Item No. 10 Court No. 2

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

Original Application No. 298/2023

**1. Dr. Raja Singh S/o**
Gurmit Singh, E-205/206,
GF, Amar Colony, Lajpat Nagar 4,
New Delhi 110024
Mobile No: +919888312502
Email: dr.rajasingh@proton.me ...Applicant

Versus

**1. Union of India**
Ministry of Environment, Forest & Climate Change
Through its Secretary
Indira Paryavaran Bhawan, Jor Bagh Road
CGO Complex, Lodhi Road
New Delhi – 110003
Email: Secy-MoEF@nic.in

**2. Ministry of Housing and Urban Affairs**
Nirman Bhawan, Maulana Azad Road
Delhi-110011
Email:- Secyurban@nic.in

**3. Ministry of Education**
Shastri Bhawan, Delhi – 110001
Email: Secy-sel@nic.in

**4. Fibre Cement Products**
Manufacturers Association
502, Mansorovar, 90, Nehru Place
New Delhi-110019 ...Respondents

**For the Applicant:**

Applicant in person.

**For the Respondents:**

Mr. Narender Pal Singh, Advocate for Respondent no. 1.

Mr. Gi Gi C George and Mr. Sunil Kumar, Advocates for Respondents no. 2 and 3.

Ms. Rashmi Virmani, Mr. Ankit Virmani and Mr. Hrithik Sharma, Advocates for respondent no. 4.

Mr. Srinivas Vishven, Advocate for CPCB.

**PRESENT:**

**HON'BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER**
**HON'BLE DR. AFROZ AHMAD, EXPERT MEMBER**

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**Judgment Reserved on:- 23.04.2025/ 10.10.2025**

**Judgment pronounced on:- 30.10.2025**

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**Judgment**

1. The applicant, a visiting faculty in the Department of Architecture, School of Planning and Architecture, New Delhi, has filed the present application under the provisions of the National Green Tribunal Act, 2010 for issuance of directions for stopping the use of Asbestos roof sheets for schools as a measure of public health and safety and environmental health under the Environment (Protection) Act, 1986 and the Air (Prevention and Control of Pollution) Act, 1981 at the pan-India level.

2. The applicant has raised grievances regarding adverse impact of asbestos cement roofing sheets in schools on children and the relevant part of the original application enumerating grievance of the applicant reads as under:-

> *"7. That the humble relief seeker wants to respectfully and humbly assist the Hon'ble Tribunal by stating that Asbestos roofing composes of a mixture of asbestos fibres and cement. Many times, schools buildings use these asbestos sheets, especially in the rural areas. Over time, the asbestos sheets become friable or crumbly and asbestos fibres are released from these sheets which can become airborne in the indoor air of the school and be inhaled by the occupants of the school who may be small school going children. These buildings also have higher dust pollution.*
>
> *8. The major problem with the inhalation of the asbestos fibres is that it causes lung diseases which may turn fatal. The peculiar character of diseases related to asbestos fibre inhalation is their high latency period and any student who is exposed at a young*

*age will only get the manifestations of the diseases after decades during his/her breadwinning or family raising period.*

*9. That the more specific issue that the humble relief seeker wants to bring to the Hon'ble Tribunal's attention a new cause of action with respect to a research study published in the most reputed Nature journal titled 'The natural reduction of threat in selected systems of old buildings containing asbestos' recently in 2022. The paper in its conclusion states as follows:*

> *'Active behavior in buildings with asbestos is a cause of above-normal dust pollution. For this reason, children and young people should not use buildings with asbestos, regardless of their physical condition'*
> *The research paper published in Nature Scientific Reports Journal has been attached as Annexure A.*

*10. In India, this issue has been discussed before from the point of view of asbestos, a non biodegradable material as being a health hazard to school children. Further stating that if the schools buildings are roofed with asbestos sheets, any damage, if, caused to asbestos can result in release of small asbestos fibres that become airborne and can be inhaled. These inhaled fibres can remain in lungs for long periods and can cause serious lung damage."*

3. The applicant has referred to information on landing page of WHO and advocated phasing out of asbestos roofing in schools at pan India level and the relevant part of the original application reads as under:-

*"15. That the World Health Organisation in its landing page https://www.who.int/teams/environment-climatechange-and-health/chemical-safety-and health/health-impacts/chemicals/asbestos on asbestos also states that 'all types of asbestos cause lung cancer, mesothelioma, cancer of the larynx and ovary, and asbestosis (fibrosis of the lungs). It also highlights exposure of asbestos through inhalation 'in indoor air in housing and buildings containing friable (crumbly) asbestos materials. The screenshot of the website of the World Health Organisation is attached as Annexure G."*

4. The applicant has also submitted that switch from asbestos will not affect livelihood of manufacturers and workers and the relevant part of the original application reads as under :-

*"16. That the switch from asbestos sheets for roofing in schools at the national level will not have a major impact to the livelihoods of asbestos sheet manufacturers and workers as the manufacturers themselves have shifted to other fibres and there are plenty of roofing alternatives available like country roof tile which is sustainable and can be a source of livelihood for the same workers who manufacture the asbestos sheets."*

5. In support of the submissions made in the original application, the applicant has relied on order dated 31.01.2009 passed by Hon'ble Kerala State Human Rights Commission in HRMP No. 126/2007, Government order number 162/2019/GEDN dated 09.10.2019 issued by Government of Kerala, order dated 03.09.2019 passed by Hon'ble Kerala High Court in Writ Petition (Civil) no. 22457/2019 and order dated 21.07.2017 passed by Hon'ble Calcutta High Court in Writ Petition (Civil) no. 14729 of 2016. The relevant part of the original application reads as under:-

*" 11. The Hon'ble Kerala State Human Rights Commission in Order, HRMP No. 126/2007 passed on 31st January 2009 has also taken notice of the same and recommended the ban of use of asbestos roofing in new schools and recommended replacing existing asbestos roofing in government and private schools with country tiles in phased manner. The Certified copy of the Order passed by the Hon'ble Kerala State Human Rights Commission in HRMP No. 126/2007 passed on 31st January 2009 has been attached at Annexure B.*

*12. That the above stated order of the Kerala Human Rights Commission was implemented by the Government of Kerala and an order to this effect was passed on 9th October 2019 vide number 162/2019/GEDN. The original order is in Malayalam Language and is attached as Annexure C. The translation of the order in English has been put on record by the Hon'ble Kerala High Court in the judgment passed in a related matter WPC 23846 of 2021 in para 9. A certified copy of the Judgment in WPC 23846/2021 passed by the Kerala High Court on 2nd November 2021 has been attached as Annexure D.*

*13. That this government order based on the recommendations of the Kerala Human Rights Commission to ban the use of asbestos roofing in schools in Kerala was challenged by some petitioner in the Kerala High Court, but the Hon'ble Court in its wisdom reinstated the government order and passed an order in*

*W P C 22457/2019 dated 3rd September 2019 which stated as follows:*

> *'The first respondent, ie the State of Kerala 'shall therefore file an affidavit as to why no action is taken for prohibiting such roof for buildings of schools in the state and why no action is taken to see that asbestos roof of class rooms in all the schools are replaced. The respondents shall also state why no action is taken to incorporate appropriate provisions providing for specifications for the roof also of the classrooms. There shall be a direction to the respondents to see that the asbestos roof of the classrooms of all the schools are replaced in a time bound manner.'*

*This order passed on 3rd September 2019 passed by the Hon'ble Kerala High Court in WPC 22457/2019 is attached as Annexure E.*

*14. That this concern of use of asbestos sheets was also raised in WPC 14729 of 2016 before the Hon'ble Calcutta High Court where such sheets were being used in the main building of the Court. On this the Hon'ble Calcutta High Court ordered that it will be ensured that: 'the asbestos-sheets, which have been used for roofing, would be replaced by any other materials which are non-carcinogenic' The order dated 21st July 2017 in WP No 14729 (W) of 2016 has been annexed as Annexure F"*

6. The applicant has submitted that the above facts may be seen in the light of the precautionary principle embodied in Section 20 of the National Green Tribunal Act, 2010, which makes it mandatory for the State to anticipate, prevent and attack the cause of environmental degradation as held in **M C Mehta v. Union of India (1997) 3 SCC 715**, and Articles 21, 47 and 48-A of the Constitution of India and also Right to Health under Article 21 of the Constitution of India as held in **State of Punjab v. Mahinder Singh Chawla (1997) 2 SCC 83**. The applicant has submitted that in view of precautionary principle in the case of asbestos roof sheets the benefit of the slightest doubt that may arise may be given to the environmental health and public health of the children who may be using the school buildings and the onus of the proof as stated in **Vellore Citizens Welfare Forum v. Union of India (1996) 5 SCC 647** may be shifted to the respondents to show that

continuous use of asbestos roofing is benign from the environmental health point of view. The applicant has further submitted that under Section 3 (2) (i), (ii),(iii),(xiv) and Sections 5 and 6, of the Environment (Protection) Act, 1986 the Central Government is empowered to deal with the environmental and health effects of asbestos in school buildings and that under the Air (Prevention and Control of Pollution) Act 1981, there is no statutory bar to regulation of indoor air quality as held by this Tribunal in order dated 19.04.2022 passed in O.A. No. 206/2022 to guard against risks caused by airborne asbestos or dust particles in the schools.

7. The applicant has further submitted that the applicant sent representations to the Secretaries of the Ministry of Environment, Forests and Climate Change (MoEF & CC), the Ministry of Housing and Urban Affairs (MoHUA) and the Ministry of Education (MoE) for phasing out of asbestos roofing in schools at pan India level but no action has been taken on the same and the applicant has accordingly prayed that suitable directions may be given as this Tribunal deems fit.

8. Vide order dated 02.05.2023 notices were ordered to be issued to the respondents no. 1 to 3 requiring them to file their responses/replies within one month. Pursuant to service of notice, replies were filed by respondent no. 2- MoHUA vide email dated 16.09.2023 and respondent no. 3-MoE vide email dated 07.08.2023. Vide order dated 26.09.2023 notice was ordered to be issued again to respondent no.1-MoEF & CC requiring it to file its reply /response to the averments made in the application within two months. Pursuant to service of notice, reply affidavit was filed by respondent no. 1-MoEF & CC vide email dated 26.12.2023.

**Reply filed by respondent no. 1-MoEF&CC.**

9. In its reply respondent no.1-MoEF&CC has submitted that Asbestos is a hydrated mineral silicate, which is generally fibrous & brittle. It has a variety of industrial applications due to its resistance to heat and chemicals, high tensile strength, and lower cost compared to man-made minerals. Asbestos is mainly used in a wide range of manufactured goods mostly in building materials (roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products), friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets, and coatings. Asbestos in the building does not spontaneously release fibres, but it can enter the air, water, and soil from the weathering, renovation, or demolition of manufactured asbestos products. People are likely to be exposed to asbestos through inhalation of airborne fibres. The waste asbestos generated from the Production of asbestos or asbestos-containing materials is regulated under the Hazardous and Other wastes (Management & Transboundary Movement) Rules, 2016 (HOWM Rules, 2016), and has been classified as Hazardous Waste under S. No 15 of Schedule I of the HOWM Rules, 2016 which includes (i) Asbestos-containing residues; (ii) Discarded asbestos and (iii) Dust or particulates from exhaust gas treatment. Also, as per schedule-II, Class B of HOWM Rules, 2016 any waste containing Asbestos Total Threshold Limit Concentration (TTLC) of asbestos of 10,000 mg/Kg or above is considered hazardous waste. Further, the import of waste Asbestos (dust and fibres) is prohibited in the country under Schedule-VI of the HOWM Rules, 2016. The waste containing asbestos shall be handled and managed in an environmentally sound manner as per the provisions outlined in the HOWM Rules, 2016, and be sent to Treatment, Storage, and Disposal Facilities (TSDF) for final disposal. The Central Pollution Control Board (CPCB) had issued a report titled "Human Health Risk Assessment Studies

in Asbestos Based Industries in India" 2008. In the report, various recommendations have been made to reduce the human risk of asbestos exposure.

**Reply filed by respondent no. 2 MoHUA**

10. In its reply respondent no. 2-MoHUA has submitted that as per latest Delhi Schedule of Rates 2021 (DSR 2021), a comprehensive technical document for execution of civil works published by the Central Public Work Department (CPWD), no item based on Asbestos material has been provided and therefore, the Asbestos materials are not considered to be used in the works being executed by CPWD or any other works associated with MoHUA. Respondent no.2-MoHUA has accordingly prayed for dismissal of the application while undertaking to comply with directions issued to it by this Tribunal.

**Reply filed by respondent no. 3 MoE**

11. In reply filed by the Department of School Education and Literacy on behalf of respondent no. 2 MoE, it has been submitted that the proposals under Strengthening of Infrastructure in Schools, have been mainly for Additional Class Rooms and Toilets for Boys & Girls and these proposals were formulated based upon the civil works norms decided by PWD, GNCT of Delhi. There had been no use of Asbestos Roof Sheets for schools in Delhi in the construction of Additional Class Room & Toilets for Boys & Girls so far. Hence, necessary measures for public health & environmental health have already been taken into account in Delhi under Samagra Shiksha Scheme being implemented by the Department of School Education and Literacy.

**I.A. No. 67 of 2024 filed by Fiber Cement Products Manufacturers Association**

12. The Fiber Cement Products Manufacturers Association (FCPMA) filed I.A. No. 67 of 2024 for its impleadment as respondent to the present original application which was allowed vide order dated 19.02.2024 and FCPMA was impleaded as respondent no. 4.

**Reply filed by respondent no. 4 FCPMA vide email dated 03.04.2024**

13. Reply has been filed by respondent no. 4-FCPMA vide email dated 02.04.2024.

**Rejoinder dated 11.12.2023 filed by the applicant**

14. Rejoinder dated 11.12.2023 was filed by the applicant praying for directions for stopping the use of asbestos roofs in schools.

**Rejoinder dated 01.05.2024 filed by the applicant**

15. Rejoinder dated 01.05.2024 to reply dated 03.04.2024 filed by respondent no. 4-FCPMA was filed by the applicant vide email dated 02.05.2024.

**Sur-rejoinder dated 17.09.2024 filed by respondent no. 4**

16. Sur-rejoinder dated 17.09.2024 to rejoinder dated 01.05.2024 filed by the applicant was filed by respondent no. 4-FCPMA vide email dated 18.09.2024.

**Reply dated 18.11.2024 to Sur-rejoinder filed by the applicant.**

17. Reply dated 18.11.2024 to sur-rejoinder dated 18.09.2024 filed by respondent no. 4-FCPMA was filed by the applicant.

**Additional documents filed by the applicant.**

18. Additional documents were filed by the applicant by application dated 15.02.2024 with prayer for directions for stopping the use of asbestos roofs in schools.

19. Vide order dated 18.07.2024 respondent no. 1-MoEF & CC was required to find out whether in respect of user of asbestos sheets in Educational Institutions, there are some different kinds of health hazards to students i.e. non-occupational health hazards, comparing to health hazards applicable to workers in Industrial Sector, and if there is a distinction, the matter be given a scientific study and report of such scientific study be submitted along with reply.

**Affidavit dated 24.09.2024 filed by MoEF & CC**

20. Affidavit was filed by MoEF & CC vide email dated 24.09.2024 relying on "**Study of Health Hazards/Environmental Hazards resulting from use of variety of asbestos in the country**" conducted in May 2012.

**Response by the applicant to affidavit dated 24.09.2024**

21. The applicant submitted his response to affidavit dated 24.09.2024 filed by MoEF&CC in his reply to sur rejoinder filed by respondent no. 4-FCPMA.

22. This Tribunal considered the matter on 25.09.2024 and observed that though an affidavit dated 24.09.2024 has been filed by MoEF& CC but no specific reply has been given in respect of scientific study on the question

posed by Tribunal in para 6 of order dated 18.07.2024. This Tribunal further observed in order dated 26.11.2024 that by order dated 25.09.2024 MoEF & CC was again directed to get study conducted by constituting an expert committee comprising of specialist of multidiscipline and submit report but the above said orders were not complied with and ordered personal appearance of officer of MoEF & CC not below the rank of Joint Secretary.

**Affidavit dated 13.12.2024 filed by MoEF & CC**

23. In compliance of orders dated 18.07.2024, 25.09.2024 and 26.11.2024, besides appearance of the concerned officers, compliance affidavit/report dated 13.12.2024 was filed by MoEF&CC.

24. Vide order dated 17.12.2024 the applicant was granted opportunity to file objections/suggestions to the report dated 13.12.2024 filed by MoEF & CC.

**Objections/suggestions by the applicant to Additional Study Report filed by MoEF&CC**

25. In compliance thereof, response to the affidavit dated 13.12.2024 of MoEF & CC was filed by the applicant vide email dated 20.02.2025.

26. Vide order dated 17.12.2024 this Tribunal directed the Multi-Disciplinary Experts Committee to look into the aspect of desirability or otherwise of future use of asbestos as part of roof material in the schools and also explore the possibility of use of alternative in place of asbestos in manufacturing of roof sheets etc.

**Additional status report dated 22.02.2025 filed by MoEF & CC**

27. In compliance thereof Additional Status Report dated 22.02.2025 was filed by MoEF & CC.

28. In the Additional Status Report dated 22.02.2025 MoEF&CC has further submitted that during hearing on 17.12.2024, this Tribunal desired a comment/response from the Indian Institute of Toxicology Research (CSIR-IITR) but CSIR-IITR through its email dated 29.01.2025 and subsequent email dated 18.02.2025 apprised that at present CSIR-IITR, Lucknow does not have expertise in the desired area for the said Expert Committee.

**Response dated 04.04.2025 filed by the applicant to the MoEF&CC Expert Committee Additional Report dated 21.02.2025**

29. The applicant filed response dated 04.04.2025 to the MoEF&CC Expert Committee Additional Report dated 21.02.2025.

30. For the sake of brevity and avoiding repetition the submissions made in reply filed by respondent no. 4, rejoinders filed by the applicant, sur-rejoinder filed by respondent no. 4, reply to sur-rejoinder filed by the applicant, additional documents filed by the applicant vide application dated 15.02.2024, responses/reports filed by MoEF & CC and responses to the same filed by the applicant are not reproduced herein and the same will be referred to/discussed in later part of the Judgment.

31. Vide order dated 24.03.2025 MoEF & CC and CPCB were directed to file additional response as to whether any SOP has been formulated regarding installation and dismantling/disposal of asbestos roof sheets/wall sheets and to file copy of the SOP if already framed and to formulate such SOP if not already framed and file additional response.

32. However, MoEF&CC and CPCB did not file any additional response in this regard.

33. We have heard submissions made by the applicant-Mr. Raja Singh and Mr. Narender Pal Singh, learned Counsel for respondent no. 1; Mr. Gi. Gi. C. George and Mr. Sunil Kumar, learned Counsels for respondents no. 2 and 3; Ms. Rashmi Virmani, Mr. Ankit Virmani and Mr. Hrithik Sharma, learned Counsels for respondent no. 4 and Mr. Srinivas Vishven, learned Counsel for CPCB and we have gone through the material on record carefully.

