



Comprehensive Disaster Management Programme (CDMP-II)

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

Preparation of Scenario-based Spatial Contingency Plan with regard to Earthquake for Mymenisngh Municipality Area

**9 September, 2014
Urban Development Directorate (UDD)**

What is Contingency planning?

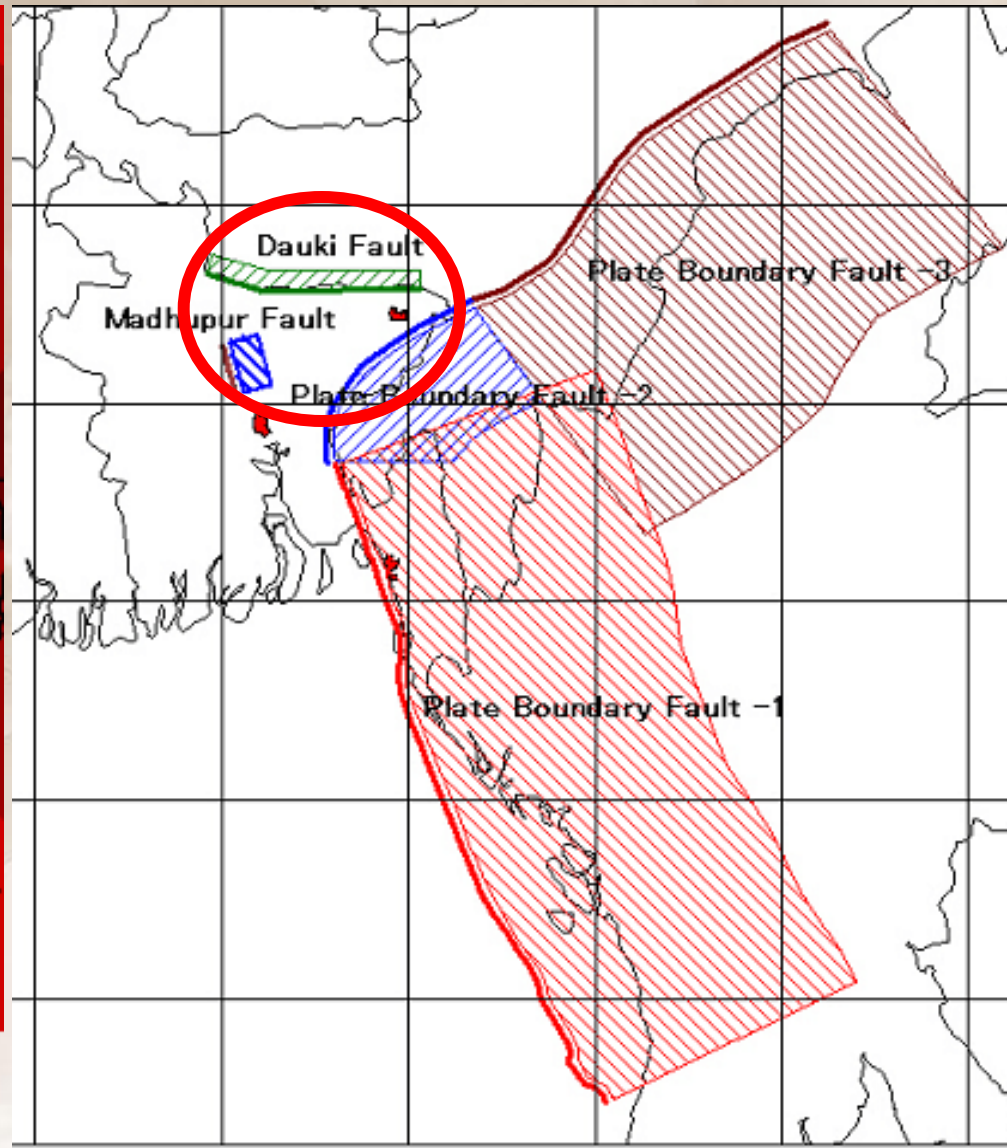
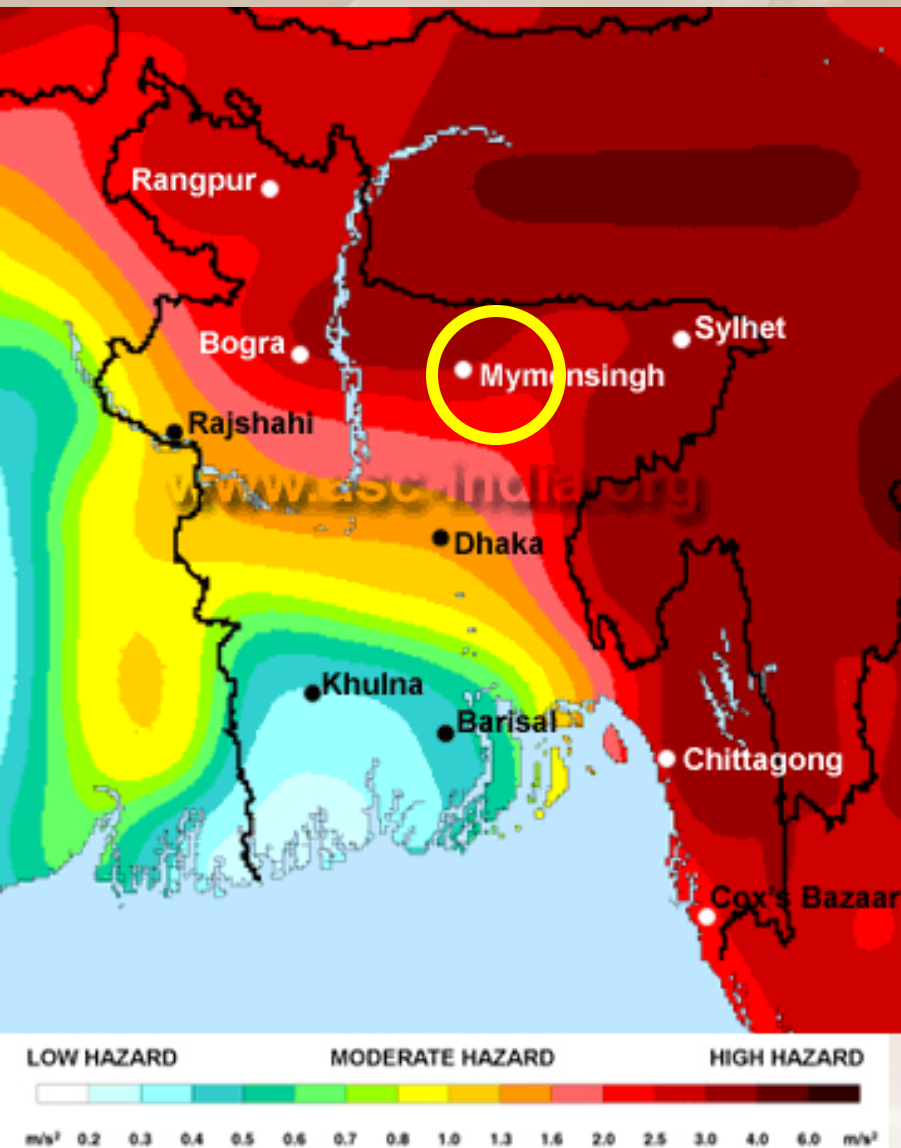


- Contingency planning is a management tool used to analyze the impact of potential crises so that adequate and appropriate arrangements are made in advance to respond in a timely, effective and appropriate way to the needs of affected populations.
- Contingency plan is a live document but may never need to be activated.

Why Contingency Planning is Important?

- **Helps to ensure that during an emergency response will be rapid, appropriate and effective.**
- **Allows for ample time for sound decision-making during “blue sky” without the chaos of response and recovery.**
- **Provides basis for assessing the adequacy of all aspects of preparedness.**
- **Helps to facilitate rapid emergency response in advance to:**
 - **Consider the likely consequences before it occurs**
 - **Identify key resources both human, equipment and supplies**
 - **Identify the critical areas of immediate action**
- **Serves as a tool for maintaining control over the events or limiting the risk or loss of control.**

Why Earthquake Contingency Planning is Important?



