

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 676/2023

News Item titled "Agriculture Runoff causing groundwater pollution in Punjab Making Drinking Water unsafe Reveals Study" appearing in The Times of India dated 12.10.2023.

Date of hearing: 17.05.2024

**CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER**

Respondent: Mr. Sandeep Bajaj, Addl A.G, Ms. Manpreet Kaur, A.A.G with Mr. K.A.P Sinha (Through VC), Special Chief Secretary, Mr. Nilkanth S. Avhad (Through VC), Principal Secretary, Water Supply & Sanitation, Mr. Ajay Sharma (Through VC), Principal Secretary, Local Govt. & Mr. Kumar Rahul (Through VC), Secretary, Science, Technology & Environment, State of Punjab
Ms. Sunieta Ojha, Adv. with Mr. Gurindar Singh Majithia, Member Secretary, Punjab PCB (Through VC)
Mr. Vikrant Pachnanda, Adv. for CPCB

ORDER

1. This original application was registered *suo motu* on the basis of the news item relating to contamination of ground water in Punjab. The news item referred to a research study released by the Indian Institute of Technology, Mandi wherein it was found that on account of increase in demand of ground water, local farmers in Punjab were exploiting ground water from deeper geological strata, enriched in heavy metal and few are radioactive having serious health impacts. As per the report, immediate action is required by the concerned authorities in Punjab to investigate the quality of ground water for drinking and irrigation purposes.
2. The news item report highlights the issue of heavy metals, radioactive substance, fertilizers and chemical pollutants found in the ground water sampling of the concerned area.
3. The Tribunal by order dated 03.11.2023 had impleaded the respondents and had issued notice to them.

4. The Central Pollution Control Board (CPCB) has filed the status report dated 17.01.2024 disclosing the ground water quality analysis done in Punjab between the period from 2019 to 2023 at different locations and enclosing the details of such sampling results. The report of CPCB contains following major findings:

“4.0 MAJOR FINDINGS

The water quality monitored at 43 out of 46 locations in the State during the years 2019 – 2023 by CPCB in association with Punjab Pollution Control Board (PPCB) under National Water Quality Monitoring Programme (NWMP) reveals the following:

- *Nitrate concentration in 01 out of 43 monitored locations during the years 2019 & 2020 is exceeding its BIS Drinking Water Standards IS 10500: 2012, acceptable limit of 45.0 mg/ L. However, during 2022 and 2023, nitrate concentration is found complying.*
- *Fluoride concentration has been observed exceeding in the range of 9.5 – 18.6% during the years 2019 (05 out of 43 locations), 2020 (04 out of 42 locations) & 2022 (08 out of 43 locations) against BIS Drinking Water Standards IS 10500: 2012, acceptable limit of 1.0 mg/ L.*
- *TDS concentration has been observed exceeding in the range of 53.4 – 70.7% during the years 2019 - 2023 against BIS Drinking Water Standards IS 10500: 2012, acceptable limit of 500.0 mg/ L. Out of monitored locations, 23 locations out of 43 in the year 2019, 29 out of 41 locations in the year 2020, 22 out of 33 locations in the year 2021, 30 out of 43 locations in the year 2022 and 24 out of 40 locations in the year 2023 were found non - complying.*
- *Monitored Heavy metals viz. Arsenic, Cadmium, Copper, Lead, Chromium Total, Nickel, Zinc, Mercury are found complying in all during entire period of monitoring, with the Acceptable Limit prescribed by BIS Drinking Water Specifications IS 10500:2012.*
- *Iron concentration has been observed exceeding in the range of 11.6 – 30.3% during the years 2019 - 2023 against BIS Drinking Water Specifications IS 10500: 2012, acceptable limit of 0.3 mg/ L.*
- *12 Pesticides monitored at 43 locations indicate that all these pesticides were Below Detection Limit (BDL) in the State.”*

5. Initially, the reply dated 01.11.2023 and 12.01.2024 was filed by the Punjab Pollution Control Board (PPCB) and the Tribunal, thereafter,

on 19.03.2024 had considered the issue and noted that the report of CPCB discloses information about presence of toxic metals in the ground water in State of Punjab which to some extent supported the newspaper report. The Tribunal further found that Respondent No. 4 was trying to shift the responsibility on other department and there was an attempt to involve the inter/intra-departmental issue, therefore, had directed the Chief Secretary, Punjab to submit an appropriate reply and appear through virtual mode. The Tribunal further directed to demarcate all the contaminated ground water sources as “unfit for drinking purpose in the State of Punjab and safe water availability be ensured” in the meanwhile.

