



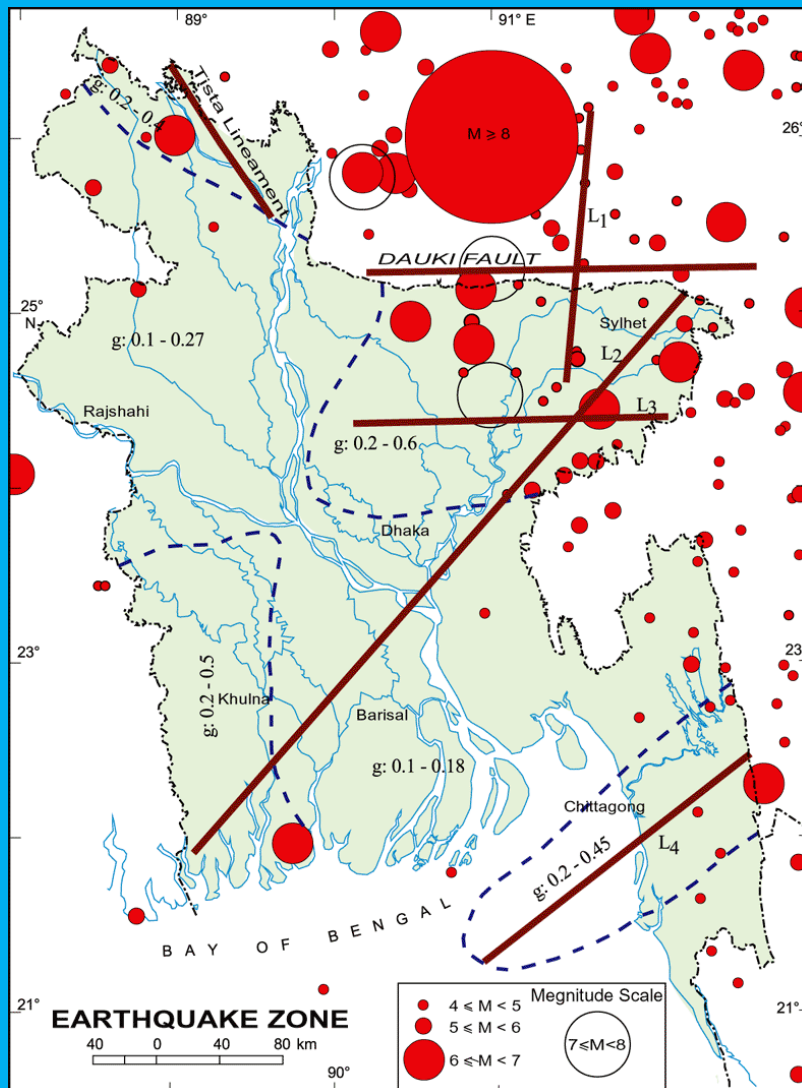
# Disaster Risks and Risk Mitigation in Dhaka/Other Cities

08 June, 2010, New Delhi, India

By:

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# Outline of the Presentation

- History and growth of Dhaka City
  - Historical background
  - Basic information, data and maps
- Natural Disasters of Dhaka City
  - Earthquake
  - Flood and water logging
  - Other hazards
- Disaster risks of other cities in Bangladesh

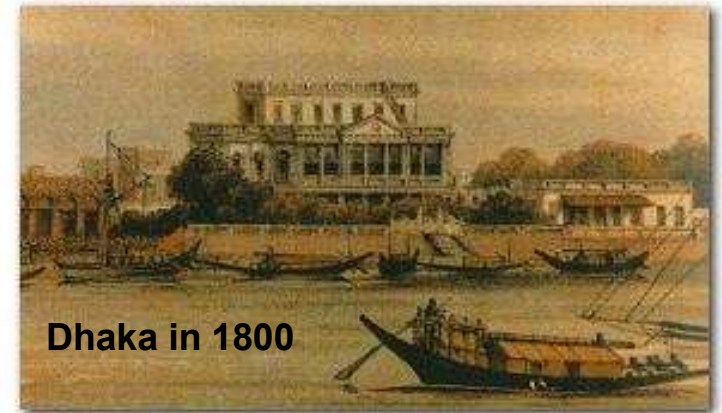
# History and Growth of Dhaka City

Dhaka carries a very long history dating back from the 7th century A.D.