34. In their arguments the applicant and learned Counsels for the respondents have reiterated the factual and legal submissions made in the application and respective replies.

**Whether this Tribunal has jurisdiction to entertain the present application and grant the relief s prayed for by the applicant?**

35. Respondent no. 4-FCPMA has taken the objection that the present original application is not maintainable as it does not relate to implementation of any law mentioned in the Schedule I to the National Green Tribunal Act 2010, and instead seeks relief which are purely in the realm of policy.

36. In rejoinder filed to the reply of respondent no. 4-FCPMA, the applicant has pleaded the objection to be wrong and misconceived as the same totally disregards the Air (Prevention and Control of Pollution) Act, 1981 as well as the Environment (Protection) Act, 1986. The applicant has submitted that the issue is about release of asbestos fibres from weathered asbestos cement sheets which have been used in school buildings. These fibres are released into the air of the school and the surroundings and become an “air pollutant”

as defined in Section 2 (a) of the Air (Prevention and Control of Pollution) Act, 1981 and cause "air pollution" as defined in Section 2 (b) of the Air (Prevention and Control of Pollution) Act, 1981. As admitted by MoEF & CC, asbestos fibres released can enter water as well as soil from weathering, renovation, or demolition of manufactured asbestos products. This clearly indicates that not only can the Air (Prevention and Control of Pollution) Act, 1981 be violated, but also the Water (Prevention and Control of Pollution) Act, 1974. With respect to the issue of indoor pollutant this Tribunal in Raja Singh v. Union of India & Ors. (OA 206/2022 judgment dated 19.04.2022) has ruled that 'indoor air quality can be regulated in respect of public places' and that 'there is no statutory bar to regulation of indoor air quality under the Air (Prevention and Control of Pollution) Act, 1981 or the Environment (Protection) Act, 1986 and the Rules framed under the same. The same judgement in paragraph 10 also listed sources of indoor air pollutants as including building materials, formaldehyde, volatile organic compounds, radon, asbestos, particulate matter, gaseous pollutants and biological pollutants. Asbestos fibre pollution in the air caused by use of asbestos cement roofing is well within the scope and mandate of the Air (Prevention and Control) of Pollution Act, 1981 read along with the Environment (Protection) Act, 1986 and rules framed under the same.

37. On the issue of the use of the phrase 'realm of policy making' the applicant has submitted that NGT is not merely an adjudicatory body, but a regulatory body in essence. In this regard, the applicant has referred to the observations made by the Hon'ble Supreme Court in **Municipal Corporation of Greater Mumbai v. Ankita Sinha & Ors (C.A. No. 12122 of 2018)** and **Director General (Road Development) National Highways Authority of India vs Aam Aadmi Lokmanch and Others (2021) 11 SCC 566**.

38. So far as the objection as to jurisdiction of this Tribunal and also as to the relief sought being in the realm of policy making, we find force in the submissions made by the applicant. While submitting that asbestos in the building does not spontaneously release fibres, respondent no. 1-MoEF & CC has admitted in its reply that asbestos can enter the air, water, and soil from the weathering, renovation, or demolition of manufactured asbestos products and people are likely to be exposed to asbestos through inhalation of airborne fibres. Asbestos fibers will fall within the definition of "air pollutant" under section 2 (a) of the Air (Prevention and Control of Pollution) Act, 1981 and "environmental pollutant" under section 2 (b) of the Environment (Protection) Act, 1986 and air, water and soil pollution caused by asbestos fibres will fall within definition of "environmental pollution" under Section 2 (c) of the Environment (Protection) Act, 1986 and within definition of "pollution" under section 2 (e) of the Water (Prevention and Control of Pollution) Act, 1974 and "air pollution" under section 2(b) of the Air (Prevention and Control of Pollution) Act, 1981.

39. This Tribunal has held in **order** dated 19.04.2022 passed in O.A. No. 206/2022 Raja Singh v. Union of India & Ors. that 'indoor air quality can be regulated in respect of public places' and that 'there is no statutory bar to regulation of indoor air quality under the Air (Prevention and Control of Pollution) Act, 1981 or the Environment (Protection) Act 1986 and the Rules framed under the same.

40. In view of sections 14 and 15 of the National Green Tribunal Act, 2010 this Tribunal has jurisdiction to entertain and decide the present case involving substantial questions relating to environment arising out of the implementation of the Water (Prevention and Control of Pollution) Act, 1974,

the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986.

41. This Tribunal was conceived as a specialized forum to deal with all environmental multi-disciplinary issues both as original and also as an appellate authority, which complex issues were prior to the enactment of the National Green Tribunal Act, 2010 dealt with by the Hon'ble High Court and the Hon'ble Supreme Court. The Tribunal is expected to proceed with the environmental matters with the under standing that environment and environment principles are part of Article 21 of the constitution. **[See Vellore Citizens' Welfare Forum Vs. Union of India (1996) 5 SCC 647 and M.C. Mehta (Taj Trapezium Matter) Vs. Union of India (1997) 2 SCC 353].** This Tribunal is not just an adjudicatory body but has to perform wider functions in the nature of prevention, remedy and amelioration. This aspect was specifically flagged in the 186th Law Commission Report. In ***Municipal Corporation of Greater Mumbai V/s. Ankita Sinha and others 2021 SSC Online SC 897*** Hon'ble Supreme Court noticed the uniqueness of this Tribunal vis-à-vis other Tribunals and observed that this Tribunal has sui generis characteristic with the special and all-encompassing jurisdiction to protect the environment. Besides its adjudicatory role as an appellate authority, it is also conferred with the responsibility to discharge role of supervisory body and to decide substantial questions relating to the environment.

42. In view of the above the present original application is not liable to be dismissed on the ground of lack of jurisdiction or the relief sought being in the realm of policy.

43. The material facts emerging from the material on record may be referred to before adverting to and adjudicating upon the substantial environmental questions involved in the case.

**About Asbestos and its varieties**

44. The mineralogical classification divides asbestos into two groups-(a) the Amphibole group which includes Actinolite, Amosite, Crocidolite, Tremolite, Anthophyllite and (b) the Serpentine group which includes Chrysotile.

45. The Crocidolite, Actinolite, Anthophylite, Amostile, Tremolite varieties of asbestos are listed in Annexure-III (List of certain hazardous Chemicals and Pesticides) of the Rotterdam Convention and are subject to Prior Information Consent (PIC) procedure by the exporting country for the imports to India. However, the Chrysotile asbestos is not included in Annexure-Ill of the Rotterdam Convention and is imported without any prior consent.

46. During the recent Conference of Parties held from 1st May —12th May 2023 at Geneva (COP 11), India has along with other countries categorically opposed a move to insert chrysotile in Annexure III to the Rotterdam Convention as most of the asbestos industries in India followed the wet processes which minimize the dispersion of asbestos fibers in the air.

**Use of Asbestos**

47. In its reply filed vide email dated 26.12.2023 respondent no. 1-MoEF & CC has mentioned that asbestos is a hydrated mineral silicate, which is generally fibrous & brittle. It has a variety of industrial applications due to its resistance to heat and chemicals, high tensile strength, and lower cost

compared to man-made minerals. Asbestos is mainly used in a wide range of manufactured goods mostly in building materials (roofing shingles, ceiling and floor tiles, paper products, and asbestos cement products), friction products (automobile clutch, brake, and transmission parts), heat-resistant fabrics, packaging, gaskets, and coatings.

**Adverse impact of Asbestos on human health.**

48. In "Study of health hazards/Environmental hazards resulting from use of chrysotile variety of asbestos in the country" conducted by National Institute of Occupational heath, (Indian Council of Medical research), Meghani Nagar, Ahmedabad. Adverse impacts of asbestos on human health are noticed as under:-

> *"Asbestos fibers when breathed in may get trapped in the lungs and may remain there for a long time. Over time, these fibers can accumulate and cause scarring and inflammation, which can affect breathing and lead to serious health problems. Asbestos has been classified as a known human carcinogen (a substance that causes cancer) by the U.S. Department of Health and Human Services, the EPA, and the international Agency for Research on Cancer Studies have shown that exposure to asbestos may increase the risk of lung cancer and mesothelioma (a relatively rare cancer of the thin membranes that line the chest and abdomen). Although rare, mesothelioma is the most common form of cancer associated with asbestos exposure. In addition to lung cancer and mesothelioma, some studies have suggested (though inconclusively) an association between asbestos exposure and gastrointestinal and colorectal cancers, as well as an elevated risk for cancers of other organs like esophagus, gallbladder etc. Asbestos exposure may also increase the risk of asbestosis (a chronic lung disease that can cause shortness of breath, coughing, and permanent lung damage) and other nonmalignant lung and pleural disorders, including pleural plaques (changes in the membrane surrounding the lung), pleural thickening, and pleural effusions (abnormal collections of fluid between the thin layers of tissue lining the lung and the wall of the chest cavity). Although pleural plaques are not precursors to lung cancer, evidence suggests that people with pleural disease caused by asbestos exposure may be at increased risk for lung cancer.*
>
> *The occurrence of health effects of asbestos exposure also depends upon the type of asbestos used. While the occurrence of asbestosis, lung cancer and mesothelioma is widely reported with the use of amphibole variety there are inconclusive reports*

*about the serpentine variety. The serpentine variety is a thin-walled sheet silicate while the amphiboles are double chain silicates. These different chemistries result in chrysotile clearing very rapidly from lungs (11 days) while amphiboles are among the slowest clearing fibres (500 days. Due to these reasons some of the studies carried out among groups exposed to chrysotile asbestos concluded that it does not appear to contribute to the lung cancer burden or excess mortality'. The dose and duration of exposure also plays an important role in the occurrence of clinical effects. A median exposure of 10-20 fibre years does not seem to cause an increased risk of lung cancer, particularly when chrysotile is used. Moreover, progressive improvement in occupational hygiene in a developing country is likely to reduce the risk of non-malignant consequences of dust inhalation in chrysotile miners and millers.*

*Asbestos exposure when combined with exposure to other toxicants may increase risk of carcinogenesis. Adsorption of components of cigarette smoke onto the surface of chrysotile fibres has been suggested to play a role in the etiology of lung cancer in fibre-exposed cigarette smokers."*

49. In O.A. No. 649/2022- Narender Pratap Singh Vs. Central Pollution Control Board & Anr., this Tribunal also noticed adverse health impact of asbestos and observed in para no.26 of its Judgment dated 17.07.2023 as under:-

*"However, we consider it necessary to observed the exposure to Asbestos is risk factor for developing disabling & deadly lung diseases years after the exposure. Inhaling asbestos fibers can lead to scarring of the lung tissues, which can result in the loss of lung function, disability & death. Asbestos exposure can also cause cancer in the lungs & cancer (known as Mesothelioma) in the lining of the lungs or stomach. There is no safe level of asbestos exposure."*

**No Safe limit of asbestos exposure**

50. As pointed out by the applicant, asbestos is an issue directly related to the causation of cancer as a Group 1 carcinogen. In 'Environmental Health Criteria 203: Chrysotile Asbestos', in its recommendation section, it has been clearly mentioned that 'No threshold has been identified for carcinogenic risks' (Page no. 1543 of the paper book). The Expert committee in report dated 13.12.2024 has submitted that 'even low dose exposure to asbestos

can result in a disease' after several years (Page no. 1738 of the paper book). In **OA 649/2022 Narender Pratap Singh vs CPCB & Ors** this Tribunal also observed in para no.26 of judgment dated 17.07.2023 that there is no safe level of asbestos exposure.

**Import and use of Asbestos is not banned in India**

51. Even though the Government of India has banned mining of asbestos in the Country since 1996 but Government of India has not banned the import and use of asbestos in the country.

**Question as to whether or not use of asbestos should be prohibited in India.**

52. The question as to whether or not use of asbestos should be prohibited in India has already been decided by the Hon'ble Supreme Court in **Kalyaneshwari vs, UOI and Ors, (2011) 3 SCC 2871** wherein the Hon'ble Supreme Court was pleased to decline the prayer for ban on use of asbestos by holding inter alia as under:

> *"21. As already noticed, there is no law banning the use of asbestos in various manufacturing processes despite its adverse effects on human health. It is not for this Court to legislate and ban an activity under relevant laws. Every factory using or manufacturing asbestos, obtains a licence under the Factories Act as well as permission from the competent authorities including permission under the Environmental Laws. Once all the laws in force have been complied with and directions of this Court as contained in the case of Consumer Education and Research Centre (supra) are carried out in their true spirit, we see no reason as to why this Court, in exercise of its extraordinary jurisdiction under Article 32 of the Constitution, should ban such an activity when admittedly large number of families are dependent upon such processes. What has to be ensured is that proper precautions are taken. The Court had already made ILO guidelines as one of the safety measures to be complied with by the industries and it is expected of each State Government and the Union Government to ensure safe and controlled use of asbestos. What is required is better supervision and regulatory control rather than banning of the activity."*

53. Even though the use of asbestos is not banned in India but use of asbestos in India is regulated by the following measures:-

**(i) Emission standards for Asbestos Based Products Manufacturing Industries' notified in March, 2006 by Ministry of Environment, Forest & Climate Change under Environmental (Protection) First Amendment Rules, 2006.**

Revised emission standards for `Asbestos Based Products Manufacturing Industries' were notified in March, 2006 by MoEF & CC under Environmental (Protection) First Amendment Rules, 2006. Item 27 under Schedule I of the Environment (Protection) Rules, 1986 provides for standards for emission for all types of asbestos manufacturing units (including all processes involving the use of asbestos). These are fixed at "0.5 fibre /cc for one year from the date of notification 0.2 fibre /cc [after one year from the date of notification] 2 mg/m3 (normal).

**(ii) Concentration limits of asbestos in air are provided under the Environment (Protection) Rules, 1986.**

The 'General Emission Standards — Part D' notified under the Environment (Protection) Rules, 1986 also prescribe concentration-based limits of asbestos. These are "4 Fibres/cc and dust should not be more than 2 mg/Nm3".

**(iii) Standards for asbestos cement roof sheets are laid down by Bureau of Indian Standards.**

The Bureau of Indian Standards ("BIS") has laid down a large number of standards for asbestos-cement products and their safe use and handling

(details @ pp.481-484 of Reply of R4). For laying down specifications for asbestos cement corrugated and semi-corrugated roof sheets, BIS has laid down Indian Standard (IS) 459:1992.3.

**(iv) Compliance with BIS has been made mandatory w.e.f 07.09.2024**

Recently, the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry has notified the 'Asbestos or Fibre Cement based Products (Quality Control) Order, 2024' in the Official Gazette on 07.03.2024 which came into force w.e.f. 07.09.2024. This order, passed under S.16 of the Bureau of Indian Standards Act, 2016, mandates compliance with relevant BIS standards including IS 459:1992 and provides for penalty for contravention of its provisions.

**(v) Enforcement through SPCBs/PCCs and Monitoring by MoEF&CC**

All these standards are enforced through the State Pollution control Boards/Pollution Control Committees and are monitored by MoEF & CC.

**(vi) Requirement of prior Environment Clearance for setting up asbestos manufacturing plant.**

The MoEF&CC requires any industry seeking to engage in manufacture of asbestos-based products to apply for and obtain a prior Environmental Clearance (EC) under the Environment Impact Assessment Notification, 2006 (Item 4(c) in the Schedule). EC is granted subject to environmental safeguards.

**(vii) Regulation under the Factories Act, 1948.**

The Factories Act, 1948 contains significant regulations governing the asbestos industry.

(i) As per the provisions contained under Section 2(cb) of the Factories Act, 1948 the "Manufacture, handling and processing of Asbestos and its products" is declared as a hazardous process and the same is listed in the First Schedule of the Act and accordingly provisions of Chapter IV-A of the Act relating to hazardous processes are applicable to such factories.

(ii) The permissible levels of asbestos fibre in work environment are given in Second Schedule of the Factories Act,1948 (0.1 fibres/cc).

(iii) Section 7A of the Factories Act,1948 provides that every occupier shall ensure, so far as reasonably practicable, the health, safety and welfare of all workers while they are at work in the factory registered under the Factories Act,1948.

(iv) Further, Section 89 of the Factories Act,1948 prescribes that where any worker in a factory registered under the Act contracts any notifiable disease, including Asbestosis, specified under the Act, the manager of the factory shall report the same to the Chief Inspector of Factories and other authorities in their State Factories Rules which is enforced by the State Governments who are empowered under the Act to initiate penal action under Section 92 of the Act for violation of any of the provision of the Act and the Rules framed thereunder.

**(viii) Guidelines issued for Safe Use of Products Containing Asbestos**

Bureau of Indian Standards adopted “Indian Standards Guidelines for Safe Use Of Products Containing Asbestos. Part-I Asbestos Cement products”. (Copy at pages no. 1211 to 1231 of the paper book) on 30.04.1987. The relevant part of the Forward in the guidelines reads as under:-

> *“0.2 In recent years there has been a growing awareness that exposure to asbestos dust can have harmful effects on the health of workers. In order to give guidance on how the risk of exposure*

*to asbestos dust can be prevented, controlled or minimized, it was felt necessary to lay down some standards regarding safe use of different products containing asbestos, improving conditions in workplaces, preventive measures, protection and supervision of the health of workers, packaging and transport, disposal of asbestos waste, etc. This standard laying down guidelines for safe use of products containing asbestos has been prepared in three parts. This part of the standard lays down guidelines for safe use of asbestos cement products. Guidelines for safe use of friction materials containing asbestos and non-cement asbestos products other than friction materials are covered in Parts 2 and 3 respectively.*

*0.3 Asbestos cement products generally contain 10 to 15 percent asbestos fibres in a cement matrix that comprises the rest of the material and are termed as 'locked-in' asbestos products as these products have the asbestos fibres bound in cement. There is very little possibility of generation of airborne asbestos fibres during any reasonable handling, transport, storage and use of such products. However, during storing and installation, recommended work practices shall be followed to avoid harmful dust exposures.*

*0.4 In the formulation of this standard, due weightage has been given to international co-ordination among the standards and practices pre-vailing in different countries in addition to relating it to the practices in the field in this country. This has been met by deriving assistance from 'ILO Codes of practice: Safety in the use of asbestos', 1984 published by the International Labour Office, Geneva and ISO 7337 Asbestos reinforced cement products-Guidelines for on-site work practices, published by the International Organization for Standardization."*

The above said guidelines contain specific provisions with respect to (i) receiving and storing of asbestos cement products, (ii) work on site, (iii) working processes and recommended tools, (iv) tools specification, (v) waste disposal, (vi) warning and (viii) safety rules sheet.

