NDOH: 19/01/2026

EFORE THE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH, NEW DELHI

MISCELLAENOUS APPLICATION NO. 93 OF 2025

IN

ORIGINAL APPLICATION NO. 251 OF 2022

IN THE MATTER OF:

Microplastics in human blood News item published in The Hindu dated 29th March 2022 titled Detecting

....APPLICANT

VS.

Ministry of Environment Forest and Climate Change ...RESPONDENT

INDEX

(PAPER BOOK)

Paritosh Anil, Adv for Respondent no.1

Ministry of Environment, Forest and Climate Change

Filed on: 19/01/2026

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
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VS.

Ministry of Environment Forest and Climate Change

...RESPONDENT

350

REPLY AFFIDAVIT ON BEHALF OF MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE i.e. RESPONDENT No. 1

MOST RESPECTFULLY SHOWETH:

I, Dr. Amit Love of aged about 49 years, S/o Late Shri Kamal K Love, working as Scientist 'E' at Office Ministry of Environment, Forest and Climate Change having office at Jor Bagh, New Delhi- 110003, do hereby solemnly affirm and state as under:

1. That I am the above-named deponent, duly authorized and well conversant with the facts and circumstances of the present case, and as such, competent to swear to the present Affidavit.

NOTARY R.V. SINGH Advocate Regn No.22932 Commission Expire on 24-10-2027 Area-Delhi GOVT. OF INDIA

2. That vide order dated 10.10.2025, Hon'ble Tribunal was pleased to grant time to the Ministry of Environment, Forest and Climate Change (hereinafter referred to as "MoEF&CC") to place on record subsequent developments and steps taken to fully comply with the order dated 31.01.2024.

3. It is humbly submitted that MoEF&CC in compliance to the order dated has filed an interim comprehensive report dated 16.12.2024 based on the inputs received from the concerned Ministries/Department/Bodies.

4. That pursuant to the submitting the interim report reminders were sent on 16.09.2025, 30.09.2025 and 08.01.2026. was sent to all concerned Ministries/Department/Bodies on the progress made in compliance to the order dated 31.01.2024. That the reminders are annexed as **Annexure-I.**

351

5. A meeting was also convened on 15.01.2026 under the chairpersonship of Joint Secretary, Ministry of Environment, Forest & Climate Change, Government of India, to review the steps taken by all concerned Ministries/Department/Bodies in compliance to the directions of the Hon'ble National Green Tribunal dated 31.01.2024. The list of participants is enclosed as **Annexure II**.

6. That progress/compliance report received from Central Pollution Control Board, Ministry of Earth Sciences, Department of Promotion of Industry & Internal Trade, Indian Council of Medical Research, Ministry of Textiles is placed at

NOTARY R.V. SINGH Advocate Regn. No 2282 Commission Expire on 24-10-2027 Area-Delhi GOVT. OF INDIA

Annexure-III, Annexure-IV, Annexure-V (Colly), Annexure-VI, Annexure VII. The above actions are pursuant to the interim report submitted on 16.12.2024. The Ministry is actively pursuing to obtain inputs from the remaining concerned Ministries / Departments.

7. That in view of the above, it is most humbly prayed that this Hon'ble Tribunal may kindly pass such order(s) as may be deemed fit and proper in the facts and circumstances of the case.

डा0 अमित लव
DR. AMIT LOVE
DEPONENT
SCIENTIST 'E'/ADDITIONAL DIRECTOR
पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय
Minisrtry of Environment Forest & Climate Change
भारत सरकार / Govt. of India
नई दिल्ली / New Delhi

352

I Identified the deponent/executant who has signed in my presence

VERIFICATON:

Verified at New Delhi on this day of 19th January, 2026 that the contents of the above affidavit are true and correct to my knowledge and as per official records maintained in the routine course of business. No part of the above affidavit is false and nothing material has been concealed there from.

DEPONENT
डा0 अमित लव
DR. AMIT LOVE
SCIENTIST 'E'/ADDITIONAL DIRECTOR
पर्यावरण वन एवं जलवायु परिवर्तन मंत्रालय
Minisrtry of Environment Forest & Climate Change
भारत सरकार / Govt. of India
नई दिल्ली / New Delhi

NOTARY
R.V. SINGH
Advocate
Regn No.2282
Commission
Expire on
24-10-2027
Area-Delhi
GOVT. OF INDIA

CERTIFIED THAT THE DEPONENT
Shri/Smt/Kum. Dr. Amit Love
S/o,W/o,D/o Sh ... R/o ...
Identified by Shri/Smt Neha
has affirmed before me at Delhi
on 19 JAN 2026 at Nos 3
that the contents of the affidavit which have been read over & explained to him/her are true & correc to his/me knowledge

Notary Public, Delhi

19 JAN 2026

ANNEXURE-I

File No. : HSM-11/36/2022-HSM
Government of India
Ministry of Environment, Forest and Climate Change
(Hazardous Substances Management Division)

3rd Floor, Jal Wing
Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj
New Delhi – 110 003
Date: 16th September, 2025

OFFICE MEMORANDUM

Subject: Order of National Green Tribunal, Principal Bench in Original Application no. 251/2022 on "Detecting micro plastic in Human Blood"- reg.

1. This has reference to the compliance of the order passed by the Hon'ble National Green Tribunal, Principal Bench, dated 31st January 2024 while disposing the matter, on the aforementioned subject. NGT had inter-alia directed that the concerned central Ministries/Departments/Bodies shall take actions as per action plan given in the NGT order and report progress/compliance in six months to MoEF&CC. The MoEF&CC was asked to further compile the information received and file a comprehensive report in the NGT. The action plan is enclosed herewith.

2. In this regard, an Office Memorandum dated 06th March 2024 was sent to the concerned Ministries/Department/Bodies, requesting a progress report in compliance to the directions dated 31.01.2024. A meeting was also convened under the chairmanship of Shri Naresh Pal Gangwar, Additional Secretary, MoEF&CC on 7th November 2024, to review the steps taken by all concerned Ministries/Department/Bodies. A copy of minutes of meeting is attached for your convenience. Based upon the inputs/comments received from concerned central Ministries/Departments/Bodies, MoEF&CC filed the interim report in compliance of NGT order on 16th December 2024.

3. The progress report/inputs are still awaited from the following Ministry/Department/Body on action points as given in table below:

Sr. no.	Ministry/Department/Body	Action points in the action plan as per order of Hon'ble NGT
1	Central Pollution Control Board	Items No. 1 to 7 , 11 to 14, and 24 including inter-alia the following: uniform procedure for sampling and analysis of microplastics, preliminary listing of monitoring source of generation of microplastics, microplastic leakage pathways, bioassays, compilation of technologies for microplastic removal -meeting with stakeholders, awarding and execution of work, and standard development for microplastics.

2	Ministry of Textiles, Government of India	Item No. 15 regarding sustainable design and manufacturing of textiles.
3	Ministry of Road Transport and Highways, Government of India	Item No. 15 regarding road surfaces.
4	Department for Promotion of Industry and Internal Trade	Item No. 15 concerning laundry detergents.
5	Department of Drinking Water and Sanitation	Item No. 20 concerning clean drinking water supply to all citizens in the country.
6	National Center for Sustainable Coastal Management	Item No. 24 regarding training and capacity building, including microplastic monitoring, analysis.

4. In a separate matter OA 1094 of 2024, NGT has asked MoEF&CC to file the status of action plan given in order of NGT in OA 251 of 2022 and methods/tests adopted for detecting microplastics in environment (water, air and other recipient). The matter is listed on 16th October 2025.

5. In view of the above, it is again requested to submit progress report/inputs in compliance with the order of Hon'ble National Green Tribunal dated 31st January 2024, by **25th September 2025**.

6. Ministry of Heavy Industries, Ministry of Housing and Urban Affairs, Ministry of Earth Sciences, Department of Health Research and Director General, Indian Council of Medical Research, Department of Chemicals and Petrochemicals, Department of Pharmaceuticals, Central Drugs Standard Control Organization, Department of Health and family Welfare, Department of Promotion and Industry and Internal Trade, Department of Drinking water and Sanitation, Department of Water Resources, River development and Ganga Rejuvenation and Department of Fisheries, who have provided their inputs/comments earlier, are also requested to update on the progress made on the action plan by **25th September 2025.**

This issues with the approval of the Competent Authority.

Enclosure: As above

16.9.25

(Amit Raj)
Director
Email: amit.raj1979@nic.in

To
As per list

Copy for kind Information:

i. PPS to Secretary (EF&CC)
ii. PPS to AS (VVY)
iii. PPS to JS (NKS)

List

i. The Secretary, Department for Promotion of Industry and Internal Trade, J667+H77, Rafi Ahmed Kidwai Marg Rajpath, Road Area, Central Secretariat, New Delhi, Delhi 110011, email: secy-ipp@nic.in

ii. The Secretary, Ministry of Textiles, Technology Bhawan, New Mehrauli Road, New Delhi-110016, email: secy-textiles@nic.in

iii. The Secretary, Department of Chemicals and Petrochemicals, Shastri Bhawan, A-Wing, Dr. Rajendra Prasad Road, New Delhi-110001, email: sec.cpc@nic.in

iv. The Secretary, Ministry of Health and Family Welfare, A-Wing Nirman Bhawan, New Delhi-110001, email: secyhfw@nic.in

v. The Secretary, Ministry of Earth Sciences, Prithvi Bhavan, Lodhi Road, New Delhi 110003, Email: secretary@moes.gov.in

vi. The Secretary, Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Department of Pharmaceuticals, 'B' Wing, Janpath Bhawan, New Delhi.email: secy-pharma@nic.in

vii. The Secretary, Ministry of Road Transport and Highways, Transport Bhawan, 1, Parliament Street New Delhi-110001 email: secy-road@nic.in

viii. The Secretary, Department of Health Research and Director General, Indian Council of Medical Research, 2nd Floor, IRCS Building, 1, Red Cross Road, New Delhi – 110001, email: secy-dhr@gov.in ; secy-dg@icmr.gov.in

ix. The Secretary, Ministry of Heavy Industries, Government of India, Udyog Bhawan, Rafi Marg,New Delhi – 110011 New Delhi, email: shioff@nic.in

x. The Secretary, Department of Drinking Water and Sanitation, C Wing, 4th Floor, Pandit Deendayal Antyodaya Bhawan, CGO Complex Lodhi Road, New Delhi – 110003, email: secydws@nic.in

xi. The Secretary, Ministry of Housing and Urban Affairs, Nirman Bhawan, C-Wing, Rajpath Area, Central Secretariat, New Delhi, Delhi 110011 email: secyurban@nic.in

xii. The Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001 email: secy-mowr@nic.in

xiii. The Secretary, Department of Fisheries, Room no.- 220, Krishi Bhavan, New Delhi, Delhi 110001email: secy-fisheries@gov.in

xiv. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032. Email: mscb.cpcb@nic.in

xv. The Director General, Central Institute of Petrochemicals Engineering & Technology, CIPET Head Office, T.V.K. Industrial Estate, Guindy, Chennai – 600 032, email: dg@cipet.gov.in

xvi. The Director, National Centre for Sustainable Coastal Management, 267M+97X, NCSCM Rd, Anna University, Kotturpuram, Chennai, Tamil Nadu 600025,email: director@ncscm.res.in

xvii. Director, National Environmental Engineering Research Institute, Nagpur, email: director@neeri.res.in;

xviii. Director, Indian Institute of Toxicological Research, Lucknow, email: director@iitrindia.org

Reminder -II: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.

Amit Love < amit.love@nic.in >

Thu, 08 Jan 2026 3:46:39 PM +0530

To "secy-ipp"<secy-ipp@nic.in>,"dci"<dci@nic.in>,"director"<director@iitrindia.org>,"mohansv"<mohan.sv@neeri.res.in>,"director"<director@ncscm.res.in>,"dg"<dg@cipet.gov.in>,"mscbcpcb"<mscb.cpcb@nic.in>,"secy-fisheries"<secy-fisheries@gov.in>,"secy-mowr"<secy-mowr@nic.in>,"secyurban"<secyurban@nic.in>,"shioff"<shioff@nic.in>,"secy-road"<secy-road@nic.in>,"secretary"<secretary@moes.gov.in>,"seccpc"<sec.cpc@nic.in>,"secy-textiles"<secy-textiles@nic.in>,"secretary"<secretary@pharma-dept.gov.in>,"secydws"<secydws@nic.in>,"secy-dg"<secy-dg@icmr.gov.in>

Cc "NEHA PATANKAR"<neha.patankar@govcontractor.in>,"Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>,"sahnk"<sahnk@cag.gov.in>,"vvyadav"<vv.yadav@nic.in>,"Mr Tanmay Kumar"<secy-moef@nic.in>

Reminder -II

Sir/Madam,

This has reference to the trail email, Office Memorandum dated 16th September 2025 of the Ministry on the aforementioned subject matter.

2. The Hon'ble National Green Tribunal vide order dt. 31.01.2024, had inter-alia directed concerned Central Ministries/Departments/Bodies to take actions as per action points given in the NGT order and report progress/compliance in six months to MoEF&CC. The MoEF&CC has been further asked to compile the information received and file a comprehensive report in the NGT. The progress report/compliance report/inputs are still awaited from Ministries/Departments/Bodies as mentioned in Para 3.

3. The progress report/compliance report/inputs are still awaited from the following Ministry/Department/Body on action points as given in table below:

Sr. no.	Ministry/Department/Bodies	Action points in the action plan as per order of Hon'ble NGT
1	Central Pollution Control Board	Items No. 1 to 7 , 11 to 14, and 24 including inter-alia the following: uniform procedure for sampling and analysis of microplastics, preliminary listing of monitoring source of generation of microplastics, microplastic leakage pathways, bioassays, compilation of technologies for microplastic removal -meeting with stakeholders, awarding and execution of work, and standard development for microplastics.
2	Ministry of Textiles, Government of India	Item No. 15 regarding sustainable design and manufacturing of

		textiles.
3	Ministry of Road Transport and Highways, Government of India	Item No. 15 regarding road surfaces.
4	Department of Drinking Water and Sanitation	Item No. 20 concerning clean drinking water supply to all citizens in the country.
5	National Center for Sustainable Coastal Management	Item No. 24 regarding training and capacity building, including microplastic monitoring, analysis.
6	Department of Promotion and Industry and Internal Trade	Item no. 17 regarding microfibre filters in new washing machines

4. Ministry of Heavy Industries, Ministry of Housing and Urban Affairs, Ministry of Earth Sciences, Department of Chemicals and Petrochemicals, Department of Pharmaceuticals, Central Drugs Standard Control Organization, Department of Health and Family Welfare, Department of Promotion and Industry and Internal Trade, Department of Drinking water and Sanitation, Department of Water Resources, River development and Ganga Rejuvenation, Ministry of Jal Shakti, National Environmental Engineering Research Institute and Department of Fisheries, who have provided their inputs/comments earlier, are also requested to provide an updated status on the progress made on the action points latest by **12th January 2026 (2:00PM).**

5. In view of the above, the undersigned has been directed to request progress report/ compliance report/inputs latest by **12th January 2026 (2:00PM).**

6. Further, a **meeting has also been scheduled under the chairmanship of the Shri Neelesh Kumar Sah, Joint Secretary, Ministry of Environment, Forest and Climate Change at 11:00 AM on 13th January 2026 in Narmada Conference Room, Ground Floor, Jal Wing, Indira Paryavaran Bhawan** , New Delhi to review the progress made on the inputs/comments/action points by the concerned Ministries/ Department/Bodies in compliance of the order of the Hon'ble National Green Tribunal, dated 31.01.2024

7. Central Pollution Control Board is requested to make a presentation on the progress made on the action points in compliance to the directions dated 31.01.2024 of the Hon'ble National Green Tribunal.

Regards

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: <secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>,

"mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>, "seccpc"<sec.cpc@nic.in>, "secy-textiles"<secy-textiles@nic.in>, "secretary"<secretary@pharma-dept.gov.in>, "secydws"<secydws@nic.in>, "secy-dg"<secy-dg@icmr.gov.in>
Cc: "NEHA PATANKAR"<neha.patankar@govcontractor.in>, "Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "vvyadav"<vv.yadav@nic.in>, "Mr Tanmay Kumar"<secy-moef@nic.in>
Date: Tue, 30 Sep 2025 19:55:50 +0530
Subject: Reminder -I : Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Reminder -I
Sir/Madam,

This has reference to the trail email and Office Memorandum, dated 16th September 2025 of the Ministry on the aforementioned subject matter.

2. The Hon'ble National Green Tribunal vide order dt. 31.01.2024, had inter-alia directed concerned central Ministries/Departments/Bodies to take actions as per action plan given in the NGT order and report progress/compliance in six months to MoEF&CC. The MoEF&CC has been further asked to compile the information received and file a comprehensive report in the NGT. However, the progress report/compliance report/inputs are still awaited from Ministries/Departments/Bodies as mentioned in Para 3 of the O.M.

3. The progress report/compliance report/inputs are still awaited from the following Ministry/Department/Body on action points as given in table below:

Sr. no.	**Ministry/ Department/ Bodies**	**Action points in the action plan as per order of Hon'ble NGT**
1	Central Pollution Control Board	Items No. 1 to 7 , 11 to 14, and 24 including inter-alia the following: uniform procedure for sampling and analysis of microplastics, preliminary listing of monitoring source of generation of microplastics, microplastic leakage pathways, bioassays, compilation of technologies for microplastic removal -meeting with stakeholders, awarding and execution of work, and standard development for microplastics.
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3	Ministry of Road Transport and Highways, Government of India	Item No. 15 regarding road surfaces.

4	Department for Promotion of Industry and Internal Trade	Item No. 15 concerning laundry detergents.
5	Department of Drinking Water and Sanitation	Item No. 20 concerning clean drinking water supply to all citizens in the country.
6	National Center for Sustainable Coastal Management	Item No. 24 regarding training and capacity building, including microplastic monitoring, analysis.

4. Further, Ministry of Heavy Industries, Ministry of Housing and Urban Affairs, Ministry of Earth Sciences, Department of Chemicals and Petrochemicals, Department of Pharmaceuticals, Central Drugs Standard Control Organization, Department of Health and family Welfare, Department of Promotion and Industry and Internal Trade, Department of Drinking water and Sanitation, Department of Water Resources, River development and Ganga Rejuvenation and Department of Fisheries, who have provided their inputs/comments earlier, are also requested to update on the progress made on the action plan by **7th October 2025.**

5. In view of the above, the undersigned has been directed to request progress report/ compliance report/inputs latest by **7th October 2025.**

Regards

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: <secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "director"<director@neeri.res.in>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>, "mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-dhr"<secy-dhr@gov.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>, "secyhfw"<secyhfw@nic.in>, "seccpc"<sec.cpc@nic.in>, "secy-textiles"<secy-textiles@nic.in>, "secretary"<secretary@pharma-dept.gov.in>, "secydws"<secydws@nic.in>, "secy-dg"<secy-dg@icmr.gov.in>
Cc: "NEHA PATANKAR"<neha.patankar@govcontractor.in>, "Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "vvyadav"<vv.yadav@nic.in>, "Mr Tanmay Kumar"<secy-moef@nic.in>
Date: Tue, 16 Sep 2025 17:37:49 +0530

Subject: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Sir/Madam,

This has reference to the Office Memorandum, dated 16th September 2025 of the Ministry on the aforementioned subject matter.

2. The Hon'ble National Green Tribunal vide order dt. 31.01.2024, had inter-alia directed concerned central Ministries/Departments/Bodies to take actions as per action plan given in the NGT order and report progress/compliance in six months to MoEF&CC. The MoEF&CC has been further asked to compile the information received and file a comprehensive report in the NGT. However, the progress report/compliance report/inputs are still awaited from Ministries/Departments/Bodies as mentioned in Para 3 of the O.M.

3. Further, the Ministries/Departments/Bodies who have provided there progress report/ compliance report/inputs earlier, are also requested to update on the progress made on the action plan provided.

4. In view of the above, the undersigned has been directed to request progress report/ compliance report/inputs latest by **25th September 2025.**

This issues with the approval of the Competent Authority.

