

## Water Pollution in India: A Legal Analysis of Controlling Measures

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### ABSTRACT

Recently, the Central Pollution Control Board has identified that almost 351 river stretches are polluted in India, and among them sixty percent river stretches exist only in eight states. This shows that these rivers and streams did not qualify the water quality criteria and it is a serious concern as water is the most essential component for the existence of life. The World Bank evaluates that "the health costs of water pollution is equal to three percent of GDP, in India." A study reveals that water borne diseases are responsible for eighty percent of all illnesses and one -thirds deaths in India. Water pollution led to water scarcity that means lack of freshwater resources to meet the demand of water for various sectors and purposes. It is also associated with the concern of water crisis which means due to deterioration of water resources, difficulty to get fresh water, even to satisfy the basic water demand. The environment and development are highly effected by the availability of water resources and quality of water. In spite of enactment of the Water Act in 1974 and various policies, schemes and programs, there has been degradation in the quality of water of the water resources of the country. The main objectives of this research include to describe the water pollution condition in India, to discuss the main causes and effects on environment and human beings and to analyse the legal framework and policies and role of major agencies for the abatement of water pollution. This research work is analytical and descriptive in nature and based on secondary sources of data that include various research articles, journals, government reports, books and internet sources. This research paper will focus on the water pollution status in India and further evaluate its main causes and impacts. The paper will provide an analytical overview of legal framework and policies to combat the concerned issue and also provide some suggestions for the abatement of water pollution.

**KEYWORDS:** Water resources, water pollution, contamination, CPCB, environment, NGT.

### INTRODUCTION

Water pollution is defined as the contamination of water resources by pollutants and effluents that degrade the water quality and render it unfit for drinking and other activities. Water pollution can be caused by several factors such as sewage discharges, agricultural activities, industrial effluents, urban runoff, waste water etc. As India grows and urbanizes, its water bodies are getting toxic. It's estimated that around 70% of surface water in India is unfit for consumption. Every day, almost 40 million litres of wastewater enters rivers and other water bodies with only a tiny fraction adequately treated. Another study estimates that being downstream of polluted stretches in India is associated

with a 9% reduction in agricultural revenues and a 16% drop in downstream agricultural yields.<sup>1</sup> According to a World Bank report, such a release of pollutants and effluents in the upstream of the rivers affect the economic growth in the downstream regions and also reduce GDP growth in those areas. India is a rapidly growing economy and the process of growth and development lead to massive environmental issues and water pollution has emerged as the gravest threat. With the increase of industrial activities, waste water also increases and if it is discharged directly, without proper treatment, into the freshwater resource, then it also affects the existing freshwater resource which results into the contamination and pollution.

## CAUSES OF WATER POLLUTION

The major cause of water pollution is the pollutants released into the water resources the degrades the quality of water and render it unfit to use. Water pollutants can be categorised into Several classes. These are inorganic plant nutrients, disease causing agents, oxygen depleting wastes, inorganic chemicals, organic chemicals, radioactive isotopes, oil, hot water etc. Inorganic plant nutrients are water soluble phosphates and nitrates that results into excessive and rapid growth of algae and aquatic plants. This is called eutrophication. Due to eutrophication algal boom occurs and this results into the decrease in oxygen level into the water bodies which adversely affects the aquatic ecosystem animals and cause death of aquatic animals. The chemical fertilizers and pesticides used to increase agricultural produce cause eutrophication and bioaccumulation respectively. Some fertilizers emit ammonia in large quantity which results in acidification of water and degrade water quality of water resources. However the fertilizers used to grow crops of better quality but it is harmful for the water bodies as the runoff deteriorates water quality of adjoining water bodies and also through rainfall the fertilizers enter into the water bodies and pollute the water. A high concentration of nitrates can cause nitrate poisoning. These fertilizers seep into the land surface and deteriorate the quality of ground water and make it harmful. Pathogens like bacteria, protozoa, viruses and parasitic worms are the disease causing agents that are responsible for various water borne diseases and outbreaks. These pathogens enter into water resources through direct discharge of human waste and domestic sewage. The most common bacteria are E. coli and streptococcus faecalis that cause gastrointestinal diseases. Organic Chemicals are another category of water pollutants that include plastics, gasoline, oil, cleaning solvent, detergents, herbicides, synthetic hormones, industrial solvents and cleansers, pharmaceuticals etc. These chemicals are hazardous to the environment, aquatic ecosystem and human health. Radioactive isotopes are concentrated in various tissues and organs and enter into water bodies through food and food chains and food webs. Hot water released by industries and power plants can cause rise in temperatures of the adjoining water bodies. This hot water decreases the oxygen level in the water, thus led to harmful impact on aquatic ecosystems. A recent research states that globally the rainwater is contaminated by Poly fluoroalkyl substances (PFAS). These chemicals are completely or partially fluorinated carbon chains and also referred as "forever chemicals" having strong carbon fluoride bonds which cannot decompose easily and remain for long term in the environment. These chemicals are associated with various health ailments such as decreased fertility, hormonal imbalance etc.

