

### 3.9. Natural Disaster

Another environmental concern of Dhaka city is recurring natural disasters, which frequently disrupt and damage government, non-government and personal property, road-transport system, drainage system, water supply system and other utility services network. In fact, the whole physical structure of the city gets damaged having dual impact on economy and development--first, pulling the economic growth backward and second, destruction of property and development. Flood is actually the main natural catastrophic event now days for Dhaka city. Dhaka city experienced heavy floods at least 9 times from 1954 to 2004 (Alam and Huq, 2003). Flooding causes huge damages every year, though the flood of 1998 was much more severe than others in terms of extent and duration. However, every time the most impacted group are usually the midlevel and the poor people. They lose jobs, housing, domestic property and suffer from water borne diseases etc. Till 1988, the city was totally unprotected from flood disasters that caused huge damages, sufferings and deaths.

#### 3.9.1 Flood

A recent report shows that 100% of eastern Dhaka was affected by flood in both 1988 and 1998, western Dhaka was 75% affected in 1988 while it was decreased to 23% in 1998 due to the Dhaka Integrated Flood Protection Project (DIFPP), which was implemented by BWDB and funded by ADB and GOB (Nishat et al,



Photo - 3.25. Dhaka under floodwater



Photo - 3.26. City roads under floodwater

2000). In 2004, Dhaka was inundated again due to flow of about 65 to 200 cm above the danger level of the surrounding rivers. In July 2004, the highest flow of the Buriganga, Balu, Turag and Shitalakkhya was 65, 195, 135 116 cm above the danger level respectively. This overflow of the rivers brought the most part of eastern city under flood water of about 20 to 300 cm causing serious environmental damage key of them are given below.

#### *Sewage Overflow*

The DCC's underground and surface drainage systems are meant for storm water drainage and therefore have nothing to do with sewage overflow. Sewage overflow occurs through DWASA's domestic sewerage system due to its inadequacy, lack of maintenance and submergence during floods. In Dhaka city, storm water drainage system and domestic sewerage system are separate systems, although there are numerous illegal connections of domestic sewage into the storm drains. The major part of storm drainage system is, however, constructed and maintained by DWASA.

#### *Inefficient solid waste management*

The solid waste management of Dhaka city becomes horrible during floods, mainly due to water logging of roads and temporary bins. During floods, people of east Dhaka directly dump waste into the floodwater, which accounts for more than fifty percent of the total waste generation of the city.

### ***Road Communication Difficulty***

In fact, many of the major roads, link roads, and lanes and by-lanes get inundated with floodwater, which hampers transportation within and around the city area. This greatly damages the road surface, for instance, 400 kilometers of roads were severely damaged during the 1998 flood (Chatterjee, 1999). The inter-district road transport system also gets disrupted due to flooding of these roads. Many of the roads of east Dhaka experienced inundation of over 100 cm of water during flood that totally blocked the transport system. Due to transportation blockage, many of the private transport businesses cannot operate their business and vehicles resulting in a large number of job terminations. Floodwater also damages both motorized and non-motorized vehicles.

### ***Crisis of drinking water***

One of the most important problems during a flood is the lack of safe drinking water. Most of the reserve tanks of the buildings or houses in affected area are submerged, which results in water crisis. In some cases, where the reserve tanks are protected by building walls around the tanks, the improper maintenance of the water supply pipe causes the water to become contaminated by the floodwater due to leakages in the pipes.

### ***Quality food crisis***

The city people also suffer from fresh food crisis during floods. Due to inundation of roads and highways, food and other agricultural products like vegetables cannot reach the city. This results in crisis of nutritious foods.

### ***Increased incidence of water borne diseases***

A flood disaster is an extreme threat to human health, especially that of children. Children and elderly people suffer from diarrhea, skin diseases, dysentery and fever. Large numbers of people die from severe attacks of diarrhea, which usually starts from the mid point to the end stages of flood. According to a report, 82,054 people were affected by diarrhea and approximately 300 people died in 1998 flood (Chatterjee, 1999).

The city is not protected against floodwater on the eastern side of Dhaka that caused most of its inundation in 2004 flood. As mentioned earlier, the city has experienced flood disasters a lot of times from 1954 to 2004. But after the serious flood tragedy in 1988, the Asian Development Bank (ADB) has played an active role in assisting the Government of Bangladesh in implementing the Flood Action Plan (FAP) and for the better management of existing flood control and drainage infrastructure. The ADB donated \$95.4 million for Flood Damage Rehabilitation Project (ADB, 2003). The flood control and irrigation part of the project was implemented by the BWDB. The government has taken decision to construct an eastern bypass, which may protect the city from further flood affection. However, the embankment - cum-road on the western part of Dhaka has greatly helped to protect nearly 50% of the city from the floods of 1998 and 2004 (Figure 3.17).

