



SAI SINDHU INTERNATIONAL JOURNAL OF RESEARCH (SSIJR)

www.ssijsr.org

A CONSTITUTIONAL CHALLENGE TO GROUNDWATER MISMANAGEMENT IN PUNJAB

E.C. ETHAYA PRIA & S.V. HARINI

4th Year Students, School of Excellence in Law, TNDALU, Chennai.

ABSTRACT

Although water is the basis of life, it has turned into a major cause of sickness and ecological collapse in Punjab. Punjab bears an excessive amount of the agricultural load even though it only makes up 1.5% of India's total geographical area. Groundwater has been continuously overdrawn, from 50,000 tube wells in the 1960s to approximately 14.5 lakh today, resulting in a worrisome decrease of 0.49 meters per year as surface water is almost depleted (CGWB Yearbook 2022–23). Toxic pollutants such as uranium, arsenic, nitrates, and fluoride have been mobilized by this overexploitation at amounts well over the Bureau of Indian Standards (BIS) norms. Alarming uranium contamination has been found in 20 districts, with 32.6% of groundwater samples above safe levels, according to scientific research conducted by the Central Ground Water Board (CGWB) and the Centre for Science and Environment (CSE). According to the Punjab Cancer Atlas (2023), there are 90–110 cancer cases for every 100,000 individuals, with rates higher in a few districts than the national average. In addition to cancer, there have been several reports of congenital abnormalities in children, neurological issues, bone fluorosis, and chronic renal impairment. As a result of irrigating crops with tainted water, which embeds hazardous residues and jeopardizes food safety on a large scale, agriculture also loses. This conundrum directly affects the right to life, which is protected by Article 21 of

the Constitution, as well as the right to clean water and a healthy environment (Subhash Kumar v. Bihar, M.C. Mehta v. Union of India). It violates Article 14 since affected populations are not afforded equal legal protection or access to potable water. By neglecting to regulate the use of pesticides, enforce groundwater protections, or provide safe alternatives, the State of Punjab and the Union of India have both violated their constitutional obligations and their statutory responsibilities under the Water (Prevention and Control of Pollution) Act of 1974 and the Environment (Protection) Act of 1986. The current PIL, which was filed in accordance with Article 32, holds the State and Union governments equally accountable for environmental damage and serious health effects. It claims that groundwater is a shared resource that is vital to life and dignity and cannot be neglected or privatized, citing the Public Trust Doctrine as support. The petition calls for immediate solutions, including the installation of piped safe drinking water and community-level filtration, tighter regulation of agrochemicals and industrial effluents, healthcare and compensation for impacted communities, and sustainable groundwater management practices.

KEYWORDS- *Ecological collapse, Healthy environment, Public Trust Doctrine, etc.,*

**BEFORE THE HON'BLE
SUPREME COURT OF INDIA**

**ORIGINAL WRIT JURISDICTION
PUBLIC INTEREST LITIGATION**

W.P. (CIVIL) NO. ____ OF 2025

UNDER ARTICLE 32 OF THE CONSTITUTION OF INDIA

**In the matter of Article 19 and Article 21
of constitution of India**

PEOPLES WELFARE UNION PETITIONER

v.

UNION OF INDIA AND ANR.
RESPONDENTS

UPON SUBMISSION TO THE HON'BLE CHIEF JUSTICE AND HIS COMPANION
JUSTICES OF THE SUPREME COURT OF INDIA

MEMORANDUM ON BEHALF OF THE PETITIONER

TABLE OF CONTENTS

LIST OF ABBREVIATION

CASES

STATUTES

LEGAL DATABASES

BOOK REFERENCE

STATEMENT OF JURISDICTION

STATEMENT OF FACTS

SUMMARY OF ARGUMENTS

ISSUE 1

ISSUE 2

ISSUE 3

ARGUMENTS ADVANCED

ISSUE 1

ISSUE 2

ISSUE 3

UNREGULATED PESTICIDE AND FERTILIZER USAGE

UNTREATED INDUSTRIAL RUNOFF

GROUNDWATER EXTRACTION

PRAYER

ANNEXURE

LIST OF ABBREVIATION

BARC	Bhabha Atomic Research Centre
BIS	Bureau of Indian Standards
CGWB	Central Ground Water Board
CPCB	Central Pollution Control Board
CSE	Centre for Science and Environment
MRLs	Maximum Residue Limits
NGT	National Green Tribunal
PPCB	Punjab Pollution Control Board
WHO	World Health Organization