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<sup>1</sup> <https://www.weforum.org/agenda/2019/10/water-pollution-in-india-data-tech-solution/>

Rapid growth in population leads to high demand of water for both households and agricultural purposes. Overpopulation puts pressure on the available water resources thus results into the deterioration of available water resources. This situation is called "water stressed" at the global level where the water demand exceeds the amount of available resources, either by the scarcity of it or poor quality. Since 1990, the global population increased by an average of eighty million people, which heightens the world demand for freshwater by about sixty four billion cubic meters of water per year (United Nations World Report).<sup>2</sup> The increasingly high water demand in water stressed areas affects the food production and agricultural activities. Agricultural sector is the biggest consumer of freshwater, but at the same time it releases serious water pollutants that are leading cause of water quality degradation. Sewage and wastewater is another major and serious cause of water pollution. It comes from the domestic use and industrial activities.

## EFFECTS

Water pollution adversely effects both the environment and human beings. Healthy ecosystems are a complex web of plants, animals and other living and non living organisms, which interact with each other directly or indirectly. Water pollution adversely affects the entire aquatic ecosystems and results into the destruction of ecosystems. Water pollution cause harmful effects on human health. Water borne diseases affect the digestive system and cause severe diarrhea and dysentery. The pollutants and effluents in water also affect the nervous system and reproductive ability. Chemicals like DDT damage the nervous system. Continuous consumption of contaminated water is hazardous to the respiratory system and causes cardiovascular diseases. Radioactive isotopes waste dumped into the water resources can cause disease like acute radiation syndrome, reproductive anomalies, cancer other genetic disorders. High concentration of arsenic in water can cause chronic health effects that involve bladder cancer, lung cancer and back foot disease. Long term exposure and consumption of high nitrate concentrated water result in blue coloration of skin, breathing troubles, methemoglobinemia etc. High level concentration of inorganic water soluble chemicals can make the water contaminated and unfit for drinking and agricultural purposes and reduce crop yields. Organic pollutants which enter into water bodies directly through industrial discharges can be toxic for human health and can cause several diseases.<sup>3</sup>

## INITIATIVES TAKEN BY THE GOVERNMENT

With the implementation of regular flagship programs such as Jal Jeevan Mission, Swacch Bharat Mission, AMRUT mission etc, the following are the recent measures taken by the central government to control and abatement of water pollution and to ensure safe drinking water supply:

**Nirmal Jal Prayas :** This initiative is launched by the Ministry of Housing and Urban Affairs (MOHUA) with the objective to map the ground water and save ground water.

**Jaldoot App:** This App is developed by The Ministry of Rural Development with an objective to measure the water level in the selected villages twice a year so that the data could be utilized for the Gram Panchayat Development Plan (GPDP).

<sup>2</sup> <https://www.unep.org/explore-topics/water/what-we-do/tackling-global-water-pollution/>

<sup>3</sup> <https://www.environmentalpollutioncenters.org/water/diseases/amp/>

Pay Jal Survekshan (PJS) :This survey is conducted by the Ministry of Housing and Urban Affairs under the Atal mission for Rejuvenation and Urban Transformation (AMRUT) 2.0. Its main objective is to promote healthy competition among urban local bodies and cities to use best practices and innovation of water conservation.

SWASTIIK technology for disinfecting water: Safe Water and Sustainable Technology Initiative from Indian Knowledge base (SWASTIIK) is an integrated technology that combines Indian traditional knowledge and modern technology to bring healthy and safe drinking water. Disinfection of water is crucial to remove pathogenic microorganisms that cause various water borne diseases.

River Cities Alliance (RCA): Ministry for Jalshakti has launched this programme. This platform will be dedicated for river cities to discuss and exchange information related to rivers for sustainable management. It will focus on networking, technical support and capacity building.

India Young Water Professional Programme is launched under the National Hydrology project and super sponsored by the Australian Water Partnership. This will be enforced by Australia India Water Centre with an objective to furnish necessary skills, knowledge and behaviours to water professionals to enable them for better management and development of water resources.