*-It got political importance during Mughal Period (1608-1764)*

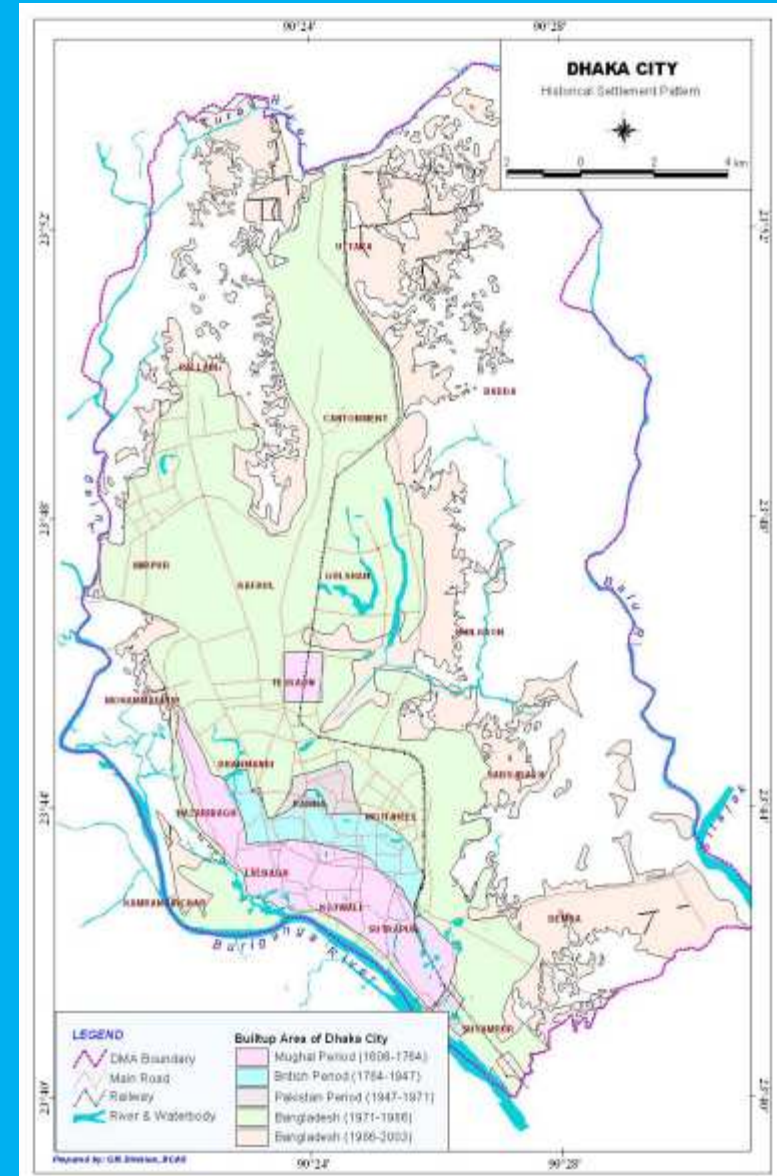
*- Became provincial Capital during British Rule and in Pakistan Period*

