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A Study on Water Pollution and Its Legal Implications in India

*¹M Sundar and ²Dr. MD Chinnu

*¹2nd Year Student of BCA, LLB(HONS), School of Excellence in Law, Tamil Nadu Dr. Ambedkar Law University, Chennai, Tamil Nadu, India.

²Assistant Professor, Department of Economics, School of Excellence in Law, Tamil Nadu Dr. Ambedkar Law University, Chennai, Tamil Nadu, India.

Abstract

Water pollution is one of the most serious environmental challenges affecting public health, ecosystems, and economic development. To control and prevent water pollution, governments across the world have introduced various water pollution laws and regulatory frameworks. These laws aim to regulate the discharge of pollutants, protect water resources, and ensure sustainable use of water bodies. However, the implementation of water pollution laws involves significant costs for governments, industries, and society. Industries often face increased operational costs due to the installation of treatment plants, compliance monitoring, and adoption of cleaner technologies. Governments bear administrative and enforcement costs, while consumers may experience indirect cost increases through higher prices for goods and services. Despite these costs, effective water pollution laws provide long-term economic benefits by reducing healthcare expenses, preserving aquatic ecosystems, and promoting sustainable development. This study examines major water pollution laws and analyzes their cost implications, highlighting the balance between environmental protection and economic impact.

Keywords: Water Pollution, Water Pollution Control Laws, Cost Implications, Compliance Costs, Polluter Pays Principle, Industrial Pollution, Sustainable Development.

1. Introduction

Water pollution has become a major environmental issue due to rapid industrialization, urbanization, and population growth. Rivers, lakes, and groundwater are increasingly contaminated by industrial waste, sewage, agricultural runoff, and domestic pollutants. Polluted water poses serious risks to human health, aquatic life, and the overall ecosystem. As clean water is essential for life and economic activities, controlling water pollution has become a priority for governments around the world. To address this problem, various water pollution laws have been enacted to regulate the discharge of pollutants and protect water resources. These laws set standards for water quality, require industries to treat wastewater before discharge, and impose penalties for violations. In India, laws such as the Water (Prevention and Control of Pollution) Act, 1974 play a key role in monitoring and controlling water pollution. Such legal frameworks aim to ensure sustainable use of water and promote environmental responsibility among industries and individuals.

While water pollution laws are necessary for environmental protection, they also involve significant cost implications. Industries often incur high costs for installing pollution

control equipment, maintaining treatment plants, and complying with regulatory standards. Governments spend money on monitoring, enforcement, and administration, while consumers may face indirect costs through increased prices. However, these costs are balanced by long-term benefits such as improved public health, reduced environmental damage, and sustainable economic development.

2. Statement of the Problem

Water pollution continues to be a serious environmental and public health issue despite the existence of various water pollution laws. Rapid industrialization, urbanization, and population growth have increased the discharge of untreated waste into water bodies. Although these laws aim to control water pollution, their effective implementation faces several challenges, including weak enforcement and inadequate monitoring. At the same time, compliance with water pollution laws involves high financial costs for industries and significant administrative expenses for governments. These cost burdens often lead to non-compliance, especially among small-scale industries. As a result, there is a growing concern about whether current water pollution laws effectively

balance environmental protection with economic feasibility, making it necessary to examine their cost implications.

3. Review of Literature

Divan and Rosencranz (2014), in *Environmental Law and Policy in India*, explain the development and implementation of water pollution laws in India, particularly the Water (Prevention and Control of Pollution) Act, 1974. The authors analyze the cost implications for industries in meeting effluent standards and discuss challenges faced by small-scale industries due to financial constraints. The book highlights the importance of balancing strict regulation with economic feasibility. Stavins (2003) examines the economic impact of environmental regulations in *Experience with Market-Based Environmental Policy Instruments*. The study explores how compliance costs vary across sectors and firm sizes and argues that market-based mechanisms can reduce the overall cost of pollution control while maintaining environmental standards. Sands and Peel (2018), in *Principles of International Environmental Law*, discuss the “polluter pays” principle and its application in water pollution control. The authors explain how assigning financial responsibility to polluters helps internalize environmental costs and discourages excessive pollution. The study also highlights challenges in accurately assessing and recovering

