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The Ganges:- Pollution And Ways To Conservation

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Abstract

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 purity of such water, the belief in its known historical and unknown mythological origins, and the inaccessibility of remote sources, elevates its importance even further. In India, the water of the river Ganges (The name "Ganges", ending in "-es", came to English via Latin from Ancient Greek sources, particularly from accounts of Alexander the Great's wars, which entered India) is treated with such reverences. It provides water to about 40% of India's population across 11 states, serving an estimated population of 500 million people or more which is a larger than any other river in the world. Today, it is considered to be the fifth most polluted river in the world. Central Pollution Board has a network of 57 water quality monitoring stations on river Ganges and monitoring 9 core parameters regularly. A number of initiatives have been undertaken to clean the river but failed to deliver desired result. After getting elected, India's Prime Minister Narendra Modi affirmed to work for cleaning the river and controlling pollution. Subsequently, Namami Ganga Project was announced by the government in July 2014 budget.

Key words: The Ganges; pollution; effects; conservation

Introduction

The Ganges basin accounts for a little more than one-fourth (26.3%) of the country's total geographical area and is the biggest river basin in India (more than 1 million square kilometers). It encompasses part of India (about 80% of the total basin area), Nepal, China and Bangladesh. The Ganges basin is bound in the north by the Himalayas and in the south by the Vindhyas. The length of the main channel is some 2,525km, while altitude ranges from 8,848m in the high Himalayas, to sea level in the coastal deltas of India and Bangladesh. The main river stream originates in the Garhwal Himalaya (30 degree 55'N, 79 degree 7'E) under the name of the Bhagirathi. In the Himalayan region the Bhagirathi is joined by the tributaries Alaknanda and Mandakini to from the Ganges. After entering the plains at Haridwar, it winds its way to Bay of Bengal.

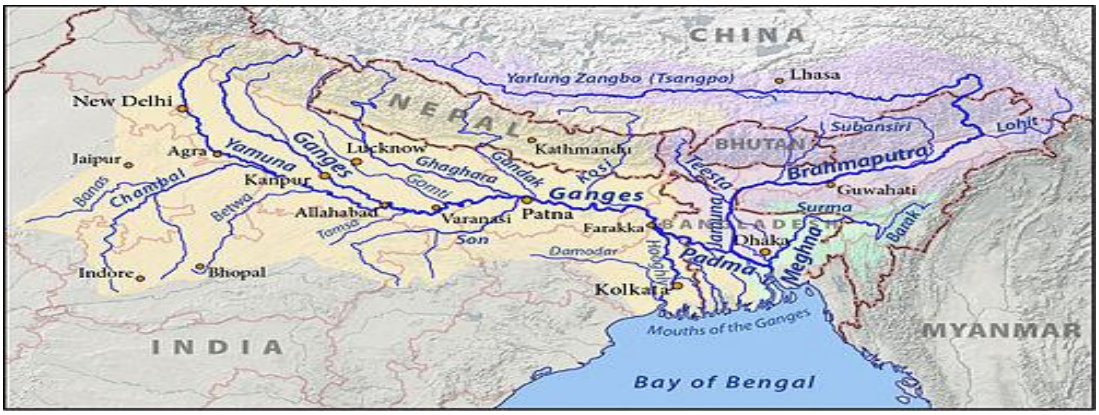


Fig: 1. The Ganges Basin.

The purity of the water depends on the velocity and the dilution capacity of the river. A large part of the flow of the Ganges is abstracted for irrigation just as it enters the plains at Haridwar. The river Ganges carries the highest slit load of any river in the world and the deposition of this material in the delta region results in the largest river delta in the world.

Fig: 2. River Ganges.