*- Now Capital City of Bangladesh Period (after 1971)*

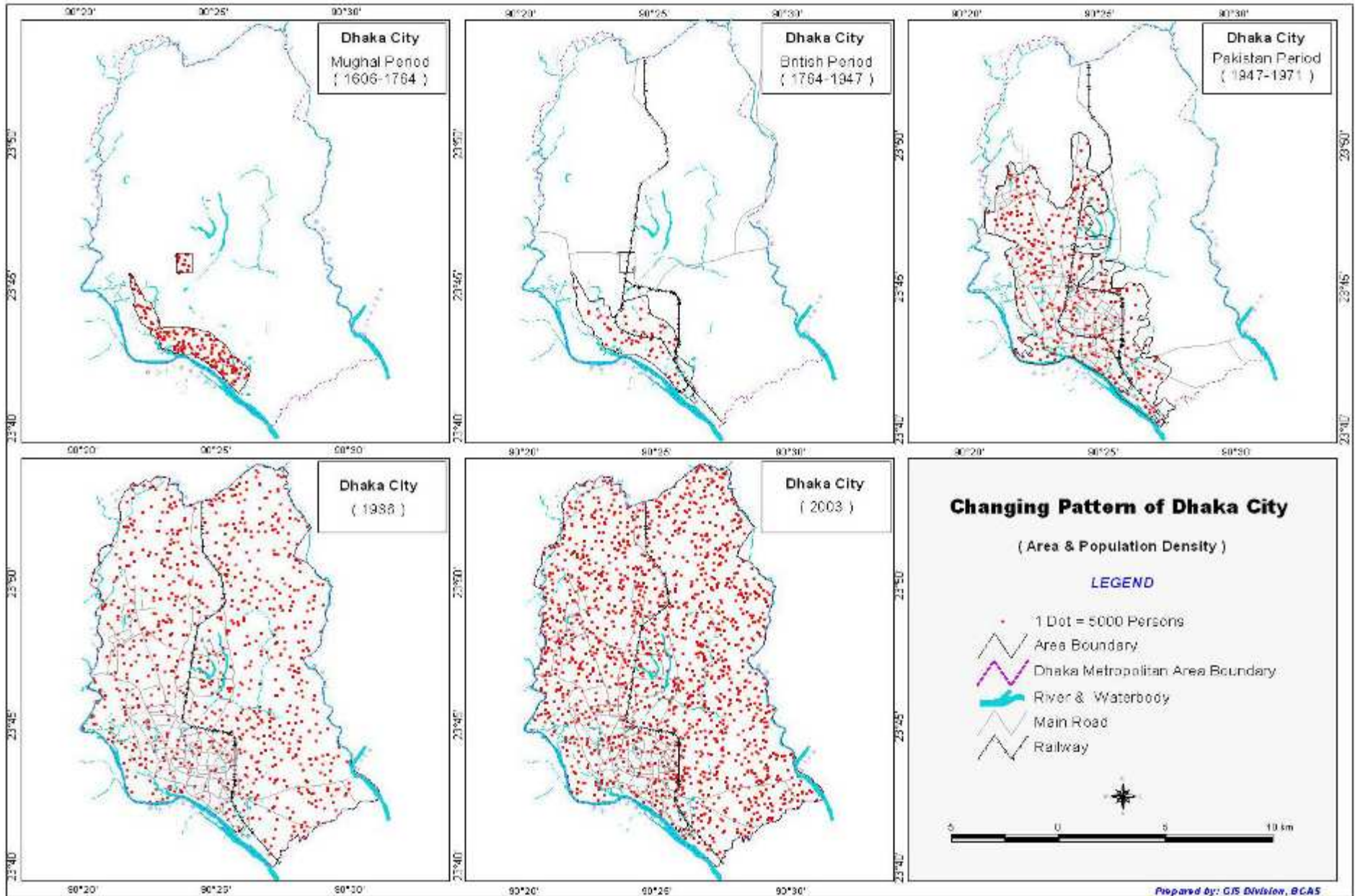


# History and Growth: Dhaka City

- Dhaka is one of the populous and mega cities in the world
- The Area of Dhaka city is **1,353 km<sup>2</sup>** with **14 million** people
- It will become fifth larger city by 2030 in terms of population
  - Population of Dhaka was 2.8 million in 1981, which would 15 million very soon
  - Population growth rate is 6%
  - Population density: 200 per 100 decimal
  - Over 40% of the population live in slums



# Physical Growth of Dhaka



## Hazards of Bangladesh- Common phenomenon:

Flood, Cyclone, Wind storm, droughts, Earthquake, Landslide, River erosion, Water logging, epidemic etc.