The Cost of Pollution Report 2016 assesses the economic impact of environmental degradation, including water pollution. The report estimates health-related and productivity losses caused by polluted water. It emphasizes that weak enforcement of pollution laws increases long-term economic costs. The study recommends strengthening regulatory frameworks and investing in pollution control infrastructure. It highlights that preventive regulation is more cost-effective than remedial action.

4. Research Gap

Despite extensive research on water pollution laws, there is limited focus on the cost implications of these laws for different economic sectors. Most studies examine legal frameworks or environmental outcomes separately, rather than linking regulatory compliance costs with environmental effectiveness. Few researchers have analyzed the financial burden on small and medium enterprises (SMEs) specifically, even though they form a large part of industrial pollution sources. There is also a shortage of comparative studies between developed and developing countries regarding the economic impact of water pollution regulations. Existing literature rarely assesses the long-term cost-benefit trade-offs of stringent water pollution standards. Additionally, there is insufficient empirical evidence on how government enforcement costs influence the effectiveness of these laws. Studies often overlook the indirect economic impacts on consumers and communities. There is a need for research that integrates economic modelling with legal analysis. Limited case studies focus on real-world data from Indian industries. Also, few studies have considered incentive-based approaches (like subsidies or tax breaks) and their cost effects. Therefore, this study fills the gap by examining both legal and economic dimensions of water pollution control.

5. Objectives of the Study

- i). To examine the concept and causes of water pollution.
- ii). To study the legal framework governing water pollution control.
- iii). To analyze major water pollution laws and regulations

- iv). To assess the cost implications of water pollution laws on industries.
- v). To examine the administrative and enforcement costs incurred by the government.
- vi). To study the impact of compliance costs on different sectors and firm sizes.

6. Methodology

This research is based on both doctrinal and non-doctrinal research. The sources of data is collected from different newspaper, journals, magazines, All India Reports and E-Resources. This Research is used in some of the statistical tools such as percentage method and average method. This research is used in stratified random sampling. The sample size of the Respondents are hundred and ten. The duration of this research is Three months.

7. Significance of the Study

This study is significant because it provides a comprehensive understanding of water pollution laws and their economic impact on various stakeholders. By examining both legal provisions and cost implications, the study helps policymakers, regulators, and researchers evaluate how effectively existing laws control water pollution. It highlights the financial challenges faced by industries in complying with pollution control standards and the administrative costs borne by government agencies. This understanding is essential for improving the design and implementation of water pollution laws to achieve better environmental outcomes.

Further, the study is important as it contributes to sustainable development by emphasizing the need to balance environmental protection with economic feasibility. By identifying gaps in enforcement and cost management, the research offers insights that can help in formulating cost-effective pollution control strategies. The findings may assist governments in developing supportive measures such as subsidies or incentives, encourage industries to adopt cleaner technologies, and promote informed decision-making. Overall, the study adds value to environmental law and policy research by linking legal effectiveness with economic sustainability.

8. Hypothesis

- i). The level of compliance costs varies across different sectors and is significantly affected by firm size.
- ii). Government legislation should be enforced more effectively to prevent water pollution.

9. Limitations of the Study

The duration of the study is limited. The respondents may not feel encouraged to provide accurate and might even answer randomly out of boredom. Every respondents would not have a clear awareness about this topic. The data covers only a small group of people and so it might be unreliable.

10. Result and Discussion

Part-I: Doctrinal Research

Pollution refers to the introduction of harmful substances or forms of energy (such as chemicals, waste, heat, or radiation) into the environment at a rate that the environment cannot safely absorb, dilute, or process, resulting in negative effects on ecosystems, human health, and natural resources. For example, pollution can include smoke and gases from vehicles and factories, toxic waste dumped into rivers, or heat discharged from industrial plants that harms aquatic life and

makes the environment unsafe or unsuitable for use.