The importance of the Ganges:

The Ganges basin is one of the most populous regions on Earth, home to 450 million people at an average density of over 550/km2. In the delta zone this rises to over 900 per square km. The Ganges supports a rich fauna and flora, including the endangered river Ganges Dolphin (the Ganges dolphin was declared India's national aquatic animal in 2009, and the government approved a National Dolphin Action Plan in 2010 to save the highly endangered freshwater mammal) Platanista Gangetica and at least nine other species of aquatic mammals. Reptiles include three species of crocodiles along with one species of monitor lizard and eleven different freshwater turtle.

Fig: 3.Ganges Dolphin.

The Ganges also has the richest freshwater fish fauna anywhere in India. There are some 30 cities, 70 towns, and thousands of villages along the banks of the Ganges. The river Ganges is an important cultural aspect to the Hindu population. Tourism is another relatived activity. Three towns holy to Hinduism – Haridwar, Varanasi, Allahabad – attract thousands of pilgrims to its water.

The Ganges and its tributaries, especially the Yamuna, have been used for irrigation since ancient times. Dams and canals were common in Gangetic plain by fourth century BCE. The Ganges-Brahmaputra-Meghna basin has a huge hydroelectric potential, on the order of 200,000 to 250,000 megawatts, nearly half of which could be easily harnessed. India tapped about 12% of the hydroelectric potential of the Ganges and just 1% of the vast potential of the Brahmaputra.

Pollution of the Ganges

River pollution means the presence of any foreign substance (organic, inorganic, radiological and biological) in water of the river, which tend to degrade its quality so as to constitute hazard or impair the usefulness of the water. There are many sources of contamination of river. Water pollutants could be: (1) **biological** (viruses, bacteria, protozoa, algae and helminthes), (2) **chemical** (biocides, polychlorinated biphenyls, phosphates, nitrates, fluoride),(3) **physical** (hot water from industries, oil spills from oil carries). Many rivers in India, including the river Ganges, are polluted by indiscriminate discharge of wastewater. Domestic effluents mostly carry organic wastes, which are biodegradable and require oxygen. High levels of sewage consume most of the dissolve oxygen leaving little for other aquatic organism. At extreme low oxygen levels, fishes begin to die off. The disease causing agents, industrial waste, chemical and radio-active substances are the usual river pollutants. The river Ganges might have all these pollutants. But the unique pollutants of the river Ganges are religious and fertility mater including dead bodies of ghats.

The principal sources of pollution of the Ganges are as follows:

