

The Ganga: A Salvation River

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The River Ganga holds a unique place in the cultural ethos of India. According to Indian mythological history, the Ganga River descended from heaven on earth because of the long and difficult prayers of King *Bhagirathi* for the salvation of his dead ancestors. The thought of faith, devotion and worship comes as soon as the name of River Ganga comes to mind. The water of the Ganga River is considered *holy water* by millions of Hindus. However, scientifically speaking, the river Ganges is the life support system for the people living in its catchment area of about 11 Lakh km².

The Ganga River and many of its tributaries come from the glaciers of the Himalayas. The glaciers of the Himalayas have given pure water to these rivers for many years. The terminus of the Gangotri glaciers on the Himalaya Mountains is known as "*Gaumukh*" at an altitude of 4,100 m, from where the Ganga River emerges and joins the Bay of Bengal. It passes through the plains of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal, traveling approximately 2,510 km. Earlier the River Ganga with its holy and unpolluted water provided adequate, divine and cultural nourishment to millions of people. But now due to rapid urbanization and industrialization it has become very difficult to maintain the divinity and purity of the River Ganga.

Rapid urbanization, industrialization and use of chemicals near its banks have put the water quality of the Ganga River at an alarming rate. Physico-chemical and microbiological studies have shown that in different stretches of the Ganga river, the water of the river is not suitable for bathing of humans and cattle and also for other domestic uses. This is because of the presence of a high load of pathogenic bacteria in it.

Researchers found that millions of litres of waste water containing toxic elements and metals are dumped into the Ganga, affecting its own ecology, particularly along the river banks, triggering a condition known as "*hypoxia*". In this condition marine life can't survive. The overall aquatic food web is getting damaged. Benthic communities, living organisms that inhabit river banks and rivers, are particularly at risk. Major industries that contribute to the pollution of River Ganga include textiles, tannery, sugar and distillery, pulp and paper mills, petrochemical industries, etc.

The quality of Ganga water has been the most discussed and published topic in the last two-three decades. River water quality assessment, river water quality modelling, toxicity assessment, pollution levels have all been studied by many researchers. The scientific community and governments as a whole are concerned about rising levels of pollution in the water of Ganga River. For this, in the year 1986, the Ganga Action Plan (GAP) was initiated by the Government of India, with the objective of restoring the quality of the river water to a level so that it can be used for at least bathing. Under this scheme several waste water treatment plants, common effluent treatment plants were constructed at various urban centres. Ganga River Water Quality Monitoring System is developed and maintained by various agencies. It is found that the scheme should be extended to its tributaries also so that its combined effect is visible, the GAP was extended in the year 1993. The objective of GAP II is to reduce the pollution load through the tributaries of the River Ganga. On 20 February 2009, the National Ganga River Basin Authority (NGRBA) was established under Section 3(3) of the Environment Protection Act (EPA) 1986, for cleaning and protection of the Ganga, and declared the Ganga as a National River. Nevertheless, even after twelve years of the establishment of the NGRBA, the quality of the river water does not seem to be improving and there is still a long way to go after which the quality can be restored to the level where the aquatic system survives sustainably.

A flagship NamamiGange program was launched by the Central Government in June 2014 under a separate Union Ministry of Jal Shakti created under the River Rejuvenation Programme. The objective of the project is to integrate the Ganga Rejuvenation Mission and make it effective to clean and protect the river by generating employment, better livelihood and health benefits and reap socio-economic benefits to the population dependent on the river. In the National Mission for Clean Ganga (NMCG), several sewage treatment plants were established, riverfront development projects undertaken, river surface cleaning was done, public participation programme was launched to increase public awareness to reduce the waste load, Industrial effluent monitoring scheme was being implemented. Apart from this, afforestation was also being done in long deforested areas.

Overall, the current status of River Ganga demands holistic accountability from the authorities and the people to make it clean. River Ganga is a part of our culture and it is our duty to maintain its purity. The government should make a more strict policy to develop the quality of water in the river. Environmental laws should be strictly followed and violators should be punished. There is a need for more monitoring station with advanced technology to know the basics. Monitoring should be done in proper scientific way and not just to do it we have to see our conscience. Maintaining the flow of the environment is one of the basic needs of developing the health of our Ganga ecosystem.

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