Generalized tectonic map and fault lines in Bangladesh

Evidence of Earthquake Damage in Mymensingh



Damaged Court Building of Mymensingh due to earthquake in 1897 with 8.7 Mw

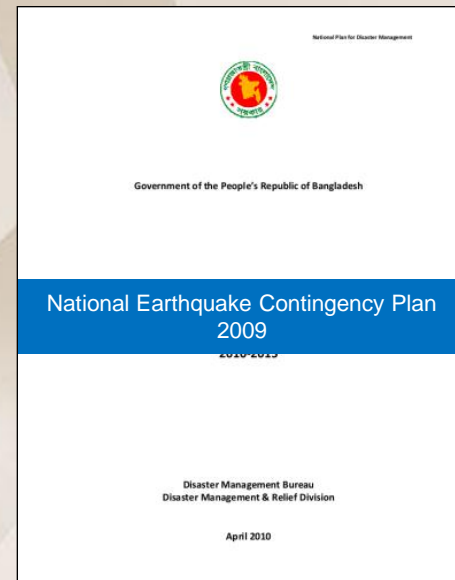
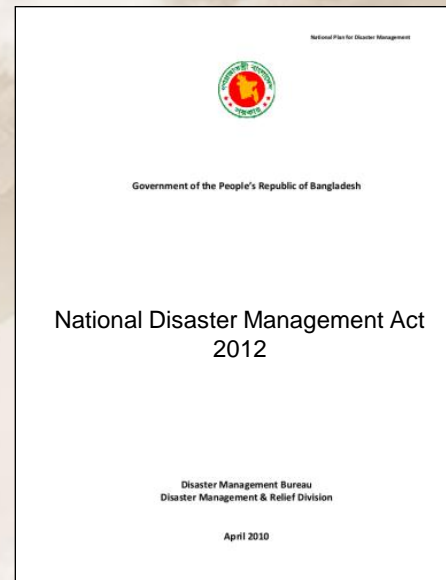
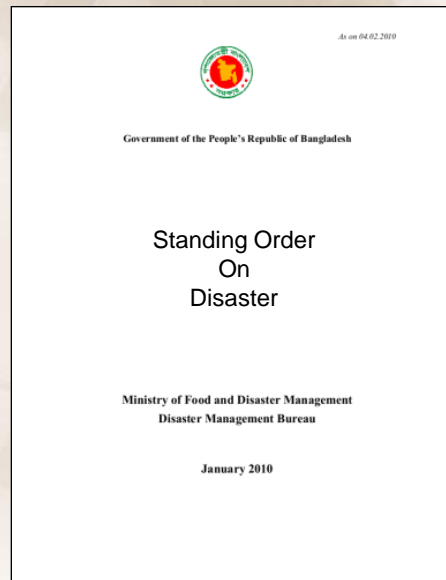
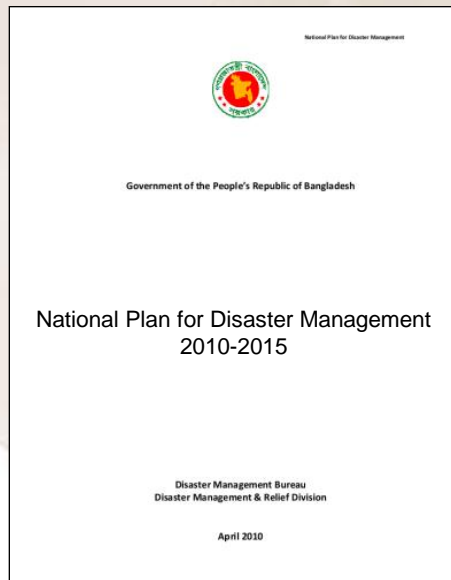
Level of Contingency Planning

- Contingency plan can be prepared at different levels starting from global to local considering a geographic unit or administrative boundary.



Context of Plan Preparation

- The contingency plan should be developed under the framework of national disaster management policies, strategies, emergency operation plans, standards and norms.
- Disaster management policy documents in Bangladesh:



Goals, Objectives and Scope of Contingency Planning

- The primary response goal is to save maximum number of lives in case of an earthquake and stabilize the event within first 72 hours. The priority objectives are:
 - Delivering immediate **search, rescue and evacuate** people to safe locations.
 - Providing **immediate medical assistance and life-saving medical services** to the victims.
 - Providing **fatality management services** and returning deceased, to their relatives.
 - **Stabilizing or eliminating damaged buildings and infrastructures** to minimize health and safety threats
 - **Restoring the essential infrastructures** to functional condition.
 - Ensuring **temporary shelters**, including provision of adequate **food, water and sanitation** facilities to the displaced population.
 - Providing **safety and security** and maintaining **law and order**.⁸

Plan Preparation Process

Stakeholders participated/involved in plan preparation process:

- Mymensingh Pourashava
- Department of Disaster Management (at DC Office)
- Fire Service and Civil Defence
- Bangladesh Army
- Civil Surgeon Office
- Bangladesh Power Development Board
- Bangladesh Telecommunication Company Ltd.
- Titas Gas Company Ltd.
- Bangladesh Police
- Bangladesh Ansar and VDP
- Public Works Department

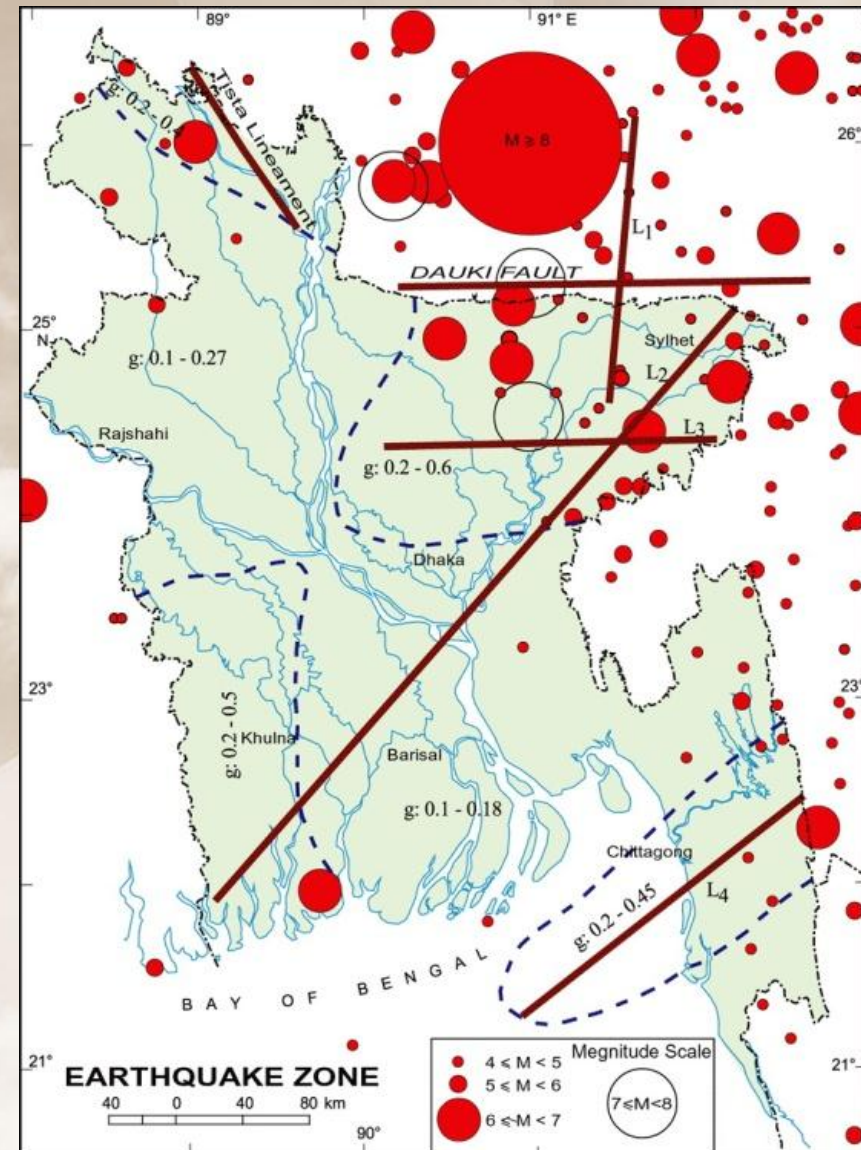
Plan Preparation Process (continue...)