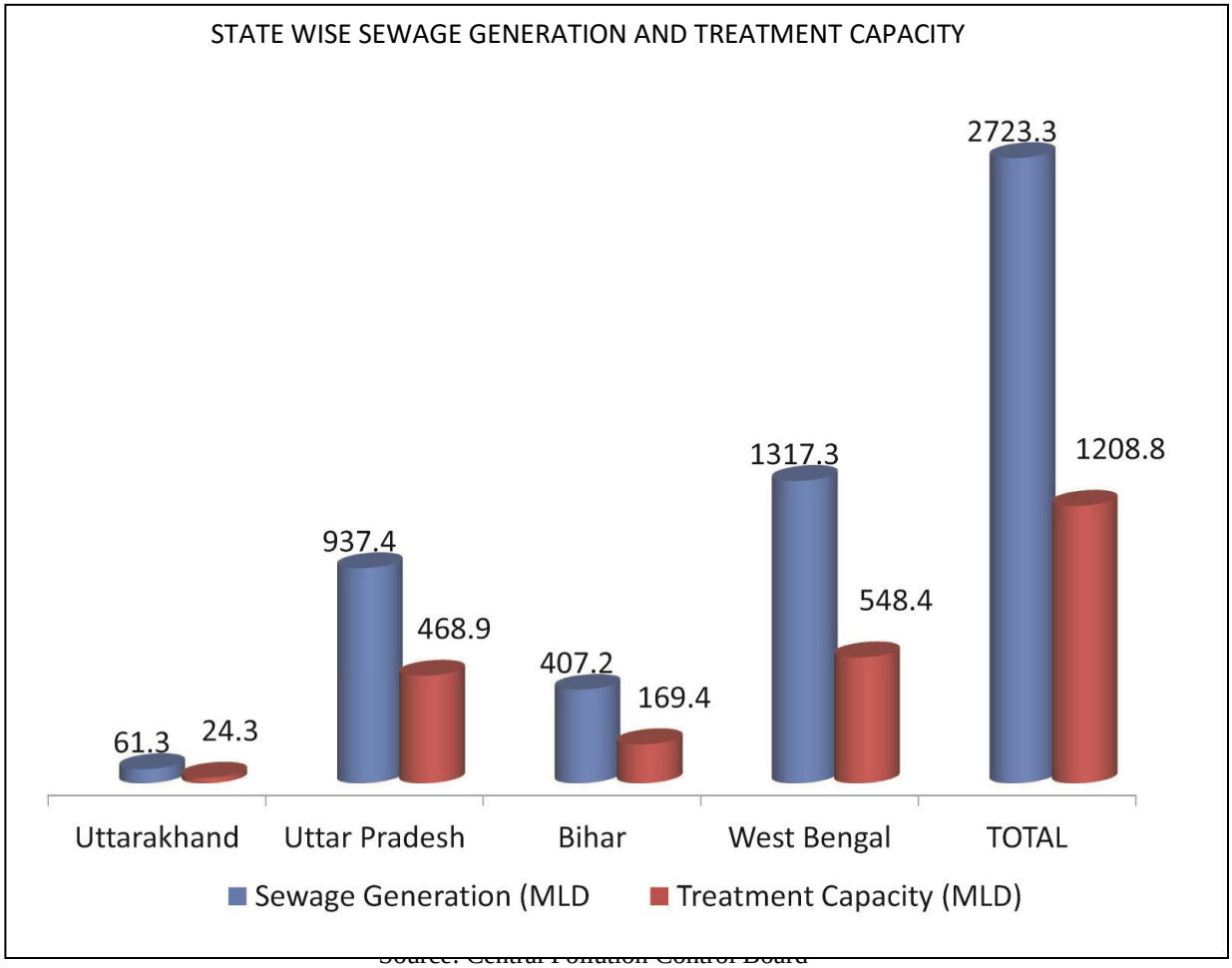
(1) During the festival seasons, over 70 million people bathe in the Ganges over a few weeks to clean themselves from their past sins. Some materials like food, waste or leaves are left in the Ganges for ritualistic reason.

Fig: 4. Pollution by ritualistic reasons.

Fig: 5. Ganges-Bathing-Varanasi-Ghats-Crowd

Fig: 6.Kumbh Mela

(2) Approximately 1 billion liters of raw, untreated sewage are dumped in the river on a daily basis. The amount has more than double in the last 20 years and experts predict another 100%increase in the following 20 years.



Source: Central Pollution Control Board

Fig: 8. Sewage in Ganges

(3)The rapid explosion of India's population in the last 25 years coupled with lax regulations on industry has put a huge strain on the river leading to an explosion in Ganges river pollution.

(4) Thousands of bodies are cremated on the banks of the river yearly with many being released into the river with hopes that their souls may have a direct path to heaven.

Fig: 8.Funeral on the ghats

(5) Hundreds Unwanted or 'illegitimate' babies, cattle and other animal carcases are also dumped in the Ganges again with religious significance.

Fig: 9. Bodies on the Ganges

Fig: 10. Death body in the Ganges

(6) The levels of Coliform bacteria is over 2800 times the level considered safe by the WHO.

(7) Some of the main Ganges river pollution contributors are those in industry – specifically in this case those of the leather Industry who use vast amount of chromium and other toxins and chemicals – the majority of which ends up in the slow paced waters of the Ganges during the dry season, peak time for the tanning industry and also when the river is moving at its slowest.