CASES

1.	Arti vs Central Ground Water Authority & Ors
2.	Francis Coralie v. Union Territory of Delhi, AIR 1994 SC 1844.
3.	In Rural Litigation and Entitlement Kendra v. State 1985 Supp SCC 79.
4.	Khalid Mujib Sehravardi, AIR 1981 SC 487
5.	Kinkri Devi v. State of Himachal Pradesh & Others AIR 1989 SC 2069
6.	M.C. Mehta v. Union of India AIR 1988 1037
7.	M.C. Mehta v. Union of India & Ors. AIR 1999 SC 2583, (1999) 6 SCC 9 16
8.	M.C. Mehta v. Union of India. AIR 1988 SC 1037
9.	MC Mehta v. Union of India, AIR 1987 SC 965
10.	Narmada Bachao Andolan v. Union of India 1968 SCC Online Mad I : AIR 1969 Mad 35
11.	Pakkle v P. Aiyasami Ganapathi 1968 SCC Online Mad I: AIR 1969 Mad 35 I
12.	Shantisar Builders v. Narayanan Khimalal Totamen AIR 1990 SC 630
13.	Subhash Kumar v. Bihar AIR 1991 SC 420

14.	T.N. Godavarman Thirumulpad v. Union of India AIR 1997 SC 1228.
15.	Vellore Citizens' Welfare Forum v. Union of India AIR 1996 SC 2715
16.	Virendra Gaur & Ors v. State of Haryana AIR 1995 SC 38

STATUTES

The Constitution of India

The Environment (Protection) Act, 1986

Water (Prevention and Control of pollution) Act 1947

LEGAL DATABASES

1. Manupatra
2. SCC Online

BOOK REFERENCE

1. Durga Das Basu, Introduction to the Constitution of India, 21st Edition, LexisNexis Butterworths Wadhwa Nagpur (2020)
2. V.N. Shukla, Constitution of India, 14th Edition, Edited by Mahendra Pal Singh, Eastern Book Company, Lucknow (2020).
3. S.C. Shastri, Environmental Law, 7th Edition, Eastern Book Company, Lucknow, 2018.

1. STATEMENT OF JURISDICTION

The Hon'ble Supreme Court of India has jurisdiction in this matter under

Article 32 of the Constitution of India, which reads as follows:

“32. Remedies for enforcement of rights conferred by this Part-

(1) The right to move the Supreme Court by appropriate proceedings for the enforcement of the rights conferred by this Part is guaranteed.

(2) The Supreme Court shall have power to issue directions or orders or writs, including writs in the nature of habeas corpus, mandamus, prohibition, quo warranto and certiorari, whichever may be appropriate, for the enforcement of any of the rights conferred by this Part.

(3) Without prejudice to the powers conferred on the Supreme Court by clauses (1) and (2), Parliament may by law empower any other court to exercise within the local limits of its jurisdiction all or any of the powers exercisable by the Supreme Court under clause (2).

(4) The right guaranteed by this article shall not be suspended except as otherwise provided for by this Constitution.”

2. STATEMENT OF FACTS

1. Water is essential for sustaining life in its purest form, free from all types of contamination. Both humans and other living beings depend on it for survival, and it forms an integral part of the environment along with air, land, and the interdependent biosystems they support.

2. Despite making up only 1.5% of India's total geographical area, Punjab is one of the main agricultural states and is highly reliant on water for its economy and way of life. Although all surface water is used through canals, there is still not enough to meet agricultural needs, which results in over-extraction of groundwater. The number of tube wells has grown from over 50,000 in the 1960s to almost 14.5 lakh today, resulting in a precipitous yearly drop in groundwater of about 0.49 meters (CGWB Yearbook 2022–23).

3. According to scientific studies conducted by the Central Ground Water Board (CGWB), the Centre for Science and Environment (CSE), and other national agencies, the levels of uranium, arsenic,

nitrate, fluoride, and other heavy metals in groundwater have risen to dangerously high levels. These levels are above the allowable limits set by the Bureau of Indian Standards (BIS). The main sources of these pollutants are untreated sewage, industrial effluents, and extensive fertilizer and pesticide use.

4. Serious health effects, such as cancer, renal damage, bone fluorosis, neurological abnormalities, and developmental issues in children, have been associated with prolonged exposure to such pollutants. According to the Punjab Cancer Atlas 2023, there are 90–110 cancer cases for per 100,000 people, with some districts having rates that are much higher than the national average.

5. In addition to arsenic, nitrate, and fluoride pollution in vast areas of Punjab, the CSE's Environment Report 2025 has identified significant uranium contamination in 20 districts. The BIS safe drinking water criteria are exceeded in some districts' groundwater samples, according to a Business Standard report dated February 12, 2025.

6. The lack of proper filtration systems or piped safe water supply has caused entire towns to be compelled to drink contaminated water, turning the situation

into a public health emergency. With cancer trains, dialysis facilities, and palliative care centres functioning at capacity in impacted areas, the strain on the local healthcare infrastructure has increased. Because crops irrigated with dirty water retain toxic residues, the contamination is not limited to isolated areas but rather affects numerous river basins and aquifers, endangering agricultural output, irrigation water quality, and eventually food safety.