**(ix) Measures for regulating safe use of Asbestos**

Safe use of Asbestos is regulated by the following measures :-

*"(i) The First Schedule under Section 2 (cb) of the Factories (Amendment) Act, 1987 enlists Industries involving hazardous process wherein the asbestos fibre related work in asbestos cement product industries is identified as "Hazardous Process.*

*(ii) Under Section 41C of the Factories (Amendment) Act, 1987 the Occupier of the factory is assigned specific responsibility in relation to hazardous process. It involves: (a) Maintenance and update of health record of workers; (b) Medical examination of every worker and (c) Appointment of competent person.*

*(iii)According to the Third Schedule and section 89 of the Factories Act, Asbestosis comes under the list of Notifiable Occupation Diseases. It is also compensable under the Employee's Compensation Act, 1923 and Employees' State Insurance Act, 1948.*

*(iv) The occupier of the factory carrying a 'Hazardous Process' shall provide and maintain in good order in Occupational Health Centre with the service and facilities as per scale laid down under Factories Act.*

*(v) Model Rules are framed by Directorate General. Factory Advice Service and Labour Institutes (DGFASLI) under the Factories Act. Schedule XIV of Model Rules under Section 87 on "Handling and Processing of Asbestos, Manufacture of any Article or Substance of Asbestos and any other Processes of Manufacture or otherwise in which Asbestos is used in any Form", provides the detailed guidelines on various aspects of safety and health for asbestos handling. The Factories Act, 1948 and the State Factories Rules framed thereunder are enforced by the respective State Governments.*

**Recommendations made by CPCB to reduce the human risk of asbestos exposure.**

54. The Central Pollution Control Board had issued a report titled "Human Health Risk Assessment Studies in Asbestos Based Industries in India" 2008. In the report, various recommendations have been made to reduce the human risk of asbestos exposure.

**Occupational and non occupational exposure to asbestos**

55. There are two broad types of exposures to asbestos occupational and non- occupational which may be described as follows:-

*"**a. Occupational Exposure to the asbestos fibres**: This can happen during mining of asbestos, transportation of asbestos, processing and manufacturing of asbestos products, dismantling of ships containing asbestos and installation of asbestos materials. This may also include para occupational exposure where the allied persons directly or indirectly to the above get exposed.*

***b. Non occupational exposure to asbestos**: This happens when a person is exposed to asbestos fibres when using a building, or utility service containing asbestos. This may also include the exposure when the building materials after use are demolished and not disposed of properly and is available in the vicinity of non-occupational users."*

**Directions given by Hon'ble Supreme Court**

56. In **Consumer Education and Research Center and others vs. Union of India and others (1995) 3 SCC 42** Hon'ble Supreme Court gave directions and the relevant para of the judgment is reproduced as under:-

> *"31. The writ petition is, therefore, allowed. All the industries are directed (1) To maintain and keep maintaining the health record of every worker up to a minimum period of 40 years from the beginning of the employment or 15 years after retirement or cessation of the employment whichever is later; (2) The Membrane Filter test, to detect asbestos fibre should be adopted by all the factories or establishments at par with the Metalliferrous Mines Regulations, 1961; and Vienna Convention and Rules issued thereunder; (3) All the factories whether covered by the Employees State Insurance Act or Workmen's Compensation Act or otherwise are directed to compulsorily insure health coverage to every worker; (4) The Union and the State Governments are directed to review the standards of permissible exposure limit value of fibre/cc in tune with the international standards reducing the permissible content as prayed in the writ petition referred to at the beginning. The review shall be continued after every 10 years and also as an when the I.L.O. gives directions in this behalf consistent with its recommendations or any Conventions; (5) The Union and all the State Governments are directed to consider inclusion of such of those small scale factory or factories or industries to protect health hazards of the worker engaged in the manufacture of asbestos or its ancillary products; (6) The appropriate Inspector of Factories in particular of the State of Gujarat, is directed to send all the workers, examined by the concerned ESI hospital, for re-examination by the National Institute of Occupational Health to detect whether all or any of them are suffering from asbestosis. In case of the positive Ending that all or any of them ant suffering from the occupational health hazards, each such worker shall be entitled to compensation in a sum of rupees one lakh payable by the concerned factory or industry or establishment within a period of three months from the date of certification by the National Institute of Occupational Health."*

**Directions given by this Tribunal in Original Application No. 649/2022 titled Mr. Narender Pratap Singh v. Central Pollution Control Board and Ors.**

57. In Original Application No. 649/2022 titled **Mr. Narender Pratap Singh v. Central Pollution Control Board and Ors.** keeping in view the hazards of exposure associated with the handling of asbestos the Project Proponent was directed to implement the following measures for protecting worker, their family members/persons coming in contact with them and residents of the locality:-

**(i) Protecting Workers:**

The employers are required to protect workers by assessing asbestos levels, marking of regulated areas, posting hazard signs, engineering controls (ventilation systems with appropriate filters) and appropriate green belt and other technological measures to reduce level of asbestos in the air. The proper use of Personal Protective Equipment (PPE), need to be made mandatory for the workers.

**(ii) Measures for Controlling Exposure:**

- Smoking, eating or drinking in areas where asbestos exposure is possible should be prohibited.
- Dry sweeping, shoveling or other dry cleanup of dust & debris containing asbestos should be avoided.
- Wearing protective outer clothing that can be removed & cleaned or discarded should be made mandatory.
- Washing exposed parts of the body with soap and water should be mandatory.
- All precautions need to be taken to avoid carrying asbestos fibres out of worksite where they can later be inhaled by others (Viz. family members at home).

**(iii) Medical Monitoring:**

Periodical exposure monitoring & medical surveillance of workers should be made mandatory.

**(iv) Training:**

- The workers, who may be exposed to airborne concentration of asbestos at or above Permissible Exposure Limit (PEL), need to be trained prior to initial assignment and at least annually thereafter.
- The training programme must include information on the following:-

- The Health Effects associated with asbestos exposure
- The relationship between smoking and asbestos exposure in producing lung cancer.
- The quality, location, manner of use, release, and storage of asbestos, and the specific nature of operations which could result in exposure to asbestos.
- The engineering controls and work practices associated with the worker's job assignment.

58. In that case this Tribunal also directed CPCB to issue appropriate guidelines covering similar asbestos based industries operating in the Country to strictly ensure compliance with EC and consent conditions as well as to follow the measures suggested in para 26 above for mitigating adversarial impacts of asbestos exposure on human health and environment.

**Non-occupational exposure to asbestos in the Schools.**

59. In the present case, the applicant has himself clarified and emphasized that **this application is not about a blanket ban of asbestos in the country and that this application pertains to the non-occupational**

**exposure to asbestos in Schools and is about phasing out asbestos roofing in schools under Air (Prevention and Control of Pollution) Act 1981 read with the Environmental (Protection) Act, 1986 and precautionary principle embodied by Section 20 of the National Green Tribunal Act, 2010 as an issue of health of the children.**

60. The applicant has raised the issue of non-occupational exposure to asbestos in Schools due to its use as roofing materials and the applicant has submitted that non-occupational damage caused due to the asbestos in the Schools as raised in his application has not been considered earlier in any matter by the Hon'ble Supreme Court or this Tribunal.

61. In rejoinder filed vide email dated 12.12.2023 and application for filing additional documents the applicant has mentioned that the applicant sought information from the States, Central Agencies Kendriya Vidyalaya Sangathan, Atomic Energy Board Schools and CPWD and other departments and mentioned number and other details of the schools in States of Goa, Kerala, Odisha and NCT of Delhi and also schools under Kendriya Vidyalaya Sangathan and Atomic Energy Board having asbestos containing material/cement asbestos roofs and the applicant has submitted that it may be full of risk to neglect the presence of the asbestos roofs in the schools, especially when schools in other parts of the world have shown the harmful effects of the presence of asbestos in the schools' buildings to the health of the students and the manifestation of the disease occurs many years after exposure during the students' lives. The applicant has further submitted that the commercial interests cannot be protected at the cost of health and that in view of the precautionary principle if there are potential irreversible damages, the lack of scientific certainly should not be a reason for postponing measures to prevent environmental degradation.

62. In its reply and sur rejoinder respondent no. 4-FCPMA has submitted that Actinolite, Amosite, Crocidolite, Tremolite and Anthophyllite are not used by its members who use Chrysotile (or white asbestos) which constitutes 95% of the world production and commercial use and its controlled use is considered safe.

63. The applicant has submitted that the existing schools and other buildings in the country which have asbestos cement roofing for more than 8 decades, as claimed by the respondent no. 4-FCPMA may have used all varieties of asbestos, apart from Chrysotile, in the past.

**About Asbestos cement products**

64. In its reply Respondent no. 4-FCPMA has submitted that asbestos cement products are different from friable or crumbly asbestos which was earlier used in Western countries, including in buildings for insulation etc. The latter form of asbestos, when dry, was reduced to powder by applying hand pressure. Such products were used in the Western countries when harmful effects of such asbestos were not known. The asbestos varieties and products used in western countries were different and distinct from asbestos cement products that are manufactured by members of respondent no.4-FCPMA and are used in India. Members of respondent no.4-FCPMA use the chrysotile variety of asbestos in the manufacture of asbestos cement products, including roofing sheets. Chrysotile variety can be used safely under controlled conditions (and safety of the product is, in any case, further reinforced when chrysotile is firmly bound with cement).

**The key ingredients of asbestos cement**

65. In its reply respondent no. 4-FCPMA has submitted that the key ingredients of asbestos cement (also known as `fibre cement') products, including roofing sheets, manufactured by the members of respondent no.4 are (concentration by weight) (a) Chrysotile (white asbestos) fibres - 7-9%; (b) Cement - about 40%; (c) Fly Ash - about 30%; and (d) the rest comprising of pulp and water.

**Whether Asbestos cement roof sheets are safe**

66. In its reply and sur rejoinder respondent no. 4-FCPMA has submitted that during the manufacturing process, the asbestos fibres are firmly 'locked' into the cement matrix and cannot be emitted into the atmosphere under normal use. Asbestos cement roof sheets are a high-density material having density of 1.4 gram per cc and chrysotile fibre is firmly locked in Fibre Cement matrix with cement. As such, even after fixing of the sheet on the roof, there is virtually no chance of fibre being air borne even on weathering or breakage.

67. In its reply respondent no. 4-FCPMA has also mentioned that precautions and safety measures are taken by its members during the manufacturing process to ensure inter alia that directions of Hon'ble Supreme Court of India given in **Consumer Education and Research Centre v. Union of India, (1995) 3 SCC 42** as well as all relevant laws in this regard are rigorously followed and implemented.

68. Respondent no. 4-FCPMA has mentioned that following measures are taken by its members to adhere to the guidelines set down by the Hon'ble Supreme Court at para 31 of the above judgment:-

> *"i. Members of the answering Respondent maintain health records of every worker up to a minimum period of 40 years from*

*start of employment or 15 years after retirement or cessation of employment, whichever is later.*
*ii. Members of the answering Respondent conduct Membrane Filter Test in all factories to detect asbestos fibre at par with Metalliferrous Mines Regulation 1961 and Vienna Convention and Rules thereunder.*
*iii. Every worker is given health insurance coverage — irrespective of whether or not such worker is covered by Employees' State Insurance Act, 1948 Act or Workmen's Compensation Act, 1923.*
*iv. Members of the answering Respondent strictly adhere to the permissible exposure limit (0.1 fibre/cc).*
*b. the exposure of workers to asbestos fibre is minimized and is below the prescribed standard of 0.1 fibre/cc;*
*c. emissions from the units are below prescribed standards."*

69. In its reply respondent no. 4-FCPMA has mentioned other safety measures taken by its members which include regular monitoring of stack emissions, ambient air quality, workplace air conditions, noise levels, and effluents. The results are submitted to the SPCB/PCCs whenever required by the SPCB/PCCs. The Bureau of Indian Standards (BIS) has issued 16 recommendations concerning the "Safety in Handling and Use of Asbestos." and the members of respondent no.4-FCPMA diligently adhere to these recommendations to ensure safety and compliance. Further, the Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry has passed an order dated 06.03.2024 published *in* the official gazette of India titled as `**Asbestos or Fibre Cement based Products (Quality Control) Order, 2024**' in order to regulate quality of asbestos/fibre cement products. This order also provides for penalty for contravention in case of violation of its provision. Even the authorities are proactive in implementing the regulations for safe use of asbestos. This includes ensuring that conditions of all permits, clearances etc. are duly adhered to by the industry, the permissible exposure limits are not breached, etc.

70. Respondent no.4-FCPMA has submitted that Asbestos cement sheets (a) are strong and durable (b) are non-corrosive, fire resistant and insulating

(c) are economical (d) do not entail depletion of natural resources and (e) are major consumers of fly ash— an industrial waste material and environmental pollutant. Asbestos cement roof sheets have been in use in India for more than eight decades, and to the knowledge of respondent no.4-FCPMA there have been no health hazards issues connected with the use of these sheets.

71. Respondent No. 4-FCPMA has submitted that the asbestos-cement products (including roof sheets) manufactured by the members of Respondent no. 4-FCPMA strictly conform to the applicable BIS specifications. In compliance with IS 459:1992, the members of respondent no. 4-FCPMA provide the safety rules sheet at the time of delivery of every asbestos cement sheet as per clause 13 of the said standard.

72. The Applicant has alleged that IS 11769 (Part I) -1987,4 being the relevant BIS standard for safe use of asbestos roof sheets in schools, does not consider the weathering of such roofing and talks about manual methods for cutting and drilling of asbestos cement roofing.

73. Respondent no.4 has submitted that IS 11769 (Part 1) -1987 (a) categorically recognizes that asbestos fibres are bound in cement and "there is very little possibility of generation of airborne asbestos fibres during any reasonable handling, transport, storage and use of such products ..."; and (b) recommends inter alia the following measures for avoiding dust exposure during handling and installation: (a) hand tools or slow running tools that produce only coarse dust or chips may be preferred over high-speed machines which generate inhalable dust; (b) When high speed tools are used, they shall be fitted with efficient dust extraction equipment designed for the purpose and (c) use of power operated drills for drilling.

**Scientific evidence regarding adverse health impact of non-occupational exposure to asbestos relied upon by the applicant**

74. In para 9 of the original application the applicant referred to a research study published in the most reputed Nature Journal titled **"The natural reduction of threat in selected systems of old buildings containing asbestos"** (copy attached as Annexure A with the original application) recently in 2022. The paper in its conclusion states as follows:-

> *"Active behaviour in buildings with asbestos is a cause of above-normal dust pollution. For this reason, children and young people should not use buildings with asbestos regardless of their physical condition."*

75. In para 15 of the original application the applicant has referred to information on landing page of WHO which reads as under:-

> *"15. That the World Health Organisation in its landing page https://www.who.int/teams/environment-climatechange-and-health/chemical-safety-and health/health-impacts/chemicals /asbestos on asbestos also states that 'all types of asbestos cause lung cancer, mesothelioma, cancer of the larynx and ovary, and asbestosis (fibrosis of the lungs). It also highlights exposure of asbestos through inhalation 'in indoor air in housing and buildings containing friable (crumbly) asbestos materials. The screenshot of the website of the World Health Organisation is attached as Annexure G."*

76. In rejoinder filed to the reply of respondent no. 4-FCPMA the applicant has referred to the following scientific studies/material in support of submissions made in the original application:-

> ***"POSITION OF THE WORLD HEALTH ORGANISATION ON THE USE OF CHRYSOTILE ASBESTOS CEMENT ROOFING SHEET AND ITS EFFECT ON HEALTH***
> *16. The World Health Organisation came out with a publication called 'Chrysotile Asbestos' in 2014. In this document it is stated as follows:*
> *'Bearing in mind that there is no evidence for a threshold for the carcinogenic effect of asbestos, including chrysotile, and that increased cancer risks have been observed in populations*

*exposed to very low levels, the most efficient way to eliminate asbestos-related diseases is to stop using all types of asbestos. Continued use of asbestos cement in the construction industry is a particular concern, because the workforce is large, it is difficult troll exposure, and in-place materials have the potential to deteriorate and pose a risk to those carrying out alterations, maintenance, and demolition. In its various applications, asbestos can be replaced by some fibre materials and by other products that pose less or no risk to health.' For the sake of schools, the use of asbestos cement sheets, learning from the above, may be phased out in India. The publication titled 'Chrysotile Asbestos' by the World Health Organisation is attached as Annexure F*

***RECENT SCIENTIFIC EVIDENCE OF TOPICS RELATED TO THE RELEASE OF ASBESTOS FIBRES FROM ASBESTOS CEMENT SHEETS OVER TIME DUE TO WEATHERING, DETIORATION AND DECAY***

*17. The humble applicant, most respectfully prays to assist this Hon'ble Tribunal and states the following scientific studies:*

*a. In the study titled 'Releasability of asbestos fibers from weathered roof cement' by Andrew F Oberta, Lee Poye and Steven P Compton from 2018, it has been stated that: 'Chrysotile asbestos fibers were added to roofing products, including roof cement, for several decades. The fibers were described as "encapsulated" and therefore incapable of being released, an assertion that is disproved by the study therein.'*

*The study also went on to state that the disturbance also increases the chance of release and inhalation. The study is attached as Annexure G.*

*b. In the study titled 'Surface of Asbestos-cement (AC) Roof Sheets and Assessment of the Risk of Asbestos Release by Jerry Dyczek it was stated follows:*

*'...corrugated roof sheets were investigated on the older (40 years old) roof of a building in an industrialised area in Southwest Poland, were acid rain is rather frequent. Acid rain wears down the matrix and asbestos fibres ae exposed..' 'Fibres are clean, uncovered by calcium carbonated or calcium silicate hydrates and specifically not connected to the matrix. Here, calcium carbonates or calcium silicate hydrates and specifically not connected to the matrix. Here, calcium compounds reacted with acid to produce more soluble chemical compounds which were dissolved. As a result of this, on the sheet surface are found asbestos fibres, which can rather easily break away. Risk of asbestos dust release is high.*

*The study is attached as Annexure H."*

77. In the rejoinder the applicant has also referred to the position of other countries and relevant para 44 and 46 read as under:-

***"ON THE STAND OF THE ENVIRONMENTAL PROTECTION AGENCY OF UNITED STATES WITH THE LATEST UPDATE***

*44. At the fore, it must be respectfully brough to the notice of the Hon'ble Tribunal that the most latest regulation by the US Environmental Protection agency dated 18th March 2024 under the Biden-Harris Administration under President Biden's Cancer Moonshot program to end cancer, the United States Environmental Protection Agency has finalised the ban on asbestos under the Toxic Substance Control Act. The information is available here: https://epa.gov/newsreleases/biden-harris-administration-finalizes-ban-ongoing-uses-asbestos-protect-people-cancer*

*X X X X X*

*46. Even in other countries like the UK, there is a great threat in school buildings as highlighted by the article titled: 'The hidden danger of asbestos in UK schools: 'I don't think they realise how much risk it poses to students': https://theconversation.com/the-hidden-danger-of-asbestos-in-uk-schools-i-dont-think-they-realise-how-much-risk-it-poses-to-students-203582"*

**Vision statement of the Ministry of Environment, Forests and Climate Change**

78. The applicant has relied on the vision Statement as the most relevant to the phasing out of asbestos from roofs of schools in India. MoEF&CC has in its 'Vision Statement on Environment and Human Health' stated in para 4.3.1 that 'Alternatives to asbestos may be used to the extent possible and the use of asbestos may be phased out'.

