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A REVIEW ON THE GANGA ACTION PLAN

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Abstract

The Ganga is not only a holy river, but also a lifeline for India's vast population, as it occupies over 26% of the country's area in its northern basin and drains 25% of the annual run-off. Rapid urbanization, industrialization and high demand for water have resulted in significant water quality depletion problems. Monitoring of water quality suggested that in some of the segments, the river is contaminated, the worst affected being between Kannauj and Allahabad, approximately 350 km long. Approximately 12,222 million litres of domestic wastewater per day (mld) and 2500 mld of industrial wastewater are produced in the basin, of which about 2573 mld of wastewater is generated along its shore.Many of its tributaries are highly polluted and chemical contamination indicated by BOD and pathogens indicated by coliform count are the major water quality issues. There is a fluctuating water quality pattern due to the flow conditions in the river that rely on rainfall and abstraction of water. It is very necessary that no waste water is discharged into the river, considering the shortage of water in the basin. In different segments of the river impacted by water abstraction, there is an immediate need to increase water availability in the basin through rainwater capture, water management and environmental flow determination

Keywords: *Domestic wastewater, pathogenic pollution, over-exploitation, integrated water resourcesManagement..*

I. INTRODUCTION

The Ganga is the highest, and the most important and it is no wonder that the River of India serves as the cradle of Indian civilization. The River Ganga basin is home to about 40 percent of India's population. The waters of the Ganga River are commonly used for residential, industrial and farming purposes. Due to its great religious importance, a significant number of people bathe in its holy waters. Owing to rapid population growth, rapid urbanization and industrialization, the quantity of waste water and solid waste discharged into the river has

risen in the recent past, and water contamination issues have arisen.In particular, for the Indian people who have regular contact with the river, the type of contamination that causes waterborne diseases through pathogenic microorganisms is a major social issue. This manuscript presents water quality data based on a national agency's monitoring of the Ganga River over the last few decades[1].

Flow Area of Ganga:

The Ganga basin covers just over a quarter (26.3 percent) of the total geographical area of the country.Region, which is the largest basin of rivers[2][3]. In the Uttarkashi district of Uttarakhand State in India, the Ganga originates as Bhagirathi from the Gangotri Glaciers in the Himalayas. The Bhagirathi is joined at Deoprayag by the Alaknanda. The Ganga River runs across the rest of the mountain area and flows into the Haridwar Plains. The Bay of Bengal is joined by a large number of tributaries on both banks in a 2,525 km long course.The Ganga Basin is part of the Ganga-Brahmputra-Meghna composite basin, situated in China, Nepal, India and Bangladesh, with an area of 1,086,000 sq.km. In India, 861,000 km2, or about 80 percent, is located outside this basin region. It is bordered by the Himalayas in the north,The Aravalli to the west, as well as the bridge separating it from the Indus basin to the south,The Vindhyas and the Chhotanagpur Plateau, and the Brahmaputra ridge to the east.In India, the basin comprises all of Uttar Pradesh (240,798 km2), Uttarakhand (53,566), Bihar (143,961 km2), West Bengal (71,485 km2) and Delhi (1,484 km2), as well as Madhya Pradesh (198,962 km2), Rajasthan (112,490 km2), Haryana (34,341 km2) and Himachal Pradesh (198,962 km2) (4,317 km2). On the banks of the Ganga, there are many significant holy cities and towns which attract people from all over the world, Overseas and country.The dry season flow in the Ganga and its tributaries is only a fraction of the overall annual flow due to the normal rainfall patterns being limited to only around 3 months over one year in the basin. Over-abstraction of groundwater in the basin, which has a pronounced impact on the water quality of the river, has seriously affected this flow in the recent past. Such low discharge rates require extreme precautions and control of water pollution, particularly during the dry season. The natural flow is impaired due to hydroelectric projects in the upper stretch of the river.Therefore, in view of overlapping and competing uses of water, the question of sustaining ecological flows in the river is becoming a serious problem.