Fig: 11. Chromium pollution in the Ganges

Conservation of the Ganges:

Ganga action plan:- The Ganges today is more polluted than when the Ganga Action Plan was first launched by the late PM Rajib Gandhi in 1986. The Ganga Action Plan (GAP) originated from the personal intervention and interest of our late Prime Minister Mrs. Indira Gandhi who had directed the Central Board for the Prevention and Control of Water Pollution, now Central Pollution Control Board (CPCB) to do a comprehensive survey of the situation in 1979. CPCB published two comprehensive reports which formed the base for GAP in Oct. 1984 but was not presented to the nation formally due to assassination of Smt. Indira Gandhi.

In Feb 1985, the Central Ganga Authority (CGA) with the PM as chairman was formed, with an initial budget of Rs 350 crore to administer the cleaning of the Ganges and to restore it to pristine condition by our late PM Rajib Gandhi. In June 1985, the Ganga Project Directorate (GPD) was established as a wing the Department of Environment. GAP was launched on 14 June 1986, by Sri Rajib Gandhi at Varanasi.

The river cleaning program was started with GAP in 1985 under the aegis of GPD established under the MOE&F. A CGA under the chairmanship of the PM was constituted to finalize the policy framework and to observe the implementation of GAP. The CMs of the concerned states, Union Minister and Secretaries of concerned Central Minister and Experts were its members. The GAP was later GAP II in 1993 and was broad-based the form of National River Conservation Authority (NRCA) in 1995.

The functions of the NRCA are as follows:

#. To mobilize necessary financial resources

#. To review the progress of implementation of approved programs and give necessary direction to the steering committee

#. To lay down, promote and approve appropriate policies and programs to achieve the objects

#.To examine and approve the priorities of the NRCA and

#. To take all such measure as may be necessary to achieve the objects.

From 1993 the GAP I was extended as GAP II covering four major tributaries of the Ganges (CAG 2000).The Ganga Action Plan is commonly seen as a complete failure. While the government and some studies claim that the water quality of the river has increased since the implementation of the GAP (CAG 2000).

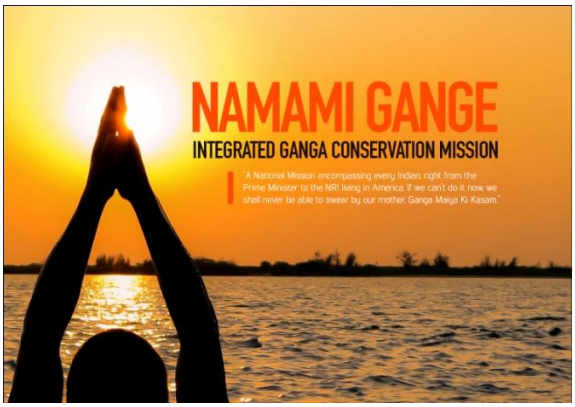
National River Ganga Basin Authority: NRGBA was established by the Central Government of India on 20 February 2009 under section 3 of the Environment Protection Act, 1986. It declared the Ganges as the National River of India. The chair includes the Prime Minister of India and Chief Minister of states through which the Ganges flows. In 2011, the World Bank approved $1 billion in funding for the National River Ganga Basin Authority.

Supreme Court of India: The Supreme Court of India has been working on the closure and relocation of many of the industrial plants like Tulsi along the Ganges. In 2010 the government declared the stretch of river between Gaumukh and Uttarkashi an “eco sensitive zone”. The court directed the National Green Tribunal, in collaboration with the central and state pollution boards, to identify the industries and take action against errant units, including snapping their water and power connections. Slamming the pollution control boards, a bench headed by Justice T.S. Thakur, which is

monitoring the Centre's Ganges clean- up project. The apex court has asked the National Green Tribunal to file a report after every six months on action taken by it to control industrial pollution.

