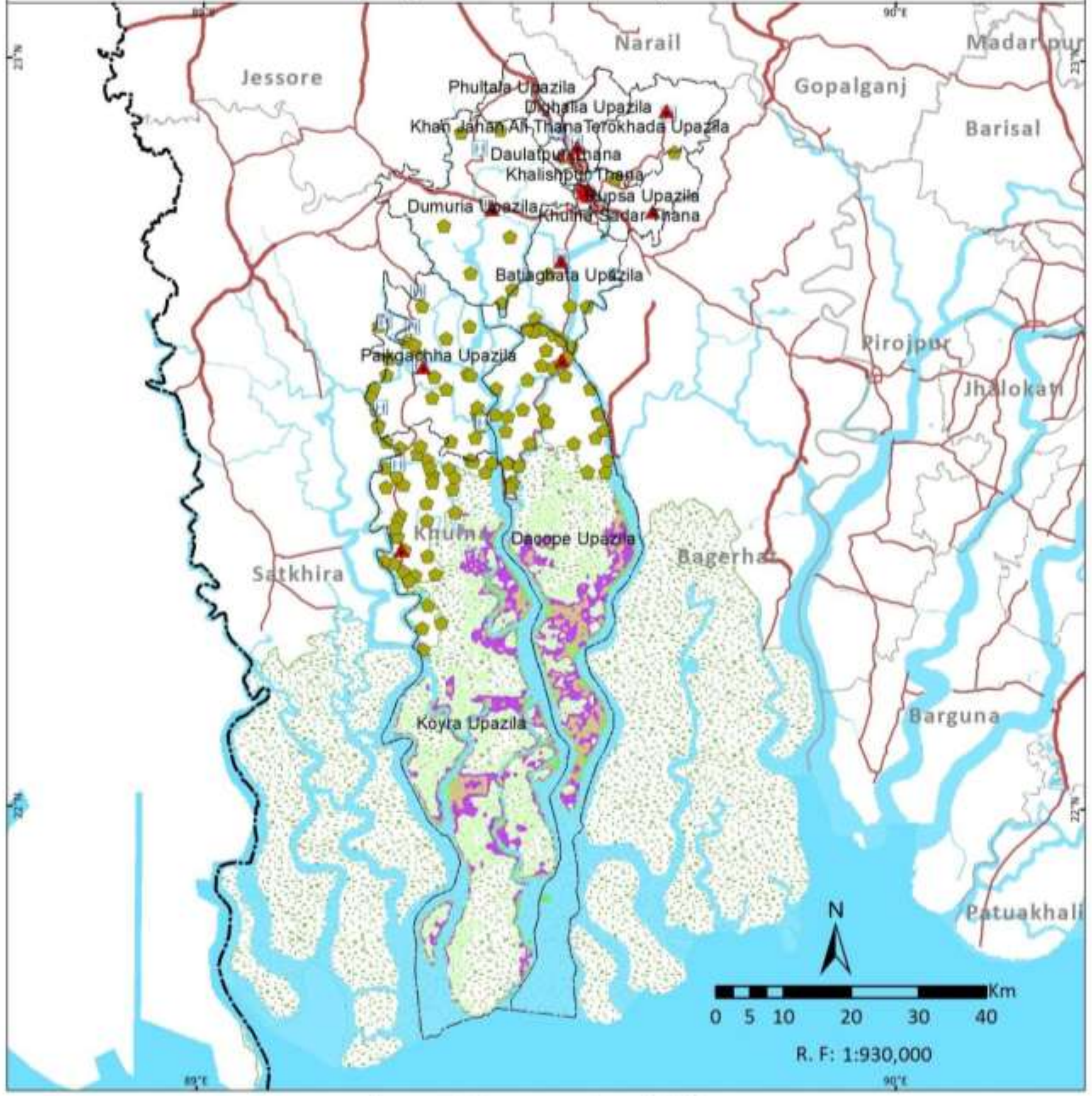
Storm Surge Inundation Map of 25 Year Return Period
(Bagerhat District)



Storm Surge Inundation Map of 25 Year Return Period
(Khulna District)



Legend

Country Boundary	Division Head Quarter	**Surge Height (m)**
Division Boundary	District Head Quarter	Not affected
District Boundary	Upazila Head Quarter	< 1.0
Upazila Boundary	Fire Station	1.0 - 1.5
National High Way	Hospital	1.5 - 2.0
Regional High Way	Cyclone Shelter	2.0 - 3.0
	River/Sea/Lake	3.0 - 4.0
	Sundarbans	4.0 - 5.0
		> 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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MRVA Cell, ECRRP-D1
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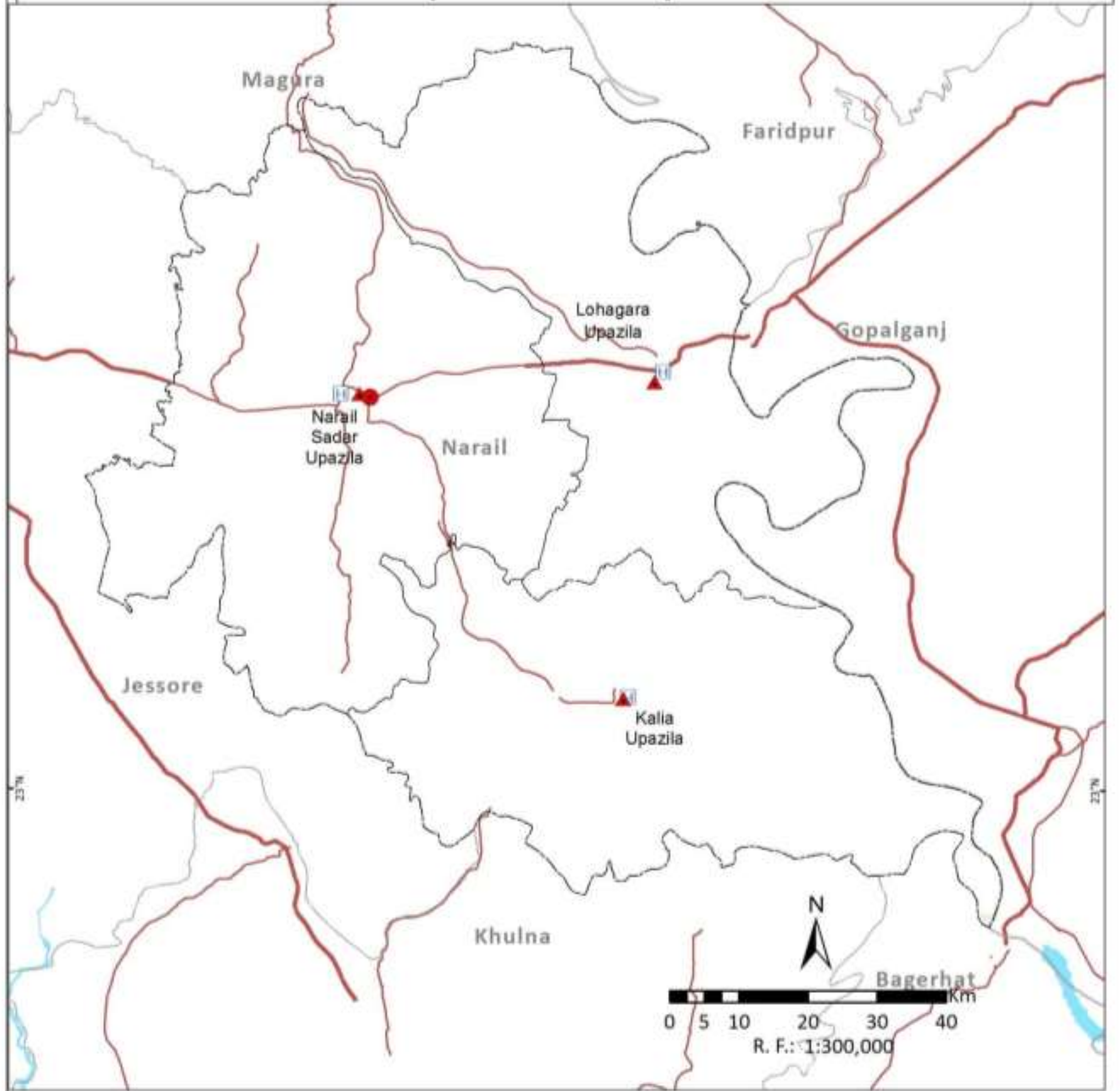
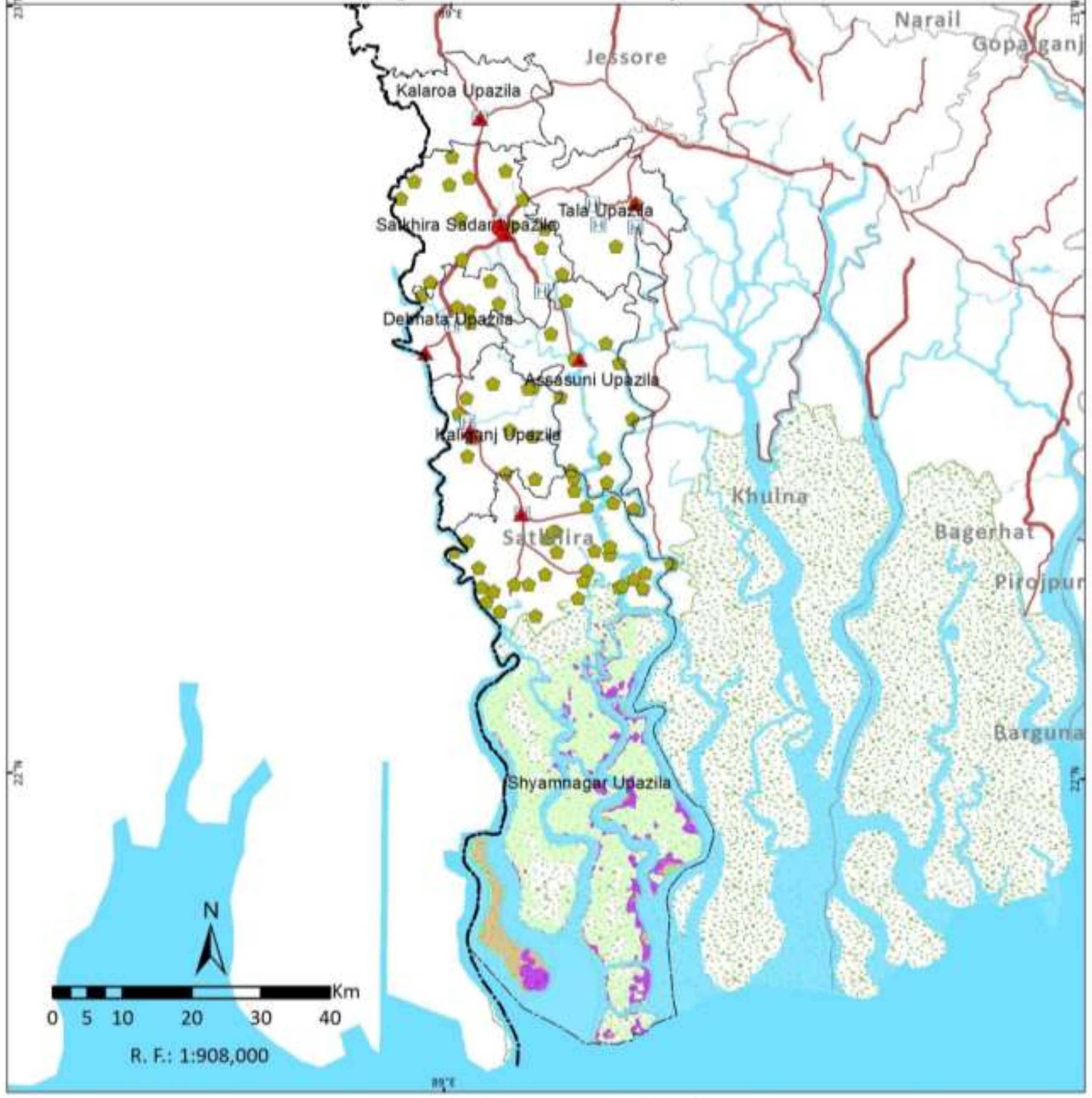
Storm Surge Inundation Map of 25 Year Return Period
(Narail District)



Storm Surge Inundation Map of 25 Year Return Period
(Satkhira District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Surge Height (m)

- Not affected
- < 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- 2.0 - 3.0
- 3.0 - 4.0
- 4.0 - 5.0
- > 5.0

Note:

Storm Surge map is prepared using water level, bathymetry and cyclone track data in storm surge model (MIKE 21 FM). Storm surge inundation depths are categorized as suggested by Technical Advisory Committee.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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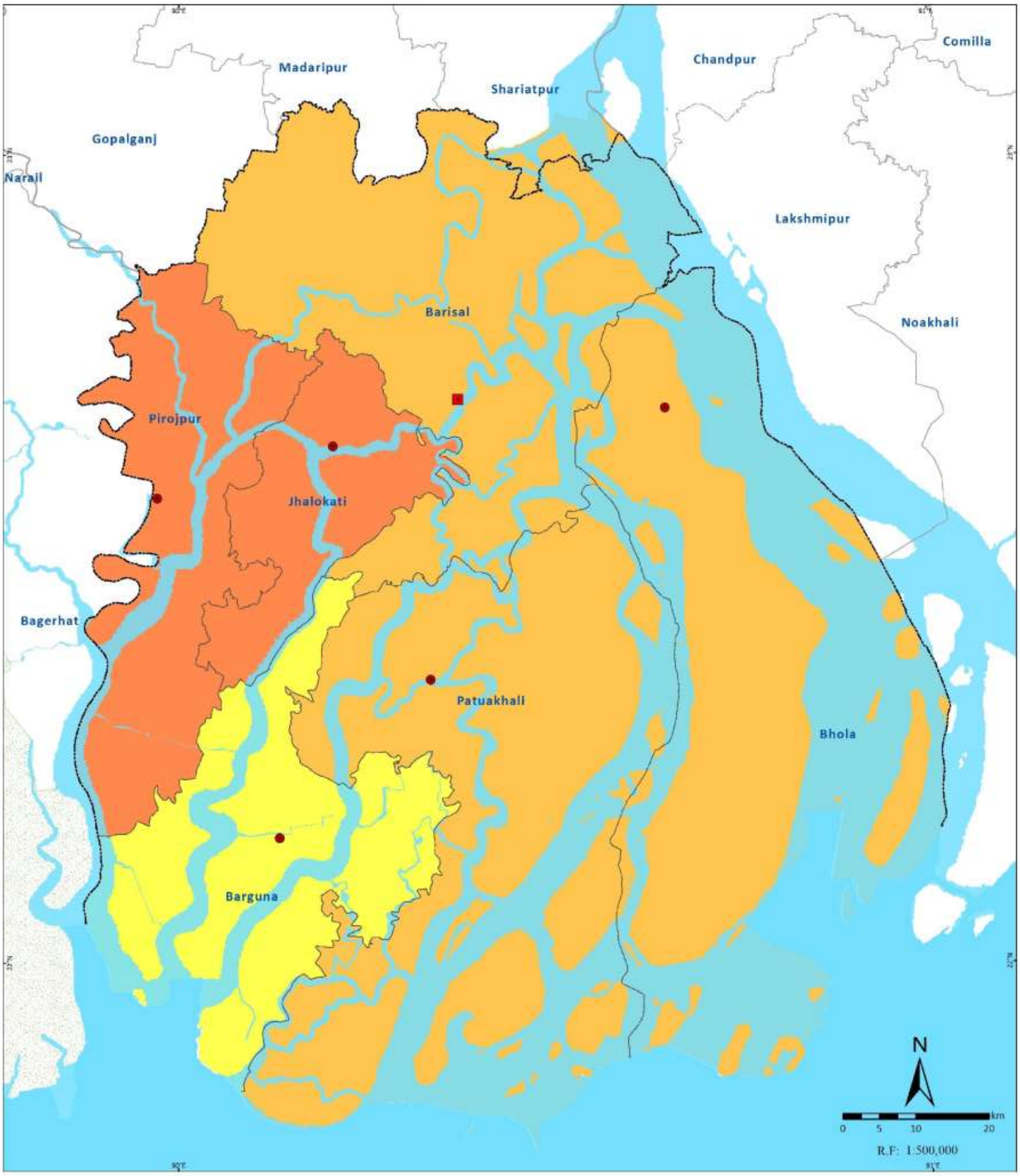
Population Exposure Map of 25 Year Return Period
(Barisal Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Category Of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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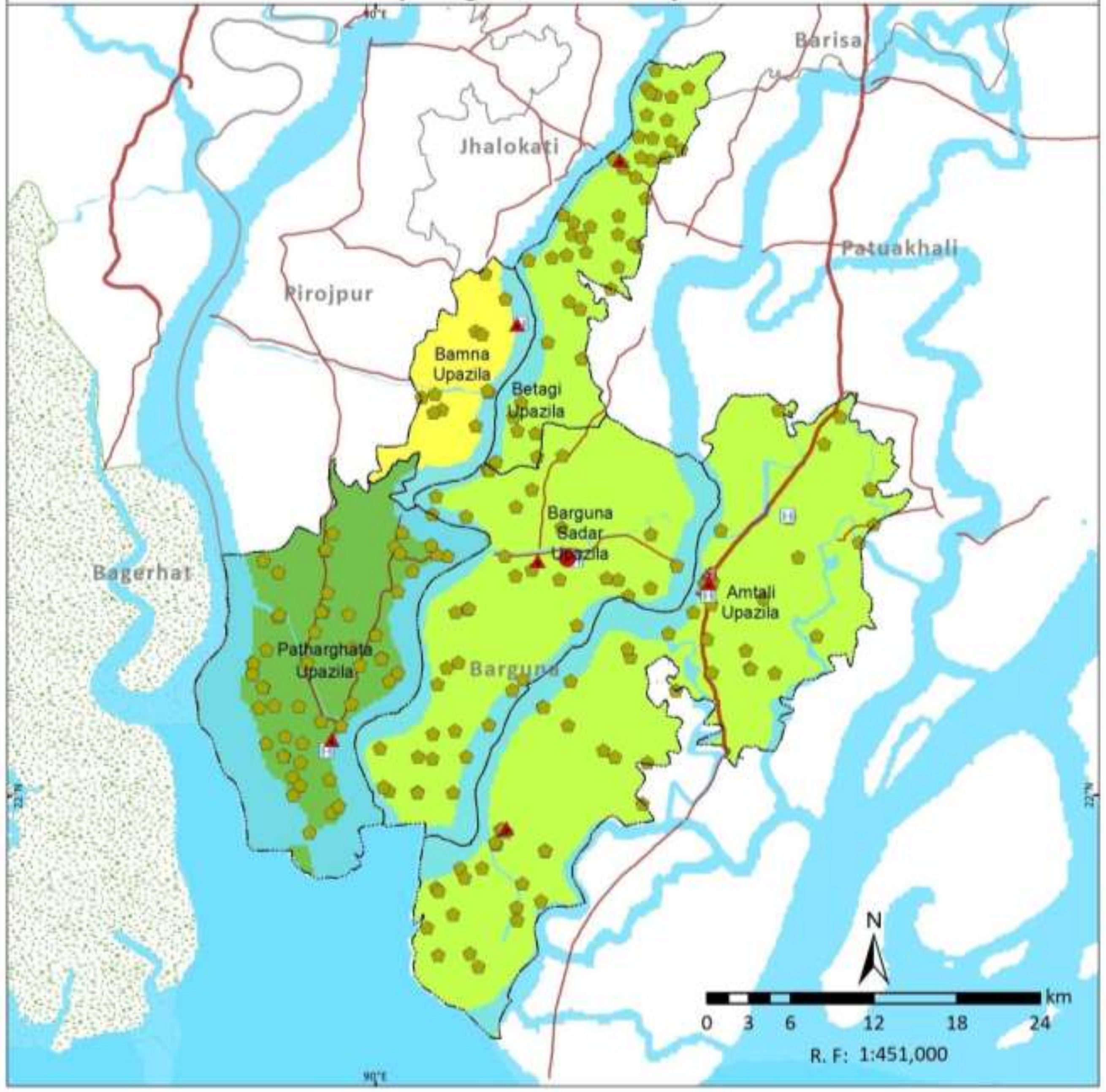
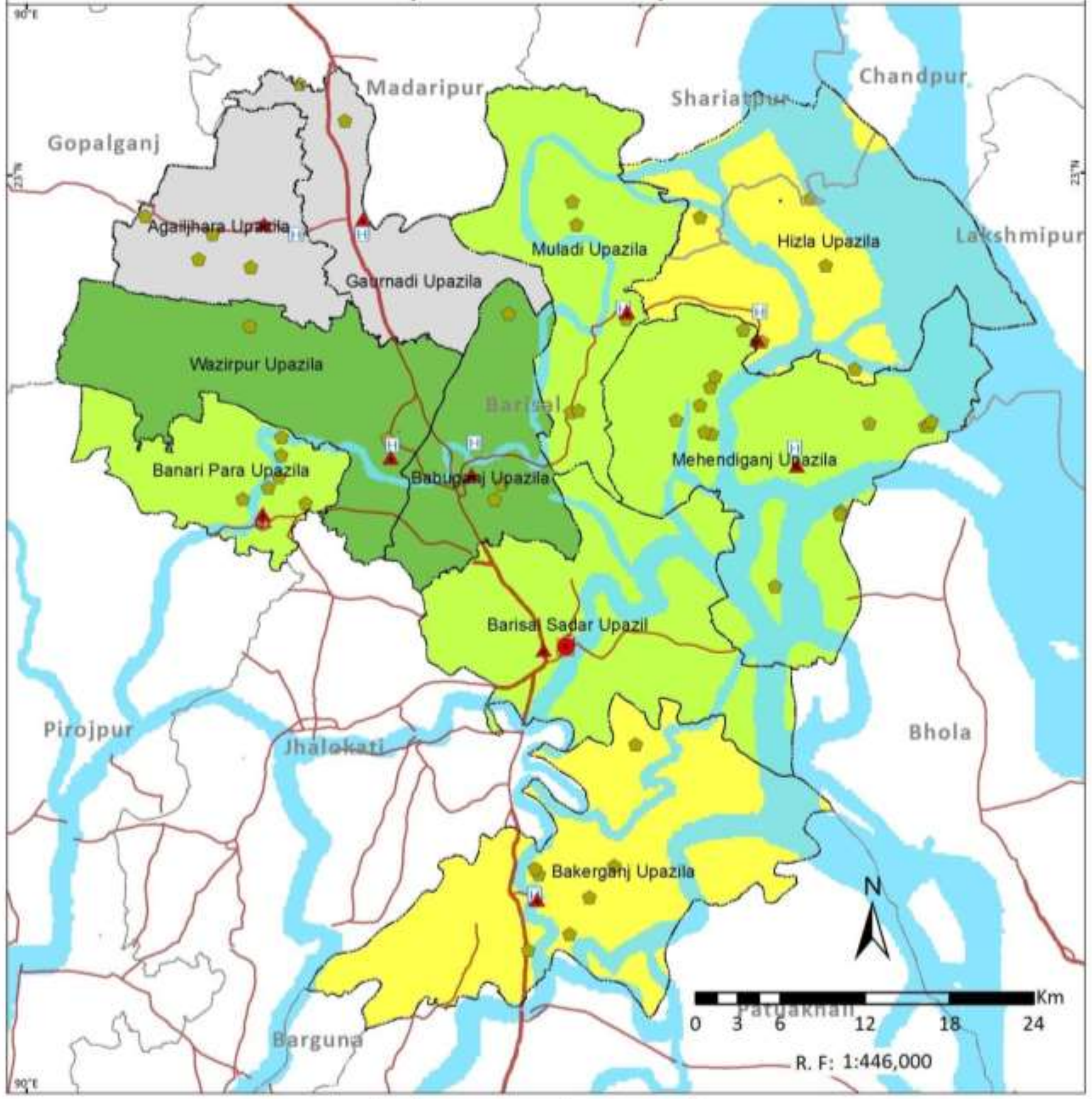
Population Exposure map of 25 Year Return Period (Barguna District)



Population Exposure map of 25 Year Return Period (Barisal District)



Legend

Country Boundary	Division Head Quarter	**Category Of Exposure**
Division Boundary	District Head Quarter	Not Exposed
District Boundary	Upazila Headquarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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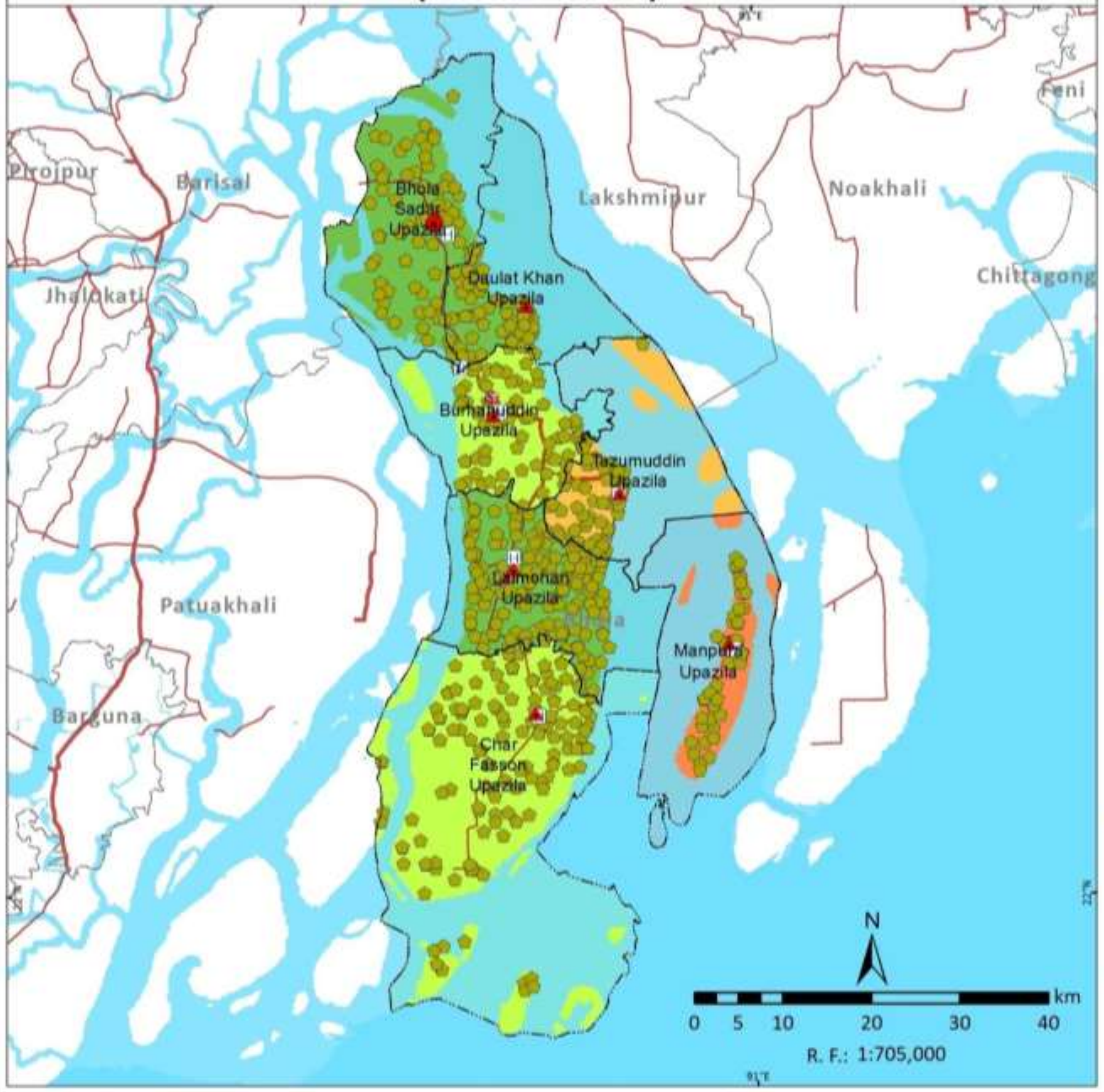
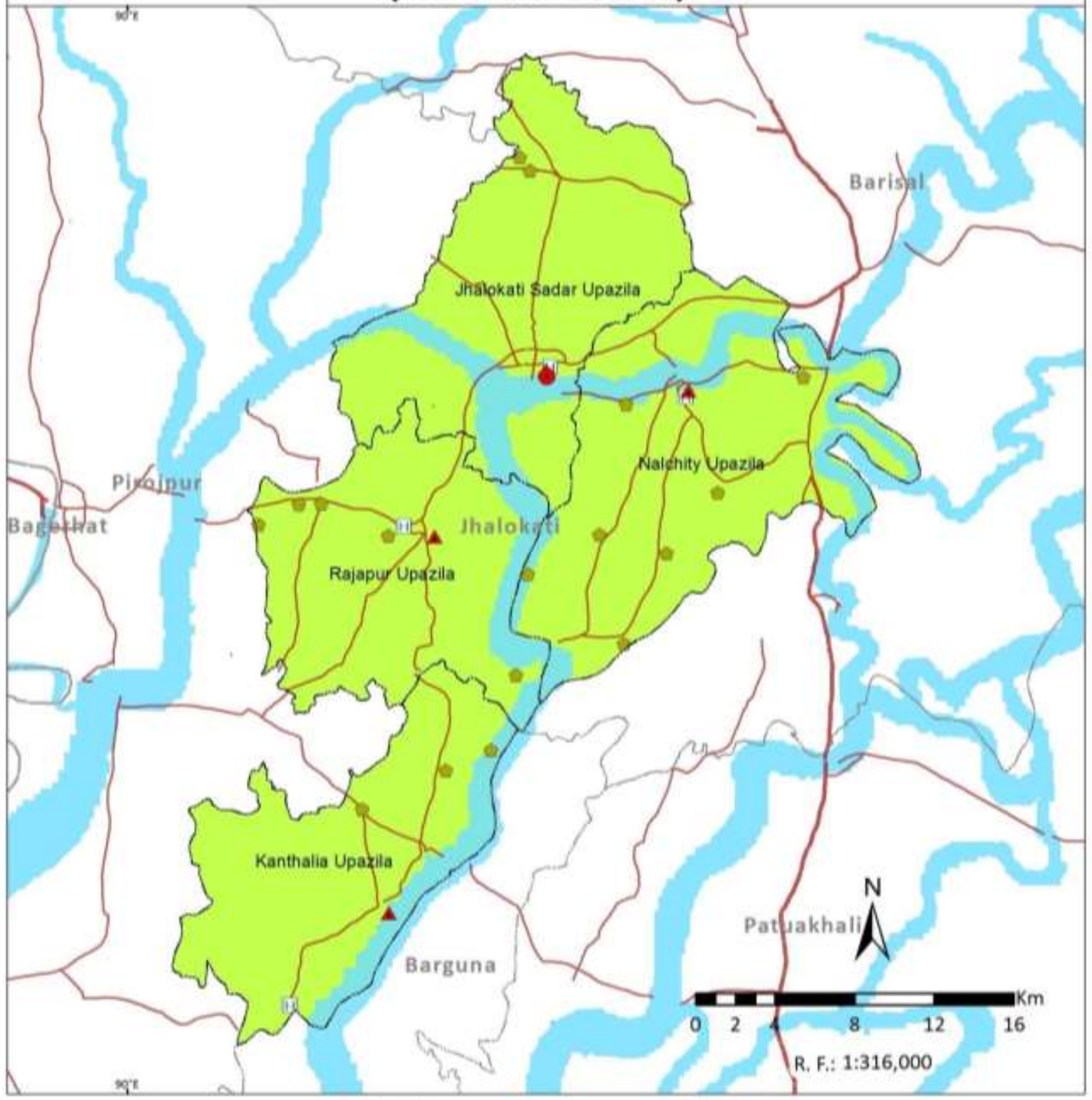
Population Exposure map of 25 Year Return Period
(Bhola District)



Population Exposure map of 25 Year Return Period
(Jhalokati District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quater
- Upazila Head Quater
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Category Of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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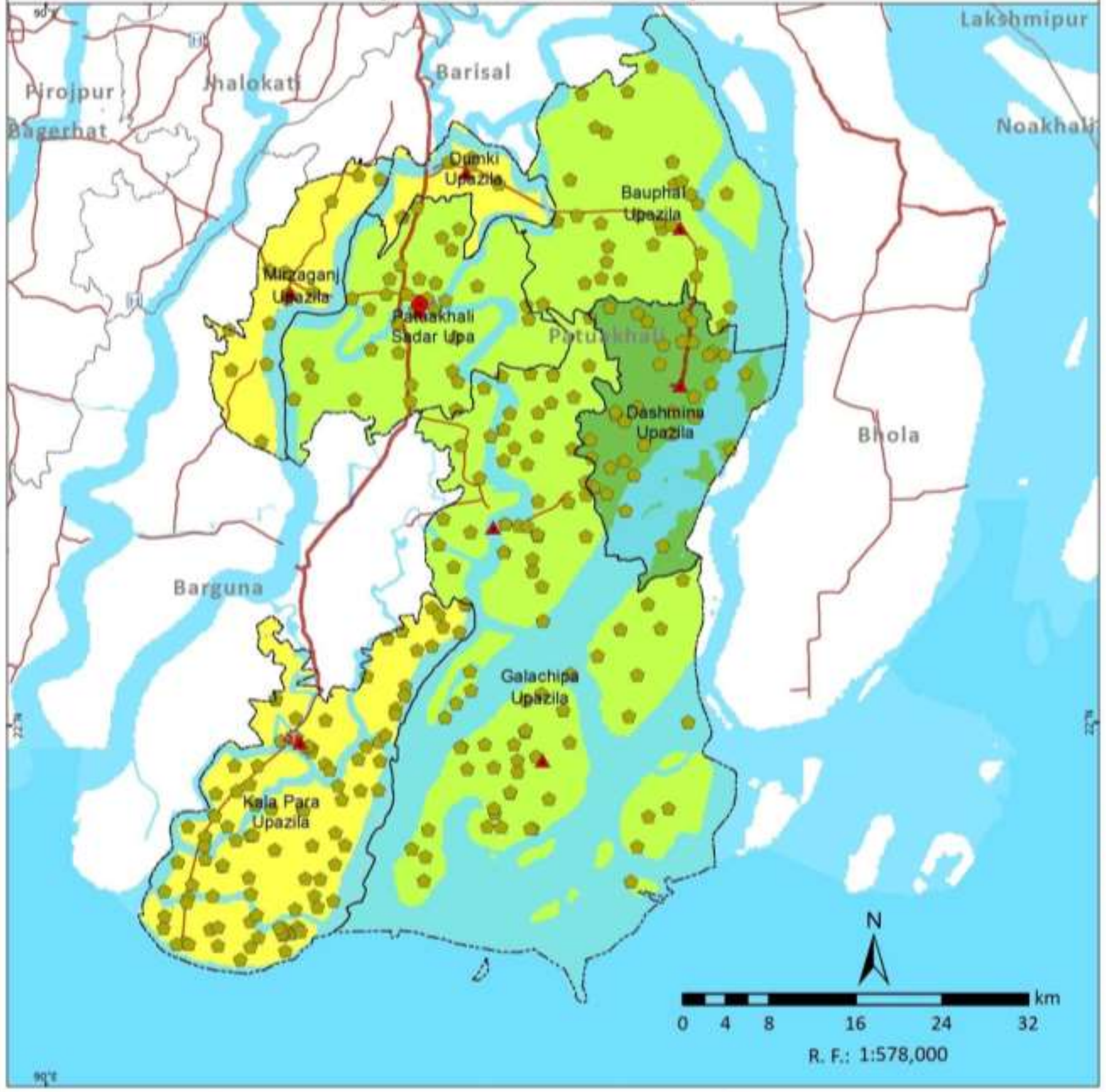
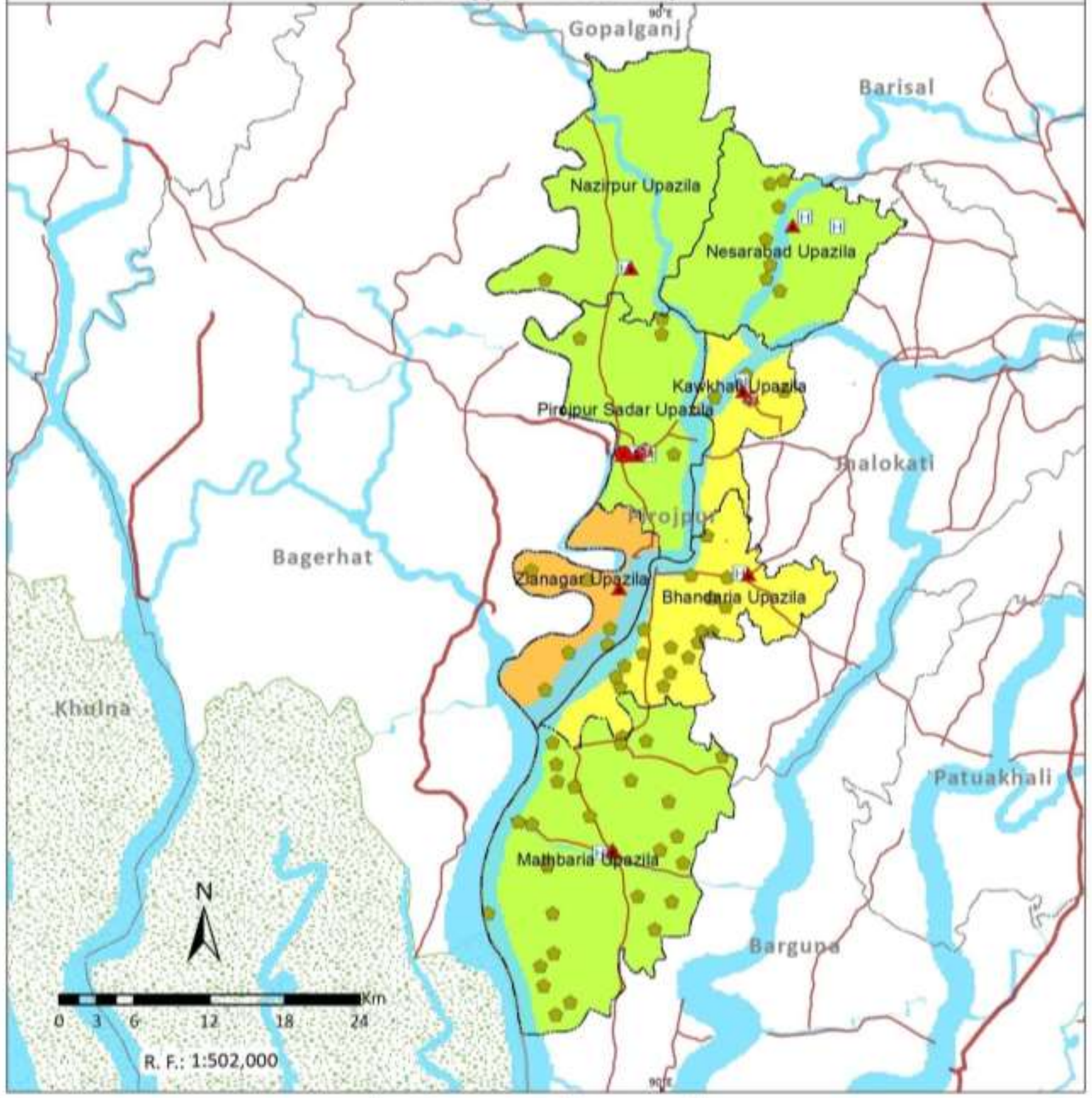
Population Exposure map of 25 Year Return Period
(Patuakhali District)



Population Exposure map of 25 Year Return Period
(Pirojpur District)