7. Concerns over irreparable harm to future generations have been raised by independent researchers and non-governmental organizations' documentation of intergenerational health consequences, which include an increase in congenital impairments, developmental delays, and chronic illnesses among children born in high-contamination zones.

8. In addition to the statutory obligations imposed by the Environment (Protection) Act, 1986; the Water (Prevention and Control of Pollution) Act, 1974; and the National Water Policy, this unchecked deterioration of water quality and health indicators constitutes a grave violation of the fundamental right to life and health under Article 21 of the Constitution.

9.The Petitioner has brought this Public Interest Litigation under Article 32 in order to request the Hon'ble Court's prompt action due to the severity and urgency of this problem.

3. SUMMARY OF ARGUMENTS

ISSUE 1: Whether the Public Interest Litigation against Union of India is Maintainable?

It is humbly submitted before the Hon'ble Supreme Court that present PIL is maintainable against Union of India and also against State of Punjab since, it is state under Article 12 of the Constitution. It is further submitted that since there has been gross violation of Article 14 and 21 of the Constitution, the PIL is maintainable, and on account of the same relief is sought.

ISSUE 2:

Whether fundamental Rights of People living in the in the State Punjab has been violated?

We respectfully submit to this Honourable Court that the State's arbitrary and careless actions, along with its protracted ignorance of the groundwater contamination situation, constitute a violation of Article 21 of the Constitution. By denying equity in the protection of health, this inaction has also

violated Article 14 by causing serious negative health effects on all age groups, including mental retardation in toddlers. People's fundamental right to life under Article 21 is being violated, which includes the right to live in a healthy environment.

ISSUE 3:

Whether the Ste of Punjab and the Union of India is liable for the adverse health impact and environmental degradation?

It is humbly submitted before this Hon'ble Court that the Union of India and the State of Punjab are jointly liable for the severe health crisis and environmental degradation across Punjab. This stems from their failure to address widespread groundwater contamination, lack of preventive and rehabilitative measures, unregulated groundwater and pesticide use, and delays in implementing essential policies, thereby endangering public health and violating the citizens' right to life and a clean environment under Article 21 of the Constitution.

4. ARGUMENTS ADVANCED

ISSUE 1:

1.Whether the Public Interest Litigation against Union of India is Maintainable?

. The present Public Interest Litigation is maintainable under Article 32 of the Constitution of India as the Respondents fall within the definition of “State” under Article 12 of the Constitution.

In the present matter, the Respondent—Union of India, for the purposes of this petition, includes the concerned Ministries and Departments such as the Ministry of Environment, Forest and Climate Change, the Ministry of Jal Shakti, the Central Pollution Control Board (CPCB), as well as the State Government of Punjab and its instrumentalities like the Punjab Pollution Control Board (PPCB) and the Departments of Health, Water Supply and Sanitation, and Agriculture. These are public authorities established by or under statutory provisions, and are thus bound by constitutional duties, including the obligation to protect citizens' Fundamental Rights under Article 21, which includes the right to clean water and a pollution-free environment¹. It was held in *Khalid Mujib Sehravardi*² case that any authority or agency which performs public functions and derives its power from statute or the Constitution shall be considered a ‘State’

under Article 12. And further under the well-established.

This Hon’ble Court has consistently held that environmental and public health issues are matters of wider public interest, and thus fall within the scope of maintainable Public Interest Litigation³. Although water is a subject under Entry 17 of the State List (List II)⁴ of the Seventh Schedule of the Constitution of India. However, due to the transboundary nature of water contamination involving inter-state rivers like Sutlej and Beas, and groundwater shared across states, this matter squarely falls within the ambit of Entry 56 of the Union List, empowering Parliament to regulate such issues. In the case of *Narmada Bachao Andolan v. Union of India*⁵ it was mentioned that While Entry 17 of List II deals with water, the inter-State nature of rivers allows Parliament to regulate them under Entry 56 of List I. Drawing from the *M.C. Mehta*⁶ The Supreme Court directed Central and multiple State Governments to act together to clean up the river and the Court has mandated coordinated action by the Union and multiple State Governments. While discussing about maintainability of

¹ Subhash Kumar v. Bihar AIR 1991 SC 420

², AIR 1981 SC 487

³MC Mehta v. Union of India, AIR 1987 SC 965

⁴ The Water (Prevention and Control of Pollution) Act, 1974, Act No. 06 of 1974, India Code (India), Act ID 197606 (23 March 1974)