Regards

Dr. Amit Love
Scientist ‘E’ / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

5 Attachment(s)

MoEFCC OM dated 16.09.202…
1.1 MB

Action points as per order date…
446.5 KB

MoEFCC OM dated 06.03.202…
861.5 KB

Minutes of the meeting held on…
464.1 KB

Final order dt 31.01.2024.pdf
231.9 KB

LIST OF PARTICIPANTS

Dated : 15.01.2026 (Physical) **ANNEXURE-II**

Sr.no.	Name	Designation & Organization
1.	Dr. Anil Kumar Vijayan	Scientist-F, Ministry of Earth Science
2.	Shri Amit Raj	Director, Ministry of Environment, Forest and Climate Change
3.	Dr. Amit Love	Scientist-E, Ministry of Environment Forest and Climate Change
4.	Shri Dinesh Kumar Prajapati	Under Secretary, Ministry of Textiles
5.	Shri Mohit Surana	Young Professional, Ministry of Textiles

LIST OF PARTICIPANTS

Dated : 15.01.2026 (Virtual)

Sr.no.	Name	Designation & Organization
1.	Dr. R.S Dhaliwal	Scientist G & Head, ICMR-DHR
2.	Shri G. Thrirumurthy	Scientist-E,Central Pollution Control Board
3.	Shri Akash Srivastava	ADO, Department of Promotion of Industry & Internal Trade
4.	Dr. Surya Singh	Scientist-E ,ICMR- NIREH
5.	Dr. Robin R.S	Scientist C, National Centre for Sustainable Coastal Management
6.	Dr. A Ramesh Kumar	Principal Scientist , CSIR-NEERI

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार.
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA.

F. No.PI- CM-13011/50/2022-LAW-HO-CPCB-HO Date: 15.01.2026

ANNEXURE-III

To,

The Director (HSMD),
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan, Aliganj Jorbagh Road,
New Delhi –110003

Subject: Status of Implementation of Action points provided by MOEF&CC in NGT Principal Bench in Original Application no. 251/2022 on "Detecting micro plastic in Human Blood"- reg.

Ref.: MoEF&CC review meeting dated 15.01.2026

Sir,

This has reference to the above mentioned subject, the Joint Secretary took a review meeting on the status of implementation of action plans and requested CPCB to submit the progress on the same.

In view of above, please find enclosed the Status of implementation of action points in which CPCB is the nodal agency.

Yours faithfully

(G. Thirumurthy)
Director & I/c UPC-II

'परिवेश भवन' पूर्वी अर्जुन नगर, दिल्ली - 110032.
Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष /Tel : 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

Status of Implementation of Action points provided in the matter of Original Application no. 251/2022 on "Detecting micro plastic in Human Blood"

The Hon'ble National Green Tribunal in OA 251/2022 vide order dated 31.01.2024, had inter-alia directed concerned central Ministries/Departments/Bodies to take actions as per action plan given in the NGT order and report progress/compliance in six months to MoEF&CC.

In view of the above, the status of implementation of action points in which the CPCB is the Nodal Agency is as follows:

Status of Implementation of Action Points (Nodal Agency: CPCB)

S. No.	Action Points	Status
1	Uniform procedure for sampling & analysis may be developed by organizations involved in microplastic analysis (CIPET, NCSCM, MoES-NCCR) which can be adopted uniformly across the country till the time ISO standard is finalized.	➢ The Joint committee constituted comprising members from CIPET, NCSCM, NCCR & ICMR, CPCB, by the Hon'ble NGT conducted three rounds of meetings to discuss the "finalization of a uniform procedure for the sampling and analysis of microplastics. The details are: 1. First Meeting held on 09.11.2023 in which the members were requested to review the ISO 24187 "Principles for the analysis of microplastics present in the environment", notified by ISO. 2. Second meeting held on 17.11.2023 in which it was informed that Less variation in Sampling & analysis methods given in ISO 24187: 2023 and that followed by the respective organizations observed. A uniform method is required to be adopted for sampling and analysis. Protocol microplastics prepared by NCCR are to be reviewed. 3. Third meeting held on 16.1.2024, it was informed that the NCCR protocol does not include the analysis of microplastics in air and sludge, although these are part of ISO 24187:2023. It was further informed that understanding and implementing the sampling and analysis of micro plastics, requires laboratory-based knowledge.

		The minutes of the above eetings are enclosed as **Annexure I.** ➢ Meanwhile, BIS has issued Draft Indian Standard for "Assessment of Biodegradability of Plastics in Varied Conditions ((Regularization of IS 17899T)" for public consultation, wherein the Fourier Transform Infrared Spectroscopy (FTIR) method included as a method of testing, as per ISO 24187:2023 "Principles for the analysis of micro plastics present in the environment", has been included as Method of testing for Micro plastics in this draft BIS standard. However, the final notification of the same is awaited.
2	Source of generation of microplastics including industries, waste management, waste water treatment, ocean activities etc. have been identified. However, exact quantum of microplastics generated from the identified source has not been determined.	CPCB has prepared comprehensive list of sources contributing to micro plastic pollution, as per the recommendation of the Joint Committee. The details of the sources are as follow: 1. Industries: Toothpaste, Printer Cartridge, plastic production, Synthetic textiles, synthetic sole of shoes 2. Dumpsites &landfill sites: Groundwater, Soil & and ambient air 3. Ocean Activities: Aquaculture nets and Coastal Tourism 4. Outflow from sewage treatment plant, Storm water drains (carrying road dust), leachate & drinking water 5. End Use: Ambient Air, Ground water & Soil Further, NCSCM and CIPET has shared available data with respect to the microplastics abundance in marine and river. The information shared by NCSCM and CIPET is enclosed as **Annexure-II**.
3	Microplastic concentration in transfer media is available for soil/beach sediment, surface water bodies, biota and ocean water. Microplastic concentration for sludge, specifically when it is converted to compost for land application is not available.	

4	Source monitoring, transfer end use of all possible sources listed in Table 3.1(of report submitted) to be covered. Emphasis to be laid on such areas for which no information is available.	
5	Regular monitoring of various water quality parameters to be conducted to provide insight into the presence and concentration of microplastics in environmental matrices (Water, sediments, biota)	
6	Microplastic leakages and pathways may be monitored in order to identify further sources and hotspots of micro plastics.	
7	Uniform procedure for sampling & analysis as finalized by this Committee may be adopted for such studies till the time ISO Standards are finalized.	Covered in 1
12	Standards development (Source & ambient) for microplastics may be taken up following establishment of the cause-effect relationship of micro plastics on human health	Covered in 1

13	Available technologies to be assessed for their efficacy for removal of micro plastic.	As per literature survey, the following technologies are available for removing Micro Plastic from water systems. However, there is no technologies found for the air and soil media specifically. The available Technologies for removal of Microplastics from water are as follows: 1. Ultrafiltration 2. Dynamic membrane (DM) filtration 3. Reverse osmosis (RO) filtration 4. Membrane bioreactor (MBR) 5. Sand filtration 6. Microfiltration 7. Coagulation and Flocculation 8. Electrochemical coagulation
14	Technologies to be developed for removal of micro plastics from Air & Soil.	A meeting was held on 17.9.2025 wherein it was decided that NCSCM and CIPET shall share the available data on microplastics. The minutes of meeting is enclosed as **Annexure III.** Further, NCSCM has shared technology to remove mircoplastics from water systems and solutions to prevent marine litter in ecosystem. The document shared by NCSCM is enclosed as **Annexure IV**
24	Training and capacity building including microplastic monitoring, analysis, health impact studies may be taken up for effective implementation of aforementioned points	A capacity buidling program was organized by CIPET on 9.9.2025 & 10.9.2025 through INOPOL (India-Norway cooperation project on capacity building for reducing plastic and chemical pollution in India) wherein a detailed protocol for determination for sampling and analysis was presented by CIPET.

In addition to above, it is submitted that CPCB in the matter of Hon'ble NGT OA 1094/2024 News Item titled *"All Indian Salt Sugar brands contain micro plastics reveals study" appearing in the Business Standard dated 13.08.2024, filed that affidavit stating that in* order to further progress on the implementation of the above action points and other action points pertaining to CPCB there is need to have Standard method for testing micro plastics in the Environment, which is awaited from BIS. The implementation of such Action Points shall be taken up upon the finalization of said BIS Standard. The copy of the affidavit is enclosed as **Annexure V**.

Minutes of Meeting in compliance of Hon'ble NGT order in the matter of O.A. No. 251 of 2022" with CIPET/ICMR /NCSCM/NCCR held on 09.11.2023

Meeting of the Committee constituted in compliance of Hon'ble NGT order in the matter of O.A. No. 251 of 2022" with CIPET/ICMR /NCSCM/NCCR was held virtually via video conferencing on November 09,2023 The Agenda for the Meeting was to finalize a uniform procedure for the sampling and analysis of micro plastics." The meeting was coordinated by CPCB, Delhi. Various stakeholders including representatives of CIPET, NCCR, NCSCM and ICMR participated in the meeting (List of participants is placed as **Annexure-I**).

CPCB made presentation on the methodology being adopted by the various organization as provided by CIPET, MOES and NCSCM which includes sample collection, extraction, digestion and analysis techniques for water, sediments and biota used for micro plastics. It was informed that there are slight variations in the methodologies adopted for analysis, which was mainly in the sample extraction and the filtration process steps. The absence of a standard method for sampling and analysis methods of Micro plastics was highlighted, leading to the necessity of finalizing a uniform method.

CIPET informed that standards for analysis of micro plastics has been notified by ISO as ISO 24187:2023(en) **(Annexure II)** "Principles for the analysis of micro plastics present in the environment". It was informed that said standards encompass various aspects such as particle size, size classification, sampling methods, apparatus, sample preparation, and representative sample quantity and the techniques used. The standards are currently under review at BIS and are expected to be adopted shortly. Officials from NCSCM and MoES expressed concerns regarding the high cost of the paper filters used for micro plastics analysis in different environmental matrices and highlighted the need to identify alternate filter papers, to cut down the cost of

testing.

Based on the deliberations the following are the Action points

- ISO standards :24187 would be reviewed and deliberated upon in the next meeting for finalization of the analysis method until standards are officially adopted by the Bureau of Indian Standards (BIS).
- Points related to cost and availability of filter paper to be used in the analysis shall also be discussed in the next meeting

The meeting ended with vote of thanks to the chair.

Annexure-I

List of Participants

S.N.	Name and Designation
1.	Dr. Pravakar Mishra, Sc-G , NCCR , Ministry of Earth Sciences
2.	Dr. Smita Mohanty, Director & Head (Principal Scientist) CIPET Bhuwneshwar
3.	Dr Geetika Yadav Scientist -E, ICMR
4.	Dr Robin , Scientist-C National Centre for Sustainable Coastal Management (NCSCM)
5.	Ms. Divya Sinha Director & I/c UPC-II, CPCB
6.	Mr. Mrinal Kanti Biswas Scientist "E" & Regional Director, Kolkata, CPCB
7.	Ms. Yogesh Chandra Scientist- C, UPC II, CPCB

Minutes of Meeting in compliance of Hon'ble NGT order in the matter of O.A. No. 251 of 2022" held on 17.11.2023

Second Meeting of the Committee constituted in compliance of Hon'ble NGT order in the matter of O.A. No. 251 of 2022" was held virtually via video conferencing on November 17,2023 to standardise a uniform procedure for the sampling and analysis of micro plastics and deliberate upon the Action plan and the timeline for the Action points provided by the MOEF&CC in which the CPCB is the Nodal Agency. The meeting was coordinated by CPCB, Delhi. Various stakeholders including representatives of CIPET, NCCR, NCSCM, ICMR, CSIR-NEERI and CSIR-IITR participated in the meeting. List of participants is placed as **Annexure-I**).

CPCB made brief presentation on the proposed Action Plan for implementation of Action Points in which CPCB is the Nodal agency as per O.M dated October 20, 2023 and deliberations during Meeting dated October 26, 2023 convened by MoEFCC. The proposed course of action and the timelines for the said Action Points were presented by CPCB (**Annexure II**) . Following were the key points discussed during the Meeting:

(a) **Action Point related to standardisation of uniform procedure for the sampling and analysis of micro plastics** : Officials from NCSCM, NERRI and CIPET informed that there is very less variation between the Sampling & analysis methods given in ISO 24187 : 2023 ("Principles for the analysis of micro plastics present in the environment") and that followed by the respective organizations. . Further Action plan and timelines for the remaining points where CPCB is nodal agency were also deliberated to the committee members. The key points of action plan includes Preliminary listing of all points to be monitored, SOP for monitoring of micro plastics, Compilation of technologies for Micro plastic removal, Meeting with Stake holders, Awarding of work and Execution of work. (**Annexure II)**

NCCR informed that they have prepared a Protocol for sampling and analysis of micro plastics in coordination with the United Kingdom (UK) based organisation which can be reviewed by the concerned organizations for its adoption as standardised uniform procedure for the sampling and analysis of micro plastics.

NEERI and CIPET informed that Inter-laboratory Quality Control exercise is required to be perform validate the methodology adopted by the concerned Laboratories

(b) **Remaining Action Points :**

NCCR highlighted concerns regarding marine litter's contribution to microplastics. CPCB informed that the same shall be covered in Action Point related to "Source monitoring, transfer end use of all possible sources listed in Table 3.1 to be covered". The representatives confirmed the Action Plan proposed by CPCB. IITR & NEERI expressed their willingness to participate in implementation of all the Action Points. The Action plan is revised accordingly and placed at **Annexure III.**

Based on the deliberations during the Meeting, the following is the further course of Action:

1. Methodology document as prepared by NCCR to be reviewed by members and comments on the same shall be submitted to CPCB . The same shall be consolidated during the next meeting
2. Inter laboratory quality control Exercise to be initiated after standardisation of the methodology. DH, CPCB (Trace Organic Lab) shall join the next meeting.
3. NEERI and IITR shall henceforth participate in implementation of all Action Points in which CPCB is the Nodal agency

The meeting ended with vote of thanks to the chair.

Annexure-I

List of Participants

S.N.	Name and Designation
1.	Dr. Pravakar Mishra, Scientist-G , NCCR , Ministry of Earth Sciences,
2.	Dr. Smita Mohanty, Director & Head (Principal Scientist) CIPET Bhuwneshwar
3.	Dr A Ramesh Kumar, Principal Scientist, Chemical and Hazradous Waste Management Division, CSIR-NEERI
4.	Dr. N. Manickam, Chief scientist CSIR-IITR
5.	Dr. (Ms.) Surya Singh, Scientist B ICMR - NIREH, Bhopal
6.	Dr Robin, Scientist C NCSCM Chennai
7.	Ms. Divya Sinha Director & I/c UPC-II, CPCB
8.	Ms. Yogesh Chandra Scientist- C, CPCB
9.	Dr Suvanka Dutta , RA Regional Directorate Kolkata, CPCB

Meeting on
Finalization of a uniform procedure for the sampling and analysis of Micro plastics

(Hon'ble NGT Order on “Detecting Micro plastics in human blood” (O.A. No.251/2022)

Central Pollution Control Board

Action Points

Sr. No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Dept./Body	Action Plan	Time line
1.	Uniform procedure for sampling & analysis may be developed by organizations involved in microplastic analysis (CIPET, NCSCM, MoES-NCCR) which can be adopted uniformly across the country till the time ISO standard is finalized.	CPCB to develop uniform procedure for sampling and analysis along with Central Institute of Petrochemicals, Engineering & Technology(CIPET), National Centre for Sustainable Coastal Management (NCSCM) and National Centre for Coastal Research (NCCR) **Nodal agency :CPCB**	• First meeting for finalization of uniform methodology for sampling and analysis of micro plastics conducted on November 09, 2023 • Second meeting scheduled on November 17, 2023 for finalization of Uniform procedure for sampling & analysis.	December 30, 2023.

Action Points - Point 2-6, 13,14, 26

1. Source of generation of microplastics including industries, waste management, waste water treatment, ocean activities etc. have been identified. However, exact quantum of microplastics generated from the identified source has not been determined- NEERI, IITR
2. Microplastic concentration in transfer media is available for soil/beach sediment, surface water bodies, biota and ocean water. Microplastic concentration for sludge, specifically when it is converted to compost for land application is not available- NEERI
3. Source monitoring, transfer end use of all possible sources listed in Table 3.1(of report submitted) to be covered. Emphasis to be laid on such areas for which no information is available. NEERI, IITR
4. Regular monitoring of various water quality parameters to be conducted to provide insight into the presence and concentration of microplastics in environmental matrices (water, sediments, biota) NEERI, IITR
5. Microplastic leakages and pathways may be monitored in order to identify further sources and hotspots of microplastics.
6. Available technologies to be assessed for their efficacy for removal of micro plastic NEERI, IITR
7. Technologies to be developed for removal of micro plastics from Air & Soil NEERI, IITR
8. Training and capacity building including microplastic monitoring, analysis, health impact studies may be taken up for effective implementation of aforementioned points$_6$ NEERI, IITR

Action Points - Contd

Sr. No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Dept./Body
2.	Source of generation of microplastics including industries, waste management, waste water treatment, ocean activities etc. have been identified. However, exact quantum of microplastics generated from the identified source has not been determined.	CPCB, CIPET/DCPC,NCSCM/MoEFCC, NCCR/MoES **Nodal agency :CPCB**

Action Points - Contd

Sr. No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Dept./Body
3.	Microplastic concentration in transfer media is available for soil/beach sediment, surface water bodies, biota and ocean water. Microplastic concentration for sludge, specifically when it is converted to compost for land application is not available	CPCB, CIPET/DCPC,NCSCM/MoEFCC, NCCR/MoES **Nodal agency :CPCB**

Action Points - Contd

Sr.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/Body
4.	Source monitoring, transfer end use of all possible sources listed in Table 3.1 to be covered. Emphasis to be laid on such areas for which no information is available.	CPCB,NCSCM/MoEFCC, NCCR/MoES **Nodal agency :CPCB**
5.	Regular monitoring of various water quality parameters to be conducted to provide insight into the presence and concentration of microplastics in environmental matrices (water, sediments, biota)	CPCB,NCSCM/MoEFCC, NCCR/MoES **Nodal agency :CPCB**

Action Points - Contd

Sr.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/Body
6.	Microplastic leakages and pathways may be monitored in order to identify further sources and hotspots of microplastics.	CPCB,NCSCM/MoEFCC,NCCR/MoES **Nodal agency :CPCB**
7.	Uniform procedure for sampling & analysis as finalized by this Committee may be adopted for such studies till the time ISO Standards are finalized.	CPCB,CIPET/DCPC,NCSCM / MoEFCC, NCCR/MoES **Nodal agency :CPCB**

Action Points - Contd

Sr.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body
13.	Available technologies to be assessed for their efficacy for removal of micro plastic	CPCB, DCPC/CIPET, MoEFCC/NCSCM,MoES/NCCR **Nodal Agency: CPCB**
14.	Technologies to be developed for removal of micro plastics from Air & Soil	CCPCB, DCPC/CIPET, MoEFCC/NCSCM,MoES/NCCR, CSIR-NEERI **Nodal Agency :CPCB**

Action Points - Contd

Sr.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/Body
20.	Training and capacity building including microplastic monitoring, analysis, health impact studies may be taken up for effective implementation of aforementioned points.”	CPCB,DCPC/CIPET,MoEF&CC/NCSCM,MoES/NCCR **Nodal agency :CPCB**

Action Points - Contd

Action Plan	Time line
i. Preliminary listing of all points to be monitored.	i. January, 2024
ii. Proposed SOP for monitoring of micro plastics	ii. January, 2024
iii. Compilation of technologies for Micro plastic removal	iii. January, 2024
iv. Meeting with Stake holders.	iv. February, 2024
v. Awarding of work	v. March, 2024
vi. Execution of work	vi. March 2025

