



Impact Of The Ganga River Water on Former's Crops

Savita Gupta¹, Dr. B.N. Pandey²

1- Research Scholar, 2- Associate Professor - Botany,
Government Girls P.G. Collage, Ghazipur (U.P.) India

Introduction- The Ganga originates from the Gangotri glacier in the Himalaya, in the Uttarkashi district of Uttarakhand. The river length is approximately 2,525 kilometers (1,569 miles) long and has the most populated river basin in the world. The river starts from a glacier called Gangotri Glacier, which is in the Garhwal region in the Himalayas. The Ganga flows through north India and ends at the Bay of Bengal in eastern India. Overall, it flows 3,877 km, making it one of the largest rivers in the world. Its watershed is 907,000 km board.

Hindus venerate it as a “life-giving river,” calling it Mother Ganges. The Ganges is considered a holy river by Hindus and it often referred to as “Ganga” in India. It is personified as a goddess, Ganga, who is worshipped for purification and forgiveness.

Hundreds of millions of people and a huge range of wildlife rely on the river Ganga. The Ganga, or Ganga River, is a major river of the Indian subcontinent, originating in the Himalayas and flowing eastward to the Bay of Bengal, holding immense cultural and spiritual significance, especially for Hindus, and vital for irrigation and subsistence in the region. It is a major lifeline for agriculture, irrigation, and a source of cultural and religious significance for millions. The Ganga was declared the National River of India in 2008.

The 2025 Prayag Maha Kumbh Mela was the most recent iteration of the Kumbh Mela, a Hindu pilgrimage festival that marked a full orbital revolution of Jupiter around the Sun. It was scheduled from 13 January to 26 Feb. 2025, at the Triveni Sangam in Prayagraj, Uttar Pradesh, India.

The Maha Kumbh Mela, while a significant cultural and religious event, poses both positive and negative impacts on the Ganga River, with the primary negative impact being increased pollution from the influx of pilgrims and associated activities.

Litreature And Review- Positive Impact On The Ganga River:

1-Culture and spiritual significance : The Kumbh Mela is a deeply rooted cultural tradition for millions of Hindus, and the Ganga is considered a sacred river, providing a spiritual cleaning experience for pilgrims.

2-Irrigation of fields using from Ganga River: Canal systems in the Ganga basin irrigate about 28% of total irrigation areas. There are 478 major and medium irrigation projects that represent a command area of about 36.12% of the basin. Irrigation of fields using water from the Ganga River is done through canals in the Ganga valley areas like Uttar Pradesh and Bihar, increasing the production of crops like sugarcane, cotton, and oilseeds has increased. The event brings a significant economic boost to local areas through tourism and related activities.

3- Ganga River water of speciality: Ganga water, or “Ganga Jal,” is revered in Hinduism for its perceived sacred and purifying properties, believed to cleanse the soul and body, and is used in rituals and ceremonies. Some scientific studies suggested it has natural antimycobacterial properties, potentially due to bacteriophages, viruses that kill bacteria, and high oxygen content.

Scientific Theories Properties-

1. Self-cleaning properties: Some studies suggest that Ganga water has a natural ability to purify itself, potentially due to the presence of bacteriophage and high oxygen content.

2. Antimycobacterial Properties: Research indicates that Ganga water contains a higher proportion of organisms with antibacterial properties compared to another Indian river.

3. Bacteriophages: The presence of bacteriophages, viruses that kill bacteria, is a potential factor contributing to the river's perceived ability to purify itself.



4. High Oxygen Content: The Ganga water contains an oxygen level 25 times higher than any other river in the world. Some studies suggested that Ganga water has a higher oxygen content than other rivers, which may contribute to its ability to remain fresh.

Negative Impact On The Ganga Pollution-The large number of pilgrims and associated activities leads to increased fecal contamination, waste disposal, and the use of pollutants which can harm aquatic life and pollutants, which can harm aquatic life and disrupt the river's ecosystem.

1- Ganga River Pollution: In May 2019, the Central Pollution Control Board said in the report that the water from the Ganga was absolutely unfit for "direct drinking."