মংলায় সুন্দরবনের ঘাঘড়ামারী বন ফাঁড়ির কাছে রয়েল বেঙ্গল টাইগারের মৃতদেহটি পাওয়া যায়। পরে এটি নিয়ে আসা হয় কবরমজল বন্যপ্রাণী প্রজননকেন্দ্রে —জিয়া ইসলাম



Flood & Water Lodging



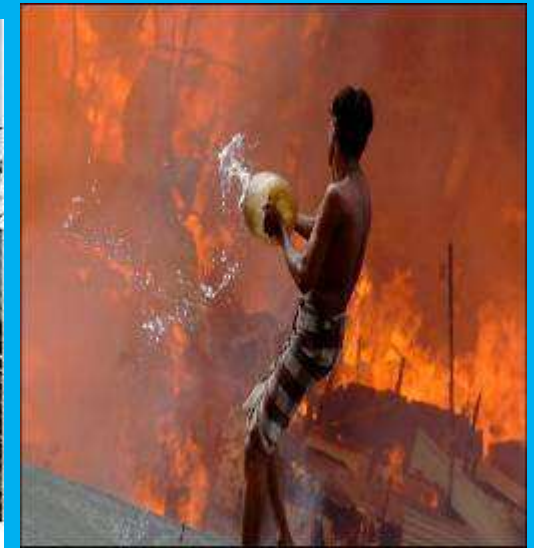
Erosion



Cyclone



Tornado



Fire

# Vulnerable Dhaka...



Fire...