Stakeholders participated in training and workshop on contingency plan preparation in Mymensingh City:



Seismic Risk Assessment and Developing the Scenarios

- Two popular seismic risk assessment tools are:
 - HAZUS
 - RADIUS
- Scenarios are the visions of future situation of a potential disaster and developed by analyzing the risk to a geographic location.



Seismic Risk Assessment and Developing the Scenarios

Scenario	Description
Scenario-1	An earthquake of 43 years return period originated from Dauki Fault
Scenario-2	An earthquake of 475 years return period originated from Dauki Fault
Scenario-3	An earthquake of 2475 years return period originated from Dauki Fault

- Possible damages and losses are estimated and summarized for following major elements
 - Building damage (moderate, extensive, complete)
 - Casualties and injures (4 severity levels at both day and night time)
 - Essential facilities damage (school, hospital, fire station, police station)
 - Transportation and utility system damage
 - Earthquake-induce fire occurrence and possible damages and losses
 - Quantity of debris generation

Estimated Possible Damages and Losses in Mymensingh

- **Building damage:**

Moderate – 5,753; Extensive – 1,006; Complete – 10,031

- **Casualties and injures:**

Killed – 17,020; Hospitalization – 3,212; First aid – 16,331

- **Essential facilities damage (structure):**

School – 418; Hospital - 84, Fire station – 2; Police station – 3

- **Transportation and utility system damage:**

Water supply pipeline: Leak – 150; Break – 175

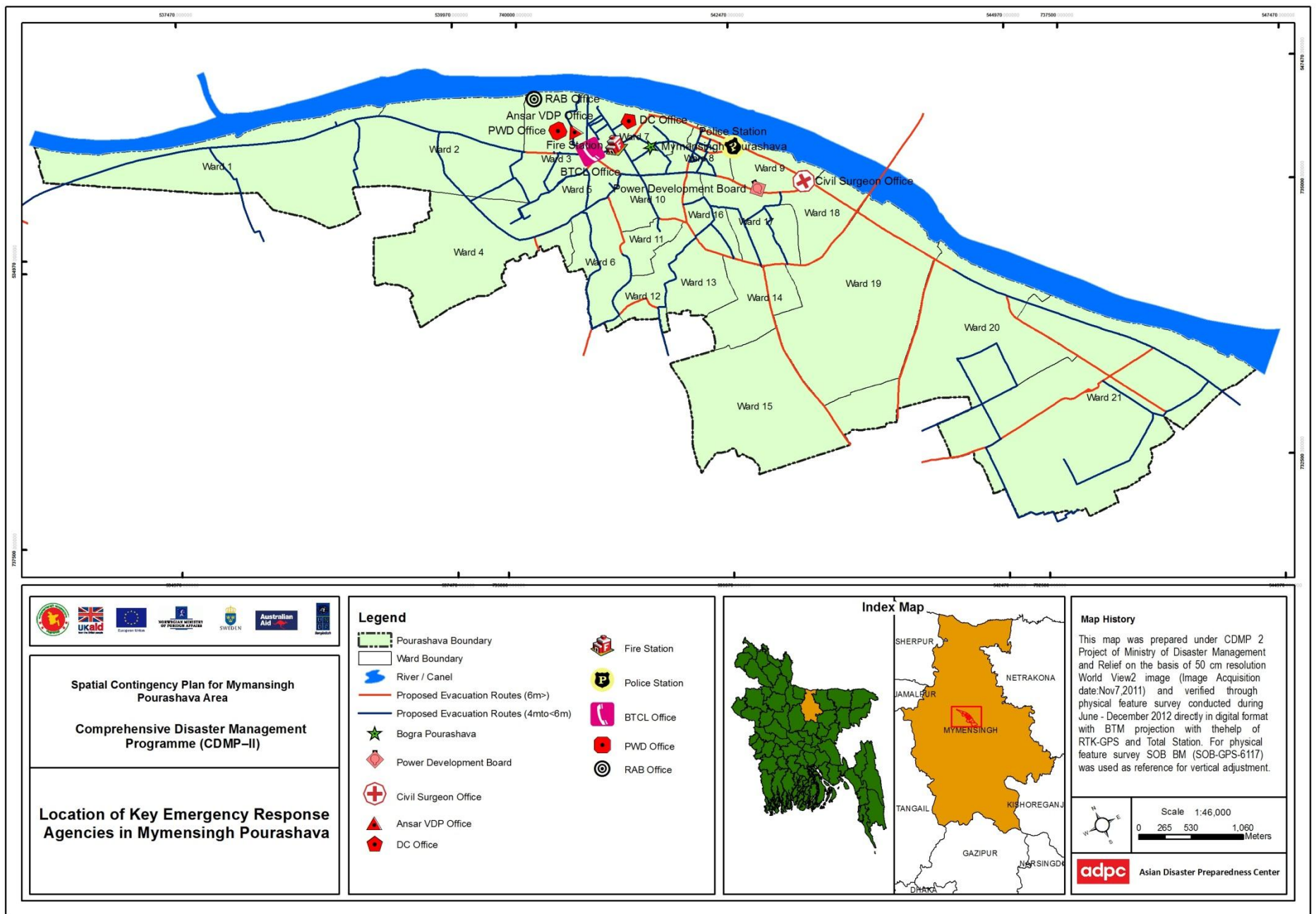
- **Earthquake-induce fire occurrence:**