Sources of Pollution:

Domestic waste water, the primary source of which is the river's pollution is caused by theLarger cities/towns, especially Class-I cities (over 100,000 population) and Class-II towns (50,000-100,000 population). Generally speaking, smaller towns and villages do not have any major waste water. The basin comprises 179 Class I towns and 148 Class II towns. The recent survey conducted by the Central Pollution Control Board, Government of India (CPCB, 2006) of Class I cities and Class II cities showed that approximately 12,222 million liters of day-1 (MLD) of waste water are generated in the Ganga basin, of which only 4050 MLD are available for treatment facilities.There is also a wide gap between the production of waste

water and the potential for treatment (Tables 1 and 2).Under the Constitution of India, the management of domestic waste water is the responsibility of urban local authorities (ULBs). However, they are unable to meet this duty because of a lack of funding, and so a substantial volume of waste water is not treated but instead dumped into the rivers, causing major contamination. Realizing the importance of the Ganga River, the Government of India has launched a Ganga Action Plan (GAP) to help ULBs build treatment plants to restore water quality in the 27 priority towns along the Ganga River[4].There is also a large gap between waste water output and treatment capacity (Tables 1). A treatment capacity of 870 MLD (Ministry of Environment and Forests, Government of India, 2009, http://www. envfor.nic.in/nrcd) was created in Phase-I of the GAP. Subsequently, an additional capacity of 130 MLD was generated in 48 smaller cities along the river in Phase-II of the GAP. Similarly, under the Yamuna Action Plan (YAP), a treatment capacity of 720 MLD was created and a capacity of 2330 MLD was created by the Government of Delhi to restore the quality of water in the Yamuna River.However, these attempts were not sufficient to achieve the clean Ganga goal due to rapid urbanization[5][6]. Another serious problem that needs to be tackled is water shortage due to over-abstraction of surface and groundwater in the basin due to the rapid rise in water demand.In order to use the facilities produced efficiently, it
It is essential to allow effective use of treatment plants. In the majority of cases, the treatment plants created under GAP or YAP are not effectively used due to the lack of funding, resulting in no substantial impact on improvement in the water quality of rivers. Therefore, rather than only providing wastewater treatment plants, an integrated water resource management strategy needs to be enforced.

Monitoring of the Water Quality:

Monitoring the water quality of the river as depicted, Ganga is carried out at 20 locationsand the State Pollution Control Boards of Uttar Pradesh, Bihar, West Bengal, Rajasthan and Madhya Pradesh, as well as the Central Pollution Control Board at 101 locations in its various tributaries and in some locations on dams, canals and drains in the basin. Monitoring is conducted on an average basis and theAnalysed and positioned data on a web site. The CPCB is now publishing India's Annual Water Quality Statistics[7][8].

Status of Water Quality:

The last 25 years of water quality control as indicated by high Biochemical Oxygen Demand (BOD) and coliform counts in the flow, CPCB indicated that organic and pathogenic contamination is the most obvious. The BOD level is more than the desirable limit of 3 milligrams per liter at many locations between Haridwar and Tarighat. BOD frequently rises to a high level of 5 to 8 milligrams per liter in the stretch between Kannauj and Kanpur, due to episodic pollution resulting from the Kali River and Ramganga River Basin industries.The Ganga water shows a tremendous amount of resilience in terms of contamination, despite intense water usage, heavy withdrawals and major discharges of domestic and industrial waste during its course, and the dissolved oxygen (DO) throughout the entire course shows a

remarkably stable and balanced pattern. The oxygen content never falls below the 5 milligrams per liter critical stage. Virtually all along the Haridwar river downstream, the water quality in terms of Fecal Coliform (FC) count was low.The FC content was found to be elevated upstream from Kannauj to Trighat, with the most probable number (MPN) ranging from 900 to 150,000 per 100 milliliters[8]. It needs serious attention as this is well beyond the critical limit recommended for the designated best usage, i.e. 'Outdoor Bathing' of Ganga water in this stretch. Again, very high concentrations of fecal coliform species are observed in the lower reaches of the Hugli, especially below Palta: 7500 to 295,000 MPN 100 ml-1. Despite the fact that the Ganga's ambient water quality is very low in many segments, the river is actually used as though it is of higher grade, by the millions of people who take holy d' outdoor bathing. Because of the river's high BOD and FC, especiallyKanpur, Allahabad and along the town limitsThe river is not fit for its designated 'Outdoor Bathing' best use, Varanasi[9]. The river is nevertheless intensively used for sacred holy dips in this stretch.

II. CONCLUSION

key causes of water quality deterioration in the Ganga River are the discharge of untreated or partially treated waste water, combined with the extensive diversion of water for irrigation, industrial and domestic use, the product of rapid urbanization and industrialization. No river can afford a condition in which it is robbed of its flow and filled with nutrients and organic matter. Efforts to restore the quality of water due to the rapid growth of the urban population along the river and the lack of resources for the operation and maintenance of the waste water treatment facilities built, the Ganga Action Plan was grossly insufficient.In addition, the focal point of the Ganga Action

The proposal was limited to the expansion of waste water treatment facilities only; no effort was made to control, recycle or judiciously use water supplies. In order to meet water quality goals and ecological flows in the Ganga and its tributaries, there is a need to implement an integrated water resource management plan throughout the Ganga Basin.

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