6 story building collapsed- died 21, 25/02/2006

# Vulnerable Dhaka, Cont.



**26 February, 2007, fire in a 11 storied building, died 2**



**13 march. 2009, fire in a high rise commercial building, died 5**

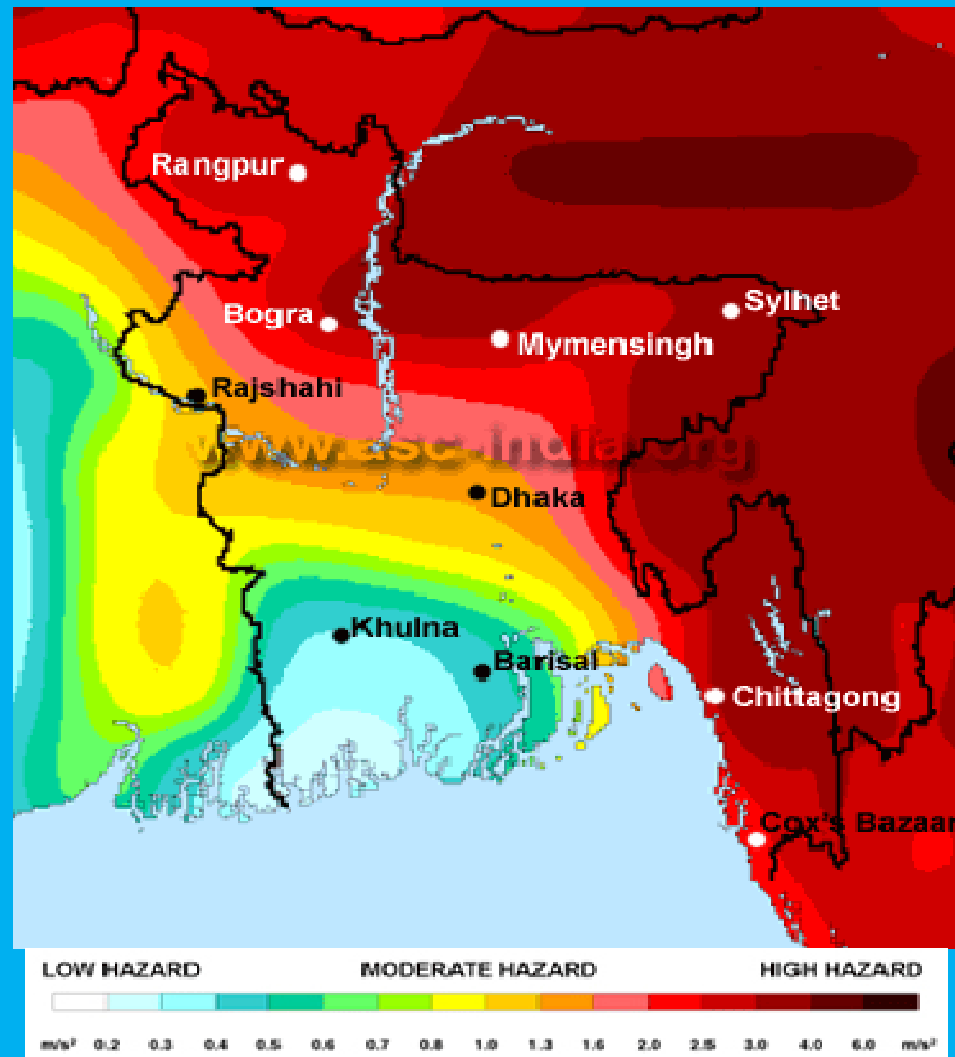


**December 15, 2007, slum – south of Dhaka**



**Feb. 2, 2006. thousands of people homeless**

# Earthquake Risk in Dhaka :



# Earthquake Risk in Dhaka

- **The earthquake disaster risk index has placed Dhaka among the 20 most vulnerable cities in the world.**
- **Geographically Bangladesh is located close to the boundary of two active Plates: the Indian Plate in the West and Eurasian Plate in the East & North**
- **Recently measured- plate motions measured that Dhaka is moving 30.6 mm/year in the direction North-East**
- **Micro-seismicity data supports the existence of at least four earthquake source points in and around Dhaka.**

## **Cont: Earthquake Risk in Dhaka**

- **Density of Building, poor construction, Poor quality utility services, Narrow lanes of densely population of Old Dhaka**
- **Soil** : Thirty-five per cent of Dhaka, including middle & North part and Old Dhaka, is on red soil and it is less susceptible to an earthquake, whereas the East and West areas, built on landfills and more susceptible to earthquake.
- **Earthquake of December 2001 with magnitude of 4.5 and focal depth of 10 km located very close to Dhaka caused a four-storey building collapse and 100 prisoners injured in the Dhaka central jail.**

# Challenges of Earthquake Mitigation In Dhaka

- **Non-engineering, Self-engineering building construction, slum & Old Building**
- **Densely build-up area & Unplanned Narrow Lanes**
- **Violation of Building Code**
- **Loose soil & filled soil**
- **Shortage of Evacuation Space**
- **Haphazard Unplanned Public utilities**
- **Lack of Disaster Management Equipment**



# **Cont..Challenges of Earthquake Mitigation In Dhaka**

- **Lack of Training & Awareness**
- **Ignorance of fire fighting**
- **Lack of Data & education on earthquake**
- **Lack of Community Involvement**
- **Lack of disaster drill**
- **Unstable Population Growth**
- **Technological disadvantage**
- **Not enough storage Humanitarian Aid & relief goods.**



