



Editorial

Management of Flood Disaster in Resource Poor Country: Bangladesh Perspective

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Flood hazards are expected to occur more severely and frequently because of the effects of climate change. As a result, many areas in the world are facing the serious threat of flood hazards. Unplanned or poorly planned urbanization, rapid conversion in land use, and fragile flood management are some of the factors contributing to adverse flood effects which would lead to escalating risks for the inhabitants (Nasiri et al., 2016). Flood vulnerability assessment is the vital part of urban flood management. During the International Decade of Natural Disaster Reduction (IDNDR) from 1990 to 1999, it was recognized that the earlier concept of “flood protection” was inappropriate (UNISDR 2009). There cannot be complete protection, which is inaccessible and cannot be sustained, due to very high costs and inherent unpredictability.

Flood management has been suggested as a realistic alternative. This is more applicable and this concept is now being increasingly accepted and practiced in environmental studies. Flood risk management encompasses a wide group of subjects and tasks extending from the forecasting the risk, their social implications to methods and tools to minimize risks and economic costs and loss of human lives to adequate and acceptable levels. Avoiding, decreasing or shifting the effects of flood for mitigation and adaptation is the primary objective of flood risk management (UNISDR 2009). Two approaches exist in facing flood: structural (flood protection) and non-structural measures. Structural measures involve expanding the infrastructure like levees, dams or river dikes that alter the river flow (Faisal et al., 1999). The basic principle requires storage, diversion and confinement of floods. Non-structural measures involve numerous mitigation actions but do not include altering the river flow. They cover training, flood insurance, assessment methods, emergency services, land-use planning, construction codes, warning and forecasting (Ballesteros-Cánovas et al., 2013). The goal is to reduce loss of life and property, but it is inevitable, even structural measures could have useful consequences for a specific period; they also lead to potential threats as well because they rebuild natural processes but do not follow natural rules (Gao et al., 2007).

In flood risk management, flood risk is generally based on three factors: hazard, exposure and vulnerability (Roberts et al. 2009). Hazard is the extreme natural event including its frequency; exposure refers to the people, their environment and properties affected by flood; and vulnerability refers to the susceptibility of people and properties and the coping capacity to deal with flood impact (Kron 2009). In this regard, to decrease the impact of flood through flood management, the evaluation of flood risk constituents is unavoidable. Hence, evaluation of vulnerability is an important element of flood management and decreasing vulnerability is becoming more significant aspect of this kind of management, with population increasing in urban areas (Ahmad and Simonovic 2013). To achieve this aim, vulnerability assessment methods development is very appropriate (De Moel et al. 2012). There are diverse distinctions in the current methodologies for hazard vulnerability around the world. As regards to previous works with emphasizes on flood hazard, vulnerability assessment primary methods can be clustered into three groups (Huang et al. 2012).

The flood vulnerability index is a method to assess flood vulnerability based on: river basin, sub-catchment, and urban area scales by categorizing different components that affect the susceptibility of the people who

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live in flood prone areas. The previous indexes identified four main social, economic, environmental and physical components which are specified by some indicators in (Balica et al., 2013) research and Meteorological, Hydrogeological, Socioeconomic and Countermeasure Components in (Connor and Hiroki 2005) study. Connor and Hiroki (2005) calculated this index for river basin system and stated that there are a lot of factors except precipitation and runoff, which influence a basin's flood vulnerability such as preparedness and resilience capacity. They suggested four key components in a river basin, which affect flood vulnerability; Meteorological Component (MC), Hydrogeological Component (HC), Socioeconomic Component (SC), and Countermeasure Component (CC). Therefore, proper planning and policy should be undertaken to mitigate the flood situation in resource poor country like Bangladesh.

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