Legend

Country Boundary	District Head Quarter	**Category Of Exposure**
Division Boundary	Upazila Head Quarter	Not Exposed
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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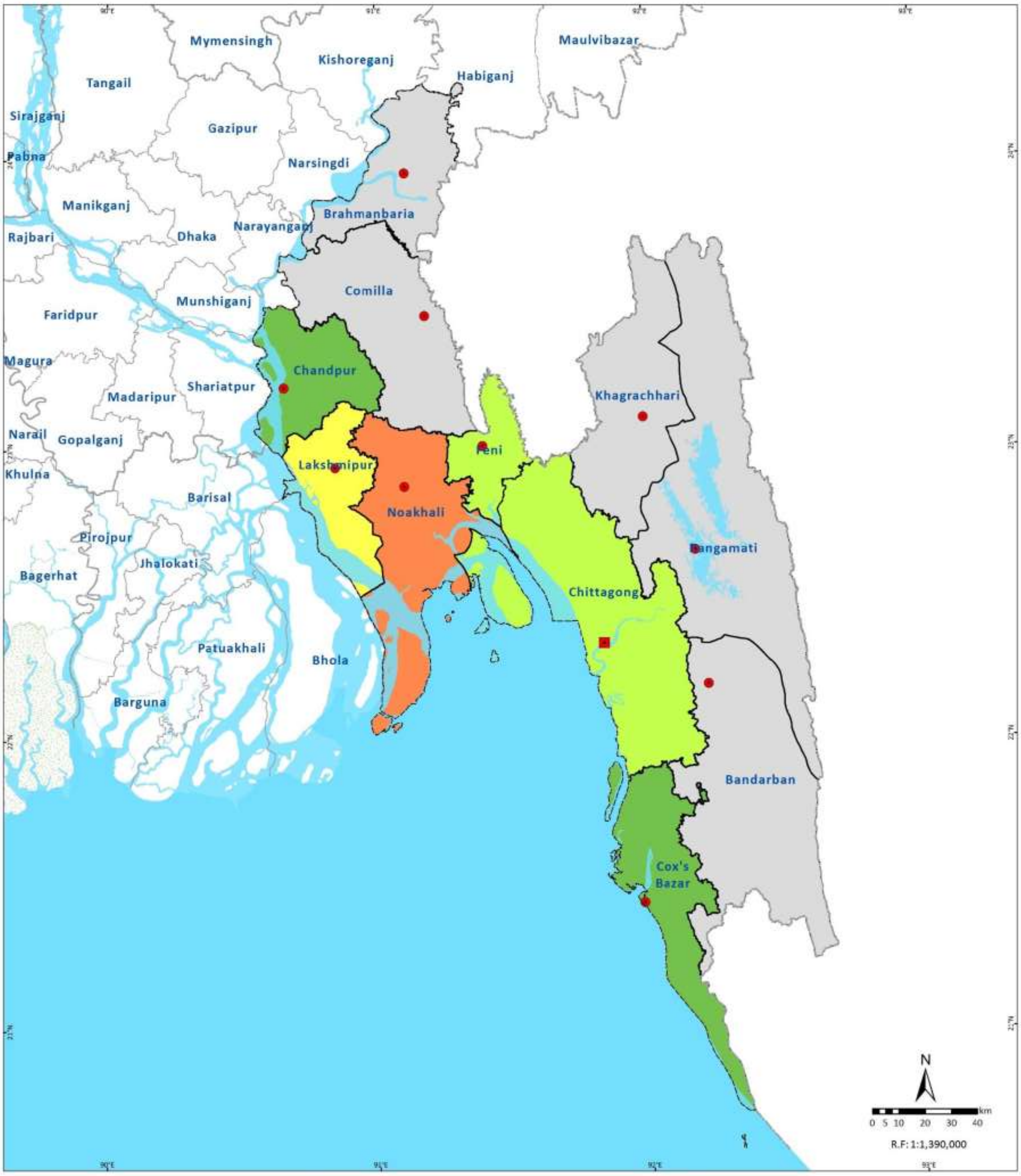
Population Exposure Map of 25 Year Return Period
(Chittagong Division)



Legend

Country Boundary		Category Of Exposure	
Division Boundary		Not Exposed	
District Boundary		Very Low	
Division Head Quarter		Low	
District Head Quarter		Moderate	
River/Sea/Lake		High	
Sundarbans		Very High	

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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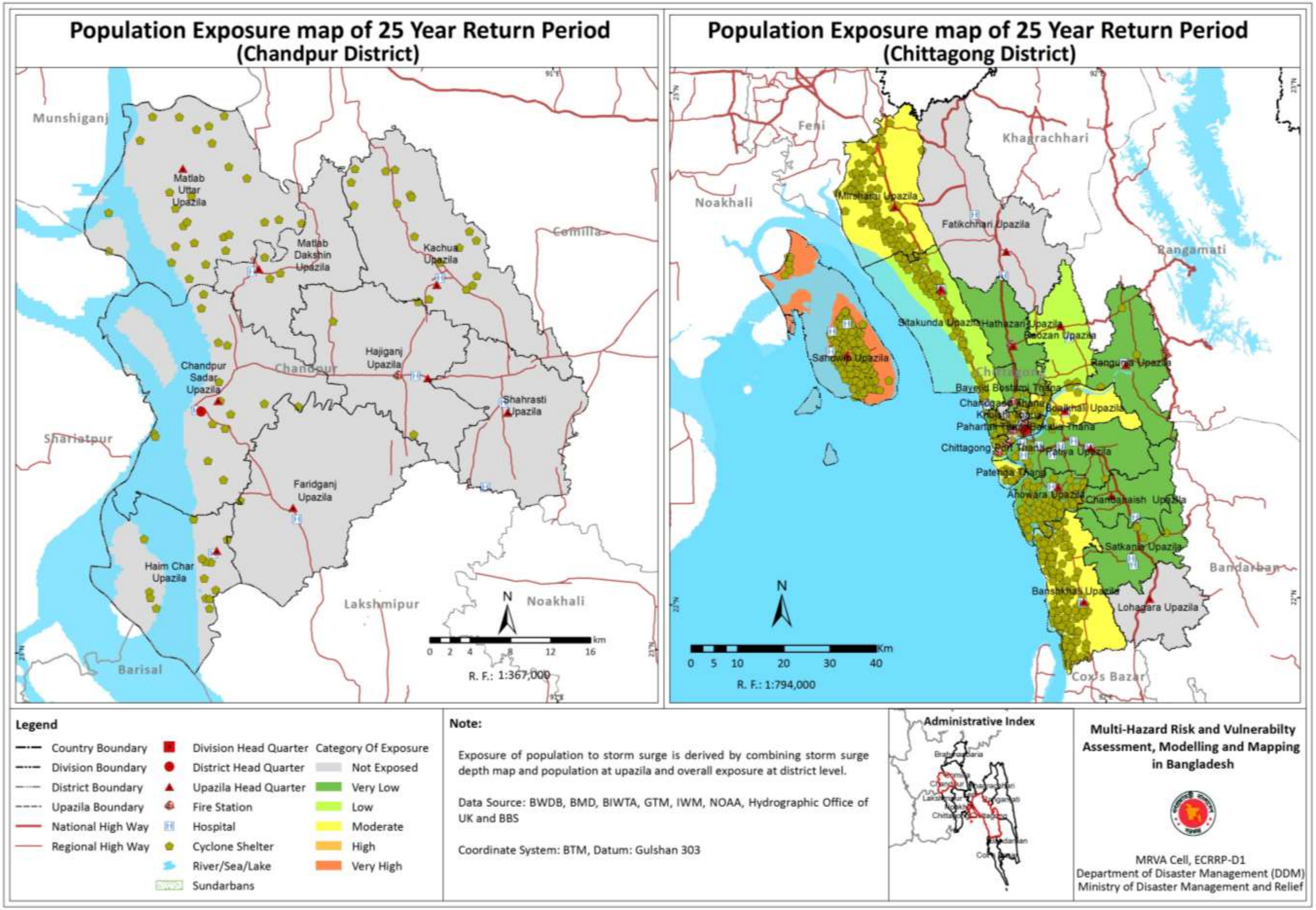
Population Exposure map of 25 Year Return Period
(Chandpur District)
Munshiganj
Matlab Uttar Upazila
Matlab Dakshin Upazila
Kachua Upazila
Comilla
Hajiganj Upazila
Chandpur
Chandpur Sadar Upazila
Shahrasti Upazila
Shariatpur
Faridganj Upazila
Haim Char Upazila
Lakshmipur
Noakhali
Barisal
0 2 4 8 12 16 km
R. F.: 1:367,000
Population Exposure map of 25 Year Return Period
(Chittagong District)
Feni
Khagrachhari
Noakhali
Mirsharai Upazila
Fatikchhari Upazila
Rangamati
Sitakunda Upazila
Hathazari Upazila
Raozan Upazila
Sandwip Upazila
Rangunia Upazila
Boalkhali Upazila
Chittagong Port Thana
Patiya Upazila
Patenga Thana
Anowara Upazila
Chandanaish Upazila
Satkania Upazila
Bandarban
Banshkhali Upazila
Lohagara Upazila
Cox's Bazar
0 5 10 20 30 40 Km
R. F.: 1:794,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category Of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
Note:
Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
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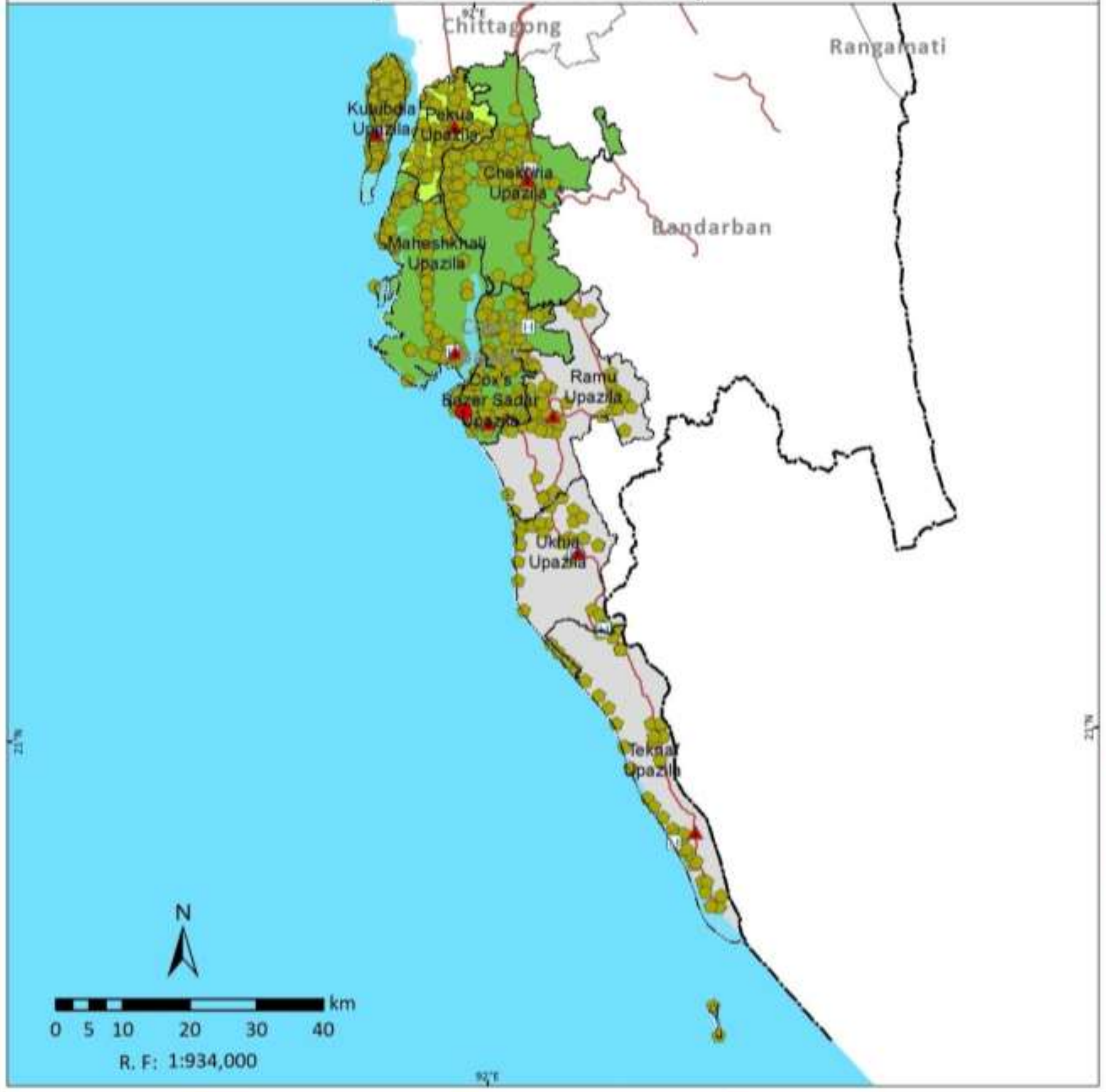
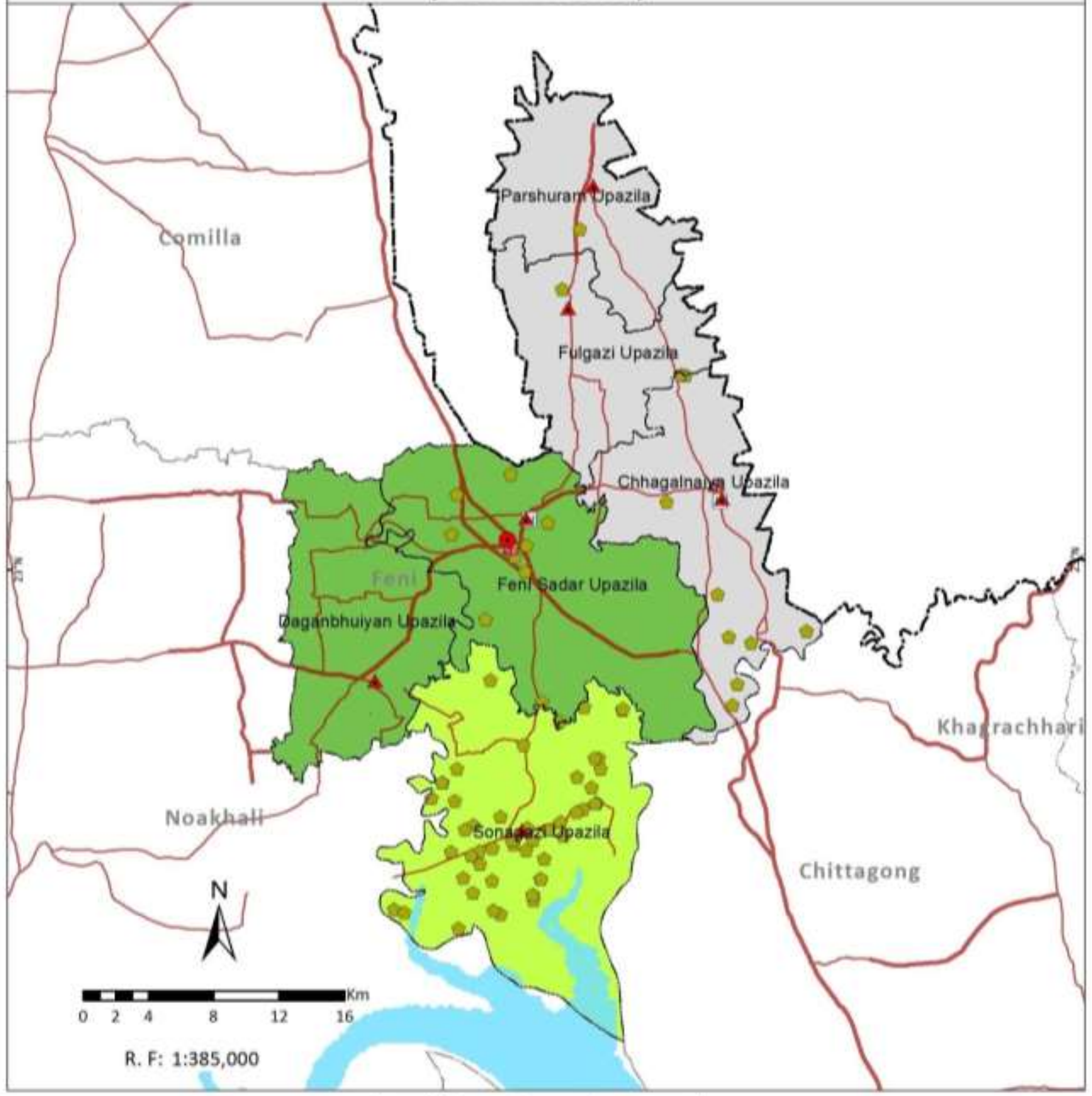
Population Exposure map of 25 Year Return Period
(Cox's Bazar District)



Population Exposure map of 25 Year Return Period
(Feni District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Category Of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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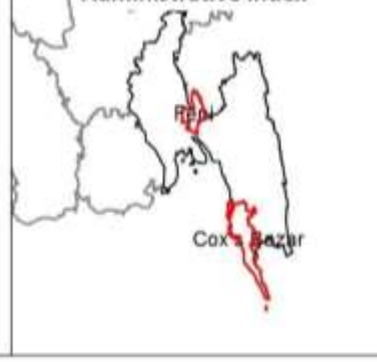

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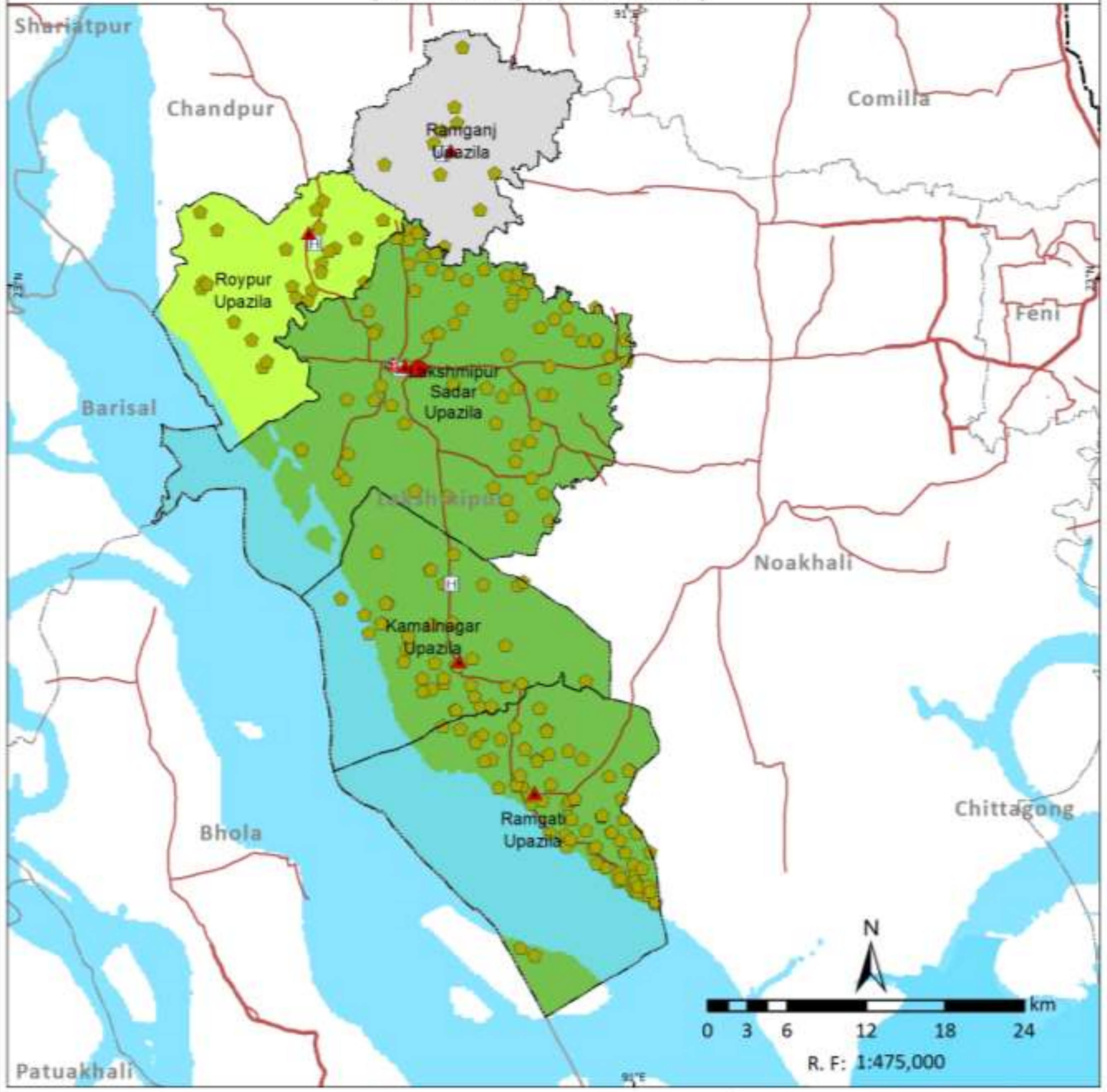
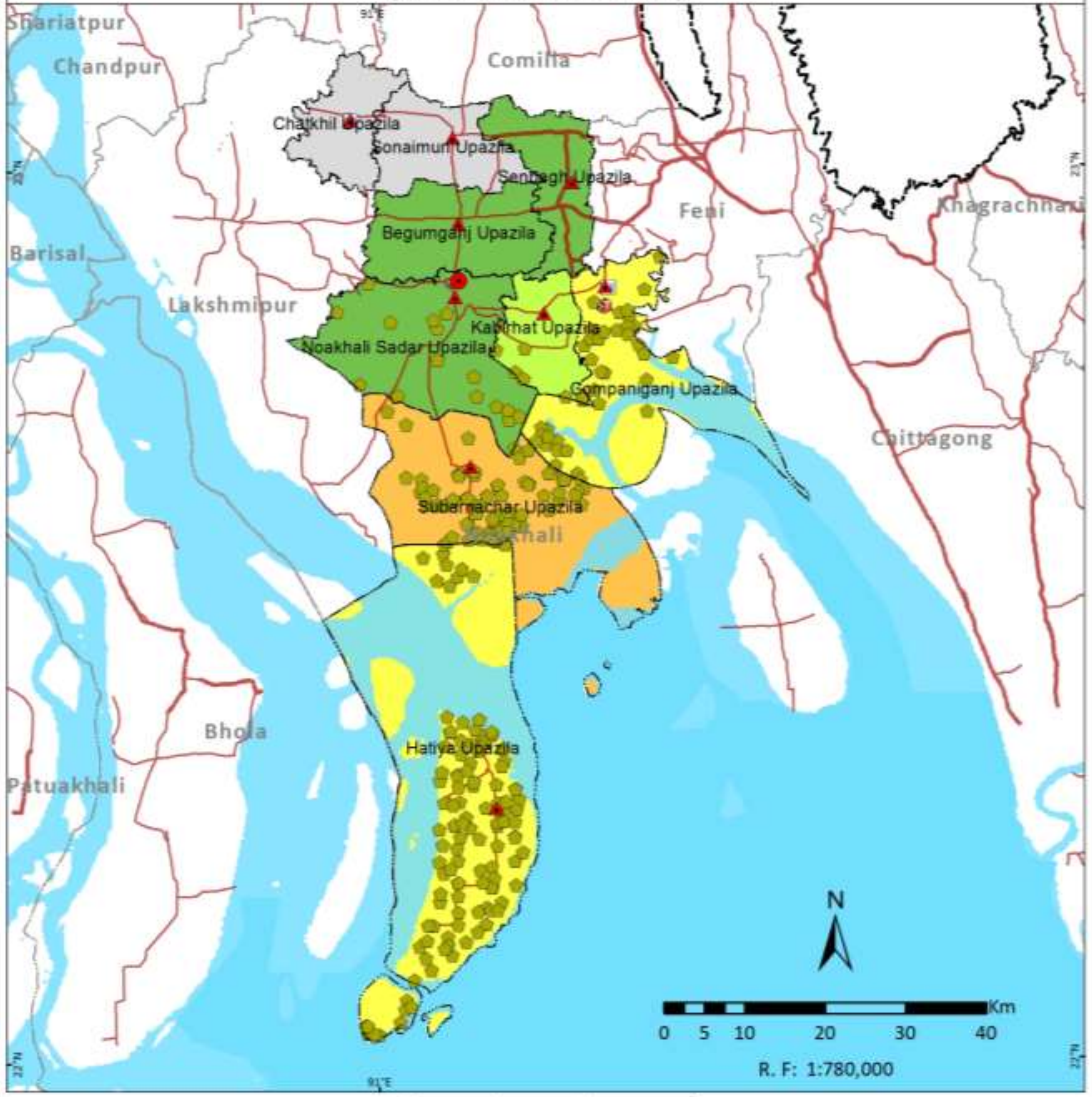
Population Exposure map of 25 Year Return Period
(Lakshmipur District)



Population Exposure map of 25 Year Return Period
(Noakhali District)



Legend

Country Boundary	District Head Quarter	**Category Of Exposure**
Division Boundary	Upazila Head Quarter	Not Exposed
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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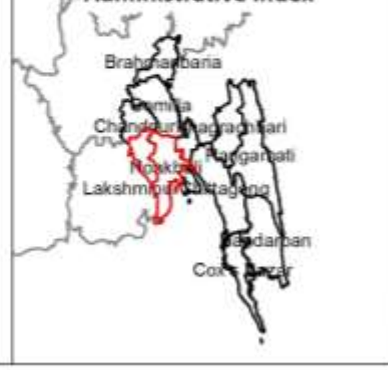

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Population Exposure Map of 25 Year Return Period
(Dhaka Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Category Of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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Rangpur, Mymensingh, Sylhet, Rajshahi, Dhaka, Khulna, Barisal, Chittagong

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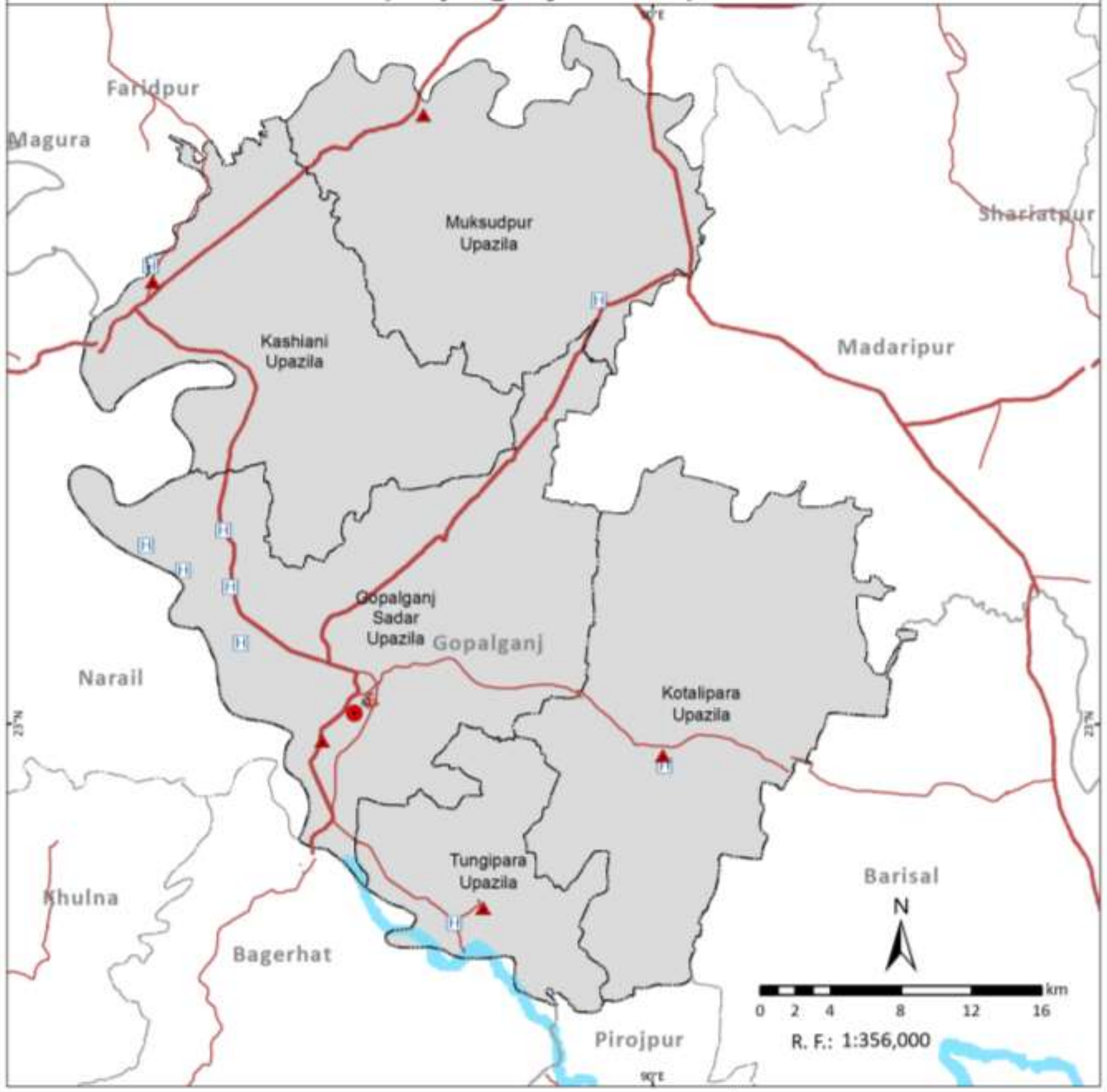
Population Exposure map of 25 Year Return Period (Gopalganj District)



Population Exposure map of 25 Year Return Period (Madaripur District)

Legend

Country Boundary	District Head Quarter	**Category Of Exposure**
Division Boundary	Upazila Head Quarter	Not Exposed
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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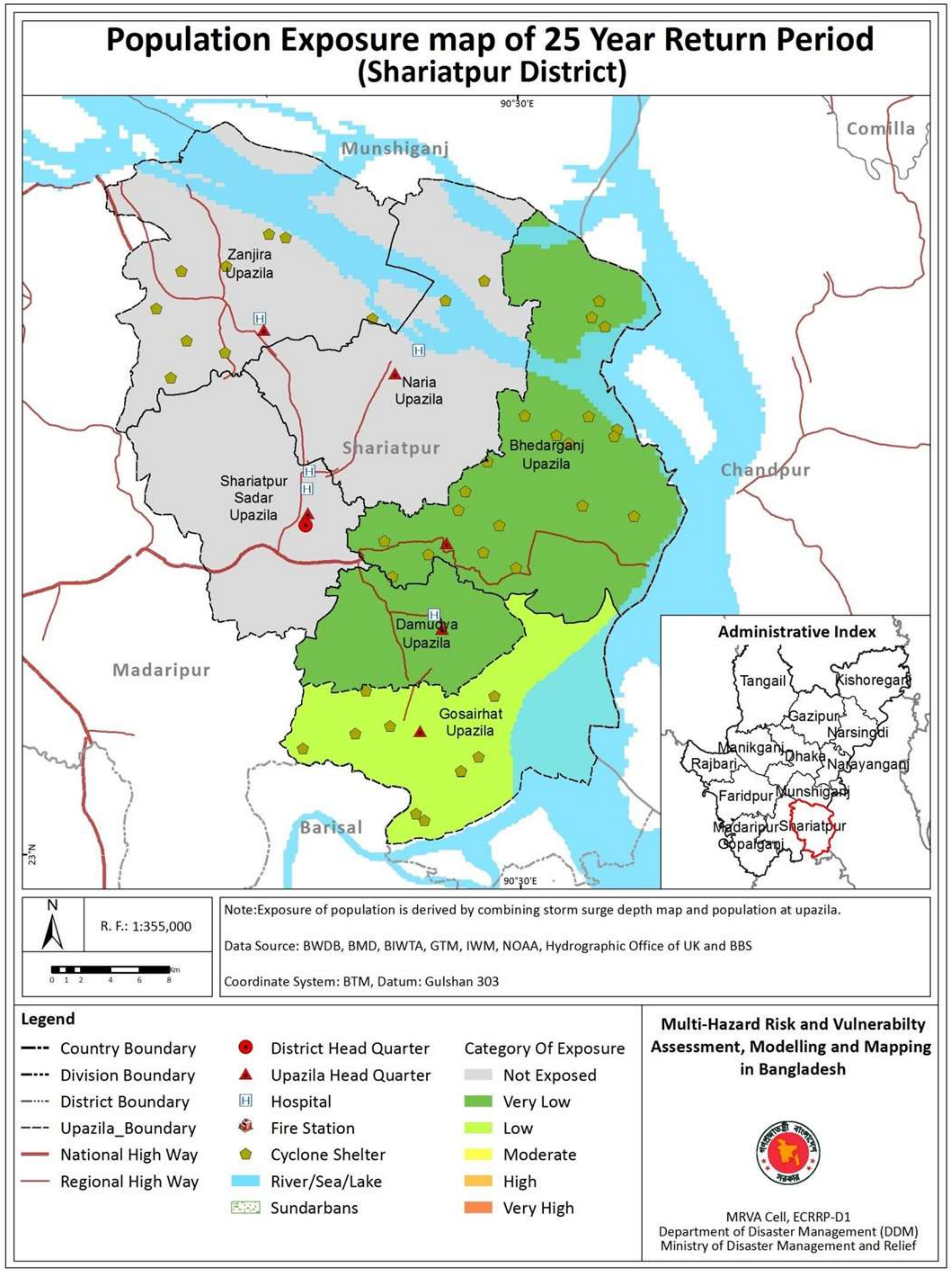
Population Exposure map of 25 Year Return Period
(Shariatpur District)
90°30'E
Munshiganj
Comilla
Zanjira Upazila
Naria Upazila
Shariatpur
Bhedarganj Upazila
Chandpur
Shariatpur Sadar Upazila
Damudya Upazila
Gosairhat Upazila
Madaripur
Barisal
23°N
Administrative Index
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Dhaka
Narayanganj
Rajbari
Faridpur
Munshiganj
Madaripur
Shariatpur
Gopalganj
N
R. F.: 1:355,000
Note:Exposure of population is derived by combining storm surge depth map and population at upazila.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Hospital
Fire Station
Cyclone Shelter
River/Sea/Lake
Sundarbans
Category Of Exposure
Not Exposed
Very Low
Low
Moderate
High
Very High
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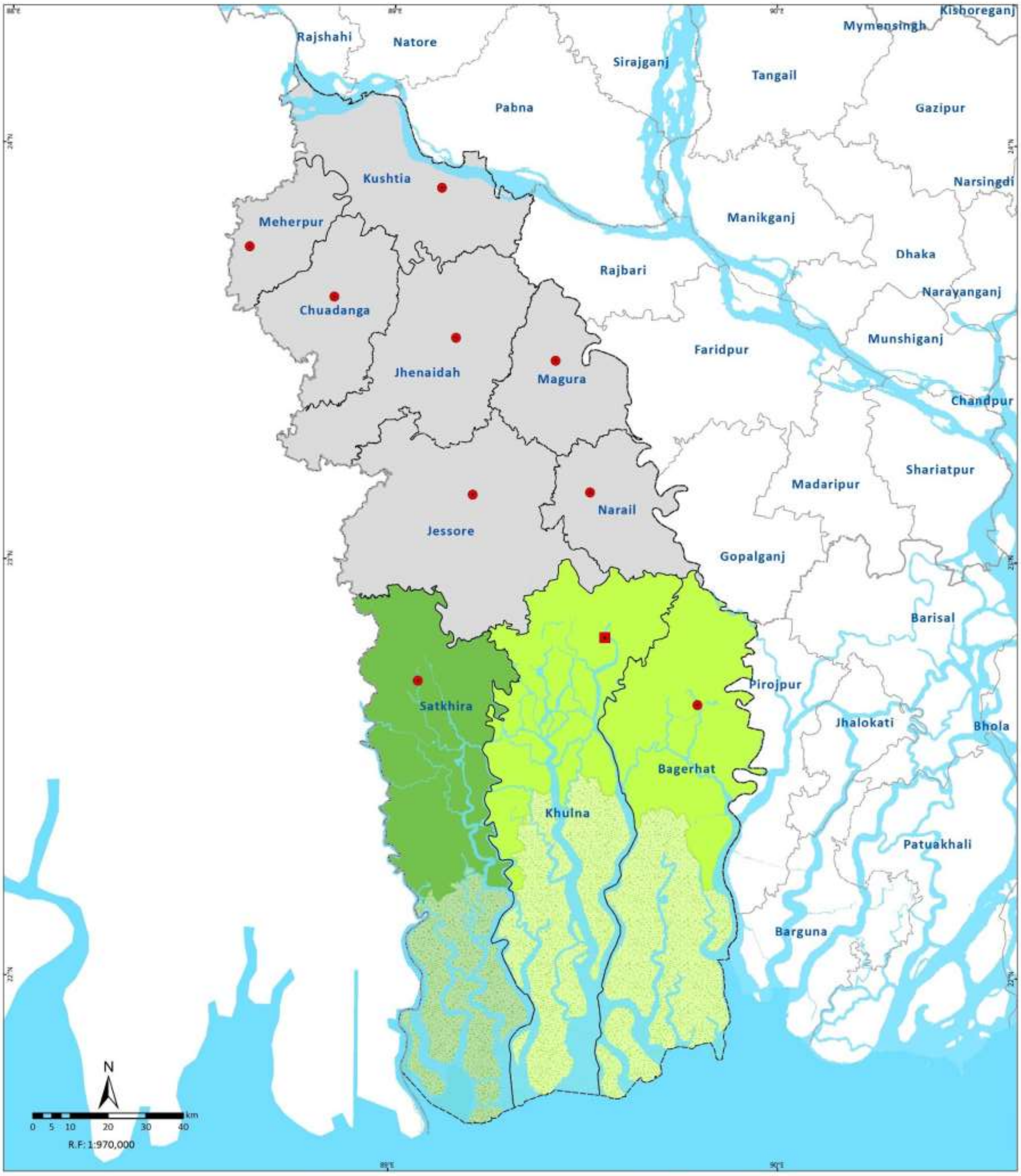
Population Exposure Map of 25 Year Return Period
(Khulna Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Category Of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:
Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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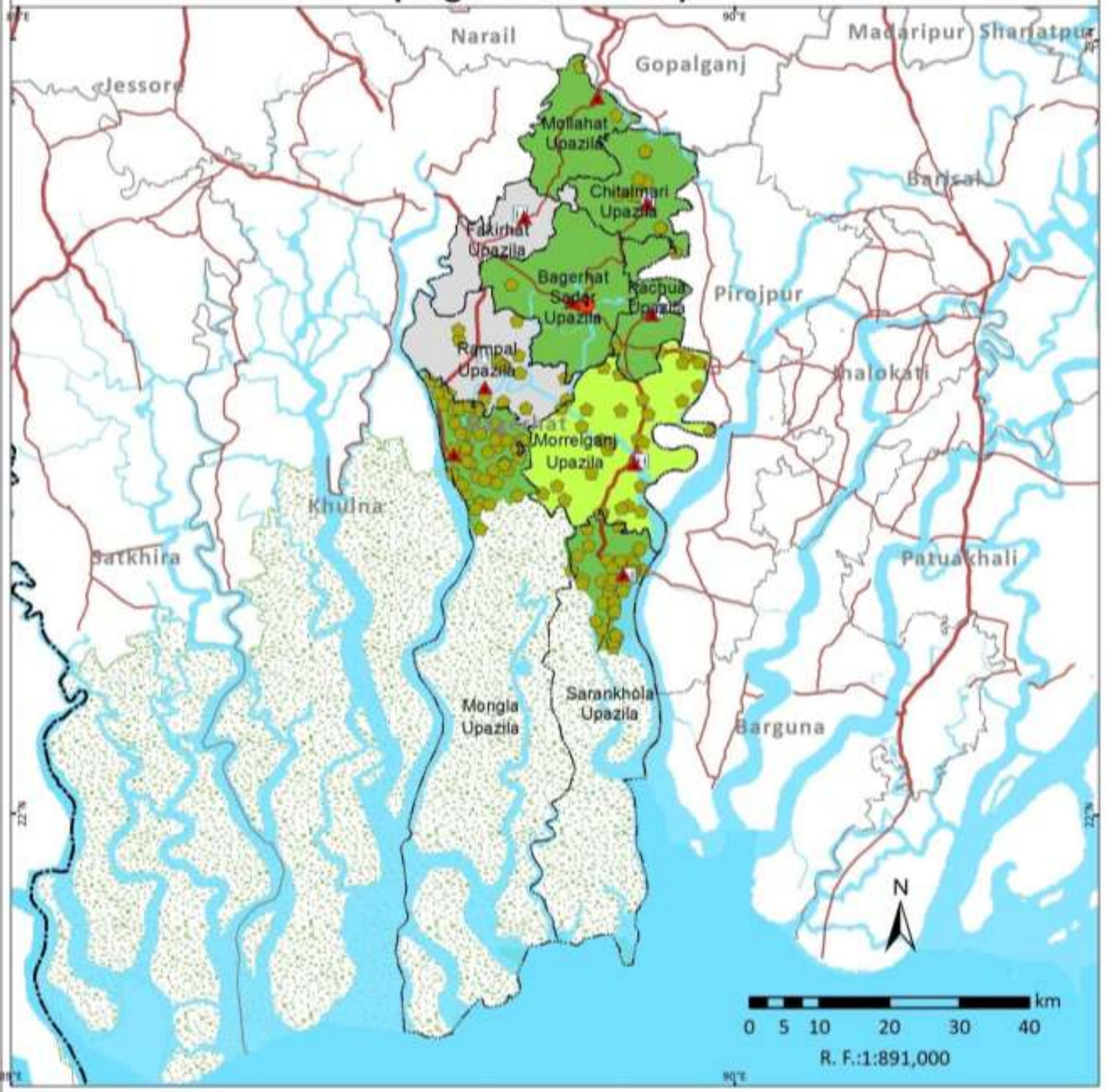
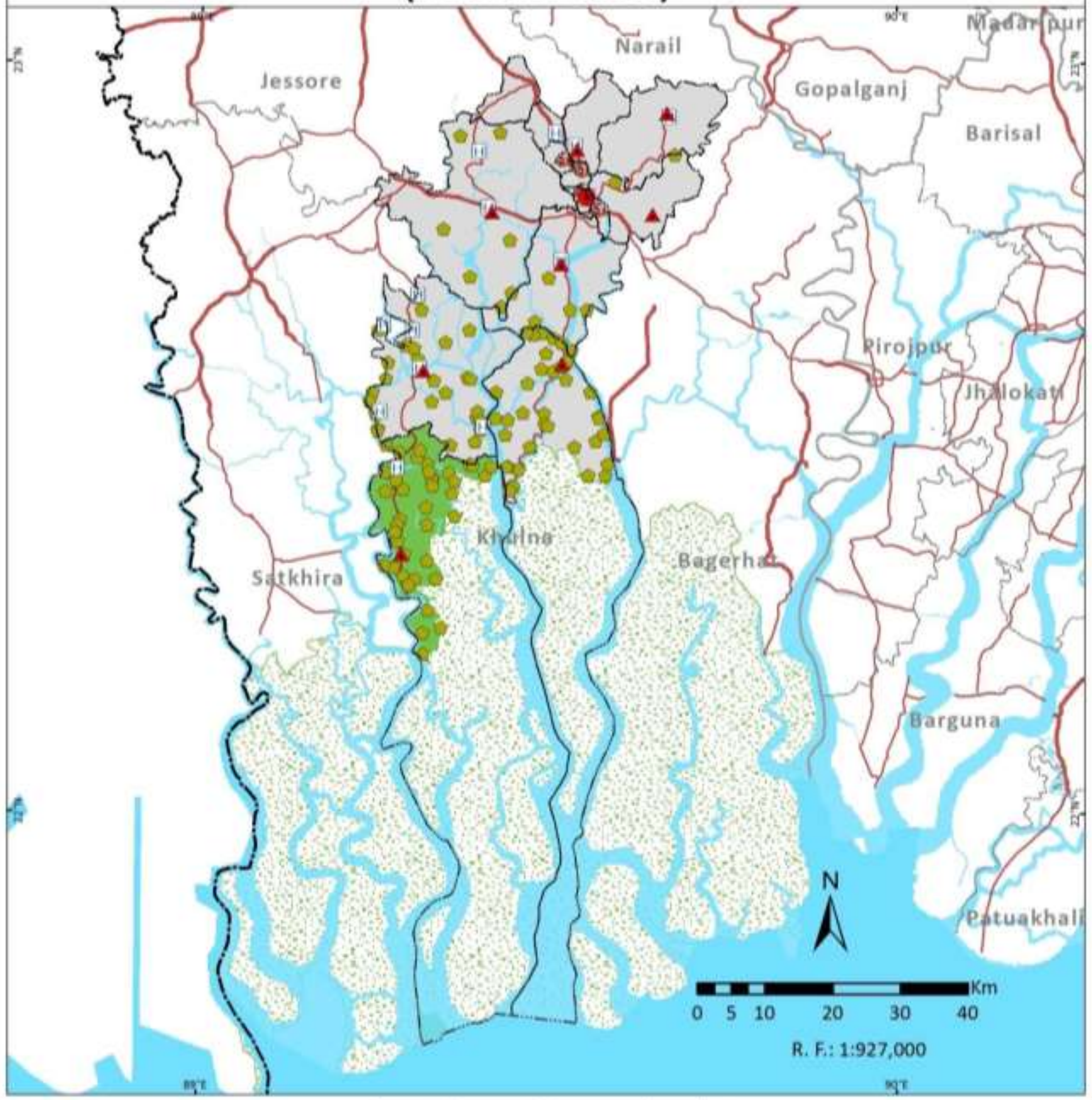
Population Exposure map of 25 Year Return Period
(Bagerhat District)