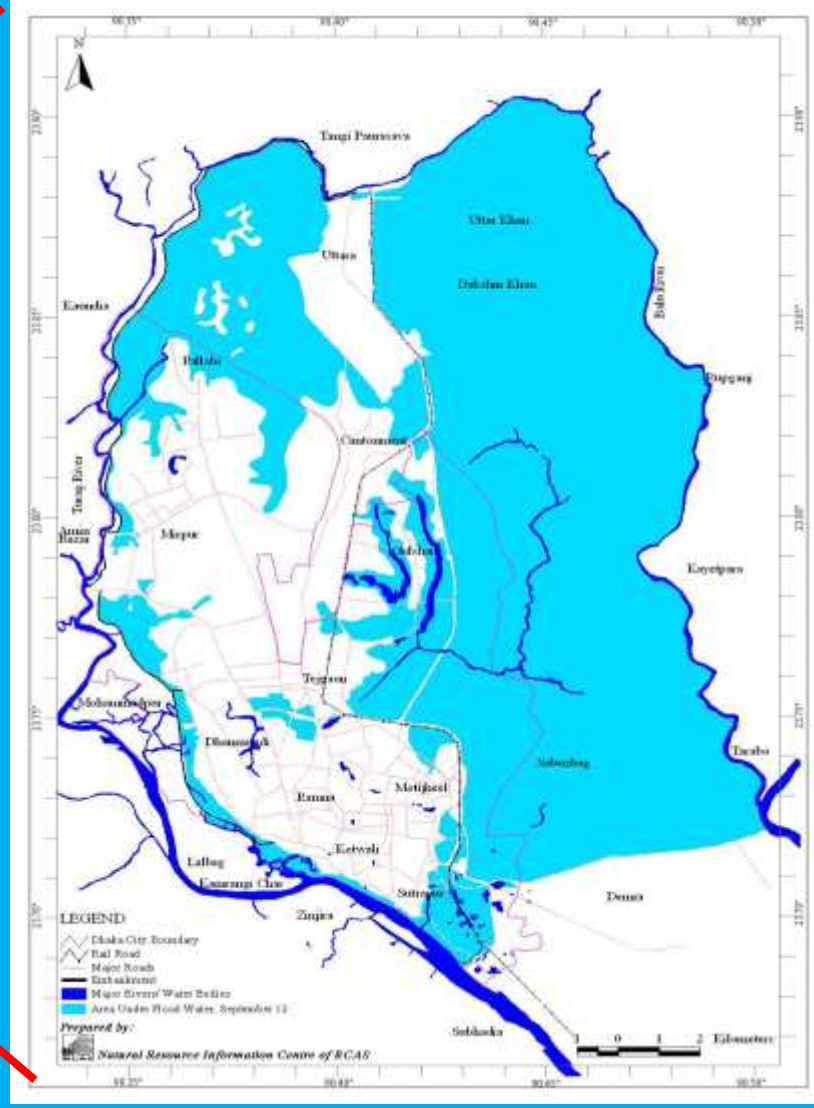
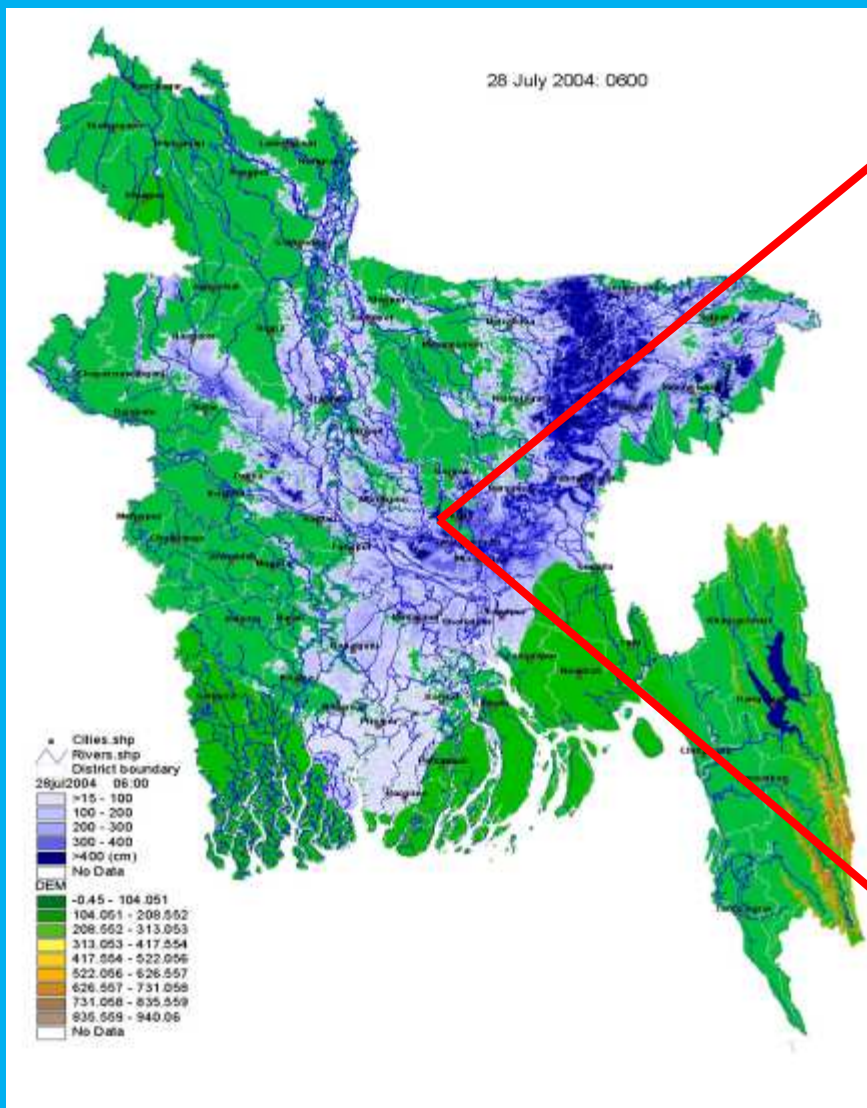
# Earthquake Mitigation Activities in Dhaka City