THANK YOU

ANNEXURE III

Action Plan

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
1.	Uniform procedure for sampling & analysis may be developed by organizations involved in microplastic analysis (CIPET, NCSCM, MoES-NCCR) which can be adopted uniformily across the country till the time ISO standard is finalized.	CPCB to develop uniform procedure for sampling and analysis along with Central Institute of Petrochemicals, Engineering & Technology (CIPET), National Centre for Sustainable Coastal Management (NCSCM) and National Centre for Coastel Research (NCCR), CSIR- IITR and CSIR-NEERI	i. First meeting for finalization of uniform methodology for sampling and analysis of micro plastics conducted on November 09, 2023(Minutes placed at Annexure I) ii. Second meeting proposed to be during November 2023 to finalize Uniform procedure for sampling & analysis	December 30, 2023.
2.	Source of generation of microplastics including industries, waste management, waste water treatment, ocean activities etc. have been identified. However, exact quantum of microplastics generated from the identified source has not been determined.	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES, CSIR- IITR and CSIR-NEERI	Point 2-6, 13,14, 26 i. Preliminary listing of all points to be monitored. ii. Proposed SOP for monitoring. iii. Compilation of technologies for Micro plastic removal. iv. Meeting with Stake holders v. Awarding of work vi. Execution of work	i. January, 2024 ii. January, 2024 iii. January, 2024 iv. February, 2024 v. March, 2024 vi. March 2025
3.	Microplastic concentration in transfer media is available for soil/beach sediment, surface water bodies, biota and ocean water. Microplastic concentration for sludge, specifically when it is converted to compost for land application is not available	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES CSIR- IITR and CSIR-NEERI		

4.	Source monitoring, transfer end use of all possible sources listed in Table 3.1 of the report to be covered. Emphasis to be laid on such areas for which no information is available.	CPCB, NCSCM/MoEFCC, NCCR/MoES, CSIR- IITR and CSIR-NEERI		
5.	Regular monitoring of various water quality parameters to be conducted to provide insight into the presence and concentration of microplastics in environmental matrices (water, sediments, biota)	CPCB, NCSCM/MoEFCC, NCCR/MoES, CSIR- IITR and CSIR-NEERI		
6.	Microplastic leakages and pathways may be monitored in order to identify further sources and hotspots of microplastics.	CPCB, NCSCM/MoEFCC, NCCR/MoES, CSIR- IITR and CSIR-NEERI		
7.	Uniform procedure for sampling & analysis as finalized by this Committee may be adopted for such studies till the time ISO Standards are finalized.	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES, CSIR- IITR and CSIR-NEERI	Covered in 1	
8.	Health impact of emerging contaminants and long term studies are required to establish Cause effect relationship of microplastics on human health	Indian Council of Medical Research/ DHR, CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	Nodal Agency - ICMR	
9.	Studies conducted on the matter have reported about the presence of microplastics in human body. Physiological or psychological impact has not been reported in these studies.	ICMR/DHR	Nodal Agency - ICMR	
10.	The aforementioned studies should cover different type, concentration and shapes of microplastics. I	Indian Council of Medical Research/ DHR, CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	Nodal Agency – ICMR	

	mpact of chemicals/biofilms associated with Microplastics on human health to be covered. The studies may include the following: Estimation of the duration and frequency of human exposure to microplastics. Microplastic monitoring as required may be conducted for the same. Once the exposure assessment is done precisely, dose- response assessment may be carried out, where the minimum concentration(of microplastics) responsible for any observable effect (on human) shall be assessed..			
11.	Bioassays may beconducted to assess the Eco- toxicological impact of micro plastics on animal life.	CPCB, CSIR-IITR, CSIR-NEERI	Nodal Agency – ICMR	
12.	Standards development (Source & ambient) for microplastics may be taken up following establishment of the cause-effect relationship of micro plastics on human health	CPCB, ICMR/DHR	Post completion of Activities listed at 2-11	
13.	Available technologies to be assessed for theirefficacy for removal of microplastic	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR, CSIR- IITR and CSIR-NEERI		
14.	Technologies to be developed for removal of micro plastics from Air & Soil	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR, CSIR-NEERI, CSIR- IITR and CSIR-NEERI		

15.	Source-directed interv entions, Sustainable design an d manufacturing of tex tiles, tyres, and compl ementary products (la undry detergents, road surfaces, and vehicles), to minimize the tend ency ofproducts to con tribute to microplastics generation; Restrictions on microp lastics in the manufact ure and sale of certain personal care and cos metic products contain ing microplastics. Product requirements f or household, commer cial, or industrial washi ng machines. For insta nce, Australia and Fra nce have introduced m easures to phase in mi cro fibre filters on new washing machines	Ministry of Textiles , Department of Pro motion and Industr y and Internal Trad e, Ministry of Heavy I ndustries, Ministry of Road T ransport and High ways, Department of Chemicals and Pe tro-Chemicals CDSCO/Departm ent of Health and Family Welfare, Department of Ph armaceuticals Department of Pro motion and Industr y and Internal Trad e		
16.	End-of-life intervention s, effective solid & plas tic waste management practices, to prevent w aste leaking into the enviro nment and potentially contributing to micropl astics generation inclu ding the following; Reducing the amount of plastic waste that en ters landfills and dump sites through the imple mentation of waste red uction policies and initi atives, such as waste-t o-energy programs an d increased recycling. Microplastics can also be reduced by	Department of Dri nking Water and S anitation, Ministry of Housing and Urba n Affairs,		

	supporting the development and use of biodegradable plastic alternatives			
17.	End-of-pipe interventions, wastewater, storm water, and road runoff management and treatment, to retain the emitted microplastics before these reach water bodies.	Department of Water Resources, River development and Ganga Rejuvenation, Department of Drinking Water and Sanitation, Ministry of Housing and Urban Affairs		
18.	Maximizing clean drinking water supply to all citizens inthe country	Department of Drinking Water and Sanitation		
19.	Other Best practices as listed below for minimizing microplastics in environment may be followed: Install physical barriers such as screens and filters on STP/WWTP systems to help reduce the amount of microplastics that enter rivers, lakes, and oceans. Support sustainable fishing practices to reduce the amount of micro plastic entering rivers from fishing equipment. Implementation of Clean-up efforts for beaches and rivers	Department of Drinking Water and Sanitation, Ministry of Housing and Urban Affairs. Department of Water Resources, River development and Ganga Rejuvenation, Department of Fisheries Ministry of Earth Science		

	Training and capacity building including microplastic monitoring, analysis, health impact studies may be taken up for effective implementation of aforementioned points."	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR, CSIR- IITR and CSIR-NEERI		
	Other conclusions given in the report			
20.	Independent studies regarding microplastics have been conducted by various organizations in thecountry including CPCB, MoES- NCCR, NCSCM, NPC and CIPET .Further international studies have been conducted by WHO, UNEP , OECD and others.			
21.	The studies have primarily focused on monitoring microplastics (concentration, polymer type, colour, shape) in various environmental matrices.			
22.	Occurrence of microplastics has been reported in oceans, sediments, surface water, ground water, wastewater, tap water, bottled water, air, food products, aquatic organisms, and humanbeings			
23.	There is currently no standard method for sampling and analysis of microplastics in the environment. ISO is currently working on the subject			
24.	Sampling and analytical methods adopted by different institutions in India are similar with minor variations.Variation in Microplastic conce			

	ntrations units reported by different organizations has been observed			
26.	Microplastic concentration in end use areas including ambient air, drinking water and ground water is available.			

Minutes of the Meeting held on 16.01.2024 in compliance of Hon'ble NGT order in the matter of O.A. No. 251 of 2022”

The Third Meeting (In continuation of the two meetings held on the matter on 9/11/2023 & 17/11/2023) of the Committee constituted in compliance of Hon'ble NGT order in the matter of O.A. No. 251 of 2022" was convened via video conferencing on January 16,2024 at 12.00 P.M to standardise the procedure for the sampling and analysis of micro plastics. Officials from CIPET, NCCR, NCSCM, ICMR, CSIR-NEERI, & CSIR-IITR participated in the meeting. List of participants is placed at **Annexure-I.**

CPCB welcomed the participants and informed that all the committee members were required to provide the comments on Methodology for Analysis prepared by NCCR. However, comments had not been received from CIPET and ICMR. As NCSCM had submitted a separate document, it was requested that they may provide specific comments on the NCCR Document as merging of two documents was not feasible, at this stage

A brief presentation on the document prepared by NCCR was made during the Meeting. CPCB observed that sections pertaining Analysis of Microplastics in Air and Sludge were not included in the methodology, although they were included in ISO 24187:2023, “Principle for the analysis of micro plastics present in the environment." It was informed that the finalized Methodology should be aligned with the said ISO Standards to prevent difficulties in compliance with corresponding BIS standards, when they are finalized in the country.

Committee members made following suggestions on the methodology presented :

- CIPET suggested examining the use of Manta net (a 300-micrometer mesh size) for collecting microplastics. Further the use of silicon and polycarbonate filter paper for micro FTIR analysis was suggested for better accuracy.
- CSIR-NEERI proposed using higher-density flotation media for digestion instead of Sodium Chloride (density of 1.2 g/cm3), suggesting the use of ZnCl and other available digestion media having density upto of 1.4 g/cm3, to accommodate polymers with higher density such as PET, Polycarbonate & Nylon for floatation.

- ICMR, NIREH, Bhopal suggested inclusion of Grab water sampling for non-flowing water bodies like ponds and lakes. which was endorsed by NCCR and CSIR-NEERI

- NCCR endorsed all the suggestions and recommendation made by the committee and suggested to modifying the methodology based on the inputs provided by the members.

- CSIR-IITR requested ICMR- NIREH, Bhopal, to provide specific comments on sample processing from tissues. It also requested CSIR-NEERI to

examine air as an environmental matrix.

- CPCB reiterated the need for clear delineation of all sections in the Methodology, including sample collection, extraction, and analysis. It also stressed upon the fact that the finalized Methodology should encompass all sections of ISO standards, including air and sludge.

Based on the deliberations during the Meeting, the following actions were decided:

1. Members of the Committee to provide specific comments/additional comments on the Methodology document prepared by NCCR to CPCB before February 07, 2024. (**Action: All Members of the Committee**)
2. CPCB to compile the inputs from the Members & provide it to by February 10, 2024. (**Action: CPCB**)
3. NCCR to prepare the document for " Sampling and Analysis of Microplasticsas per inputs provided by the Committee (**Action: NCCR**)

The meeting ended with vote of thanks to the chair.

Annexure-I

List of the Participants

S.No.	Name & designation
1	Ms. Divya Sinha, Director & I/c UPC-II, CPCB
2	Dr. Pravakar Mishra, Scientist-G , NCCR , Ministry of Earth Sciences
3	Dr. Smita Mohanty, Director & Head (Principal Scientist),CIPET Bhuwneshwar
4	Dr. A Ramesh Kumar, Principal Scientist, Chemical and Hazradous, Waste Management Division, CSIR-NEERI
5	Dr. N. Manickam, Chief scientist, CSIR-IITR
6	Dr. Geetika Yadav, Scientist-E, ICMR
7	Dr. (Ms.) Surya Singh, Scientist B, ICMR - NIREH, Bhopal
8	Dr. P Sivaperumal, Chemical Sciences Division, Division Head, NIOH, ICMR
9	Dr. Robin, Scientist C, NCSCM Chennai
10	Ms. Yogesh Chandra,Scientist- C, CPCB
11	Sh. Madnesh Kumar Dubey, Scientist-B, CPCB
12	Sh. V.K. Verma, Scientist-B, Trace Organic Lab, CPCB
13	Dr. Suvanka Dutta , RA, Regional Directorate Kolkata, CPCB

NCSCM Data Available on Marine litter and Microplastics

Tamil Nadu Coast

Microplastics Study

The occurrence of microplastics (<5 mm) along sandy beaches is a global environmental concern, driven by increasing waste inputs from multiple sources. A survey conducted at 25 sites along the 1,076 km Tamil Nadu coast, India, quantified and classified microplastic debris into four size categories. Beaches near river mouths showed the highest abundance, averaging 78 particles/m² at the high tide line and 25 particles/m² at the low tide line, contributing about 61% of the total load. Tourism-influenced beaches recorded 35 particles/m² (27%) at high tide and 7 particles/m² (23%) at low tide, while fishing-dominated sites showed 27 particles/m² (21%) at high tide and 4 particles/m² (16%) at low tide. Overall, plastic fragments dominated (47–50%), followed by fibres/lines (24–27%) and foam materials (10–19%). FTIR analysis confirmed polyethylene, polypropylene, and polystyrene as the primary polymers. Gut analysis revealed ingestion in 10.1% of fishes, underscoring risks of microplastics entering the marine food web.

Palk Bay and Gulf of Mannar coast

Microplastics and Marine Litter Study

Microplastic (MP) contamination and associated litter remain a pressing issue along the Palk Bay and Gulf of Mannar coast. Analysis of 12 beaches revealed plastics as the most dominant category, with a mean abundance of 0.330 No/m^2 (70.9%), confirming their persistence as the primary pollutant. Other fractions included cloth/fabric (0.024 No/m^2; 5.2%), rubber (0.023 No/m^2; 4.9%), glass (0.020 No/m^2; 4.3%), medical waste (0.014 No/m^2; 3.0%), processed lumber (0.016 No/m^2; 3.5%), and metals (0.010 No/m^2; 2.1%). Overall, plastics contributed nearly three-fourths of the total litter load, with polyethylene and polypropylene fragments being the most common polymers identified in sediment and fish samples. Fishing-related plastics alone accounted for 28.9% of the total plastic load, highlighting their major role in coastal pollution. Mean MP abundance in sediments was 65.4 ± 39.8 particles/m², with ingestion observed in fish (0.19 ± 1.3 particles/individual) and barnacles (0.22 ± 0.11 particles/g).

Kerala Coast

Microplastics and Marine Litter Study

Plastics enter the marine environment through multiple pathways and pose serious risks to aquatic ecosystems. A study conducted along the Kerala coast, southwest India, assessed microplastic (MP) abundance in coastal waters (14 sites), beach sediments (22 sites), and marine fishes (11 species). Mean MP abundance was 1.25 ± 0.88 particles/m³ in coastal waters and 40.7 ± 33.2 particles/m² in sediments, with higher loads in the southern coast. Fragments, fibres/lines, and foam were the dominant types, strongly influenced by river runoff and urban proximity. FTIR-ATR

analysis identified polyethylene (PE) and polypropylene (PP) as the most common polymers. In fishes, 15 of 70 individuals ingested 22 MPs, mainly PE (38.46%), cellulose (23.08%), rayon (15.38%), polyester (15.38%), and PP (7.69%). Marine litter assessment indicated riverine sources (0.64 No/m^2; 28%), rural inputs (0.46 No/m^2; 20%), and fishing and urban sources (0.43 No/m^2 each; 19%) as key contributors, with tourism (0.31 No/m^2; 14%) playing a lesser role.

West Bengal Coast

Marine Litter Study

Marine litter is widespread in estuarine and coastal ecosystems, with growing concern in India over its ecological consequences. A study across 17 beaches of the Hooghly estuary, part of the Gangetic delta, assessed litter distribution during monsoon and post-monsoon seasons using the OSPAR monitoring protocol. A total of 16,597 items were categorized into six major groups and 44 subcategories. Litter abundance was higher during the monsoon (1.10 ± 0.39 items/m^2) compared to post-monsoon (0.86 ± 0.32 items/m^2). Plastics dominated both seasons, averaging 0.94 items/m^2 in monsoon and 0.72 items/m^2 in post-monsoon, followed by cloth/fabric (0.04–0.05 items/m^2), rubber (0.04–0.03 items/m^2), processed lumber (0.03–0.02 items/m^2), glass (0.03 items/m^2), and metals (0.02–0.01 items/m^2). Plastic litter was the most persistent, with fishing-related plastics contributing significantly—19.1% during monsoon and 18.5% in post-monsoon.

Kadmat Island, Lakshadweep

Marine Litter Survey

A comprehensive survey of marine litter was conducted along six beaches of Kadmat Island in 2020, covering a total area of 3,000 m^2, during which 724 litter items were collected. The mean abundance of marine litter was 0.24 ± 0.15 items/m^2, with observed values ranging from 0.01 to 0.52 items/m^2. A total of 46 categories of litter were recorded and classified into seven major types: plastic (20 categories), metal (4), glass (4), rubber (5), processed lumber (5), cloth/fabric (6), and medical waste (3). Plastic items were the most prevalent, representing 56.5% of the total litter, while non-plastic items contributed 43.5%. Among plastics, fishing-related items accounted for 16.38%, highlighting the impact of fishing activities on marine pollution in the area.

Minicoy Island, Lakshadweep

Marine Litter Survey

A survey of marine litter was conducted along six beaches of Minicoy Island in 2020, covering a total area of 3,000 m^2, during which 1,037 litter items were collected. The mean abundance of marine litter was 0.35 ± 0.22 items/m^2, ranging from 0.18 to 0.75 items/m^2. Across the surveyed beaches, 46 categories of litter were identified and classified into seven major types: plastic (20 categories), metal (4), glass (4), rubber (5), processed lumber (5), cloth/fabric (6), and medical waste (3). Plastics were the dominant component, constituting 68.7% of total litter, while non-plastic items, including cloth/fabric, processed lumber, rubber, metal, medical waste, and glass,

contributed 31.3%. Among plastics, fishing-related items accounted for 20.37%, highlighting the significant influence of fishing activities on marine pollution.

Suheli Island, Lakshadweep

Marine Litter Survey

A survey of marine litter was carried out along six transects of Suheli Island beaches in 2020, covering a total area of 3,000 m², during which 1,094 litter items were collected. Marine litter was observed at all sampling sites, with a mean abundance of 0.36 ± 0.17 items/m², ranging from 0.18 to 0.60 items/m². Across the surveyed beaches, 46 categories of litter were recorded and classified into seven major types: plastic (20 categories), metal (4), glass (4), rubber (5), processed lumber (5), cloth/fabric (6), and medical waste (3). Plastics were the dominant component of marine litter, with fishing-related items accounting for 23.49% of plastic debris, highlighting the notable impact of fishing activities on marine pollution in the region.

Chennai Coast

Marine Litter Survey

A survey of marine litter was conducted along the Chennai coast under the GIZ project in January 2022 to evaluate the abundance and composition of debris. The mean abundance of marine litter in the study area was 0.69 ± 0.71 items/m², ranging from 0.17 to 2.03 items/m². A total of 85 different types of litter were recorded across the surveyed beaches and classified into ten major categories following OSPAR standards: plastic (39 types), rubber (4), cloth (5), paper/cardboard (7), wood (4), metal (8), glass (4), pottery/ceramics (2), sanitary waste (7), and medical waste (5). Plastics dominated the litter composition, with fishing-related items accounting for 24% of plastic debris, reflecting the notable influence of coastal fishing activities. The remaining litter consisted of non-plastic items, including metal, glass, wood, cloth, and medical waste.

Thiruvananthapuram coast

Marine Litter Survey

A survey of marine litter was conducted along the Thiruvananthapuram coast under the GIZ project in April 2022 to assess the abundance and composition of debris. The mean abundance of marine litter in the study area was 1.97 ± 1.15 items/m², ranging from 0.46 to 4.10 items/m². Across the surveyed beaches, 83 different types of litter were recorded and classified into ten major categories following OSPAR standards: plastic (38 types), rubber (4), cloth (4), paper/cardboard (7), wood (3), metal (9), glass (4), pottery/ceramics (2), sanitary waste (7), and medical waste (5). Plastics were the dominant component, with fishing-related litter (FRL) accounting for 25% of the total plastic debris, indicating the considerable impact of coastal fishing activities on pollution. Non-plastic items, including metal, glass, wood, cloth, paper, and medical waste, made up the remainder.

"Microplastics" Assessment in various categories has been undertaken by the R&D Wings of CIPET for identification and remediation of microplastics in soil, sediments and marine environment. Internationally validated Sampling and Analytical protocols in accordance with **ISO: 24187: 2023 Principles for the analysis of microplastics present in the environment**, have been employed to ensure scientific accuracy and comparability of results. Comprehensive studies have been conducted across various major river systems and coastal environments, representing the east, west, and southern parts of the country. Sampling has been carried out across different time periods and seasons (pre- and post-monsoon) to understand the spatio-temporal variability and influx patterns of microplastics.