⁵ (2000) 10 SCC 664

⁶ *ibid*

the PIL it is necessary to talk about Article 252 of Indian constitution⁷. Moreover, the present PIL also invokes the relevance of Article 252 of the Constitution, which allows Parliament to legislate on matters in the State List, if two or more states feel that national-level legislation is needed. And this Article applies to the consenting states only and later other states can adapt through resolution. Accordingly, the Water (Prevention and Control of pollution) Act 1947, was enacted under Article 252, following resolutions passed by multiple State Legislatures including Punjab. The Punjab Vidhan Sabha (State Legislative Assembly) passed a resolution on February 3, 1975⁸, enacting the Water (Prevention and Control of Pollution) Act, 1974⁹, in compliance with Article 252 of the Constitution of India and became the 19th state to adopt this Act. The alarming levels of radioactive and chemical contamination in groundwater and rivers across the Malwa region and adjoining districts in Punjab have resulted in severe health consequences including cancers, congenital disorders, and organ failure. This constitutes a grave and

continuing violation of the right to life with dignity of thousands of citizens. The State of Punjab's and the Union of India's inaction in stopping water pollution and protecting the Punjab region's residents' right to life and health constitutes a flagrant violation of their constitutional obligations, necessitating judicial intervention. In the case of *Pakkle v P.Aiyasami Ganapati*¹⁰, it was declared by the Madras High Court that altering the Natural Quality of water whereby it is rendered less fit for any purpose for which in its natural state it is capable of being used gives cause of action in nuisance. This Hon'ble Court has consistently held that the right to life under Article 21 includes the right to clean water, safe environment, and healthcare.

The term "environment" encompasses a wide range of concepts, including "hygienic atmosphere and ecological balance." Thus, the state has a duty to preserve ecological balance and a clean environment. The right to life with human dignity and the pleasure of life are both protected by Article 21 as Fundamental

⁷ The Constitution of India, Seventh Schedule (Article 246), List I (Union List), in the Ministry of External Affairs, Seventh Schedule (2015) (PDF), available at: MEA website

⁸ Kanchan Vasdev, House Adopts Water (Prevention and Control of Pollution) Amendment Act, 2024, *The Indian Express*, March 29, 2025, available at:

<https://indianexpress.com/article/cities/chandigarh/punjab-vidhan-sabha-water-prevention-and-control-of-pollution-amendment-act-9912598/> (last visited Aug. 10, 2025).

⁹ The Water (Prevention and Control of Pollution) Act, 1974, Act No. 06 of 1974, India Code (India), Act ID 197606 (23 March 1974)

¹⁰ 1968SCC Online Mad I: AIR 1969 Mad 35 I

Rights. environmental preservation and protection. be delighted in. ecological equilibrium devoid of air and water pollution, which is necessary for the enjoyment of life. The Apex Court ruled in Subhash Kumar v. Bihar⁵ that the right to life under Article 21 includes the enjoyment of a pollution-free environment. According to the Court, "The right to life is a fundamental right under the right to enjoy clean air and water for a complete quality of life is guaranteed under Article 21 of the Constitution. A citizen has the right to use Article 32 of the Constitution to remove air or water pollution that could negatively affect their quality of life if something violates the law and endangers or impairs their quality of life. In this case, a PIL against the Union of India may be filed. The present petition is maintainable under Article 32 as the rights under Article 21 have been grossly violated, and the victims have no effective remedy. Environmental degradation and health crises affecting large populations constitute matters of public injury, and therefore, any public-spirited citizen or organization is entitled to approach this Hon'ble Court. A study by researchers from the University Institute of Sciences, Chandigarh University, Multan Mal Modi College, Patiala, and the Indian Institute of Information Technology, Una,

examined the impact of metal exposure on breast cancer. This research sought to find a possible link between exposure to metals such as chromium, cadmium, lead, nickel, zinc, arsenic, and iron. The levels of these metals were also identified and evaluated in the breast, blood, tumours, and surrounding adipose tissues of 120 women undergoing surgery for breast cancer in Malwa, Punjab.

The inaction of the Union of India and failure of the CPCB to exercise its supervisory and regulatory authority over the State Pollution Control Boards, including in the case of inter-State rivers and groundwater aquifers shared between Punjab and other states, amounts to a failure of statutory duties under the Act, frustrating the very purpose of its enactment. Article 47 of the Constitution directs the State to improve public health. Given the public health crisis caused by contaminated drinking water, the Union of India had an affirmative constitutional obligation to intervene and coordinate with the State of Punjab and neighbouring States to mitigate health risks, especially where State authorities have demonstrably failed. Hence the public Interest litigation is maintainable against the union of India.