Meaning of Water Pollution

Water pollution refers to the contamination of water bodies such as rivers, lakes, oceans, and groundwater by harmful substances, including chemicals, pathogens, or waste materials, that make the water unsafe for human use, harm aquatic life, and disturb ecosystems. It occurs when pollutants are directly or indirectly discharged into water without adequate treatment, exceeding the water's natural ability to purify itself. Common examples include industrial effluents, sewage, and agricultural runoff containing pesticides and fertilizers.

i). Chemical Pollution

Water becomes contaminated due to chemicals such as pesticides, fertilizers, heavy metals, and industrial chemicals.

Example: Mercury from factories or pesticide runoff from farms.

ii). Biological Pollution

Caused by pathogens like bacteria, viruses, and other microorganisms that contaminate water and cause diseases.

Example: Cholera or typhoid outbreaks from sewage-contaminated water.

iii). Physical Pollution

Occurs due to physical changes in water such as suspended solids, sediments, or plastic debris that affect water quality and aquatic life.

iv). Thermal Pollution

Water temperature increases due to discharge of heated water from industries or power plants, harming aquatic ecosystems.

Example: Hot water from a thermal power plant affecting river fish.

v). Radioactive Pollution

Contamination by radioactive substances from nuclear plants or improper disposal of radioactive waste.

Example: Leak of radioactive materials into groundwater.

Water Pollution Laws and Costs in India

Water pollution poses a grave threat to India's health, environment, and economy. According to the Central Pollution Control Board (CPCB), 351 river stretches across 323 rivers are officially classified as polluted. India generates about 72,368 million litres/day of sewage, yet barely 44 percentage is treated. The human toll is stark: WHO estimates ~37.7 million Indians suffer waterborne diseases annually, causing 1.5 million child deaths from diarrhoea and costing about \$600 million/year. These health impacts represent roughly 21 percentage of India's communicable disease burden. Economic analyses underscore that water pollution drains roughly 3 percentage of India's GDP annually. A recent World Bank study cited by the World Economic Forum puts total environmental damage in India at ~INR 3.75 trillion (\$80 billion) a year (~5.7 percentage of GDP), with water-related health costs around INR 47,000–61,000 crore (US\$6.7–8.7 billion) per year. These figures dwarf the modest fines prescribed by law and highlight the urgent need for effective legal enforcement and pollution control. Figure:

River contaminated by municipal and industrial waste. India's laws aim to prevent discharge of "poisonous, noxious or polluting matter" into water bodies and to restore the "wholesomeness of water", yet enforcement remains a challenge.

Constitutional and Statutory Framework: Under the Indian Constitution, water is a State subject (List II), but environmental protection is a joint responsibility. Notably, Parliament enacted national water pollution laws under Article 252 by unanimous resolutions of state legislatures, empowering a Union law on this State-subject matter. The Supreme Court of India has repeatedly held that the right to a clean environment is implicit in the right to life (Article 21). In *M.C. Mehta v. Union of India* and numerous other cases since the early 1990s, the Court "protected the right to clean water as part of the right to a healthy environment". Thus, Article 21 jurisprudence provides a constitutional backing for statutory pollution controls. India's primary water pollution statute is the Water (Prevention and Control of Pollution) Act, 1974 (Water Act). Its stated object is "the prevention and control of water pollution and the maintaining or restoring of wholesomeness of water". The Act originally applied to 10 states (as listed in the Preamble) and to Union Territories, but was extended nationwide by a 1978 amendment. It established the Central Pollution Control Board (CPCB) and State Pollution Control Boards (SPCBs) (and, in Union Territories, Pollution Control Committees), with powers to enforce discharge standards and penalties. The Water Act has itself been amended (notably in 1988 and 2003) to broaden its scope (e.g. including sewage in definitions and strengthening standards).