1) ***Sampling in the Damanganga and Tapi rivers and Dumas Beach in Gujarat, India*** was investigated. Using sieving, density separation, wet peroxide oxidation, and advanced analytical methods like μ-FTIR, SEM, and Py-GCMS, traces of microplastics composed mainly of polyethylene (PE) and polypropylene (PP) were observed. The study indicated that the plastics in the industrial and municipal waste were the primary sources and the carriers to the rivers. The highest concentration was found in the Damanganga River (3.53 particles/L). SEM analysis revealed significant weathering and oxidation of MPs, suggesting prolonged environmental exposure. A pollutant loading index (PLI) assessment indicated marginal overall microplastics pollution, though Damanganga was the most affected. The study emphasizes the urgent need for pollution control in industrial belts and provides baseline data for microplastics contamination.
2) Further a detailed study on the ***Spatial and Seasonal distribution of Microplastics in the Cauvery River,*** a crucial waterway for southern India was undertaken. Sampling was performed at 19 sites across dry (February 2024) and wet (November 2024) seasons, spanning from Tiruppur to Keelaiyur, covering industrial, agricultural, and coastal zones. MPs were extracted using similar methods - sieving, wet peroxide oxidation, and density separation, followed by identification through optical microscopy, SEM, and FTIR analyses. The predominant MP types were fibers and fragments composed mainly of polyethylene, polypropylene, and polystyrene. Concentrations were higher near textile and urban centers like Erode and Tiruchirappalli, particularly during monsoon flow, due to runoff and industrial discharges.
3) Sampling in the Mahanadi River (Cuttack, Odisha) and coastal waters of Puri (Odisha) were also assessed. Samples collected during the monsoon season were analyzed & common polymers identified included polyethylene, polypropylene, polystyrene, and PET, with fibers and fragments being dominant forms. The study

found higher MP concentrations in urban and industrial zones like Naraj dam in Cuttack, attributed to runoff, sewage discharge, and tourism.

4) CIPET's R&D Wings are also investigating biological approaches for remediation of microplastics in terrestrial environments. The study focuses on exploring the potential of earthworms as natural bioremediators of soil microplastic contamination. Building on previous findings that the species *Eisenia fetida* can ingest and tolerate polyethylene terephthalate (PET) microplastics without evident adverse effects, the current phase of research extends the study to include polypropylene (PP) and the biodegradable polymer polylactic acid (PLA). The objective is to understand how earthworm activity influences the physical fragmentation, surface modification, and potential biodegradation of these polymers under soil conditions. Through detailed analysis of changes in polymer morphology, chemical structure, and associated soil biochemical responses, the study seeks to evaluate whether biological processes can enhance the transformation or stabilization of microplastics in the environment.

The aforesaid activity has been undertaken with the Funding support received from INOPOL (India-Norway cooperation project on capacity building for reducing plastic and chemical pollution in India)

Draft Minutes of Meeting in compliance of Hon'ble NGT order in the matter of O.A. No. 251 of 2022" with CIPET/ICMR /NCSCM/NCCR held on 17.09.2025

A meeting in compliance with the Hon'ble NGT order in the matter of O.A. No. 251 of 2022 with CIPET, ICMR, NCSCM, and NCCR was held virtually via video conferencing on September 17, 2025, at 4:00 PM. The agenda of the meeting was to discuss on the progress on the Action Plan prepared by CPCB to implement the action points provided by MoEF&CC. The meeting was coordinated by CPCB, Delhi. Representatives from CIPET, NCSCM and ICMR participated in the meeting (List of participants is placed as **Annexure-I**). NCCR did not particpated in the meeting.

CPCB made a brief presentation on the proposed Action Plan, including the preliminary listing of monitoring points and proposed organizations for studies on the source generation and end-use of microplastics. **(Annexure II)**.

It was informed that ISO 24187:2023 (en) has now notified standards for microplastic analysis. CIPET informed that activities under Point 26 (Training and Capacity Building) have been carried out in the recent past. Additional training shall be planned based on the requirements

CPCB informed that the limited data related to Microplastic concentration in transfer media like soil, biota etc was available and hence focus of the study shall be on assessment of microplastic at source of generation and the end use area

CIPET informed that data on microplastic sources from industries (cosmetics, bottled water) and dumpsites is available, along with information on compost.

NCSCM reported availability of information regarding fishing nets and ropes used in ocean activities.

ICMR informed that based on the ministry-wise action plan, ICMR – NIREH has compiled the studies and prepared the report. The report was sent to the ICMR HQ for further submission to MoEF&CC on 09.08.2024. Therefore, ICMR's part in the process has been successfully concluded. ICMR – NIREH further informed about the submission and in-principal approval, for carrying out a project on the "exposure of new born babies for the presence of microplastics due to the use of plastic baby products", as per their own mandate. It was further informed that it is a long time study (3-4 years) and funding for the same is yet to be received.

CPCB further informed that the available technologies for removal of microplastic from water has been compiled from several research papers **(Annexure III)**

NCCR vide email dated 26.9.2025 informed that NCCR Undertake R&D activities only. It was further informed by NCCR that the subject matters pertaining to NGT are not in the preview of NCCR and hence the action points on NCCR will not be carried out.

Based on the deliberations held during the meeting, following actions were decided:

1. Study to be carried out on the following of source of generation of microplastic and its end use on:

    a. Industries: Toothpaste, Printer Cartridge, plastic production, Synthetic textiles, synthetic sole of shoes **(Action: CIPET)**
    b. Dumpsites &landfill sites: Groundwater, Soil & and ambient air (**Action: CIPET)**
    c. Ocean Activities: Aquaculture nets and Coastal Tourism (**Action: NCSCM)**
    d. Outflow from sewage treatment plant, Storm water drains (carrying road dust), leachate & drinking water **(Action: NCSCM)**
    e. End Use: Ambient Air, Ground water & Soil **(Action: CIPET and NCSCM)**

2. CIPET and NCSCM to share available data on the points listed in the preliminary monitoring framework **(Action: CIPET, NCSCM)**
3. CIPET to provide the plan for conduction of further Training programs **(Action: CIPET)**
4. Selection & Evaluation of technology for removal from microplastic from waste water & drinking water **(Action CIPET & CPCB)**
5. Brief write-up on Progress on the work being carried out by ICMR to be provided **(Action: ICMR)**
6. CPCB shall be associated in all studies, including identification of industries and collection of samples.
7. CPCB shall compile the available information/data from the organizations and submit the proposed action plan before Hon'ble NGT **(Action: CPCB)**
8. CPCB shall bear the cost of study to be done by CIPET, NCSCM through EC funds as per the actuals, as per the Hon'ble NGT order
9. The concerned Organisations shall provide Activity plan along with timelines for implementation of the above points

The meeting ended with vote of thanks to the chair.

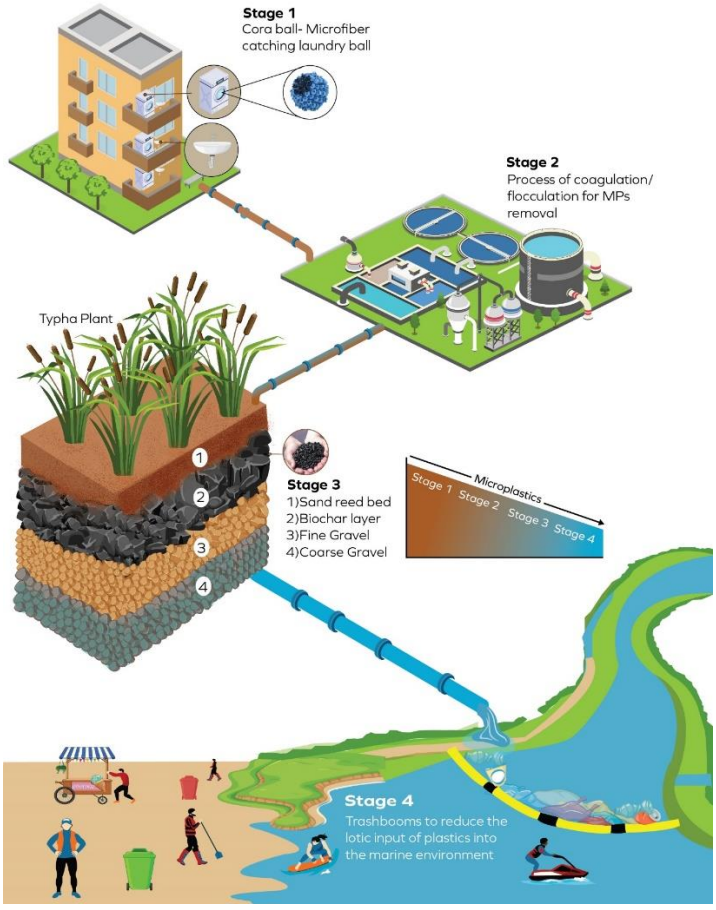
List of Participants

Annexure I

S.No.	Name and Designation
1	Ms. Divya Sinha Director & Incharge, UPC-II, CPCB
2	Ms Smita Mohanty Director & Head, CIPET Bhubneshwar
3	Dr. Geetika Yadav Scientist 'F', ICMR, HQ Delhi
4	Dr. Surya Singh Scientist 'C', ICMR-NIREH Bhopal
5	Dr. R Karthik Project Scientist II NCSCM
6	Dr Nithin A Project Scientist I NCSCM
7	Amit Kumar Sc.B, UPC-II, CPCB

Biochar Reed Beds for the Removal of Microplastics from Wastewater Treatment Systems

Biochar, a carbon-rich material produced through pyrolysis of organic matter, has a highly porous structure offering a large surface area that effectively adsorbs pollutants, including microplastics (MPs). Reed beds, or constructed wetlands, consist of shallow basins filled with gravel and sand, planted with reeds that promote microbial activity and enhance pollutant removal. Integrating biochar into reed beds improves the efficiency of wastewater treatment plants (WWTPs) by providing additional adsorption sites for MPs as wastewater passes through the system. Retained MPs can later be removed from the biochar bed and safely disposed of. Comprehensive management of MP pollution requires a combination of interventions. Collaborative actions among governments, industries, researchers, and the public are vital for effective implementation. An integrated wastewater management concept is proposed to reduce MP discharge into the environment. Stage 1 involves using a Cora Ball in households to capture MPs from laundry. Stage 2 employs tertiary WWTP treatments to minimize effluent MPs. Stage 3 incorporates biochar reed beds for enhanced filtration. Stage 4 introduces trash booms in rivers to intercept plastics. Collectively, these stages form a holistic approach to mitigating MP pollution.



Infographic concept for an integrated wastewater management system to reduce the entry of microplastics into the environment. Credit ©NCSCM

INDO-GERMAN SUPPORT PROJECT FOR CIRCULAR ECONOMY SOLUTIONS PREVENTING MARINE LITTER IN ECOSYSTEMS

Final Report

Implemented by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of:

Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection

of the Federal Republic of Germany

NCSCM

National Centre for Sustainable Coastal Management
Ministry of Environment, Forest and Climate Change
GOVERNMENT OF INDIA

April 2024

EXECUTIVE SUMMARY

Marine litter is now widely recognized as a significant global environmental pollutant. Numerous studies and international organizations have recently emphasized its widespread distribution and the direct and indirect consequences it has on aquatic environments, marine wildlife, and local economies. Plastic is the most common component of marine litter, according to global surveys, although the percentages vary in different regions. Among plastic materials, microplastics are particularly concerning due to their harmful effects caused by weathering conditions like solar radiation, water temperature, and abrasion. Microplastics also have the ability to absorb persistent, bioaccumulative, and toxic chemicals such as polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), as well as trace elements like Lead (Pb) and Chromium (Cr). Additionally, recent research has highlighted that microplastics can be mistaken for food particles and ingested by a wide range of organisms in various environmental compartments including water, sediment and air.

Plastic pollution remains a major issue in the Indian oceans, with an estimated 600,000 tonnes entering the waters each year. It is crucial to prioritize the reduction of plastic consumption and waste throughout the supply chain. Despite India's lower per capita consumption of 13.6 kg compared to the global average of 30 kg, the country still generates a staggering 9 million tonnes of plastic waste annually.

The National Centre for Sustainable Coastal Management (NCSCM), Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India, in partnership with the GIZ, German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), is executing the Indo-German Technical Cooperation Project on "Circular Economy Solution Preventing Marine Litter in Ecosystems" (CES-ML). CES-ML is an internationally coordinated research effort aimed at implementing resource-efficient and circular economy strategies to tackle the problem of marine litter including microplastics. The project emphasizes the use of technology-driven solutions within an ecosystem, working closely with public and private partners. Furthermore, CES-ML strives

to create supportive frameworks at the State and National levels to efficiently close material loops and combat marine litter and microplastics.

The CES-ML was created in response to the need for a better understanding of marine litter, including microplastics, in the states of Tamil Nadu, Kerala, and Uttar Pradesh. The CES-ML Study aims to achieve the following objectives:

- Riverine/Lake/Marine leakages and transport of plastics is monitored to assess the sources of microplastics and hotspots are identified in the three locations.
- Mapping of site-specific distribution of plastics, microplastics and litter in riverine systems to enable Decision Support System (DSS).
- The training and capacity building for tracking leakage of litter in coastal and riverine ecosystems using digital tools.
- Technological solutions for litter management are identified and demonstrated in riverine and marine ecosystems in the states of Kerala, Tamil Nadu and Uttar Pradesh.
- Creating an evidence-based reference for project implementation at partner state.

The investigation of literature encompassed various reports on marine litter and microplastics in both marine and riverine environments. The findings derived from the literature were organized into distinct themes, including sources, pathways, threats, long-range transport, breakdown, and other pertinent issues. Furthermore, a comprehensive collection of annotated sampling and analytical methods was compiled, with particular emphasis on the circumstances and conditions specific to India. Sampling and analysis were conducted to assess the presence of marine litter and microplastics in diverse coastal and river environments, water bodies and sediments. These investigations were carried out in selected locations across three states, with a particular focus on commercially significant tourist destinations and fishing beaches, as well as river systems. Additionally, we collected samples of canal water from major metropolitan areas.

This document provides an overview of the key findings from research conducted on marine litter and microplastics found in specific regions of three states: Tamil Nadu, Kerala, and Uttar Pradesh. The data was collected between October 2021 and December 2023, utilizing a widely recognized methodology.

Key findings

Tamil Nadu - Greater Chennai Corporation (GCC)

	Key finding	Explanatory text
	High population, municipal solid waste and plastic waste generation calculated for Greater Chennai Corporation (GCC)	– The highest population density zones are located in zone 4- Tondiarpet, Zone 5- Royapuram, and Zone 6- Thiru Vi Ka Nagar – Highest MSW and plastic generation was measured in Thondiarpet, Royapuram, Thiru

	Key finding	Explanatory text
		Vi Ka Nagar, Ambattur, Anna Nagar, Teynampet, Kodambakam and Adyar – Waste segregation missing at disposal, Lack of awareness and participatory approach among community
	The highest abundance of marine litter was measured in the Cooum river mouth followed by Adyar river mouth on the Chennai coast. The number of items on Kovalam beach was less than on other beaches	– Beaches near rivers tend to have more litter than beaches near tourist spots or fishing areas. This is because marine litter tends to accumulate in areas of low circulation, near the areas where water from the river enters (like estuaries). Population density, urbanization and waste management in the catchment area mainly contribute to inland littering
	Plastic is the most common item, accounting for 59.9% of all items on surveyed beaches. Fishing related litter (FRL) accounted for 24% of the total plastic litter collected	– The marine litter collected on these beaches comes from carry bags, which are mostly made of plastic. Beaches near fishing areas composed mainly of fisheries waste, especially nylon fabric often used to make fishing nets
	38 chemical types of marine litter were identified	– Polymers such as polypropylene and high-density polyethylene were found predominantly, while polystyrene, polyamide and polyester were found in lesser quantities. Polypropylene is commonly used to make disposable items like bottle caps, food wrap, and straws, while polyethylene is used for products like bottles, plastic bags, packaging, and fishing line
	The cleanliness of the 9 beaches that were surveyed was evaluated	– According to General index, 3 beaches were rated as "clean", 3 beaches as “moderate cleanliness” – In line with Clean coast index, 4 of the beaches surveyed were graded as "clean", while 2 beaches were classified as "very low cleanliness"
	The highest concentration of microplastics in beach sediment was found at the	– Possible sources of these plastics include mismanaged solid waste in watersheds

	Key finding	Explanatory text
	Cooum River mouth beach, followed by the Adyar River mouth and the lowest at Thiruvanmiyur beach Chemical composition of microplastic particles were identified	brought in by rivers, discarded fishing nets, and lack of beach clean-up. On the other hand, Thiruvanmiyur beach has the lowest microplastic since regular cleaning activities were carried out – The dominating presence of polyethylene (PE) followed by polypropylene (PP), and polyamide (PA) was observed
	The highest concentration of microplastics in surface water was found in Cowl Bazar, followed by the leachate from the Perungudi landfill. Chemical composition of microplastic particles were identified	– Highest abundance in the microplastic content in surface waters may come from dump sites and urban areas – The chemical composition of microplastic particles from all examined samples clearly shows the dominating presence of polyethylene high-density (HDPE) followed by polypropylene (PP) and other types of polymers
	Riverine microplastic flux were measured along the beaches of the Chennai coast. Ennore creek mouth recorded the maximum flux followed by Muttukadu	– The riverine microplastic flux in the estuary could be due to high river discharge and tidal currents – The beach adjacent to the river mouth contained the highest abundance of microplastic particles due to high urbanization of Chennai megacity
	The major plastic litter hotspots for the Greater Chennai Corporation has been identified	– Many hotspots could be seen in the Buckingham canal (Kodungaiyur, Muttukadu, Neelangarai) Adyar and Cooum river mouth and Koyambedu market area. Hotspots were also seen on Cowl Bazar (Airport backside), Velachery Railway Station and Pattinapakkam Beach

Site Specific Interventions - Greater Chennai Corporation

- Reception facilities may be installed at fishing harbours such as Kasimedu and Pattinapakkam to collect fishing-related litter (FRL) and damaged or discarded fishing nets.
- Plastic bottle recycling kiosks may be set up at public places such as beaches, parks, railway stations, and bus stands.
- Community participation in periodic beach clean-ups.

- Sufficient waste bins may be installed at beaches like Marina and Besant Nagar.
- A trash boom may be installed in the Cooum River and Adyar River at a strategic location before it joins the Bay of Bengal. The entry and exit points of the Buckingham Canal may be installed with a trash boom. The collected plastics from the trash boom may be recycled to enhance their value chain.
- A storm water pollutant trap can be built to remove rubber, bitumen, and other microplastic particles from storm water. These can capture and filter out microplastics before they enter waterways.
- A pit can be constructed to avoid the entry of leachate from the Kodungaiyur and Perungudi landfills into the rivers.
- Ecoparks may be built to promote eco-alternative materials.
- Eco-labelling of beaches such as Marina and Besant Nagar.
- Deploy trash skimmers to remove floating plastic waste.
- Promote the use of sustainable alternatives where appropriate.