ISSUE 2:**2. Whether the fundamental rights of the people of Punjab have been violated?**

The protect and improve the environment is a constitutional mandate. It is a commitment for a country wedded to the ideas of a welfare state. The Environment (Protection) Act, 1986 defines environment as “*environment includes water...*”¹¹. The Constitution of India, under Part III, guarantees fundamental rights essential for every individual’s development. The right to a clean environment is integral to this, as without it, an individual cannot realize their full potential.

According to Article 21 of the constitution, “*no person shall be deprived of his life or personal liberty except according to procedure established by law*”¹². The word “Life” under Article 21 means a quality of life¹³ which includes right of food, and reasonable accommodation to live in¹⁴ and the right to a wholesome environment. The right to a healthy environment is an essential facet of living with human dignity.

In *Rural Litigation and Entitlement Kendra v. State*¹⁵ the Court recognized for the first time that environmental degradation violates Article 21. The Court acknowledged in *Veranda Gaur & Ors v. State of Haryana*¹⁶ that the right to human dignity, which entails a clean environment, ecological balance, and freedom from air and water pollution, is a component of the right to life. In *T.N. Godavarman Thirumulpad v. Union of India*¹⁷, the Supreme Court ruled that any ecological harm is a violation of the basic right to a healthy life. Therefore, the State's inability to prevent radioactive pollution is a clear breach of Article 21.

In the present case A recent CGWB analysis revealed that 32.6% of groundwater samples in Punjab exceeded the safe uranium limit (0.03 mg/L), the highest among all tested toxicants. Elevated Uranium levels in drinking water are known to cause kidney damage and other long-term health issues. Out of 908 samples analysed in Punjab, 296 contained uranium¹⁸. Uranium concentrations in

¹¹ The Environment (Protection) Act, 1986,s.2(a)

¹² The Constitution of India, art.21

¹³ Francis Coralie v. Union Territory of Delhi, AIR 1994 SC 1844.

¹⁴ Shantisar Builders v. Narayanan Khimalal Totamen, AIR 1990 SC 630.

¹⁵ 1985 Supp SCC 79.

¹⁶ AIR 1995 SC 38.

¹⁷ AIR 1997 SC 1228.

¹⁸ Editorial, “1 in 3 of Punjab’s groundwater samples contains uranium beyond safe limits” The Times of India, August 5, 2025, <https://timesofindia.indiatimes.com/city/chandigarh/1-in-3-of-punjab-s-groundwater-samples-contains-uranium-beyond-safe-limits-rajya-sabha-told/articleshow/123120385.cms>

Punjab's shallow groundwater range from 0 to 532 parts per billion (ppb), with 29% of wells surpassing the safe uranium standard, according to data from the Groundwater Yearbook (2021–2022).¹⁹ " Researchers from the Homi Bhabha National Institute and the Bhabha Atomic Research Centre (BARC) revealed in a 2021 study that overexploitation of groundwater has been seen in all types of aquifers in the nation. The World Health Organization (WHO) and the Bureau of Indian Standards (BIS) have established a safe limit of 30 parts per billion. The analysis notes elevated nitrate levels in groundwater samples from both states in addition to uranium. The World Health Organization (WHO) and the Bureau of Indian Standards (BIS) have established a safe limit of 30 parts per billion. The analysis notes elevated nitrate levels in groundwater samples from both states in addition to uranium. The acceptable level of 45 milligrams per litre was exceeded by 14.56 percent of tested samples in Haryana and 12.58 percent in Punjab. Infants who are exposed to high levels of nitrates may develop blue baby

syndrome. Another issue is arsenic contamination, which has been found in Punjabi groundwater samples at levels more than 10 parts per billion. The study revealed long-term exposure can also damage the liver, kidneys, and lungs. Several districts in Punjab and Haryana have excessive levels of uranium, nitrates, arsenic, chloride, and fluoride – surpassing permissible limits – in their groundwater, according to the recently-released [Annual Ground Water Quality Report-2024](#).²⁰ The report, compiled by the Central Ground Water Board (CGWB), adds that exposure to uranium beyond this threshold can lead to severe health complications, including kidney damage and urinary tract cancer.

Intensive use of fertilisers has exacerbated the problem. Many of the affected districts are classified as "overexploited", "critical", or "semi-critical" groundwater zones. Additionally, the National Green Tribunal (NGT) has acknowledged a study by IIT-Mandi, which links agricultural runoff to groundwater contamination in Punjab. The CSE's Environment Report 2025²¹ flags

¹⁹ Central Ground Water Board, Ground Water Yearbook – India 2022–23, Ministry of Jal Shakti, Government of India, 2023, available at: <https://cgwb.gov.in/cgwbpnm/public/uploads/documents/17135107192062732741file.pdf> (last visited Aug. 10, 2025)

²⁰ Central Ground Water Board, Ground Water Yearbook – India 2021–22, Ministry of Jal Shakti,

Government of India, 2022, available at: <https://cgwb.gov.in/cgwbpnm/public/uploads/documents/17363272771910393216file.pdf> (last visited Aug. 10, 2025).