79. In Sur Rejoinder, respondent no. 4-FCPMA has submitted its response to studies and publications cited by the applicant which reads as under:-

***"STUDIES AND PUBLICATIONS CITED BY THE APPLICANT ARE IRRELEVANT, INAPPLICABLE AND ALSO UNRELIABLE***

*27. The emphasized portion of the WHO publication titled "Chrysotile Asbestos', which claims that "in-place materials have the potential to deteriorate and pose a risk to those carrying out alterations, maintenance and demolition", as relied upon by the Applicant, is not a scientific risk assessment and is not based on any evidence whatsoever of exposure to asbestos fibres in India on account of use of asbestos cement roof sheets over time. This document cites `Environmental Health Criteria 203: Chtysotile asbestos. Geneva: World Health Organisation, International Program on Chemical Safety: 1998' (at footnote 5) as the source for this above said claim. It is evident from a perusal of this source document that this document was identifying risk in*

*demolition on account of presence of large quantities of materials containing friable asbestos (both chrysotile and amphibole) in buildings (para 9.1 as well as para 10 (c) of the aforesaid Environmental Health Criteria 203); and not on account of asbestos-cement roof sheets where the asbestos is firmly locked with the cement matrix. It is therefore, submitted that the extract mentioned in the paragraph under sur-rejoinder is not relevant to the present case, which relates to asbestos-cement roof sheets.*

*A copy of Environmental Health Criteria 203: Chrysotile asbestos. Geneva: World Health Organisation, International Program on Chemical Safety: 1998 downloadedfrom https:\\www.inchem.org/documents/cje/che/che203_Lumpart num :10 on 29.08.2024 is annexed hereto as Annexure- B.*

*In this regard it is submitted that the World Health Assembly ("WHA") — the apex decision-making body of WHO, in its 60th meeting, passed a resolution being WHA 60.26 on 23.05.2007 endorsing the Global Plan of Action on Workers' Health 2008-2017, which advocates a differentiated approach to regulating the various forms of asbestos. As already submitted, India has adopted a differentiated approach to various forms of asbestos — while all other forms of asbestos are prohibited in India, import and use of chrysotile asbestos is permitted. The manufacture of asbestos-based products is highly regulated, requires environmental clearance, and the maximum permissible exposure levels to asbestos fibres are set at 0.1 fibre/cc under the Factories Act, 1948. BIS has laid down standards which give the detailed specifications of asbestos-based products including asbestos-cement roof sheets. These standards must mandatorily be complied with. India has opposed the attempts by certain other countries to place chrysotile asbestos in Annex III of the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, 1998.*

*A copy ofthe World Health Assembly resolution being WHA 60.26 dated 23.05.2007 is annexed hereto as Annexure- C.*

*28. As regards the study titled Releasability of asbestos fibres from weathered roof cement6' relied upon by the Applicant, it is submitted that:*

*i. the study is not an independent and impartial study as it acknowledges that the said study was funded by a law firm representing a plaintiff alleging asbestos exposure.*

*ii. The said study also does not discuss, airborne fibre concentrations resulting from release of airborne dust, nor does it discuss the health effects of inhaling the fibres.*

*iii. The samples as analysed in the said study were exposed to extreme conditions, as it was heated at 480 degrees for at least 6 hours and later acid washed and therefore the conditions in which this study has been done, does not correspond to natural weathering of asbestos roof sheets.*

*29. As regards the study titled `Surface ofAsbestos-cement (AC) Roof Sheets and Assessment of the Risk of Asbestos Release', relied upon by the Applicant, it is submitted that the said study is also not applicable to India inter alia for the following reasons:*

*i. Study states that asbestos cement products contain 8¬16% of asbestos (as opposed to chrysotile fibres in the range of 6.5 - 7% as used in asbestos cement products by members of answering Respondent)*

*ii. The study does not mention the density of the sheets nor the type of asbestos fibre used.*

*iii. The samples analysed in the said study were taken from roofs of buildings in a small village, different downs and industrial centres located in Poland, most of these samples were exposed to acid rains and the study also highlights that acid rains accelerated corrosion.*

*iv. It is submitted that the climatic conditions in India are different from the climatic conditions in Poland and other Eastern European countries where acid rains are more prevalent. Acid rains are not prevalent or common in India.*

*Further, the answering Respondent craves leave to refer and rely upon the said studies for their true and correct meaning, and interpretation, at the time of hearing.*

*30. As regard the publication relied upon by the Applicant, titled "Vision Statement on Environment and Human Health" by the Ministry of Environment, Forests, and Climate Change it is submitted that the said publication is not a scientific risk assessment of health impact of use of asbestos cement roof sheets in schools, nor is this publication based on any other such risk assessment.*

*31. As regards the study titled `Asbestos in Indian Talc'8, relied upon by the Applicant, it is submitted that the said study has been cited out of context for the following reasons:*

*a. The study pertains to the presence of asbestos in commercial talc. it bears no relevance to the context of OA 298/2023, which the Applicant has filed seeking directions to stop the use of asbestos roof sheets in schools across India.*

*b. The study deals with tremolite' variety of asbestos. It is reiterated that the Respondent only uses the `chrysotile' variety of asbestos.*

*c. The applicant highlighted that the study states Further, it has been shown that as little as 0.001% of asbestos in loose clay soil can produce around 0.1 fiber/cc of asbestos in air with respirable dust concentration around 5 mg/m3.1 In this regard, it is submitted that 0.1 fibre/cc is the Permissible exposure limit (PEL) in India. Further, during the manufacture of asbestos roofing sheets, chrysotile fibre is firmly locked in Fibre Cement matrix with cement. As such. even after fixing of the sheet on the roof, there is virtually no chance of fibre being, air borne even on weathering or breakage.*

*Further, the answering Respondent craves leave to refer and rely upon the said study for its true and correct meaning, and interpretation, at the time of hearing.*

*32. As regards the study titled `The natural reduction of threat in selected systems of old buildings containing asbestosi relied upon by the Applicant, it is submitted that under the head of 'Research material: building systems tested':*

*a. this study focuses on typical Eastern European buildings ftom 1970 to 1990. It is submitted that the said research study also does not mention the types of asbestos that were being used*

*in these old buildings. That the harmful variety of asbestos are no longer utilized in either Western countries or India, and only Chrysotile is used, that too only 7-9% which is firmly bound in the cement matrix.*

*b. It is submitted that building material as mentioned in the said study deals with Asbestos containing material ("ACM") in friable form and these ACMs contained 20% asbestos.*

*c. These friable ACMs were used as insulation products which were applied to walls and ceiling where the asbestos was loosely bound. Such products are not used in India due to the weather conditions. It is further reiterated that asbestos cement products as manufactured by the members of answering Respondent are different from friable or crumbly asbestos which was earlier used in western counties and these products as used in western countries, when dry, are reduced to power by applying hand pressure. It is also submitted that schools in India use Asbestos Cement sheets that contain only around 7% of chrysotile asbestos which is firmly bound in layers of cement and fly ash matrix, leaving no scope of release of asbestos fibres ordinarily into the environment_ Further, it is respectfully submitted that the said research*

*study also encompasses the following conclusions: -*

*"3. If there is no evidence of an increase in the concentration of asbestos in the air, the removal of ACM from such .facilities should be postponed until the building is no longer used.*

*5. The reduction of asbestos dust in buildings can be a normal and natural process after proper and long service life (if the operation is not accompanied by the destruction of asbestos). Such conditions are met by many buildings with non-friable ACM. in which asbestos is insulated from the internal air. An .example of this construction is- BISTY P."*

*Further, the answering Respondent craves leave to refer and rely upon the purported study cited in this paragraph for its true and correct meaning, and interpretation, at the time of hearing.*

*33. As regards the study titled `Cancer mortality in chrysotile miners and millers, Russian Federation: main results (Asbestos Chrysotile Cohort-Study)'J0, the Applicant has highlighted that the study states, `we observed an increased risk of mesothelioma with high exposure to chrysotile fibres' It is submitted that the said statement has been cited wholly out of context, as the said statement is in reference to chrysotile miners and millers in the world's largest active chrysotile mine, and does not relate to weathering of asbestos cement roof sheets.*

*Further, the answering Respondent craves leave to refer and rely upon the purported studies cited in this paragraph for their true and correct meaning, and interpretation, at the time of hearing."*

**Scientific material/studies relied upon by respondent no. 4-FCPMA**

80. In reply filed to the original application respondent no.4-FCPMA has submitted that there is no evidence to support the allegation of applicant that

use of asbestos cement sheets for roofing poses any public health or safety issue in schools or otherwise. In support of its submissions respondent no. 4-FCPMA has referred to extracts from scientific papers and the studies relating to safety of chrysotile and specifically, chrysotile cement products, as set out below:-

> *"30. The answering Respondent is producing some extracts from scientific papers and the studies relating to safety of chrysotile and specifically, chrysotile cement products, as set out below.*
> *31. The following abstracts from a study titled as `A Survey of the Health problems associated with the Production and Use of High Density' Chrysotile Products' by K. Browne, J.A. Hoskins, J. Lange', is relevant: - "Asbestos cement products have a cement-rich surface with the asbestos fibres encapsulated within. In products used outdoors for weatherproofing a small amount of fibres may be released during natural weathering although greater amounts of fibre can be released if the products are subject to any abrasive cleaning or working. However, chrysotile is chemically altered to a greater or lesser degree within the cement matrix and also most of the fibres breakdown with the cement as part of the weathering process. The degree to which this latter effect occurs depends largely on the acidity of the rain. Acid rain removes magnesium from the surface of the chrysotile fibres. Examined under a microscope many fibres can be seen to be coated with small crystals of calcite." A copy of study titled `A Survey of the Health problems associated with the Production and Use of High Density Chrysotile Products' by K. Browne, J.A. Hoskins, J. Lange is annexed hereto as Annexure- N.*
>
> ***STUDIES PERTAINING TO OCCUPATIONAL HEALTH AND SAFETY OF EMPLOYEES WORKING IN ASBESTOS CEMENT INDUSTRY***
>
> *32. The Director General Factory Advice Service and Labour Industries (DGFASLI), Ministry of Labour and Employment, Government of India carried out a `National Study on Occupational Safety, Health and Working Environment in Asbestos Cement Product Industries in 2019 with the objective of assessing the levels of airborne concentration of asbestos fibres in work environment in different Asbestos Cement Product Industries with a view to determine the status of workplace environment with regard to safety and health measures. The study concluded at page 14 under the head of Results, Discussions & Finding of the Study inter alia at paragraph 11.1.4 "... the level of air-borne asbestos in various industries indicate that the concentration of airborne asbestos fibres in Asbestos Cement Product Industries where in-built*

*environmental control measures are in place and good work practices followed, are quite low as compared to those units where such measures are unavailable."*

*A copy of study titled `National Study on Occupational Safety, Health and Working Environment in Asbestos Cement Product Industries' is annexed hereto as Annexure- O.*

*33. Based on a request from the Department of Chemicals and Petrochemicals, Ministry of Chemicals and Fertilizers, the National Institute of Occupational Health in consultation with the Ministry of Chemicals and Fertilizers decided to carry out a study titled `Study of Health hazards / Environmental hazards resulting from use of Chrysotile variety of Asbestos in the country' in 2012. Various studies and their conclusions and been captured in the Literature Review conducted in the course of the said study, few of which are as follows: -*

*i. A cohort study of 1176 Swedish asbestos cement workers did not indicate any asbestos related excess mortality. Possible explanations of the negative outcome are relatively low exposure levels and the predominant use of chrysotile in production. A median exposure of 10-20 fibre years does not seem to cause an increased risk of lung cancer, particularly when only chrysotile is used.6*

*ii. According to WHO Environmental Health Criteria 203 the overall relative risks for lung cancer are generally not elevated in the studies of workers in asbestos cement production and in some of the cohorts of asbestos-cement production workers.?*

*The significance of the 2012 study is underscored at page 22, in the section titled 'Importance of this Study.' wherein it was stated that "a comprehensive information of environmental/ human health status in relation of asbestos handling is much needed in our country, so this study will form background national information in this area, which may be useful in future."*

*Further, detailed studies were conducted at multiple locations across the county wherein asbestos products are manufactured, these included three locations wherein asbestos roof sheets were being manufactured. The ambient air in these locations were analyzed for presence of asbestos fibres, and it was found that in all the three locations wherein asbestos roof sheets were being manufactured, the fibre concentration at these locations were much lower than the permissible exposure level (PEL) in India i.e, 1 fibre/ml ( PEL level in India was 0.1 rec. It is wrongly quoted as 1 f/cc) and was thus complaint with the PEL. (Relevant conclusions are at page 67 and 82 of the said research)*

*The study concluded inter alia as under: -*

- *The literacy levels of the workers in most of the industries was found to be good.*
- *On medical examination, majority of the workers were found to be in a good state of health.*
- *The asbestos fibres monitoring in the workplace showed that the fibre levels in the workplace were well below the national standards of 1 fibre/ml. Also, the dust levels in the ambient air as well under the asbestos sheet roof was also found to be much lower than these standards.*

*A copy of the study titled `Study of Health hazards / Environmental hazards resulting from use of Chrysotile variety of Asbestos in the country' is annexed hereto as Annexure- P.*

*34. Report titled Report on the National Study on Health Status of Workers in the Asbestos Industry' conducted by the Directorate General Factory Advice Service and Labour Institutes (DGFASLI), Ministry of Labour and Employment, Government of India in the year 2004. The general objective of the study was to assess the health hazard posed by occupational exposure during the manufacture, handling and storage of asbestos products on the workers to develop strategies for the prevention and control of asbestos exposure-related morbidity. This study aimed to detect the morbidity related to asbestos exposure and to relate the radiological chest findings and pulmonary function test results with the present morbidity. The report concluded at page 30 inter alia as follows: -*

- *"Radiologically, though there was no established case suggestive of asbestosis."*
- *"As no established cases of asbestosis were detected during the study, an attempt was not made to correlate the duration of exposure with asbestos cases."*

*A copy of report titled `Report on the National Study on Health Status of Workers in the Asbestos Industry' is annexed hereto as Annexure- Q."*

81. In Para 6, 8 and 9 of reply on merit respondent no. 4-FCPMA has submitted as under:-

*6. That the contents of paragraph 6 of the OA are unfounded, misconceived, and incorrect, and therefore, vehemently denied. It is emphasized that in the preliminary submissions of this reply, the answering Respondent has thoroughly demonstrated that asbestos cement products pose no harm to either the environment or the health of individuals. It is submitted that in a scientific paper authored by W.J. Nicholson and F.L. Pundsack, titled "Asbestos in the environment"9 it was observed inter alia that asbestos-cement products do not constitute a significant source of asbestos to the environment under normal conditions of use since the asbestos fibres are firmly locked-in'. The relevant extract is reproduced herein below: -*

*"Once an asbestos-containing product has been manufactured, whether or not it constitutes a source of asbestos in the environment will depend to a great extent on whether or not the asbestos is firmly "locked-in" the product with a binder, saturant, coating or bonding agent such that normal handling, application and use do not release it. Asbestos cement products are a good example of "locked-in" products which probably do not constitute a significant source of asbestos to the environment under normal conditions of use." (emphasis supplied)*

*A copy of the scientific paper authored by W.J. Nicholson and F.L. Pundsack, titled `Asbestos in the environment' is annexed hereto as Annexure- R.*
*Further, in a study titled `Biological effects of mineral fibres' Volume 110 by J.C. Wagner it has been concluded that the association of asbestos in asbestos-cement dust behave differently from pure asbestos fibres as regards movement and settlement in fluids and that their physico-chemical behavior may also be different. The relevant extract of the said study is reproduced herein below: -*
*"The investigation reported here shows that in asbestos-cement dust most of the asbestos fibres form aggregates with cement particles that are larger than the fibre diameter. Those which do not form aggregates, the 'optically pure' fibres, appear to be coated with a calcium containing layer which probably consists of discrete but closely spaced, very small particles. The association of asbestos fibres with large or small particles may cause these fibres to behave differently from pure asbestos fibres as regards movement and settlement in fluids; their physico-chemical behaviour may also be different, as is suggested by adsorption experiments. Therefore, conclusions which have been reached for pure asbestos dust should not automatically be applied to asbestos cement dust."*
*(emphasis supplied) A copy of a study titled `Characterization and Properties of Asbestos-Cement Dust' by A Deruyttere, J Helsen and J Baeten is annexed hereto*
*as Annexure- S.*

*8. As regards the contents of paragraph 8 of the OA, all that is stated herein above is reiterated and anything inconsistent thereto is denied. It is denied that the peculiar character of diseases related to asbestos fibre inhalation is their high latency period and any student who is exposed at a young age will only get the manifestations of the diseases after decades during his/her breadwinning or family raising period. It is humbly submitted that a scientific research was conducted by Dr. David M. Bernstein, and the following extract of the research are relevant with regard to this aspect: -*
*"ABSTRACT: Recent publications have shown for synthetic mineral fibers that i f a fiber dissolves rapidly and disappears from the lung, it does not cause a carcinogenic effect. With asbestos, chrysotile asbestos is often included with other asbestos materials. However, chrysotile is a serpentine mineral with markedly different mineralogical characteristics than amphibole asbestos (e.g. amosite, tremolite). These differences are mirrored in the differences in biopersistence between these two minerals. Chrysotile clears very rapidly from the lung with half-times ranging from 0.3 to 11 days and produces no inflammatory reaction. In contrast, the amphiboles clear with half-times in the range of 500 days or longer and produce a pronounced inflammatory response leading to mild interstitial fibrosis. These findings provide an important basis for substantiating both kinetically and pathologically the differences between chrysotile and amphiboles. In contrast to amphiboles, the toxicology of chrysotile can be understood in*

*comparison to non-fibrous mineral dusts. These results fully support the differentiation of chrysotile from amphiboles reported in recent evaluations of available epidemiological studies."*
*(emphasis supplied) A copy of scientific research was conducted by Dr. David M. Bernstein is annexed hereto as Annexure- T.*

*9. As regards the contents of paragraph 9 of the OA, all that is stated herein*
*above is reiterated and anything inconsistent thereto is denied. The answering Respondent seeks permission of this Hon'ble Tribunal to refer to the purported research study cited in this paragraph for its correct interpretation as the same has been cited by the applicant out of context. It is submitted that under the head of `Research material: building systems tested' the study Cleary points out that this study focuses on typical Eastern European buildings from 1970 to 1990. It is submitted that the said research study also does not mention the types of asbestos that were being used in these old buildings. That the harmful variety of asbestos are no longer utilized in either Western countries or India and Chrysotile Asbestos is the only variety of asbestos that is not included in Annexure-III of the Rotterdam Convention. It is submitted that building material as mentioned in the said study deals with Asbestos containing material ("ACM") in friable form and these ACMs contained 20% asbestos. These friable ACMs were used as insulation products which were applied to walls and ceiling where the asbestos was loosely bound. Such products are not used in India due to the weather conditions. It is further reiterated that asbestos cement products as manufactured by the members of answering Respondent are different from friable or crumbly asbestos which was earlier used in western counties and these products as used in western countries, when dry, are reduced to power by applying hand pressure. It is also submitted that schools in India use Asbestos Cement sheets that contain only around 7% of chrysotile asbestos which is firmly bound in layers of cement and fly ash matrix, leaving no scope of release of asbestos fibres into the environment. Further, it is respectfully submitted that the said research study also encompasses the following conclusions: -*

- *"3. If there is no evidence of an increase in the concentration of asbestos in the air, the removal of ACM from such facilities should be postponed until the building is no longer used."*
- *"5. The reduction of asbestos dust in buildings can be a normal and natural process after proper and long service life (if the operation is not accompanied by the destruction of asbestos). Such conditions are met by many buildings with non friable ACM. in which asbestos is insulated from the internal air. An example of this construction is BISTYP." (emphasis supplied)*

*That it is evident from these conclusions that in buildings with non-friable ACM, asbestos fibers are isolated from the internal air, thereby posing no threat to individuals or the environment.*

*It is further reiterated that the asbestos cement sheets as manufactured by the members of the answering Respondent are also non-friable, non-crumbly in nature.*
*Further, in a study titled `Guidance for Controlling Asbestos-Containing Materials in Buildings' it was summarized as follows:*
*"Asbestos may be found in cement products, acoustical plaster, fireproofing textiles, wallboard, ceiling tiles, vinyl floor tiles, thermal insulation, and other materials. EPA surveys estimate that 31,000 schools and 733,000 federal and commercial buildings have ACM in one form or another (USEPA 1984a, 1984b). ACM has been grouped into three categories: (1) sprayed- or troweled-on materials on ceilings, walls, and other surfaces; (2) insulation on pipes, boilers, tanks, ducts, and other equipment; and (3) other miscellaneous products. (Examples of ACM are shown in Figure 1.) Material in the first two categories can be friable, that is, it can be crumbled, pulverized, or reduced to powder by hand pressure. Most ACM in the third category is nonfriable."*
*A copy of a study titled `Guidance for Controlling Asbestos-Containing Materials in Buildings' is annexed hereto as Annexure- U.*

82. In view of the above quoted scientific material respondent no. 4-FCPMA has submitted that there is no evidence of safety risk to children or others at schools or any other place where such roofing sheets are used and that the scientific evidence does not support ban on use of asbestos cement roofing sheets in schools as sought in the original application.