Key findings

Kerala - Thiruvananthapuram Municipal Corporation (TMC)

	Key finding	Explanatory text
	High population, municipal solid waste and plastic waste generation calculated for coastal wards of Thiruvananthapuram Municipal Corporation (TMC)	– The highest population ward in TMC is ward 95-Anamugham, ward-1 Kazhakottam followed by ward 5 –Cheruvakkal – Highest MSW and plastic generation was measured in the Kazhakottam, Anamugham, Thiruvallam, Cheruvakkal and Bheemapally recorded – There is a problem with waste segregation at the disposal site. The community is not very aware of the problem
	Of the beaches examined, Bheemapally beach had the highest marine litter abundance followed by Veli beach. In contrast, Kovalam beach had the lowest abundance	– The lack of proper plastic management (incomplete burning, unplanned burning and dumping, etc.) could be the main cause of marine litter and its relatively high abundance on these beaches
	Plastic is the most common item, accounting for 73.1% of all items on surveyed beaches. Fishing related litter (FRL) accounted for 25% (no. of items) of the total plastic litter collected	– Plastic films and packaging are among the most common types of litter found on beaches. In addition, smaller pieces of foam were also collected. Styrofoam has a low recycling rate and when it floats, it is often washed away by storms into the sea

	Key finding	Explanatory text
	The cleanliness of the 11 beaches that were surveyed was evaluated	– According to clean coast index, 2 beaches were rated as "very low cleanliness", 2 beaches as “low cleanliness” – According to CCI, the beaches surveyed, Kovalam beach was in clean condition, while other beaches required litter management strategies – None of the beaches surveyed was in the "very clean" categories
	The highest concentration of microplastics in beach sediment was found at the Vizhinjam beach, followed by the Bheemapally beach and the lowest at Kovalam	– Higher abundance of microplastics and potential sources of these plastics are increased fishing activities, lack of cleanliness and landfills. On the other hand, Kovalam beach has the lowest concentration of microplastics due to regular cleaning activities
	The highest concentration of microplastics in coastal water was found at the Puthenthope beach, followed by the Bheemapally beach In fresh water samples, the Chakka Bridge (Parvathy puthanar canal) and Killipalam Bridge (Killi River) sites showed maximum abundance in the water samples	– Possible causes of coastal water pollution on these beaches include fishing activities and litter accumulation – The majority of litter dumps near the Parvathy-Puthanar Canal, as well as a lack of cleaning activities and river transport, are potential causes of fresh water samples
	Microplastic flux in three rivers along the TMC was measured	– Among the three rivers, the Vamanapuram River (Muthalapozhi Estuary) recorded the maximum flux. This could be attributed to high river discharge and tidal currents in the estuary
	The major plastic litter hotspots for the Thiruvananthapuram Municipal Corporation has been identified	– Many hotspots could be seen in the Parvathy puthanar canal (Vallakadavu, Bangladesh colony), Amaizhanchan Thodu (Pattoor, Thakaraparambu), Killi River (Pozhikkara), Bheemapally beach, Vizhinjam beach, Chalai market and Akkulam Lake

Site Specific Interventions - Thiruvananthapuram Municipal Corporation

- Reception facilities can be set up in fishing harbours such as Vizhinjam and Muthala Pozhi to collect fishing-related litter (FRL) and damaged or discarded fishing nets and End-of-life fishing gear (EOL).
- Removal of water hyacinth weed from the Parvati Puthannar canal may reduce the accumulation of plastic litter, especially microplastics.
- Primary Collection is provided for urban and tourism areas. Waste management can be enhanced in coastal areas like Vettukadu, Poovar, and Bheemapally beach.
- A trash boom may be installed in canals and rivers such as Parvathy Puthanar canal, Amayizhanjan Thodu, Killi, Karamana and mouth of the River Veli at a strategic location before they join the Arabian Sea. Plastics collected from the trash boom may be recycled to enhance their value chain.
- Self-help groups (SHGs) such as Haritha Karma Sena may be supported with the necessary amenities to enhance door-to-door waste collection.
- Enhance waste management facilities along the coastal wards, especially in Bheemapally and Valiyathura.
- A Material Recovery Facility (MRF) may be set up at Bheemapally to improve waste processing.
- Community's capacity is strengthened towards zero waste generation.
- Community participation in periodic beach clean-ups.
- Eco-labelling of beaches such as Poovar and Kovalam.
- Deploy trash skimmers to remove floating plastic waste from the Amayizhanjan Thodu, Killi, Karamana, and Parvati Puthannar canal.
- Ecoparks may be built to promote eco-alternative materials.

Key findings

Uttar Pradesh - Lucknow Municipal Corporation (LMC)

	Key finding	Explanatory text
	High population, municipal solid waste and plastic waste generation calculated for Lucknow Municipal Corporation (LMC)	– Ward - 21 and 79 were identified as the areas with the highest population and population density. – The highest amounts of MSW and plastic waste were recorded in ward - 15 and 21.
	The highest concentration of microplastics in surface sediment was found at the STP, followed by Gomti River-4 The chemical composition of the microplastic particles was successfully identified	– The improper management of solid waste in watersheds and its transportation through rivers and canals could be a possible source of these plastic materials. On the other hand, the Gomti River-4 has the least amount of microplastic contamination due to the lack of human activities in the region.

	Key finding	Explanatory text
		– The highest occurrence of polypropylene (PP) was observed, followed by polyethylene (PE), polystyrene (PS), and cellulose (CE).
	The highest concentration of microplastics in surface water was found in STP water, followed by the Gomti River-4. Chemical composition of microplastic particles were identified	– With rainwater, microplastics from streets enter the environment either directly or via the sewage system together with domestic wastewater in sewage treatment plants. There are now technologies to filter out the smallest particles in sewage treatment plants, but these are not yet widespread. – The chemical composition of microplastic particles from all examined samples clearly shows the dominating presence of polyethylene (PE), polypropylene (PP), cellulose (CE), and poly (1,4-cyclohexanedimethylene terephthalate) (PCT).
	The major plastic litter hotspots for the Lucknow Municipal Corporation has been identified	– Major plastic litter hotspots were identified near Kukrail Nadi, Subaran Canal, PGI Hospital, and Gomti River-6

Site Specific Interventions - Lucknow Municipal Corporation

- A trash boom may be installed in Kukrail Nadi and Haider Ali Canal at a strategic location before it joins the Gomti River. Plastics collected from the trash boom may be recycled to enhance their value chain.
- A storm water pollutant trap can be built to remove rubber, bitumen, and other microplastic particles from storm water. These can capture and filter out microplastics before they enter waterways.
- The public may be given environmental awareness regarding the ill effects of dumping Pooja waste into the rivers, as these Pooja items may contain plastic materials. Also, it may be suggested to use natural materials over synthetic materials in Pooja items.
- Sewage treatment plants may be redesigned by including biochar and reed beds so that the entry of microplastics into the environment may be reduced.
- Ecoparks may be built to promote eco-alternative materials.

Key findings

Uttar Pradesh - Agra Municipal Corporation (AMC)

	Key finding	Explanatory text
	High population, municipal solid waste and plastic waste generation calculated for Agra Municipal Corporation (AMC)	– Ward - 34 and 69, 73, 74 were identified as the areas with the highest population and population density – The highest amounts of MSW (ward - 34) and plastic waste were recorded in ward 43 and 20
	The highest concentration of microplastics in surface sediment was found at the Landfill followed by Gokulpura Shahganj The chemical composition of the microplastic particles was successfully identified	– Improper handling of solid waste in watersheds and subsequent transport via rivers and canals can potentially contribute to the presence of plastic materials. In contrast, Keetham Lake and Paliwal Park Lake have minimal microplastic pollution due to limited human intervention and regular maintenance efforts – The highest occurrence of polyethylene (PE), poly (1,4-cyclohexanedimethylene terephthalate) (PCT), polypropylene (PP), polyester (PES)
	The highest concentration of microplastics in surface water was found in Tajganj (Tajmahal backside), followed by Kamala Nagar, while the lowest concentration was found in Yamuna River-7 Chemical composition of microplastic particles were identified	– Rivers, canals, and urban activities are potential sources of the greatest concentration of microplastics found in surface waters – The chemical composition of microplastic particles from all examined samples clearly shows the dominating presence of polyethylene high-density (HDPE) followed by polypropylene (PP) and other types of polymers
	The major plastic litter hotspots for the Agra Municipal Corporation has been identified	– A considerable number of hotspots were identified near the Agra Municipal Corporation, including Kamala Nagar, the Yamuna River (2&4), Agra Fort, and Tajganj, situated behind the renowned Taj Mahal

Site Specific Interventions - Agra Municipal Corporation

- A trash boom may be installed at a strategic location in the Yamuna River. Plastics collected from the trash boom may be recycled to enhance their value chain.
- Install storm water pollutant trap in locations with a high potential for microplastic contamination, such as near industrial sites, highways, or urban areas. These traps can capture and filter out microplastics before they enter waterways.
- Sewage treatment plants may be redesigned by including biochar and reed beds so that the entry of microplastics into the environment may be reduced.
- To prevent the leachate from landfills in Kuberpur from entering Yamuna River, a pit may be constructed.
- Throwing of Pooja items into the river/rivulet/canal instead of properly disposing them.
- Implement strict regulations and monitoring systems to prevent microplastic pollution in the production process of synthetic leather.
- Ecoparks may be constructed to promote eco-alternative materials.

Key findings

Uttar Pradesh - Prayagraj Municipal Corporation (PMC)

	Key finding	Explanatory text
	High population, municipal solid waste and plastic waste generation calculated for Prayagraj Municipal Corporation (PMC)	– Ward 36, 52 and 78 were identified as the areas with the highest population and population density – The highest amounts of MSW (ward 36, 52 & 76) and plastic waste were recorded in ward 52 and 35
	The highest concentration of microplastics in surface sediment was found at the Green colony followed by Parade ground The chemical composition of the microplastic particles was identified	– Improper management of solid waste within watersheds and its subsequent transportation through rivers and canals has the potential to contribute to the presence of plastic materials. In contrast, Dhoomanganj Lake have minimal microplastic pollution due to limited human intervention – The highest occurrence of polyethylene (PE), polypropylene (PP), cellulose (CE), and polystyrene (PS)
	The highest concentration of microplastics in surface water was found in Green colony, followed by Sola market, while	– Rivers, canals, and urban activities are potential sources of microplastics found in surface waters

	Key finding	Explanatory text
	the lowest concentration was found in Bhiti Taluka Asdullapur Chemical composition of microplastic particles were identified	– The chemical composition of microplastic particles from all examined samples clearly shows the dominating presence of polyethylene (PE), polypropylene (PP), polystyrene (PS) and poly (1,4-cyclohexanedimethylene terephthalate) (PCT)
	The major plastic litter hotspots for the Prayagraj Municipal Corporation has been identified	– A considerable number of hotspots were identified near the Prayagraj Municipal Corporation, including Karamat Ki Chowki, the Yamuna River 2, Ganga River 2&3, Sangam, Atala Dulsipur and Sola market

Site Specific Interventions - Prayagraj Municipal Corporation

- A trash boom may be installed at a strategic location in the Yamuna River and Ganga River. Plastics collected from the trash boom may be recycled to enhance their value chain.
- Install storm water pollutant traps in locations with a high potential for microplastic contamination, such as near industrial sites, highways, or urban areas. These traps can capture and filter out microplastics before they enter waterways.
- Plastic recycling kiosk may be installed during the Mela.
- Signboards and posters on safe disposal of wastes.
- Restrictions on throwing Pooja items into the rivulet, river, or canal.
- Sewage treatment plants may be redesigned by including biochar and reed beds so that the entry of microplastics into the environment may be reduced.
- Ecoparks may be built to promote eco-alternative materials.
- The public may be given environmental awareness regarding the ill effects of dumping Pooja waste into the rivers, as these Pooja items may contain plastic materials. Also, it may be suggested to use natural materials over synthetic materials in Pooja items.
- A Material Recovery Facility (MRF) may be set up at Sangam to improve waste processing.
- Implement strict regulations and monitoring systems to prevent microplastic pollution in the production process of synthetic leather.
- Deploy trash skimmers to remove floating plastic waste.

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL

PRINCIPAL BENCH, NEW DELHI

Original Application No. 1094/2024

In the matter of**:**

News Item titled "All Indian salt Sugar brands contain microplastics reveals study" appearing in the Business Standard dated 13.08.2024.

Index

	Plastics (Regularization of IS 17899 T)" (September 2025) incorporating FTIR method aligned with ISO 24187 for microplastics testing	
8.	**Annexure – VII** – Copy of minutes/communication regarding coordination with ICMR, CIPET, NCSCM and NCCR for microplastics research and capacity-building activities.	

Srinivas Vishven

(Filed by Adv. Srinivas Vishven)
On behalf of Central Pollution Control Board

Place: Delhi
Dated: 15.10.2025

Status Report on Original Application No.1094/2024 News Item titled "All Indian Salt Sugar brands contain microplastics reveals study" appearing in the Business Standard dated 13.08.2024

1.0 Background

The Hon'ble NGT vide order dated 22.07.2025 **(Annexure I)** directed that:

-

The Respondent No. 1-CPCB has filed the reply dated 25.03.2025 stating that in terms of the order of the Tribunal dated 01.03.2023 passed in the OA No. 251/2022, the matter relating to the microplastics has been taken up and MoEF&CC had developed an action plan outlining the activities related to the microplastics. No such action plan has been placed on record by the CPCB. Learned counsel for the CPCB seeks two weeks' time to place it on record the master plan and action taken in pursuant thereto.

2.0Action Plan for implementation of Action points provided by MOEF&CC

MoEFCC vide letter dated 20.10.23 **(Annexure II)** provided Ministry-wise categorization of the conclusions of the report prepared by CPCB, ICMR, CIPET and NCSCM vide Order of NGT in OA No. 251/2022. MoEFCC reviewed the matter in 26.10.23 and based on the conclusions drawn from the report, specific action points were assigned to the concerned organizations. MoEFCC further requested the concerned organizations to prepare the Action Plan and submit the same to MOEFCC, CPCB has accordingly submitted an Action Plan to MoEF&CC vide letter dated 17.11.2023. The same is placed at **Annexure III.**

3.0 Status of Implementation of Action Plan

Standard method for testing Microplastics in the Environment has not been notified by BIS so far. However, BIS has issued Draft Indian Standard for "**Assessment of Biodegradability of Plastics in Varied Conditions ((***Regularization of* IS 17899T)" **(Annexure IV)** for public consultation**.** FTIR method included in the international standard ISO 24187:2023 "Principles for the analysis of microplastics present in the environment" has been included as Method of testing for Microplastics in this draft BIS standard.

As per the CPCB Action Plan, CPCB prepared comprehensive list of sources (Action Point No. 2-6 CPCB Action Plan (Annexure III)) contributing to microplastic pollution which are to be monitored based on a series of Meetings convened with the concerned organisations including CIPER, NCSCM , NCCR & ICMR. The details are placed at **Annexure V**. Further, available technologies Technologies for removal of Microplastics have been compiled **(** (Action Point No. 13-14, CPCB Action Plan (**Annexure III)) .** The details are placed at **Annexure VI.**

Further, ICMR – NIREH, as per its own mandate, **((** Action Point No. 8-10, CPCB Action Plan (Annexure III)) had applied for a (intramural) project research funding from ICMR emphasizing on 'estimating micro(Nano)plastics exposure in human infants'. This research project, which is of 4 years' duration, has been in-principal approved by the ICMR. However, the funding is still awaited to initiate the actual work. The results obtained after the execution of project will be published in the form of scientific articles / reports and the same will also be shared with CPCB /MoEF&CC.

It is submitted that in order to further progress on the implementation of the above action points and other action points pertaining to CPCB as at Annexure III, there is need to have Standard method for testing microplastics in the Environment.

Thus, it is humbly submitted that implementation of such Action Points shall be taken up upon the finalization of said BIS Standard.

Divy

(Divya Sinha)
Scientist 'F'
Central Pollution Control Board
15.10.2025.

दिव्या सिन्हा / Divya Sinha
वैज्ञानिक 'एफ' / Scientist 'F'
केंद्रीय प्रदूषण नियंत्रण बोर्ड
Central Pollution Control Board
(पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार)
M/o Environment, Forest & Climate Change, Govt. of India)
परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली–110032
Parivesh Bhawan, East Arjun Nagar, Delhi-110032

Item No. 22 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 1094/2024

News Item titled "All Indian salt Sugar brands contain microplastics reveals study" appearing in the Business Standard dated 13.08.2024

Date of hearing: 22.07.2025

CORAM: HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Respondent: Mr. Srinivas Vishven, Adv. for CPCB
Mr. Aamir Zafar Khan, Adv. for R - 4

ORDER

1. In this Original Application (OA), registered *suo-moto*, the Tribunal is considering the issue of presence of microplastics in the salt and sugar in various forms. The Respondent No. 1-CPCB has filed the reply dated 25.03.2025 stating that in terms of the order of the Tribunal dated 01.03.2023 passed in the OA No. 251/2022, the matter relating to the microplastics has been taken up and MoEF&CC had developed an action plan outlining the activities related to the microplastics. No such action plan has been placed on record by the CPCB. Learned counsel for the CPCB seeks two weeks' time to place it on record the master plan and action taken in pursuant thereto.

2. Considering report on occurrence of micro plastics in environment and to safeguard environmental degradation, we implead MoEF&CC as Respondent No. 5 to file the status of action plan and methods/tests adopted to detecting microplastics in environment (water, air and other recipient).

1. Ministry of Environment, Forest and Climate Change,
Through its Secretary
Indira Paryavaran Bhawan, Jor Bagh Road,

New Delhi- 110003

3. Let notice be issued to above newly added respondents.

4. Response affidavit dated 28.04.2025 has been filed by the Respondent No. 4- Food Safety and Standards Authority of India (FSSAI) taking a stand that a Memorandum of Agreements have been entered into between FSSAI and following three leading research institutes: -

1. Indian Institute of Toxicology Research, Lucknow
2. ICAR-Central Institute of Fisheries Technology, Cochin
3. Birla Institute of Technology and Science, Pilani.

5. Learned counsel appearing for the Respondent No. 4 seeks time to place on record the details about the action taken by the above Expert agencies/ reports submitted by them to ascertain the extent of the problem and to suggest remedial measures. Let the same be filed within three weeks.

6. List on 16.10.2025.

Prakash Shrivastava, CP

Sudhir Agarwal, JM

Dr. A. Senthil Vel, EM

July 22, 2025
Original Application No. 1094/2024
A

File No.: HSM-11/36/2022-HSM
Government of India
Ministry of Environment, Forest and Climate Change
(Hazardous Substances Management Division)

6th Floor, Jal Wing
Indira Paryavaran Bhawan,
Jorbagh Road, Aliganj
New Delhi – 110 003

Date: 20th October, 2023

MEETING NOTICE

Subject: Meeting regarding order of National Green Tribunal, Principal Bench in Original Application no. 251/2022 on "Detecting micro plastic in Human Blood"- Reg.

1. This has reference to compliance of orders of Hon'ble National Green Tribunal, Principal Bench, dated 1st March 2023 and 9th October 2023

2. Vide order dated 1st March 2023, NGT had directed, that interventions given in the Joint Committee of CPCB, ICMR, Central Institute of Petrochemicals Engineering & Technology (CIPET), National Centre for Sustainable Coastal Management need to be immediately introduced as short-term measures in future designing and manufacturing of products which are potential threat for generating microplastics like Textiles, Tyres, and Complementary Products (laundry detergents, road surfaces, and vehicles), manufacture and sale of certain personal care and cosmetic products containing MP, household, commercial, or industrial washing machines including such other measures as may be identified may also be taken.

3. NGT had also directed that the concerned Ministries need to consider the above report of CPCB and subject to any objections to the report which may be raised before the Tribunal, interventions may be introduced at the earliest, preferably within four months from 1st March 2023, by MoEF&CC in consultation with CPCB, ICMR, Central Institute of Petrochemicals Engineering & Technology (CIPET), NCSCM, and any other expert institutions as required.

4. Further, Hon'ble NGT as a matter of last opportunity on 9th October 2023 directed that a compliance report be filed within one month. The next date of hearing is on 22nd November 2023.

5. Accordingly, a meeting has been convened under the Chairpersonship of Shri Naresh Pal Gangwar, Additional Secretary on 26th October 2023 at 11 AM in Indus Conference Room, Ground Floor, Jal Wing, Indira Paryavaran Bhavan to review the steps taken pursuant to orders of NGT in the above-cited matter. Copy of Joint Committee Report and orders Honble NGT are enclosed for ease of reference.

6. Ministry – wise categorization of conclusions the Report prepared by CPCB, ICMR,CIPET and NCSCM vide order of Honble NGT in Original Application no. 251/2022 on "Detecting micro plastic in Human Blood" for taking requisite action. It is requested that action plan with timelines be shared with the Ministry by 10th November 2023.

