

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

Original Application No. 251/2022

In re : News item published in The Hindu dated 29.03.2022 titled
“Detecting microplastics in human blood”

WITH

Original Application No. 764/2022
(Earlier Original Application No. 99/2021 (SZ))

In re : News Item published in The Times of India, Chennai dated
05.04.2021 titled **“Chennai, you are breathing micro plastic”**

WITH

Original Application No. 765/2022
(Earlier Original Application No.174/2021 (SZ))

In re: News Item published in The Times of India, Chennai dated
27.07.2021 titled **“High level of metals PM 2.5 found in city’s air you’re
breathing”**

Date of hearing: 01.03.2023

**CORAM: HON’BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON’BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON’BLE DR. A. SENTHIL VEL, EXPERT MEMBER**

Respondent: Mr. Anuj Kumar Sharma, Advocate for CPCB

ORDER

1. Proceedings in all the three matters have been initiated *suo-motu* in the light of identical media reports to the effect that in absence of enforcement of environmental norms on the subject, small particles of plastics enter the blood cells of human being through food, having adverse health impact.

2. Vide order dated 05.04.2022 in O.A No. 251/2022, the Tribunal noted that identical matters were pending before Southern Bench, NGT, being OA No. 99/2021(SZ), *Tribunal on its own motion Suo Motu based on*

the news item in The Times of India Newspaper, Chennai Edition dt. 05.04.2021, "Chennai, you are breathing micro plastic" vs. The Chief Secretary to Government of Tamil Nadu Chennai and Ors. and OA No. 174/2021(SZ), Tribunal on its own motion Suo Motu based on the news item in The Times of India Newspaper, Chennai Edition dt. 27.07.2021, "High level of metals PM 2.5 found in city's air you're breathing" vs. The Chief Secretary to Government of Tamil Nadu Chennai and Ors. To avoid conflict in the order, the said matters were transferred to Principal Bench, NGT. It was further directed that study be conducted by a joint Committee comprising CPCB, ICMR, Central Institute of Petrochemicals Engineering & Technology (CIPET), NCSCM, and any other expert institutions as required, under the nodal coordination of CPCB and a report of study with suggestions for remedial action may be filed before this Tribunal.

3. In pursuance of above, CPCB has filed report dated 13.02.2023. The report acknowledges that Microplastics (MP) - both primary and secondary - pollute drinking water sources primarily through discharge of sewage/wastewater treatment plant effluent and surface runoff. As the sewage/wastewater treatment plants are not equipped for the complete removal of MP, the effluent released from these plants contains substantial quantity of MP. Upon mixing of this effluent with the freshwater sources, MP becomes part of the fresh/drinking water supply chain. Components of water treatment plants and water distribution system are usually made up of plastic materials such as high density polyethylene, polyvinyl chloride, polypropylene etc. These further contribute towards MP generation in the water they carry. The treated bottled water is also reported to contain MP. In the air, suspended MP particles have been isolated from various places such as urbanized city centres, indoor households and remote outdoor regions. As there is wide range of MP size, it is highly likely that these particles are inhaled by the humans. Soil can

get affected from plastics through various means such as plastic mulch films, municipal waste, sewage sludge, fertilizers coated with plastics. A significant positive correlation has been seen between the rate of sludge applied onto the soil and concentration of MP particles in the soil. MP concentrations have been detected in the air at dumpsites in India. MP is also being reported in human saliva, blood, placenta, colon, stool and lungs.

4. Conclusions in the report are as follows:-

“C. Conclusions

1. *Independent studies regarding microplastics have been conducted by various organizations in the country including CPCB, MoES-NCCR, NCSCM, NPC and CIPET . Further international studies have been conducted by WHO, UNEP , OECD and others.*
2. *The studies have primarily focussed on monitoring microplastics (concentration, polymer type, colour, shape) in various environmental matrices.*
3. *Occurrence of microplastics has been reported in oceans, sediments, surface water, ground water, wastewater, tap water, bottled water, air, food products, aquatic organisms, and human beings*
4. *There is currently no standard method for sampling and analysis of microplastics in the environment. ISO is currently working on the subject*
5. *Sampling and analytical methods adopted by different institutions in India are similar with minor variations. Variation in Microplastic concentrations units reported by different organizations has been observed*
6. *Uniform procedure for sampling & analysis may be developed by organizations involved in microplastic analysis (CIPET, NCSCM, MoES-NCCR) which can be adopted uniformly across the country till the time ISO standard is finalized.*
7. *Source of generation of microplastics including industries, waste management , waste water treatment, ocean activities etc. have been identified. However, exact quantum of microplastics generated from the identified source has not been determined.*
8. *Microplastic concentration in transfer media is available for soil/beach sediment, surface water bodies, biota and ocean water. Microplastic concentration for sludge , specifically when it is converted to compost for land application is not available*
9. *Microplastic concentration in end use areas including ambient air, drinking water and ground water is available.*
10. *Source monitoring, transfer end use of all possible sources listed in Table 3.1 to be covered. Emphasis to be laid on such areas for which no information is available.*
11. *Regular monitoring of various water quality parameters to be conducted to provide insight into the presence and concentration of microplastics in environmental matrices(water, sediments, biota)*