Population Exposure map of 25 Year Return Period
(Khulna District)



Legend

Country Boundary	Division Head Quarter	Category Of Exposure
Division Boundary	District Head Quarter	Not Exposed
District Boundary	Upazila Head Quarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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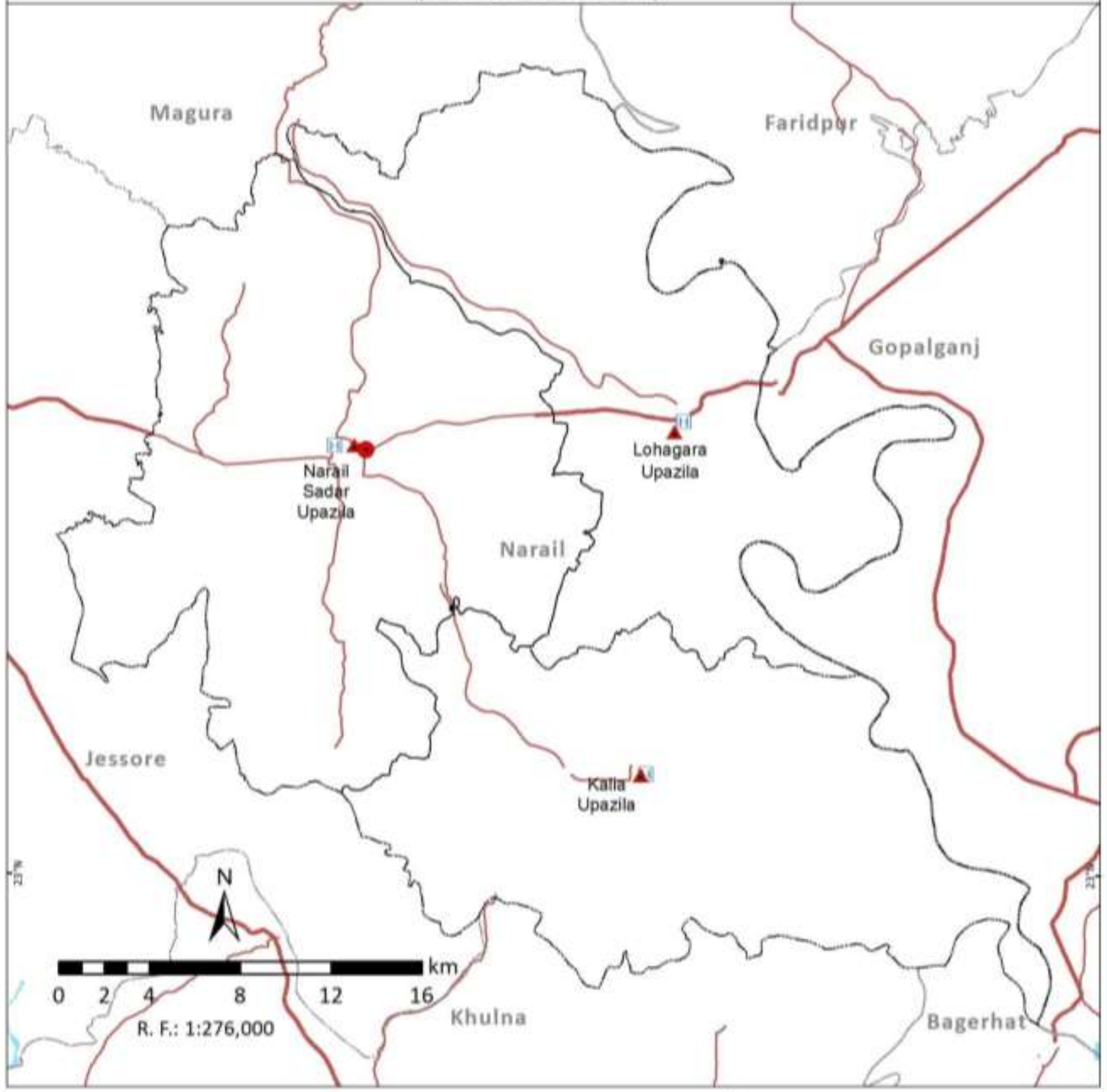
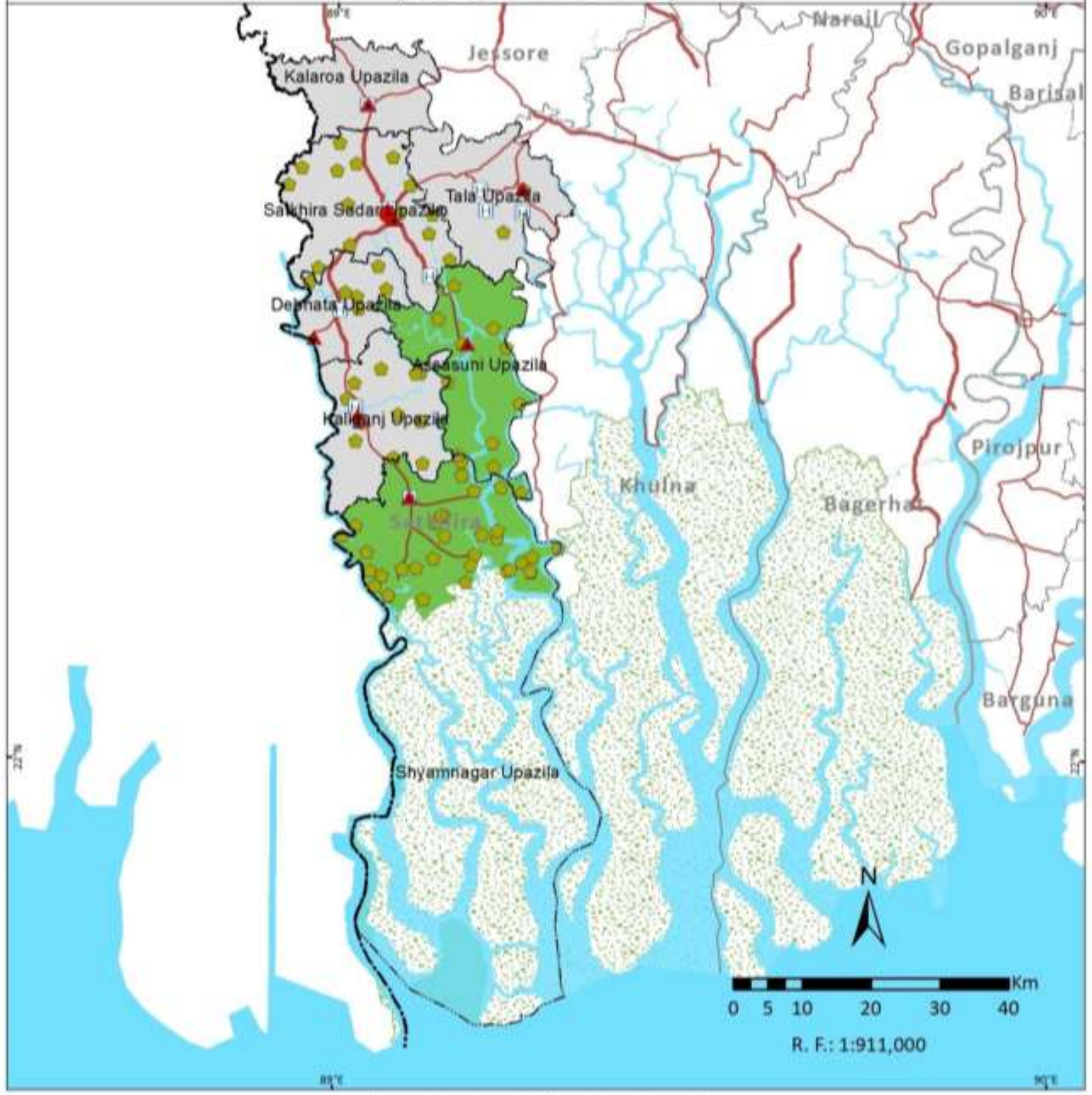
Population Exposure map of 25 Year Return Period
(Narail District)



Population Exposure map of 25 Year Return Period
(Satkhira District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Category Of Exposure

- Not Exposed
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Exposure of population to storm surge is derived by combining storm surge depth map and population at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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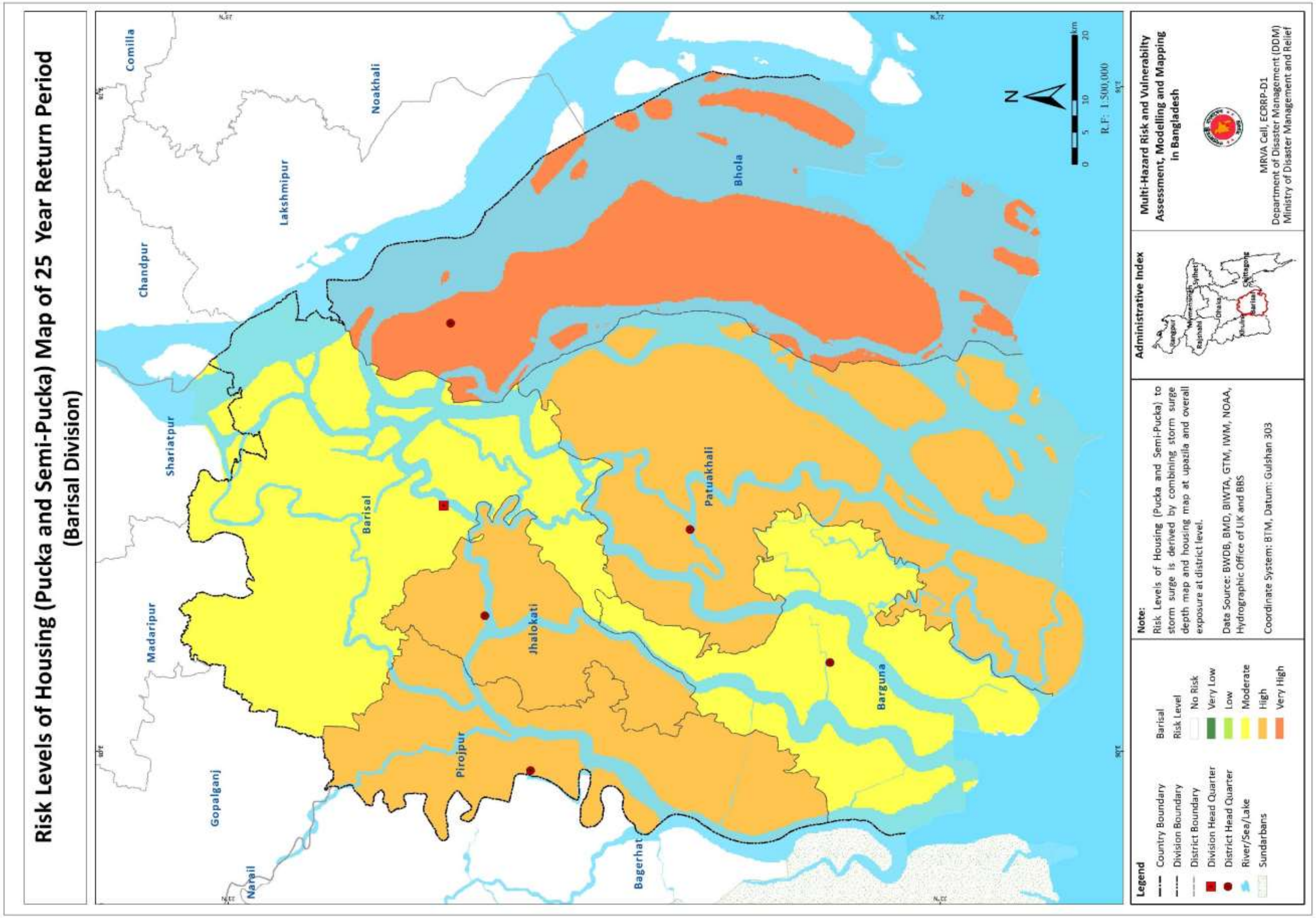
Risk Levels of Housing (Pucka and Semi-Pucka) Map of 25 Year Return Period
(Barisal Division)
Comilla
Noakhali
Chandpur
Lakshmipur
Bhola
Shariatpur
Barisal
Patuakhali
Madaripur
Jhalokati
Barguna
Pirojpur
Gopalganj
Narail
Bagerhat
N
0 5 10 20 km
R.F: 1:500,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Barisal
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Rangpur
Rajshahi
Mymensingh
Sylhet
Dhaka
Khulna
Barisal
Chittagong
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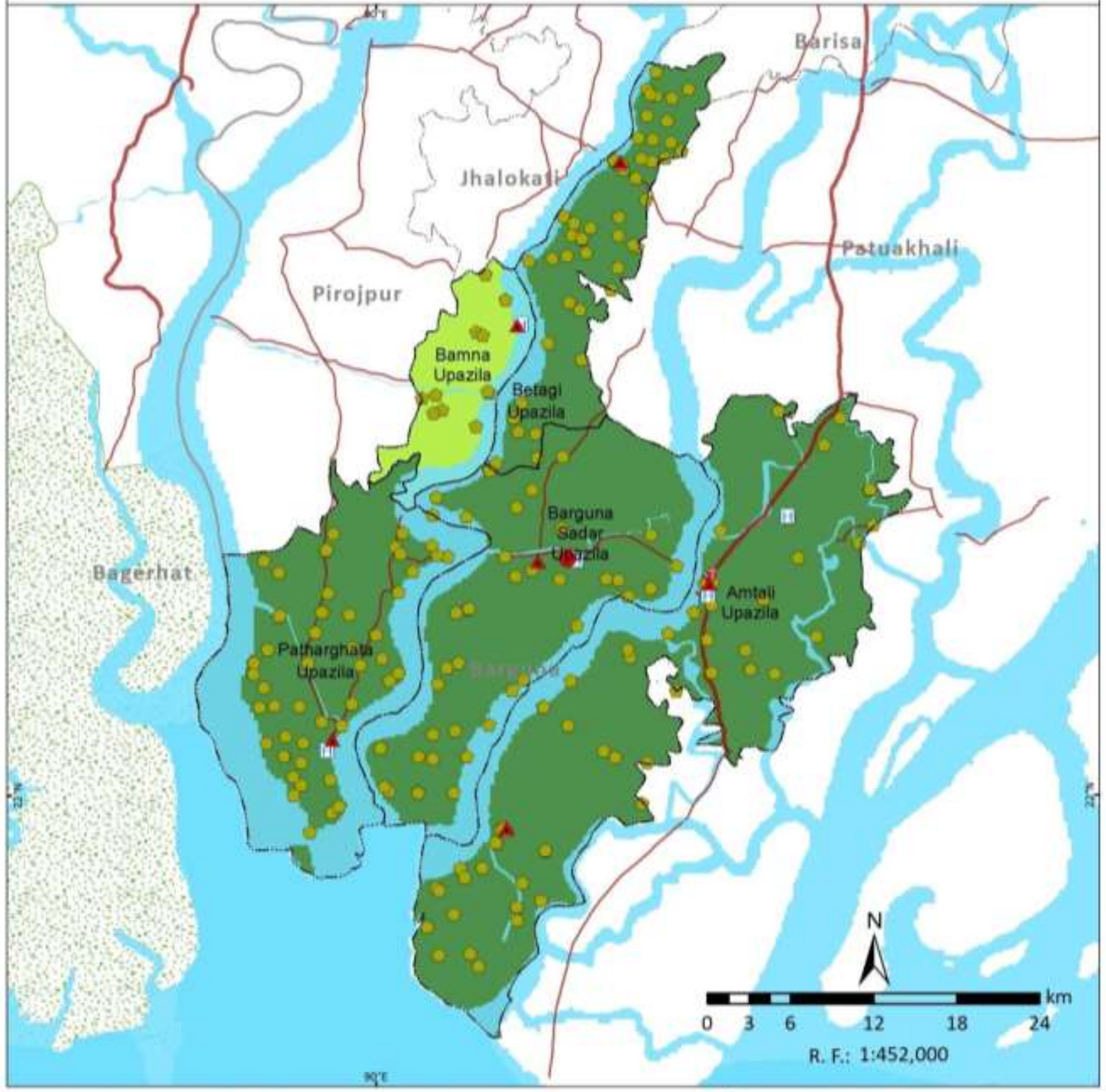
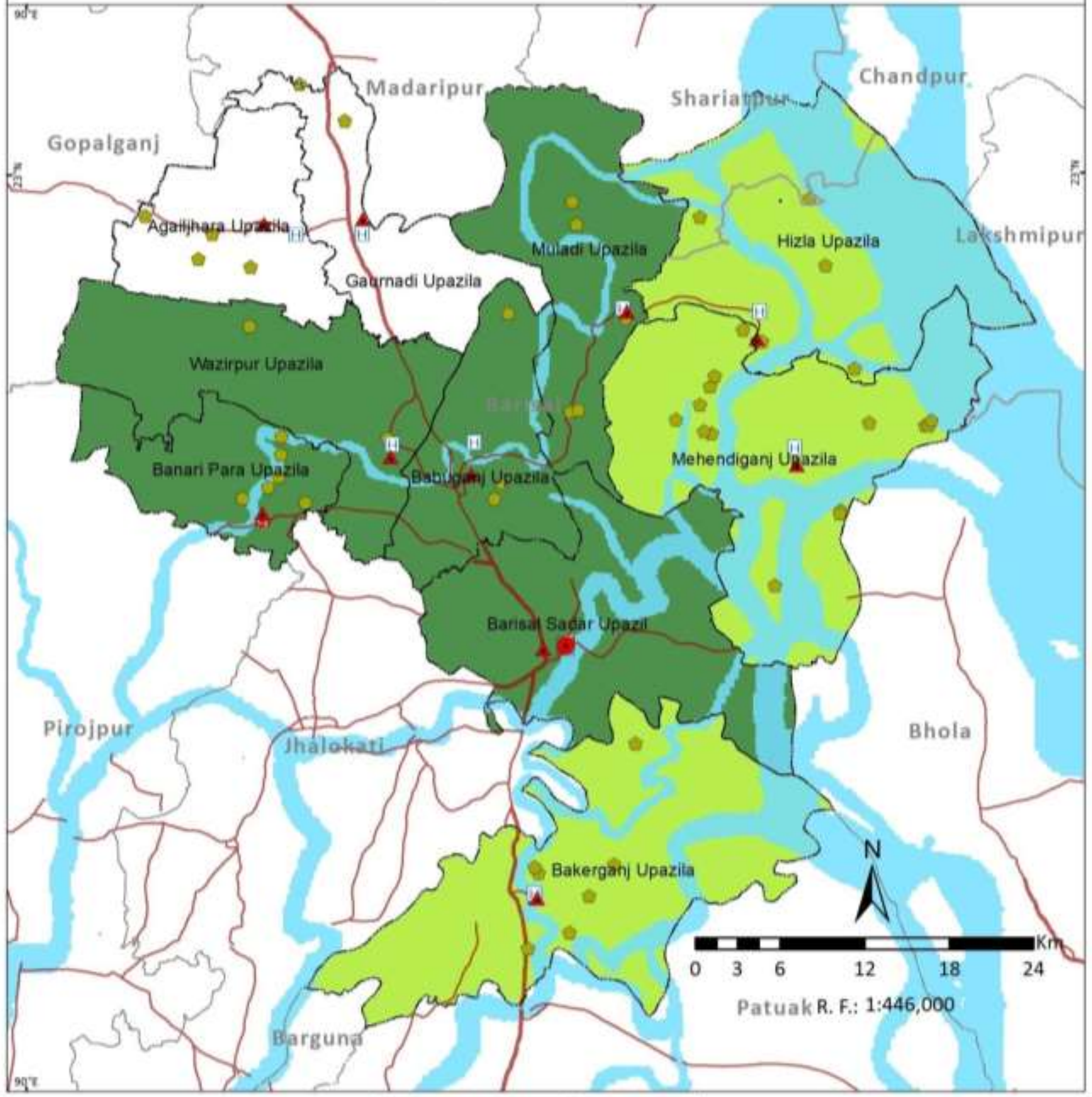
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Barguna District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Barisal District)



Legend

Country Boundary	Division Head Quarter	Risk Level
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Headquarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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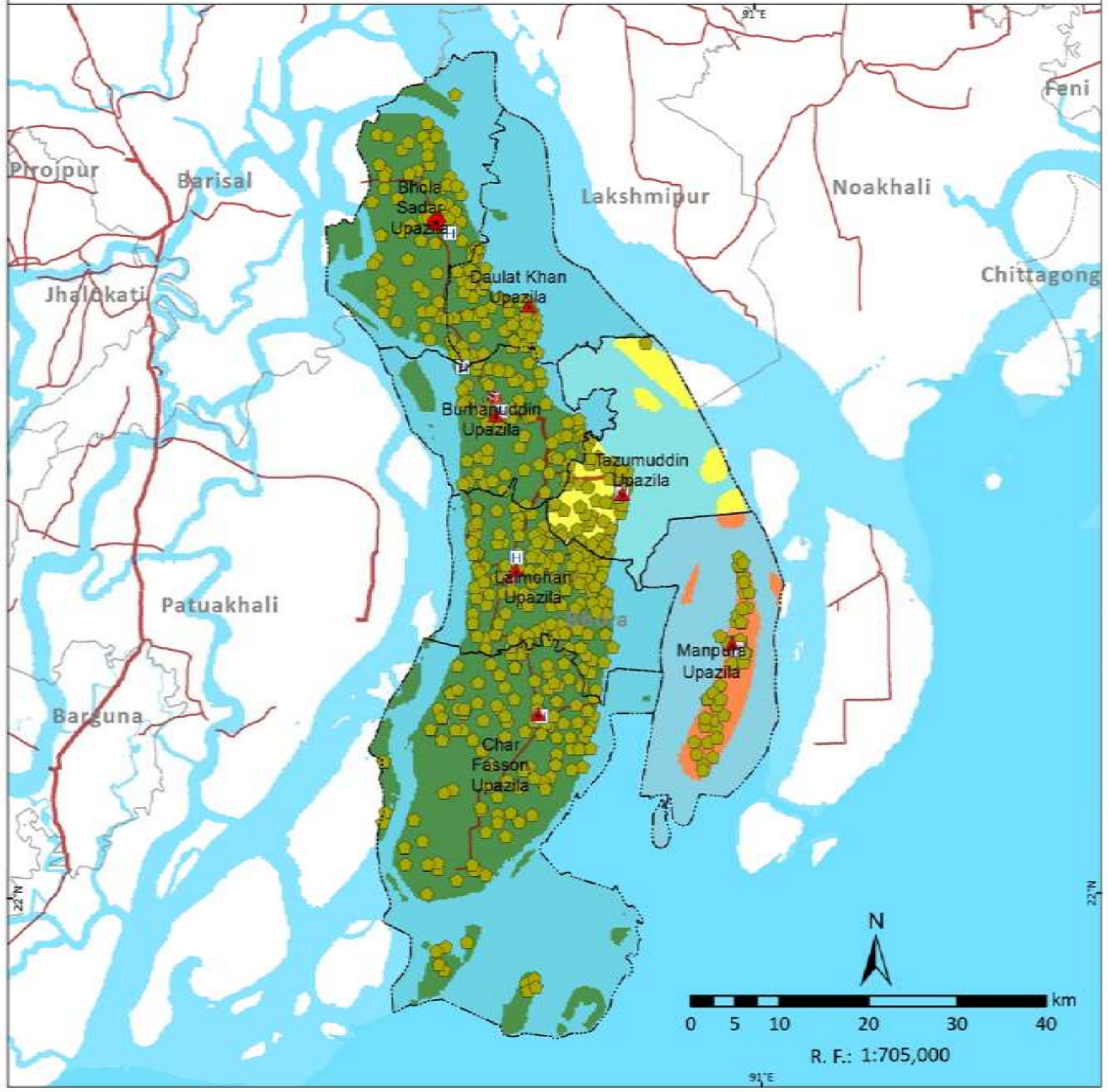
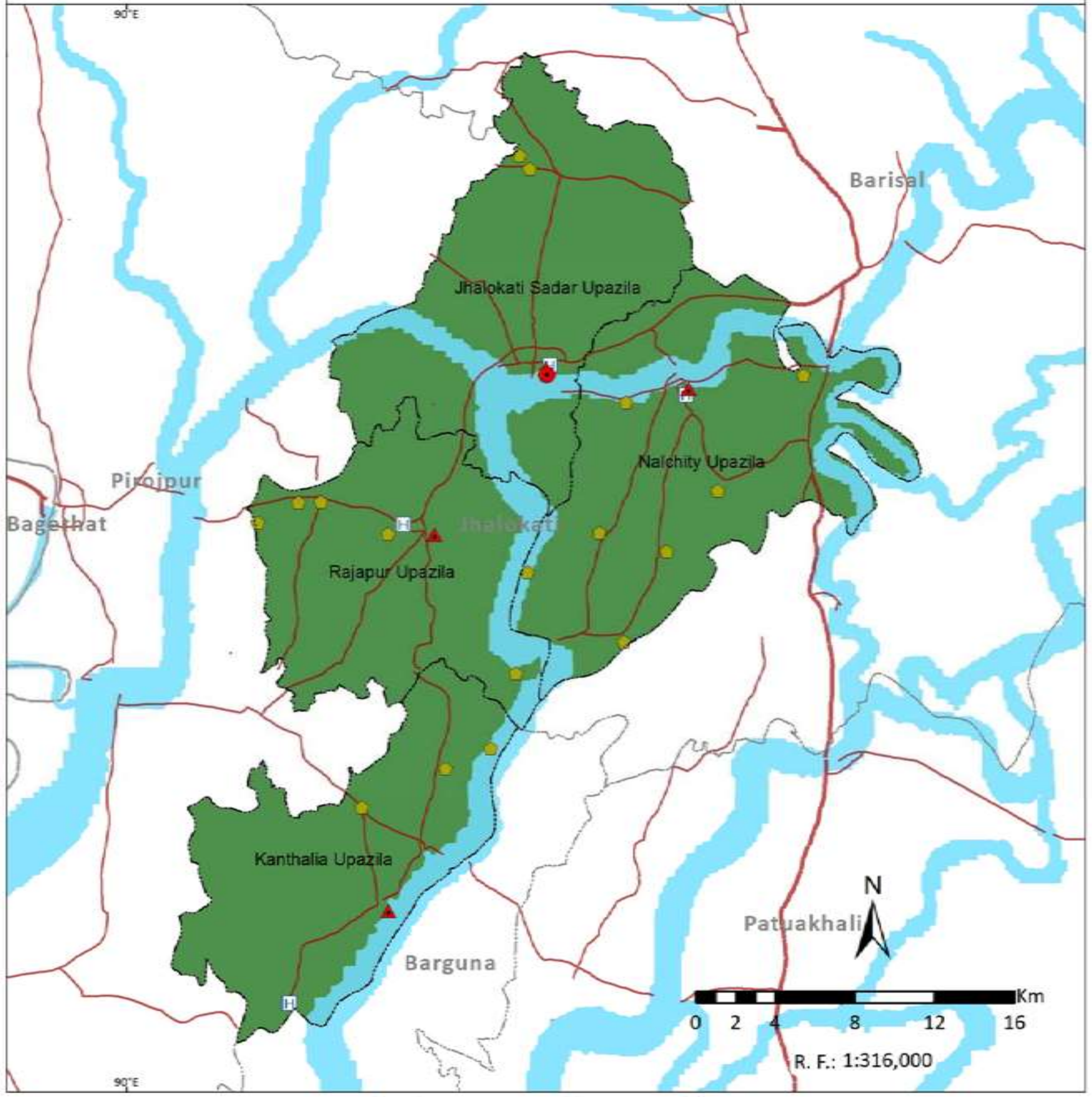
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Bhola District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Jhalokati District)



Legend

Country Boundary	District Head Quater	Risk Level
Division Boundary	Upazila Head Quater	No Risk
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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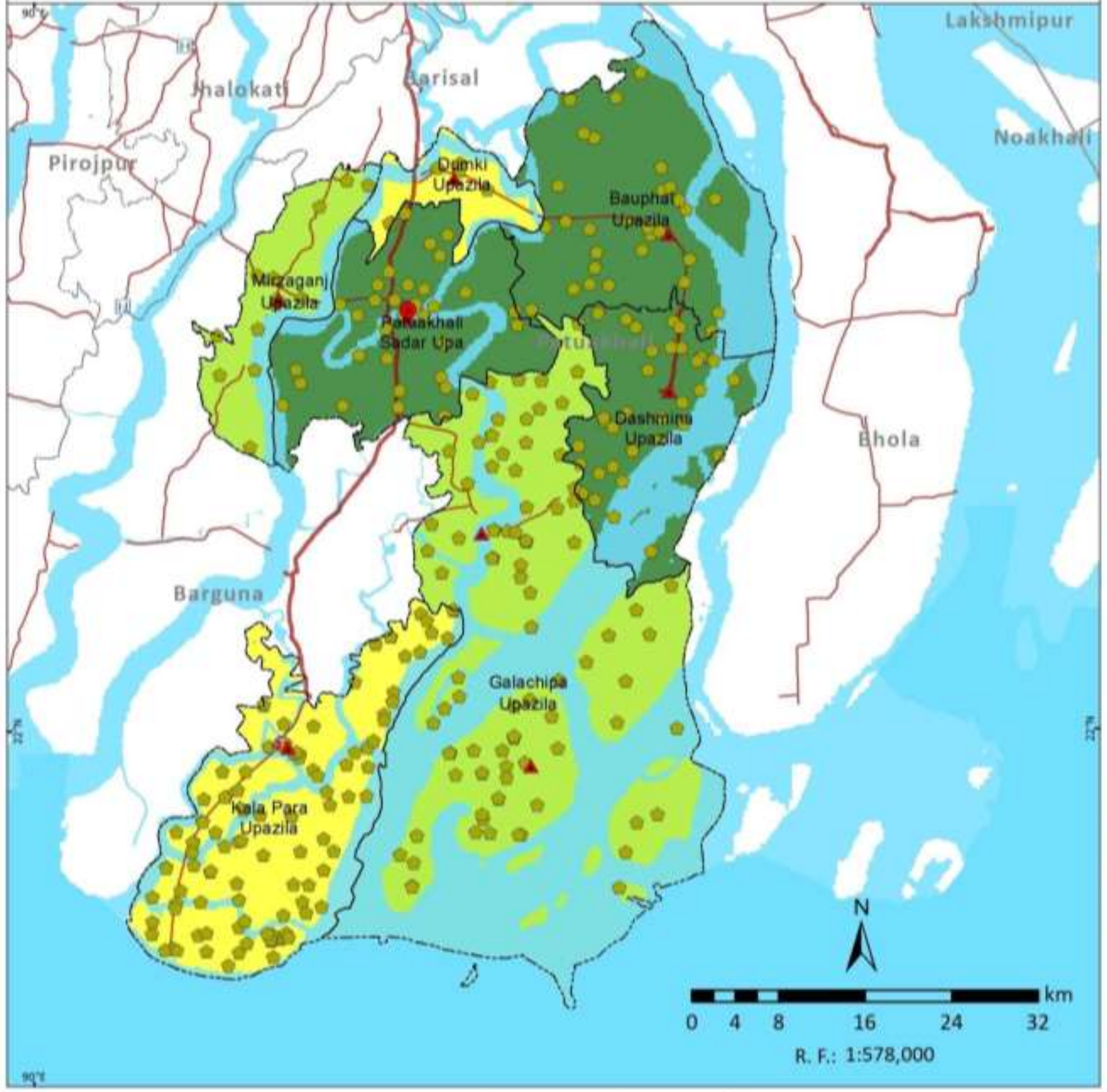
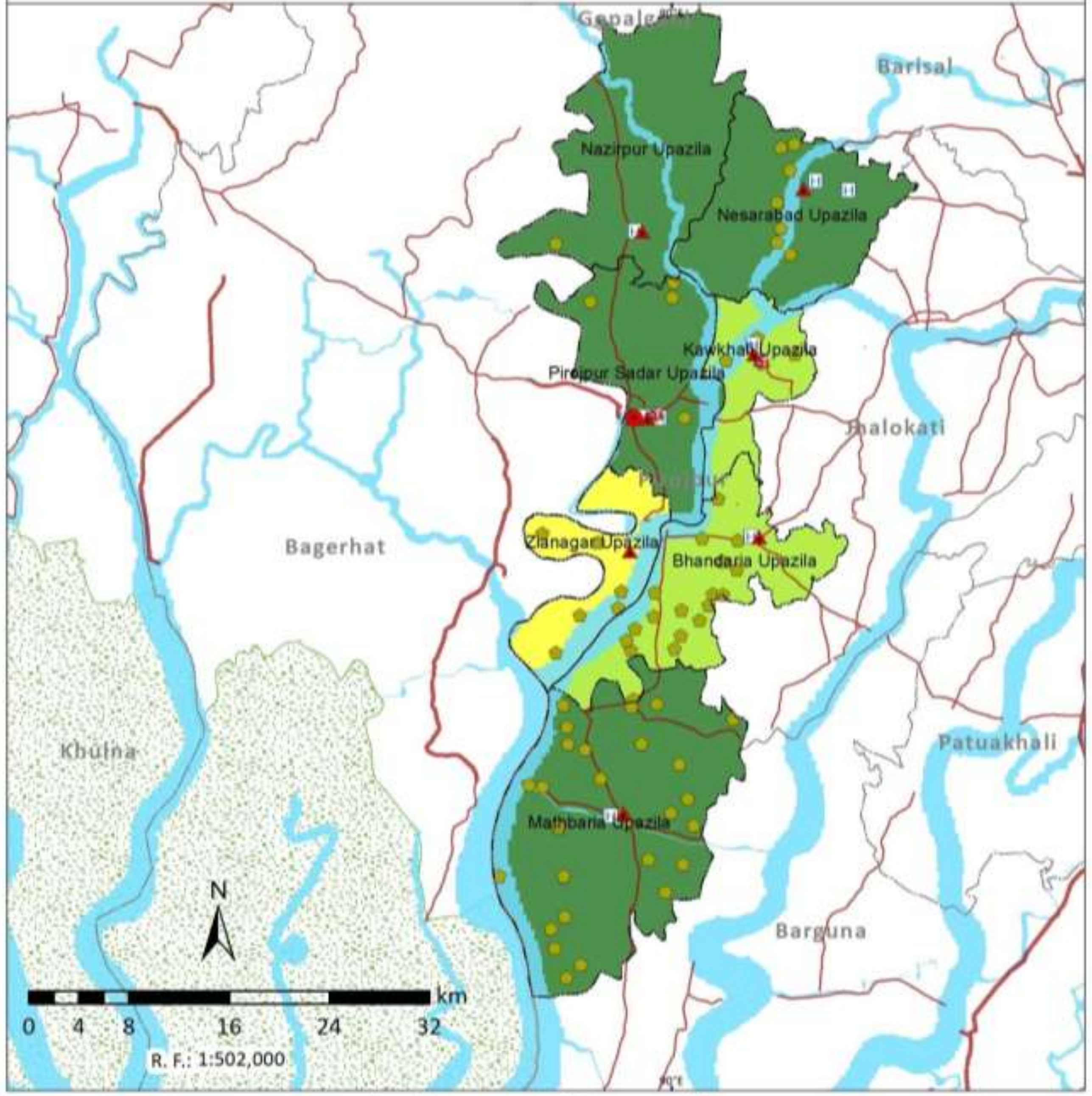
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Patuakhali District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Pirojpur District)