7. Central Pollution Control Board is requested to make a presentation on behalf of the Committee having representatives of Indian Council of Medical Research (ICMR), Central Institute of Petrochemicals Engineering & Technology (CIPET), National Centre for Sustainable Coastal Management, with respect to conclusions drawn in the report.

8. It is requested to kindly nominate the concerned officer to attend the meeting.

9. This issues with the approval of Competent Authority.

satyendra

(Dr. Satyendra Kumar)
Director
Email: satyendra.kumar07@nic.in

To:
(i) *Members of Committee*
Representatives from (i) CPCB, (ii) ICMR, (iii) NCSCM, and (iv) CIPET
(ii) *Concerned Ministries*
As per list.

Copy for kind Information:

i. PPS to Secretary (EF&CC)
ii. PPS to AS(TK)
iii. PPS to AS (NPG)

List

i. The Secretary, Department for Promotion of Industry and Internal Trade, J667+H77, Rafi Ahmed Kidwai Marg Rajpath, Road Area, Central Secretariat, New Delhi, Delhi 110011, email: secy-ipp@nic.in

ii. The Secretary, Ministry of Textiles, Technology Bhawan, New Mehrauli Road, New Delhi-110016, email: dstsec@nic.in

iii. The Secretary, Department of Chemicals and Petrochemicals, Shastri Bhawan, A-Wing, Dr. Rajendra Prasad Road, New Delhi-110001, email: sec.cpc@nic.in

iv. The Secretary, Department of Health and Family Welfare, A-Wing Nirman Bhawan, New Delhi-110001, email: secyhfw@nic.in

v. The Secretary, Ministry of Earth Sciences, Prithvi Bhavan, Lodhi Road, New Delhi 110003, Email: secretary@moes.gov.in

vi. The Secretary, Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Department of Pharmaceuticals, 'B' Wing, Janpath Bhawan, New Delhi.email: secy-pharma@nic.in

vii. The Secretary, Ministry of Road Transport and Highways, Transport Bhawan, 1, Parliament Street New Delhi-110001 email: secy-road@nic.in

viii. The Secretary, Department of Health Research and Director General, Indian Council of Medical Research, 2nd Floor, IRCS Building, 1, Red Cross Road, New Delhi – 110001, email: secy-dhr@gov.in

ix. The Secretary, Ministry of Heavy Industries, Government of India, Udyog Bhawan, Rafi Marg,New Delhi - 110011 New Delhi, email: shioff@nic.in

x. The Secretary, Department of Drinking Water and Sanitation, C Wing, 4th Floor, Pandit Deendayal Antyodaya Bhawan, CGO Complex Lodhi Road, New Delhi – 110003, email: secy-mowr@nic.in

xi. The Secretary, Ministry of Housing and Urban Affairs, Nirman Bhawan, C-Wing, Rajpath Area, Central Secretariat, New Delhi, Delhi 110011 email: secyurban@nic.in

xii. The Secretary, Department of Water Resources, River Development & Ganga Rejuvenation, Shram Shakti Bhawan, Rafi Marg, New Delhi – 110001 email: secy-mowr@nic.in

xiii. The Secretary, Department of Fisheries, Room no.- 220, Krishi Bhavan, New Delhi, Delhi 110001email: secy-fisheries@gov.in

xiv. The Chairman, Central Pollution Control Board, Parivesh Bhawan, East Arjun Nagar, Delhi-110032. Email: mscb.cpcb@nic.in

xv. The Director General, Central Institute of Petrochemicals Engineering & Technology, CIPET Head Office, T.V.K. Industrial Estate, Guindy, Chennai - 600 032, email: dg@cipet.gov.in

xvi. The Director, National Centre for Sustainable Coastal Management, 267M+97X, NCSCM Rd, Anna University, Kotturpuram, Chennai, Tamil Nadu 600025,email: director@ncscm.res.in

xvii. Director, National Environmental Engineering Research Institute, Nagpur, email: director@neeri.res.in;

xviii. Director, Indian Institute of Toxicological Research, Lucknow, email: director@iitrindia.org

xix. Drugs Controller General of India, Delhi. Email: dci@nic.in

Ministry – wise categorization of conclusions the Report prepared by CPCB, ICMR,CIPET and NCSCM vide order of Honble NGT in Original Application no. 251/2022 on "Detecting micro plastic in Human Blood"

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line
1.	Uniform procedure for sampling & analysis may be developed by organizations involved in microplastic analysis (CIPET, NCSCM, MoES-NCCR) which can be adopted uniformily across the country till the time ISO standard is finalized.	CPCB to develop uniform procedure for sampling and analysis along with Central Institute of Petrochemicals, Engineering & Technology (CIPET), National Centre for Sustainable Coastal Management (NCSCM) and National Centre for Coastel Research (NCCR)	
2.	Source of generation of microplastics including industries, waste management, waste water treatment, ocean activities etc. have been identified. However, exact quantum of microplastics generated from the identified source has not been determined.	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	
3.	Microplastic concentration in transfer media is available for soil/beach sediment, surface water bodies, biota and ocean water. Microplastic concentration for sludge, specifically when it is converted to compost for land application is not available	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	
4.	Source monitoring, transfer end use of all possible sources listed in Table 3.1 of the report to be covered. Emphasis to be laid on such	CPCB, NCSCM/MoEFCC, NCCR/MoES	

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line
	areas for which no information is available.		
5.	Regular monitoring of various water quality parameters to be conducted to provide insight into the presence and concentration of microplastics in environmental matrices (water, sediments, biota)	CPCB, NCSCM/MoEFCC, NCCR/MoES	
6.	Microplastic leakages and pathways may be monitored in order to identify further sources and hotspots of microplastics.	CPCB, NCSCM/MoEFCC, NCCR/MoES	
7.	Uniform procedure for sampling & analysis as finalized by this Committee may be adopted for such studies till the time ISO Standards are finalized.	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	
8.	Health impact of emerging contaminants and long term studies are required to establish Cause effect relationship of microplastics on human health	Indian Council of Medical Research/DHR, CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	
9.	Studies conducted on the matter have reported about the presence of microplastics in human body. Physiological or psychological impact has not been reported in these studies.	ICMR/DHR	
10.	The aforementioned studies should cover different type, concentration and shapes of microplastics. Impact of chemicals /biofilms associated with Microplastics on human health to be covered. The	Indian Council of Medical Research/DHR, CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line
	studies may include the following: • Estimation of the duration and frequency of human exposure to microplastics. Microplastic monitoring as required may be conducted for the same. • Once the exposure assessment is done precisely, dose- response assessment may be carried out, where the minimum concentration (of microplastics) responsible for any observable effect (on human) shall be assessed..		
11.	Bioassays may be conducted to assess the Eco-toxicological impact of micro plastics on animal life.	CPCB, CSIR-IITR, CSIR-NEERI	
12.	Standards development (Source & ambient) for microplastics may be taken up following establishment of the cause-effect relationship of micro plastics on human health	CPCB, ICMR/DHR	
13.	Available technologies to be assessed for their efficacy for removal of microplastic	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR	
14.	Technologies to be developed for removal of micro plastics from Air &	CPCB, DCPC/CIPET, MoEFCC/NCSCM,	

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line
	Soil	MoES/NCCR, CSIR-NEERI	
15.	Source-directed interventions, • Sustainable design and manufacturing of textiles, tyres, and complementary products (laundry detergents, road surfaces, and vehicles), to minimize the tendency ofproducts to contribute to microplastics generation;	• Ministry of Textiles, • Department of Promotion and Industry and Internal Trade, • Ministry of Heavy Industries, • Ministry of Road Transport and Highways, • Department of Chemicals and Petro-Chemicals	
	• Restrictions on microplastics in the manufacture and sale of certain personal care and cosmetic products containing microplastics.	• CDSCO/Department of Health and Family Welfare, • Department of Pharmaceuticals	
	• Product requirements for household, commercial, or industrial washing machines. For instance, Australia and France have introduced measures to phase in micro fibre filters on new washing machines	• Department of Promotion and Industry and Internal Trade	
16.	End-of-life interventions, effective solid & plastic waste management practices, to prevent waste leaking into the environment and potentially		

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line
	contributing to microplastics generation including the following; • Reducing the amount of plastic waste that enters landfills and dumpsites through the implementation of waste reduction policies and initiatives, such as waste-to-energy programs and increased recycling. • Microplastics can also be reduced by supporting the development and use of biodegradable plastic alternatives	• Department of Drinking Water and Sanitation, • Ministry of Housing and Urban Affairs,	
17.	End-of-pipe interventions, wastewater, stormwater, and road runoff management and treatment, to retain the emitted microplastics before these reach water bodies.	• Department of Water Resources, River development and Ganga Rejuvenation, • Department of Drinking Water and Sanitation, • Ministry of Housing and Urban Affairs	
18.	Maximizing clean drinking water supply to all citizens inthe country	Department of Drinking Water and Sanitation	
19.	Other Best practices as listed below for minimizing microplastics in environment may be followed: Install physical barriers such as screens and filters on	• Department of	

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line
	STP/WWTP systems to help reduce the amount of microplastics that enter rivers, lakes, and oceans.	Drinking Water and Sanitation, • Ministry of Housing and Urban Affairs. • Department of Water Resources, River development and Ganga Rejuvenation,	
	Support sustainable fishing practices to reduce the amount of microplastic entering rivers from fishing equipment.	• Department of Fisheries	
	Implementation of Clean-up efforts for beaches and rivers	• Ministry of Earth Science	
26.	Training and capacity building including microplastic monitoring, analysis, health impact studies may be taken up for effective implementation of aforementioned points.”	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR	
	Other conclusions given in the report		
20.	Independent studies regarding microplastics have been conducted by various organizations in the country including CPCB, MoES-NCCR, NCSCM, NPC and CIPET .Further international studies have been conducted by WHO, UNEP , OECD and others.		
21.	The studies have primarily focused on monitoring microplastics (concentration, polymer type, colour, shape) in various environmental matrices.		

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line
22.	Occurrence of microplastics has been reported in oceans, sediments, surface water, ground water, wastewater, tap water, bottled water, air, food products, aquatic organisms, and humanbeings		
23.	There is currently no standard method for sampling and analysis of microplastics in the environment. ISO is currently working on the subject		
24.	Sampling and analytical methods adopted by different institutions in India are similar with minor variations.Variation in Microplastic concentrations units reported by different organizations has been observed		
26.	Microplastic concentration in end use areas including ambient air, drinking water and ground water is available.		

***

CM-13011/50/2022-LAW-HO-CPCB-HO 672 Dated: 17-11-2023

To,

The Director (HSMD),
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan, Aliganj Jorbagh Road,
New Delhi –110003

Subject: Action plan for implantation of order of National Green Tribunal Principal Bench in Original Application no. 251/2022 on "Detecting micro plastic in Human Blood"

Sir,

This has reference to the email dated 09.11.2023 regarding above mentioned subject. It is to inform that two meetings with representatives of the concerned organizations were convened by CPCB on the matter on 09.11.2023 and 17.11.2023 respectively. Minutes of the meeting are enclosed.

It may please be noted that the Action plan for the implementation of the Action points in which CPCB is the nodal agency, as per O.M dated October 20, 2023 and deliberations during Meeting dated October 26, 2023 convened by MoEFCC, prepared in consultation with representatives of the concerned organizations is enclosed as Annexure-III of the Minutes of meeting dated 17.11.2023.

This is for your kind information and necessary action please.

Yours faithfully

Div

(Divya Sinha)
Director & I/c UPC-II

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
निर्गत.....
दिनांक...24/11/23...

D/C

Action Points

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
1.	Uniform procedure for sampling & analysis may be developed by organizations involved in microplastic analysis (CIPET, NCSCM, MoES-NCCR) which can be adopted uniformily across the country till the time ISO standard is finalized.	CPCB to develop uniform procedure for sampling and analysis along with Central Institute of Petrochemicals, Engineering & Technology (CIPET), National Centre for Sustainable Coastal Management (NCSCM) and National Centre for Coastel Research (NCCR)	Meeting proposed to be scheduled on November 09, 2023 to finalize Uniform procedure for sampling & analysis	December 30, 2023.
2.	Source of generation of microplastics including industries, waste management, waste water treatment, ocean activities etc. have been identified. However, exact quantum of microplastics generated from the identified source has not been determined.	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES Any other agency	Point 2-6, 13,14, 26 i. Preliminary listing of all points to be monitored. ii. Proposed SOP for monitoring. iii. Compilation of technologies for Micro plastic removal. iv. Meeting with Stake holders v. Awarding of work Completion: March, 2025.	i. January, 2024 ii. January, 2024 iii. January, 2024 iv. February, 2024 v. March, 2025
3.	Microplastic concentration in transfer media is available for soil/beach sediment, surface water bodies, biota and ocean water. Microplastic concentration for sludge, specifically	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES		

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	when it is converted to compost for land application is not available			
4.	Source monitoring, transfer end use of all possible sources listed in Table 3.1 of the report to be covered. Emphasis to be laid on such areas for which no information is available.	CPCB, NCSCM/MoEFCC, NCCR/MoES		
5.	Regular monitoring of various water quality parameters to be conducted to provide insight into the presence and concentration of microplastics in environmental matrices (water, sediments, biota)	CPCB, NCSCM/MoEFCC, NCCR/MoES		
6.	Microplastic leakages and pathways may be monitored in order to identify further sources and hotspots of microplastics.	CPCB, NCSCM/MoEFCC, NCCR/MoES		

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
7.	Uniform procedure for sampling & analysis as finalized by this Committee may be adopted for such studies till the time ISO Standards are finalized.	CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	Covered in 1	
8.	Health impact of emerging contaminants and long term studies are required to establish Cause effect relationship of microplastics on human health	Indian Council of Medical Research/DHR, CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	Nodal Agency - ICMR	
9.	Studies conducted on the matter have reported about the presence of microplastics in human body. Physiological or psychological impact has not been reported in these studies.	ICMR/DHR	Nodal Agency - ICMR	
10.	The aforementioned studies should cover different type, concentration and shapes of microplastics. Impact of chemicals/biofilms associated with Microplastics on human health to be covered. The studies may	Indian Council of Medical Research/DHR, CPCB, CIPET/DCPC, NCSCM/MoEFCC, NCCR/MoES	Nodal Agency – ICMR	

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	include the following: Estimation of the duration and frequency of human exposure to microplastics. Microplastic monitoring as required may be conducted for the same. Once the exposure assessment is done precisely, dose- response assessment may be carried out, where the minimum concentration(of microplastics) responsible for any observable effect (on human) shall be assessed..			
11.	Bioassays may beconducted to assess the Eco-toxicological impact of micro plastics on animal life.	CPCB, CSIR-IITR, CSIR-NEERI	Nodal Agency – ICMR	
12.	Standards development (Source & ambient) for microplastics may be taken up following establishment of the cause-effect relationship of	CPCB, ICMR/DHR	Post completion of Activities listed at 2-11	

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	micro plastics on human health			
13.	Available technologies to be assessed for theirefficacy for removal of microplastic	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR NEERI		
14.	Technologies to be developed for removal of micro plastics from Air & Soil	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR, CSIR-NEERI		
15.	Source-directed interventions, Sustainable design and manufacturing of textiles, tyres, and complementary products (laundry detergents, road surfaces, and vehicles), to minimize the tendency ofproducts to contribute to microplastics generation; Restrictions on microplastics in the manufacture and sale of certain personal care and cosmetic products containing microplastics.	Ministry of Textiles, Department of Promotion and Industry and Internal Trade, Ministry of Heavy Industries, Ministry of Road Transport and Highways, Department of Chemicals and Petro-Chemicals CDSCO/Department of Health and Family Welfare, Department of Pharmaceuticals Department of Promotion and Industry and Internal Trade		

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	Product requirements for household, commercial, or industrial washing machines. For instance, Australia and France have introduced measures to phase in micro fibre filters on new washing machines			
16.	End-of-life interventions, effective solid & plastic waste management practices, to prevent waste leaking into the environment and potentially contributing to microplastics generation including the following; Reducing the amount of plastic waste that enters landfills and dumpsites through the implementation of waste reduction policies and initiatives, such as waste-to-energy programs and increased recycling. Microplastics can	Department of Drinking Water and Sanitation, Ministry of Housing and Urban Affairs,		

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	also be reduced by supporting the development and use of biodegradable plastic alternatives			
17.	End-of-pipe interventions, wastewater, stormwater, and road runoff management and treatment, to retain the emitted microplastics before these reach water bodies.	Department of Water Resources, River development and Ganga Rejuvenation, Department of Drinking Water and Sanitation, Ministry of Housing and Urban Affairs		
18.	Maximizing clean drinking water supply to all citizens inthe country	Department of Drinking Water and Sanitation		
19.	Other Best practices as listed below for minimizing microplastics in environment may be followed: Install physical barriers such as screens and filters on STP/WWTP systems to help reduce the amount of microplastics that enter rivers, lakes, and oceans.	Department of Drinking Water and Sanitation, Ministry of Housing and Urban Affairs. Department of Water Resources, River development and Ganga Rejuvenation, Department of Fisheries		

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	Support sustainable fishing practices to reduce the amount of microplastic entering rivers from fishing equipment. Implementation of Clean-up efforts for beaches and rivers	Ministry of Earth Science		
	Training and capacity building including microplastic monitoring, analysis, health impact studies may be taken up for effective implementation of aforementioned points.”	CPCB, DCPC/CIPET, MoEFCC/NCSCM, MoES/NCCR		
	Other conclusions given in the report			
20.	Independent studies regarding microplasticshave been conducted by various organizations in thecountry including CPCB, MoES- NCCR, NCSCM, NPC and CIPET .Further international studies have been conducted by WHO, UNEP ,			

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	OECD and others.			
21.	The studies have primarily focused on monitoring microplastics (concentration, polymer type, colour, shape) in various environmental matrices.			
22.	Occurrence of microplastics has been reported in oceans, sediments, surface water, ground water, wastewater, tap water, bottled water, air, food products, aquatic organisms, and humanbeings			
23.	There is currently no standard method for sampling and analysis of microplastics in the environment. ISO is currently working on the subject			
24.	Sampling and analytical methods adopted by different institutions in India are similar with minor variations.Variation in Microplastic concentrations units reported by different			

S.No.	Conclusions of the Report prepared by CPCB, ICMR,CIPET and NCSCM	Concerned Ministries/Department/ Body	Action plan with time line	Time line
	organizations has been observed			
26.	Microplastic concentration in end use areas including ambient air, drinking water and ground water is available.			

Doc: PCD 12 (28654) WC
September 2025

BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY
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भारतीय मानक मसौदा
विभिन्न परिस्थितियों में प्लास्टिक की जैवनिम्नीकरणीयता का आकलन
(आईएस 17899टी *का नियमितीकरण*)

Draft Indian Standard

Assessment of Biodegradability of Plastics in Varied Conditions
(*Regularization of* IS 17899T)

(ICS 83.080.01)

Plastics Sectional Committee, PCD 12	Last date for receipt of comment 01 November 2025

FOREWORD

(*formal clause to be added later*)

Through Plastic Waste Management (PWM) Rules 2021, the Government of India prohibited the manufacturing, import, stocking, distribution, sale and use of several single use plastics (SUPs) from 1st July 2022. The Rule 10 of PWM Rules 2016 "Protocols for Compostable Plastic Material" was substituted with "Protocols for Compostable and Biodegradable Plastic Materials" through PWM Rules 2022. The rule stipulates that the biodegradable plastics shall conform to the standard notified by the Bureau of Indian Standards.

In view of the urgent need of Indian Standard for implementation of PWM Rules, the Plastics Sectional Committee decided to formulate a comprehensive indigenous Indian Standard for biodegradable plastic. As the technology was new and there were no established international standards and validated data on the biodegradation of plastics in environment like aqueous and marine medium, the Committee initially (in 2022) formulated a provisional Indian Standard as per Rule 27 of BIS Rules, 2018, specifying the procedures for assessment of the biodegradability of plastic in available varied conditions.