12. *Microplastic leakages and pathways may be monitored in order to identify further sources and hotspots of microplastics.*
13. *Uniform procedure for sampling & analysis as finalized by this Committee may be adopted for such studies till the time ISO Standards are finalized.*
14. ***Studies conducted on the matter have reported about the presence of microplastics in human body. Physiological or psychological impact has not been reported in these studies.***
15. *Health impact of emerging contaminants and long term studies are required to establish Cause effect relationship of microplastics on human health*
16. *The aforementioned studies should cover different type, concentration and shapes of microplastics. Impact of chemicals /biofilms associated with Microplastics on human health to be covered. The studies may include the following:*
 - *Estimation of the duration and frequency of human exposure to microplastics. Microplastic monitoring as required may be conducted for the same*
 - *Once the exposure assessment is done precisely, dose-response assessment may be carried out, where the minimum concentration (of microplastics) responsible for any observable effect (on human) shall be assessed..*
17. ***Bioassays*** *may be conducted to assess the Eco-toxicological impact of microplastics on animal life.*
18. *Standards development (Source & ambient) for microplastics may be taken up following establishment of the cause-effect relationship of microplastics on human health*
19. *Available technologies to be assessed for their efficacy for removal of microplastics.*
20. *Technologies to be developed for removal of microplastics from Air & Soil*
21. ***Source-directed interventions,***
 - ***Sustainable design and manufacturing of textiles, tyres, and complementary products (, laundry detergents, road surfaces, and vehicles), to minimise the tendency of products to contribute to microplastics generation;***
 - ***Restrictions on microplastics in the manufacture and sale of certain personal care and cosmetic products containing microplastics.***
 - ***Product requirements for household, commercial, or industrial washing machines. For instance, Australia and France have introduced measures to phase in microfibre filters on new washing machines***
22. ***End-of-life interventions, effective solid & plastic waste management practices, to prevent waste leaking into the environment and potentially contributing to microplastics generation including the following;***

(a) Reducing the amount of plastic waste that enters landfills and dumpsites through the implementation of waste reduction policies and initiatives, such as waste-to-energy programs and increased recycling. Microplastics can also be reduced by supporting the development and use of biodegradable plastic alternatives

23. ***End-of-pipe interventions, wastewater, stormwater, and road runoff management and treatment, to retain the emitted microplastics before these reach water bodies.***
24. ***Maximizing clean drinking water supply to all citizens in the country***
25. ***Other Best practices as listed below for minimizing microplastics in environment may be followed:***
 - (a) Install physical barriers such as screens and filters on STP/WWTP systems to help reduce the amount of microplastics that enter rivers, lakes, and oceans.***
 - (b) Support sustainable fishing practices to reduce the amount of microplastic entering rivers from fishing equipment.***
 - (c) Implementation of Clean-up efforts for beaches and rivers***
26. ***Training and capacity building including microplastic monitoring, analysis, health impact studies may be taken up for effective implementation of aforementioned points.”***

5. Minutes of the third meeting of the Committee annexed to the report considers methodology for developing standards for regulating MP and propose further studies for laying down standards.

6. We have duly considered the issue and the suggestions in the report. Since issue involved is common in all the three matters, to avoid duplication, we direct that O.A No. 764/2022 & O.A No. 765/2022 will stand disposed of and the matter will be dealt with in O.A No. 251/2022.

7. The report appears to be based on scientific basis and can be acted upon subject to objections, if any. The report shows clear potential of particulates of MP entering blood cells of human beings which can have adverse health impact, there is need for further remedial action for enforcing the ‘Sustainable Development’ and ‘Precautionary’ principles by way of preventive and remedial measures to neutralize anticipated harm to environment and public health, pending further scientific investigations for laying down standards, as suggested in the report.