**Response by the applicant to the studies relied upon by respondent no. 4-FCPMA**

83. In rejoinder to the reply of respondent no. 4-FCPMA the applicant has submitted his response to the Studies relied upon by respondent no. 4-FCPMA as under:-

***"ON THE STUDY BY NATIONAL INSTITUTE OF OCCUPATIONAL HEALTH TITLED 'STUDY OF HEALTH HAZARDS/ENVIRONMENTAL HAZARDS RESULTING FROM USE OF CHRYSOTILE VARIETY OF ASBESTOS IN THE COUNTRY' ON CHRYSOTILE ASBESTOS AND ITS USE IN THE LITIGATION BEFORE THE NATIONAL HUMAN RIGHTS COMMISSION***

*21. The applicant wants to most humbly and respectfully assist this Hon'ble Tribunal and state that the NIOH study that has been quoted is valid for the occupational settings only where it was performed. Therefore the validity of this study is not for the current question of asbestos cement roofs in schools as that is a matter related to the non-occupational exposure to asbestos by use of asbestos containing material. Further, the applicant wants to most humbly and respectfully state that the study has another two issues which the applicant urges this Hon'ble Tribunal to record, which are as follows: c. The study was funded by the Asbestos Cement Manufacturers Association in part and this may raise some questions.*

*d. The NIOH in a reply to the applicant via the Right to Information Act 2005 has stated that 'No Information is held' about the validity of the study for non-occupational settings where there may be asbestos containing materials present. It may also be noted that the document containing the ethics approval for the study is 'not retrievable' by the NIOH. The above-mentioned reply duly signed by the NIOH is attached as Annexure I.*

*It may be kindly recorded that the scope of the study does not include the use of asbestos cement roofing in the non-occupational environment and may not be relevant nor be admissible in this current matter. The humble applicant begs the Hon'ble Tribunal for consideration of the same.*

*16. Moreover, the applicant most respectfully submits that the above report by NIOH was seemingly the only basis of the NHRC order that the respondent no.4 quotes. And, the applicant humbly reiterates that occupational exposure to asbestos was the scope of this report but it is not in the scope of the current application.*

***ON THE STUDY BY THE DIRECTORATE GENERAL FACTORY ADVICE SERVICE AND LABOUR INSTITUTES OR DGFASLI TITLED 'NATIONAL STUDY ON OCCUPATIONAL SAFETY, HEALTH AND WORKING ENVIRONMENT IN ASBESTOS-CEMENT PRODUCT INDUSTRIES' IN 2019***

*17. The applicant wants to most humbly and respectfully submit the following facts about this study by DGFASLI which is the most recent and most updated as far as the asbestos industries are concerned:*

*a. As the title and the contents suggest, this study is related to the Occupational environments related to industries where asbestos cement products are manufactured or processed. This mere fact makes the citation of this study in this current matter as irrelevant as it does not address the non-occupational exposure to asbestos which this application talks raises.*

*b. The study also records that only chrysotile is being used by the asbestos cement products industries in India in para 10.5 of the study which states that 'It has been seen that asbestos cement product industries are importing and using chrysotile asbestos (white variety) only for the manufacture of asbestos cement sheets and pipes.'*

*c. Then, the study states the asbestos-related diseases/ disorders, the effect of asbestos on lungs is shown as follows:*

*'In the early stage, asbestos fibres accumulate in those alveoli which open directly off the bronchioles. They penetrate the wall and produce a low grade inflammatory response followed by fibrosis. This causes lung thickening and some narrowing of the terminal airways which is picked up as a reduction of gas transfer and compliance on lung function testing. Fibres migrate away from these centrilobular foci into the interstitial between the alveoli and towards the pleura, causing extension of the low-grade inflammatory response and interstitial fibrosis.*

*The inflammation and interstitial fibrosis interferes with ventilation by making the lung rigid and lead to shrinkage of the affected area with honeycomb change. The change affects only the periphery of the lung and leaves the central part undamaged, but this normal lung is of little functional value as it is held immobile by the surrounding damage. Lavage of airways yield increased numbers of polymorphs and other inflammatory cells and also asbestos fibres and asbestos bodies.*

*Asbestos gives rise to no specific symptoms or signs apart from the inspiratory crepitations on auscultation. The patient will complain of very gradually increasing breathlessness.'*

*The major cause, the study quotes, of death in individuals with asbestosis is malignancy, i.e., primary lung cancer or mesothelioma.*

*d. The above makes it clear that Indian industries use chrysotile asbestos which causes the above medical condition.*

*e. The one point, even though not directly related to the current application, but to assist the Hon'ble Tribunal is the fact that the study may not have considered the latency of 20-40 years that asbestos diseases may cause and that the examinations of the retired workers may have missed, which contravenes the order of the Hon'ble Supreme Court in Consumer Forum case where it was specifically mentioned that records after 15 years may be taken. This point is not an allegation on the respondent no. 4 and is not applicable to this matter directly, but is a question raised about the study mentioned.*

***ON THE STUDY BY THE DIRECTORATE GENERAL FACTORY ADVICE SERVICE AND LABOUR INSTITUTES OR DGFASLI TITLED 'REPORT ON THE NATIONAL STUDY ON HEALTH STATUS OF WORKERS IN THE ASBESTOS INDUSTRY' IN 2004***

*24. At the outset it may be humbly stated in regards to this study that it deals with the occupational exposure to asbestos and hence it is not relevant in this current application.*

*But, the study, may be quoted, under severability, as it highlights the four types of exposure to asbestos, which are as follows:*

*A. Industrial Processes*
*B. Para Occupational Exposure*
*C. Building Exposure*
*D. Environmental Exposure.*

*25. Apart from the acknowledgement of building exposure, it also, under the Environmental exposure states the source as*

*'Drinking water, apart from contribution from asbestos cement pipes'*
*26. In the same light, the asbestos fibres released from asbestos cement sheets on weathering may reach the drinking water and be a pertinent cause for water pollution under the Water (Prevention and Control of Pollution) Act, 1974.*
*27. Moreover, this water may evaporate and leave the non-soluble, non-biodegradable asbestos fibres behind and then immediately become a cause for soil pollution first and then air pollution as soon as there is a slightest of disturbance or breeze. The potential of asbestos in soil becoming air pollution is stated in a study titled 'Asbestos in commercial Indian talc.' One of the authors of this study was from Ministry of Environment, Forests and Climate Change, Government of India. This study stated that 'Further, it has been shown that as little as 0.001% of asbestos in loose clay soil can produce around 0.1 fiber/cc of asbestos in air with respirable dust concentration around 5 mg/m3.'*
*The study titled 'Asbestos in commercial Indian talc' as attached as Annexure J"*

84. In reply to the original application respondent no. 4-FCPMA has referred to the Publication by Australian Queensland Government and the relevant part is reproduced as under:-

*"9....it is further submitted that a publication was issued by the Department of Health, Queensland Government, Australia on their website wherein, it was stated that inter-alia as follows:-*

*".....After it is damaged, asbestos cement sheeting does not continue to release significant quantities of asbestos fibres into the air. This is because the asbestos continues to be bound in the cement...*
*"...Even if an asbestos cement roof is in poor condition, it is not likely to pose an increased risk to your health. Any released fibres rapidly disperse into the air and their concentration (the number of fibres in an amount of air) reduces within a short distance from the roof Air testing near the ground has shown the concentration of fibres is very low] — the same as if the asbestos cement roof was not there..." (emphasis supplied)*

*A copy of the said publication was issued by the Department of Health, Queensland Government, Australia is annexed hereto as* Annexure- B."

85. The applicant has submitted his response to the Publication by Australian Queensland Government referred to by respondent no. 4-FCPMA as under:-

***"ON PUBLICATION BY AUSTRALIAN QUEENSLAND GOVERNMENT***

*30. There is clear indication that in the document that 'over time, asbestos cement roofs will deteriorate. The cement slowly breaks down and asbestos fibres are washed down and blown away'.*

*31. This is the very big support of the fact that the cement slowly breaks down in asbestos cement roofing and is washed down and blown away. The term washed down means it will meet a water body and the term blown away means it will be suspended in the air. It may also reach the soil after evaporation of the water body or after settling down once suspended in the dust.*

*32. It has been made clear in Narendra Pratap Singh vs Central Pollution Control Board (OA 649/2022) dated 17th July 2023 that 'There is no safe level of asbestos exposure' which automatically means that any number of fibres are an air pollutant. These same fibres when in soil will become a soil pollutant and when they reach the water become a water pollutant. This has been further shown by other studies as the applicant shows."*

86. The applicant has submitted that the study by Dr. David M Bernstein has the following flaws:-

*42. Para 8: The contents in reply by respondent no.4 for para 8 are denied by the applicant as the study mentioned by Dr David M Bernstein has the following flaws:*

*a. This matter related to the study by Dr David M Bernstein needs to be specially mentioned as this the study material in study itself has been corrected by the DGFASLI 2019 report as mentioned above, where industries have used chrysotile itself and the disease caused by asbestos in mentioned. Moreover, the disease mentioned, called mesothelioma, caused by asbestos exposure, is caused, as it is named in the mesothelium, i.e. the lining of the lung, and as it quoted by the DGFASLI study, where a change in the outer part makes the inside of the lung dysfunctional, as stated here: The change affects only the periphery of the lung and leaves the central part undamaged, but this normal lung is of little functional value as it is held immobile by the surrounding damage..*

*b. Moreover, the latest study from Russia, which still actively mines chrysotile asbestos fibres, the applicant points our not to the occupational focus on the study, but focus on the medical portion where the effect of chrysotile fibre is involved. The study states that 'we observed an increased risk of mesothelioma with high exposure to chrysotile fibers.' The study is attached.*

*c. Moreover, it may be most respectfully pointed out, that in a case from New York, the court in the US observed that there may be some conflict of interest in studies by the stated expert*

*and the court did not admit the same as such. The order of the court is attached.*
*The 2024 study on chrysotile from Russia is attached as Annexure L. The Court order from the US not admitting the study of Dr David M Bernstein is attached as Annexure M.*

87. In reply to sur rejoinder the applicant has placed highlights and objections to the Sri Lankan Study tiled as Air Quality Study on Concentrations and Significance of Chrysotile Asbestos Fiber in Household Ambient Environment in Sri Lanka as under :-

*"5. In order to assist the Hon'ble Tribunal, the applicant begs to bring to light the highlights and objections to the said Sri Lankan study, The study first of all acknowledges the following points:*
*a. The study acknowledges the fact that chrysotile asbestos fibres are released from asbestos cement roofing in some quantity and assertions made about the non-releasability of asbestos fibres from and "lock-in" may be untrue.*
*b. The study brings to light the standards for asbestos fibres in non occupational standards as 0.0009 fibres/cc according to US-EPA levels and lifetime exposure levels as 0.0005 fibres/cc as per WHO (where smoking use is also taken into consideration).*
*c. The study highlights the higher number of fibre levels in the indoors as compared to the ambient environment, which highlights that it is an indoor air quality issue.*
*d. The study highlights the need for incorporation of asbestos fibre measurements in national air quality monitoring programmes, to consider asbestos as one parameter for air quality standards, which enables it to be considered an indoor pollutant.*
*e. The study recommends further research, studies and assessments on asbestos usage, fiber concentration, as there may be some shortcomings in this study.*
*f. The study also brings to light an altogether new issue of asbestos fibres being released from automotive parts like linings (which though not directly relevant to this current issue, may be an environmental hazard for India too.)*
*6. As the highlights have been presented, at the same time, the said Sri Lankan Study has the following shortcomings and the objections are listed below:*
*a. The most important issue, with respect to exposure to asbestos, i.e. the latency period of diseases may not be addressed in this study. Asbestos Related diseases, especially mesothelioma, can have a latency period from 10/15-40 years or more after first exposure. Mesothelioma being a cancer also means that the limit of exposure may not be conclusive and small*

*levels may also cause the same. The safe permissible levels for exposure to carcinogens may not be defined.*
*b. The absence of actual medical investigations in the said Sri Lankan study, in comparison to the Indian study by NIOH, where end-users have been subjected to medical checks means the study, may not show the complete picture.*
*c. It is not clear in the study whether the criteria as to whether there was weathering and degradation in the roofs in the study, was included, specifically.*
*d. The issue of asbestos fibres released from asbestos cement roofing, entering soil and water may not have been addressed in the said Sri Lankan study."*

88. In sur rejoinder with respect to the document titled Environmental Health Criteria 203: Chrysotile Asbestos the applicant has made the following submissions:-

*"7. With respect to the Document titled 'Environmental Health Criteria 203: Chrysotile asbestos' (Annexure B, running pages 1479-1572) in order to assist the Hon'ble Tribunal, the following main points are brought to the kind attention of the Hon'ble Tribunal.*
*a. In the conclusions and recommendations section of the said report, the following is stated:*
*i. 'Exposure to Chrysotile asbestos poses increased risks for asbestosis, lung cancer and mesothelioma in a dose-dependent manner. No threshold has been identified for carcinogenic risks.' (Page 1543)*
*ii. 'Where safer substitute materials for chrysotile are available, they should be considered for use.'*
*b. The report being old, published in 1998, has the basic lack of newly performed studies on the issue of asbestos fibre release from asbestos cement roofing."*

89. Vide order dated 18.07.2024 respondent no. 1-MoEF & CC was required to find out whether in respect of user of asbestos sheets in Educational Institutions, there are some different kinds of health hazards to students i.e. non-occupational health hazards, comparing to health hazards applicable to workers in Industrial Sector, and if there is a distinction, the matter be given a scientific study and report of such scientific study be submitted along with reply.

90. In compliance thereof affidavit dated 24.09.2024 was filed by MoEF & CC vide email dated 24.09.2024. In its affidavit MoEF & CC has submitted that inputs were received from the Department of Chemicals and Petro-chemicals (DCPC) on the issue that a comprehensive study has already been made on the issue of health effects of chrysotile asbestos in 2006 by National Institute of Occupational Health (NIOH), sponsored by DCPC. NIOH submitted its final consolidated report titled "**Study of Health Hazards/Environmental Hazards resulting from use of variety of asbestos in the country**" in May 2012. The NIOH report did not indicate any significant health/environment hazards resulting from the use of Chrysotile asbestos under proper conditions at workplace, hence no significant occupational health hazard has been noticed. With regard to the directions of this Tribunal for a scientific study on non-occupational health hazards, the above referred study has also made findings on health hazards on end users. In the said report, in chapter 6 on results, health impact of chrysotile asbestos on end users as well as on community in the vicinity of the factory is discussed, which is regarding non-occupational health effects. It has also been observed in the report that fiber levels in all work places and in the vicinity of the factory were below national and international standards. It is also noted that no subject was found to have radiographic features suggestive of interstitial lung fibrosis. Study has already been made on various health impacts of Chrysotile asbestos both occupational & non-occupational.