A high level of fecal coliform (microbes from human and animal excreta) was found in river water in which people took a holy dip during the Maha Kumbh, according to a report submitted to the National Green Tribunal (NGT) by the CPCB. Over 55 crore people have visited the Maha Kumbh. "Due to this self-purification mechanism of the Ganga, the water remained unpolluted even after 57 crore devotees bathed in it."

The Ganga at Kanpur, Uttar Pradesh, has the most polluted stretches of the Ganga River. Kanpur is one of the most populated towns in U.P. People wash clothes, bathe, urinate, and discharge sewage in the water bodies, leading to their contamination.

The Ganga basin is one of the most densely populated regions on earth. The untreated sewage dumped into the river, industrial waste, agricultural runoff, remnants of partially burned or unburned bodies from funeral pyres, and animal carcasses all contribute to polluting the Ganga. Several manufacturers, such as rubber, plastic, and leather, have sprung up along the river's bank and discharge their waste into the water. As a result, life under the ocean suffers.

2- Plastic Pollution:The Ganga River network is among the top rivers in the world for plastic pollution, with significant amounts of plastic waste being dumped into the river. The excessive use of plastic, especially single-use plastic, raises pollution levels on and around riverbanks. The second-largest plastic polluting catchment in the world, with over 1.2 million tonnes of plastic discharged into marine ecosystems per year.

3- Air Pollution: Airborne pollutants can settle in water bodies, contributing to water pollution. Public health concerns related to high air pollution exposures include cancer, cardiovascular disease, respiratory diseases, and diabetes mellitus. Obesity, reproductive, neurological, and immune system disorders.

4- Agriculture: Agricultural runoff, including pesticides and fertilizers, significantly polluted the Ganga River, impacting water quality, aquatic life, and human health, particularly in the densely populated basin. Agricultural pollution refers to the contamination of the environment resulting from farming practices, including the use of fertilizers, pesticides, and animal waste, impacting water, soil, and air quality. Methane (CH₄) emission from enteric fermentation and nitrous oxide (N₂O) emission from soil are responsible for 49% and 30% of total agricultural GHG emissions, respectively.

It is one of the most fertile of all agricultural regions. Its rice and other crops feed hundreds of millions of people in India and in Bangladesh. where the river is also known as the Padma. Polluted water can damage crops and reduce agricultural productivity, affecting livelihoods dependent on farming.

Fertilizers: Excess fertilizer runoff leads to eutrophication, where excessive nutrients cause algal blooms that deplete oxygen levels in the water, harming fish and other aquatic organisms. When it rains, excess fertilizers and manure from farm fields flow into waterways. This runoff contains high levels of nutrients like nitrogen and phosphorus.

5- Biodiversity: Increased human activity leads to a surge in waste and pollutants entering the rivers, exacerbating their degradation and harming aquatic life and local biodiversity. Soil biodiversity pollution can contaminate the soil along the riverbanks, affecting the growth of plants and the overall health of the ecosystem. Aquatic life pollution has led to a decline in aquatic species, including fish, dolphins, and turtles.



6- Environmental Pollution: The Maha Kumbh Mela, a large religious gathering, poses significant environmental challenges, including water pollution from ritual bathing and waste disposal, as well as increased pressure on local resources and ecosystems. Pollution, contamination, or destruction that occurs as a consequence of an action that can have short-term or long-term ramifications is considered an environmental impact. Most adverse environmental issues also have a direct link to health and quality of life issues. Cutting down trees and littering have a negative effect on animals and plants. Humans impact the physical environment in many ways: burning fossil fuels, deforestation, and more. Changes like these have triggered climate change, soil erosion, poor air quality, mass extinction, and undrinkable water, among other effects. Soil erosion from deforestation, overgrazing, changing rainfall patterns, and poor land management practices is a major environmental issue in India.

7- Water Pollution: The primary sources of pollution in the Ganga River are the discharge of untreated municipal sewage and industrial effluents, with a large portion of pollution stemming from the rapid growth of urban areas along the riverbanks. The main sources of water pollution are industrial and agricultural activities, including the discharge of untreated sewage and wastewater, as well as runoff from farms and urban areas containing pollutants like fertilizers, pesticides, and oil. Runoff from farms carrying fertilizers, pesticides,

and animal waste can contaminate surface and groundwater. Water pollution is a major environmental issue in India. The largest source of water pollution in India is untreated sewage.