Water (Prevention and Control of Pollution) Cess Act, 1977 – imposes a cess (tax) on water consumed by industries and certain local authorities, to fund CPCB and SPCBs. It exemplifies the "polluter pays" approach by charging industries in proportion to water use and imposing higher rates for non-compliance. Environment (Protection) Act, 1986 – enacted under the residuary Article 253, this broad law empowers the central government to prescribe environmental standards and restrictions. It underpins several pollution rules (e.g. effluent discharge standards) that apply to industries under the Water Act. National Green Tribunal Act, 2010 – creates a specialized tribunal to adjudicate environmental matters (including water pollution), with powers to order relief or compensation for damage to the environment. Forest, Wildlife and Biodiversity laws – while not specific to water, these laws and related rules (e.g. on coastal regulation zones) can have indirect impacts on water quality by protecting ecosystems. State water laws – some states have enacted their own laws (e.g. Punjab Water Act) or rules under the Water Act to regulate water pollution more stringently.

In recent years, Parliament has updated the Water Act. In February 2024, the Water (Prevention and Control of Pollution) Amendment Act, 2024 received assent. This amendment, adopted by states like Rajasthan, Himachal Pradesh, Punjab, etc., retains the Water Act's framework but decriminalizes many minor defaults and substitutes stiffer monetary fines in place of short jail terms. Critics warn this shifts focus from deterrence to fine-payment and centralizes power (e.g. making the central government appoint adjudicating officers rather than state boards), but proponents say it eases the regulatory burden on industry. (Pending legislation or adoption by other states may extend these changes nationwide.)

Regulation of Discharges and Consent Regime: The Water

Act strictly regulates the discharge of effluents. Section 24 prohibits anyone from knowingly causing “poisonous, noxious or polluting matter” (per State Board standards) to enter any stream, well, or sewer. Section 24 also bans deposits that would substantially aggravate pollution. Anyone violating Sec.24 commits a criminal offence. In practice, the Act requires prior consent from the SPCB for all new discharges and industrial outlets (Sec.25) and mandates existing polluters to regularize their discharges (Sec.26). Sec.25(1) explicitly forbids establishing or expanding any industry or treatment system likely to discharge sewage or trade effluent without State Board permission. Sec.26 similarly covers pre-1974 dischargers, making them apply for retrospective consent.

State Boards are bound to refuse consent for industries unless conditions are imposed enabling effluent sampling and treatment. They may also review, vary or revoke consent conditions periodically. Any person aggrieved by an SPCB order under Sec.25/26 may appeal to a designated appellate authority within 30 days. Through this consent system, the Water Act closely ties industrial licensing to compliance with pollution norms. Violating the consent provisions or outright discharging pollutants triggers severe penalties. Section 43 of the Act prescribes rigorous imprisonment of not less than 1½ years and up to 6 years (plus fine) for contravention of Sec.24. Likewise, Section 44 punishes breaches of Sec.25 or Sec.26 with the same 1½–6 year term. Repeat offenders face enhanced minimum sentences (Sec.45). Minor infractions (e.g. false statements to Boards, tampering with monitoring devices) carry up to 3 months imprisonment or ₹10,000 fine. (Note: these jail terms were reduced to fines under the 2024 Amendment for minor defaults.) In effect, the law makes unconsented pollution a serious crime.