Ignition – 3; Displaced population – 19

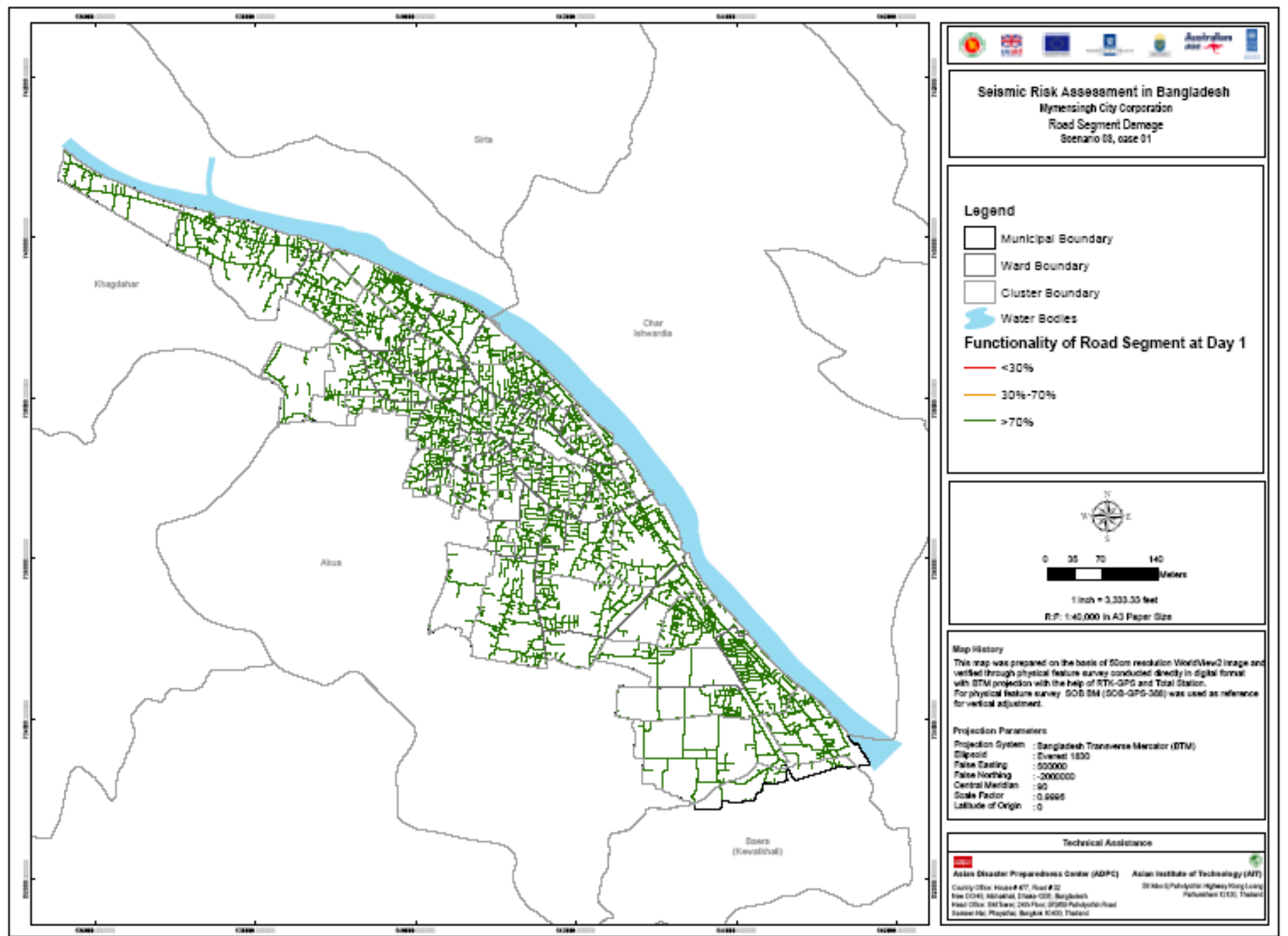
- **Quantity of debris generation**

24,230,000 Tons

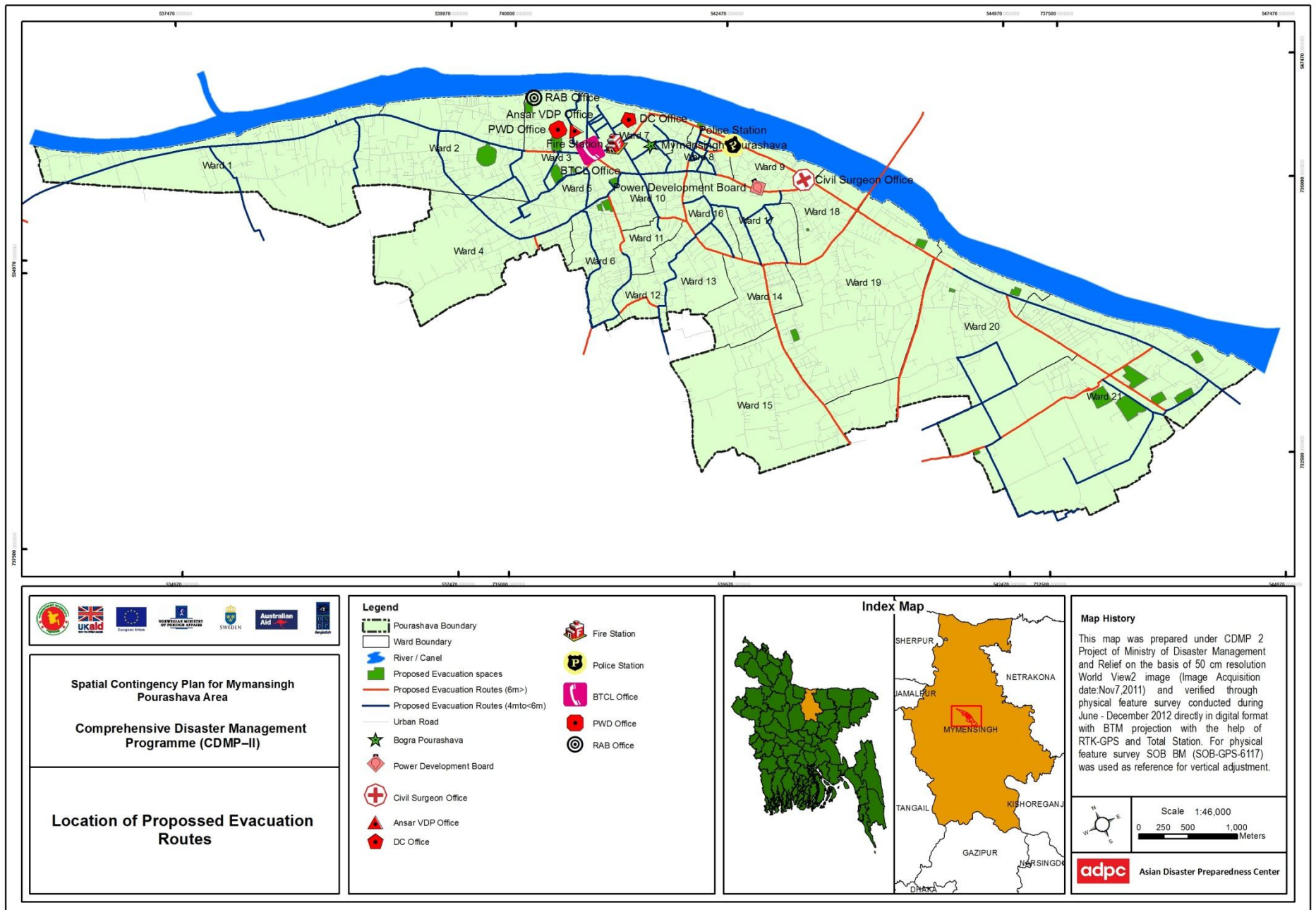
Location of Key Emergency Response Agencies in Mymensingh City