91. Copy of the study report made by NIOH has been enclosed with the affidavit. The conclusions and recommendations in the report are reproduced as under:-

***"Conclusions***

*1. The study included a total of 1122 subjects, which comprise of 625 asbestos workers, 362 community subjects residing in the vicinity of asbestos sheet manufacturing factory and 135 end-users of chrysotile asbestos product.*

*2. The mean age of the workers was found to be highest in the sheet workers of Hyderabad (42.98 ± 3.50 years) while in the sheet industry at Silvassa it was lowest (27.4 ± 6.5 years). The mean age of the community residing in the vicinity of sheet factory was 37.66 ± 9.5 years while that of end-users was 36.96 ± 9.4 years. Accordingly the mean duration of job was highest among sheet workers of Hyderabad (21.84 ± 2.43 years) while in the sheet industry at Silvassa it was lowest (4.5 ± 3.2 years).*

*3. The literacy levels of the workers in most of the industries was found to be good. This helps in motivating the workers to use PPEs and in implementing the control measures such as health education for the prevention of diseases related to asbestos exposure.*

*4. On medical examination majority of the workers were found to be in a good state of health.*

*5. The pulmonary function test reveal that out of total 1122 subjects, 119 (10.6%) had restrictive abnormality, 99 (8.8%) had obstructive abnormality and 25 (2.2%) had combined (restrictive +obstructive) type of pulmonary function abnormality.*

*Rest of the subjects were normal. Further analysis showed that 9.6% asbestos workers had restrictive abnormalities as comparison to 11.6% community subjects. The difference was statistically non-significant (x2= 0.99, df=1, p>0.05).*

*6. On radiological examination, no subject was found to have findings suggestive of interstitial lung fibrosis. The common findings on radiological examination included suggested old pulmonary tuberculosis in 22(1.9%) subjects and pleural effusion and pleural thickening in one subject each.*

*7. The asbestos fibres monitoring in the workplace showed that the fibre levels in the workplace were well below the national standards of lfibre/ml. When comparison was made with the recommended international standards like OSHA, NIOSH or ACGIH, it was found that except at one process in the brake lining industry, the fibre levels were below the recommended levels. The dust levels in the ambient air as well as under the asbestos sheet roof was also found to much lower that these standards.*

*8. During the study it was found that most of the factories were using protective measures for the control of occupational and environmental health hazards in the workers as well as the surrounding communities.*

***Recommendations***

*1. In the present study the fibre levels were found to be much lower than the national permissible levels. However it requires regular monitoring of the workplace fibre levels to keep it below permissible levels.*

*2. At the present low fibre levels no subject was found to have radiological finding suggestive of interstitial lung fibrosis. However it is recommended that these subjects should be periodically monitored medically so as to detect any adverse health effects particularly those having restrictive and combined type of pulmonary function abnormalities.*

*3. Most of the industries were using protective measures like use of PPEs, pre-placement, periodic and post retirement medical examination, for the control and prevention of asbestos related health hazards, these measures are to be implemented by all the asbestos using industries to protect the health of the workers."*

**Response of the applicant**

92. The applicant filed reply to affidavit dated 24.09.2024 filed by MoEF & CC in his reply to sur rejoinder which reads as under:-

***"SHORT REPLY TO AFFIDAVIT FILED BY MoEFCC DATED 24TH SEPTEMBER 2024 LIMITED TO THE NON-OCCUPATIONAL PORTION OF THE STUDY WHERE EFFECTS ON END-USERS OF ASBESTOS ROOFING HAVE BEEN STUDIED.***

*8. Respondent No. 1, MoEFCC has submitted an affidavit dated 24 September 2024 in compliance of NGT order dated 18 July 2024, where the study by NIOH, or National Institute of Occupational Health titled 'Study of Health Hazards/Environmental hazards resulting from use of Chrysotile variety of asbestos in the country' has been submitted. The applicant requests to highlight some facts.*

*9. It must be kindly and respectfully noted that R-4 had also submitted a version of the same study in reply filed before this Hon'ble Tribunal on 2nd April 2024 (Running Page number 762 to 884), but that study version seems different as there was some difference in content and changed results. But the applicant will only rely on the study that has been submitted by MOEFCC in affidavit dated 24 September 2024.*

*10. It may kindly be noted that only a small portion of the study deals with non-occupational exposure by end-users of asbestos roofing in chapter titled 'Asbestos workers, end-users and community in the vicinity of asbestos factory, Hyderabad' (Running page 1680-1686). The rest is denied. In the highlights section at the conclusion of the chapter it is mentioned that 'In end-users 12.6% were having restrictive disorder, and 1.5% were having combined type of abnormality.'*

*11. It may be kindly noted that lung issues are either obstructive type or restrictive type, or a combination. The*

*use of tobacco and smoke are linked to obstructive type of disease and restrictive disorders are attributed to mineral dusts like asbestos, etc. Therefore, end users of asbestos sheets having only restrictive disorder must be kindly noted and considered.*

*12. It is also humbly and respectfully highlighted that a study on the non-occupational exposure to asbestos, especially in schools, even though requires a perspective of Precautionary Principle, but also requires the following parameters to be considered:*

*a. The consideration of the long latency of disease caused by exposure to asbestos, as some exposed today may get manifestations of the disease only after 10/15-40 or more years, and this may require one to see cases from other geographies where such similar use has happened and there mesothelioma (a cancer caused by asbestos) cases have peaked decades after use.*

*b. The inclusion of sampling of soil in and around the premises, as soil gets airborne and soil particles with asbestos fibres can enter the lungs.*

*c. The condition of the roofing sheets, whether new brand or weathered and degraded are considered. It is on weathering that asbestos fibres are of concern.*

*d. The check of levels of airborne fibres as well as medical checks of past users.*

*e. The permissible limit of carcinogenic materials like chrysotile under which cancers like mesothelioma may not be caused, may be specified."*

93. Affidavit dated 24.09.2024 was considered by this Tribunal on 25.09.2024 and this Tribunal observed that there was no specific reply for scientific study in respect to question in para 6 of order dated 18.07.2024. Vide order dated 26.09.2024 this Tribunal directed the MoEF & CC to get a study conducted by constituting an Expert Committee comprising of specialist of Multidiscipline to study the aspect referred to above and submit reports within two months.

94. In compliance of order dated 25.09.2024 compliance affidavit/report dated 13.12.2024 was filed by MoEF & CC. In the compliance affidavit/report MoEF&CC has submitted that the delay in submitting the report of the Expert Committee was due to the process of identifying and inviting suitable experts from multiple specializations, such as environmental science, public

health, toxicology, cancer prevention and research, civil engineering, and occupational health, was time-consuming due to the need for highly qualified professionals who possess the necessary expertise on asbestos. There were administrative challenges in coordinating among various departments and agencies to ensure that experts from diverse sectors (e.g., health, environment, and institutes) were adequately represented. There was extensive discussion in the Ministry regarding the structure and composition of the Expert Committee. In accordance with the direction of this Tribunal, the Ministry discussed the issues with the CPCB. Accordingly, the Ministry through its letter no. Q/18011/13/2023-CPA dated 23.10.2024 requested the CPCB to constitute an Expert Committee comprising of multi-discipline to study non-occupational health hazards due to the usage of Asbestos sheets. Expert Committee was constituted by CPCB through an Office order dated 07.11.2024 comprising 12 experts from prestigious institutes, such as environmental health, toxicology, cancer prevention and research, civil engineering, etc. Meetings of the Expert Committee were convened on 28.11.2024 and 05.12.2024 to discuss the issue addressed by this Tribunal. The Expert Committee completed its work, and presented a detailed report. The relevant part of the report is reproduced as under:-

> *"2. Constitution of the Expert Committee and meetings of the Expert Committee*
> *In compliance with the order dated 25.09.2024 of Hon'ble NGT-PB, MoEF&CC vide letter no. Q-18011/13/2023-CPA, dated 23.10.2024, asked the CPCB to constitute an Expert Committee comprising a specialist of multi-discipline to study the reference in the order dated 25.09.2024 of Hon'ble NGT-PB (Annexure-I).*
> *Accordingly, CPCB vide Office Order No. CM-13011/287/2024-AQMN-HO-CPCB-HO, dated 07.11.2024, constituted an Expert Committee to study the reference in the order dated 25.09.2024 of Hon'ble NGT-PB (Annexure-II) comprising of the following institutes:*

| ***S. No.*** | ***Institution*** |
|---|---|

| | |
|---|---|
| *1* | *All India Institute of Medical Sciences (AIIMS), New Delhi* |
| *2* | *Maulana Azad Medical College (MAMC), New Delhi* |
| *3* | *CSIR-Indian Institute of Toxicology Research (IITR), Lucknow* |
| *4* | *CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur* |
| *5* | *ICMR- National Institute of Cancer Prevention and Research (NICPR), Noida* |
| *6* | *ICMR- National Institute for Research in Environmental Health (NIREH), Bhopal* |
| *7* | *ICMR- National Institute of Occupational Health (NIOH), Ahmedabad* |
| *8* | *CSIR-Central Building Research Institute (CBRI), Roorkee* |
| *9* | *IIT Delhi (Civil Engineering Department)* |
| *10* | *IIT Roorkee (Civil Engineering Department)* |
| *11* | *MoEF&CC (CP Division)* |
| *12* | *CPCB (IPC-II Division) Convenor* |

*The CPCB sent the Office Order dated 07.11.2024 regarding the constitution of the Expert Committee to concerned expert institutes by email dated 08.11.2024, requesting them to nominate their experts in the Expert Committee constituted to study the reference in the order dated 25.09.2024 of Hon'ble NGT-PB, which was followed up by email dated 11.11.2024 and 19.11.2024 (Annexure-III). The concerned expert institutes informed CPCB about the nomination of their experts in the Expert Committee (Annexure-IV). CPCB did not receive nominations from CSIR-IITR Lucknow and IIT, Delhi..*

*The Expert Committee held two meetings on 28.11.2024 and 05.12.2024 and deliberated on the following reference points in the order dated 18.07.2024 and reiterated in the order dated 25.09.2024 of Hon'ble NGT-PB:*

*whether in respect of user of asbestos sheets in Educational Institutions, there are some different kinds of health hazards to students i.e. non-occupational health hazards, comparing to health hazards applicable to workers in Industrial Sector, and*

*if there is a distinction, let the matter be given a scientific study and report of such scientific study be submitted.*

*Views of the Expert Committee on above reference points are subsequent paras.*

*3. Study of the reference from Hon'ble NGT-PB by the Expert Committee (i.e., whether there is a distinction between*

*occupational health hazard to industrial workers and non-occupational health hazard from use of cement-asbestos sheets for roofing?)*

*(a) Cement-asbestos roof sheet while in good condition is in an immobilized state. There is little chance in this state of significant exposure to children at schools with such roof sheets. In this regard, the Indian Standard "IS:11769 (Part1)1987-"Guidelines for Safe Use of Products Containing asbestos, Part 1 - Asbestos Cement Products" (Annexure-V) mention the following:*

*"Cement-asbestos cement products generally contain 10 to 15 percent asbestos fibres in a cement matrix that comprises the rest of the material and are termed as 'locked-in' asbestos products as these products have the asbestos fibres bound in cement. There is very little possibility of generation of airborne asbestos fibres during any reasonable handling, transport, storage and use of such products."*

*(b) At the time of installing the roof sheets or during their dismantling, there is a chance of asbestos exposure. The above-mentioned BIS standard/guidelines prescribe work practices to mitigate the risk of harmful exposure to asbestos fibres. Most likely, children will not be present during such installation or dismantling activities in schools, so there is a very low likelihood of exposure.*

*(c) The applicant and the respondent association of cement-asbestos sheet manufacturers have referred to and submitted copy reports of several studies on health impacts due to asbestos fibre exposure in their submission in the present case. Asbestos fibre concentration in air observed in the reports of the three studies - i) Study of Health Hazard/Environmental Hazards resulting from use of chrysotile asbestos in the country-2012 of ICMR-National Institute of Occupational Health, Ahmedabad (NIOH), ii) National Study on Occupational Safety, Health and Working Environment in asbestos-cement product industries-2019 of Directorate General Factory Advice Service & Labour Institute, Mumbai (DGFASLI), and iii) Air quality study on concentration and significance of chrysotile asbestos fibres in the household ambient environment in Sri Lanka-2021 of National Building Research Organisation, Sri Lanka, were compared by the Expert Committee. In the NIOH study, it was found that out of 427 observations in asbestos based industrial premises or areas near such industries, except for 80 observations i.e. is 18-19%, all other observations were within the 0.1 fibre/ce limit for the work environment, and in the DGFASLI study, it was found that out of 50 asbestos based industries, asbestos levels in 35 industries that were having good measures were found within the 0.1 fibre per ml limit, and asbestos levels in 15 industries were in the range of 0.2 to 0.4 fibre per ml. Whereas in the Sri Lanka study, the asbestos fibre concentrations observed in non-occupational buildings at all selected households in different environmental conditions were 0.00034 fibre/cc (average), 0.00077 fibre/cc (max), in one district and 0.00016 fibre/ce (average), and 0.00071 fibre/ce (max), in the second district, respectively.*

*(d) The vast difference in exposure levels in industrial settings and household use is clear from the above results. It is evident that non occupational exposure levels are far lower than occupational*

*exposure levels because of the type of activities involved during occupational exposure.*

*(e) For school children asbestos cement sheets is not only the potential source of asbestos exposure. Other than cement sheets are also potential source for asbestos exposure. Hence, it is difficult to design and execute a study which excludes other risk factors for asbestos exposure and to conclude that health effects of asbestos is due to only cement sheet related asbestos exposure. It is true that even low dose exposure of asbestos can results in a disease but after several years (about 20 or more) and in many instances such disease represents in sub-clinical form (patient do not have any sign symptoms and only X-ray/HRCT will have opacities). To identify such early disease/ pathology longitudinal study design is required which takes several years to conclude. In such study, we will be unnecessarily exposing children to substantial high radiological dosage, through X-ray, HRCT, etc., and even though we might not come to any firm conclusions.*

*(1) The expert from IIT-Roorkee shared with the Expert Committee information on research/studies undertaken and steps being taken elsewhere in the developed world to regulate the use of asbestos (Annexure-VI). The expert from ICMR-NICPR also informed that the world over its use is being discouraged, and many countries are banning its use because of its health hazards. The Expert Committee noted that asbestos use in India was very different from that in the Western world. In the Western world, there are more harmful uses than sheet use in India. They used to spray tiles and walls with asbestos fibres to make them fire-resistant. In this regard, asbestos use data were noted. Asbestos is imported and presently not mined in India. According to the Indian Minerals Yearbook 2022 Vol-III of the Ministry of Mines, Government of India, the annual consumption of asbestos fibre was approximately 3 lakh ton during 2020-21 and approximately 4.4 lakh ton during 2021-22 (Annexure-VII). According to the information provided by the Fibre Cement Products Manufacturers Association (FCPMA), about ninety percent of the chrysotile asbestos is used in India for two main products cement asbestos sheets (85%) and cement asbestos pipes (5%), and the remaining 10% is used in other products (Annexure-VIII). FCPMA has further informed that 3.4 lakh ton asbestos was used for cement-asbestos sheet production, which contains 8%-9% asbestos, implying that approximately 40 lakh ton cement-asbestos sheets are being manufactured annually (3.4*100/8.5).*

***4. Recommendation of the Expert Committee***

*(a) An advisory may be issued for schools through concerned supervising authorities: i) to maintain the existing cement-asbestos roofing sheets in good condition, and apply a protective coating of paint or lime on the sheets as a precautionary measure; ii) to follow the guidelines IS: 11769 (Part 1) during installation and handling of cement-asbestos roofing sheets; iii) to ensure disposal of the waste cement-asbestos roofing sheets when discarded or damaged at authorized disposal sites under HOWM Rules 2016.*

*(b) Awareness may be spread through concerned authorities and industry so as to ensure proper disposal of cement-asbestos waste at authorized disposal sites under HOWM Rules 2016 and prevent re-entrainment into air matrix on degradation. The waste disposal data and global best practices may be reviewed from time to time by Government to arrive at suitable policies to minimize asbestos waste generation and its proper disposal."*

95. Vide order dated 17.12.2024 the applicant was granted opportunity to file objections/suggestions to the report dated 13.12.2024 filed by MoEF & CC.

**Objections/suggestions by the applicant to Additional Study Report filed by MoEF&CC**

96. In compliance thereof, response to the affidavit dated 13.12.2024 of MoEF & CC was filed by the applicant vide email dated 20.02.2025. In his response the applicant has submitted as under:-

*"a. In point 3 (e) on page running page 1738, the report has acknowledged a very important scientific and medical fact that even low dose exposure of asbestos can result in a disease but after several years (about 20 or more) and in many instances such disease represents in sub-clinical form (patient do not have any sign symptoms and only X-Ray/HRCT will have opacities).*

*b. In point 3 (f) on running page 1738, there have been observations by experts from IIT Roorkee which have not been included in the body of the report but have been included as annexure VI (running page 1778 to 1781) which may be considered by this Tribunal. Further, comments of the expert from National Institute of Cancer Prevention and Research (part of Indian Council of Medical Research) may be noted."*

97. The applicant has given suggestions on the Recommendations of the Expert Committee which are reproduced as follows:

*"a. On whether the recommendations are mandatorily enforced or a mere guideline for schools may kindly be noted, and it is prayed before the Hon'ble Tribunal that*

*mandatory enforceable directions by the MoEFCC may be given in this regard.*

*b. On the recommendation given in point 4 (a), any step including maintaining of existing sheets in schools in good condition and application of protective coating as a precautionary measure may be the first important step.*

*c. With respect to the installation of fresh asbestos sheets in schools or future use of asbestos as part of roofing material in schools, as it may not have been covered in the recommendations, the Hon'ble Tribunal may direct the MoEFCC to provide a suitable enforceable regulation.*

*d. It has been admitted by MoEFCC that asbestos 'can enter the air, water and soil from weathering, renovation, or demolition of manufactured asbestos products.'And that 'people are likely to be exposed to asbestos through inhalation of airborne fibres'. Under this context, the issue of disposal of waste cement-asbestos sheets has been included in recommendations. It is prayed that the awareness and creation of policies on waste disposal may be given a strict time frame, as the Hon'ble Tribunal may deem correct. Further, the issue of asbestos waste disposal is second to the issue of minimizing of the asbestos waste generation itself as has been highlighted in the report. For this the industry with a spirit of reform, and with their enormous capability can lead by coming up with solutions.*

*e. India has had roofing for centuries, and for the sake of use in schools, many low-cost techniques which give power to local decentralized artisans and workers to create roofing solutions may be worked upon/innovated by the industry along with the government in face of their immense power, influence, and capability. This will enable actual Atmanirbhar Bharat and by not having schools use a Group 1 carcinogen will we contribute to Viksit Bharat, retaining worker jobs and health and safety for users at schools, waste handlers and others, etc. In this regard, the Government of India, Ministry of Home Affairs through its National Disaster Management Authority has come up with 'House Owner's Guide to Alternate Roof Cooling Solutions' where 16 techniques which can work for schools, have been used against heatwave action. This has already been placed on record (running pages 1078-1112). These may kindly be considered by the Hon'ble Tribunal."*

**Directions given by Government Department**

98. The applicant has referred to directions given by the Kendriya Vidyalaya Sangathan and the Navodaya Vidyalaya Samiti to their schools to ensure that in any ongoing or future school projects, asbestos may not be

used and existing asbestos structure may be replaced in a phased manner to serve as beacon lights for other schools in India.

99. Vide order dated 17.12.2024 this Tribunal directed the Multi-Disciplinary Experts Committee to look into the aspect of desirability or otherwise of future use of asbestos as part of roof material in the schools and also explore the possibility of use of alternative in place of asbestos in manufacturing of roof sheets etc.