Central Pollution Control Board (CPCB) and State Boards – Case Studies: CPCB and SPCBs implement these laws through monitoring and directives. For example, CPCB’s River Rejuvenation Committee periodically reviews action plans for polluted stretches. In a 2023 parliamentary response, the Union Minister detailed CPCB’s roles: “to promote cleanliness of streams and wells” (sec.16) and issue written directions under sec.18(1)(b) to State Boards. State Boards can then issue directions under sec.33A to any industry or official, which “shall be bound to comply”. This hierarchical enforcement chain—CPCB to SPCB to polluter—is the backbone of water regulation in India. As of 2021, India’s river monitoring network spanned 4,484 locations across 642 rivers. However, enforcement has been uneven. Many State Boards grapple with understaffing and lack of laboratories. Nevertheless, concerted campaigns like the “Namami Gange” (Mission Ganga) leverage Water Act powers to install sewage treatment plants, divert raw sewage, and relocate polluting units. CPCB and SPCBs also implement the Water Act alongside the EPA. In 2019, the Environment Minister noted that industrial pollution is regulated “through various provisions of the] Water Act under [the] consent mechanism by the respective State Pollution Control Board”. The CPCB has additionally mandated Online Continuous Effluent Monitoring Systems (OCEMS) for industries, enabling real-time tracking of discharge quality.

Specific River Orders: Courts have issued direct orders to clean rivers. For example, the famous Ganga case (Rural Litigation & Entitlement Kendra v. UP, 1985) imposed a thrice-weekly bathing holiday at Haridwar to curtail pollution. In *M.C. Mehta v. Union of India* (1998), the Court appointed Commissioners and Committees to oversee the Yamuna’s

cleanup in Delhi, harnessing Water Act consents and the CPCB authority.

More recently, in a 2020 case (*State of M.P. v. Centre for Environment Protection Research & Dev., CEPARD*) the Supreme Court held that Pollution Control Boards lacked power to award civil damages (restitution) for environmental harm; only courts or the NGT could impose compensation. However, this was modified in August 2025: in *Delhi Pollution Control Committee v. Lodhi* (Civil Appeals 757–760/2013), a three-judge bench specifically directed that Pollution Control Boards “can impose and collect as restitutionary and compensatory damages” under Sections 33A (Water Act) and 31A (Air Act). This landmark ruling overruled the CEPARD bar and explicitly empowers Boards to fix damage payments or require bank guarantees as safeguards (subject to subordinate legislation and natural justice). The National Green Tribunal (NGT) has also been instrumental. It frequently imposes “environmental compensation” (a form of remedial fine) on polluters. For instance, in late 2024, NGT ordered Nectar Life Sciences Ltd. to pay ₹5 crore (on account) for illegal effluent discharge. NGT decisions often reference Water Act standards and direct state bodies to enforce them. Appeals from such penalty orders under the 2024 Amendment now lie to the NGT (with an up-front deposit of 10 percentage of the fine).

Enforcement Mechanisms and Penalties

Penalties: As noted, Sections 43–45 prescribe up to 6 years’ imprisonment and hefty fines for unauthorized pollution. Lesser breaches under Section 42 (obstruction, false reporting) carry up to 3 months or ₹10,000 fine. Importantly, 2024 amendments abolished jail terms for minor defaults: now every offence carries only a financial penalty (typically ₹10,000–15 lakh). In Punjab’s recently adopted version, for example, traditional imprisonment of up to 6 years was replaced by fines of ₹10k–15L. The new law also appoints independent adjudicating officers (central appointees) to assess fines; 10 percentage of any penalty must be deposited to appeal to the NGT. Critics argue that this renunciation of criminal sanction could weaken deterrence, while proponents claim fines still protect the environment and focus on remediation.

Cognizance and Burden of Proof: As noted, only Board officials may file complaints under the Act. The State (or CPCB) bears the burden of proof in prosecutions, though Boards often rely on third-party whistleblowers by notifying them to permit private complaints. Over time, courts have recognized expert and citizen groups as helpful in gathering evidence (PILs, CPCB affidavits).

Consent Fees and Cess: The Water Cess Act (1977) also penalizes excess water use. Industries pay a cess based on water consumed for particular purposes (irrigation, industrial use, etc.). For non-compliance with treatment standards or limits, the cess rate can be much higher. Though primarily a revenue tool for boards, the Cess Act incorporates the “polluter pays” ethos by financially burdening heavy water users and incentivizing conservation.