Functionality of Roads in Mymensingh City at Day-1



Identified Emergency Evacuation Routes & Spaces in Mymensingh City



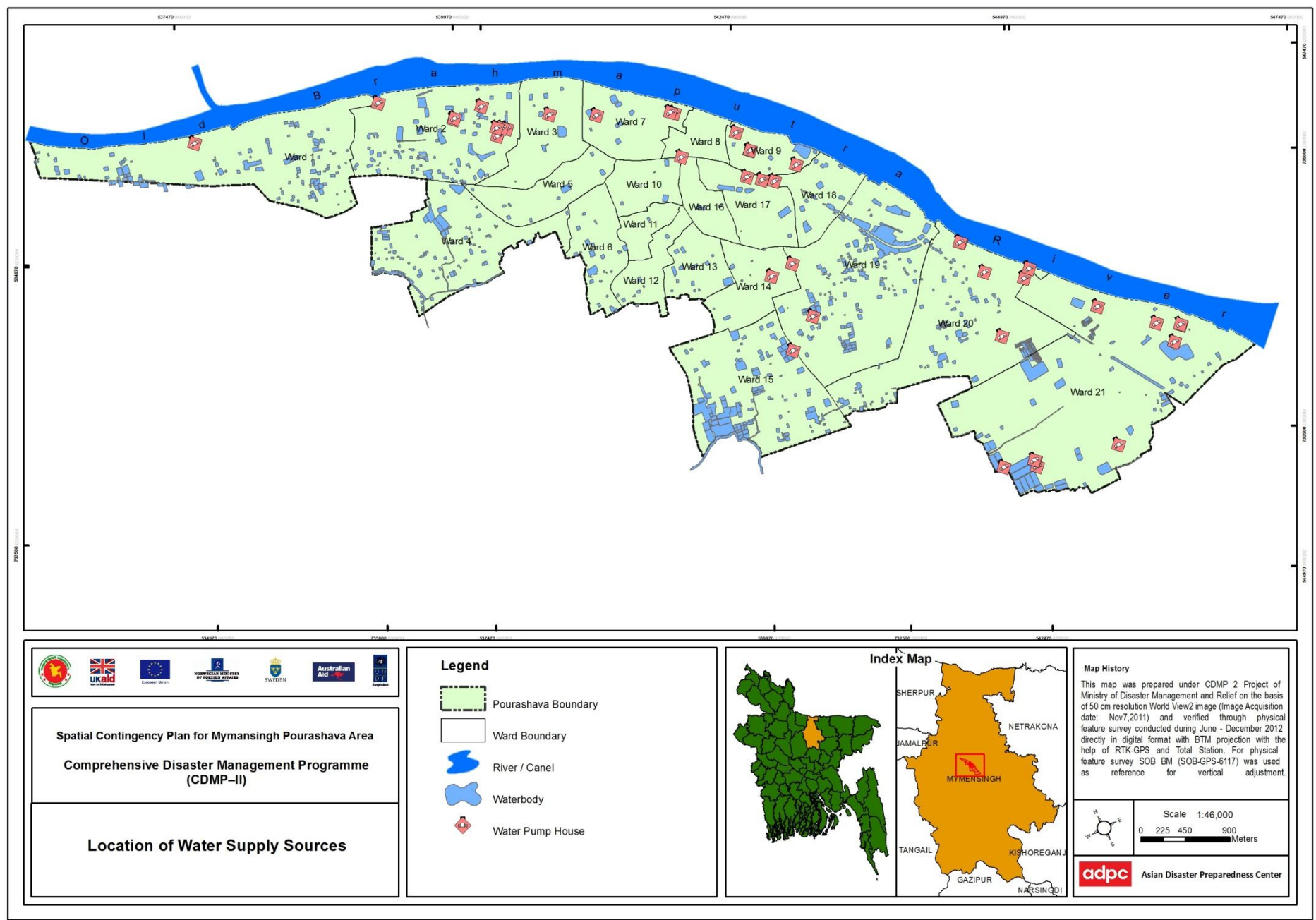
Emergency Evacuation Routes in Mymensingh City

Road name	Road type	Road width (m)
Dhaka Mymensing Highway	Pucca	6-20
Shanvuganj Highway	Pucca	9-20
Kewathali Road	Pucca	7-9
Sarda Gosh Road	Pucca	7-9
Park Road	Pucca	7
Kritopur Road	Pucca	7-19
Kanchi Jhuli Road	Pucca	7-11
Eastern Bypass	Pucca	7
Boro Bazar Road	Pucca	12
Choto Bazar Road	Pucca	8
Trunk Road	Pucca	6
Gulki Bari Road	Pucca	6-7
J C Guho Road	Pucca	7-10
Purohit Para Road	Pucca	6
Ram Babu Road	Pucca	6-7
Mymensingh City Bypass	Pucca	7

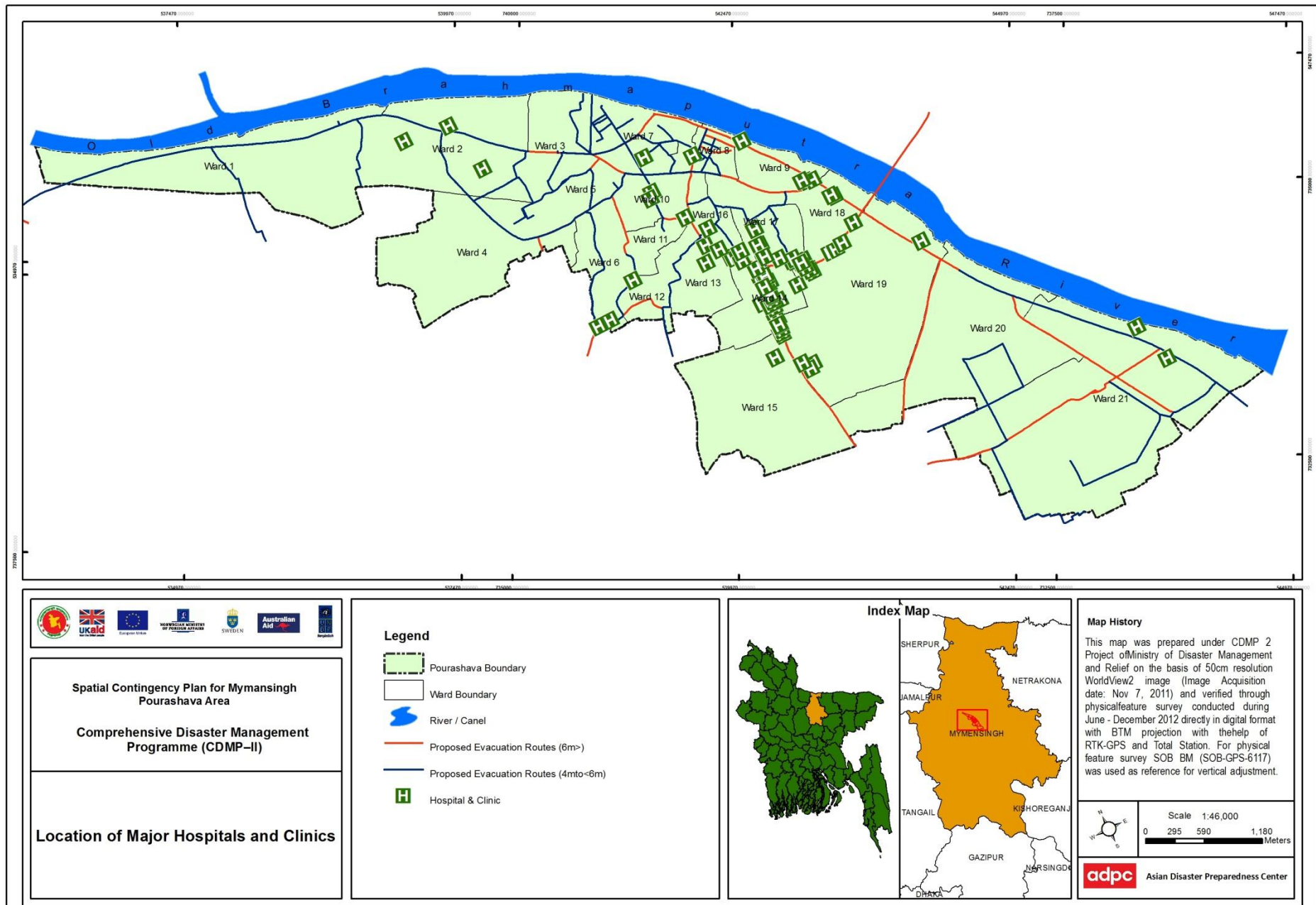
Emergency Evacuation Spaces in Mymensingh City

Sl.	Name of the open space	Location (Ward no.)	Area (sq. m.)	Population holding capacity	Total displaced population	Additional pop. holding capacity
1	Mymensingh Stadium	02	34,206	34,206	129,002	128,411
2	Saheb Bazar Quarters Playground	03	7,525	7,525		
3	Anjuman Eidgah Field	03	14,998	14,998		
4	Annanda Mohon University Field	03	15,153	15,153		
5	Playground	03	1,502	1,502		
6	Zila School Playground	06	3,054	3,054		
7	Zila School Hostel Playground	06	13,869	13,869		
8	Bipin Park	07	2,270	2,270		
9	Krishtopur Colony Eidgah	18	570	570		
10	Morakhola Eidgah	19	7,745	7,745		
11	Polytechnic Institute Field	19	6,993	6,993		
12	Kewatkhali Eidgah	20	1,713	1,713		
13	K B College Playground	20	6,760	6,760		
14	BAU Stadium	21	29,060	29,060		
15	BAU Shahjalal Hall Field	21	14,179	14,179		
16	BAU Ashraful Haq Hall Field	21	28,744	28,744		
17	BAU Shuhrawardy Hall Field	21	41,204	41,204		
18	BAU Shahjalal Hall Field	21	11,245	11,245		
19	Eidgah	21	2,329	2,329		
20	Playground	21	9,068	9,068		
Total			257,413	257,413	129,002	128,411