Legend

Country Boundary	District Head Quarter	Risk Level		
Division Boundary	Upazila Head Quarter		No Risk	
District Boundary	Fire Station		Very Low	
Upazila Boundary	Hospital		Low	
National High Way	Cyclone Shelter		Moderate	
Regional High Way	River/Sea/Lake		High	
	Sundarbans		Very High	

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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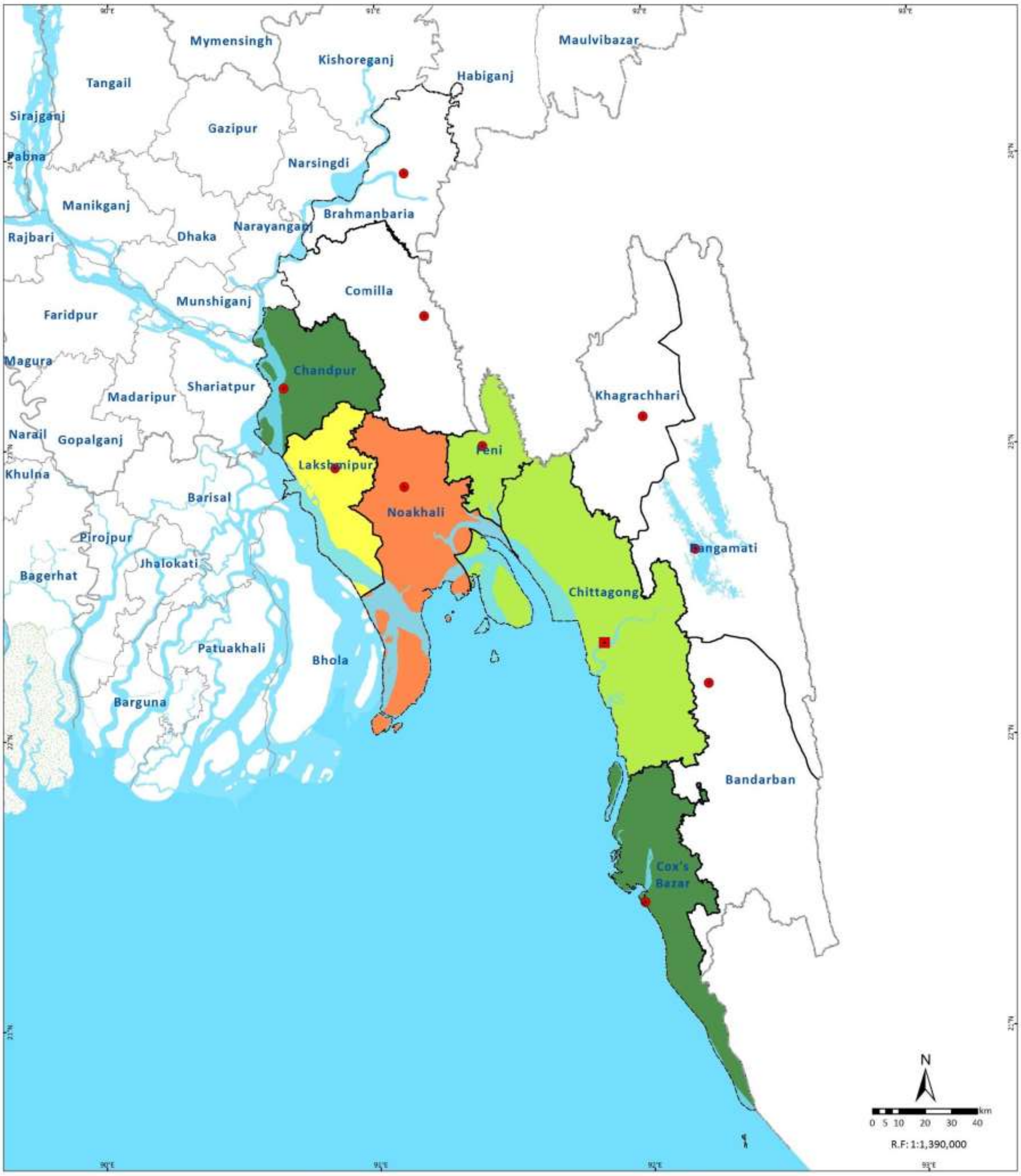
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 year return period (Chittagong Division)



Legend

Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans

Barisal
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High

Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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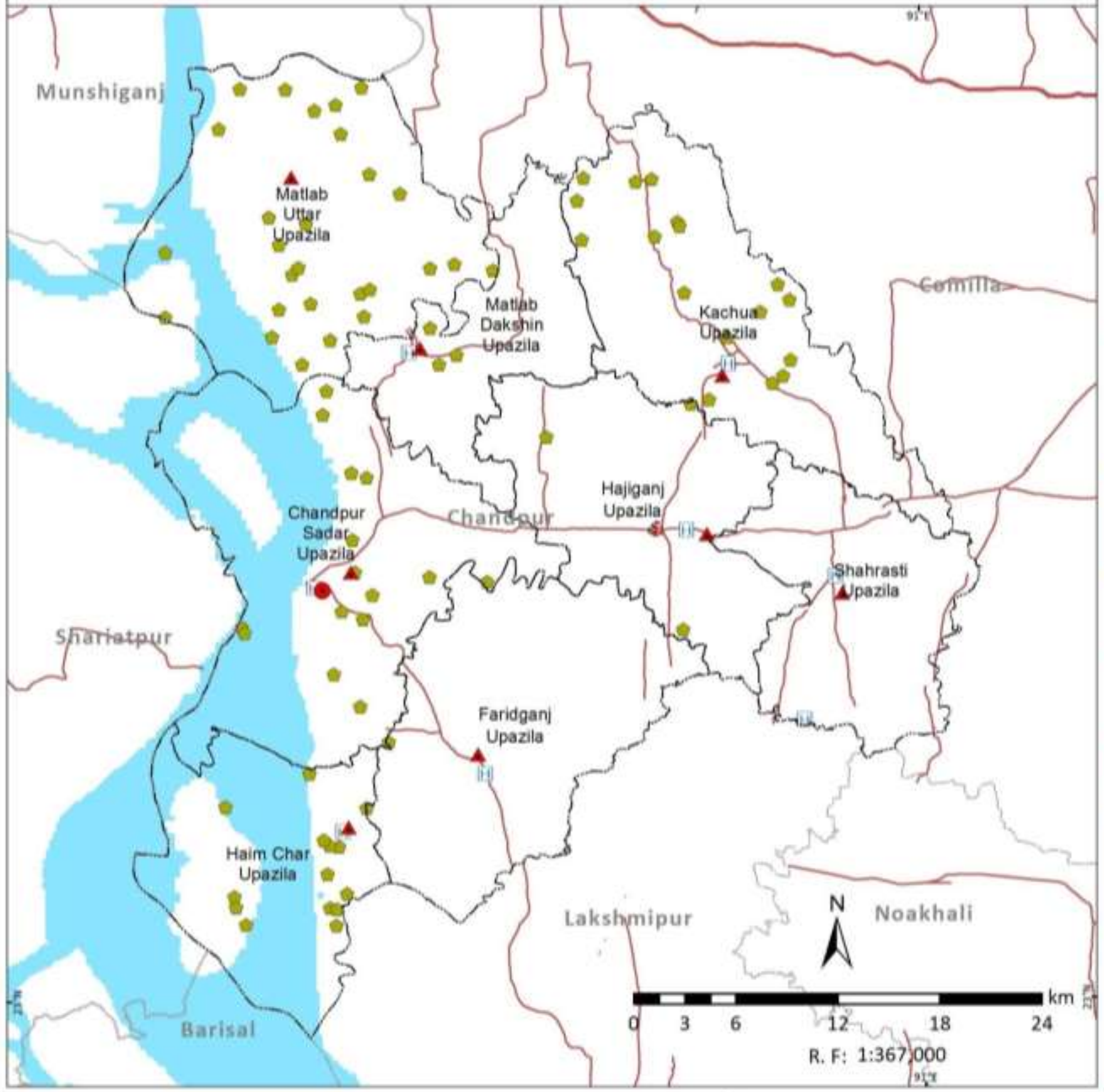
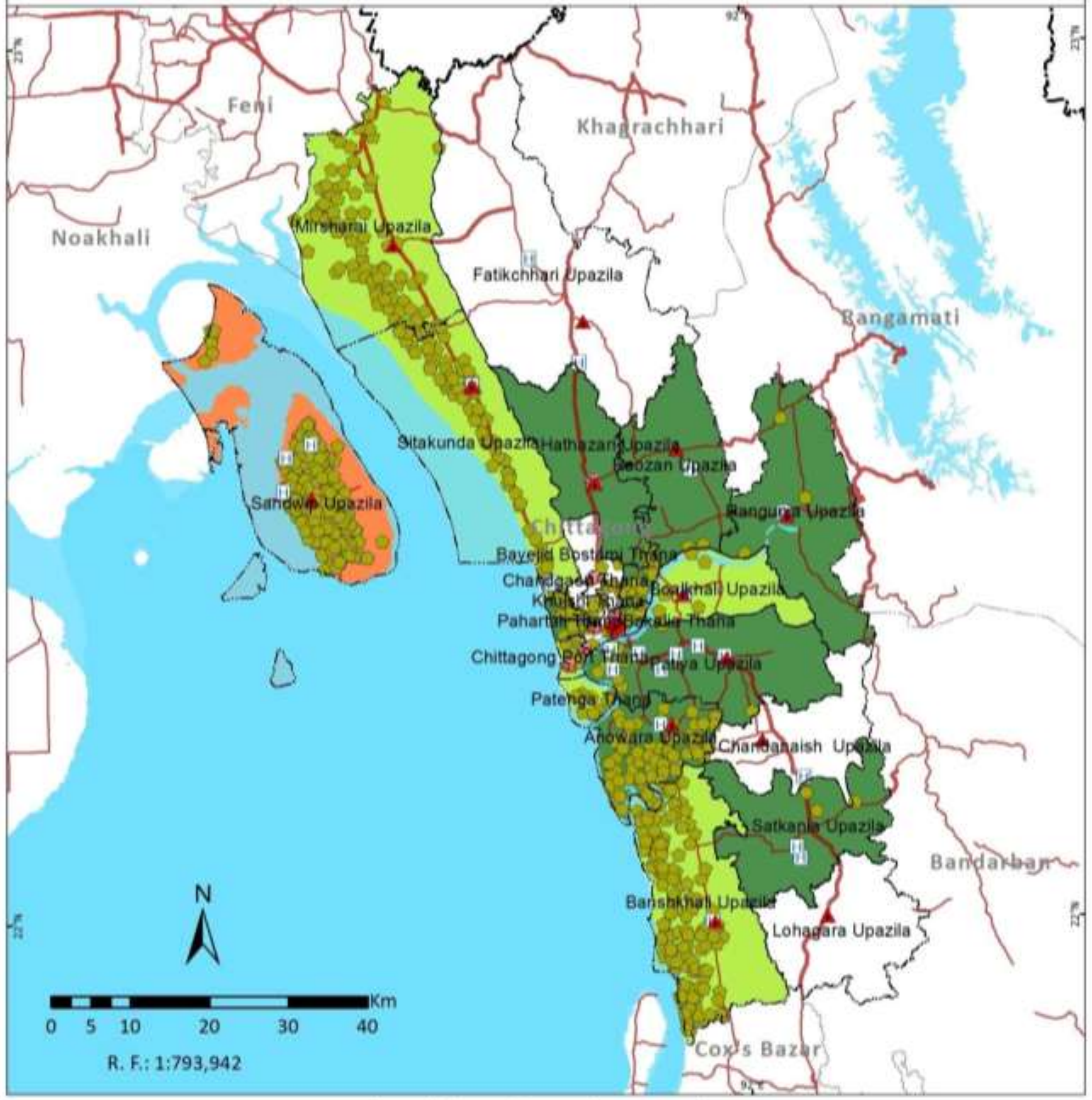
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Chandpur District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Chittagong District)



Legend

Country Boundary	Division Head Quarter	Risk Level
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Head Quarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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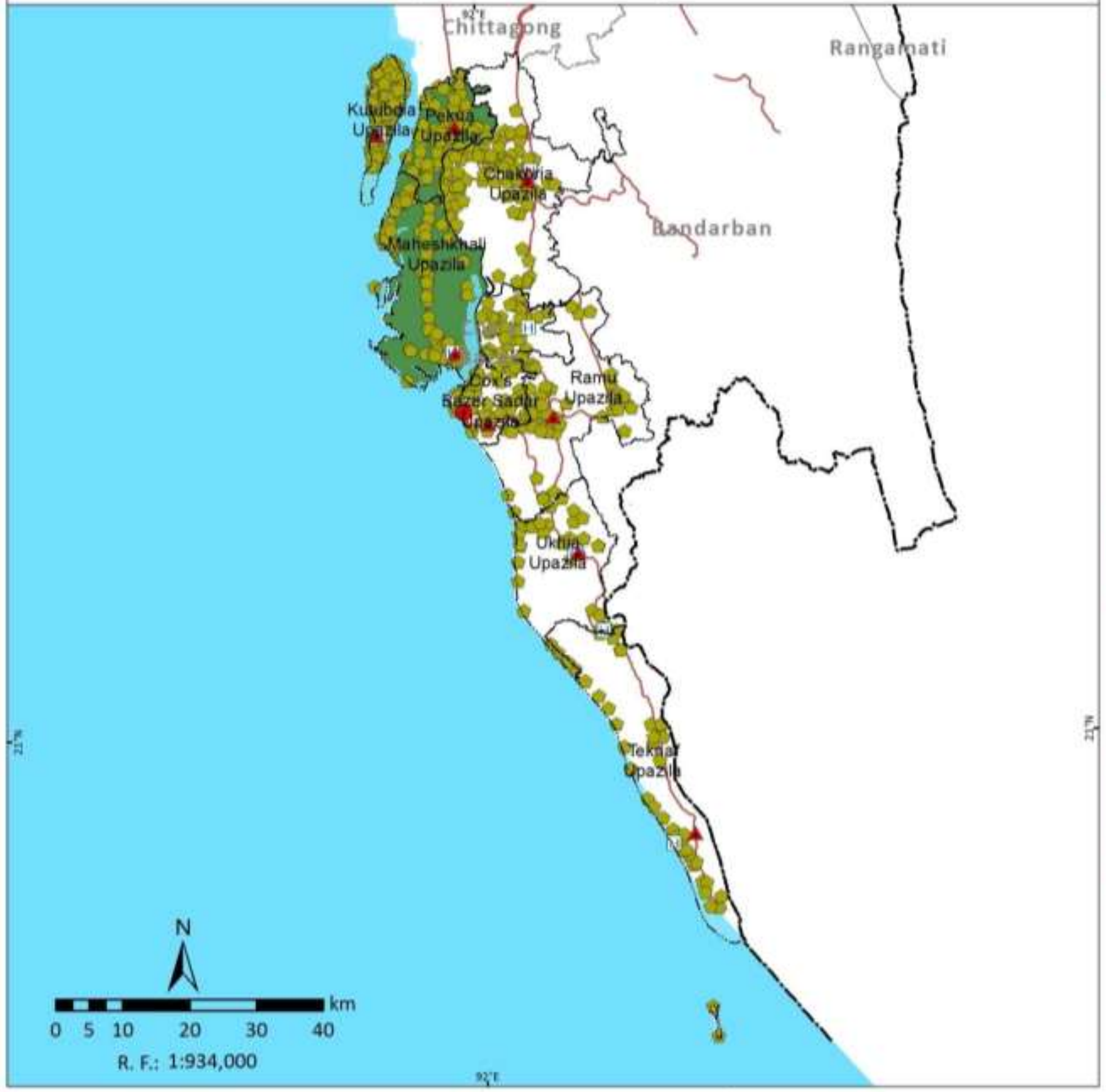
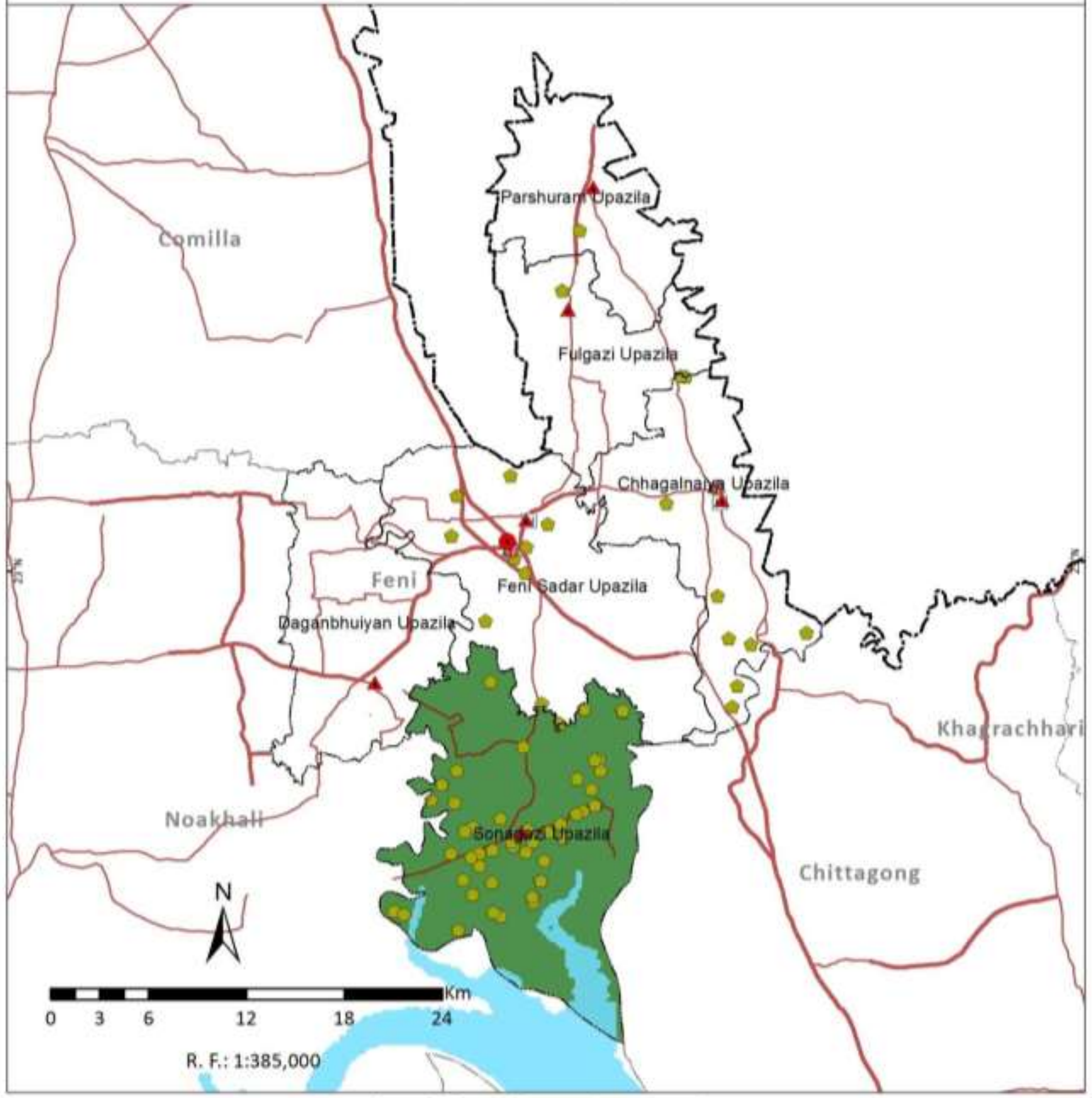
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Cox's Bazar District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Feni District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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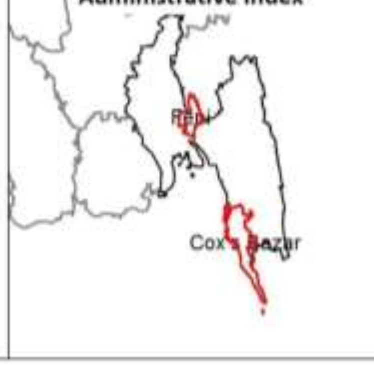

Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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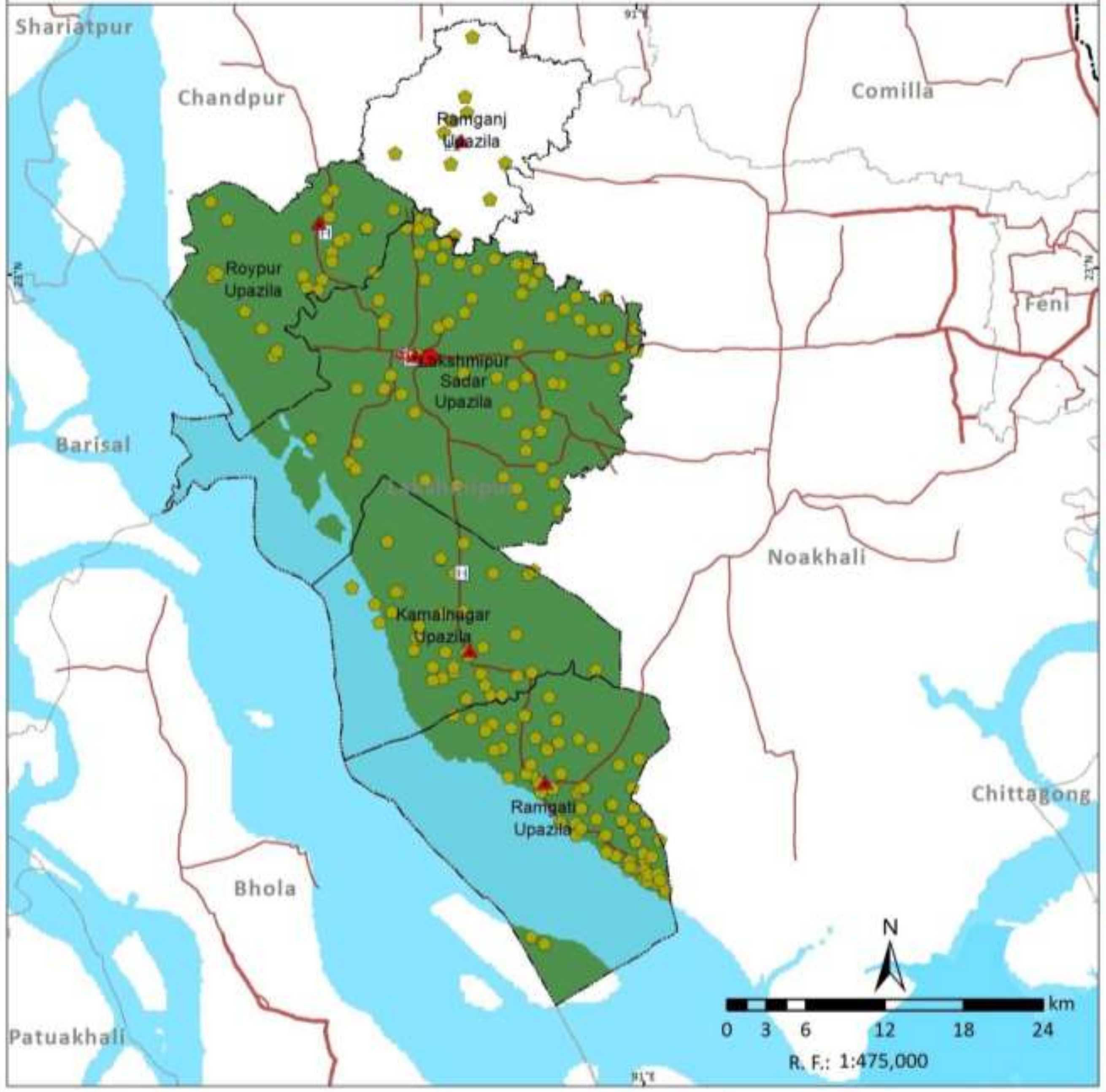
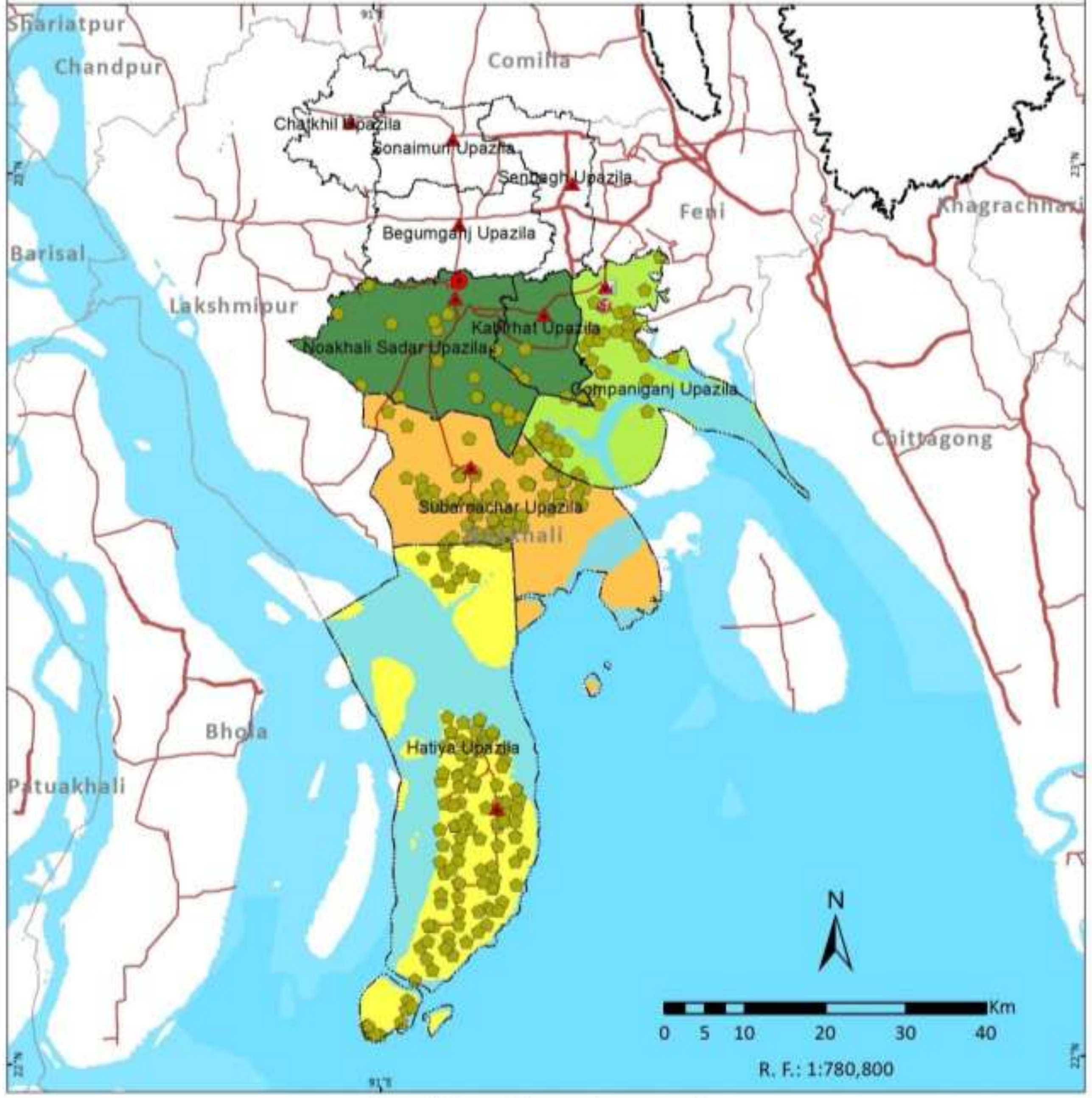
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Lakshpur District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Noakhali District)



Legend

—·—	Country Boundary	●	District Head Quarter	Risk Level	
--···	Division Boundary	▲	Upazila Head Quarter		No Risk
······	District Boundary		Fire Station		Very Low
----	Upazila Boundary		Hospital		Low
—	National High Way	⬟	Cyclone Shelter		Moderate
—	Regional High Way		River/Sea/Lake		High
			Sundarbans		Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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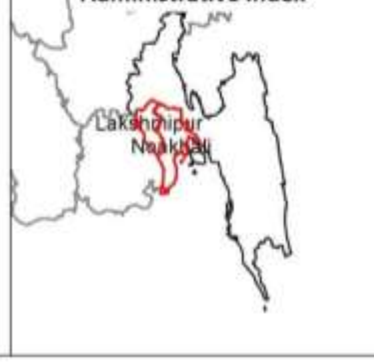

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Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 year return period (Dhaka Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Barisal Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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Rangpur
Mymensingh
Sylhet
Rajshahi
Dhaka
Khulna
Barisal
Chittagong

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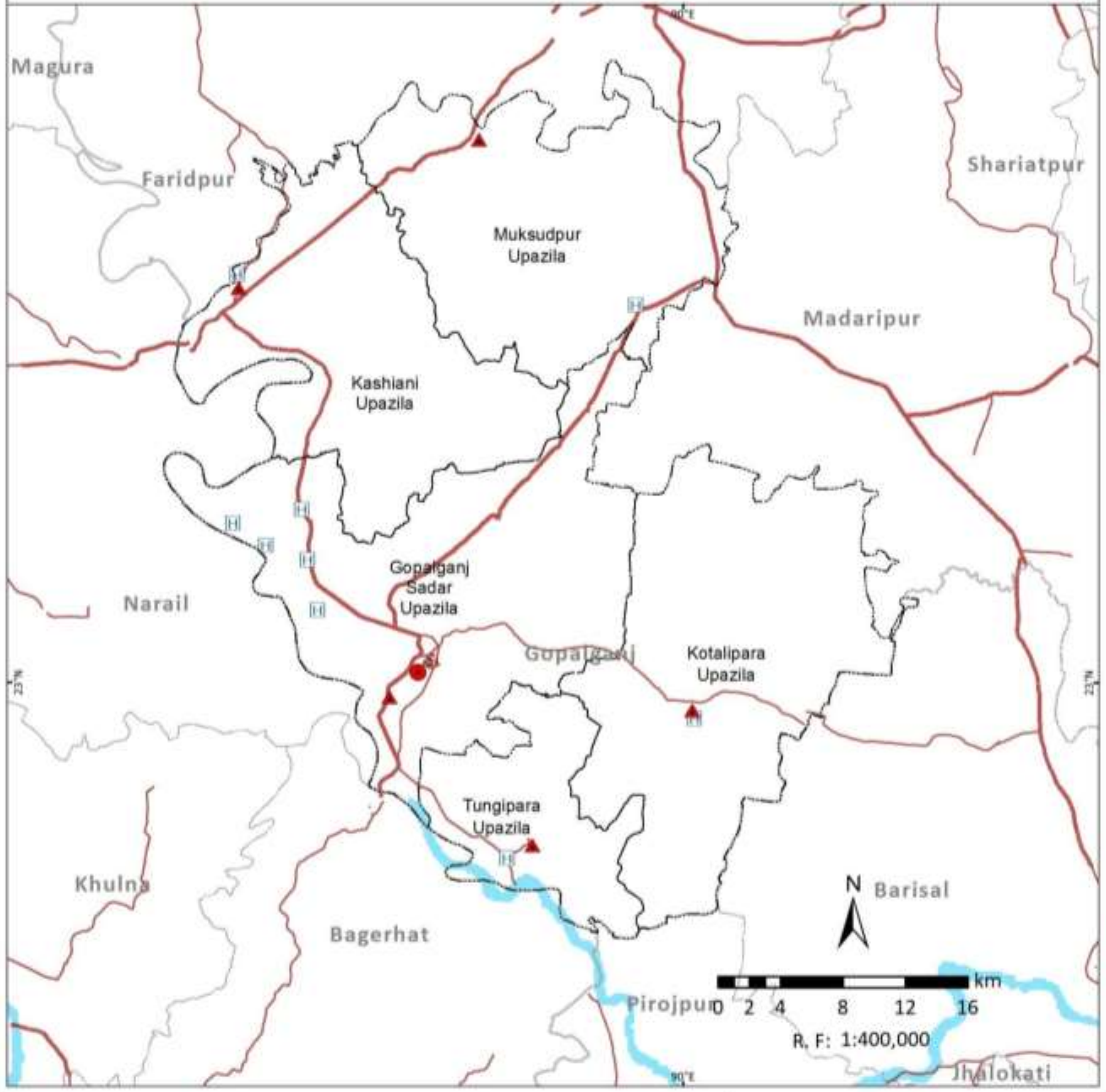
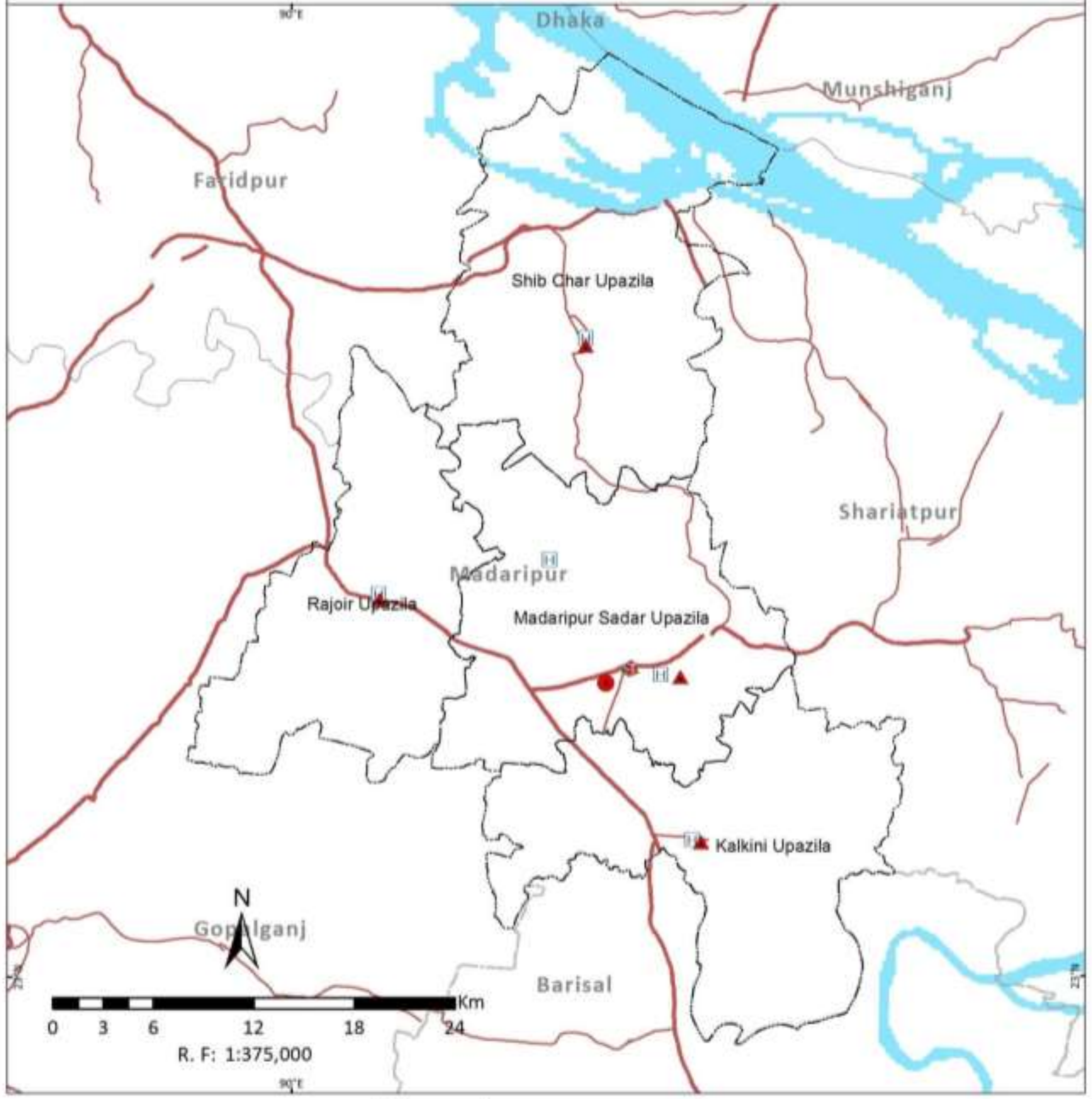
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Gopalganj District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Madaripur District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- District Head Quarter
- Upazila Head Quarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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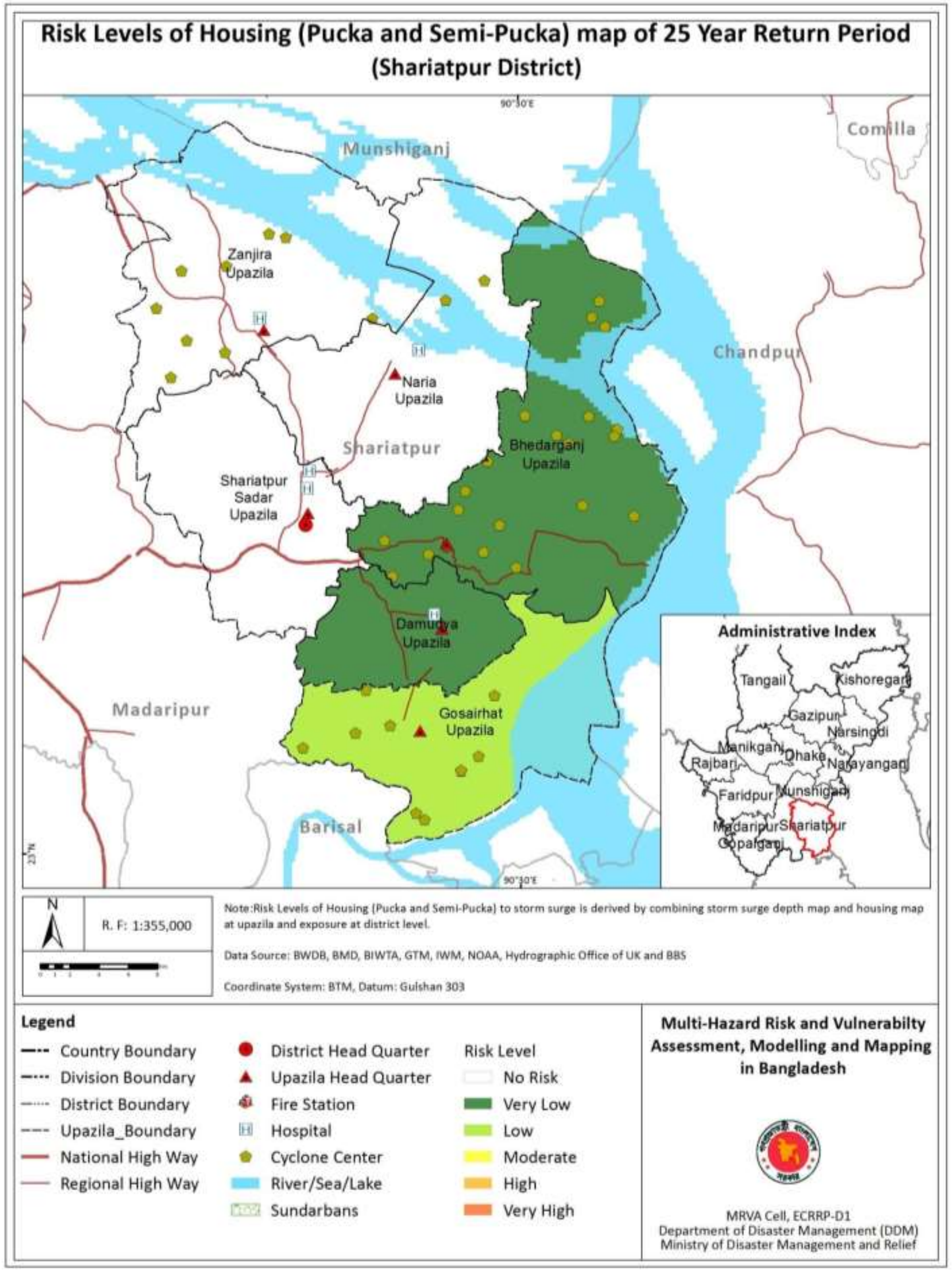

Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period
(Shariatpur District)
90°30'E
Munshiganj
Comilla
Zanjira Upazila
Naria Upazila
Chandpur
Shariatpur
Bhedarganj Upazila
Shariatpur Sadar Upazila
Damudya Upazila
Gosairhat Upazila
Madaripur
Barisal
23°N
Administrative Index
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Dhaka
Rajbari
Narayanganj
Faridpur
Munshiganj
Madaripur
Shariatpur
Gopalganj
N
R. F: 1:355,000
Note:Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Center
River/Sea/Lake
Sundarbans
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
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Risk Levels of Housing (Pucka and Semi-Pucka) Map of 25 Year Return Period
(Khulna Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Barisal
Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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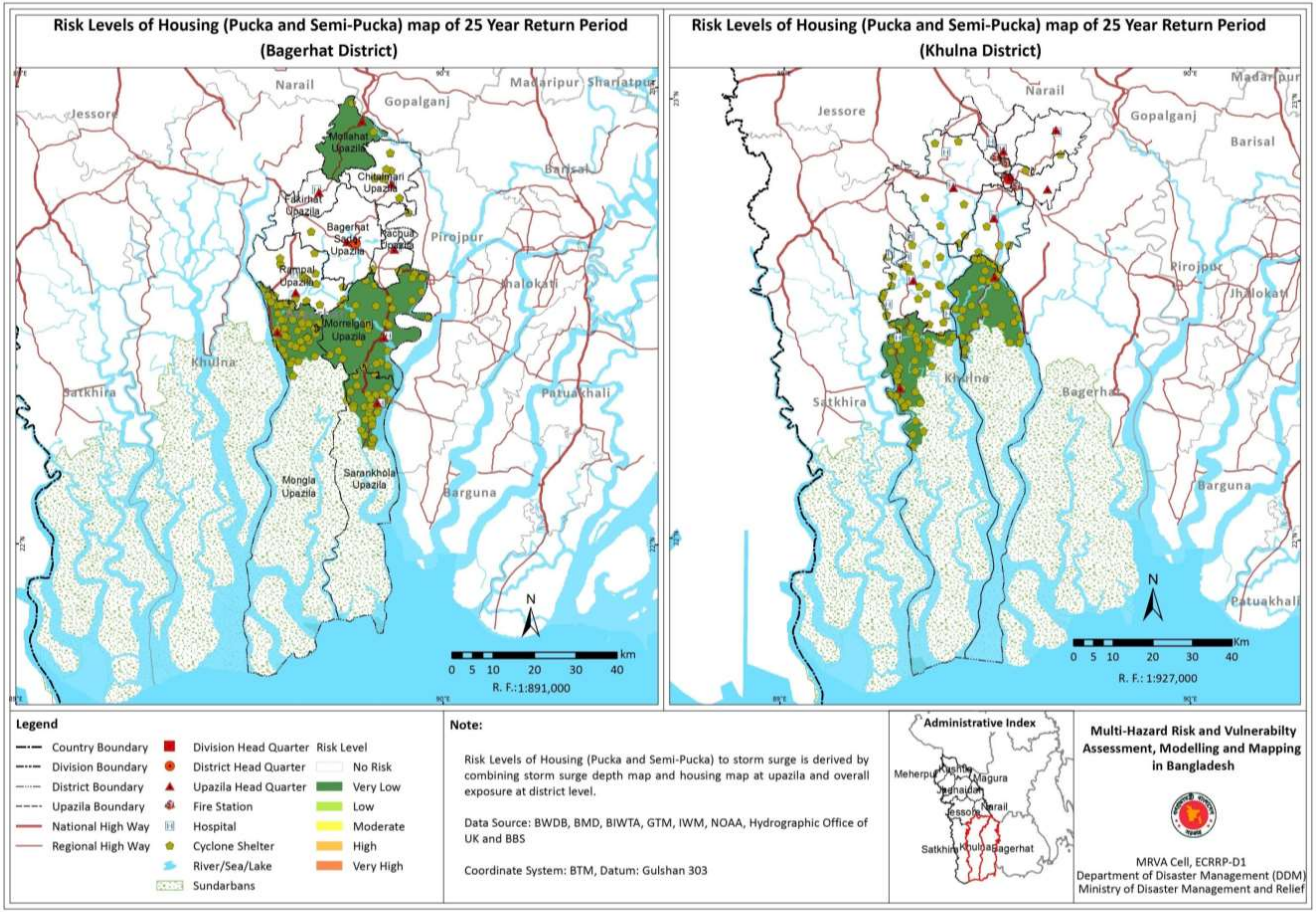
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period
(Bagerhat District)
Narail
Gopalganj
Madaripur
Shariatpur
Jessore
Barisal
Mollahat Upazila
Chitalmari Upazila
Fakirhat Upazila
Bagerhat Sadar Upazila
Kachua Upazila
Pirojpur
Rampal Upazila
Jhalokati
Morrelganj Upazila
Khulna
Satkhira
Patuakhali
Mongla Upazila
Sarankhola Upazila
Barguna
N
0 5 10 20 30 40 km
R. F.:1:891,000
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period
(Khulna District)
Narail
Madaripur
Jessore
Gopalganj
Barisal
Pirojpur
Jhalokati
Khulna
Satkhira
Bagerhat
Barguna
Patuakhali
N
0 5 10 20 30 40 Km
R. F.: 1:927,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
Division Head Quarter
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
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Kushtia
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Narail
Satkhira
Khulna
Bagerhat
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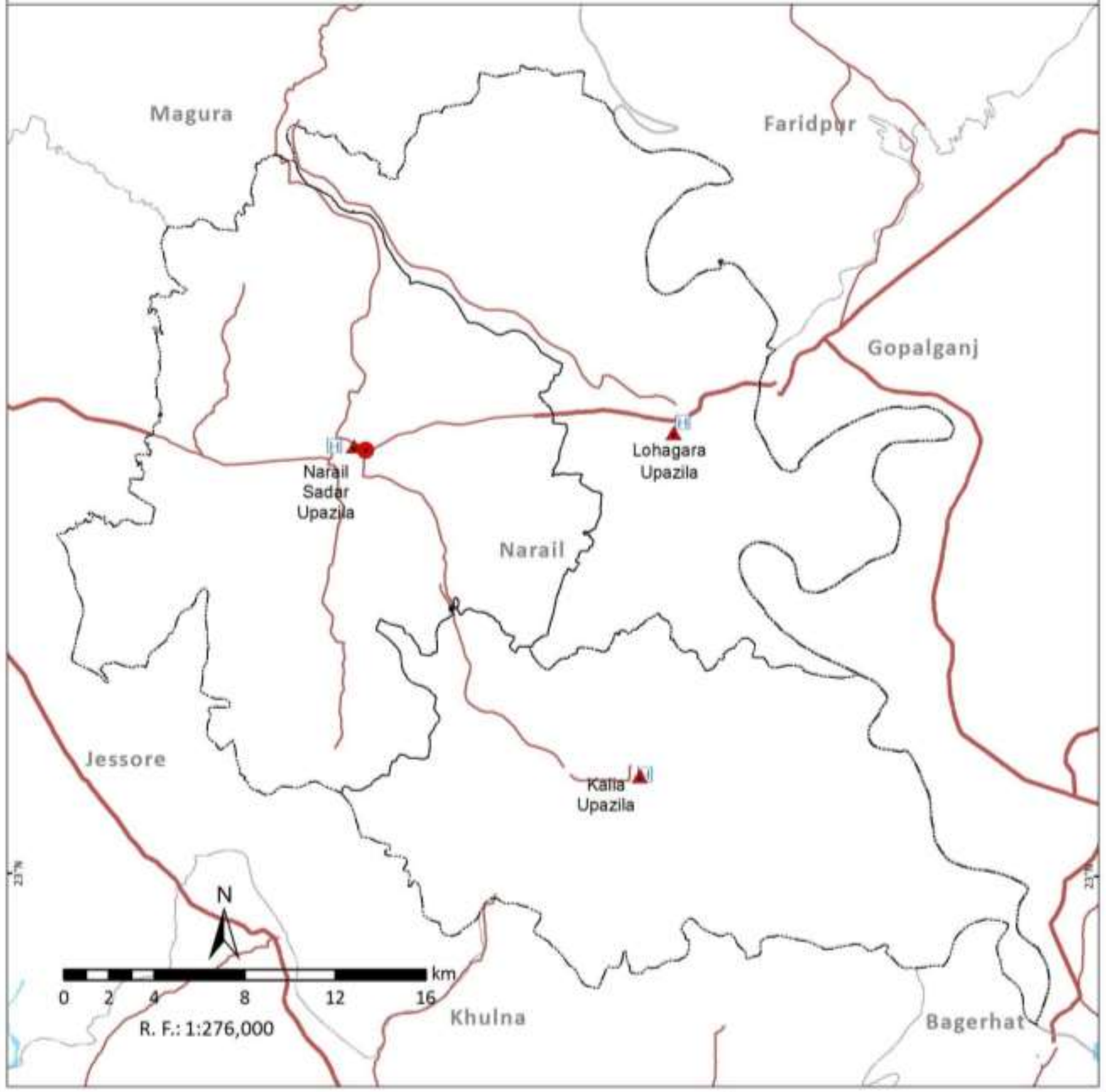
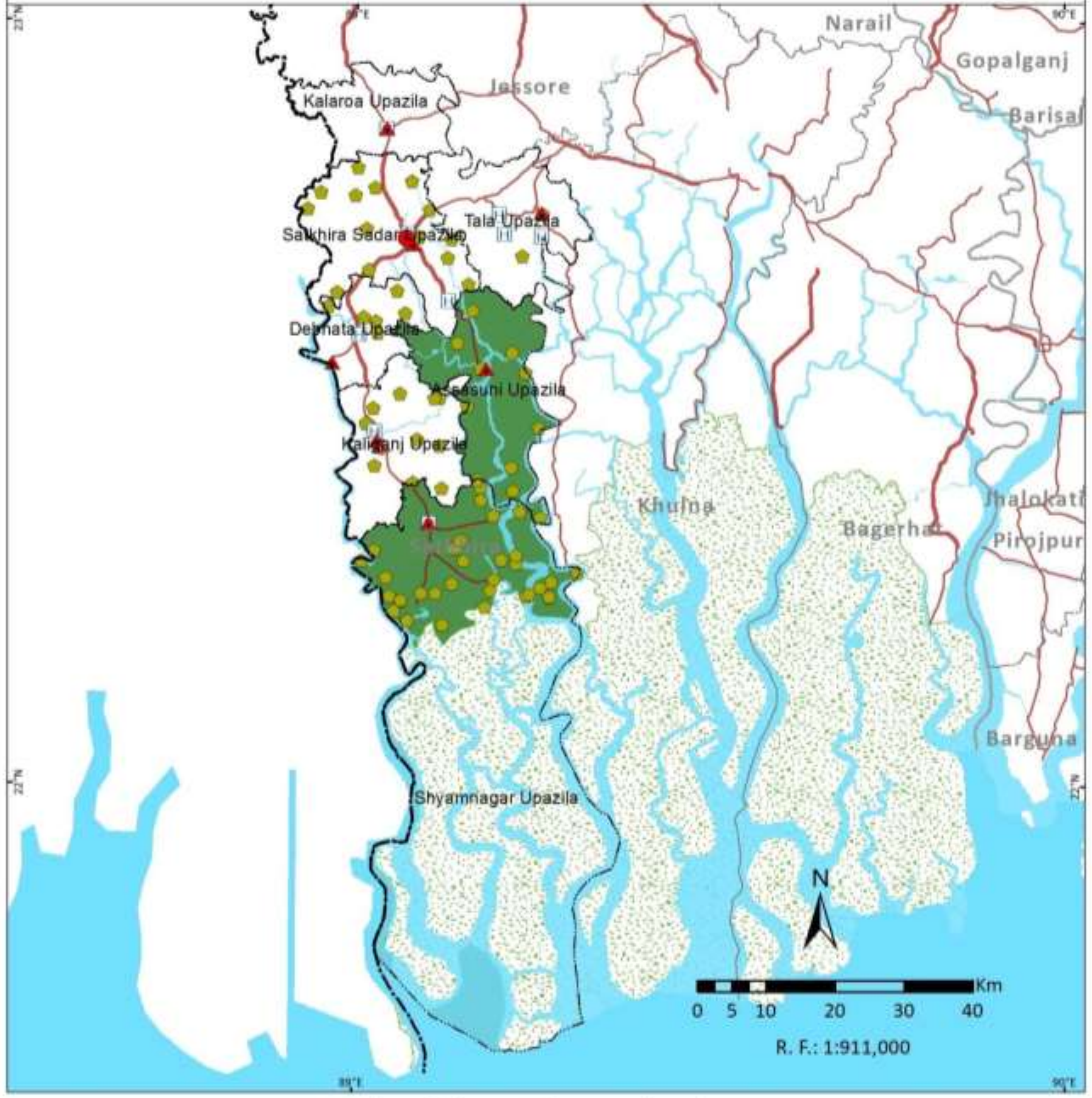
Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Narail District)



Risk Levels of Housing (Pucka and Semi-Pucka) map of 25 Year Return Period (Satkhira District)



Legend

Country Boundary	District Head Quarter	Risk Level	
Division Boundary	Upazila Head Quarter		No Risk
District Boundary	Fire Station		Very Low
Upazila Boundary	Hospital		Low
National High Way	Cyclone Shelter		Moderate
Regional High Way	River/Sea/Lake		High
	Sundarbans		Very High

Note:

Risk Levels of Housing (Pucka and Semi-Pucka) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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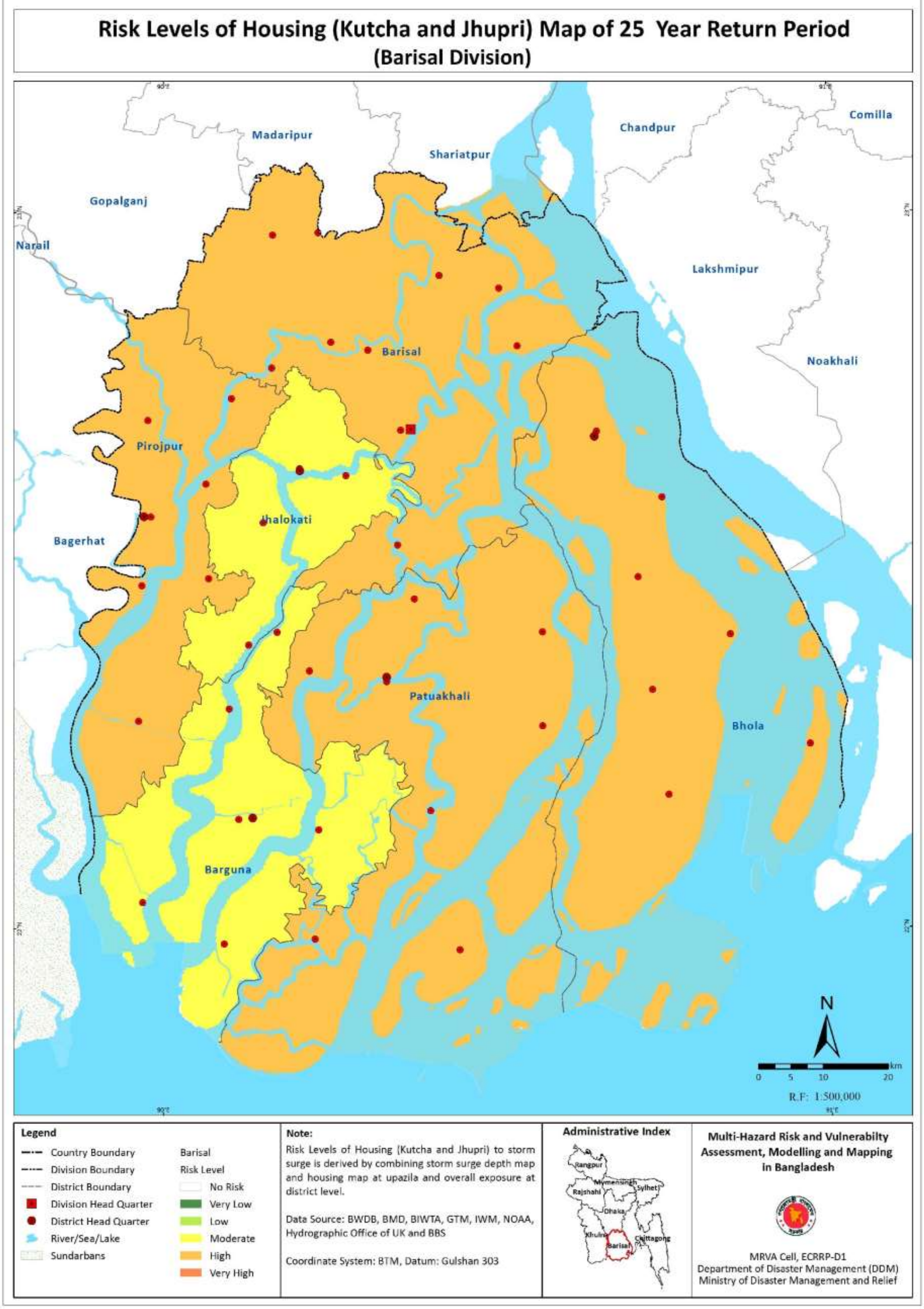
Risk Levels of Housing (Kutcha and Jhupri) Map of 25 Year Return Period
(Barisal Division)
Madaripur
Shariatpur
Chandpur
Comilla
Gopalganj
Narail
Lakshmipur
Noakhali
Barisal
Pirojpur
Jhalokati
Bagerhat
Patuakhali
Bhola
Barguna
N
0 5 10 20 km
R.F: 1:500,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Barisal
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
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Dhaka
Khulna
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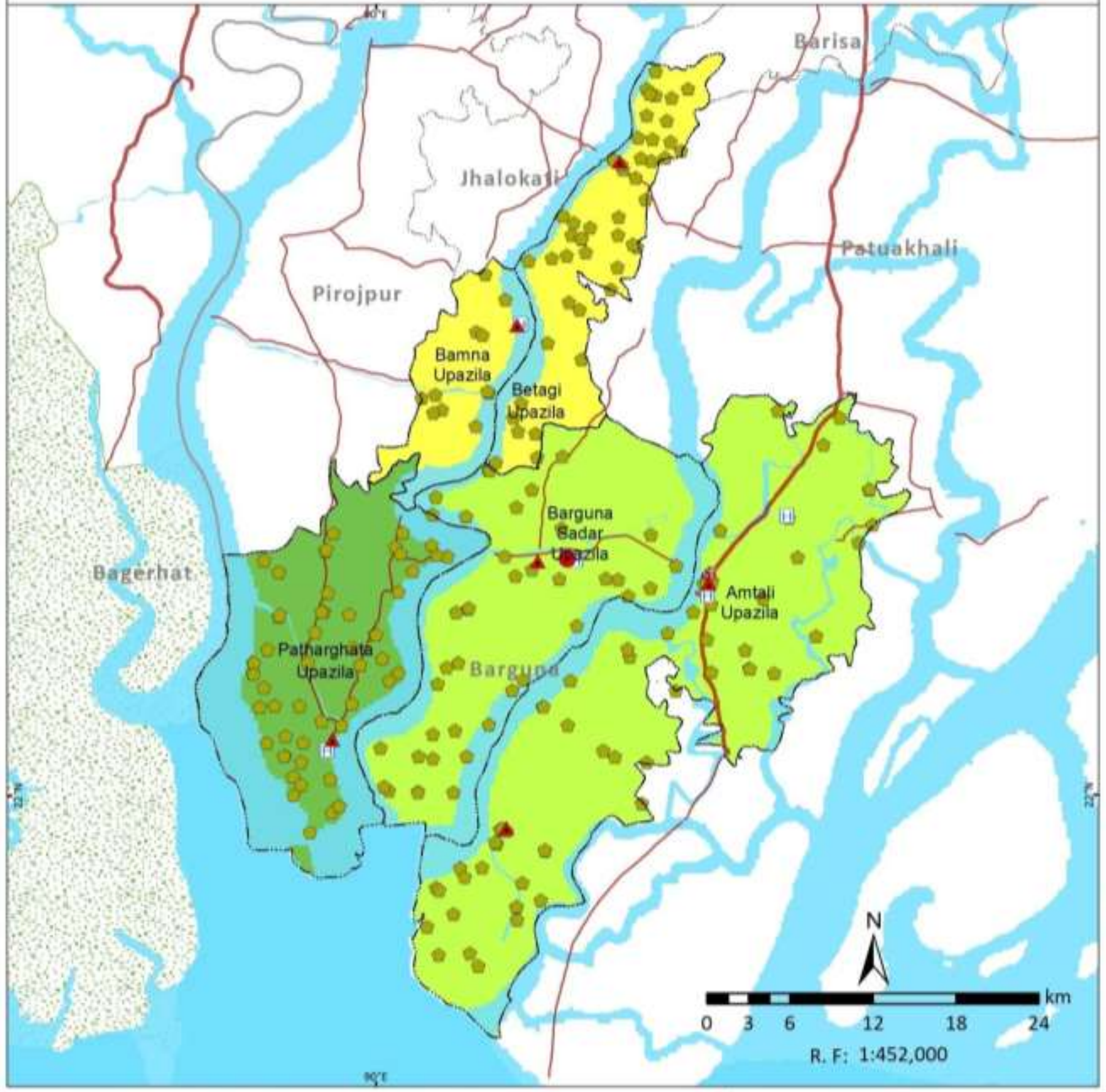
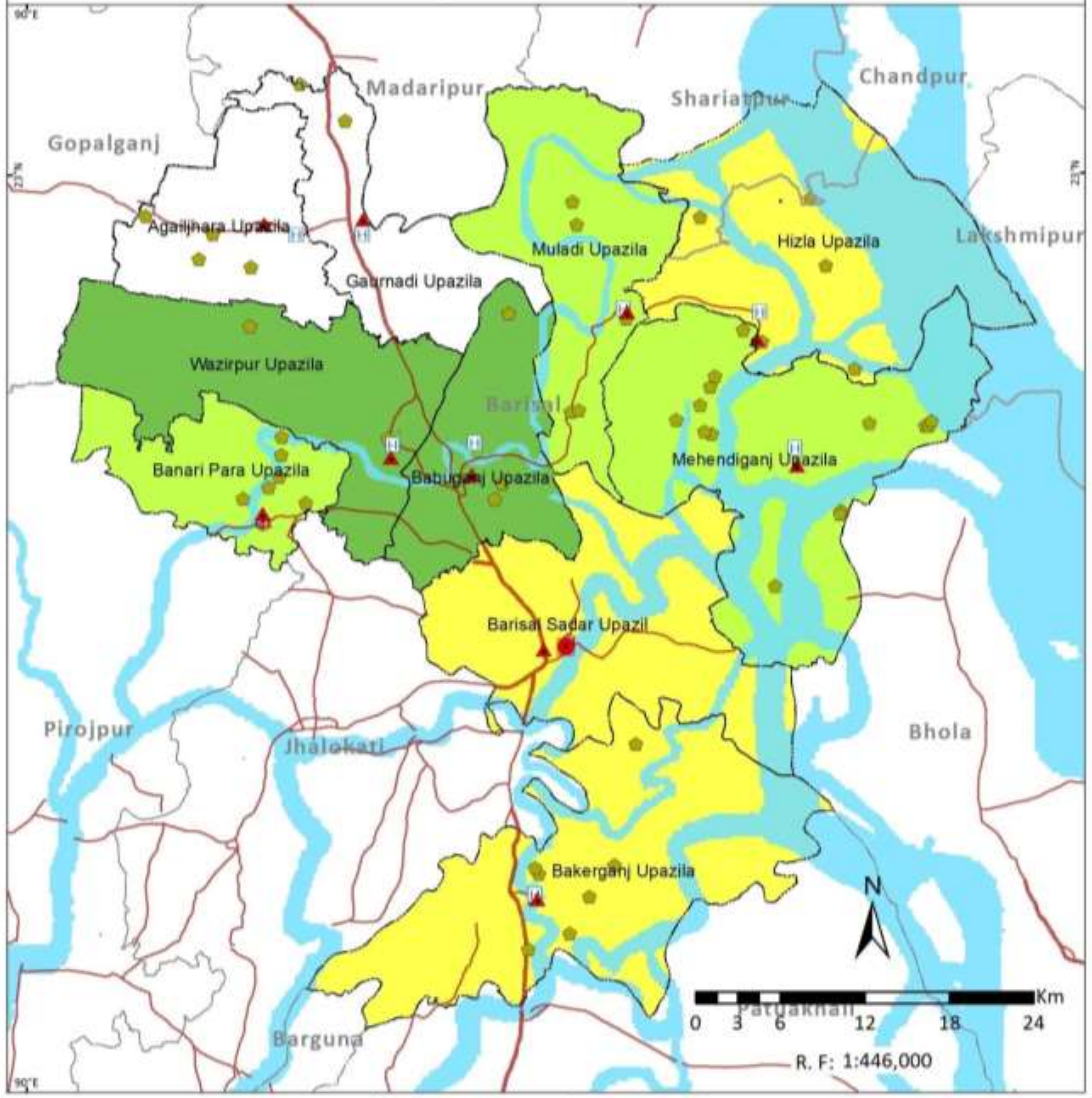
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Barguna District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Barisal District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Headquarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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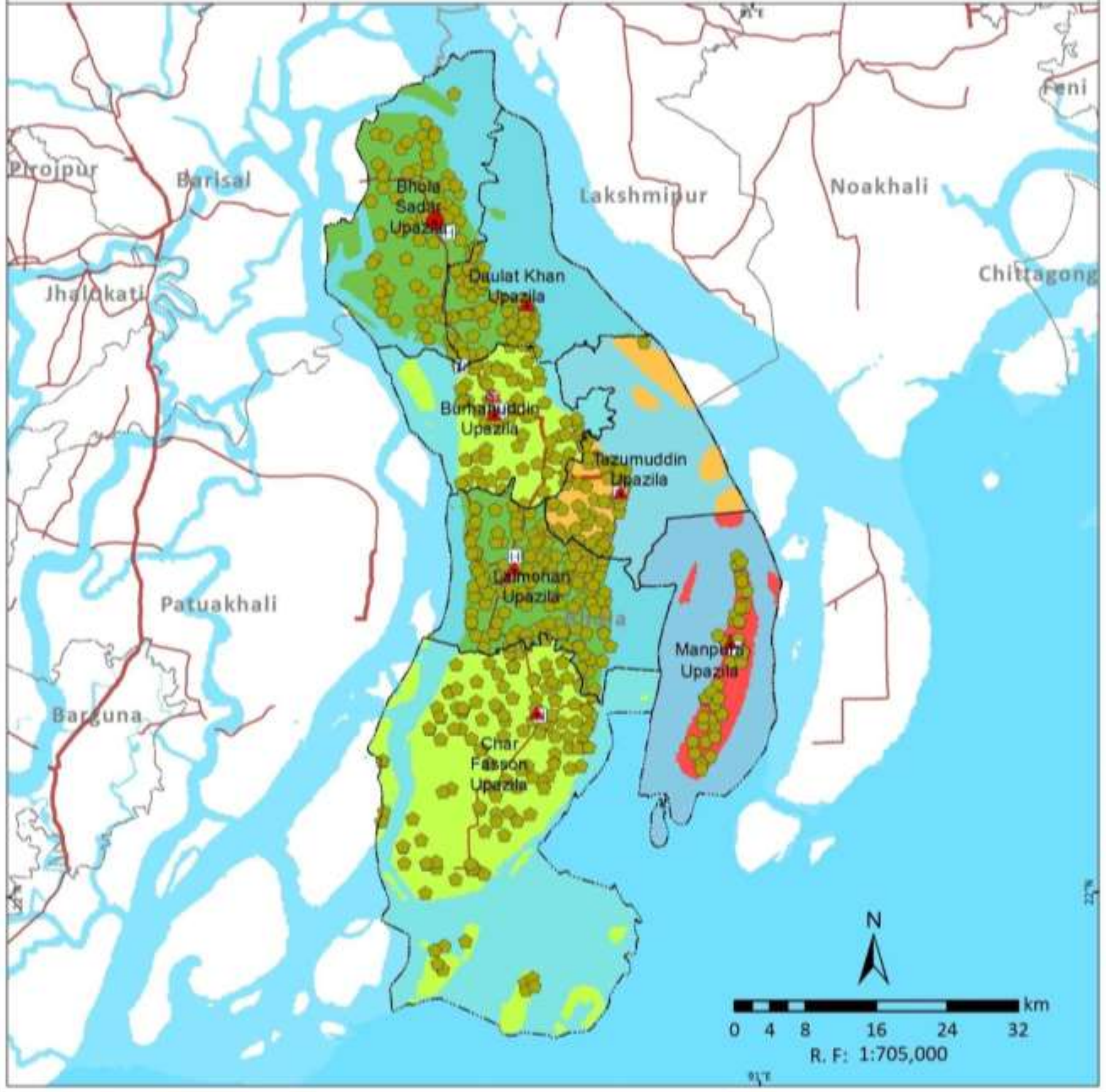
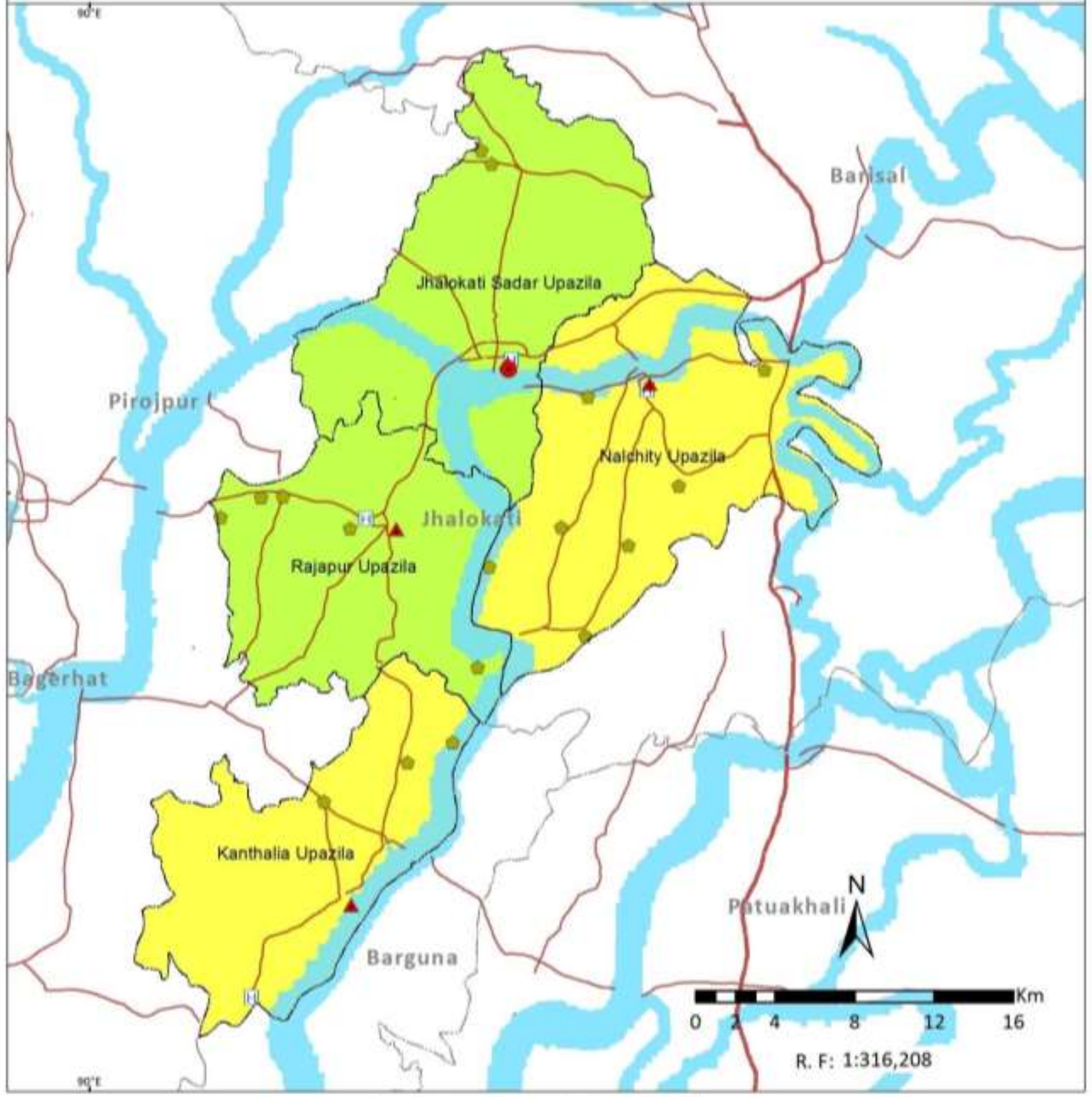
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Bhola District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Jhalokati District)



Legend

Country Boundary		District Head Quater		Risk Level	
Division Boundary		Upazila Head Quater		No Risk	
District Boundary		Fire Station		Very Low	
Upazila Boundary		Hospital		Low	
National High Way		Cyclone Shelter		Moderate	
Regional High Way		River/Sea/Lake		High	
		Sundarbans		Very High	

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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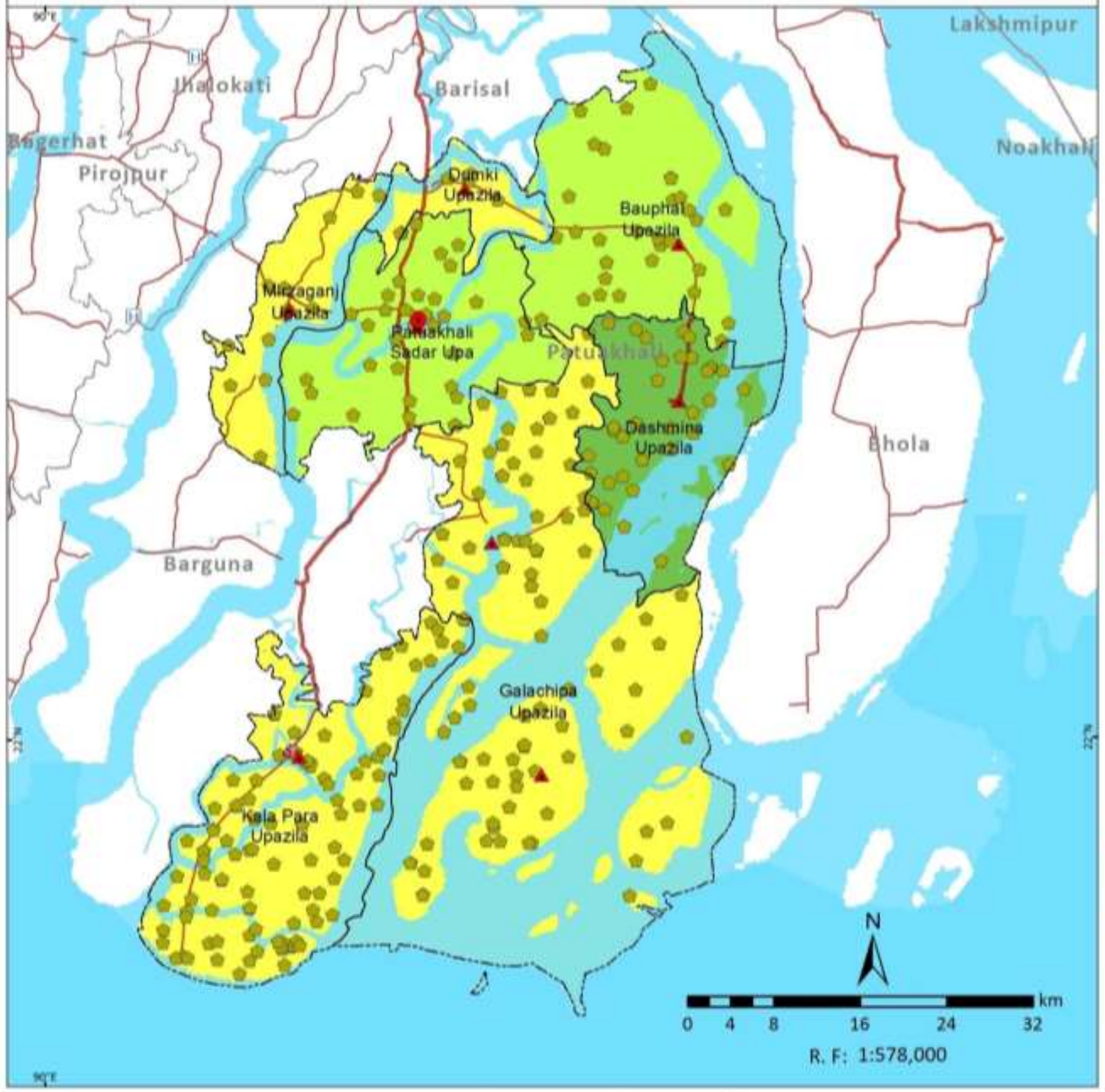
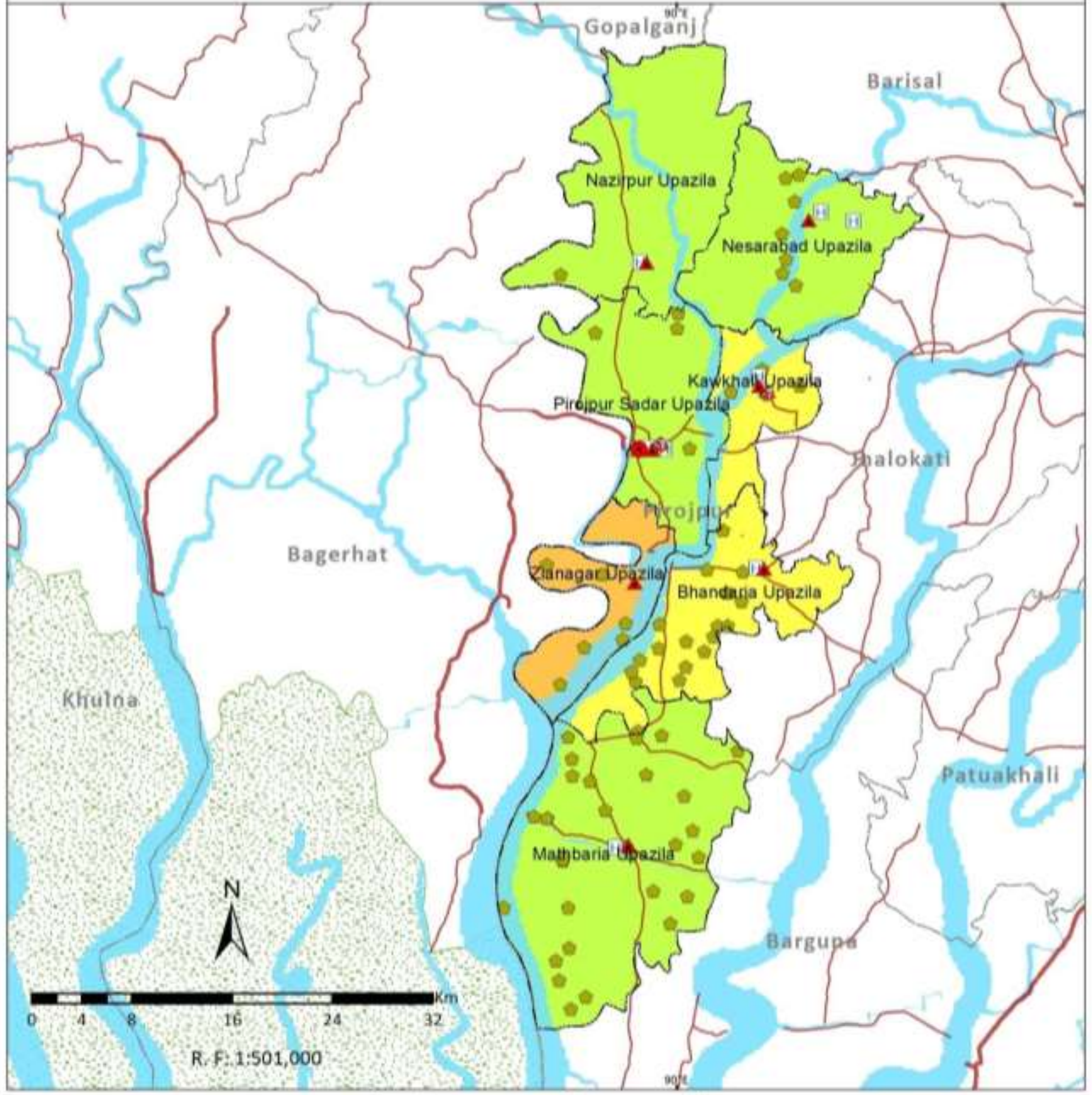
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Patuakhali District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Pirojpur District)