²¹ Centre for Science and Environment, State of India's Environment in Figures 2025, New Delhi, 2025, available at: https://cdn.cseindia.org/attachments/0.56537300_1

widespread uranium pollution across 20 districts, in addition to arsenic, nitrate, and fluoride contamination across Punjab.

Article 14, Constitution of India states that “The State shall not deny to any person equality before the law or the equal protection of the laws within the territory of India.” Therefore, every action of the State must be guided by reason for public good and not by whim, caprice, and abuse of power. The Article 14 guarantees equal treatment for individuals; however, in the present writ petition, the victims of water pollution have not been sufficiently protected, and they have not been treated equally to those in similar circumstances residing in different states. Consequently, there is a significant lack of action on the part of the government regarding the regulation of pesticide use, raising awareness, and implementing extensive sustainable agricultural policies. In *Kinkri Devi v. State of Himachal Pradesh & Others*²² Kinkri Devi, a social activist hailing from a marginalized community, initiated a Public Interest Litigation concerning the illegal and unregulated limestone extraction in the hills of Himachal Pradesh. This quarrying has led to Severe environmental damage,

Landslides and a reduction in forest cover, Threats to the safety and property of local residents. The Authorities permitted contractors to extract resources without obtaining the necessary environmental clearance, breaching existing regulations. The court held that the government's inaction was arbitrary and denied equal protection to the communities impacted. The principle of rule of law—a fundamental aspect of Article 14—was compromised due to the unregulated and unlawful mining activities. The court emphasized that no individual is above the law, regardless of their wealth or political connections.

The ongoing poisoning of drinking water sources with radioactive materials like uranium is clearly a serious public health issue and a violation of the constitution, as evidenced by the facts, data, and binding precedents mentioned above. As "States" under Article 12, the Respondents are required to defend the impacted citizens' basic rights. The Respondents have disregarded their constitutional and statutory obligations by neglecting to implement effective corrective measures in spite of statutory directives under the Water (Prevention and Control of Pollution) Act,

744007189_kiran-pandey.pdf (last visited Aug. 10, 2025) [CSE India](#).

²² AIR 1989 SC 2069

1974, and numerous court rulings highlighting the necessity of coordinated inter-State and Union intervention in cases involving transboundary river and groundwater pollution (M.C. Mehta v. Union of India, Yamuna and Ganga cases).²³

ISSUE 3:

3. Whether the State of Punjab and the Union of India is liable for the adverse health impact and environmental degradation?

UNREGULATED PESTICIDE AND FERTILIZER USAGE:

Starting in the 1960s, Haryana and Punjab emerged as key beneficiaries of the "Green Revolution," which addressed India's food security challenges. The main result of this agricultural and scientific shift was an increase in crop production. However, this change heavily depended on the higher application of fertilizers and pesticides. The overuse of these chemicals is identified as a key factor behind the cancer cases reported in Haryana and Punjab. With an alarming annual consumption of 5,270 metric tonnes

of pesticides, Punjab ranks as the third-largest user and has the highest per capita application of these substances. A report by Greenpeace, carried out by researchers from Exeter University in the UK, indicated that 20 percent of the analysed wells have nitrate concentrations exceeding the World Health Organization's safe drinking water limit of 50mg per litre. Nitrate contamination can significantly affect health, particularly in children.²⁴ Pesticides are regulated by the Ministry of Agriculture & Farmers Welfare via the National Green Tribunal (NGT), which was established under the Insecticide Act of 1968. The CIB & RC controls the production, import, transport, and storage of pesticides, leading to the registration, banning, or restriction of these substances. The Scientific Panel on Pesticide Residues of FSSAI reviews the information provided by the CIB & RC and suggests the Maximum Residue Limits (MRLs) after conducting risk assessments that take into account the dietary habits of the Indian population and health issues relevant to all group. Thus the increase in health hazard is a clear indication that the Government is negligent in regulating the use of pesticides. The Union and the State

²³ AIR 1988 SC 1037.

²⁴ Sanjay Pandey, "On the 'Cancer Train' of India's Pesticides", Al Jazeera, January 9, 2015, available at:

<https://www.aljazeera.com/features/2015/1/9/on-the-cancer-train-of-indias-pesticides> (last visited Aug. 10, 2025)

governments have failed to take sustainable steps to balance economic welfare and environmental protection. In *Rural Litigation and Entitlement Kendra v. State of Uttar Pradesh*²⁵ the Supreme Court, for the first time in India, acknowledged the principle of sustainable development. The court clarified that economic growth and environmental conservation are not incompatible instead, they should advance simultaneously in a balanced and sustainable way. In *M.C. Mehta v. Union of India & Ors.*²⁶ The Court reinforced the concept that economic growth must not compromise environmental integrity.