100. In compliance thereof Additional Status Report dated 22.02.2025 was filed by MoEF & CC. In the Additional Status Report dated 22.02.2025 MoEF&CC has submitted that in accordance with the direction of this Tribunal, the matter was further deliberated, and a meeting of the Expert Committee was held on 06.02.2025 at CPCB, Delhi. The Expert Committee has prepared and submitted the report to MoEF&CC on 20.02.2025. The relevant part of the report reads as under :-

> ***"6. Response of the Expert Committee***
>
> *In view of the above observation of Hon''ble Tribunal in order dated 17.12.2024 in O.A. No. 298/2023 the matter was further deliberated, and a meeting of the Expert Committee was held on 06.02.2025, at CPCB, Delhi in hybrid mode. IIT-Delhi could not participate during preparation of report dated 13.12.2024 but have participated during the meeting held on 06.02.2025. CSIR-IITR Lucknow did not participate and have responded that they do not have expertise in the subject matter. The list of participants is attached as Annexure-I. Response of the Expert Committee is as below:*
>
> ***(i) desirability or otherwise of future use of asbestos as part of roof material in the schools***
>
> *The experts from IIT Delhi and IIT Roorkee emphasised the importance to calculate the risk due to expected emission levels (amount of fibre per cc). If the risk is below the permissible limit, the use of asbestos sheet may be continued. Also, as India progresses and quality of life develops, obviously the standards have to be revisited and revised. On this, the expert committee noted that*

*permissible fiber level for asbestos internationally is 0.1 per cc for the places in the industrial set up. So, it can be assumed that if it is below 0.1 fibre per cc, it may not be causing adverse health effect. In Sri Lanka study, it is in three decimal places. So, calculating the health risk related to so less of fiber will not yield anything on the health risk assessment. Also, the expert committee do not have evidence to say that the children sitting under the asbestos sheet are in excess risk of developing health conditions.*

*Asbestosis may be a problem in case of occupational exposure but during the use of cement- asbestos sheets we don't have any data to support that the sheets are causing harm.*

*The risk/hazard related to cement-asbestos sheets in the school can also be minimised if appropriate measures are taken during dismantling and installation. The expert committee have already recommended in the previous report that safe use, maintenance and safe handling of the asbestos sheet is more important rather than replacement.*

*The expert committee agreed that waste disposal data and global best practices may be reviewed from time to time by the government to arrive at suitable policies to minimize asbestos waste generation and its proper disposal and this applies not only to cement asbestos sheets but also on other harmful chemicals or materials. Such decisions need some wider deliberation and assessment of their economic impact."*

101. In the Additional Status Report dated 22.02.2025 MoEF&CC has further submitted that during hearing on 17.12.2024, this Tribunal desired a comment/response from the Indian Institute of Toxicology Research (CSIR-IITR) but CSIR-IITR through its email dated 29.01.2025 and subsequent email dated 18.02.2025 apprised that at present CSIR-IITR, Lucknow does not have expertise in the desired area for the said Expert Committee.

**Response dated 04.04.2025 filed by the applicant to the MoEF&CC Expert Committee Additional Report dated 21.02.2025**

102. The applicant filed response dated 04.04.2025 to the MoEF&CC Expert Committee Additional Report dated 21.02.2025. In the response the applicant has submitted that the representative of the National Institute of

Cancer Prevention and Research under ICMR has not signed the additional report. The Expert Committee, which did not do any study on its own, has relied upon study from Sri Lanka titled 'Air Quality Study on Concentrations and Significance of Chrysotile Asbestos Fiber in Household Ambient Environment in Sri Lanka' The said Sri Lankan study did not consider medical investigations and has only looked into the level of asbestos in the air. The said Sri Lankan study does not consider the latency period of asbestos related diseases, especially cancers like mesothelioma which take decades to manifest. The study does not clearly mention whether weathering and degrading sheets were considered or the asbestos sheets under the study were mostly new.The study does show release of asbestos fibres in the indoors and further the study recommends inclusion of asbestos in air quality standards and in air quality monitoring programs The Expert Committee has mentioned about the cost and heat resistant properties of asbestos cement roofing. It must be reiterated that the Government of India, Ministry of Home Affairs through its National Disaster Management Authority has come up with 'House Owner's Guide to Alternate Roof Cooling Solutions' where 16 techniques (which can work for schools), have been used against heatwave action. This guide by the government of India focused on heat resistance of roofing and does not include asbestos cement roofing. The expert committee in its Additional Study Report dated 21.02.2025 has used 0.1 fibres/cc as the permissible levels of asbestos in the air (industrial occupational limits). But the said Sri Lankan Study clearly brings forward the non-occupational standards for asbestos of 0.0009 fibres/cc. Even for occupational exposure some countries have standards as low as 0.001fibres/cc. For the sake of asbestos in soils, the Indian standard of 10000 mg per kg may also be updated as in many countries with standards like 100 mg per kg. The Expert Committee has noted in report dated

21.02.2025 that as India progresses and quality of life develops, obviously the standards have to be revisited and revised and has deferred the issue. This Tribunal may refer to the 'Vision Statement on Environment and Human Health' by MoEF&CC especially its clause 4.3.1 ILO Position on safety in the use of asbestos for the issues of installation/maintenance may be considered.

103. Vide order dated 24.03.2025 MoEF & CC and CPCB was directed to file additional response as to whether any SOP has been formulated regarding installation and dismantling/disposal of asbestos roof sheets/wall sheets and to file copy of the SOP if already framed and to formulate such SOP if not already framed and file additional response.

104. However, MoEF & CC and CPCB did not file any additional response.

**The various Indian Governmental Organisations and their dealing with asbestos cement sheets**

105. The applicant has submitted that the issue of stoppage of asbestos cement roofing or preventing the promotion of the same is not unprecedented in the world. In India itself this action has been touched upon by the following:-

> *"a. The Western Railways, a part of Indian railways in 2013 based on the advice of the Railway Design Standard Organisation guideline No. WKS/WS/05/FS dated 16th January 2013 has phased out the use of asbestos roofing. This has also been reported in the Hindustan Times and Mumbai Mirror Articles.*
> *b. The Central Public Works Department, which is under the Ministry of Housing and Urban Affairs, and has responded in this current matter, and has stated on record that the latest DSR does not include asbestos materials. This fact is in the favour of the applicant as even though some CPWD buildings are using asbestos roofing, the policy by a central government agency directly under a Ministry has stated on record that asbestos is*

*no more part of the DSR, which is document to be used in government constructions and is also the benchmark for all private construction in the country.*

*c. The National Disaster Management Authority working under Heatwave Action has come up with 'House Owner's Guide for Alternate Roof Cooling Solutions' has listed 16 roof technologies and have specifically excluded the roof containing asbestos fibre and have suggested a roof with alternate fibre. This is a guideline by a government agency that has suggested cheap and affordable methods for cool roofing in India. The 'House Owner's Guide for Alternate Roof' by NDMA is attached as Annexure D.*

*d. The Minister of External Affairs of India had informed the parliament that the Indian cultural centre in Washington DC was delayed due to asbestos problems in the building that was a brownfield project and asbestos was still in the building. This is indicative of the strong caution that asbestos containing materials cause to the Indian government when in the US jurisdiction, but the same asbestos containing materials used in Indian buildings may be relooked at. The extract of statement of the Minister of External Affairs Shri S Jaishankar in Parliamentary Debates dated 9th February 2023 with Volume 259 No. 8 is attached as Annexure E.*

*e. In another case of a prison in Delhi, the renowned public figure and member of parliament, Late George Fernandes filed a case before the National Human Rights Commission on 11th August 1997 No. 693/30/97-98 for a Bhutanese National in Delhi Jail. The case was about use of asbestos containing roofing in the jail where the NHRC had directed the Delhi government to use roofing of some other material."*

**Response by respondent no. 4-FCPMA**

106. Respondent no.4-FCPMA has submitted in its sur rejoinder as under:-

*"49……The purported decisions by the organizations/authorities mentioned in paragraph 15 of the Rejoinder to not use asbestos cement roofing sheets are not on account of any health risk posed by asbestos cement roofing nor are these purported decisions not supported by any scientific risk assessment regarding the likelihood or levels of exposure to asbestos fibers from such roofing. For instance, the Applicant has alleged at para 15(a) that a decision was taken by Western Railways to phase out the use of asbestos roofing' which was based on the recommendations in a guideline submitted by the Railway Design Standard Organisation (Annexure B of the Rejoinder @pp. 1039-1072). In the said Guidelines titled `Standardization of Specification of flooring, Roofing material for platform covering in Station Premises & Standardization of Specification of Workshop flooring', it is mentioned at page 1 of the said Guidelines (@pg. 1044 of the Rejoinder) that the "there is large variation in flooring, roofing standards in Railway and*

*nothing has been laid down for different categories of stations. At Railway workshops type of flooring is also not spec(fied. Hence, need to standardize the different type of flooring, roofing at different category of stations and Workshop was felt."*
*(emphasis supplied).*
*It is therefore clear that since there was use of different types of materials in flooring, walling, ceiling, etc. for various areas on the station premises that is why a need was felt to have standard materials. Further, there is nothing in the said Guidelines that show that asbestos roofing is a health hazard. In fact, asbestos cement roofing. is widely used across the country, including by a host of governmental organisations and authorities.*
*As regards the contents of paragraph 15 (e), it is submitted that the Order dated passed by the Hon'ble National Human Rights Commission in case No. 693/30/97-98 is not supported by any scientific risk assessment regarding the likelihood or levels of exposure to asbestos fibers from asbestos cement roofing. The answering Respondent craves leave to refer and rely upon the ruling given by the Hon'ble National Human Rights Commission in case No. 693/30/97-98 for its true and correct meaning, interpretation, scope and legal effect thereof, at the time of hearing.*

**Developing Alternatives to use of asbestos in roofing sheets**

107. The applicant has submitted that the companies that FCPMA represents have by themselves made an attempt to switch to new alternatives instead of asbestos, which is for reasons that there is a realization that asbestos has harmful health effects for human beings. If asbestos would have been the only option, the companies may never have shifted to other alternatives which they have also started as a vertical in their production plans. Switching to responsible alternatives is a step that will actually make the businesses future ready which will actually save employment and not risking health of Indians, especially Indian children. In rejoinder to the reply filed by respondent no. 4-FCPMA, the applicant has submitted about development of alternatives by its members as under:-

*"53. Para 16: The applicant reiterates that the manufacturers who are members of respondent number 4 have themselves very vehemently pushed other fibres and have large scale manufacturing of the same. This is so much so that one of the members has even promoted Non-Asbestos Sheet before the*

*Research Designs and Standards Organisation (Ministry of Railways, Government of India) in 'Trials of various new technology/products presented by industries/firms during 8th Works standard committee meeting with the following positive points:*

*a. Does not fade or degrade.*
*b. Protects against UV*
*c. Provides thermal insulation.*
*d. Lightweight & easy to install.*
*e. Weather resistant*

*The above-mentioned document by Railway Design Standards Organisation highlighting the promotion of qualities of non-asbestos roofing sheets by manufacturers is attached as Annexure O.*

*Another company promoted the non-asbestos cement sheet with the following qualities, among many include 'Excellent load bearing strength. And 5times more durable than metal roofs.*

*Another brochure of non-asbestos roofing states the quality and mentions high durability, strength, impact resistance in the brochure.*

*The brochures by manufacturers mentioned above are attached as Annexure P."*

108. In its sur rejoinder, respondent no. 4-FCPMA has denied that there are viable alternatives to asbestos cement roofing sheets and that the industries have shifted to alternatives and submitted as under:-

*" …that while some companies had/ have come out with alternatives to asbestos-cement roof sheets, these alternatives are not viable alternatives for a variety of reasons. Everest Industries Ltd. (a member of the answering respondent) promoted polycarbonate sheets,, however, Everest Industries Ltd. has now stopped manufacturing these polycarbonate sheets since these sheets are not durable and only last for a couple of years and there is hardly any demand for the same. Further, these polycarbonate sheets let in at least 85% of light (Ref.: Annex u re-O of the. Rejoinder @pp. 1251-1255) and also lack the strength that asbestos cement roof sheets provide. Therefore, these polycarbonate sheets cannot be used as an alternative to asbestos cement roof sheets. Furthermore, Ramco Industries Ltd. (a member of the answering Respondent) manufactures polypropylene sheets, however, since these sheets are more expensive and less durable when compared to asbestos cement roof sheets, there is hardly demand for the same, the demand is comparable to 1% of total size of the asbestos cement sheet market. It would, therefore, be entirely incorrect to suggest that there are viable alternatives to asbestos cement roofing sheets or that the industry has switched to alternatives.*

*These alternatives have failed to match the performance standards set by chrysotile asbestos for inter alia the following reasons:*

*a) The roofing sheets require high strength levels which are provided by chrysotile fibers. These chrysotile fibers are integral to the cement matrix, providing the necessary structural integrity as both cement and chrysotile fibre are silicate mineral. When the industry tried using the alternative fibres and tested the strength of the roofing sheets, they found the strength to be lacking. The requisite strength levels cannot be maintained by using the alternative fibres because polyester fibre does not mix well with cement and other raw materials. Therefore, without chrysotile fibers, desired strength levels cannot be achieved, and thus the products manufactured using alternative fibres cannot be used for roofing sheets as it compromises on safety of the persons who occupy the premises where the roofing sheets are installed.*

*b) Chrysotile fibers, being naturally occurring, are more cost-effective compared to their synthetic counterparts. Utilizing alternative fibers results in increased production costs for asbestos cement products, ultimately burdening consumers with significantly higher prices.*

*Therefore, in summary, the limitations of alternative fibers in replicating the performance and cost-effectiveness of chrysotile asbestos make them unsuitable substitutes in the fiber cement industry.*

109. In its report submitted to MoEF & CC, the Expert Committee made following observations regarding possibility of use of alternative in place of asbestos in manufacturing of roof sheets etc.

***"(ii) possibility of use of alternative in place of asbestos in manufacturing of roof sheets etc...***

*" As regard possibility of replacing asbestos in cement sheets with possible alternatives, the asbestos sheet manufacturers association have submitted in their reply in this matter that some substitutes have been tried but they were not successful in finding alternate for asbestos in cement sheets.*

*The expert committee opined that cement-asbestos roof sheets when used as a roof sheet, provides insulation against very high temperature, very low temperature at low cost. The low cost possible alternative is steel roof sheets but they do not have same properties hence not preferred for such use.*

*There are other alternatives to cement-asbestos sheets, including GI sheets, fibre cement sheets, PVC sheets, polycarbonate sheets and RCC roofs. The choice of material depends on environmental factors and budget constraints. Below is a concise comparison of viable roofing materials suitable, focusing on cost, lifespan, and protection against heat and rain:*

| *Material* | *Cost (INR/ sq.m* | *Lifespan* | *Heat Protection* | *Rain Protection* |
|---|---|---|---|---|
| *Cement-Asbestos Sheets* | *200-250* | *25 to 40 years.* | *Thermal insulation is good* | *Durable* |
| *Galvanized Iron (GI) Sheets* | *250-500* | *Up to 30 years* | *Reflects heat; may increase indoor temperatures* | *Durable and long-lasting; requires proper installation to prevent leaks; can be noisy during heavy rain* |
| *Fibre Cement Sheets* | *500-1000* | *10-30 years* | *Non-toxic and durable; heavier than metal sheets* | *Resistant to weather and pests; requires skilled installation* |
| *PVC Sheets* | *500-1000* | *10-30 years* | *Versatile and fire resistant; offers moderate insulation* | *Durable; proper installation ensures effective rain protection* |
| *Polycarbonate Sheets* | *800-1500* | *Varies* | *Allows natural light; may require UV protection layer* | *Weather-resistant; suitable for areas requiring light transmission* |
| *RCC roofs* | *3000-3500* | *Up to 80 years* | *Absorbs heat; may require reflective coating for heat reduction* | *Most Durable* |

**Orders of the Kerala Human Rights Commission**

110. In support of the submissions made in the original application, the applicant has relied on the orders passed by the Kerala State Human Rights Commission, Government of State of Kerala and Hon'ble High Court of Kerala and the relevant part of the original application is reproduced as under:-

> *" 11. The Hon'ble Kerala State Human Rights Commission in Order, HRMP No. 126/2007 passed on 31st January 2009 has also taken notice of the same and recommended the ban of use of asbestos roofing in new schools and recommended replacing existing asbestos roofing in government and private schools with country tiles in phased manner. The Certified copy of the Order passed by the Hon'ble Kerala State Human Rights Commission in HRMP No. 126/2007 passed on 31st January 2009 has been attached at Annexure B.*
>
> *12. That the above stated order of the Kerala Human Rights Commission was implemented by the Government of Kerala and an order to this effect was passed on 9th October 2019 vide*

*number 162/2019/GEDN. The original order is in Malayalam Language and is attached as Annexure C. The translation of the order in English has been put on record by the Hon'ble Kerala High Court in the judgment passed in a related matter WPC 23846 of 2021 in para 9. A certified copy of the Judgment in WPC 23846/2021 passed by the Kerala High Court on 2nd November 2021 has been attached as Annexure D.*

*13. That this government order based on the recommendations of the Kerala Human Rights Commission to ban the use of asbestos roofing in schools in Kerala was challenged by some petitioner in the Kerala High Court, but the Hon'ble Court in its wisdom reinstated the government order and passed an order in W P C 22457/2019 dated 3rd September 2019 which stated as follows:*

> *'The first respondent, ie the State of Kerala 'shall therefore file an affidavit as to why no action is taken for prohibiting such roof for buildings of schools in the state and why no action is taken to see that asbestos roof of class rooms in all the schools are replaced. The respondents shall also state why no action is taken to incorporate appropriate provisions providing for specifications for the roof also of the classrooms. There shall be a direction to the respondents to see that the asbestos roof of the classrooms of all the schools are replaced in a time bound manner.'*

*This order passed on 3rd September 2019 passed by the Hon'ble Kerala High Court in WPC 22457/2019 is attached as Annexure E.*

*14. That this concern of use of asbestos sheets was also raised in WPC 14729 of 2016 before the Hon'ble Calcutta High Court where such sheets were being used in the main building of the Court. On this the Hon'ble Calcutta High Court ordered that it will be ensured that: 'the asbestos-sheets, which have been used for roofing, would be replaced by any other materials which are non-carcinogenic' The order dated 21st July 2017 in WP No 14729 (W) of 2016 has been annexed as Annexure F"*

111. Respondent no. 4-FCPMA has relied on the orders passed by Hon'ble High Court of Kerala and the relevant part of its reply is reproduced as under:-

*"26. Four petitions were filed by one Mr. Mukesh Jain before the Hon'ble Kerala State Human Rights Commission, Thiruvananthapuram ("KSHRC") bearing H.R.M.P Nos. 126/07, 1476/07, 1903/08, 5203/08 claiming inter alia that asbestos is non-biodegradable and a health hazard to school children*

*and if any damage is caused to asbestos roof sheets used in schools, it can result in release of small asbestos fibres that become airborne and these fibres can cause serious lung diseases. In these petitions, KSHRC passed an order dated 31.01.2009 holding inter alia as under: -*

*"1. The State Government will replace asbestos roofs of all schools buildings under its control with country tiles in a phased manner."*

*"0. The Government should see that in the future no new school is allowed to commence its functions with asbestos roofing"*

*Copy of order dated 31.09.2009 passed by the KSHRC in H.R.M.P Nos. 126/07, 1476/07, 1903/08, 5203/08 is annexed hereto as Annexure- J.*