- DCC has taken following steps to mitigate the earthquake risks-
  - Survey and identification of risky buildings
  - National Building Code for construction of buildings
  - GIS based contingency plan, vulnerable assessment & rescue plan.
  - Earthquake Risk Maps and Validation of Scenario Based Earthquake Contingency Plan for Dhaka City
  - Setting of control room for earthquake
  - Roster for HR with wireless and communication tree

# Cont.. Earthquake Mitigation Activities in Dhaka City

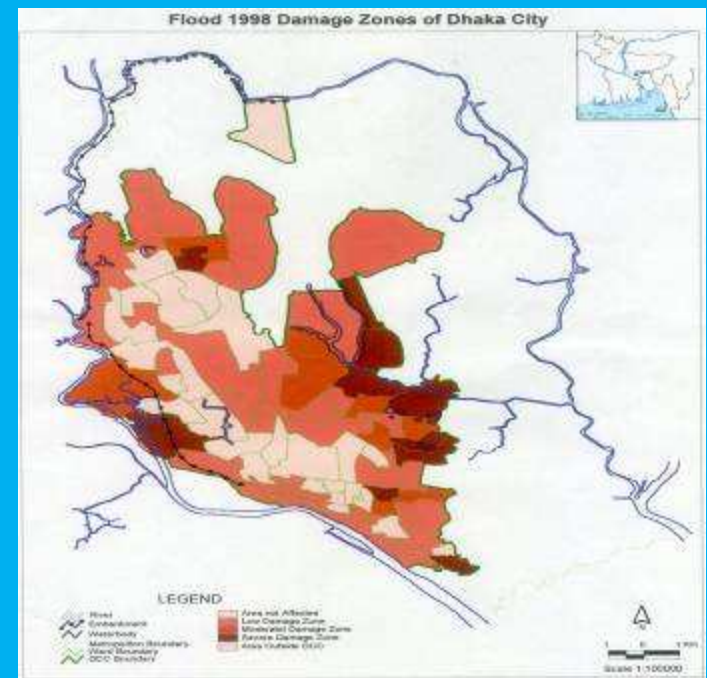
- DCC organized several skill building events in collaboration with all relevant sectors, civil society and community people on-
  - Disaster management in Dhaka city
  - search and rescue of earthquake disaster
  - Comprehensive Disaster Management Program
  - Disaster Management Volunteer Group
  - Climate Change & Disaster Management Workshop
  - Exercise Durjoge Durnibar 2008
  - Mock Exercise

# Dhaka City: Riverine Flood, Rainfall and Water Logging



# Flood and Water Logging

- Floods and prolonged water logging in Dhaka city
- Four major floods in last 20 years: in 1988, 1998, 2004 and 2007
- Floods of 1998 and 2004 were worst in terms of inundation and duration of flood water in the city fringe areas
- Over 50% city people, most of them were slum dwellers were badly affected
- People were compelled to stay on roof tops during prolonged floods
- Communication, livelihood and service facilities were severely affected



# Cont..Flood and Water Logging

- In 2007, over 90,000 people in Dhaka city were affected by diarrhea in one week during flood
- People suffered from lack of food, safe drinking water and health problems
- Elderly people, children and women were extremely vulnerable to flood risks
- Transportation was badly affected, people had to swim to collect food and water



# Flood and Water Logging: Responses

- City Corporation operated relief rescue and rehabilitation works
- Established flood control room and formed management teams
- Government and NGOs carried out relief distribution and rehabilitations activities
- City corporation took immediate steps to rehabilitate the damaged road, embankments and other facilities.