UNTREATED INDUSTRIAL RUNOFF

Industrial effluents that are not treated, along with agricultural runoff filled with pesticides and fertilizers, and untreated domestic sewage, are contaminating both surface and groundwater. According to the Central Pollution Control Board (2021), only **30%** of Punjab's wastewater undergoes treatment. National Green Tribunal (NGT), responsible for the management of water resources and implement effective policies. The Indian

Council for Medical Research has alerted the government about a study conducted in 2024, which revealed that individuals residing near river drains in Punjab face a significant risk of developing cancer. The research, carried out by scholars from Punjabi University and Thapar University in Patiala, discovered that concentrations of heavy metals such as lead, iron, and aluminium surpassed the acceptable limits set by the Central Pollution Control Board²⁷. The scientists examined the wastewater drains of the Ghaggar river in Punjab. The researchers indicated in their findings that the primary contributor to heavy metal levels was the untreated effluent released from wastewater drains into the rivers. The researchers analysed the levels of several metals, including lead, cadmium, iron, aluminium, and nickel. The World Health Organization has deemed cadmium, nickel, and lead as carcinogenic to humans²⁸

In *M.C. Mehta v. Union of India*²⁹ . Municipal authorities and State Pollution Control Boards were deemed liable for their failure to fulfil their statutory responsibilities under the Water

²⁵ AIR 1985 SC 652, 1985 SCR (3) 169

²⁶ AIR 1999 SC 2583, (1999) 6 SCC 9

²⁷ Central Pollution Control Board (CPCB), Government of India, New Delhi (India).

²⁸ Sorit Gupto, Simply Put: Pure River Water, Down

To Earth, Aug. 4, 2025, available at: <https://www.downtoearth.org.in/water/simply-put-pure-river-water> (last visited Aug. 10, 2025).

²⁹ AIR 1988 SC 1037

(Prevention and Control of Pollution) Act, including stopping untreated sewage and industrial waste from flowing into the river. The Court required that effluent treatment plants be established prior to permitting any licenses or operations, stressing that the economic difficulties faced by industries cannot be prioritized over environmental damage.

Further in **Vellore Citizens' Welfare Forum v. Union of India**³⁰. The Tamil Nadu Pollution Control Board and State Government neglected their duties under the Water (Prevention and Control of Pollution) Act, 1974³¹, and Environment (Protection) Act, 1986³². The government was held accountable for failing to enforce regulations. These responsibilities were linked with Article 21, highlighting the State's duty to protect the environment.

GROUNDWATER EXTRACTION

Groundwater extraction often surpasses allowable limits, but breaches are seldom penalized. Approximately 30% of groundwater extraction in the state occurs above permissible levels (Punjab State Council for Science & Technology, 2020).³³ According to the study, excessive groundwater use has led to geological pollution, which has caused extremely hazardous elements including uranium, arsenic, manganese, zinc, copper, lead, and iron to seep into the water from aquifer rock or silt.³⁴ Many of aquifers in the southern region of Punjab composed of clay, silt and gravel. When over-pumping of these aquifers' groundwater occurs and their water levels decline, it induces oxidation conditions that, in turn, enhance uranium enrichment in the shallow groundwater that remains. While the primary source of uranium is geogenic (naturally occurring), anthropogenic (human caused) factors such as groundwater table decline and nitrate

³⁰ AIR 1996 SC 2715

³¹ Water (Prevention and Control of Pollution) Act, 1974, No. 6, Acts of Parliament, 1974 (India)

³² Environment (Protection) Act, 1986, No. 29, Acts of Parliament, 1986 (India)

³³ Guest Column | In Punjab, water stewardship is need of the hour, Hindustan Times (Aug. 10, 2023), available at: [https://www.hindustantimes.com/cities/chandigarh-news/guest-column-in-punjab-water-stewardship-](https://www.hindustantimes.com/cities/chandigarh-news/guest-column-in-punjab-water-stewardship-is-need-of-the-hour-101734370735109.html)

[is-need-of-the-hour-101734370735109.html](https://www.hindustantimes.com/cities/chandigarh-news/guest-column-in-punjab-water-stewardship-is-need-of-the-hour-101734370735109.html) (last visited Aug. 11, 2025).