Legend

Country Boundary	District Head Quarter	Risk Level	
Division Boundary	Upazila Head Quarter		No Risk
District Boundary	Fire Station		Very Low
Upazila Boundary	Hospital		Low
National High Way	Cyclone Shelter		Moderate
Regional High Way	River/Sea/Lake		High
	Sundarbans		Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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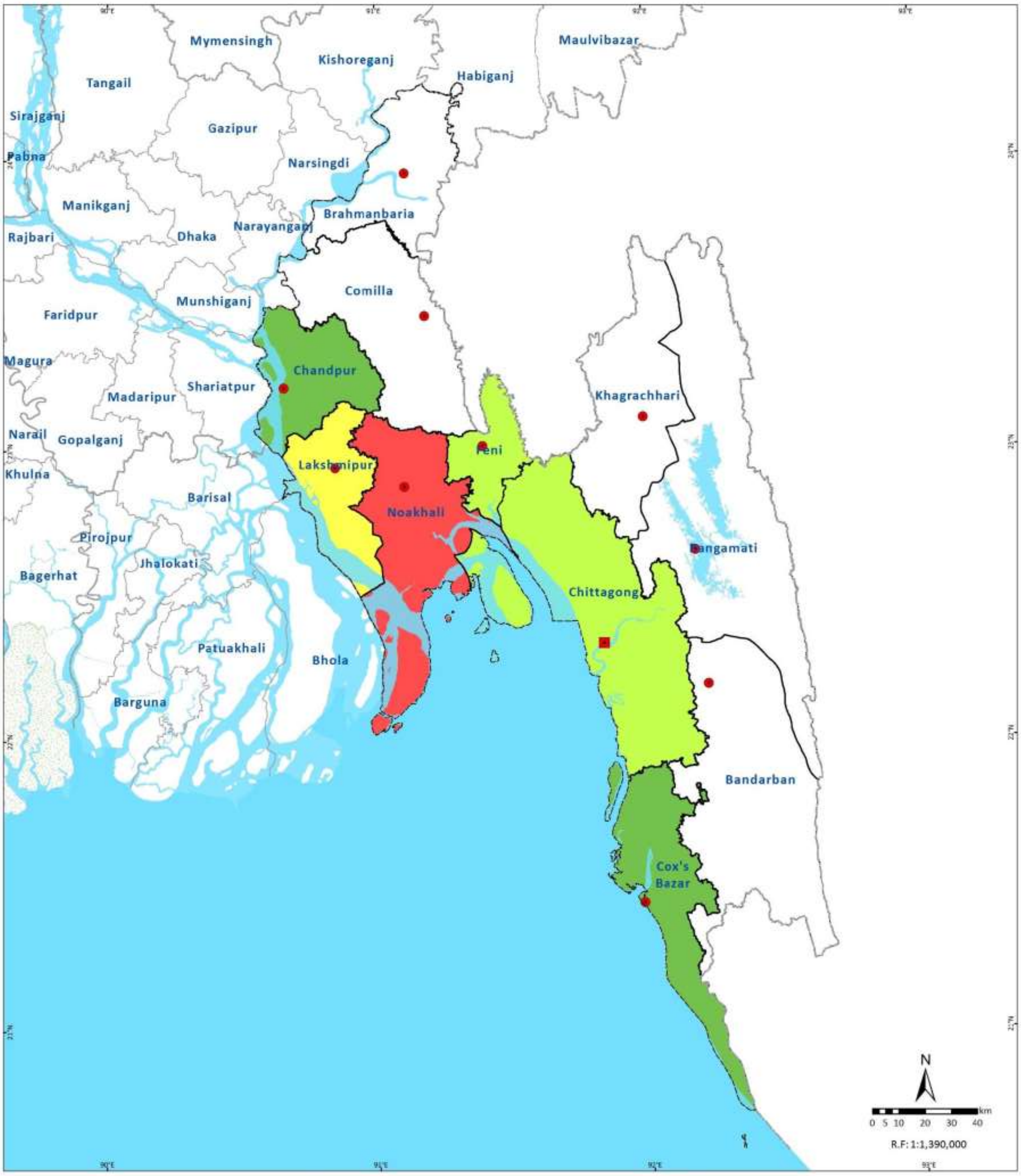
Risk Levels of Housing (Kutcha and Jhupri) Map of 25 Year Return Period (Chittagong Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Barisal

Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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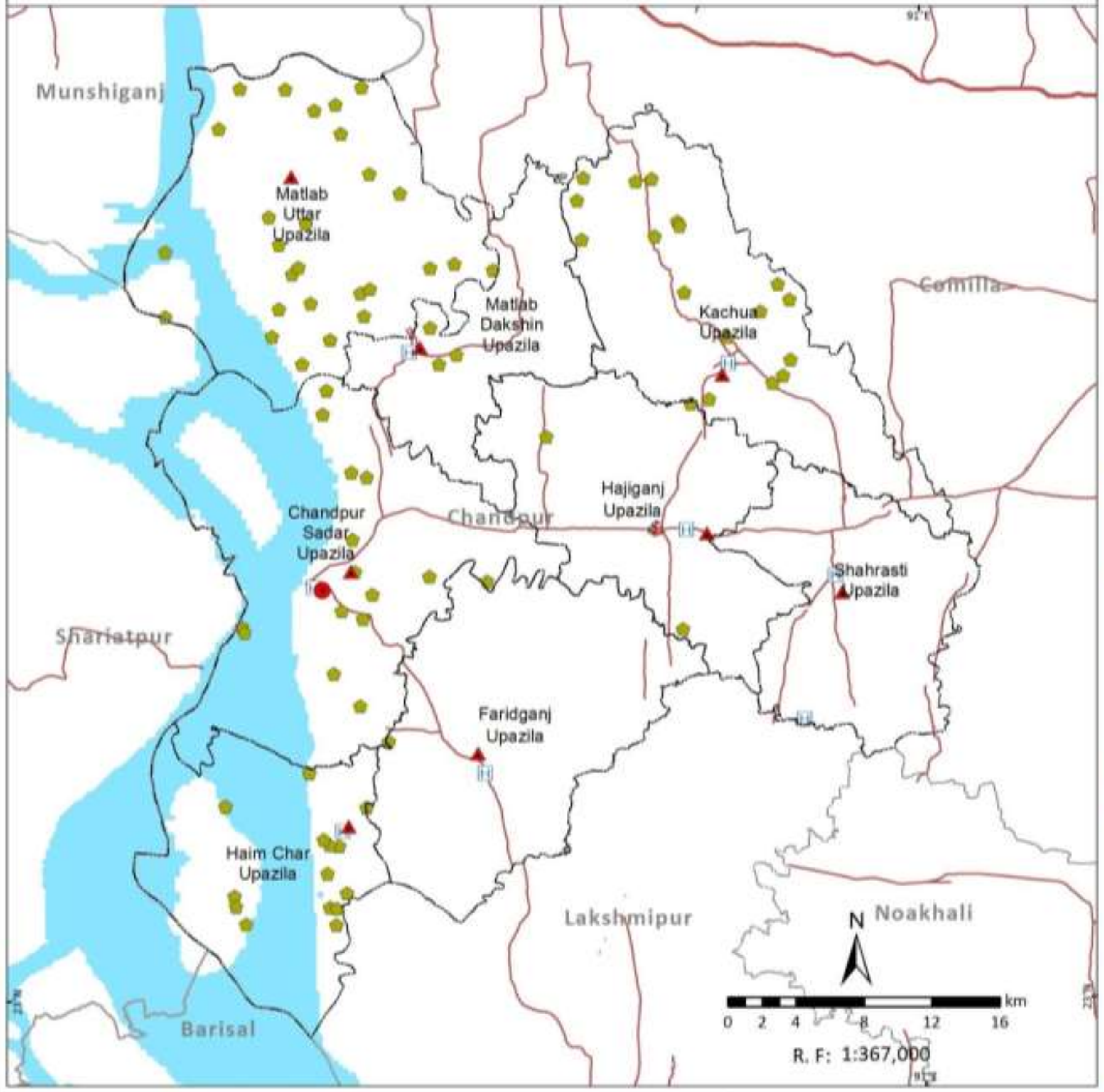
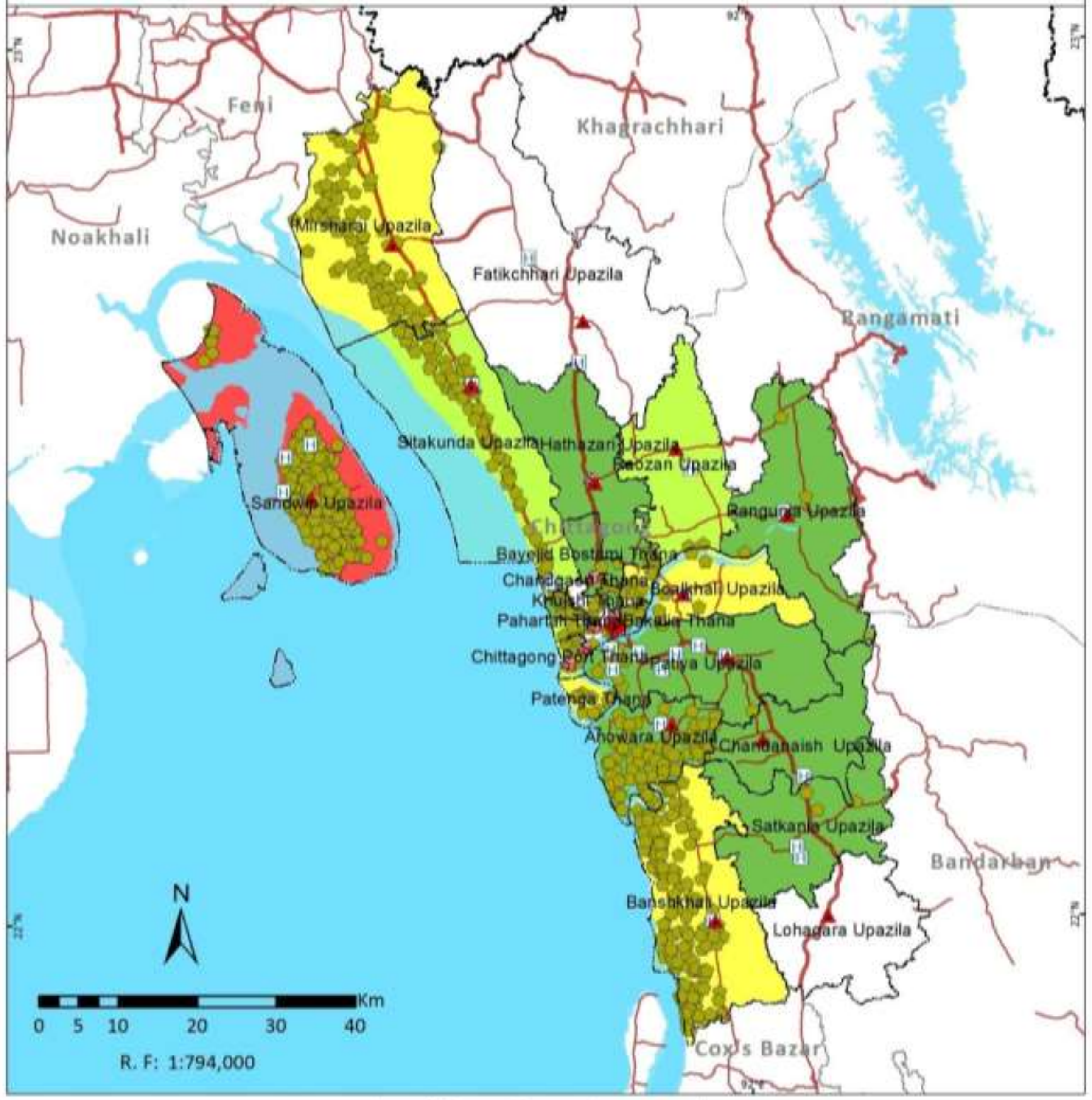
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Chandpur District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Chittagong District)



Legend

		Risk Level
Country Boundary	Division Head Quarter	No Risk
Division Boundary	District Head Quarter	Very Low
District Boundary	Upazila Head Quarter	Low
Upazila Boundary	Fire Station	Moderate
National High Way	Hospital	High
Regional High Way	Cyclone Shelter	Very High
	River/Sea/Lake	
	Sundarbans	

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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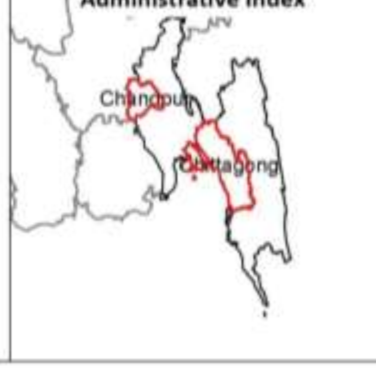

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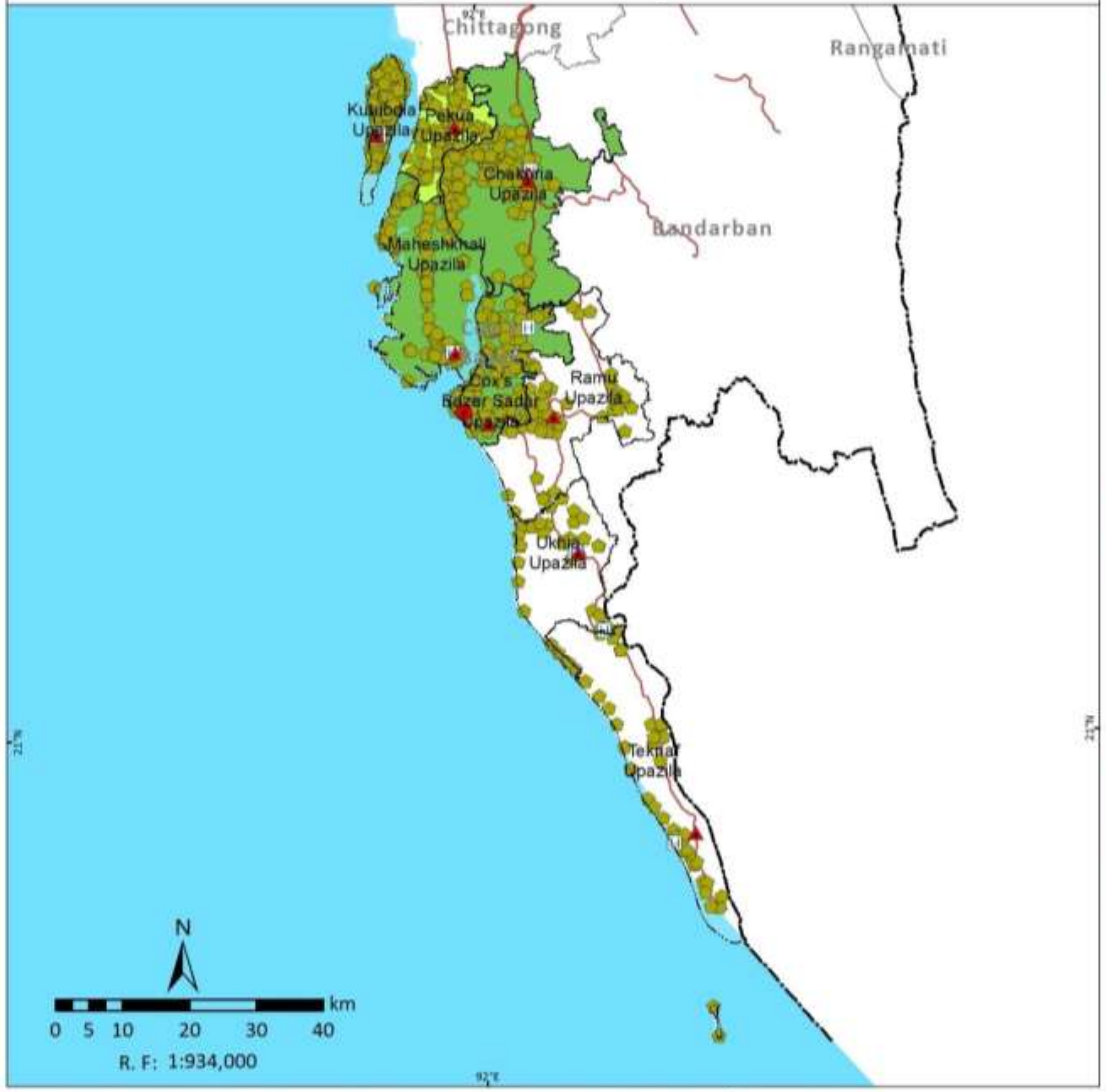
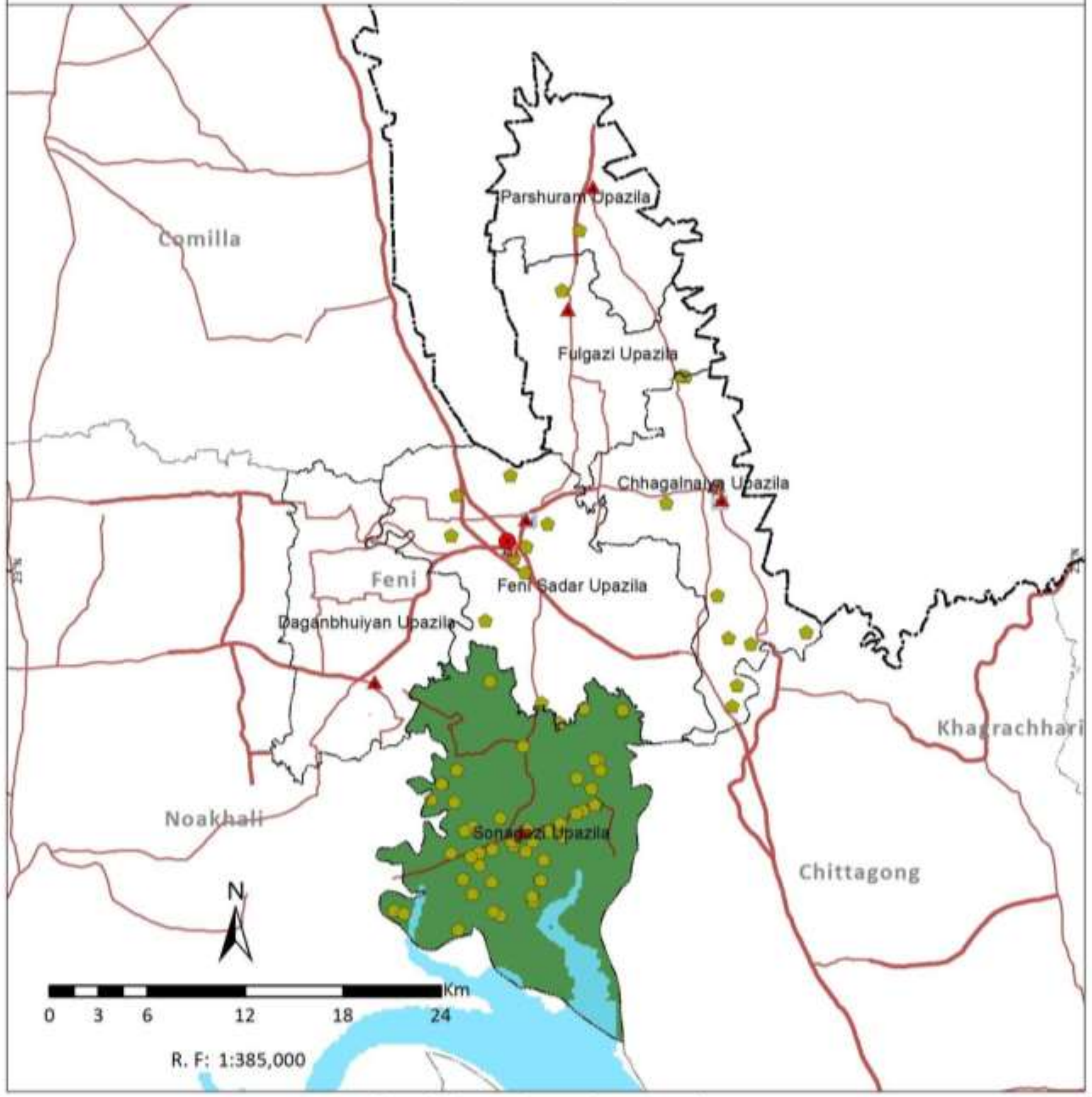
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Cox's Bazar District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Feni District)



Legend

Country Boundary	District Head Quarter	Risk Level
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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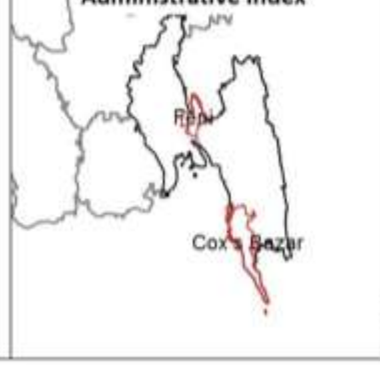

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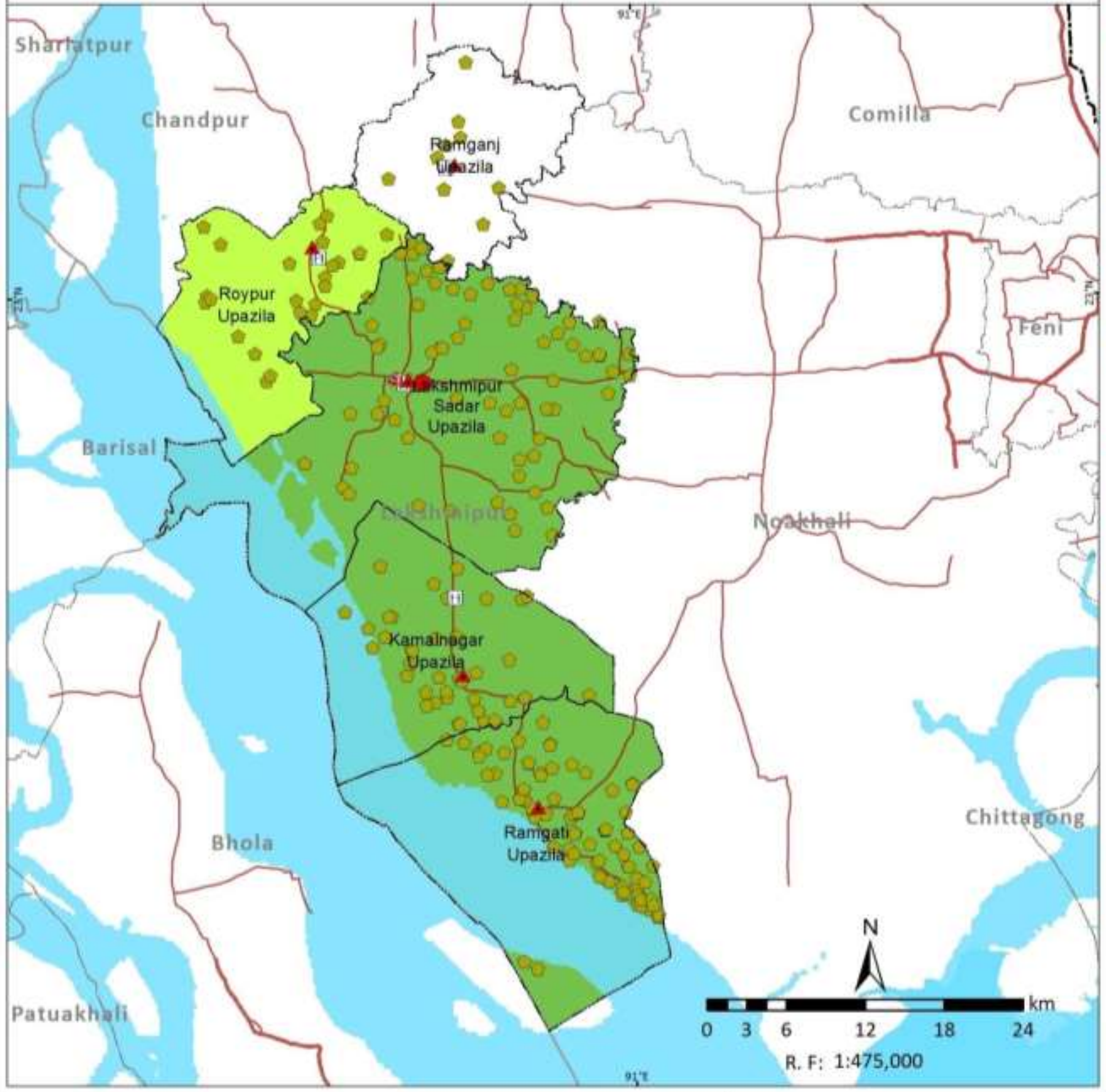
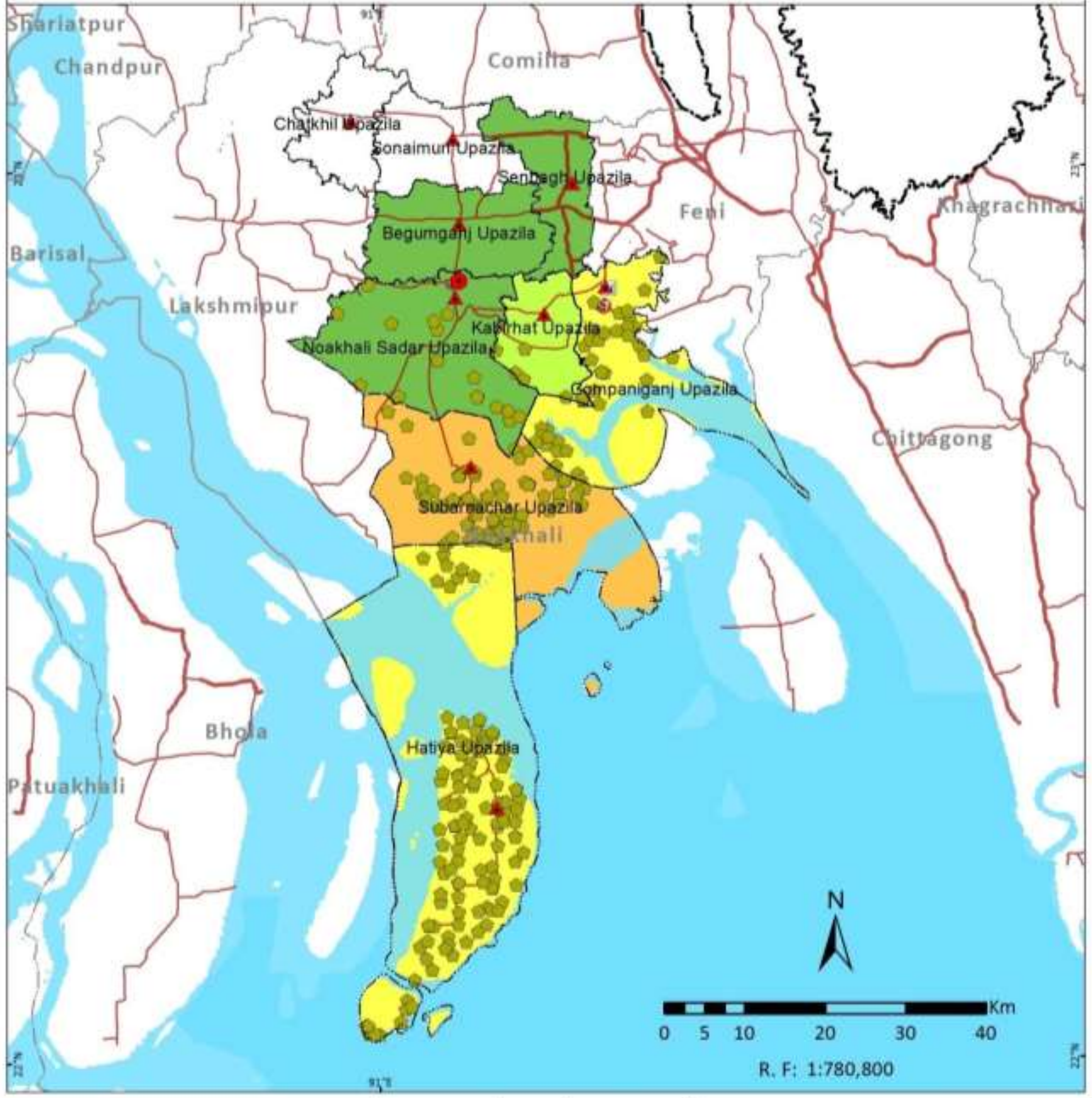
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Lakshpur District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Noakhali District)



Legend

Country Boundary	District Head Quarter	**Risk Level**	
Division Boundary	Upazila Head Quarter		No Risk
District Boundary	Fire Station		Very Low
Upazila Boundary	Hospital		Low
National High Way	Cyclone Shelter		Moderate
Regional High Way	River/Sea/Lake		High
	Sundarbans		Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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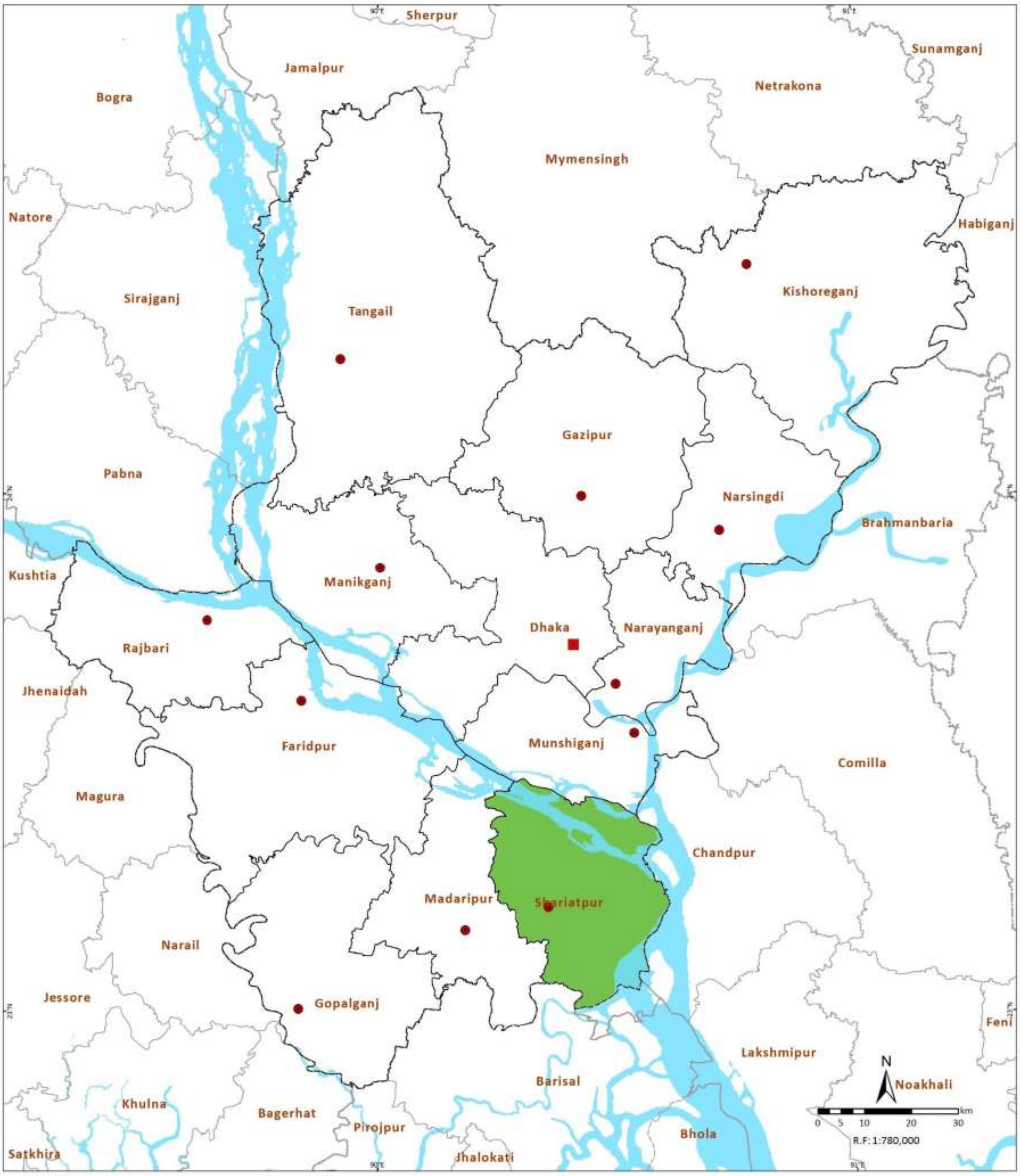
Risk Levels of Housing (Kutcha and Jhupri) map of 25 year return period (Dhaka Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Barisal Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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Rangpur, Mymensingh, Sylhet, Rajshahi, Dhaka, Khulna, Barisal, Chittagong

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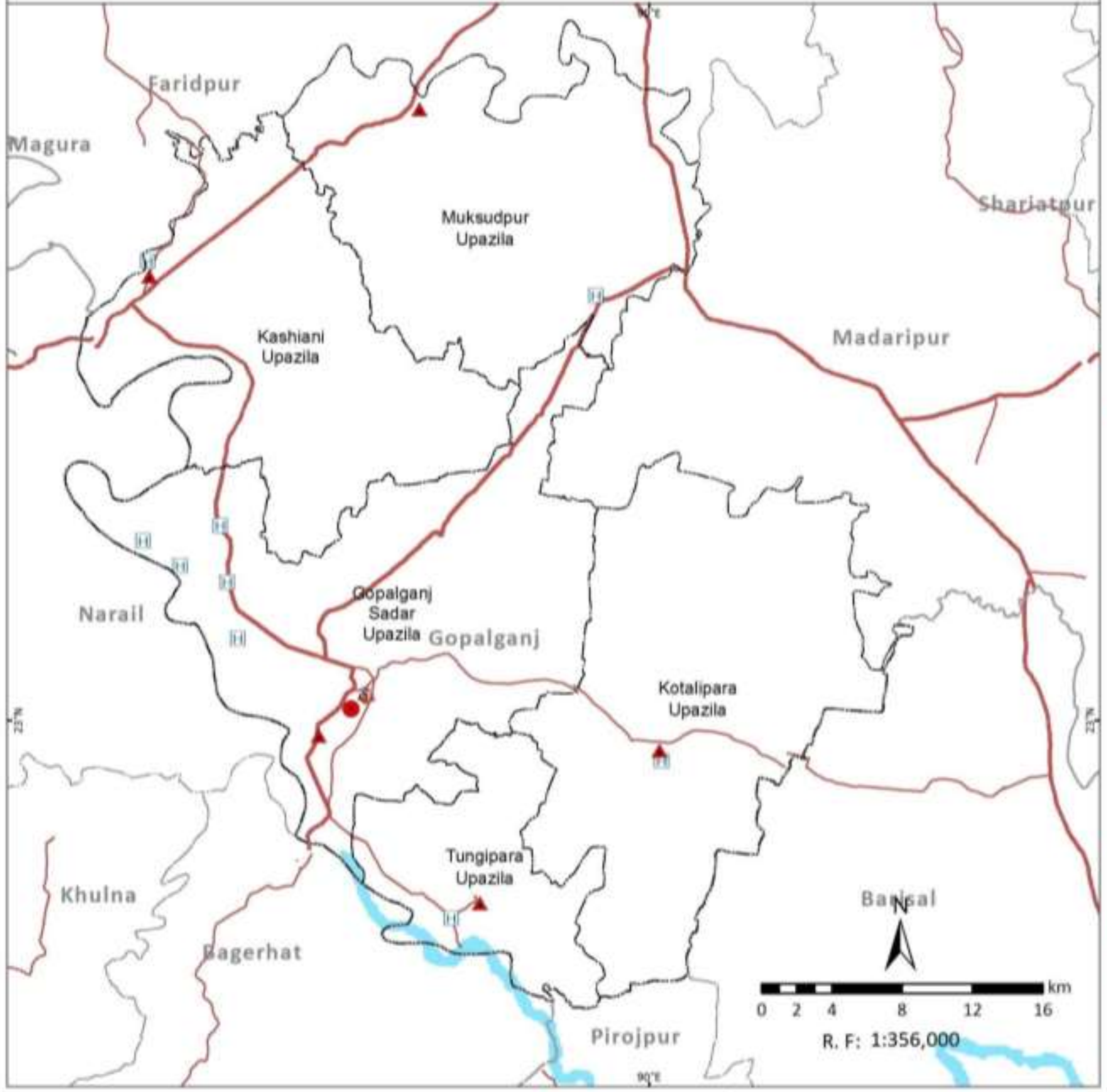
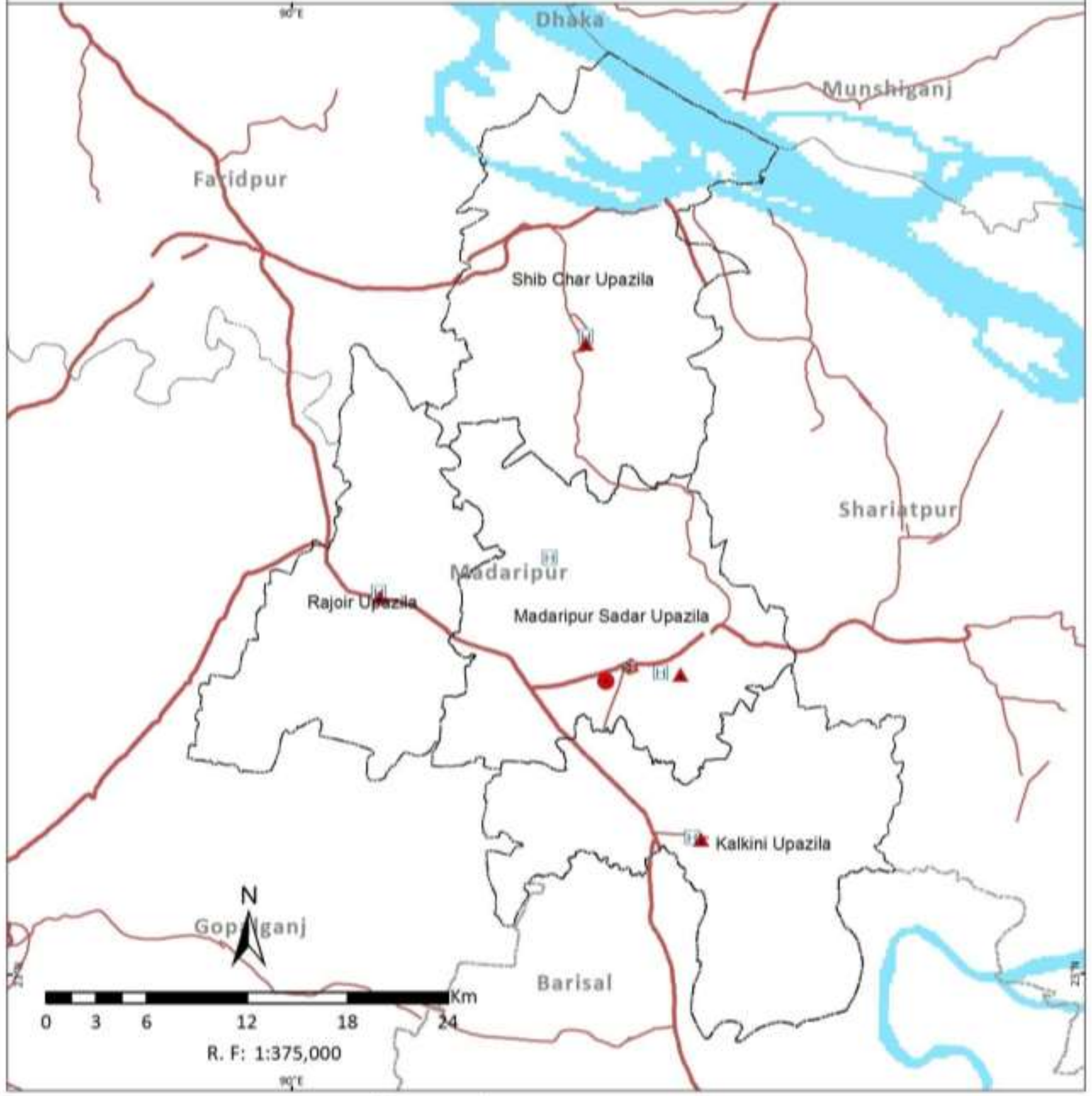
Department of Disaster Management (DDM)
Ministry of Disaster Management and Relief

Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Gopalganj District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Madaripur District)



Legend

Country Boundary	District Head Quarter	Risk Level
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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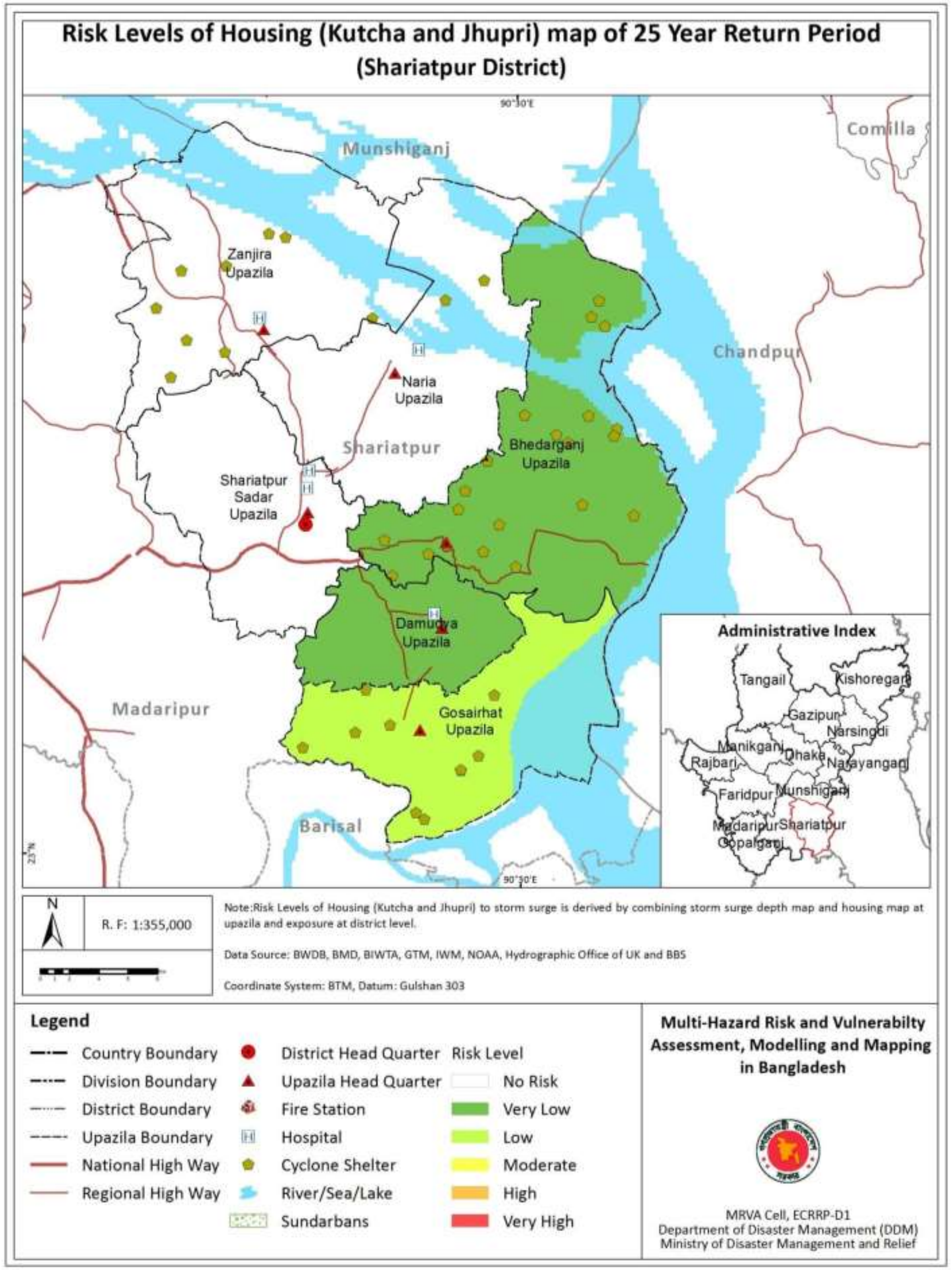
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period
(Shariatpur District)
Munshiganj
Comilla
Chandpur
Zanjira Upazila
Naria Upazila
Shariatpur
Shariatpur Sadar Upazila
Bhedarganj Upazila
Damudya Upazila
Gosairhat Upazila
Madaripur
Barisal
Administrative Index
Tangail
Kishoreganj
Gazipur
Narsingdi
Manikganj
Dhaka
Narayanganj
Rajbari
Faridpur
Munshiganj
Madaripur
Shariatpur
Gopalganj
N
R. F: 1:355,000
Note:Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
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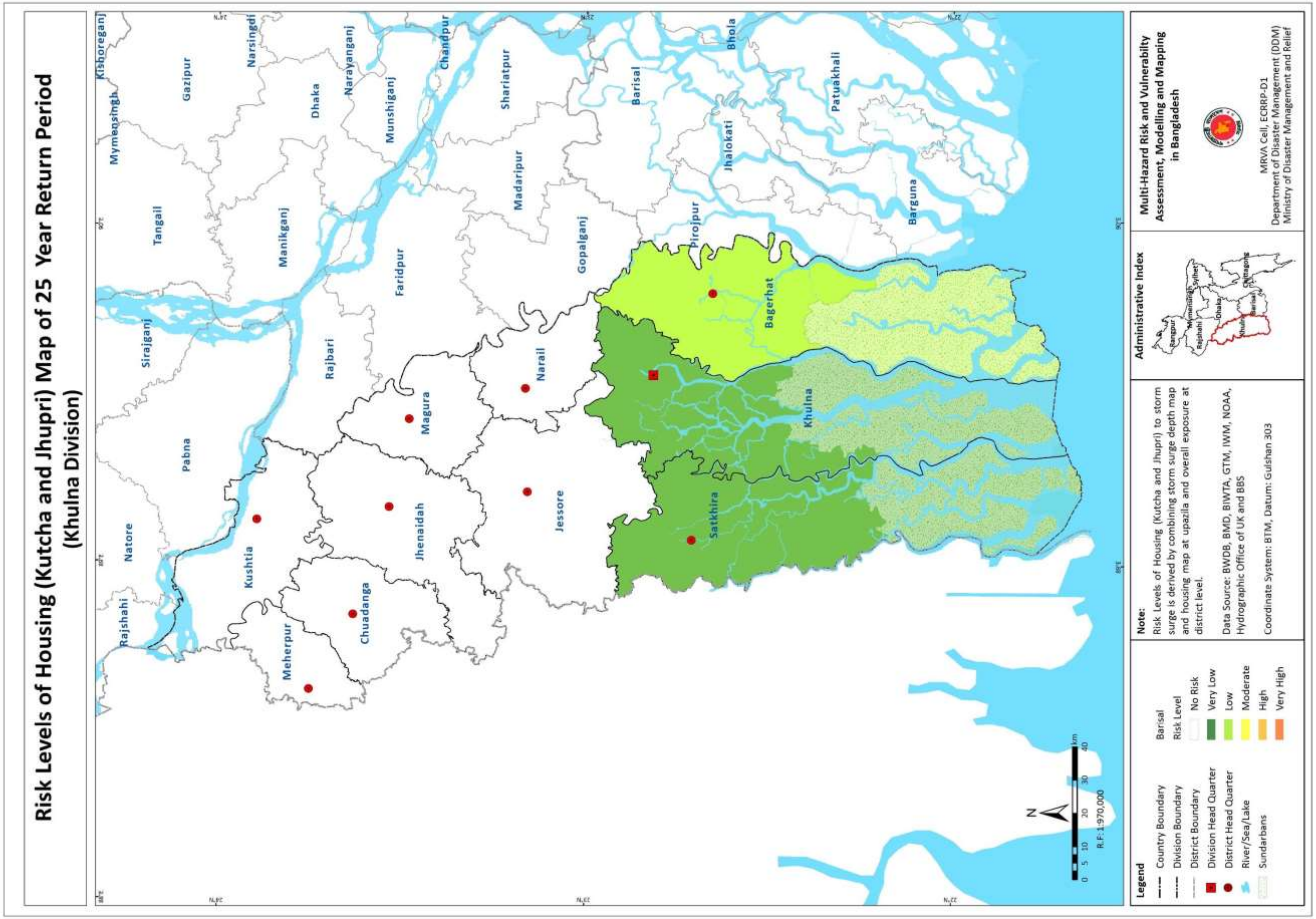

Risk Levels of Housing (Kutcha and Jhupri) Map of 25 Year Return Period
(Khulna Division)
Rajshahi
Natore
Pabna
Sirajganj
Tangail
Mymensingh
Kishoreganj
Gazipur
Narsingdi
Dhaka
Narayanganj
Manikganj
Munshiganj
Chandpur
Shariatpur
Madaripur
Faridpur
Rajbari
Gopalganj
Barisal
Bhola
Jhalokati
Pirojpur
Patuakhali
Barguna
Bagerhat
Khulna
Satkhira
Narail
Magura
Jessore
Jhenaidah
Kushtia
Chuadanga
Meherpur
R.F: 1:970,000
Legend
Country Boundary
Division Boundary
District Boundary
Division Head Quarter
District Head Quarter
River/Sea/Lake
Sundarbans
Barisal
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
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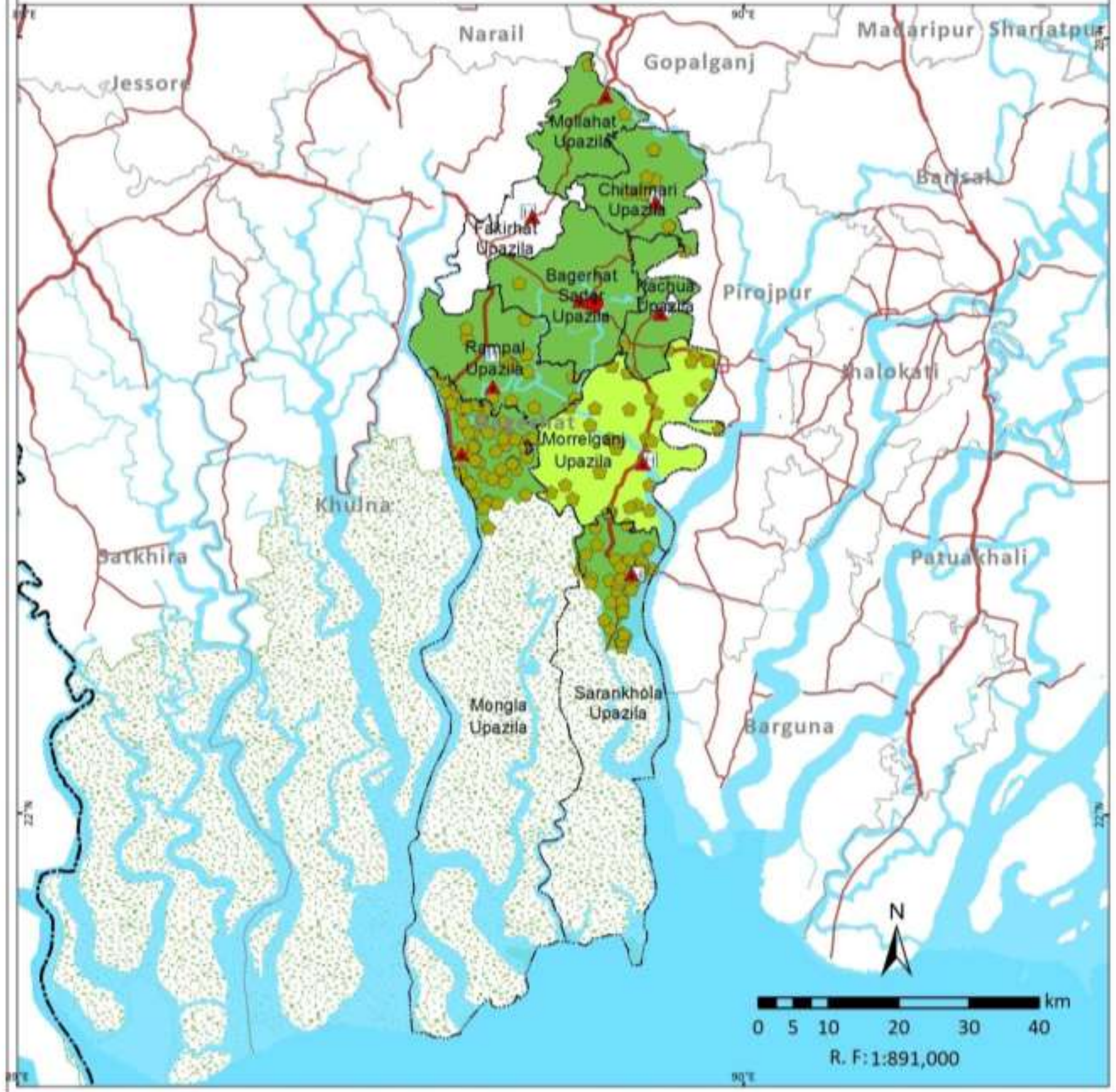
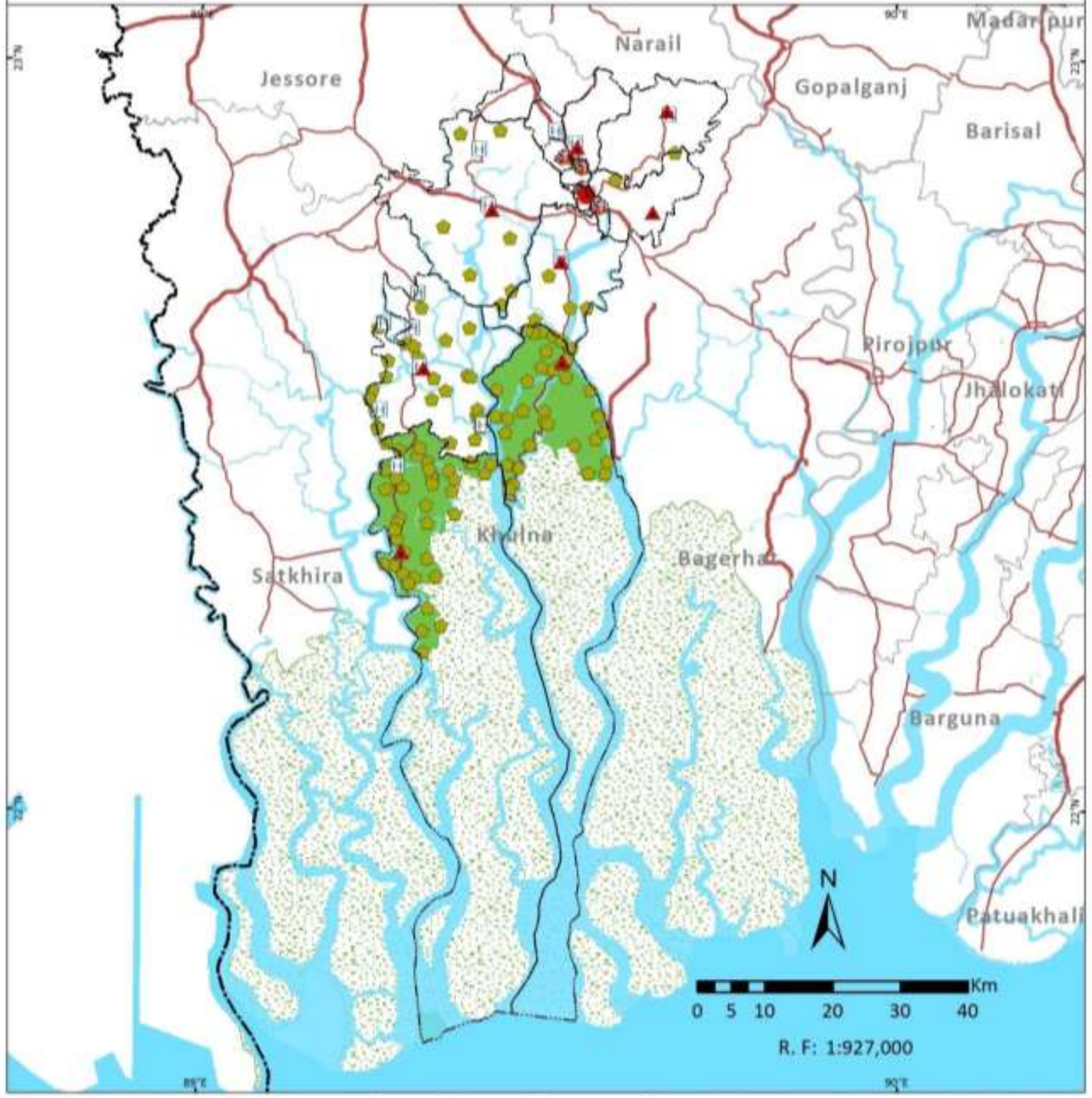
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period
(Bagerhat District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period
(Khulna District)



Legend

Country Boundary	Division Head Quarter	**Risk Level**
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Head Quarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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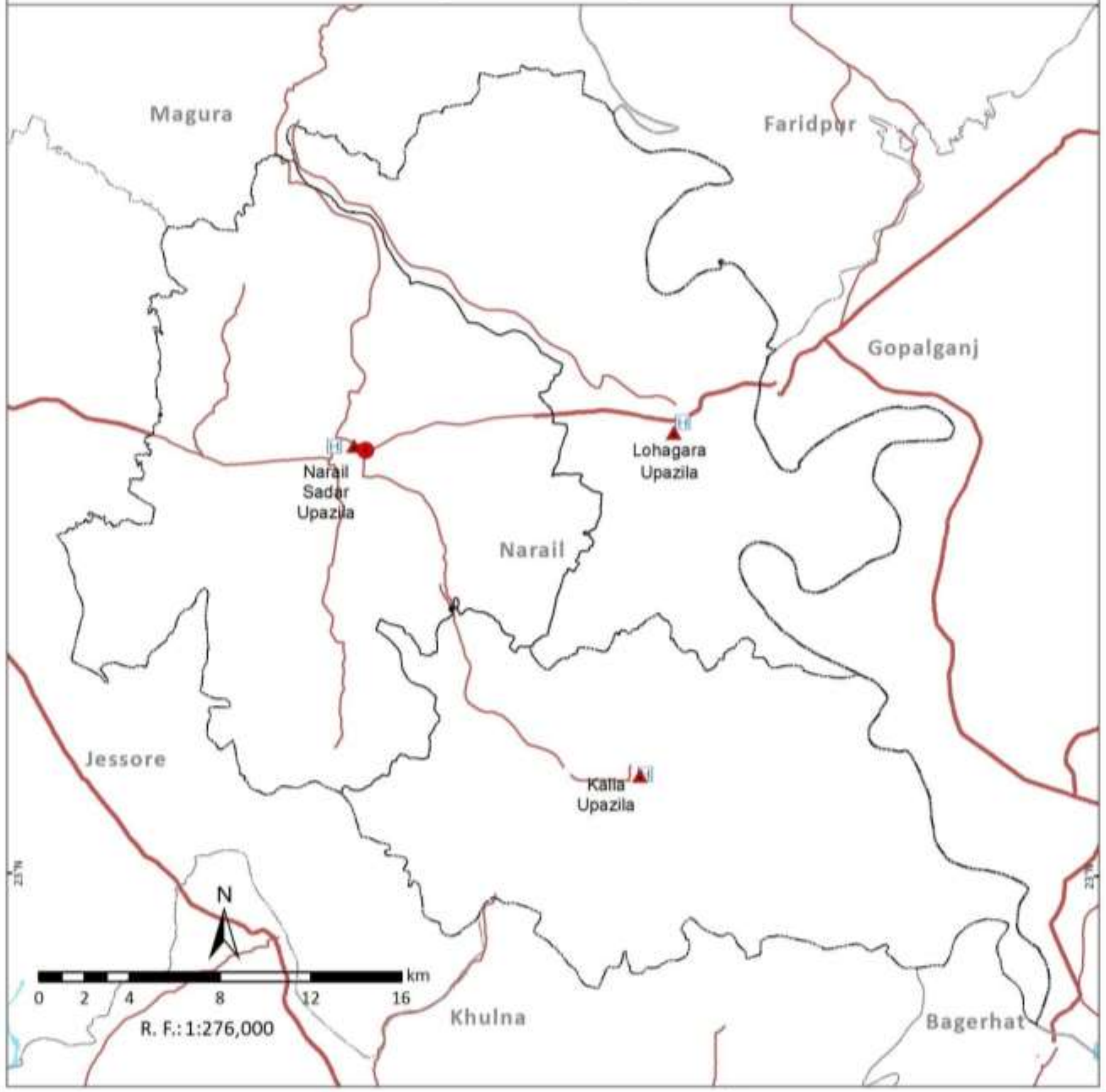
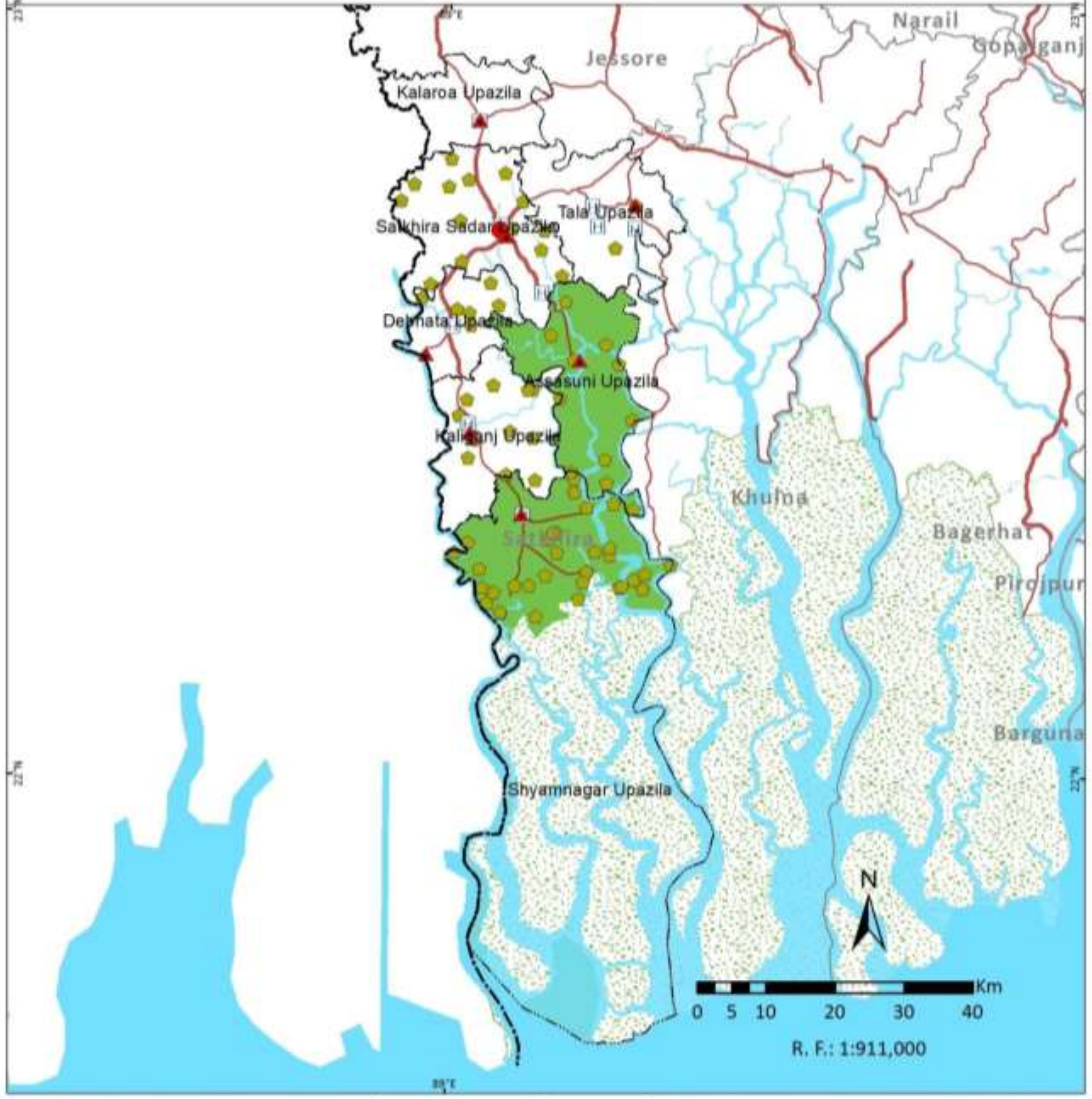
Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Narail District)



Risk Levels of Housing (Kutcha and Jhupri) map of 25 Year Return Period (Satkhira District)



Legend

Country Boundary	District Head Quarter	Risk Level		
Division Boundary	Upazila Head Quarter		No Risk	
District Boundary	Fire Station		Very Low	
Upazila Boundary	Hospital		Low	
National High Way	Cyclone Shelter		Moderate	
Regional High Way	River/Sea/Lake		High	
	Sundarbans		Very High	

Note:

Risk Levels of Housing (Kutcha and Jhupri) to storm surge is derived by combining storm surge depth map and housing map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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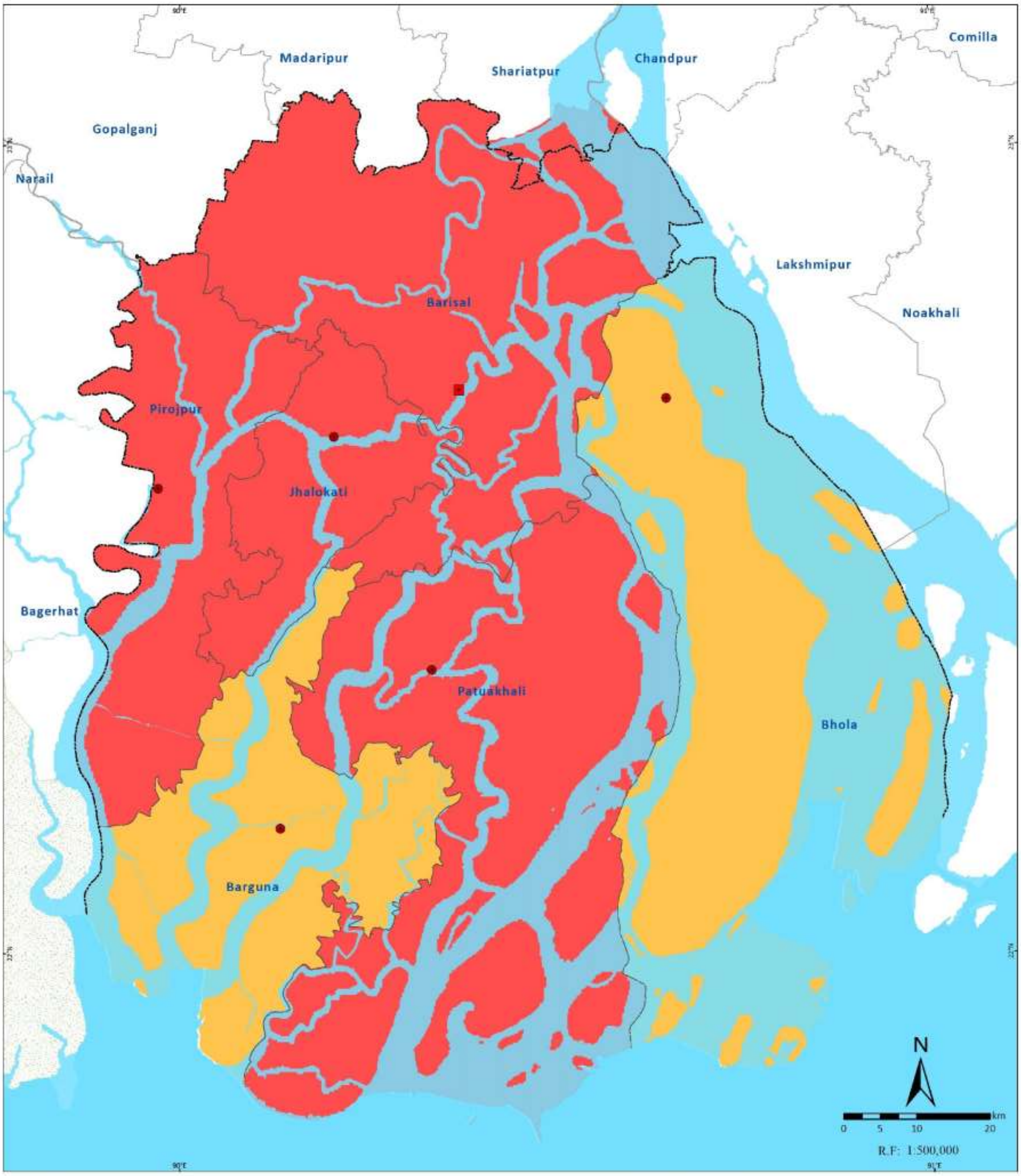
Risk Levels of Livelihood (Agriculture) Map of 25 Year Return Period
(Barisal Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Barisal
Risk Level
- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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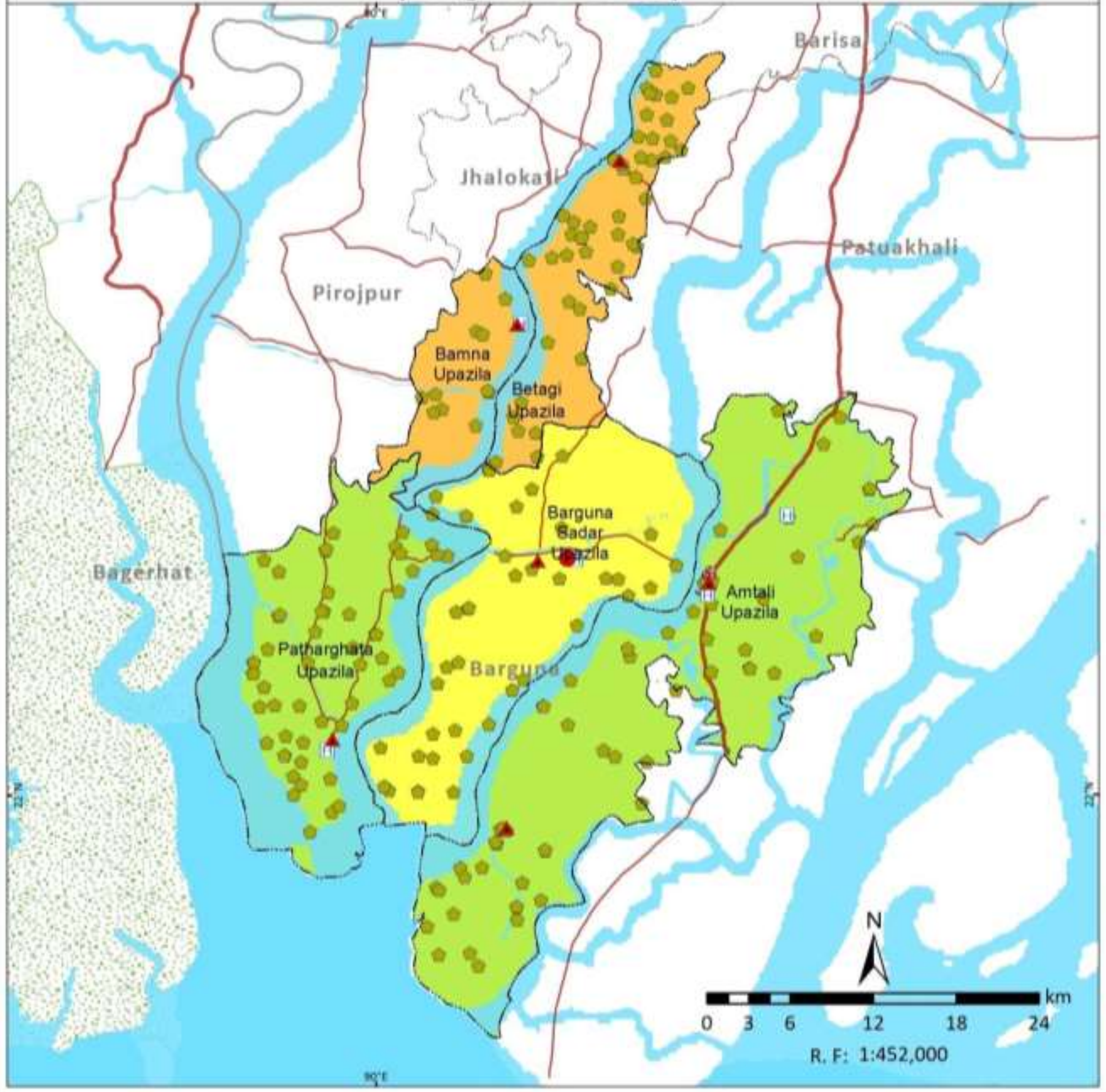
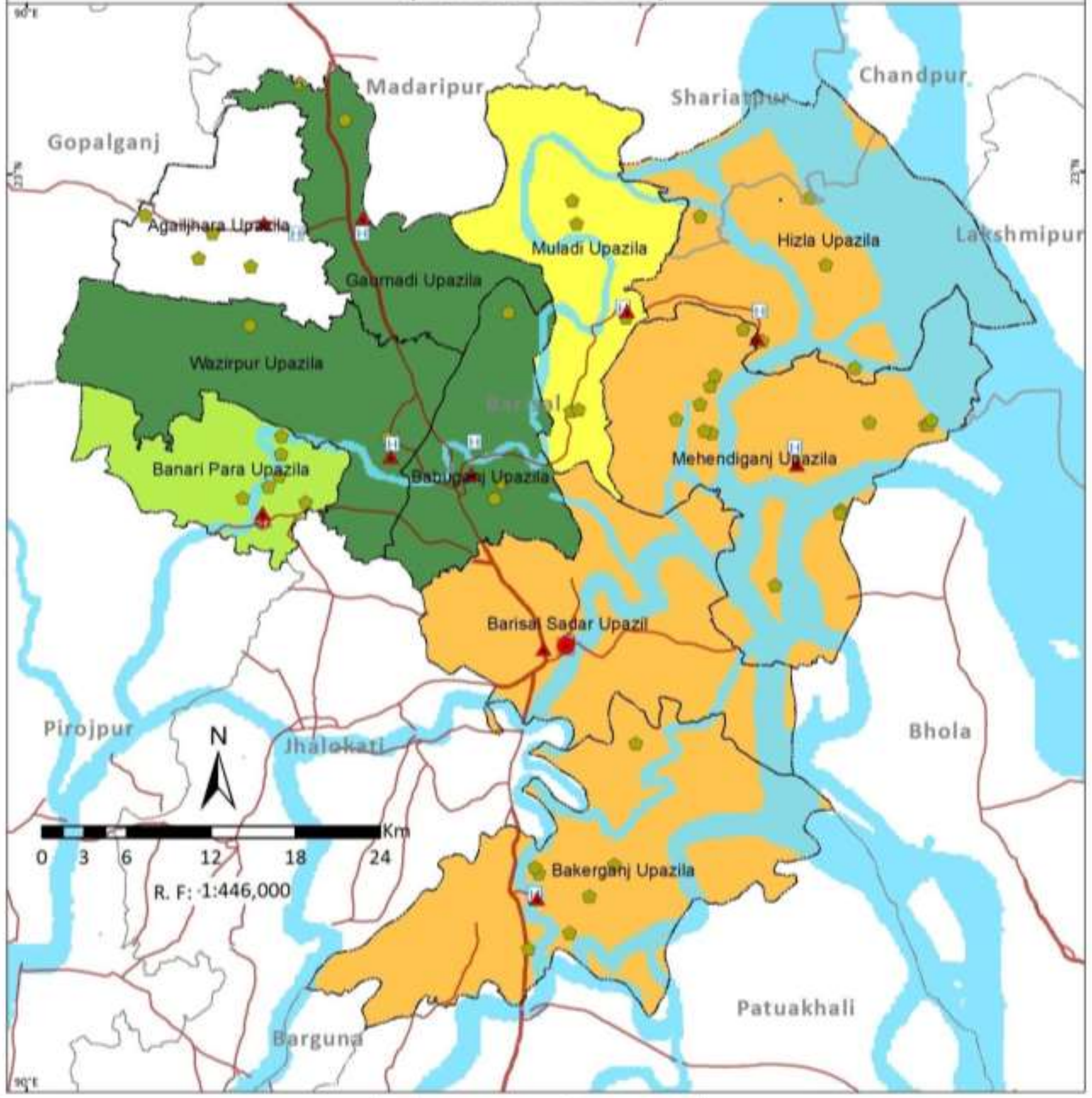
Risk Levels of Livelihood (Agriculture) to Storm Surge (Barguna District)



Risk Levels of Livelihood (Agriculture) to Storm Surge (Barisal District)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Upazila Boundary
- National High Way
- Regional High Way
- Division Head Quarter
- District Head Quarter
- Upazila Headquarter
- Fire Station
- Hospital
- Cyclone Shelter
- River/Sea/Lake
- Sundarbans