# Flood and Water Logging: Preparedness and Mitigation activities

- City Corporation established water pumping station at different strategic points
- DCC could establish control room with proper communication system through wireless network
- The City Disaster Management committee (Headed by Mayor) oversight the disaster responses.
- DCC worked with DESA, WASA, Fire service, Red Crescent and other sectors during disasters
- **Committee functions during and after the disaster.**



# Other Hazards

- **Fire :**

- Very common in Dhaka with severe outcomes
- Every year from slums to high rise building
- We lost 118 lives on 3 June 2010

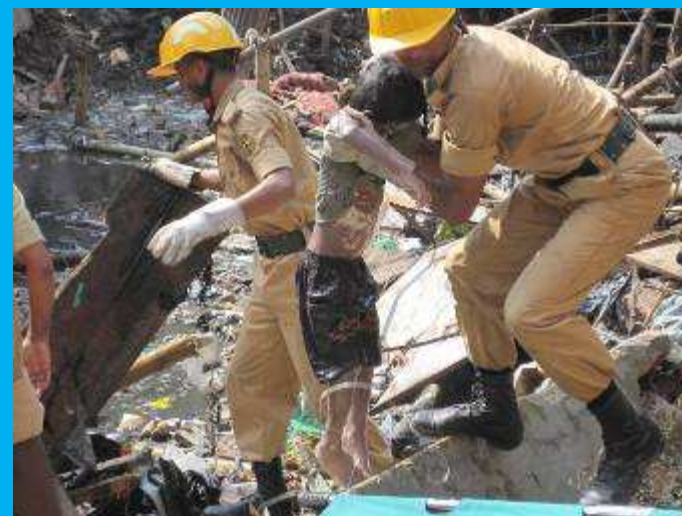


- **Collapse of building**

- We lost 25 lives just one week back

- **Epidemics**

- Diarrhoea
- Dengue fever



# Disaster Risks of Other Cities

- **Chittagong City:** Cyclone, earthquake, Water logging, Land sliding
- **Rajshahi City:** Flood, Draught, river erosion, heat wave
- **Khulna City:** Cyclone, Flood, tropical storm
- **Barisal City:** Cyclone, tropical storm, impact of climate change
- **Sylhet City:** Earthquake, Water logging, Land sliding

# Dhaka City Disaster Management Committee

- |  |   |                 |
|--|---|-----------------|
| <b>(a) Mayor, City Corporation</b>   | - | <b>Chairman</b> |
| <b>(b) Chief Executive Officer, City Corporation</b>                                   | - | <b>Member</b>   |
| <b>(c) Concerned Deputy Commissioner</b>   | - | <b>Member</b>   |
| <b>(d) Concerned Superintendent of Police</b>  | - | <b>Member</b>   |
| <b>(e) Health Officer of the City Corporation concerned</b>                            | - | <b>Member</b>   |
| <b>(f) Representative of Director General, Health Directorate</b>                      | - | <b>Member</b>   |
| <b>(g) Representative of Director general, Agriculture<br/>Extension Department</b>    | - | <b>Member</b>   |
| <b>(h) Representative of Chief Engineer, LGED</b>                                      | - | <b>Member</b>   |
| <b>(i) Representative of Chief Engineer, Public Health<br/>Engineering Directorate</b> | - | <b>Member</b>   |
| <b>(j) Chairman/MD, WASA (concerned)</b>   | - | <b>Member</b>   |
| <b>(k) Representative of Water development Board</b>                                   | - | <b>Member</b>   |
| <b>(l) Representative of concerned Electricity Authority</b>                           | - | <b>Member</b>   |
| <b>(m) Representative of T&amp;T Board</b>   | - | <b>Member</b>   |
| <b>(n) One NGO representative nominated by ADAB</b>                                    | - | <b>Member</b>   |
| <b>(o) Ward Commissioners, City Corporation</b>  | - | <b>Member</b>   |
| <b>(p) Secretary, City Corporation</b>   | - | <b>Member</b>   |



*Thank you...*