Water is crucial for human health, and polluted water directly affected the human body. Water pollution causes various diseases, such as typhoid, cholera, hepatitis, and cancer. It also harms plants and aquatic animals by reducing the oxygen content in water.



8-Land pollution: A population of over 1 million people, approximately 75% of Ganga pollution comes from municipal sewage from the cities, towns, and villages along its banks.

Land pollution arises from agricultural, chemical, industrial discharge, and human waste (solid waste). The major role of humans related to overland pollution is solid waste disposal; disposal is normally solid, and some disposal is recycled materials, resulting from human animal activities that are useless, unwanted, or hazardous. e.g., garbage, rubbish, ashes, construction debris, and dead animals.



9- Soil Pollution: Soil pollution can be defined as the persistence of chemicals, salts, toxic compounds, and radioactive materials that have adverse effects on animal health and plant growth. There are many ways through which soil can get polluted. Soil pollution is the river's pollution, including from industrial and agricultural runoff, impacting soil quality along its bank and in the surrounding areas. Municipal Sewage untreated sewage and untreated garbage dumped into the river cause severe water pollution, which can then contaminate the soil. Reduced water availability impacts agriculture, the backbone of the country's economy, leading to lower crop yields and increased food prices, and communities suffer from inadequate sanitation and hygiene, resulting in waterborne



diseases. Soil erosion, the removal of the top soil, is primarily caused by natural forces like wind and water but can be exacerbated by human activities such as deforestation, overgrazing, and poor agricultural practices.

Impact Of Soil-

1. Contamination: Industrial and agricultural pollutants can seep into the soil along the river stocks, leading to soil contamination with heavy metals, pesticides, and other harmful substances.

2. Health risks: Exposure to contaminated soil through direct contact or consumption of contaminated crops can pose serious health risks to humans and livestock. Farmers and consumers can be exposed to harmful chemicals and diseases through contaminated water and crops.

3. Reduced Fertility: Soil contamination can reduce the fertility of agricultural land, impacting crop yields and food security. Polluted irrigation water can damage crops, reduce yields, and affect the quality of produce.

4. Economic Losses: Reduced crop yields and the need for costly remediation measures can lead to significant economic losses for farmers.

5. Pesticides : Pesticides used in agriculture can persist in the soil and water, contaminating crops and water sources.

Conclusion- It can be concluded from the present review article that we cannot reject the review of the article. A high level of fecal coliform (microbes from human and animal excreta) was found in river water in which people took a holy dip during the Maha Kumbh, according to a report submitted to the National Green Tribunal (NGT) by the CPCB. A population of approximately 75% of Ganga pollution comes from municipal sewage from the cities, towns, and villages along its banks. Land pollution arises from agricultural chemicals, pesticides, industrial discharge, and human waste (solid waste).

As shown in some images by Google. Overall discussion of pollutions. The Ganga River, water, agriculture, and soil are special negative impacts of pollution. The Ganga River is in very poor condition.

The farmers are 28% irrigation; it depends on the Ganga River. Because both water and soil are polluted. These are affected on the crops. When the farmers are irrigating fields. The farmer already uses chemical fertilizers, herbicides, fungicides, and pesticides, which soil fertility is poor. Now it should be organic farming. And used organic compost to enrich soil without harmful chemicals. Enhancing soil is good for fertility and increases crop production.

RFFERENCE

1. <https://www.wwf.org.uk>
2. <https://news.nationalgeographic.org>
3. <https://www.wired.com>
4. <https://www.jararan.com>
5. <https://kids.britanica.com>
6. <https://indiawris.gov.in>
7. <https://www.thehindu.com>
8. <https://m.economictimes.com>
9. <https://www.linegyasvidyapeeth.edu.in>
10. <https://www.eea.europa.eu>
11. <https://www.vedantu.com>
12. <https://www.niehs.nih.gov>
13. <https://www.sciencedirect.com>
14. <https://www.bbc.co.uk>
15. <https://education.nationalgeographic.org>
16. <https://unacademy.com>
17. <https://www.wateraid.org>
18. <https://en.wikipedia.org>



19. <https://india.mongabay.com>

20. <https://www.toppr.com>