Economic Implications and the ‘Polluter Pays’ Principle: From an economic standpoint, water pollution imposes massive external costs. The true cost of pollution – including health impacts, lost agricultural productivity, diminished fisheries and tourism – far exceeds statutory penalties. Estimates suggest each year India loses about 3–5 percentage of GDP to environmental degradation, of which untreated wastewater is a major contributor. As one study notes, being

downstream of polluted river stretches can cut agricultural yields by 10–16 percentage. These losses are effectively subsidized to industry: a factory discharging effluent may pay a fine of ₹15 lakh, yet cause downstream losses worth many crores.

Relevant Case Laws

- i). **Vellore Citizens’ Welfare Forum v. Union of India, (1996):** This case involved pollution caused by tanneries in Tamil Nadu, which contaminated groundwater and agricultural land. The Supreme Court introduced and firmly established the “Polluter Pays Principle” and the “Precautionary Principle” as part of Indian environmental law. The Court directed polluting industries to pay compensation for environmental damage and for restoring ecology. The judgment highlighted that industries must bear the cost of pollution control and environmental restoration.
- ii). **Indian Council for Enviro-Legal Action v. Union of India, (1996):** In this case, chemical industries were

discharging toxic effluents into water bodies, causing severe environmental and health damage. The Supreme Court held that the polluting industries were absolutely liable for the harm caused and must pay the entire cost of remedial measures. The Court ruled that the financial burden of pollution cleanup should not fall on the public or the government. This case reinforced the economic accountability of polluters.

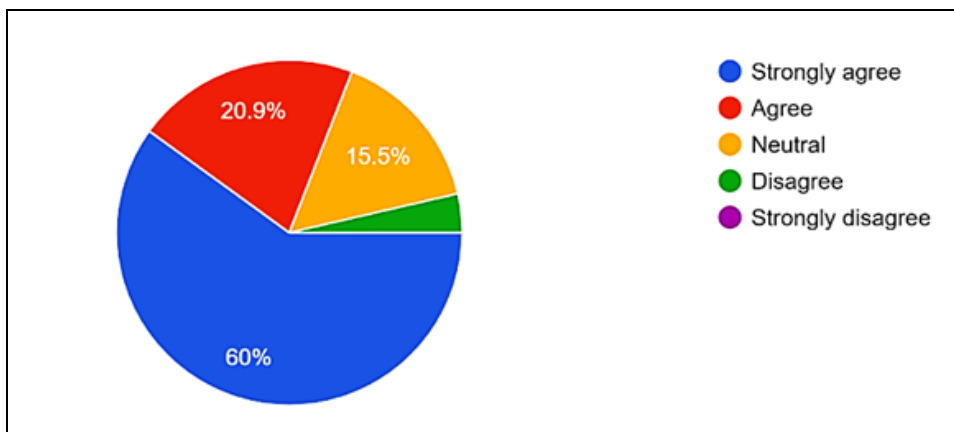
- iii). **A.P. Pollution Control Board v. Prof. M.V. Nayudu, (1999):** This case concerned the grant of permission to an industry that posed a risk of contaminating drinking water sources. The Supreme Court emphasized the need for scientific expertise in environmental decision-making. It applied the precautionary principle and held that lack of scientific certainty should not be a reason to permit activities that may cause water pollution. The judgment stressed preventive action over remedial measures.

Part-II: Non-doctrinal Research

Table 1: Government laws should be made more effective to restrict water pollution.