³⁴ Romana H.K., Singh R.P., & Shukla D.P., Spatio-temporal evolution of groundwater quality and its health risk assessment in Punjab (India) during 2000–2020, Environmental Science and Pollution Research (Aug. 23, 2023), available at: <https://link.springer.com/article/10.1007/s11356-023-29200-6> (last visited Aug. 11, 2025).

pollution may further enhance uranium mobilisation³⁵. Excessive nitrate fertilizer use in agricultural catchments may have a major impact on uranium mobilization.³⁶ Uranium mobilisation happens when the groundwater level declines and nitrate pollution happened due to high level pesticide usage will play a huge role in promoting its oxidation and the formation of soluble uranium complexes nitrate, acting as an oxidant, can convert less soluble uranium (U(IV)) to more soluble uranium (U(VI)), which can then form mobile complexes with carbonate and calcium ions. This process is particularly significant in agricultural areas where nitrate fertilizers are used and where groundwater is shallow and susceptible to contamination from surface runoff.³⁷ Uranium can dissolve in water and contaminate groundwater and surface water sources used for drinking and irrigation. High levels of Uranium in drinking water can lead to kidney damage and potentially increase the risk of cancer overtime. In *Arti vs Central Ground Water Authority & Ors.*³⁸ The court affirmed that groundwater

cannot be treated as a private commodity; rather, it is part of the Public Trust Doctrine, requiring protection and sustainable management by the State.” *Depletion and contamination of groundwater threaten the fundamental right to life under Article 21 of the Constitution. It is the solemn duty of the Central and State Governments to regulate, monitor, and control groundwater extraction to prevent over-exploitation.*” The judgment recognizes that access to clean and sufficient groundwater is integral to the right to life and a healthy environment. Therefore there exist an urgent need to address and rectify the problem on part of the government to reduce over usage of groundwater, restore the groundwater level and move to a more sustainable agricultural practice. . By not putting in place sufficient measures to safeguard and enhance the environment, especially by ignoring pollution control and sustainable resource management, the State has breached Article 48A. Laws controlling industrial waste, pesticide use, and groundwater contamination have not been adequately enforced, despite explicit

³⁵Ibid

³⁶ Ibid

³⁷ Bonotto, D.M., Mahapathe, B., Goonetilleke, A., & Booyesen, M.J., Nitrate-dependent Uranium mobilisation in groundwater, *Science of the Total*

Environment, Vol. 693, Article 133655 (2019), available at: <https://doi.org/10.1016/j.scitotenv.2019.133655> (last visited Aug. 11, 2025).

³⁸Original Application No. 438/2018.NGT

directives to stop environmental deterioration. In a similar vein, unchecked environmental degradation has resulted from the State's failure to effectively raise public awareness or encourage citizen participation in carrying out their obligations under Article 51A(g). Both constitutional provisions intended to protect natural balance and public health are compromised by this neglect.

5. PRAYER

In light of the aforementioned facts and circumstances, it is humbly requested that this Honourable Court:

1. Order a comprehensive scientific survey to assess pesticide and groundwater contamination, its health impacts, and implement targeted remediation plans, including the use of bioremediation techniques.
2. Direct the government to ensure access to safe drinking water through scalable purification technologies in affected communities.
3. Mandate regular health check-ups and monitoring of farmers and agricultural workers in affected areas to detect and treat pesticide-related illnesses early. Expand support for cancer patients, including financial aid.

4. Direct the State of Punjab and the Union of India to immediately ban harmful pesticides, regulate safer alternatives, and promote sustainable agricultural practices, along with farmer education on safe usage.

6. ANNEXURE

1. Bonotto, D.M., Mahapathe, B., Goonetilleke, A., & Booysen, M.J., Nitrate-dependent Uranium mobilisation in groundwater, *Science of the Total Environment*, Vol. 693, Article 133655 (2019)
2. Central Ground Water Board, Uranium Occurrence in Shallow Aquifers in India – 2019–20, Ministry of Jal Shakti, Government of India.
3. Romana H.K., Singh R.P., & Shukla D.P., Spatio-temporal evolution of groundwater quality and its health risk assessment in Punjab (India) during 2000–2020, *Environmental Science and Pollution Research* (Aug. 23, 2023).
4. Guest Column | In Punjab, water stewardship is need of the hour, *Hindustan Times* (Aug. 10, 2023).
5. Sorit Gupto, *Simply Put: Pure River Water, Down To Earth*, Aug. 4, 2025

6. Sanjay Pandey, “On the ‘Cancer Train’ of India’s Pesticides”, *Al Jazeera*, January 9, 2015
7. Central Ground Water Board, *Ground Water Yearbook – India 2021–22*, Ministry of Jal Shakti, Government of India, 2022
8. Centre for Science and Environment, *State of India’s Environment in Figures 2025*, New Delhi, 2025
9. Central Ground Water Board, *Ground Water Yearbook – India 2022–23*, Ministry of Jal Shakti, Government of India, 2023
10. Editorial, “1 in 3 of Punjab’s groundwater samples contains uranium beyond safe limits” *The Times of India*, August 5.