8. We may refer to the well known observations of Hon'ble Supreme Court in *Vellore Citizens' Welfare Forum v. UoI*, (1996) 5 SCC 647 :-

“11. Some of the salient principles of "Sustainable Development", as culled-out from Brundtland Report and other international documents, are Inter-Generational Equity, Use and Conservation of Nature Resources, Environmental Protection, the Precautionary Principle, Polluter Pays principle, Obligation to assist and cooperate, Eradication of Poverty and Financial Assistance to the developing countries. We are, however, of the view that **"The Precautionary Principle" and "The Polluter Pays" principle are essential features of "Sustainable Development". The "Precautionary Principle" - in the context of the municipal law – means:**

- (i) **Environment measures - by the State Government and the statutory Authorities must anticipate, prevent' and attack the causes of environmental degradation.**
- (ii) **Where there are threats of serious and irreversible damage lack of scientific certainty should not be used as the reason for postponing, measures to prevent environmental degradation.**
- (iii) The "Onus of proof" is on the actor or the developer/industrial to show that his action is environmentally benign.

12. "The Polluter Pays" principle has been held to be a sound principle by this Court in *Indian Council for Enviro- Legal Action vs. Union of India*¹. The Court observed (SCC p. 246, para 65)

"We are of the opinion that any principle evolved in this 'behalf should be simple practical and suited to the conditions obtaining in this country".

The Court ruled that: (SCC p. 246, para 65)

“...“Once the activity carried on is hazardous or inherently dangerous, the person carrying on such activity is liable to make good the loss caused to any other person by his activity irrespective of the fact whether he took reasonable care while carrying on his activity. The rule is premised upon the very nature of the activity carried on”.

Consequently the polluting industries are "absolutely liable to compensate for the harm caused by them to villagers in the affected area, to the soil and to the underground water and hence, they are bound to take all necessary measures to remove sludge and other pollutants lying in the affected areas". The "Polluter Pays" principle as interpreted by this Court means that the absolute liability for harm to the environment extends not only to compensate the victims of pollution but also the cost of restoring the environmental degradation. Remediation of the damaged environment is part of the process of "Sustainable Development" and as such polluter is liable to pay the cost to the individual sufferers as well as the cost of reversing the damaged ecology.

¹ (1996) 3 SCC 212; JT (1996) 2 SC 196

13. **The precautionary principle and the Polluter Pays Principle have been accepted as part of the law of the land. Article 21 of the Constitution of India guarantees protection of life and personal liberty.** Articles 47, 48A and 51A(g) of the Constitution are as under:

"47. Duty of the State to raise the level of nutrition and the standard of living and to improve public health. The State shall regard the raising of the level of nutrition and the standard of living of its people and the improvement of public health as among its primary duties and in particular, The State shall endeavour to bring about prohibition of the consumption except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health.

48A. (g) Protection and improvement of environment and safeguarding of forests and wild life. The State shall endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.

51A.(g) To protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures."

Apart from the constitutional mandate to protect and improve the environment there are plenty of post independence legislations on the subject but more relevant enactments for our purpose are: The Water (Prevention and Control of Pollution Act 1974 (the Water Act), The Air (Prevention and Control of Pollution) Act, 1981 (the Air Act) and the Environment Protection Act 1986 (the Environment Act). The Water Act provides for the constitution of the Central Pollution Control Board by the Central Government and the constitution of one State Pollution Control boards by various State Governments in the country. The Boards function under the control of the Governments concerned. The Water Act prohibits the use of streams and wells for disposal of polluting matters. Also provides for restrictions on outlets and discharge of effluents without obtaining consent from the Board. Prosecution and penalties have been provided which include sentence of imprisonment. The Air Act provides that the Central Pollution Control Board and the State Pollution Control Boards constituted under the later Act shall also perform the powers and functions under the Air Act. The main function of the Boards, under the Air Act, is to improve the quality of the air and to prevent, control and abate air pollution in the country. We shall deal with the Environment Act in the later part of this judgement.

14. *In view of the above mentioned constitutional and statutory provisions **we have no hesitation in holding that the precautionary principle and the Polluter Pays Principle are part of the environmental law of the country."***

9. Thus, while proposed studies may be undertaken expeditiously and completed at the earliest, interventions need to be immediately introduced as short-term measures in future designing and manufacturing of products which are potential threat for generating MP like Textiles, Tyres, and

Complementary Products (laundry detergents, road surfaces, and vehicles), manufacture and sale of certain personal care and cosmetic products containing MP, household, commercial, or industrial washing machines. Such other measures as may be identified may also be taken. For this purpose, the concerned Ministries need to consider the above report of CPCB and subject to any objections to the report which may be raised before the Tribunal, interventions may be introduced at the earliest, preferably within four months from today by the Secretary, MoEF&CC in consultation with CPCB, ICMR, Central Institute of Petrochemicals Engineering & Technology (CIPET), NCSCM, and any other expert institutions as required.

10. Compliance report may be filed before the next date 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.

List for further consideration on 09.08.2023.

A copy of this order be forwarded to the Secretary, MoEF&CC, CPCB, ICMR, CIPET and NCSCM by email for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Dr. A. Senthil Vel, EM

March 01, 2023
Original Application No. 251/2022
& Connected matters
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