*27. Upon becoming aware of this order, M/s. Visakha Industries Ltd. (a member of answering Respondent) filed a petition being H.R.M.P No. 1792/2009, before the KSHRC seeking recall of the above order. It was submitted that the petitioner therein being a manufacturer of asbestos cement roofing sheets, would be adversely affected by the said order and the said order was passed without hearing him. In this petition, the KSHRC passed an order dated 07.05.2009 clarifying that the above order dated 31.01.2009 is only recommendatory in nature and that KSHRC has no jurisdiction to recall the order already passed by the Commission. Copy of order dated 07.05.2009 passed in H.R.MPNo. 1792/2009 by the KSHRC is annexed hereto as Annexure- K.*

*28. In the circumstances, aggrieved by the order dated 31.01.2009 passed by the KSHRC, Visakha Industries Ltd. filed a writ petition [W.P(C) No. 25100 of 2009] before the Hon'ble High Court of Kerala. This writ petition was allowed by the Hon'ble High Court of Kerala vide order dated 07.08.2017, whereby it was held inter alia as under: -*

*`'5... There are no data available before the commission to arrive that the asbestos sheet is hazardous to the health of children. If it would pose a threat to the health of the children, certainly; that could have been a matter for a decision by the commission. On mere surmises and conjunctures. the commission could not have ordered recommendation for replacement of asbestos sheet. The Commission relied upon the report of the World Health Organization (WHO). All that could be seen that the asbestos sheet referred by WHO may depend upon the environmental setting it is used It is necessary to verify what is the nature of the mixture that is used for the asbestos sheet. The asbestos sheet as such is not a threat as revealed from the judgment of the Hon'ble Supreme Court in Kalvaneshwari v Union of India and Others [(2011) 3 5CC 3871 relied by the learned counsel for the petitioner. In the absence of any evidence to show that the asbestos sheet would cause a serious threat to the life of the children, the Commission could not have made such recommendation as referred above. It is to be noted that the industrial rivalry and competition sometimes used as a platform to settle a score_ The Commission should have been careful while entertaining such complaint especially when it appears that the complainant never appeared before the Commission and also*

> *before this Court. In view of the above, the impugned order is set aside: The writ petition is disposed of as above.-*
>
> *(emphasis supplied)*
>
> *38. The Applicant has, in fact, placed reliance on the above KSHRC order in support of his case without disclosing that the said order had been set aside by the Hon'ble High Court of Kerala."*

112. Respondent no. 4-FCPMA has submitted in its reply that judgments of the Hon'ble High Court of Kerala in WP (C) No. 23 846 of 2021 and in WP (C) No. 22457 of 2019 (F) are based on, and place reliance on, the order of Kerala State Human Rights Commission dated 31.01.2009 in HRMP No. 126/2007 but the above-said judgments did not notice that dated 31.01.2009 passed in HRMP No. 126/2007 by Kerala State Human Rights Commission had already been set aside by the Hon'ble Kerala High Court vide judgment and order dated 07.08.2017 in WP (C) No. 25100 of 2009 (F).

113. With reference to judgement of the Hon'ble Calcutta High Court dated 21.07.2017 in W.P. No. 14729(W) of 2016 relied on by the Applicant, respondent no. 4-FCPMA has submitted in its reply that the judgement:

> a. was not based on any study conducted at the High Court premises on presence of asbestos fibres in the air in the rooms/ premises where the asbestos sheets were used,
> b. did not consider the safety of asbestos cement sheets on account of the manufacturing process and the firm inter-locking of asbestos fibres with the cement,
> c. was only a summary adjudication which did not ban asbestos sheets, but only directed that at the time of renovation, asbestos sheets should not be used in the High Court premises.
>
> It is therefore humbly submitted that the said judgement does not lay down any law on the issue and would not have any application in this case.

114. The applicant has submitted that respondent no. 4-FCPMA has supressed order dated 03.09.2019 passed in Writ Petition (Civil) no. 22457/2019 and order dated 02.11.2021passed in Writ Petition (Civil) no. 23846 of 2021 in para 9.

**Orders of the National Human Rights Commission**

115. In his reply to the rejoinder filed by respondent no. 4 the applicant has relied on order passed by National Human Rights Commission in Case no. 693/30/97-98 where one Shri Rongthong Kuenley Dorji was detained in Delhi and the Director General (Investigation) DG (I) of the commission visited the same and prepared a report. On the basis of the report the commission ordered the following: "(i) Replace the asbestos sheets roofing with roofing made up of some other material that would not be harmful to inmates".

116. In its reply respondent no. 4 has relied on order passed by National Human Rights Commission in Case No. 2951/30/0/2011 and the relevant part is reproduced as under:-

> *"29. Before the Hon'ble National Human Rights Commission of India ("NHRC"), a complaint was filed by Sh. Gopal Krishna bearing case No. 2951/30/0/2011, claiming that 50,000 people die in India every year on account of Asbestos related diseases, and demanding a ban on asbestos usage. This complaint was disposed of by the NHRC vide order dated 08.08.2016 by holding inter alia as under: -*
> *"Pursuant to the directions of the Commission, Dr. Rohit Misra, Assistant Industrial Advisor Ministry of Chemicals & Fertilizers, Deptt of Chemicals and Petrochemicals, Govt. of India vide letter dated July, 2016 has informed the Commission that in order to take an appropriate and scientific stand in the International Forum on the issue related to health hazards posed by Chrysotile variety of Asbestos, Department of Chemicals and Petrochemicals had entrusted National. Institute of Occupational Health (NIOH) to carry out a study on Health Hazards/Environmental. Hazards resulting from the use of Chrysotile variety of sbestos in the country Later, with the approval of MoS (md Charge) Chemicals & Fertilizers, it was decided to set up an Inter-Ministerial Committee for considering the issue of continuance or otherwise of the use of Chrysotile variety of asbestos in India, taking into account of N1OH report and other related issues.*
>
> *"...On 27.8.2014, a meeting was held under the Chairmanship of Minister (Chemicals & Fertilizer) to consider the NIOH report. It was decided in the meeting that the NIOH report does not*

*indicate any significant health/environment hazards resulting from the use of Chrysotile asbestos under proper conditions, coupled with the fact that asbestos products are quite cost effective for use by the masses, India may not support the inclusion of Chrysotile in Annexure-Ill at the COP Meeting in 2015. In the light of the above report, no further action by the Commission is called for. The case is closed"*

*(emphasis supplied) ”*

117. We have gone through the orders passed by Hon’ble High Court of Kerala and Hon’ble High Court of Calcutta and also the orders passed by Hon’ble Kerala State Human Rights Commission and Hon’ble National Human Right Commission quoted above. However, we find that the same do not conclusively decide the questions regarding adverse health impact of asbestos cement roofing sheets and other asbestos contained material and permitting or prohibiting usage thereof with immediate replacement in schools or other buildings Pan India in other States and Union Territories (except State of Kerala) are concerned. In WP (C) No. 25100 of 2009 (F), the Hon'ble High Court of Kerala had mentioned in Judgment dated 07.08.2017 that there is no data available with Kerala Human Rights Commission to arrive that the asbestos sheet is hazardous to the health of the children and the Hon'ble High Court of Kerala also observed that the asbestos sheet as such is not a threat as revealed from the judgement of Hon'ble Supreme Court in the case of **Kalyaneshwari v. Union of India and Others [(2011) 3 SCC 287]**. Order dated 03.09.2019 passed by Hon’ble Hight Court of Kerala in Writ Petition (Civil) no. 22457/2019 is an interim order which directed compliance with order issued by Government of Kerala and order dated 02.11.2021 passed by Hon’ble Hight Court of Kerala in Writ Petition (Civil) no. 23846 of 2021 is based on principle that no appeal lies after implementation of order appealed against and was passed in view of the fact that order issued by Government of Kerala had already been implemented and both the orders do not record any finding based on specific scientific

evidence as to adverse health impact of asbestos cement roofing sheets used in schools so as to warrant replacement on the basis thereof. Order dated 21.07.2017 passed by Calcutta High Court in WP No. 14729 (W) of 2016 is also by way of summary adjudication without any decision of the questions involved on merits. Similarly, the orders passed by National Human Rights Commission also do not conclusively determine the environmental questions involved in the present case.

**The Precautionary principle**

118. Section 20 of the NGT Act, 2010 mandates this Tribunal to apply the precautionary principle and the same reads as under:-

> ***"20. Tribunal to apply certain principles.-*** *The Tribunal shall, while passing any order or decision or award, apply the principles of sustainable development, the precautionary principle and the polluter pays principle."*

119. The Precautionary Principle as applied by the Hon'ble Supreme Court in **Vellore Citizen's Welfare Forum v. Union of India (AIR 1996 SC 2716)** makes it obligatory to anticipate, prevent and attack causes of environmental damage and further stated that if there are potential irreversible damages, the lack of scientific certainty should not be a reason for postponing measures to prevent environmental degradation.

**Protection of children**

120. India is a signatory of the United Nations Convention on the Rights of the Child (signed in 1992), which not only ensures providing education to a child but also deals with taking care of the health of the child. Since in schools with asbestos cement roofing, the children may be exposed to a carcinogenic health impact of asbestos, the interest of the children has to be protected.

121. We have gone through the scientific studies/researches relied upon by the applicant and respondents particularly respondent no. 4-FCPMA in support of their respective submissions against and for continuing usage of asbestos cement roofing sheets and other asbestos contained material in schools from the view point of environmental health. We find that there is no specific study with reference to adverse health impact of asbestos cement roofing sheets in school buildings despite the fact that specific order was passed by this Tribunal in this regard. Even though in its reply respondent no. 1-MoEF & CC has submitted that asbestos in the building does not spontaneously release fibres but respondent no. 1-MoEF & CC has admitted that asbestos fibres can enter the air, water and soil from the weathering, renovation or demolition of manufactured asbestos products and people are likely to be exposed to asbestos through inhalation of asbestos airborne fibres. In view of this admission of MoEF & CC, the claim by respondent no. 4-FCPMA that there is no evidence that on weathering/breakage of asbestos cement roofing sheets, the asbestos fibres are released in the air and that this would not happen as the fibres are firmly locked with the cement matrix is not correct. However, we are of the considered view that in the absence of any positive specific scientific evidence/material, direction for immediate discontinuance of use of asbestos cement roofing sheets and replacement thereof in schools Pan India in all States and Union Territories except State of Kerala is not warranted at this stage by recourse to the "Precautionary Principle" and also by relying on the factum of India being signatory to the UN Convention on Child Rights. It may be observed here that the prayer for immediate discontinuance of asbestos cement roofing sheets in schools and issuance of direction for replacement of the same ignores/overlooks the adverse impact of asbestos cement roofing sheets in residential houses or

other buildings likely to be frequented by the children/students, where their stay may also be for equal or longer periods of time, which also brings in focus the question of ban on use of asbestos cement roofing sheets in schools, residential houses and other buildings for their protection from adverse health impact of asbestos. It is also pertinent to observe here that prayer made in Kalyaneshwari Vs. Union of India and others (2011) 3 SCC 287 for ban on use of asbestos was rejected by the Hon'ble Supreme Court.

122. However, it is pertinent to observe that MoEF&CC has in its 'Vision Statement on Environment and Human Health' stated in para 4.3.1 that 'Alternatives to asbestos may be used to the extent possible and the use of asbestos may be phased out'. We consider it appropriate to direct MoEF & CC to deliberate on this aspect and work out an Action Plan with appropriate time lines for use of alternatives to asbestos as may be scientifically feasible and environmentally and economically viable.

**Directions by the Tribunal**

123. In view the hazards associated with exposure to asbestos cement roofing sheets and other asbestos contained material, following directions for taking of following remedial measures for protecting workers, their family members/persons coming in contact with them, residents of the locality, occupants and users of the buildings with asbestos cement roofings and other asbestos contained material are given:-

**A. To prevent occupational exposure of asbestos.**

(i) **Protecting Workers**:

The employers are required to protect workers by assessing asbestos levels, marking of regulated areas, posting hazard signs,

engineering controls (ventilation systems with appropriate filters) and appropriate green belt and other technological measures to reduce level of asbestos in the air. The proper use of Personal Protective Equipment (PPE), need to be made mandatory for the workers.

**(ii) Measures for Controlling Exposure:**

- Smoking, eating or drinking in areas where asbestos exposure is possible should be prohibited.
- Dry sweeping, shoveling or other dry cleanup of dust & debris containing asbestos should be avoided.
- Wearing protective outer clothing that can be removed & cleaned or discarded should be made mandatory.
- Washing exposed parts of the body with soap and water
- All precautions need to be taken to avoid carrying asbestos fibres out of worksite where they can later be inhaled by others (viz. family members at home).

**(iii) Medical Monitoring:**

Periodical exposure monitoring & medical surveillance of workers should be made mandatory.

(iv) Training:

- The workers, who may be exposed to airborne concentration of asbestos at or above Permissible Exposure Limit (PEL), need to be trained prior to initial assignment and at least annually thereafter.
- The training programme must include information on the following: -

  -The Health Effects associated with asbestos exposure

-The relationship between smoking and asbestos exposure in producing lung cancer.

-The quality, location, manner of use, release, and storage of asbestos, and the specific nature of operations which could result in exposure to asbestos.

**B. To prevent non-occupational exposure to Asbestos in Schools.**

**(a)** The handling, installation, maintenance and disposal of asbestos-containing roof and boundary sheets require strict adherence to safety protocols to minimize environmental and health risks. It is therefore directed as follows:

I. In handling, installation and removal asbestos-cement roofs, the manufacturer's instructions should be followed carefully and BIS recommended tools should be used and safety precautions should be taken for ensuring proper sealing and minimizing waste generation.

II. During handling, installation and removal of asbestos cement roofing sheets/other asbestos containing material precautions to prevent fiber release including wetting the material, using appropriate personal protective equipment (PPE), and minimizing disturbance may be taken.

III. If the asbestos cement roofing is in good condition the same need not be removed immediately and the same may be encapsulated with appropriate sealant or paint as a safer option than immediate removal.

IV. If asbestos cement roofing is not in good condition and requires removal, then removing existing asbestos roofing

sheet from schools and other establishments should be immediately removed by prioritizing and minimizing fiber release through wetting down and proper handling techniques.

V. SPCBs/PCCs and Schools should conduct regular inspections of school buildings with asbestos cement roofing sheets/other materials containing asbestos for assessment of the condition thereof and requirement for repair/replacement.

VI. Such Periodical assessment of condition of asbestos cement roofing sheets and other asbestos-containing materials should be made by schools/CPCBs/PCCs through qualified professionals only.

VII. The school management should be directed to ensure that Asbestos cement roofing sheets/asbestos-containing materials in schools should be handled, installed, repaired, maintained, removed and disposed of by qualified professionals only.

VIII. The school staff should be educated about the risks of asbestos cement roofing sheets/other materials containing asbestos and also about safety precautions to be taken in handling, installation, repair, maintenance, removal and disposal of the same.

**(b) Transportation and disposal asbestos waste**

IX. Asbestos waste must be transported in leak-tight sealed containers, such as specialized bags or drums. Damaged containers should be immediately repacked.

X. Authorized/Dedicated disposal sites should be established and the transport of asbestos waste to authorized disposal sites using vehicles that are properly covered to prevent dust emissions during transit should be ensured. Vehicles should be clearly marked, indicating the presence of asbestos waste.

XI. Disposal of asbestos waste should be made in licensed, permitted solid waste disposal facilities, specifically those designed to handle hazardous waste. These facilities must have typical impermeable layers, drainage systems and environmental monitoring to prevent contamination.

XII. **Designated sites for disposal** -the Designated sites for disposal of asbestos should be established/created at appropriate places.

**Hazardous Waste Landfills**: at present landfilling is the most common disposal method but it is crucial that these are specifically designed and permitted for asbestos waste, preventing contact with other waste streams and clear demarcation.

**Alternative Disposal Methods**: While landfilling is prevalent, alternative like high-temperature incineration or specific recycling options for certain types of asbestos may

exist, which may be explored in the context of relevant environmental considerations.

XIII. Complete detailed record regarding disposal process and compliance with all relevant regulations and guidelines for handling, transport and disposal of asbestos waste should be maintained.

XIV. Even with proper disposal, long-term use of asbestos-containing materials can lead to gradual contamination of surrounding land, necessitating ongoing monitoring in affected areas. Therefore, CPCB, SPCBs/PCCs in the States and UTs should evolve special mechanism for monitoring disposal of asbestos wastes as per environmental norms and stipulations.

**(c) Issuance of Advisory, SOP, Guidelines and creating public awareness.**

XV. MoE is directed to issue an advisory to all schools through concerned supervising authorities:

(i) to maintain the existing cement-asbestos roofing sheets in good condition, and apply a protective coating of paint or lime on the sheets both sides as a precautionary measure;

(ii) to follow the guidelines IS: 11769 (Part 1) during installation and handling of cement-asbestos roofing sheets; and

(iii) to ensure disposal of the waste cement-asbestos roofing sheets when discarded or damaged at authorized disposal sites under HOWM Rules 2016.

XVI. CPCB is directed to prepare, finalize and issue SOP for the concerned authorities and industry so as to ensure proper disposal of cement-asbestos waste at authorized disposal sites under HOWM Rules 2016 and prevent re-entrainment into air matrix on degradation.

XVII. MoEF & CC is directed to

(i) Review the entire scientific evidence/material available and also review global best practices within 06 months and to take appropriate decision and make appropriate policies permitting/minimizing use of asbestos cement roofing sheets and other asbestos contained material in schools, residential houses and other buildings, and proper management and disposal of asbestos waste in accordance with its vison statement with an action plan and appropriate time lines.

(ii) Issue appropriate guidelines regarding manufacturing, installation, maintenance, dismantling and disposal of asbestos roof sheets/wall sheets and other materials in which asbestos has been used like water supply pipelines etc., for mitigating negative impacts of asbestos roof sheets/wall sheets other asbestos contained material.

124. MoEF & CC and CPCB are directed that the decisions so taken, policy framed and an action plan, guidelines, SoP prepared may be circulated to all concerned Ministries of Union of India, Chief Secretaries and Member Secretaries of SPCBs/PCCs of the States/UTs for strict compliance in all the States/UTs of India.

125. The Action Taken Report (ATR) with copies of relevant documents may be submitted by respondents no. 1 to 3-MoEF & CC, MoHUA and MoE and CPCB within one month next to the expiry of the period of six months before the Ld. Registrar General of this Tribunal.

126. The Ld. Registrar General of this Tribunal is directed to take appropriate steps for placing the matter before the Bench in case of non-receipt of action taken reports and in case of further orders are considered to be necessary in view of the action taken reports received.

127. The present original application is disposed of with the directions as mentioned above leaving the parties to bear their own costs.

128. A copy of this order may be sent to applicant and the Secretary, MoEF&CC, Secretary, MoHUA and Secretary, MoE, Member Secretary, CPCB and all the Chief Secretaries by email for requisite compliance.

Arun Kumar Tyagi, JM

Dr. Afroz Ahmad, EM

October, 30th 2025
AG