Prof. G. D. Agarwal: Dr. G.D. Agarwal is a notable environment activist who has been on a fast for 107 days protesting for a cleaner Ganges. Due to support from other social activists like Anna Hazare, the PM of India, Manmohan Singh agreed to Prof. Agarwal's demands. Accordingly, he called for a National River Ganga Basin Authority (NRGBA) meeting and urged the authorities to utilize the Rs. 26 billion sanction for creating sewer networks, sewage treatment plants, sewage pumping station, electric crematoria, community toilets and development of river fronts.

Namami Gange Programme: Accordingly, an integrated Ganges Conservation Mission called "Namami Gange" has been proposed to be set up and a sum of Rs. 2,037 crores has been set aside for this purpose. In addition a sum of Rs. 100 crores has been allocated for developments of Ghats and beautification of River Fronts at Kedernath, Haridwar, Allahabad, Patna and Delhi in the first phase.



Following are proposed to be taken up under Namami Gange

(a) **Nirmal Dharra- ensuring sustainable municipal sewage management**

(b) **Nirmal Dhara – managing sewage from Rural Areas**

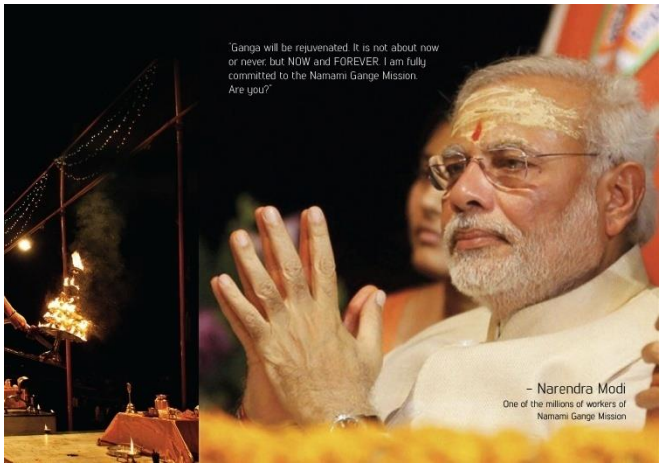
(c) **Nirmal Dhara – managing industrial discharge**

(d) **Arival Dhara**

(e) **Ensuring ecological rejuvenation by conservation of aquatic life and biodiversity**

(f) **Promotion of Tourism and Shipping in a rational and sustainable manner**

(g) **Knowledge Management on Ganges through Ganga Knowledge Centre**



Ganga Manthan: Ganga Manthan was a national conference held to discuss issues and possible solutions for cleaning the Ganges. The event was organized by the National Mission for Cleaning Ganga on 7 July 2014 at Vigyan Bhawan in New Delhi. Ms. Uma Bharti, Water Resources, River Development and Ganga Rejuvenation set the ball rolling in cleaning the Ganges.

Recommendation:

(1) It will require imagination and co-operation between private enterprise, state and local governments, nonprofit organizations, architects and planners.

(2) Intercepting untreated municipal sewage and industrial wastewater flowing into river and diverting to sewage treatment plant.

(3) Construction of bio gas/electrical crematoriums in the river bank.

(4) Construction of bathing ghats/toilets to eliminate open defecation in river bank.

(5) To enhance the environmental planning.

(6) To arrest corruption.

(7) To increase the number of technical expertise.

(8) Enlist the support from the religious enthusiasts.

Conclusion:

Ganges river pollution is getting seriously bad (as you may have now noticed) and something needs to be done now. A solution however, seems far away with gross negligence, ignorance and stupidity pouring from every sect of Indian society from Government, the people and of course big business which still continues to rape India and her people at

every level. But, all hope is not lost and there does seem to be some hope on the horizon for the serious case of the Ganges river pollution. The government's three-phase Ganges clean-up plan, which is expected to take 18 years to complete, includes a tentative Rs 51,000crore project by the Ministry of Urban Development to extend sewerage coverage to 118 towns lining the river bank.

We can send a shuttle into Space, we can build the Delhi Metro. We can detonate nuclear weapons. So why can't we clean up our rivers?

—Rakesh Jaiswal, Ganges activist since 1993.

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