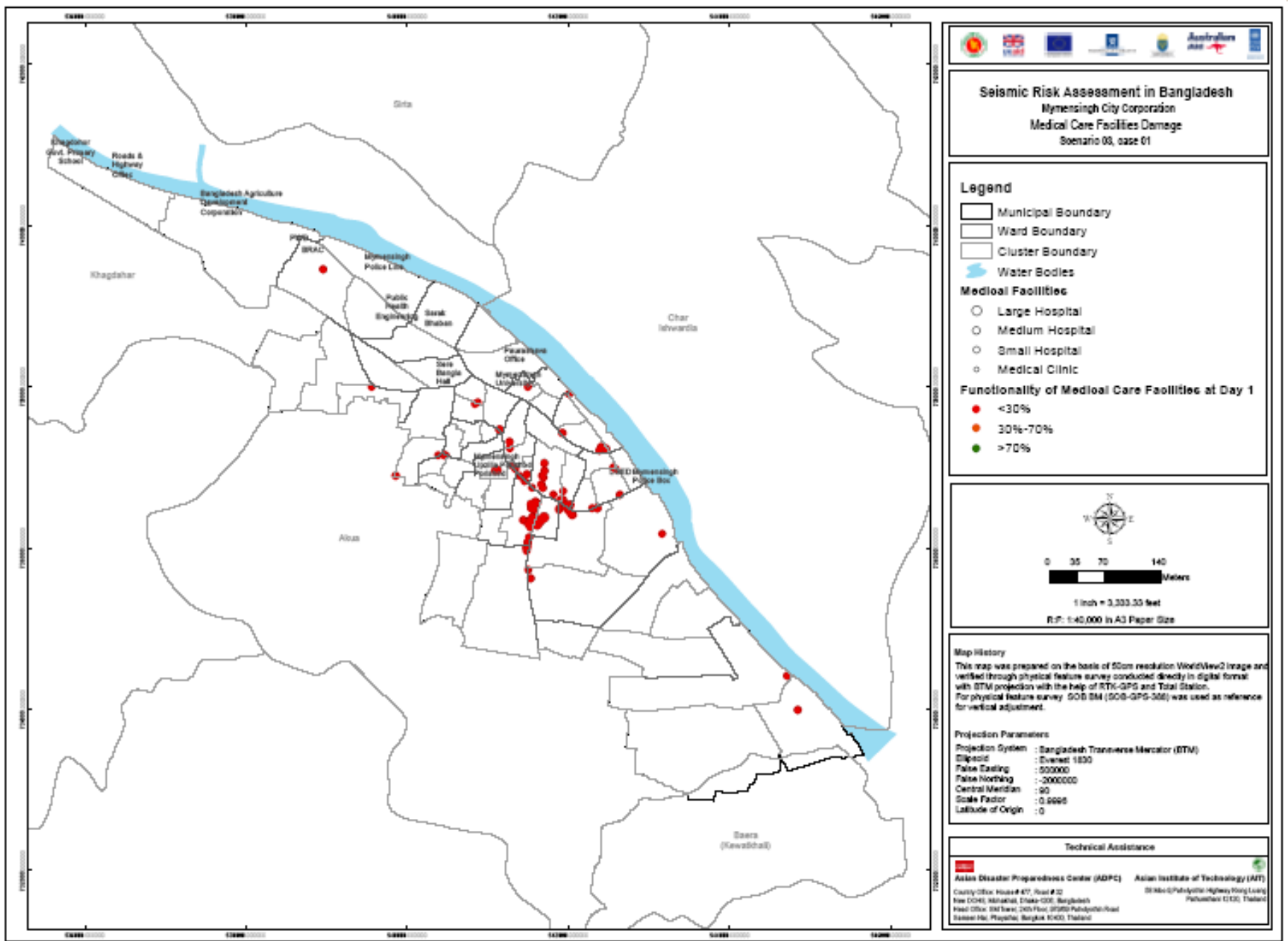
Location of Water Supply Sources in Mymensingh City



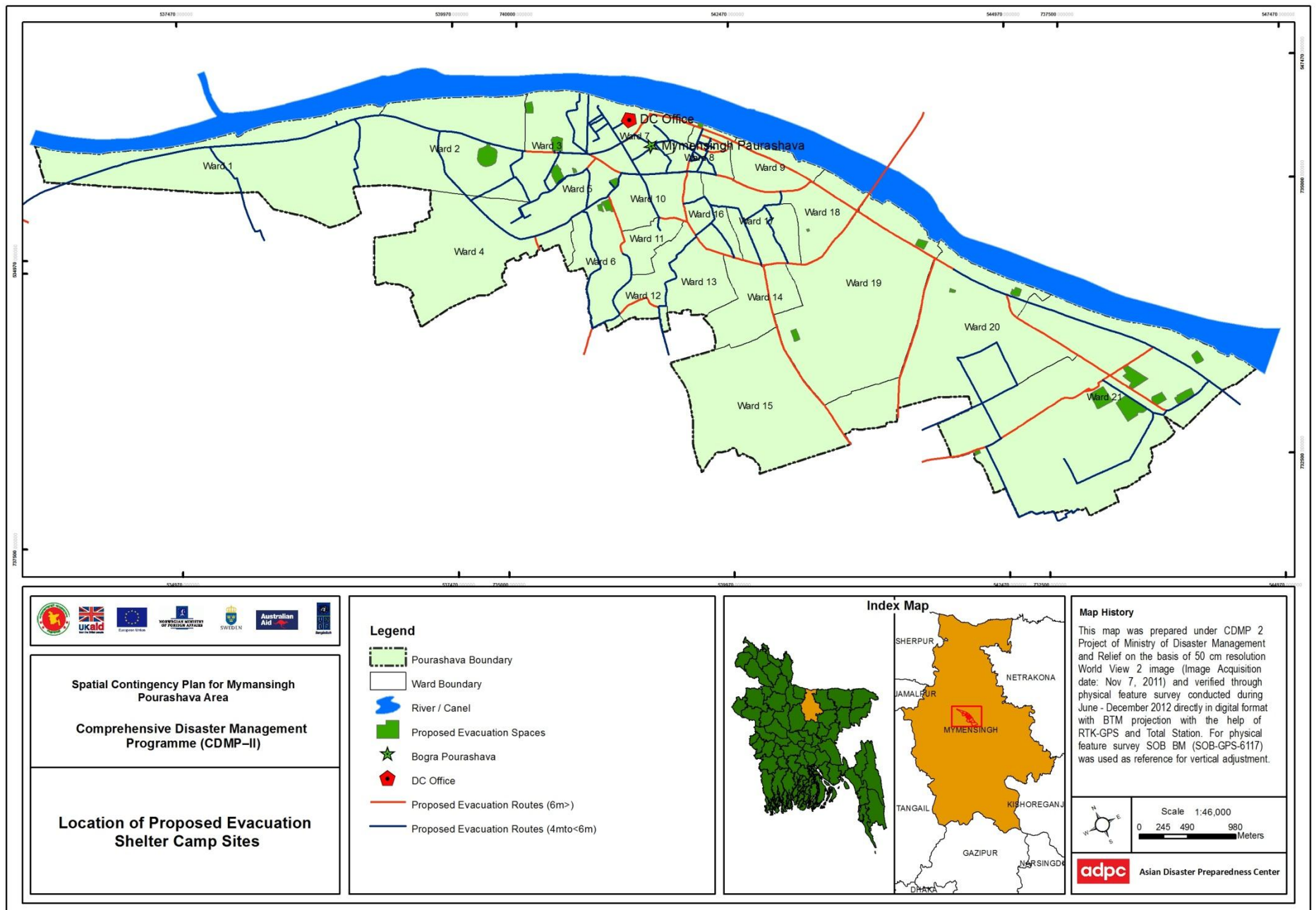
Location of Major Hospitals and Clinics in Mymensingh City