Particulars	Male	Female	Transgender	Total
Strongly agree	34(30.90)	32(29.09)	0(0.00)	66(60.00)
Agree	15(13.63)	8(7.27)	0(0.00)	23(20.90)
Neutral	10(9.09)	7(6.36)	0(0.00)	17(15.45)
Disagree	1(0.9)	3(2.72)	0(0.00)	4(3.63)
Strongly disagree	0(0.00)	0(0.00)	0(0.00)	0(0.00)
Total	60(54.55)	50(45.45)	0(0.00)	110(100)

Source: Primary data



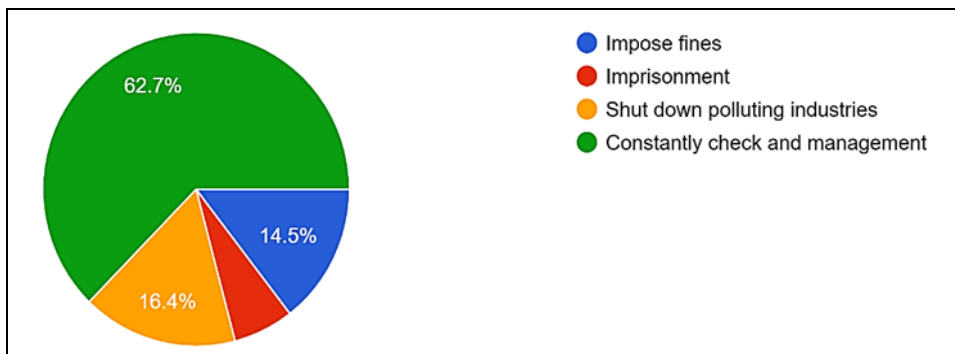
The data indicates that a majority of the respondents hold a positive opinion toward the statement, as 60 percentage of the respondent strongly agree and 20.90 percentage of the respondent agree, together accounting for 80.90 percentage of the respondent of the total respondents Only 3.63 percentage

of the respondent express disagreement, Overall, the findings demonstrate a highly favorable attitude, with males constituting 54.55 percentage of the respondent and females 45.45 percentage of the respondent of the sample, and no representation from transgender respondents.

Table 2: Pollution Control Boards play an important role in preventing and controlling water pollution.

Particulars	Male	Female	Transgender	Total
Impose fines	10(9.09)	6(5.45)	0(0.00)	16(14.54)
Imprisonment	3(2.72)	4(3.63)	0(0.00)	7(6.36)
Shut down polluting industries	10(9.09)	8(7.27)	0(0.00)	18(16.36)
Constantly check and management	37(33.63)	32(29.09)	0(0.00)	69(62.72)
Total	60(54.54)	50(45.45)	0(0.00)	110(100)

Source: Primary data



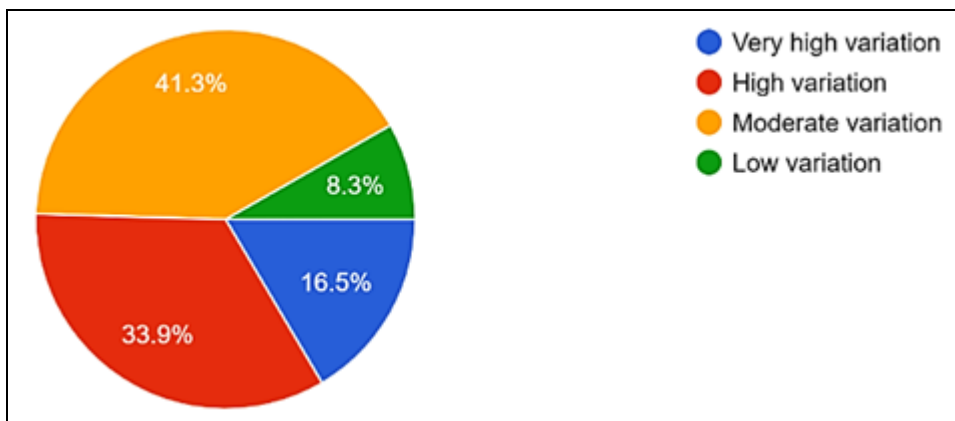
The table shows that a majority of the respondents prefer constant checking and management as a measure to control pollution, with 62.72 percentage of the total respondents supporting this option, this is followed by support for shutting down polluting industries, which is favored by 16.36 percentage of respondents, reflecting moderate approval.