The standard specified the procedures for assessment of biodegradability of plastics, negative effects of resulting biomass on terrestrial plant growth/organism and regulated heavy metals present in the biomass. The emphasis of the standard was on the assessment of biodegradability of plastics in composting medium, soil medium, municipal solid waste medium and aqueous medium.

The limits of regulated heavy metals were specified to ensure safe application of biomass. The values of the regulated heavy metals given in Table 3 and Table 4 are aligned to Schedule II of Solid Waste Management Rules, 2016.

This Indian Standard was originally published as provisional Indian Standard in 2022. As the provisional Indian Standard is only valid for 2 years, review of this standard was undertaken in 2024 so as to finalize the provisional standard as a regular Indian Standard. However, owing to the need for additional data before formalization, the Plastics Sectional Committee, PCD 12 after reviewing the comments received during the wide circulation period, decided to extend the provisional Indian Standard for additional two years, till 2026, as per Rule 27 of BIS Rules, 2018.

The major changes incorporated in the 2024 version of this Indian Standards are as follows:

— Definition of biodegradable plastic has been added;
— Method of test for microplastic determination has been included;
— Method of tests have been specified as per the medium for which they have been tested and found passing.
— Packing and marking clause has been included; and
— Editorial corrections have been done.

As the provisional Indian Standard is only valid for 2 years and may be extended only once, the review of this provisional Indian Standard is being undertaken to finalize it as a regular Indian Standard.

Due to the varying nature of marine environment in Indian context at different beaches/zones, this standard does not cover biodegradability under marine environment.

This standard has no implication on determination of the service life or durability aspects of the plastic material under consideration.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

1.1 This Indian standard specifies the procedures and assessment of biodegradability of plastics under varied conditions. This standard addresses the following aspects:

a) Biodegradation in varied conditions, as specified
b) Analysis of effects of resulting biomass on terrestrial plant growth/organism; and
c) Negative effects of the quality of the resulting biomass including the presence of high levels of regulated heavy metals.

1.2 The standard is applicable for assessing the biodegradability of plastics under aerobic, anaerobic conditions.

1.3 The standard is not applicable for assessing the biodegradability of plastics under marine environment.

1.4 The assessment of biodegradability of plastic, if done through composting conditions

only, vide IS/ISO 14855-1 and IS/ISO 14855-2, the plastic shall be certified as compostable plastic, and not as biodegradable plastic as defined under PWM Rules 2016, as amended.

1.5 This standard excludes compostable plastics as per IS/ISO 17088, as per PWM Rules 2016, as amended.

2 REFERENCES

The standards listed in Annex A contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of these standards.

3 TERMINOLOGY

For the purpose of this standard, definition given below and in IS 2828 shall apply.

3.1 Biodegradable plastic[1]

"Biodegradable plastics", means plastics, other than compostable plastics, which undergoes degradation by biological processes in specific environment such as soil, landfill, sewage sludge, fresh water, marine, without leaving any micro plastics or visible or distinguishable or toxic residue, which has adverse environment impact.

NOTE — The definition of biodegradable plastic is as per *PWM Rules* 2016, as amended.

3.2 Compostable Plastics[2]

Plastic that undergoes degradation by biological process during composting to yield carbon dioxide, water, inorganic compounds and biomass at a rate consistent with other known compostable materials and leave no visible, distinguishable or toxic residue.

3.3 Large Microplastic[3]

Any solid plastic particle insoluble in water with any dimension between 1 mm and 5 mm.

3.4 Microplastic[3]

Any solid plastic particle insoluble in water with any dimension between 1 µm and 1 000 µm (=1 mm).

3.5 Ultimate Aerobic Biodegradation[2]

Breakdown of an organic compound by microorganisms in the presence of oxygen into carbon dioxide, water and mineral salts of any other elements present (mineralization) plus new biomass.

3.6 Ultimate Anaerobic Biodegradation[4]

Breakdown of an organic compound by microorganisms in the absence of oxygen to carbon dioxide, methane, water, and mineral salts of any other elements present (mineralization) plus new biomass.

NOTES:

1. [1] As per PWM Rules, 2016, as amended.
2. [2] As per IS/ISO 17088.
3. [3] As per ISO 24187.
4. [4] As per IS/ISO 15985.

4 REQUIREMENTS

4.1 The purpose of this standard is to establish the requirements for plastics to meet the desired criteria under varied conditions. In order to comply with this document, plastics shall demonstrate biodegradation (aerobic or anaerobic), safe limits for toxic residue and no adverse effects on environment as mentioned in **4.2** to **4.4**.

4.2 The level of biodegradability of the plastics shall be assessed by testing under controlled conditions as given below.

4.2.1 *Ultimate Aerobic Biodegradability*

The ultimate level of aerobic biodegradation shall be established by testing under different mediums accordance with the standards given in Table 1.

Table 1 Medium under Aerobic Biodegradation
(*Clause* 4.2.1)

Sl No.	*IS Number*	*Medium*
(1)	(2)	(3)
i)	IS/ISO 14851	Aqueous medium (activated sludge from a sewage treatment plant)
ii)	IS/ISO 14852	Aqueous medium (activated sludge from a sewage treatment plant)
iii)	IS/ISO 14855 (Part 1)	Composting
iv)	IS/ISO 14855 (Part 2)	Composting
v)	IS/ISO 17556	Soil

4.2.2 *Ultimate Anaerobic Biodegradability*

The ultimate level of anaerobic biodegradation shall be established by testing under typical anaerobic digestion conditions in different medium accordance with the standards given in Table 2.

Table 2 Medium under Anaerobic Biodegradation
(*Clause* 4.2.2)

Sl No.	*IS Number*	*Medium*

(1)	(2)	(3)
i)	IS/ISO 15985	Municipal solid waste
ii)	IS/ISO 14853	Aqueous medium (sludge with reduced inorganic carbon content less than 20 mg/l)

NOTES:

1 The plastic meeting the biodegradability criteria as per IS/ISO 14855-1 and IS/ISO 14855-2, shall only be considered for certification as 'Compostable plastics' in accordance with PWM Rules 2016, as amended.

2 Further, this standard excludes 'Compostable plastics' as per IS/ISO 17088, under PWM Rules 2016, as amended.

4.3 Assessment of Toxic Residues

4.3.1 The assessment of toxic residues (regulated metal content) can only be analyzed after successful completion of the biodegradation phase.

4.3.2 The resultant biomass shall be analyzed for heavy metal content as per Table 3 and Table 4 and tested as per IS 3025 (Part 65).

4.4 Assessment of Adverse Effect on Environment

4.4.1 The plastics shall have no adverse effect on the environment, which includes terrestrial organisms. Thus, the analysis requires determination of eco toxicity testing as per column 4 of Table 3 and Table 4, for assessment of adverse effect of resulting biomass on terrestrial environment and plant growth test.

4.4.2 The biodegradability of the plastics under various conditions shall conform to the biodegradation requirement using any mentioned standards along with the other requirements as specified in Table 3 or Table 4.

4.5 In case of disputes on testing results of different laboratories, the analysis of remnant sample as per Annex E of IS/ISO 17556 can also be done.

4.6 Biodegradability of constituents

Biodegradability of organic constituents, which are present in the material at a concentration between 1 percent and 15 percent (by dry mass) shall be proven separately according to the test methods listed in Table 3 or Table 4.

Table 3 Assessment of Aerobic Biodegradability in Plastics under varied conditions

(*Foreword, Clauses* 4.3.2, 4.4.1, 4.4.2 *and* 4.6)

Sl No.	Characteristics	Requirement	Method of Test, Ref to
(1)	(2)	(3)	(4)
i)	Ultimate aerobic biodegradability of plastic materials under composting conditions, *Min*	90 percent by the end of the test period of 180 days	IS/ISO 14855-1 or IS/ISO 14855-2
ii)	Ultimate aerobic biodegradability of plastic materials in an aqueous medium, *Min*	- do -	IS/ISO 14851 or IS/ISO 14852
iii)	Ultimate aerobic biodegradation of plastic materials in soil, *Min*	90 percent of the max level of biodegradation has been reached typically not exceeding six months but no longer than 2 years	IS/ISO 17556
iv)	Large microplastics	NIL	FTIR method as per ISO 24187
v)	Microplastics	NIL	FTIR method as per ISO 24187
Regulated Heavy Metal Analysis			
vi)	Arsenic (as As), mg/kg on dry mass basis, *Max*	10.00	IS 3025 (Part 65)
vii)	Cadmium (as Cd), mg/kg on dry mass basis, *Max*	5.00	
viii)	Chromium (as Cr), mg/kg on dry mass basis, *Max*	50.00	
ix)	Copper (as Cu), mg/kg on dry mass basis, *Max*	300.00	
x)	Lead (as Pb), mg/kg on dry mass basis, *Max*	100.00	
xi)	Mercury (as Hg), mg/kg on dry mass basis, *Max*	0.15	
xii)	Nickel (as Ni), mg/kg on dry mass basis, *Max*	50.00	
xiii)	Zinc (as Zn), mg/kg on dry mass basis, *Max*	1000.00	
Eco-toxicity Test			
xiv)	Assessment of adverse impact on environment (Terrestrial plants growth test), *Min*	90 percent plant germination and plant biomass compared to control.	OECD 208 / ISO 11269-2 / Annex C of IS/ISO 17088

xv)	Determination of acute/chronic ecotoxicity effects to earthworm, *Min*	90 percent of surviving earthworm grown in sample compost exposed to test material as well as reference compost exposed to reference material.	ISO 11268-1 / Annex D of IS/ISO 17088 And ISO 11268-2 / Annex E of IS/ISO 17088

Table 4 Assessment of Anaerobic Biodegradability in Plastics
(Foreword, *Clauses* 4.3.2, 4.4.1, 4.4.2 and 4.6)

Sl No.	**Characteristics**	**Requirement**	**Method of Test, Ref to**
(1)	(2)	(3)	(4)
i)	Ultimate anaerobic biodegradation, *Min*	90 percent within 2 years	IS/ISO 15985 or IS/ISO 14853
ii)	Large microplastics	NIL	FTIR method as per ISO 24187
iii)	Microplastics	NIL	FTIR method as per ISO 24187
Regulated Heavy Metal Analysis			
iv)	Arsenic (as As), mg/kg on dry mass basis, *Max*	10.00	IS 3025 (Part 65)
v)	Cadmium (as Cd), mg/kg on dry mass basis, *Max*	5.00	
vi)	Chromium (as Cr), mg/kg on dry mass basis, *Max*	50.00	
vii)	Copper (as Cu), mg/kg on dry mass basis, *Max*	300.00	
viii)	vii) Lead (as Pb), mg/kg on dry mass basis, *Max*	100.00	
ix)	Mercury (as Hg), mg/kg on dry mass basis, *Max*	0.15	
x)	Nickel (as Ni), mg/kg on dry mass basis, *Max*	50.00	
xi)	Zinc (as Zn), mg/kg on dry mass basis, *Max*	1000.00	
Eco-toxicity Test			
xii)	Assessment of adverse impact on environment (Terrestrial plants growth test), *Min*	90 percent plant germination and plant biomass compared to control.	OECD 208 / ISO 11269-2 / Annex C of IS/ISO 17088
xiii)	Determination of acute/chronic ecotoxicity effects to earthworm, *Min*	90 percent of surviving earthworm grown in sample compost	ISO 11268-1 / Annex D of IS/ISO 17088 and

		exposed to test material as well as reference compost exposed to reference material.	ISO 11268-2 / Annex E of IS / ISO 17088

5 PACKING AND MARKING

5.1 Packing

The material shall be packed in suitable form of packing protected from exposure to sunlight. The packing medium shall be as agreed to between the purchaser and the supplier.

5.2 Marking

5.2.1 Each bag and/or unit package whichever is smallest in size that is being delivered to the customer shall be marked clearly in which medium and under which condition the product is biodegradable i.e. 'Biodegradable in …….. medium under ……. condition'.

For example, if the material under test passes the biodegradability test by using the test method IS/ISO 17556, the material shall be marked as 'Biodegradable in **soil** medium under **aerobic** condition.

Table 5 Details of Conditions and Medium
(*Clause* 5.2.1)

Sl No.	Test Method	Condition	Medium
(1)	(2)	(3)	(4)
i)	IS/ISO 14851	Aerobic condition	Aqueous medium (activated sludge from a sewage treatment plant)
ii)	IS/ISO 14852		Aqueous medium (activated sludge from a sewage treatment plant)
iii)	IS/ISO 14855 (Part 1)		Composting
iv)	IS/ISO 14855 (Part 2)		Composting
v)	IS/ISO 17556		Soil
vi)	IS/ISO 15985	Anaerobic condition	Municipal solid waste
vii)	IS/ISO 14853		Aqueous medium (sludge with reduced inorganic carbon content less than 20 mg/l)

5.2.2 *BIS Certification Marking*

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the Bureau of Indian Standards Act, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

ANNEX A
(*Clause* 2)

LIST OF REFERRED STANDARDS

IS No./Other publication	*Title*
IS 2828 : 2019/ ISO 472 : 2013	Plastics — Vocabulary (*second revision*)
IS 3025 (Part 65) : 2025/ ISO 17294-2 : 2023	Methods of Sampling and Test Physical and Chemical for Water and Wastewater Part 65 Application of Inductively Coupled Plasma Mass Spectrometry ICP-MS Determination of Selected Elements Including Uranium Isotopes (*second revision*)
IS/ISO 14851 : 2022	Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by measuring the oxygen demand in a closed respirometer (*first revision*)
IS/ISO 14852 : 2021	Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by analysis of evolved carbon dioxide (*first revision*)
IS/ISO 14853 : 2016	Plastics — Determination of the ultimate anaerobic biodegradation of plastic materials in an aqueous system — Method by measurement of biogas production (*first revision*)
IS/ISO 14855–1 : 2012	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide : Part 1 General method (*first revision*)
IS/ISO 14855-2 : 2018	Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide: Part 2 Gravimetric measurement of carbon dioxide evolved in a laboratory-scale test (*first revision*)
IS 15109 (Part 2) : 2013 /ISO 11269-2 : 2012	Soil quality — Determination of the effects of pollutants on soil flora: Part 2 Effects of contaminated soil on the emergence and early growth of higher plants (*first revision*)
IS/ISO 15985 : 2014	Plastics — Determination of the ultimate anaerobic biodegradation under high-solids anaerobic-digestion conditions — Method by analysis of released biogas (*first revision*)
IS/ISO 17088 : 2021	Compostable plastics — Specification (*second revision*)
IS/ISO 17556 : 2019	Plastics — Determination of the ultimate aerobic biodegradability of plastic materials in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved (*second revision*)
ISO 11268-1 : 2012	Soil quality — Effects of pollutants on earthworms — Part 1 : Determination of acute toxicity to Eisenia fetida/Eisenia Andrei
ISO 11268-2 : 2023	Soil quality — Effects of pollutants on earthworms — Part 2 : Determination of effects on reproduction of Eisenia fetida/Eisenia Andrei and other earthworm species
ISO 24187	Principles for the analysis of microplastics present in the environment
OECD 208 : 2016	Terrestrial plant test: Seedling emergence and seedling growth test

ANNEXURE V

Comprehensive list of sources contributing to microplastic pollution (Action Point No. 2-6 CPCB Action Plan (Annexure III))

a. Industries: Toothpaste, Printer Cartridge, plastic production, Synthetic textiles, synthetic sole of shoes

b. Dumpsites &landfill sites: Groundwater, Soil & and ambient air

c. Ocean Activities: Aquaculture nets and Coastal Tourism

d. Outflow from sewage treatment plant, Storm water drains (carrying road dust), leachate & drinking water

e. **End Use:** Ambient Air, Ground water & Soil

Annexure VI

Technologies for removal of Microplastics

(Point No. 13 & 14 of CPCB Action Plan)

As per available literature, a wide range of technologies has been explored and implemented for removing MPs from water systems. Many countries have integrated MP removal processes into water treatment facilities. For example, sand filtration and chlorination are employed in Israel, membrane disc filters in South Korea, a combination of rapid sand filters, membrane bioreactors (MBRs), and disc filters in Finland, and ultrafiltration systems in Thailand. On average, they achieve MP removal efficiencies of about 90%, making them reliable for large-scale water treatment applications.

The available technologies that can be used to remove MP from water, as per literature survey, is summarized is given in **Table** below:

S.No.	**Removal Technologies**	**Description**
1.	Ultrafiltration	• Can remove particulates, macromolecules, and MP with pore sizes between 1 and 100 nm • Economical method due to low energy consumption, high separation efficiency, and compact plant • Not specifically designed for MP removal in wastewater • Previous studies reporting high removal rates for polyethylene MP • Lack of data on the effect of physicochemical properties of various types of MP on removal efficiency
2.	Dynamic membrane (DM) filtration	• Based on the formation of a cake layer acting as a secondary membrane/barrier when particles and other contaminants in wastewater are filtered through the support membrane

S.No.	Removal Technologies	Description
		• The cake layer can remove suspended solids, colloids, microorganisms, and MP particles in wastewater • Uses relatively inexpensive materials (such as mesh, non-woven fabric, and woven filter cloth, and stainless-steel mesh) compared to existing membrane filters • No additional chemicals or other contaminants are introduced • Previously studied for removing particulates in wastewater • No research on MP removal using DM technique
3.	Reverse osmosis (RO) filtration	• Filter contaminant under high pressure (10–100 bar) using a semi-permeable membrane • Applied in seawater desalination, food production, and sewage treatment • MP removal occurs through size exclusion and hydrophobic interactions with the membrane • Membrane defects are frequent in RO equipment, despite effective MP removal
4.	Membrane bioreactor (MBR)	• Integrates catalysis, complexation, biodegradation, and membrane separation processes using biological catalysts (bacteria, enzymes) • Effectively reduces MP, total suspended solids (TSS), turbidity, biological oxygen demand, and pathogen levels

S.No.	Removal Technologies	Description
		• Different compartments are separated by membranes in the MBR, maintaining phase separation • Safe, eco-friendly, and easily combinable with other processes • Considered the most efficient process for MP removal in water • Fouling management and improvement are necessary due to membrane contamination and damage
5.	Sand filtration	• Mainly used in drinking water treatment plants to remove MP by trapping it between sand grains or attaching it to the surface of the sand grain • Consists of different layers of medium like sand, gravel, and quartz, making it effective in removing large MP from water • Utilized in the treatment process of plastic recycling industrial wastewater
6.	Microfiltration	• Filtering pollutants using membranes smaller than 1 μm • Ceramics can replace existing polymer membrane filters • Generally made of titanium dioxide, zirconium dioxide, and aluminium oxide, it has excellent chemical and mechanical durability • Can withstand backwash pressure and resist detergents • Lack of research on MP removal using ceramic membranes

S.No.	Removal Technologies	Description
7.	Activated carbon filtration	• Effective in removing organic pollutants • Powdered activated carbon (PAC) removes trace contaminants by attaching them to its surface • Clogging issues are common in column-based MP removal using PAC • Granular activated carbon (GAC) can be used to solve the clogging problem
8.	Coagulation and Flocculation	• Destabilizes and aggregates MP in water using coagulants • MP removal efficiency depends on the type of coagulant used • Simple to operate and cost-effective • Influenced by variations in water quality and pH levels • Risk of secondary contamination from coagulant residues
9.	Electrochemical coagulation	• Releases metal ions into water through electrolysis using a metal electrode • Simple, eco-friendly, less sludge production, low cost, energy efficient, and easy to automate • Pollutant removal efficiency depending on operating parameters like current intensity, electrolysis time, sample pH, and electrode spacing
10.	Bioremediation	• Eco-friendly technique using aquatic eukaryotes, animals, seaweed, and macrophytes to remove MP from wastewater • Requires more cost and management due to reliance on biological activity

S.No.	Removal Technologies	Description
		• Lack of studies on removal efficiency and effects in field conditions compared to laboratory studies
11.	Dissolved air floating (DAF)	• Removes suspended substances in water by attaching them to microbubbles that rise to the surface • Removal efficiency can be enhanced with the use of coagulants
12.	Magnetic extraction	• Utilized to coagulate, precipitate, adsorb, and separate MP in wastewater • Cost-effective, eco-friendly, low energy consumption, minimal risk of secondary contamination, and suitability for large-scale implementation • More effective removal of smaller-sized MP compared to other removal methods
13.	Advanced oxidation process (AOP)	• Used to remove non-degradable contaminants in water by generating OH radicals for degradation or to change the physicochemical composition of MP for degradation • Only partially oxidizes MP reducing particle size, but potentially creating smaller MP particles • Can increase surface tension and hydrophilicity of MP, aiding in adsorption and solubility

Gmail

ANNEXURE-IV

neha <nehapatankarenv@gmail.com>

Fwd: Latest Updates on Action Plan: Order of National Green Tribunal, Principal Bench in Original Application no. 251/2022 on "Detecting microplastic in Human Blood"-Reg.