Recently, new guidelines are issued by the ministry of Jal Shakti to regulate the extraction of ground water. According to these guidelines a "no objection certificate" is required and it is made mandatory for the extraction of ground water to existing and new industries. In the case of non compliance of the guidelines a penalty of Rs.50,000 that may extend to Rs 10 lakh is imposed.

Recently, a draft of "Uniform framework for Extended Producers Responsibility" is released by the ministry of Environment, Forest and Climate Change under the "Plastic Waste Management Rules" (PWMR) 2016 with an objective to promote recycling, reuse and eco friendly disposal of waste. The responsibility of the disposal of waste is assigned to the producer or manufacturer. Three models are proposed under the EPR framework. These are: Plastic credit model, Producer responsibility organisations and Fee based mechanism. The Central Pollution Control board will be the monitoring agency for the entire EPR mechanism.

## **LEGAL FRAMEWORK FOR THE CONTROL OF WATER POLLUTION**

The legal framework to control the water pollution includes the Constitution of India, Indian Penal Code, water related laws and regulations and rules framed under the laws and also includes judicial decisions. There are also numerous administrative Guidelines and regulations that are non binding in nature to monitor the water quality and control water pollution at the national and local levels.

## **CONSTITUTION OF INDIA**

However, water pollution is not specifically mentioned in the Constitution of India, though, the Apex court, in its various Judgments interpreted that Article 21 guarantees the protection of life and personal liberty which includes the right to healthy environment and pollution free and safe drinking water.

Part IV of the constitution which deals with the directive principles of State Policy provides two principles, which imposes a duty on state to raise the level of nutrition and the standard of living

and to improve public health (Article 47) and to protect and improve the environment and to safeguard the forests and wildlife of the country (Article 48). The Constitution also provides a fundamental duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures [Article 51A (g)]

Some entries in the schedules of the Constitution related to water:

Public Health and sanitation is the subject of (entry 6) State List.

Water, water supplies, irrigation and canals, drainage and embankments, water storage and water power (subject to entry 56 of List I) are also entered into the state list.(entry 17)

entry 56 List I- regulation and development interstate rivers and river valley's to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest.

[eleventh Schedule (Article 243-G)]

entry 3 minor irrigation, water management and watershed development

entry 11 Drinking water entry 23 Health and sanitation.

[Twelfth Schedule (Article (243 W) ]

entry 5 water supply for domestic, industrial and commercial purposes. entry 6 Public health, sanitation conservancy and solid waste management.

entry 8 Urban forestry, protection of the environment and promotion of ecological aspects.

Indian Penal Code, 1860 deals with some offences affecting public health and safety. Section 277 deals specifically with the offence related to water pollution. It provides that, whoever voluntarily corrupts or fouls the water of the public spring or reservoir, shall be punished with imprisonment up to three months fine up to Rs. 500 or both.<sup>4</sup>

The water (Prevention and control of Pollution) Act, 1974 is a comprehensive legislation which provides for the control and regulation of water pollution and maintenance for water quality. This enactment reflects the spirit of India to fulfill its international obligation to maintain pollution standards. This Act provides for the establishment of Central Pollution Control Board and State Pollution Control Boards at state levels and also provides functions and powers thereof. The Act defines water pollution as "the contamination of water or alteration of its physical, chemical or biological properties by way of discharge of either sewage, trade effluent or of any other material of any physical form, which makes the water harmful for use for any purpose whether agriculture, domestic or commercial."

Environment (Protection) Act, 1986 provides for the improvement and protection of the environment. This Act comprehensively deals with different types of environmental issues including water pollution. Under this Act, the Central government is empowered to lay down the standards to maintain environmental quality. The various rules notified under this Act also provides for water quality standards and also limits the concentration of water pollutants for different regions.

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<sup>4</sup> Section 277, Indian Penal Code, 1860

Plastic Waste Management Rules, 2016 mandate the responsibility of waste generators, local bodies and gram panchayats to manage the plastic waste. The rules also provide that the generators of the plastic waste shall take steps to minimise and prevent the plastic waste and littering of it and also ensures the collection of waste generated at source.<sup>5</sup>

Bio Medical Waste Management Rules 2016 Biomedical waste comprises treatment apparatus like syringes, needles and other material used for treatment and research and also includes human and animal anatomical waste. These rules provide for the pre treatment of waste through disinfection and Sterilisation as prescribed by WHO. These rules provide for safe and secured storage location in the premises and also deals with the procedure of disposal of bio medical waste.<sup>6</sup>

