**An Innovative Planning for Improving River Ecosystems in and around Dhaka City**

**by CEGIS**

**Background**

Bangladesh, as a developing country, is accepting industrialization and unplanned infrastructure so rapidly to meet the demands of the growing peoples. Therefore, water bodies of Bangladesh become contaminated and polluted due to the reasons of industrial effluent discharge; municipal sewage discharge; pollutants emanating from rural communities; residual pesticides waste from farmland and; improper handling of oil and oil products (Rahman, 2005). These pollutants on ecosystems are changing the abundance of species, interrupting to energy and nutrient flows, modifying of habitats, reducing in soil, water and air quality, and changes to the stability and resilience of ecosystems. Consuming polluted river species, human beings are getting affected by skin allergy & inflammations, gastroenteritis, typhoid & paratyphoid, liver diseases like hepatitis, jaundice, upper respiratory inflammations, and any of these areas may develop even deadlier cancers. Hence, population those are residing near river banks is in true sense a permanently vulnerable-health society with more morbidity, mortality, prolonged sickness, having less work capacity & costly lives leading to more poverty.

**Rationale**

Dhaka, the capital city of Bangladesh, with a population of over 16.9 million (United Nations, Department of Economic and Social Affairs, Population Division 2014) is one of the most congested cities of the world. This rapidly growing city is located on the northern bank of the river Buriganga and surrounded by other rivers, namely, the Turag to the west, the Tongi Khal to the north and the Balu to the east. However, being the capital of Bangladesh - one of the poorest and least developed countries in the world - the city has been developed haphazardly without considering its physical and social diminution. Over the last couple of decades major industrialization has been observed in Dhaka especially in dyeing, washing and textiles sectors. Estimation reveals that there are over 7,000 industries in Dhaka metropolitan area located mostly in three clusters, namely, Hazaribagh, Tejgaon, and Dhaka- Narayanganj-Demra dam area (Roy, 2009). After all, neighboring rivers of Dhaka city are polluting by industry wastes (60%), municipal house-hold & city drainage of toilet wastes (30%) (Rahman, 2005).

On the other hand, most of the natural drainages of Dhaka City disappeared or are in way to due to illegal encroachment (Tawhid, 2004). As a result, the environmental consequences originating from rapid increase of population along with the increase of polluting effluents are having profound negative impacts on rivers around the city. In turn, the polluted waters of the rivers are posing increasing threats to the living organisms including humans residing by the rivers. In addition to providing life's basic needs changes in their flow affect livelihoods, income, local migration and, on occasion, political conflict. The resultant impacts on economic and physical security, freedom, choice and social relations have wide-ranging impacts on well-being and health.

Like many other countries of the world, river pollution in Bangladesh is a burning issue currently. Abundant research has been carried out and many recommendations have been forwarded to protect the rivers from pollution. At the government level since the last quarter of the past century several rules, regulations, policies and strategies have been formulated to save the rivers from pollution. But the implementation and enforcement of the policies and the regulations have so far been very ineffective, leading to poorer river water quality and further pollution. In addition, in many cases the policies and strategies are seemingly far from being practical in terms of implementation. Therefore, a proactive approach instead of a reactive approach might provide a practical and sustainable solution to the problem and which is the main goal of this research study.

**Aim and Objectives**

The ultimate goal of this study is to develop sustainable innovative approaches applicable for improving the river ecosystems of Dhaka city for the provision of better ecosystem services to the community. The specific objectives of study are as below-

* Identify the effectiveness of existing pollution control measures;
* Identify inter-linkage of pressures, state, impacts and various policy responses to address water related environmental problems;
* Develop effective water quality management plan;
* Select suitable options for restoration of river water quality;
* Select efficient capacity development programme;
* Prioritize executing and monitoring agencies;
* Plan for developing expert group;

**Methodology**

The study will be conducted by collecting both primary and secondary data. Secondary data includes the number and types of industry are currently polluting the rivers, amount of waste generation, information on effluent treatment plant of the industry, information on point and non point sources of pollution, effectiveness of existing water quality monitoring station of rivers, measures to be taken to reduce pollution and existing rules and regulations those are signed and applied by the government agencies (City Corporation, DoE, DPHE, BIWTA, DAP, BWDB, MoL, MoF, MoE, WARPO, and RAJUK). Moreover, information will be collected from national and international NGOs and relevant stakeholders/organizations (JICA, WHO, Waste Concern, UNDP, UN, World Bank, WaterAid, IWMI and GWP) who are working in this issue. Beside these, past knowledge based information will be collected from the government agencies and will be evaluated properly. At last, different national and international river ecosystem restoration projects and its techniques will be analyzed to find out the best options for rivers of Dhaka city.

The primary data collection tools include Reconnaissance field visits; Stakeholder consultation with Government, National and International agencies/organizations; In-depth interview with community leaders, Member of Parliaments (MP) and relevant National experts. Beside these, ideas will be generated through the techniques of brainstorming and ideas campaign. Captured good ideas will then be evaluated to determine which are worth taking further. The 5×5 criteria matrix will be the most efficient initial evaluation method for this case. Statistical techniques will be used for analyzing the secondary water quality, morphology and hydrological data. Social awareness programme will be selected in terms of discussion with local peoples and stakeholders of the study area. The flowchart of the methodology is presented in Figure 1.1.



Figure 1.1: General Flowchart of the Methodology

**Study Area**

Rivers those encircle the city, including the Buriganga, Turag, Tongi Khal, Balu and Shitalakhya

**Deliverables**

* Inception Report
* Final Report

**Timeframe**

Eight-Ten months

**Resources**

* Water resources engineer
* Water quality expert
* Waste and Waste water management expert
* Health expert
* Sociologist
* Gender Specialist
* Liaison officer

**Budget**

The estimated cost of this study is BDT 5,500,000.00 (**Tk. Fifty Five Lacs**) Only.

**References**

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