Functionality of Major Hospitals/Clinics in Mymensingh City at Day-1



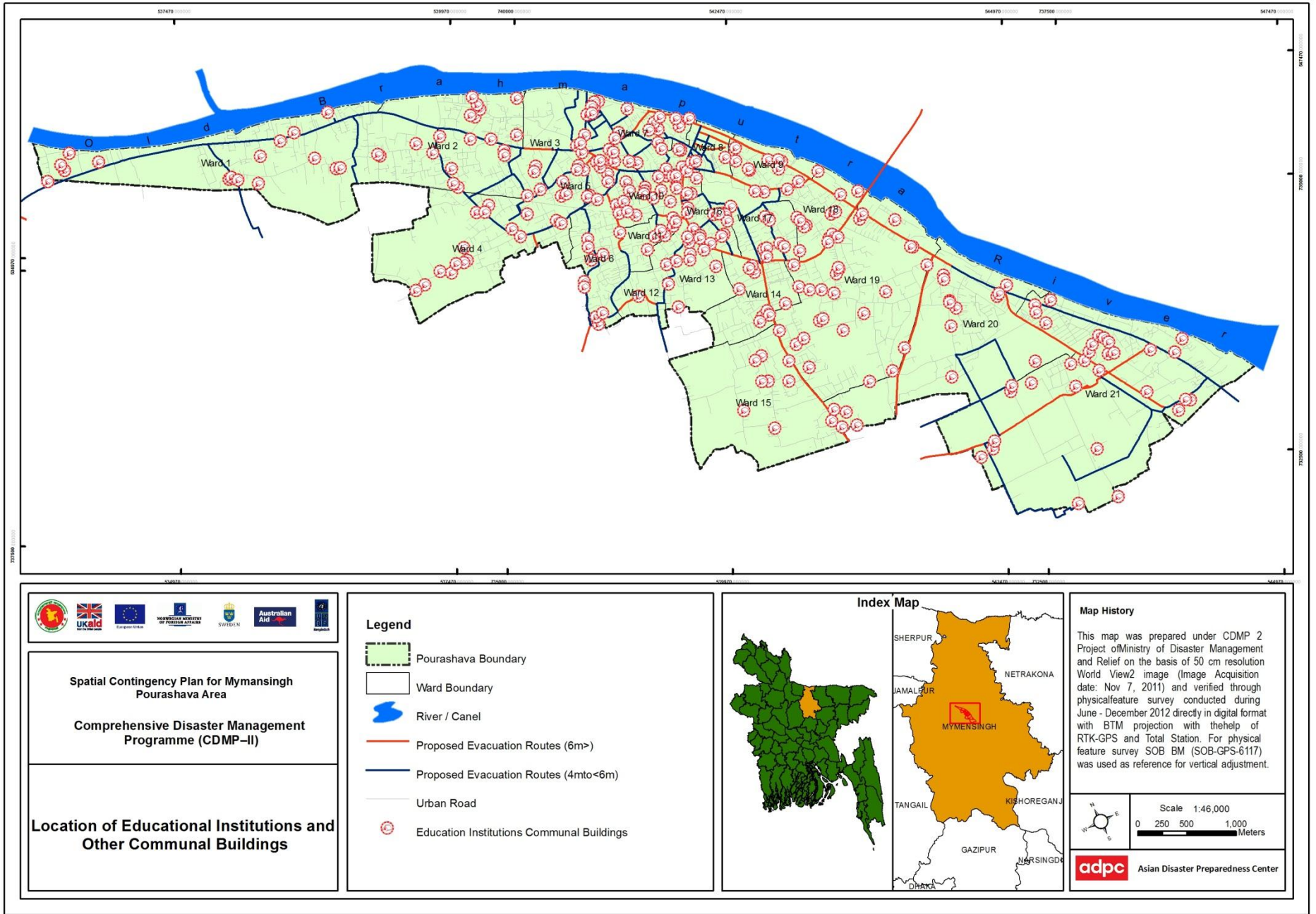
Location of Emergency Shelter Camps in Mymensingh City



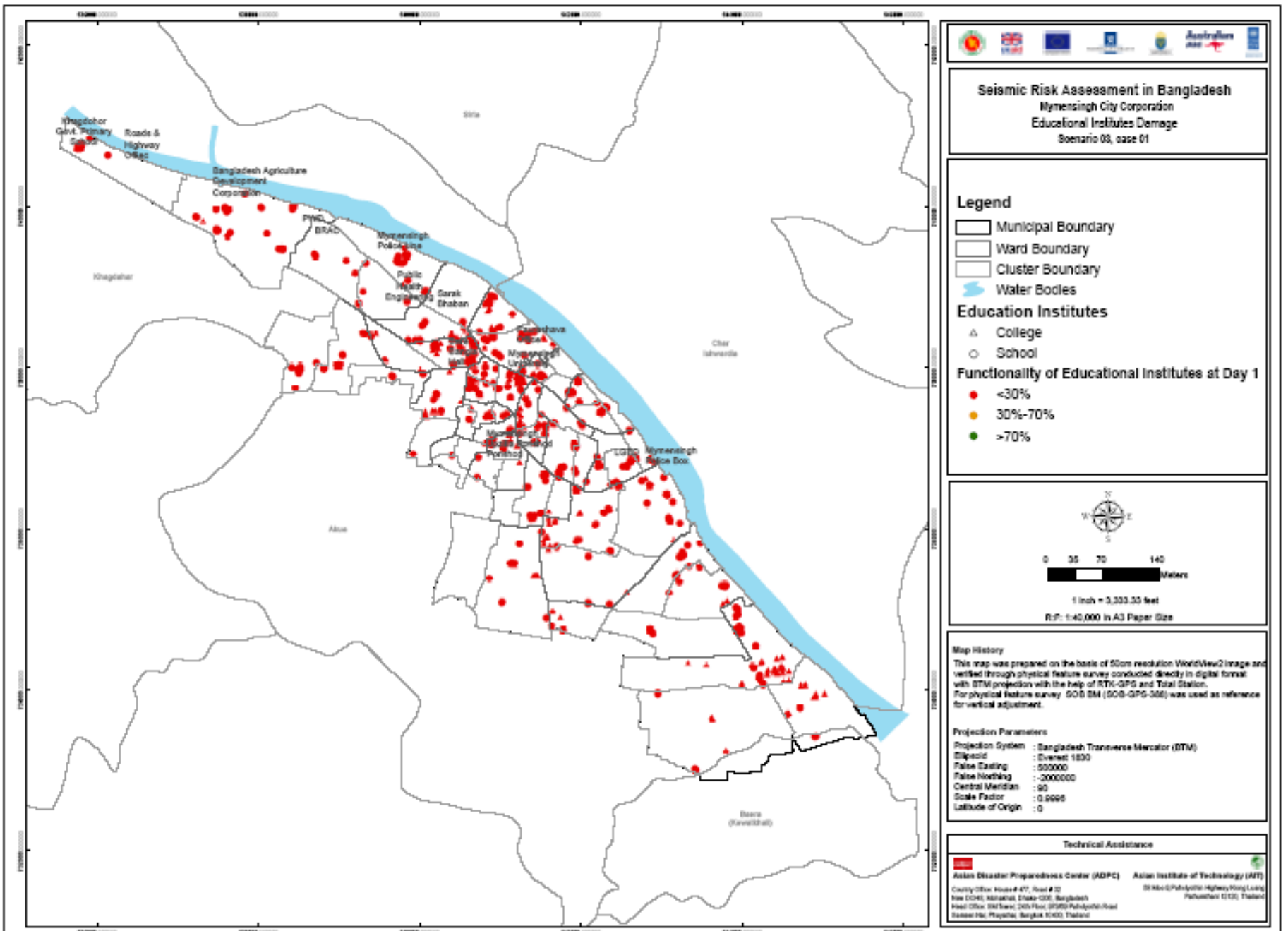
Emergency Shelter Camps in Mymensingh City