E Waste Management Rules, 2022

e-waste' means electrical and electronic equipment, including solar photo-voltaic modules or panels or cells, whole or in part discarded as waste, as well as rejects from manufacturing, refurbishment and repair processes.<sup>7</sup> According to these rules all the manufacturers are made responsible to collect e-waste which is generated during manufacturing process and also ensures its disposal and recycling. These rules also provide the procedure for storage of e waste. The rules are made applicable to solar photo voltaic modules, cells or panels. These rules mandate for the reduction of hazardous substances in the manufacturing processes. The Central Pollution Control Board is empowered to lay down guidelines for the violation of provisions of these rules and imposition and collection of environmental compensation.<sup>8</sup>

## JUDICIAL TRENDS

The Indian judiciary is playing a vital role in environment protection and passed numerous judgment to control and prevent water pollution. The waste management rules are passed on the directions of the supreme court to protect the water resources from getting polluted by the disposal of wastes directly into the water source. The National Green Tribunal is especially dedicated to environmental issues and since its establishment passed several significant judgments to protect the environment and natural resources. Here are some significant judgments to control water pollution:

In the case of Rural Litigation and Entitlement Kendra & Ors. v. State of Uttar Pradesh & Ors., the Supreme Court held that "the right to wholesome environment is a part of the right to life and personal liberty guaranteed under Article 21 of the constitution."<sup>9</sup> This was the first case in which the supreme court dealt with balance between environment & ecological integrity.

Municipal Council, Ratlam v. Shri Vardhichand & Ors, in this case the court held that the state shall realise that Art 47 makes it a paramount principle of governance that steps are taken for the improvement public health as amongst its primary duties.<sup>10</sup>

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<sup>5</sup> <https://cpcb.nic.in/rules-4/>

<sup>6</sup> <https://cpcb.nic.in/uploads/Projects/Bio-Medical-Waste/>

<sup>7</sup> Rule 2(1), E Waste Management Rules, 2022

<sup>8</sup> <https://cpcb.nic.in/rules-6/>

<sup>9</sup> 1985 AIR 652

<sup>10</sup> 1980 AIR 1622

M. C. Mehta v. Union of India also known as Shri Ram gas leak case , in this case the Apex court initiated "Absolute Liability Principle" and stated that the industries engaged in hazardous activities are absolutely liable for the harms caused to the environment and public.<sup>11</sup>

M.C. Mehta v. Union of India (Ganga pollution case), in this case M.C. Mehta filed a PIL, regarding the pollution in River Ganga, in the Supreme court. It was alleged that the water of holy Ganga river is consumed by many people, so it must be protected from industrial and Sewage wastes. The court held that industries are responsible for the proper treatment of their wastes before it discharged.<sup>12</sup>

Vellore Citizens Welfare Forum v. Union of India, in this case, the Supreme Court implemented two significant principles of environmental jurisprudence, the first is "precautionary principle" and the other is "polluter pays principle". The court directed to the authority to assess and determine the compensation that is to be collected from the polluters as a cost of reversing the harmful impacts of the activities on the environment. The Court further held that "An industry may have set up necessary pollution control device at present and but it shall be liable to pay for the past pollution generated by the said industry which has resulted in the environmental degradation and suffering to the residents of the area."<sup>13</sup>

In the case of Manoj Misra v. UOI, Application no. 06/2012, decided on 21 January 2021 by the National Green Tribunal, in this case it was held that " there is need for stringent compliance of directions to ensure Sewage and sludge management and other pollution aspects for protection of environment, public health and safety and also rejuvenation of river Yamuna. In this case, directions are given for the monitoring of action plans and their execution 351 river stretches identified by CPCB as critically polluted.

So it can be said by the above discussion that the Indian judiciary is dedicated to prevent the water pollution and made significant judgments to ensure the right to safe drinking water under the ambit of Article 21.

## CONCLUSION AND SUGGESTIONS

Water Pollution has become a serious concern at global level. The difficulty to get freshwater for use due to depletion of resources or contamination of water due to water pollution resulted into the water crisis. With the development and economic growth, water pollution and water crisis have emerged as serious environmental issues in India. A robust water inspection mechanism to detect the violation of regulations and for the assessment of the performance of effluent treatment plants are required to control the water pollution. There are still loopholes in the monitoring mechanism and compliance mechanism. The water laws, regulations and policies are still lacking effective implementation to control the water pollution. Access to information is the most important step for the implementation of effective and efficient regulations and measures. If the reliable data is available and disclosed publicly then its revelation will create competition on environmental performance among the industries. It can lead to better customised behavior towards environmental issues.

<sup>11</sup> 1987 AIR 1086

<sup>12</sup> 1988 AIR 1115

<sup>13</sup> 1996 5 SCR 241

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