According to past experiences, a large number of national and international NGOs contributed relief and rehabilitation programme after the floods receded. WHO, UNDP, UNICEF, CARE, WATER AID, JICA and many other organizations directly contributed to the flood succor in affected areas, taking part in relief, health care services and providing water supply all over the affected areas of the city. The GOB established Flood Forecasting and Warning Centre to reduce the damages and create awareness among the people about the flood situation. The FFWC keeps records and forecasts the water level of major rivers through the Internet and media services. It is, however, essential to implement the DIFPP phase-II to protect the eastern side of the city. In fact, this would greatly help to protect the city as a whole. Proper drainage system in the city might reduce the duration of flood or even water logging within the city. The drainage blockage causes huge problems during floods. The DCC and DWASA should repair and maintain their existing resources properly for better management, otherwise the city might suffer more if extent and duration of floods worsen than in the future.

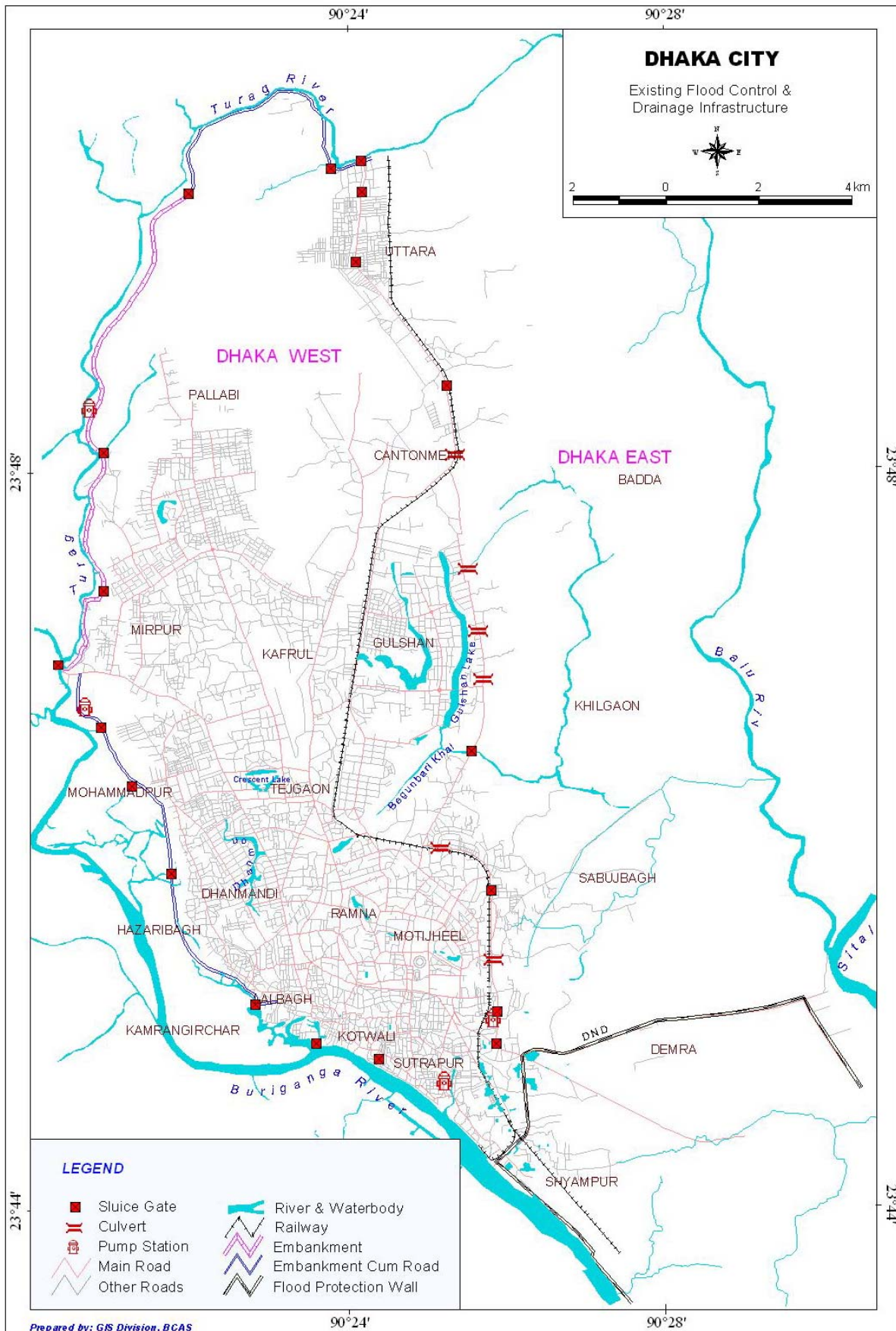


Figure 3.17. Flood Control and Drainage Infrastructure