Sl.	Name of the open spaces	Location	Area (sq. m.)	Population holding capacity (@45 sq. m./ family)	Total Deficit (families requiring further space for shelter)
1	Mymensingh Stadium	Ward No-02	34,206	760	Total families requiring temporary shelter are: 13,438 So, the deficit is $13,438 - 5,344 = 8,094$
2	Zila School Playground	Ward No-05	5,226	116	
3	Saheb Bazar Quarters Playground	Ward No-03	7,525	167	
4	Anjuman Eidgah Field	Ward No-03	14,998	333	
5	Annanda Mohon University Field	Ward No-03	15,153	336	
8	Zila School Hostel Playground	Ward No-06	8,643	192	
11	Morakhola Eidgah	Ward No-19	7,745	172	
12	Polytechnic Institute Field	Ward No-19	6,993	155	
14	K B College Playground	Ward No-20	6,760	150	
15	BAU Stadium	Ward No-21	29,060	645	
16	Shahjala Hall Field	Ward No-21	14,179	315	
17	Ashraful Haq Hall Field	Ward No-21	28,744	638	
18	Shuhrawardy Hall Field	Ward No-21	41,204	915	
19	Shahjala Hall Field	Ward No-21	11,245	250	
21	Playground	Ward No-21	9,068	200	
Total			240,750	5,344	8,094

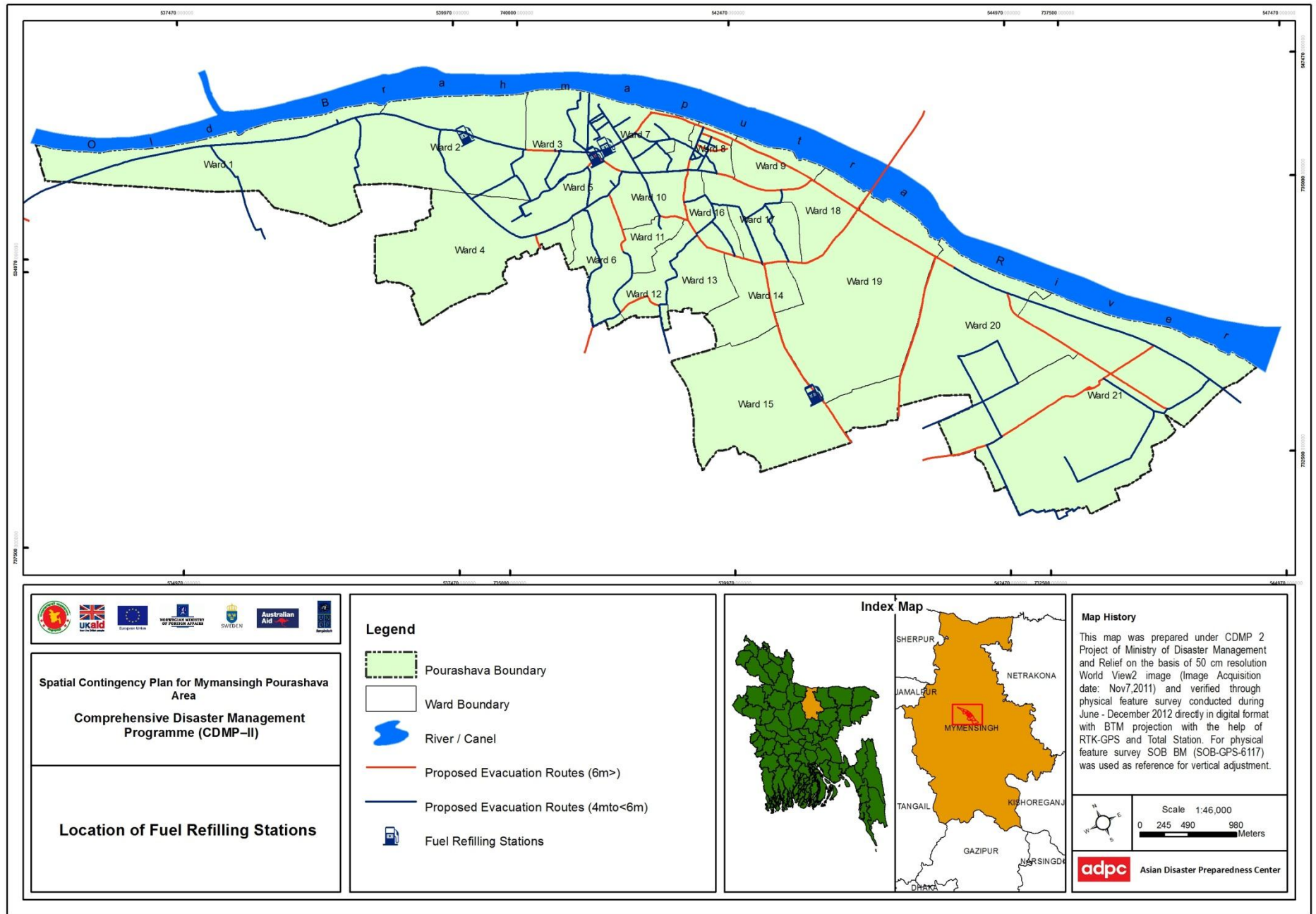
Location of Educational Institutions in Mymensingh City



Functionality of Educational Institutions in Mymensingh City at Day-1



Location of Fuel Refilling Station in Mymensingh City



Operational Framework

- Establishment and activation of City-level Emergency Operation Center (EOC).
- Operation of EOC – phase wise priority activities (pre-disaster, during disaster and post disaster).
- Leadership and operational structure of the EOC.
- Coordination with internal (city-level) agencies.
- Role of urban community volunteers.
- Coordination with National EOC.
- Coordination with external (surrounding) agencies.

Earthquake Emergency Response Activities

- **List of possible response activities to earthquake (but not limited to):**
 - Rapid damage assessment
 - Crisis decision making
 - Search, rescue and evacuation
 - Request for external assistance for search and rescue
 - Emergency Medical Services
 - Emergency communications
 - Fire-fighting
 - Emergency restoration of utility services
 - Building inspection and demolition/ restoration
 - Inspection of roads, bridges, overpass, dams, reservoirs, etc.
 - Protection of lives and property
 - Maintain the law and order situation
 - Public Information announcements and warnings
 - Clearance of evacuation routes and debris removal

Action Strategies

- **Functional Response Cluster System:**
 - Command and Coordination
 - Search, Rescue and Evacuation
 - Healthcare Services
 - Logistics Support & Relief Services (Food, Nutrition, Relief)
 - Shelter (Including camp management)
 - Water Supply, Sanitation and Hygiene
 - Transportation (Road, Rail, Air and Sea)
 - Security and Welfare
 - Immediate Recovery (Restoration of Urban Services)
- **Each cluster will be lead by the main responsible agency and supported by relevant agencies.**
- **Activities for each cluster have been grouped into three phases- pre-disaster, emergency and early recovery.**

Operational Response Priorities

- **Priority actions for each cluster by time frame:**
 - **Priority actions at the initial response phase** (first 4, 8 and 12 hours).
 - **Priority actions at the intermediate response phase** (through 24, 48 and 72 hours).
 - **Priority actions at the initial recovery phase** (after 72 hours but before end of the first week).
- **Sustained response operation – as 72 hours is over, the EOC should be supporting:**
 - ongoing search and rescue operation
 - transitioning rear-complete response efforts
 - preparing for major recovery efforts

Thank You