About 14.54 percentage of the respondents support imposing fines, suggesting that financial penalties are viewed as a secondary measure. Only 6.36 percentage prefer imprisonment. Overall, the findings reveal that respondents strongly favor preventive and regulatory approaches over strict punishment.

Table 3: Different industries and firm sizes face different levels of compliance costs.

Particulars	Male	Female	Transgender	Total
Very high variation	10(9.09)	9(8.18)	0(0.00)	19(17.27)
High variation	20(18.18)	17(15.45)	0(0.00)	37(33.63)
Moderate variation	25(22.72)	20(18.18)	0(0.00)	45(40.90)
Low variation	5(4.54)	4(3.63)	0(0.00)	9(8.18)
Total	60(54.54)	50(45.45)	0(0.00)	110(100)

Source: Primary data



The data indicates that most respondents perceive a moderate level of variation, with 40.90 percentage reporting moderate variation, suggesting that a significant portion views the situation as neither extremely unstable nor highly consistent. This is followed by high variation, supported by 33.63 percentage of respondents, reflecting considerable concern about fluctuations. About 17.27 percentage perceive very high variation, indicating that a notable minority experiences extreme changes. In contrast, only 8.18 percentage of the respondents reports low variation, showing that relatively few respondents view the situation as stable. Overall, the findings suggest that a majority of respondents 74.53 percentage perceive moderate to high variation, highlighting widespread awareness of instability.

Hypothesis Testing

H1: Government legislation should be enforced more effectively to prevent water pollution: Table no 1: For this study, hypothesis testing is conducted to examine the opinion that government legislation should be enforced more effectively to prevent water pollution. The null hypothesis

assumes that there is no significant need for stronger enforcement of government legislation to prevent water pollution. On the other hand, the alternative hypothesis states that effective enforcement of government legislation is necessary and plays a significant role in preventing water pollution. This hypothesis helps to understand public perception regarding the effectiveness of existing enforcement measures.

H2: The level of compliance costs varies across different sectors and is significantly affected by firm size: Table no:3 For the present study, hypothesis testing is used to examine whether the level of compliance costs differs across various sectors and firm sizes. The null hypothesis assumes that there is no significant variation in compliance costs among different sectors or based on the size of firms. In contrast, the alternative hypothesis states that compliance costs vary significantly across sectors and are influenced by firm size. This hypothesis helps in understanding whether sector type and firm size play an important role in determining the level of compliance costs.

11. Conclusion

Water pollution is a serious problem that affects human health, the environment, and aquatic life. India has laws to control water pollution, but these laws are not fully effective without proper enforcement. The study shows that most people believe government laws should be enforced more strictly to control water pollution. Many respondents are aware of water pollution laws and understand the role of Pollution Control Boards in monitoring and controlling pollution. The study also finds that the cost of following pollution laws differs across industries, and small industries often find it difficult to comply. Overall, stronger enforcement, regular monitoring, and support for industries are necessary to reduce water pollution and protect the environment.

12. Suggestions

- i). **Strengthen enforcement of laws:** Government should strictly enforce existing water pollution laws through regular inspections, surprise checks, and quick action against violators to ensure better compliance.
- ii). **Improve monitoring and infrastructure:** Pollution Control Boards should be provided with adequate staff, modern laboratories, and advanced monitoring technologies to effectively check industrial and municipal pollution.
- iii). **Support small and medium industries:** Financial assistance, subsidies, or tax incentives should be given to small and medium enterprises to help them meet compliance costs and adopt pollution control technologies.
- iv). **Increase public awareness:** Awareness programs should be conducted to educate people about water pollution laws, health impacts of polluted water, and the importance of protecting water resources.
- v). **Apply the polluter pays principle strictly:** Industries that cause water pollution should be made fully responsible for cleanup and compensation costs, so that the economic burden does not fall on the public or the government.

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