Risk Level
- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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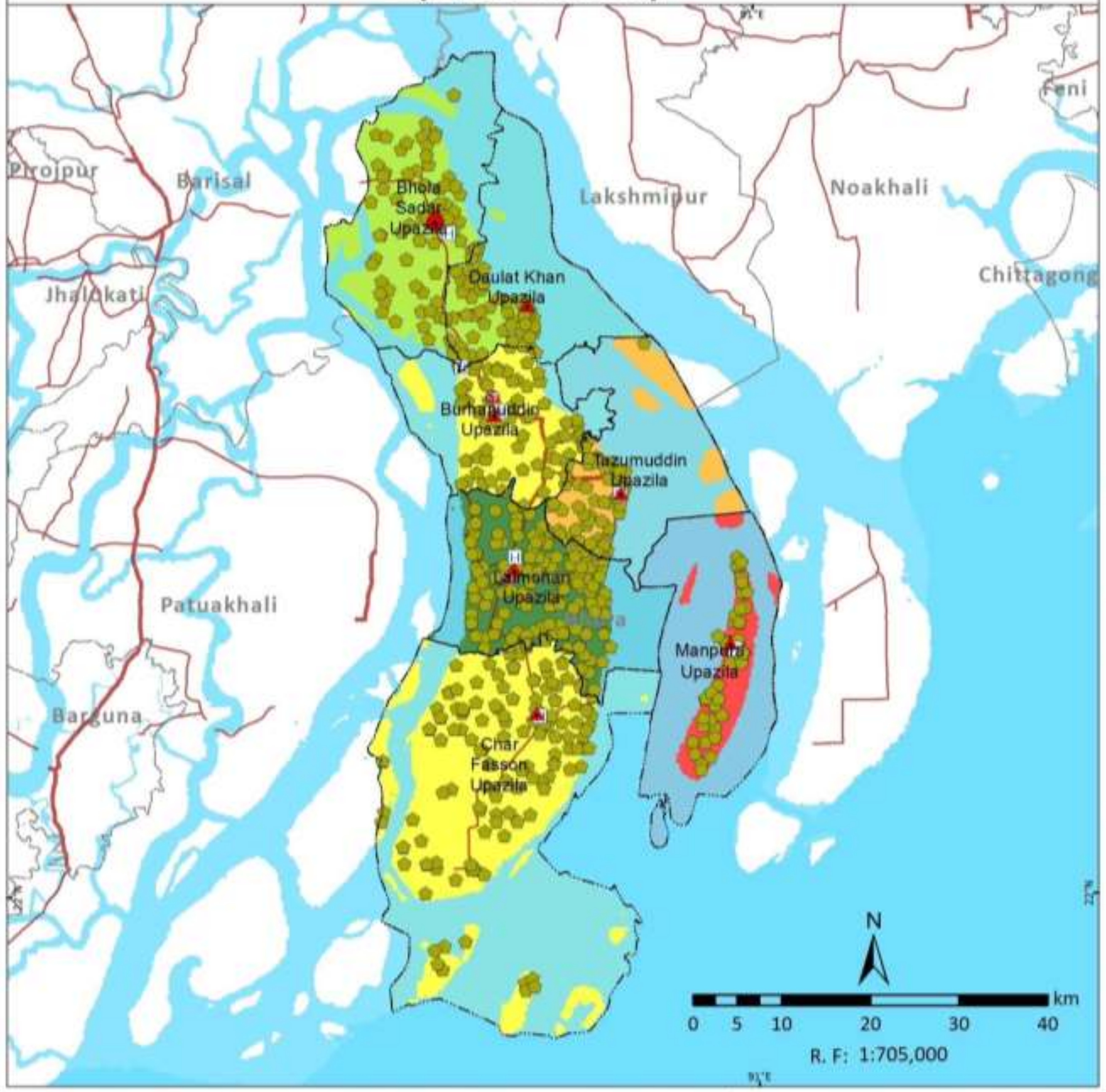
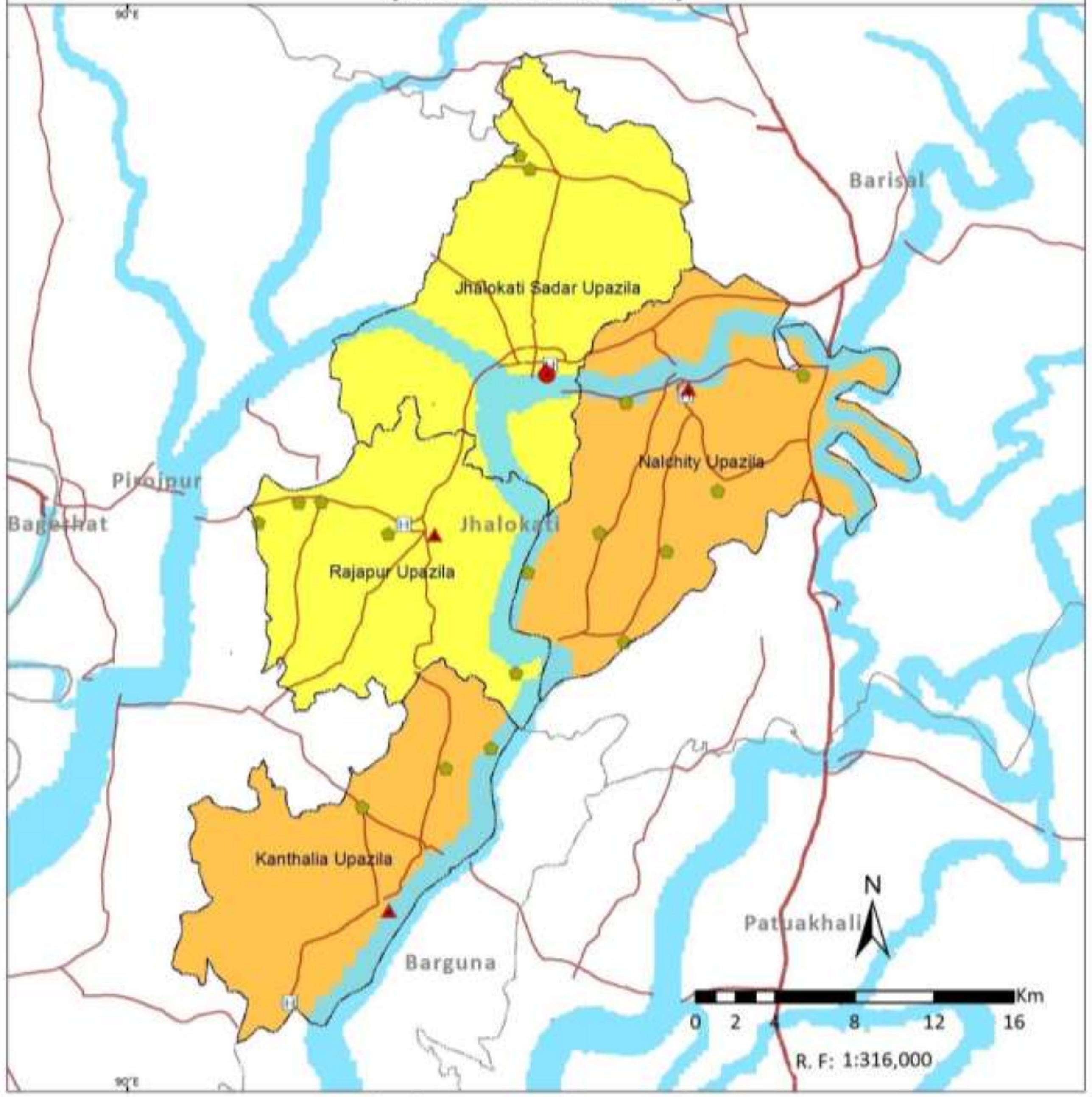
Risk Levels of Livelihood (Agriculture) to Storm Surge (Bhola District)



Risk Levels of Livelihood (Agriculture) to Storm Surge (Jhalokati District)



Legend

Note:

Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

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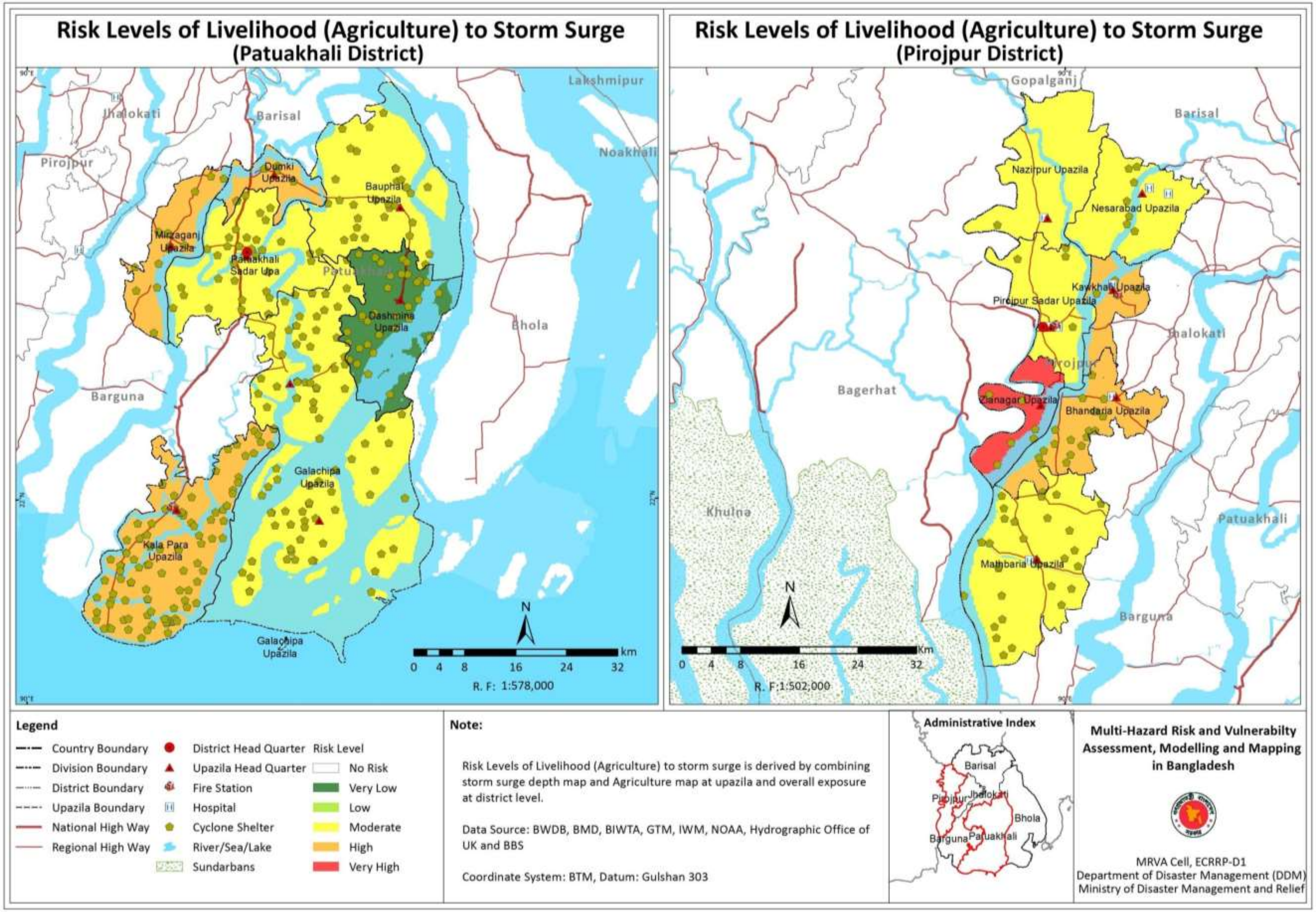
Risk Levels of Livelihood (Agriculture) to Storm Surge
(Patuakhali District)
Jhalokati
Barisal
Lakshmipur
Noakhali
Pirojpur
Dumki Upazila
Bauphal Upazila
Mirzaganj Upazila
Patuakhali Sadar Upa
Dashmina Upazila
Bhola
Barguna
Galachipa Upazila
Kala Para Upazila
Galachipa Upazila
N
0 4 8 16 24 32 km
R. F: 1:578,000
Risk Levels of Livelihood (Agriculture) to Storm Surge
(Pirojpur District)
Gopalganj
Barisal
Nazirpur Upazila
Nesarabad Upazila
Kawkhali Upazila
Pirojpur Sadar Upazila
Jhalokati
Bagerhat
Zianagar Upazila
Bhandaria Upazila
Khulna
Patuakhali
Mathbaria Upazila
Barguna
N
0 4 8 16 24 32 Km
R. F:1:502,000
Legend
Country Boundary
Division Boundary
District Boundary
Upazila Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
Note:
Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
Administrative Index
Barisal
Pirojpur
Jhalokati
Bhola
Barguna
Patuakhali
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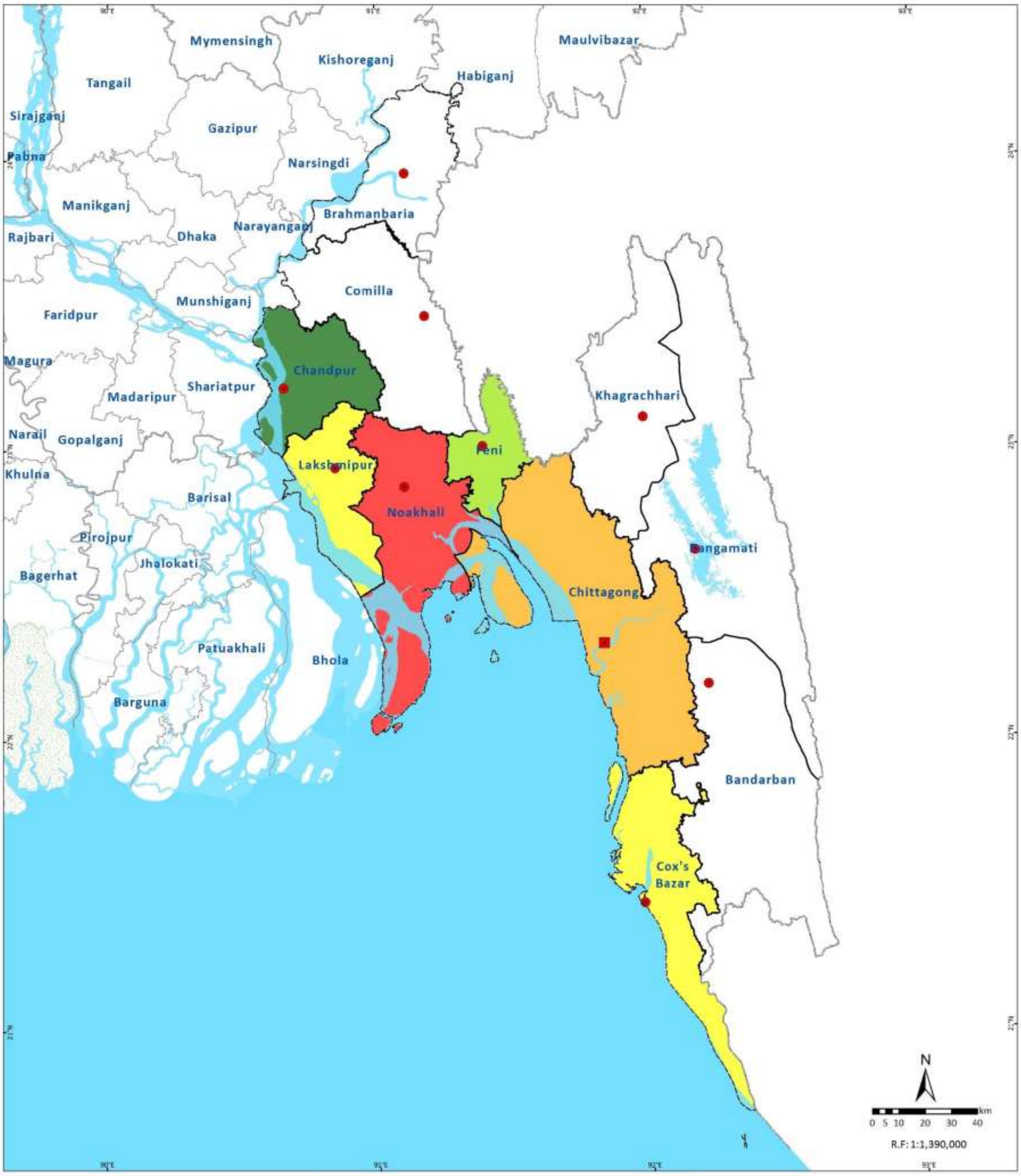
Risk Levels of Livelihood (Agriculture) Map of 25 Year Return Period (Chittagong Division)



Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Barisal

Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:

Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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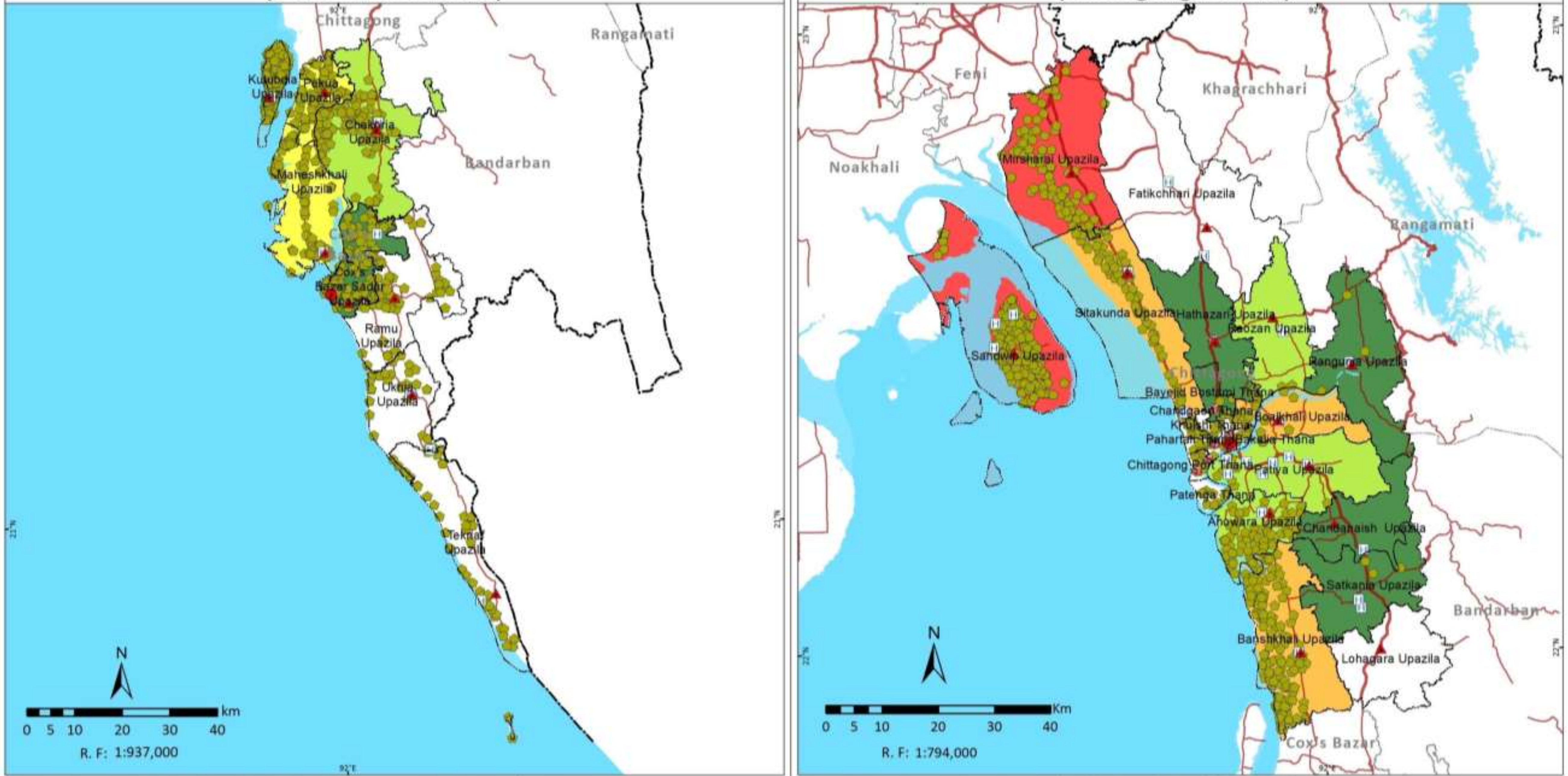
Risk Levels of Livelihood (Agriculture) to Storm Surge (Cox's Bazar District)

Risk Levels of Livelihood (Agriculture) to Storm Surge (Chittagong District)



Legend

Country Boundary	Division Head Quarter	**Risk Level**
Division Boundary	District Head Quarter	No Risk
District Boundary	Upazila Head Quarter	Very Low
Upazila Boundary	Fire Station	Low
National High Way	Hospital	Moderate
Regional High Way	Cyclone Shelter	High
	River/Sea/Lake	Very High
	Sundarbans	

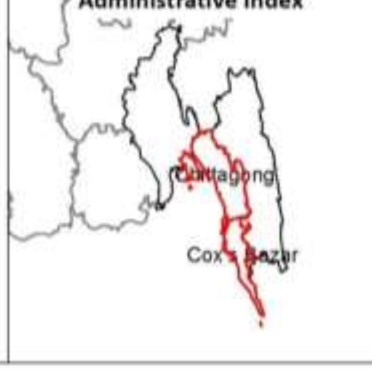
Note:

Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

Administrative Index



Multi-Hazard Risk and Vulnerabilty Assessment, Modelling and Mapping in Bangladesh

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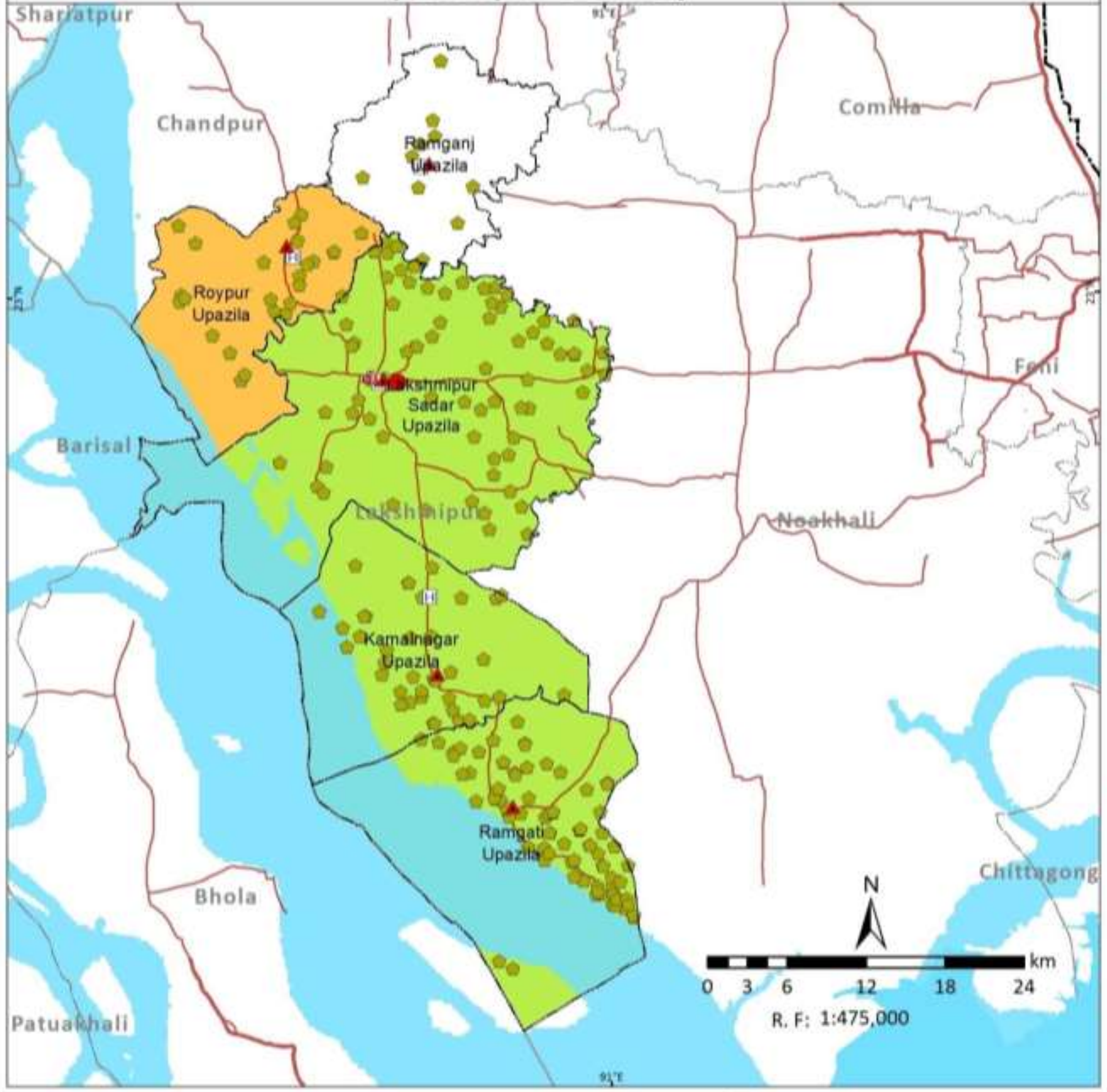
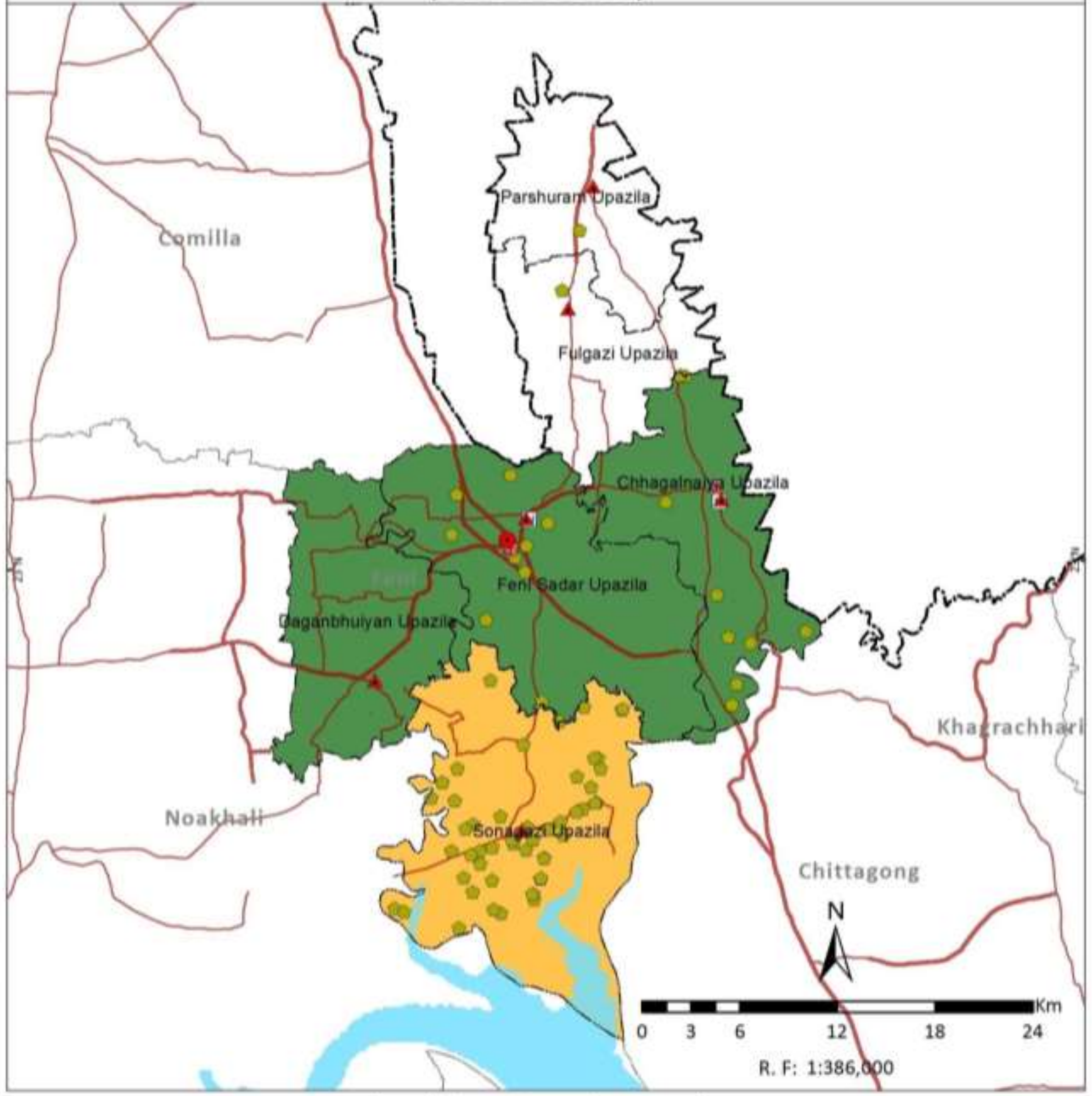
Risk Levels of Livelihood (Agriculture) to Storm Surge
(Lakshpur District)



Risk Levels of Livelihood (Agriculture) to Storm Surge
(Feni District)



Legend

Country Boundary	District Head Quarter	**Risk Level**
Division Boundary	Upazila Head Quarter	No Risk
District Boundary	Fire Station	Very Low
Upazila Boundary	Hospital	Low
National High Way	Cyclone Shelter	Moderate
Regional High Way	River/Sea/Lake	High
	Sundarbans	Very High

Note:

Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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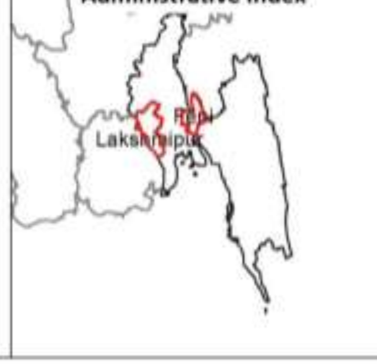

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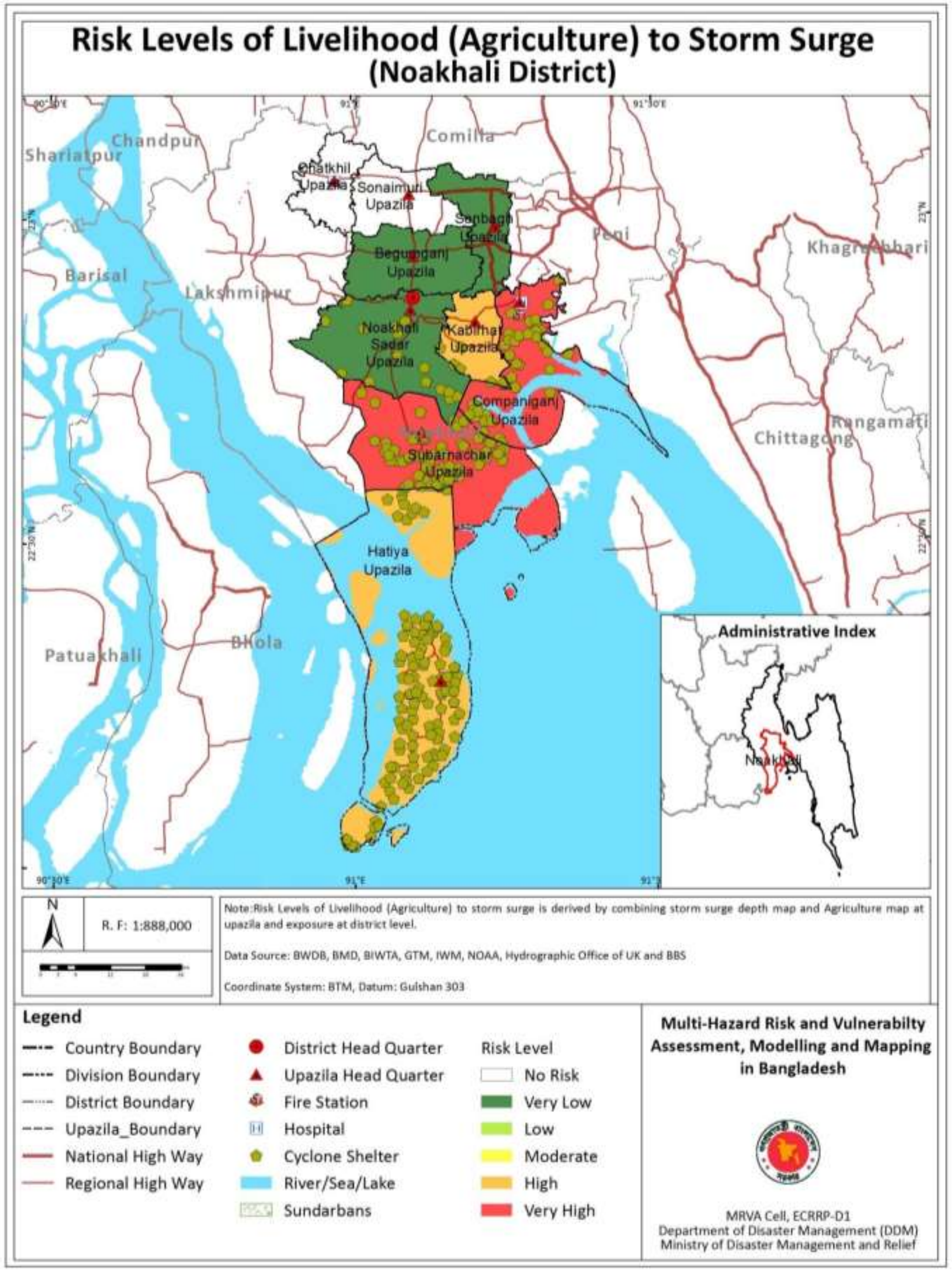
Risk Levels of Livelihood (Agriculture) to Storm Surge
(Noakhali District)
Shariatpur
Chandpur
Comilla
Chatkhil Upazila
Sonaimuri Upazila
Senbagh Upazila
Feni
Khagrachhari
Barisal
Lakshmipur
Begumganj Upazila
Noakhali Sadar Upazila
Kabirhat Upazila
Companiganj Upazila
Subarnachar Upazila
Chittagong
Rangamati
Hatiya Upazila
Patuakhali
Bhola
Administrative Index
Noakhali
90°30'E
91°E
91°30'E
N
R. F: 1:888,000
Note:Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
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Risk Levels of Livelihood (Agriculture) Map of 25 Year Return Period
(Khulna Division)

Legend

- Country Boundary
- Division Boundary
- District Boundary
- Division Head Quarter
- District Head Quarter
- River/Sea/Lake
- Sundarbans

Barisal
Risk Level

- No Risk
- Very Low
- Low
- Moderate
- High
- Very High

Note:
Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and overall exposure at district level.

Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS

Coordinate System: BTM, Datum: Gulshan 303

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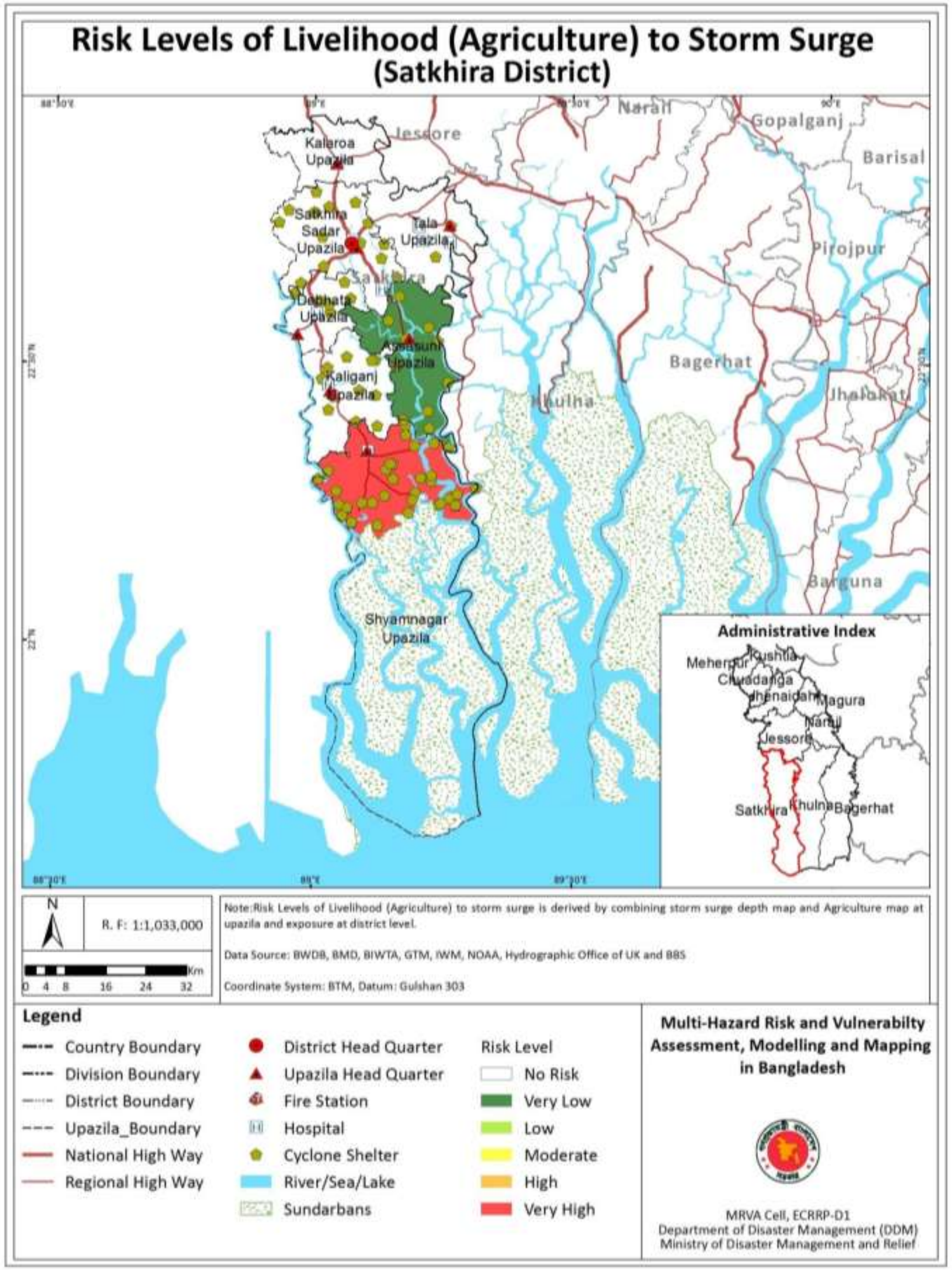
Ministry of Disaster Management and Relief



Risk Levels of Livelihood (Agriculture) to Storm Surge
(Satkhira District)
Jessore
Narail
Gopalganj
Barisal
Pirojpur
Bagerhat
Jhalokati
Khulna
Barguna
Kalaroa Upazila
Satkhira Sadar Upazila
Tala Upazila
Debhata Upazila
Assasuni Upazila
Kaliganj Upazila
Shyamnagar Upazila
Administrative Index
Meherpur
Kushtia
Chuadanga
Jhenaidah
Magura
Narail
Jessore
Satkhira
Khulna
Bagerhat
R. F: 1:1,033,000
Km
0 4 8 16 24 32
Note:Risk Levels of Livelihood (Agriculture) to storm surge is derived by combining storm surge depth map and Agriculture map at upazila and exposure at district level.
Data Source: BWDB, BMD, BIWTA, GTM, IWM, NOAA, Hydrographic Office of UK and BBS
Coordinate System: BTM, Datum: Gulshan 303
Legend
Country Boundary
Division Boundary
District Boundary
Upazila_Boundary
National High Way
Regional High Way
District Head Quarter
Upazila Head Quarter
Fire Station
Hospital
Cyclone Shelter
River/Sea/Lake
Sundarbans
Risk Level
No Risk
Very Low
Low
Moderate
High
Very High
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Technical Assistance

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Dhaka 1206,
Bangladesh

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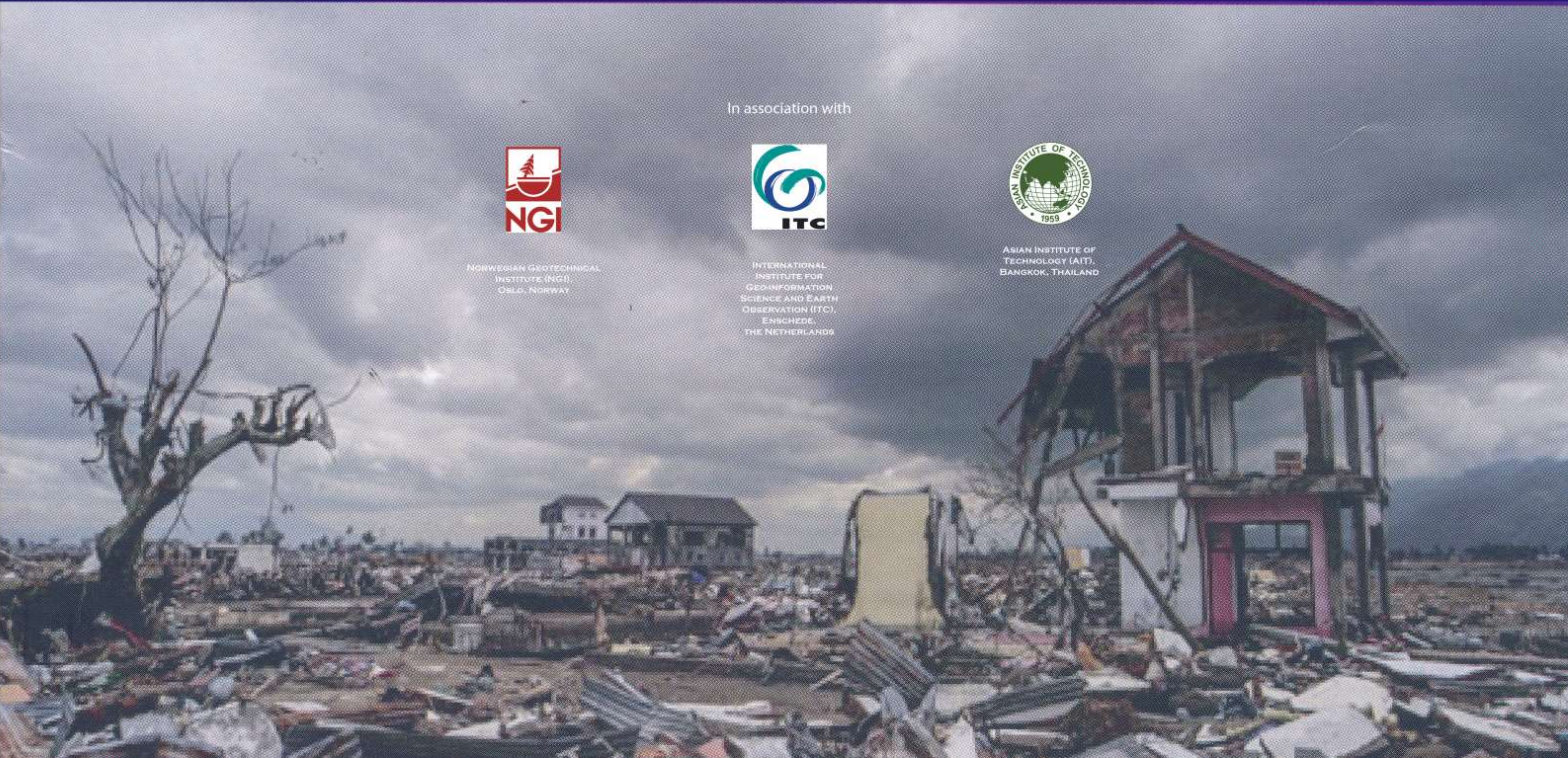

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