6. The fresh report has been filed by the State of Punjab dated 15.05.2024 which questions the correctness of the research study but discloses that samples from 277 locations within the jurisdiction of Department of Water Supply and Sanitation (DWSS) were got collected and analyzed by NABL accredited laboratory. The report dated 15.05.2024 discloses the results of sample analysis from different locations as under:

“e). *That for the 278 locations which are within the jurisdiction of the Department of Water Supply and Sanitation (DWSS), the samples of drinking water source at these 277 locations were got collected during the months of March-April 2024 and were got analyzed in NABL accredited laboratories of DWSS. These tests were conducted after following total 24 parameters based upon physiochemical parameters and heavy metal parameters prescribed for the purpose of drinking water as per IS 10500: 2012 (Rev 2). The test results reveal that the Water Quality in 260 locations is within the permissible limits prescribed for drinking purposes. The detail of test results of 260 locations is enclosed as **Annexure-F**.*

f). *However, 17 locations have been found contaminated with various parameters. Mitigation measures have already been taken in 16 contaminated locations by installing AIRPs/CWPPs/RO/ATM RO Plants which are presently functioning well whereas at 1 location, the potable water is being provided to the villagers through water tankers. The sample of the left-out 1 location which was earlier contaminated could not be drawn as same is presently nonfunctional. Here in this location RO Plant has already*

been installed in the village through which potable water is being provided for drinking purposes. The detail in respect of these 18 locations is enclosed as **Annexure-G**. The details of the test results as referred to above are annexed herewith as **Annexure-H**.

Status of 13 locations out of 59 locations

- g). That out of remaining 59 locations the samples from 8 locations which are falling under the Jurisdiction of Municipal Corporation Chandigarh and 5 locations of other Departments have also been collected and analyzed by the Department of Water Supply and Sanitation. The water quality of these 13 locations have also been found within permissible limits prescribed for drinking purposes and hence potable. The detail of the test results of these locations is enclosed herewith as **Annexure-I**.

Status of remaining 46 locations out of 59 locations

- h). That the samples of drinking water source at these 46 locations were got collected and got analyzed in NABL accredited laboratories of DWSS. These tests were conducted for 24 parameters based upon physiochemical parameters and heavy metals parameters prescribed for the purpose of drinking water as per IS 10500 :2012 (Rev 2). The test results reveal that the water quality in 30 locations is within the permissible limits prescribed for drinking purposes. The detail of test results of 30 locations is enclosed as **Annexure-J**.

Contaminated Sites

- i) However, 16 locations have been found contaminated with various parameters, mitigation measures have been taken in 16 contaminated locations, the potable water is being provided by the committee/corporations through water tankers. The details in respect of these 16 locations are enclosed as **Annexure-K**.

Directions issued for demarcation of contaminated water sources.

- j). In compliance of order dated 19.03.2024 of the Hon'ble Tribunal, letter No. Adv./WQ/DWSS/2024/33 dated 26.4.2024 was issued by the DWSS to Zonal Chief Engineers to mark the sources of drinking water at 18 locations as "unfit for drinking purposes" and also directed to motivate the villagers to use water from AIRPs/CWPPs/RO/ATM RO Plants/tankers. In terms thereof the Chief Engineers have certified compliance of order dated 19.3.2024 passed by this Hon'ble Tribunal. The combined compliance report submitted by all the Chief Engineers of three zones is enclosed herewith as **Annexure-L**."

7. The above details clearly reveal that at several locations samples have been found to be contaminated and not meeting the parameters.

Though the alternate provision for potable water in these locations are stated to be made but the appropriate action is required to be taken to ensure that the ground water contamination does not spread any further. The report discloses that the contamination sites are not concentrated at one place but they are spread over different places far apart. The appropriate action is required to be taken to ensure that water of the borewells, sample of which have been found to be contaminated, is not used for drinking or irrigation purposes. The report does not reflect any such action. The authorities may examine the feasibility of sealing such borewells. The report does not clearly reflect the cause of such contamination which is required to be traced out and disclosed.

8. The stand of the State of Punjab in the reply dated 15.05.2024 is that there are no reports revealing any contamination of ground water by agricultural runoff causing pollution by pesticides and fertilizers. The report admits the contamination notably of Nitrate, Fluoride, heavy metals and radioactive elements such as uranium reported in significant proportion beyond permissible limit in South and Southwestern part of the State by various agencies. It also states that the pesticides consumption in the State is decreasing. We further find from the report that:

- i. Department of Water Supply and Sanitation got the ground water samples analysed from 337 locations taking reference locations from Central Ground Water Board (CGWB).
- ii. Out of 337 monitored sites, contamination has been noted at 34 sites for which remediation work is taken up.
- iii. We find the following deficiencies for which corrective measures are required as under:

- a. Chief Secretary, Punjab need to ensure that ground water monitoring is carried out adequately in all the districts.
- b. Performance of AIRPs/CWPPs/RO/ATM and others be furnished with the next report in reference to the efficiency in removal of contaminants. Individual and community based plants be propagated, as per need.
- c. CGWB and DWSS should jointly regularly monitor the shallow and deep water sources. It should also be ensured that contaminant does not bio-magnify in food chain including milk and vegetables/crops. Regular health check-ups should also be conducted in the contaminant site areas to monitor health of the citizens.

9. In view of the above, we require the State of Punjab to take appropriate remedial action and submit action taken report keeping in view the observations made above at least one week before the next date of hearing by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.

10. List on 24.09.2024.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

May 17, 2024
Original Application No. 676/2023
DV