POLLUTION AND CONSERVANCY OF GANGA RIVER IN CONTEMPORARY INDIA

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ABSTRACT

Present article is presenting the findings of the work carried by the researchers for last several years on the Ganga River. Today, the Ganges is considered to be the sixth-most polluted river in the world. A number of initiatives have been undertaken to clean the river but failed to deliver as desired results. After getting elected, India's Prime Minister Narendra Modi affirmed to work in cleaning the river and controlling pollution. Subsequently, the Namami Gange project was announced by the government in the July 2014 budget. An estimated Rs 2,958 Crores (US$460 million) have been spent until July 2016 in various efforts in cleaning up of the river(Trivedi, 2010).

INTRODUCTION

There is a universal reverence to water in almost all of the major religions of the world. Most religious beliefs involve some ceremonial use of "holy" water. The river Ganga occupies a unique position in the cultural ethos of India. Legend says that the river has descended from Heaven on earth as a result of the long and arduous prayers of King Bhagirathi for the salvation of his deceased ancestors. The Ganga rises on the southern slopes of the Himalayan ranges (Figure I.1) from the Gangotri glacier at 4,000 m above mean sea level.

EXPLOITATION

In the recent past, due to rapid progress in communications and commerce, there has been a swift increase in the urban areas along the river Ganga, As a result the river is no longer only a source of water but is also a channel, receiving and transporting urban wastes away from the towns. Today, one third of the country's urban population lives in the towns of the Ganga basin. Out of the 2,300 towns in the country, 692 are located in this basin, and of these, 100 are located along the river bank itself.

CAUSES: The main cause of water pollution in the Ganges river are the increase in the population density, various human activities such as bathing, washing clothes, the bathing of animals, and dumping of various harmful industrial waste into the rivers.

1. **Human waste:** The river flows through 100 cities with populations over 100,000; 97 cities with populations between 50,000 and 100,000, and about 48 towns. A large proportion of the sewage water with higher organic load in the Ganges is from this population through domestic water usage(Aggarwal, Singh, & Gupta, 2000).

2. **Industrial waste:** Because of the establishment of a large number of industrial cities on the bank of the Ganges like Kanpur, Prayagraj/Allahabad, Varanasi and Patna, countless tanneries, chemical plants, textile mills, distilleries, slaughterhouses, and hospitals prosper and grow along this and contribute to the pollution of the Ganges by dumping untreated waste into it. Industrial effluents are about 12% of the total volume of effluent reaching the Ganges. Although a relatively low proportion, they are a cause for major concern because they are often toxic and non-biodegradable.

3. **Religious traditions:** During festival seasons, over 70 million people bathe in the Ganga to clean themselves from their past sins. Traditional beliefs hold that being cremated on its banks and to float down the Ganges will atone for the sins of those who die and carry them directly to salvation. In Varanasi alone, an estimated forty thousand bodies are cremated every year, many of which are only half-burnt.

EFFECTS

Marine life: The Ganges river dolphin is one of few species of fresh water dolphins in the world. The results of mercury analysis in various specimens collected along the basin indicated that some fish muscles tended to accumulate high levels of mercury. Hydroelectric and irrigation dams along the Ganges that prevents the dolphins from travelling up and down river is the main reason for their reducing population(Sarkar et al., 2012).

Wildlife: Some of the dams being constructed along the Ganges basin will submerge substantial areas of nearby forest. For example, the Kotli-Bhel dam at Devprayag will submerge 1200 hectares of forest, wiping out the forest area.

Human beings: Water in the Ganges has been correlated to contracting dysentery, cholera, hepatitis,[13] as well as severe diarrhoea which continues to be one of the leading causes of death of children in India.

CLEANUP EFFORTS

Ganga Mahasabha: Ganga Mahasabha is an Indian organization dedicated to the Ganges, founded by Madan Mohan Malviya in 1905. After a long struggle, British India agreed on 5 November 1914 that the uninterrupted flow of the Ganges is the rudimentary right of Hindu believers.

Ganges Action Plan: The Ganges Action Plan (GAP) was launched by Rajiv Gandhi, Its main objective was to improve the water quality by the interception, diversion and treatment of domestic sewage and to prevent toxic and industrial chemical wastes from identified polluting units from entering the river(Das & Tamminga, 2012).

National River Ganga Basin Authority (NRGBA): NRGBA was established by the Central Government of India, on 20 February 2009 under Section 3 of the Environment Protection Act, 1986. It declared the Ganges as the "National River" of India

2010 Government Clean-Up Campaign: In 2010, the Indian government has embarked on a $4 billion campaign to ensure that by 2020 no untreated municipal sewage or industrial runoff enters the 1,560-mile river(Measure Evaluation, 2011). Mission Clean Ganga builds on lessons

from the past, and will look at the entire Gangetic basin while planning and prioritising investment instead of the earlier town-centric approach.

Namami Gange Programme: Ganga Manthan was a national conference held to discuss issues and possible solutions for cleaning the river.

- Nepal to release water during lean flow period
- Water diversion from Manasarovar lake
- Utilisation of Ganges and Bramhaputra flood waters to fight pollution in all rivers of India

THE FUTURE

Apart from the visible improvement in the water quality, the awareness generated by the project is an indicator of its success. It has resulted in the expansion of the programme over the entire Ganga basin to cover the other polluted tributaries. The GAP has further evolved to cover all the polluted stretches of the major national rivers, and including a few lakes. Considering the huge costs involved the central and state governments have agreed in principle to each share half of the costs of the projects under the "National Rivers Action Plan". The state governments are also required to organise funds for sustainable O&M in perpetuity. Initially, the plan was fully sponsored by the central Government.

CONCLUSIONS AND LESSONS LEARNED

The GAP is a successful example of timely action due to environmental awareness at the governmental level. There were also many lessons learned associated with the project objectives, which overlapped in many areas with urban infrastructure development, especially when the GAP was mistakenly assumed to be a city improvement plan. The most important lesson learned was the need for control of pathogenic contamination in treated effluent. This is an aspect difficult to control in surface waters in tropical areas, but it is very important for the Ganga because the river water is used directly by millions of devout individuals for drinking and bathing. The Action Plan started as a "cleanliness drive" and continues in the same noble spirit with the same zeal and enthusiasm on other major rivers and freshwater bodies.

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