Amit Love <amit.love@nic.in> Thu, Jan 15, 2026 at 3:08 PM
To: nehapatankarenv <nehapatankarenv@gmail.com>

Regards

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Anil Kumar Vijayan <anilkumar.v@gov.in>
To: "Amit Love"<amit.love@nic.in>
Cc: "Prashant Srivastava"<srivastava.pks@gov.in>, "Mangalaa KR"<mangalaa.kr@gov.in>
Date: Thu, 15 Jan 2026 14:30:56 +0530
Subject: Latest Updates on Action Plan: Order of National Green Tribunal, Principal Bench in Original Application no. 251/2022 on "Detecting microplastic in Human Blood"-Reg.
========== Forwarded message ==========

Dear Sir,

This is in continuation of my email dated 14 November 2024 on the subject cited above.

With reference to today's discussion, considering the urgency of MoEF&CC to file the affidavit at NGT, I am forwarding herewith the latest status of Sl. No. 23, "*Implementation of Clean-up Efforts for Beaches and Rivers*", pertaining to the MoES action item under NGT OA No. 251/2022 on "*Detecting Microplastics in Human Blood*".

NCCR's coastal clean-up efforts across 45 beaches mobilized 6,620 participants, including school and college students, members of the general public, fisher folk, policymakers, public representatives, and government officials. These efforts resulted in the collection of 24,510 kilograms of litter, of which 10,503 kilograms comprised plastic waste, accounting for an average of 40% of the total litter. This reflects a 3% reduction compared to the average recorded over the past two years.

The data indicate that plastic continues to be the dominant component of coastal litter, particularly along urban and tourist dominated beaches. This highlights the need for targeted interventions such as enhanced community awareness programmes, improved waste segregation practices, and strengthened recycling infrastructure to address plastic pollution along India's coastline.

Further, the pilot case study involving the informal sector ('Kabadiwala') bridges the gap between informal recycling systems and formal environmental initiatives, offering a scalable, community-driven model for addressing marine plastic pollution. Beach clean-up activities thus serve not merely as acts of service, but as catalysts for systemic change where each collected bottle, net, and scrap contributes to a cleaner coastline and a sustainable future.

Thanking you.

With best regards / शुभकामनाओं सहित
Anil Kumar Vijayan / अनिल कुमार विजयन

अनिल कुमार विजयन / ANIL KUMAR VIJAYAN. Ph.D

वैज्ञानिक एफ / SCIENTIST F
पृथ्वी विज्ञान मंत्रालय, भारत सरकार.
MINISTRY OF EARTH SCIENCES, GOVT.OF INDIA
पृथ्वी भवन, लोधी रोड, नई दिल्ली-110003
PRITHVI BHAVAN, LODHI ROAD, NEW DELHI-110003

TEL (Off): +91-11-2466 9719
Alternate email: anilkumarvijayan@yahoo.com

URL: www.moes.gov.in

ANNEXURE-V

Fwd: URGENT Meeting notice : Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.

LEI section < lei-dpiit@gov.in >

Fri, 16 Jan 2026 2:46:36 PM +0530

To "amitlove"<amit.love@nic.in>

Cc "ASHISH KUMAR"<krashish@nic.in>,"Dheeraj Meena"<dheeraj.meena17@gov.in>,"Jaivir Singh"<jaivir.s84@gov.in>

1 Attachment(s)

OM dated 16 Jan 2026.pdf
412.5 KB

Sir,
Please find attached OM dated 16.1.2026 on the subject cited above for information and necessary action please.

Regards,
Jaivir Singh, Section Officer

हल्के अभियांत्रिकी उद्योग अनुभाग/ Light Engineering Industry Section,
उद्योग संवर्धन और आंतरिक व्यापार विभाग | Department for Promotion of Industry & Internal Trade,
वाणिज्य एवं उद्योग मंत्रालय | Ministry of Commerce & Industry,
वाणिज्य भवन, नई दिल्ली | Vanijya Bhawan, New Delhi - 110001
Telephone No.- 011-23038977

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: "cidpiit"<c.i.dpiit@gov.in>, "lei-dpiit"<lei-dpiit@gov.in>, "Dheeraj Meena"<dheeraj.meena17@gov.in>, "Akash Srivastava"<akash.sri@gov.in>, "Jaivir Singh"<jaivir.s84@gov.in>, "secy-ipp"<secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "director"<director@neeri.res.in>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>, "mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-dhr"<secy-dhr@gov.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>,

F. No. P-29014/5/2024-LEI
Government of India
Ministry of Commerce & Industry
Department for Promotion of Industry and Internal Trade
(Light Engineering Industry Division)

Vanijya Bhawan, New Delhi
Date : 16th January, 2025

OFFICE MEMORANDUM

Subject : Order of National Green Tribunal Principal Bench in Original Application no. 251/2022 on "Detecting microplastic in Human Blood"-Reg.

The undersigned is directed to refer email dated 15.01.2026 from MoEFCC on the above-mentioned subject and to say that with regards to pt. No 17 on Washing Machines , the inputs of LEI section, DPIIT are as follows -.

Sl No.	Conclusions of the Report prepared by CPCB, ICMR, CIPET and NCSCM	Concerned Ministries / Department/ Body	Action taken or Action Plan
17	Product requirements for household, commercial, industrial washing machines. For instance, Australia and France have introduced measures to phase in micro fibre filters on new washing machines	Department of Promotion and Industry and Internal Trade	a) The Quality Control Order (QCO) for Electrical Appliances for domestic clothes washing, 2023 has been notified on 07.03.2024 by DPIIT. b) BIS has notified Indian Standard IS 302-2-7:2024 on Safety of Household and Similar Electrical Appliances Part 2, Particular Requirements, Section 7 (Domestic Electric Clothes Washing Machines). This Indian Standard is based on the International Standard IEC 60335-2-7. c) As per the information obtained from the internet, the standards adopted in Australia and France are also based on IEC 60335-2-7, and do not currently include requirements related to microfiber filters. However, the governments of France and Australia have issued regulatory orders mandating that all new washing machines in France must be equipped with a microfiber filter starting from the year 2025. d) BIS has been requested for additional comments on the matter vide email dt. 12.01.2026. However, comments are awaited from them

2. This issues with the approval of competent authority.

DK Meena
16/01/2026

(Dheeraj Kumar Meena)
Under Secretary to the Government of India
Email: dheeraj.meena17@gov.in

Tel no : 011-23038952

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Email: amit.love@nic.in

Copy to,

CMD-I Department, BIS

No. P-14022/2/2025-Consumer Industry E-219216
भारत सरकार/Government of India
वाणिज्य एवं उद्योग मंत्रालय/Ministry of Commerce & Industry
उद्योग संवर्धन और आंतरिक व्यापार विभाग/
Department for Promotion of Industry & Internal Trade
(उपभोक्ता उद्योग अनुभाग)
(Consumer Industry Section)
*****

Vanijya Bhawan, New Delhi
Dated: 24th October, 2025

OFFICE MEMORANDUM

Subject: Order of National Green Tribunal, Principal Bench in Original Application No. 251/2022 on "Detecting micro plastic in Human Blood" - Reg

The undersigned is directed to refer to the communication received from the Ministry of Environment, Forest and Climate Change (MoEF&CC) vide O.M. dated 16.09.2025, received in this Department on 23.09.2025, seeking updated progress on the Action Plan pursuant to the Hon'ble NGT's Order dated 31.01.2024 in O.A. No. 251/2022 on the above-mentioned subject *"Detecting Microplastics in Human Blood."*

2. As per the Action Plan shared by MoEF&CC, **item S. No. 15** concerns *sustainable design and manufacturing of complementary products (including laundry detergents)* with the objective of minimizing microplastic generation.

3. In this regard, please find detailed **Annexure**, containing the response received from the All India Federation of Soaps, Detergents & Homecare Products Manufacturers is enclosed herewith for consideration and necessary action.

4. Further, it is informed that any additional inputs relating to current standards, formulations, or relevant technical frameworks may kindly be obtained from the Central Drugs Standard Control Organization (CDSCO) and the Bureau of Indian Standards (BIS), being the respective technical regulatory bodies.

Encl: As Above

24/10/2025

(Mohammad Isharar Ali)
Director,
Phone: 011 2303 8931
Email: mohammad.ballia@gov.in

To,

Shri Amit Raj
Director,
Ministry of Environment, Forest and Climate Change (MoEF&CC)
Email: amit.raj1979@nic.in

Annexure

Industry Response on Sustainable Design and Microplastic Management in Laundry Detergents

As per the Action Plan shared by MoEF&CC, item S. No. 15 pertains to the sustainable design and manufacturing of complementary products (including laundry detergents) with the objective of minimizing microplastic generation.

The table below presents the detailed response received from the *All India Federation of Soaps, Detergents & Homecare Products Manufacturers.*

S.No.	Concerns	Response by All India Federation of Soaps, Detergents & Homecare Products Manufacturers
1	**Current Scenario – Status of detergent formulation in India with respect to use of microplastics/microbeads**	**Study by Toxic Link and Cochin University** • Studies in India have shown that face washes, scrubs and body washes contain tiny plastic beads called microbeads, examples taken from various studies, one scrub had around 17,000 beads in just 20 grams. • However, these products come under the category of Cosmetics and not detergent powders. • There are no records of studies showing presence of microbeads in detergents
2	**Industry Initiatives – Steps taken by detergent sector towards sustainable design, biodegradable alternatives, or reduction of microplastic content**	i. Hindustan Unilever (HUL) is reducing plastic in packaging with its "Less, Better, No Plastic" plan. For example, Surf Excel and Vim bottles use recycled plastic, and soap cartons no longer have plastic stiffeners. ii. Procter & Gamble (P&G) has become "plastic waste neutral" by collecting and recycling as much plastic as they use. Ariel detergent bottles are recyclable and use some recycled material. iii. ITC is replacing single-use plastics with eco-friendly packaging like biodegradable paperboards. Fiama shampoo bottles, for example, now use 50% recycled plastic. iv. Dettol has promised that by 2025 all its packaging will be recyclable or reusable. It is also reducing plastics in wipes, bottles, and refill pouches. v. Local detergent brands like Ghari, Fena & Safed are also collecting and recycling 100% of the plastic they use.

S.No.	Concerns	Response by All India Federation of Soaps, Detergents & Homecare Products Manufacturers
3	**Standards / Best Practices – Existing BIS standards, global best practices, or regulatory restrictions relevant to India**	**A. Key Indian standards and regulatory framework** • **BIS product standards** (detergent powders & industrial detergents). • Bureau of Indian Standards publishes specifications for household laundry detergent powders and for synthetic detergents for industrial purposes (e.g., IS 4955 for household laundry). These standards cover composition, assay limits, lab methods and labelling. • Plastic Waste Management Rules (PWM) & Extended Producer Responsibility (EPR). • India's Plastic Waste Management framework implements EPR obligations for producers/brand owners of plastic packaging (applicable to detergent packaging). A centralised EPR portal and guidelines exist for registration and targets. • Detergent companies that place packaging on the market must comply with EPR registration, reporting and targets for collection/recycling. **B. International regulatory precedents** • European Union: The EU has adopted broad restrictions on intentionally-added microplastics (under REACH/implementing regulations) restricting many uses and setting phase-in dates and labelling/transition timelines. • Voluntary eco-schemes & ecolabels (EU Ecolabel, Safer Choice etc.). • Ecolabels define concrete limits on hazardous substances, surfactant biodegradability, packaging and supply-chain transparency **C. Globally, the best practices are:** Replace Microbeads with natural abrasives (oatmeal, ground nutshells, silica of known biodegradability) or biodegradable polymer alternatives that have validated environmental profiles.

S.No.	Concerns	Response by All India Federation of Soaps, Detergents & Homecare Products Manufacturers
4	**Feasibility / Challenges – Practical considerations for adoption of eco-friendly alternatives including cost, consumer acceptance, and transition timelines**	**Challenges:** i. Supply chains for recycled plastic would require significant investment to scale up in terms of technology and infrastructure. ii. Using recycled plastic in packaging adds cost and needs better infrastructure and consequently big investments. **Cost implications:** Switching to eco-friendly options may increase detergent prices by 10–20% for the customer. Large companies may absorb some costs, but smaller players will find it extremely difficult. **Timeline for transition:** If the government suddenly bans microbeads without giving time, small companies will face serious difficulties. In India, a timeline of at least 3-4 years would be required to raise a certain degree of awareness and allow for the transition to bio-friendly alternatives.

ANNEXURE-VI

19.09.2025

ICMR – NIREH Action Taken Report

Ref.

1. Action Plan as per order dated 31.01.2024
2. MoEF&CC MoM, held on 07.11.2024
3. MoEF&CC O.M. HSM-11/36/2022-HSM dated 16.09.2025
4. CPCB MoM, held on 17.09.2025

In reference to the above, following submission is being made to CPCB / MoEF&CC for kind perusal:

1. As per the ministry-wise action plan *vide* order dated 9th October 2023 of Hon'ble NGT in Original Application no. 251/2022 on "Detecting micro plastic in Human Blood"; point no. 8, 9, and 10 pertains to ICMR – NIREH.

2. Based on the point no. 8, 9, and 10; ICMR – NIREH was directed to undertake the action as – "**a compilation of studies on presence of microplastics / emerging contaminants in human body will be made for chalking out the methodology / scope of work with respect to studying cause effect relationship for physiological impacts, dose response assessment *etc*.**"

3. Complying with the direction, ICMR – NIREH has compiled the studies as stated above and prepared the report. The report was sent to the ICMR HQ for further submission to MoEF&CC on 09.08.2024.
   Therefore, **ICMR's part in the process has been successfully concluded**.

4. Nevertheless, as per the findings in the NIREH's report; it was understood that *in the interest of public health*, long-term research on microplastics is crucial due to significant gaps in understanding the cause-effect relationship.
   Hence, ICMR – NIREH, as per its own mandate, had applied for a (intramural) project research funding from ICMR emphasizing on 'estimating micro(nano)plastics exposure in human infants'. This research project, which is of 4 years duration, has been in-principal approved by the ICMR. However, the funding is still awaited to initiate the actual work. The results obtained after the execution of project will be published in the form of scientific articles / reports and the same will also be shared with CPCB / MoEF&CC.

Gmail

neha <nehapatankarenv@gmail.com>

Fwd: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.

Legal Monitoring Cell (LMC) <lmc.moefcc@gov.in> Tue, Sep 23, 2025 at 2:25 PM
To: Neelesh Sah <sahnk@cag.gov.in>
Cc: Neha Patankar <nehapatankarenv@gmail.com>, Aman Kohli <amankohli.moef@gmail.com>

Sir,

HSMD related matter, may please see.

Regards
Legal Monitoring Cell,
Ministry of Environment, Forest & Climate Change,
Indira Paryavaran Bhawan,
Jor Bagh, New Delhi - 110003
Telephone: 011-20819179

========== Forwarded message ==========
From: Mr Tanmay Kumar <secy-moef@nic.in>
To: "Neelesh Sah"<sahnk@cag.gov.in>, "Rajat Agarwal"<js.ia-moefcc@gov.in>, "Legal Monitoring Cell (LMC)"<lmc.moefcc@gov.in>
Date: Tue, 23 Sep 2025 13:44:24 +0530
Subject: Fwd: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

========== Forwarded message ==========
From: NCD ICMR <intramuralprojects@gmail.com>
To: <amit.love@nic.in>
Cc: "Dr R .S Dhaliwal"<dhaliwalrs.hq@icmr.gov.in>, "Dr. Gitika Yadav"<yadavg.hq@icmr.gov.in>, <neha.patankar@govcontractor.in>, <amit.raj1979@nic.in>, <sahnk@cag.gov.in>, <vv.yadav@nic.in>, <secy-moef@nic.in>
Date: Tue, 23 Sep 2025 13:06:51 +0530
Subject: Fwd: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Respected Sir/Madam,

With reference to your email dated 16.09.2025 on the subject mentioned above.
I am forwarding the ICMR-NIREH action taken report along with required references, attached herewith.

Thanks and regards
Satyajeet Bhardwaj, Assistant
C/o Dr. Geetika Yadav
Scientist 'F', NCD, ICMR Hqrs.

---------- Forwarded message ---------
From: **Dr Geetika Yadav Scientist E** <yadavg.hq@icmr.gov.in>
Date: Tue, Sep 23, 2025 at 10:51 AM
Subject: Fwd: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
To: intramuralprojects <intramuralprojects@gmail.com>

========== Forwarded message ==========
From: SURYA SINGH <suryasingh.nireh@icmr.gov.in>
To: "Dr R .S Dhaliwal"<dhaliwalrs.hq@icmr.gov.in>
Cc: "Dr Geetika Yadav Scientist E"<yadavg.hq@icmr.gov.in>, "Rajnarayan Tiwari"<tiwari.rr@gov.in>
Date: Fri, 19 Sep 2025 13:46:17 +0530

Subject: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Respected Sir / M'am,

In response to the emails received from MoEF&CC / CPCB on 16.09.2025 regarding the NGT Matter (251/2022) on "Detecting microplastic in Human Blood", I am directed to share the report as required by the CPCB / MoEF&CC.
Kindly find the NIREH's report along with the required references, attached herewith.

Thanking you.
Sincere regards,
Dr. Surya Singh
Scientist 'C' & Assistant Professor (AcSIR)
ICMR - NIREH, Bhopal
Email: suryasingh.nireh@icmr.gov.in

6 attachments

- **ICMR-NIREH Action Taken Report.pdf**
  75K
- **1. Action plan as per order dated 31.01.2024.pdf**
  447K
- **2. MoEFCC MoM held on 07.11.2024.pdf**
  465K
- **3. MoEFCC OM dated 16.09.2025.pdf**
  1141K
- **4. CPCB DRAFT MoM held on 17.09.2025.pdf**
  76K
- **ICMR NIREH Report_NGT (251-2022).pdf**
  3143K

Fwd: Meeting notice : Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.

ANNEXURE-VII

Ravinder . < sus-tex@gov.in >

Thu, 15 Jan 2026 7:12:52 PM +0530

To "amitlove"<amit.love@nic.in>

Cc "Neelam Rao"<secy-textiles@nic.in>,"rohit.kansal"<rohit.kansal@nic.in>,"Neelesh Sah"<sahnk@cag.gov.in>,"amitraj1979"<amit.raj1979@nic.in>,"Gopal"<gopal.bhushal@gov.in>,"dkprajapati"<dk.prajapati@nic.in>,"ravinder05"<ravinder.05@gov.in>

6 Attachment(s)

Annexure 1_ESG Task Force.pdf 88.6 KB	Annexure 5_Circle-Back_12.1… 2 MB
Annexure 3_UNEP IndiaTex Br… 442.1 KB	Annexure 4_EUICEREI_Mains… 1 MB
Annexure 2_UNIDO GEF Proj… 357.3 KB	Progress Report Inputs pertain… 19.6 KB

Sir,

Please find attached, the inputs of this Ministry on the captioned subject for kind perusal and consideration.

सादर धन्यवाद / Thanks & Regards,
सस्टेनेबिलिटी अनुभाग / Sustainability Section,
वस्त्र मंत्रालय / Ministry of Textiles,
भारत सरकार / Government of India
उद्योग भवन / Udyog Bhawan
नई दिल्ली / New Delhi

========== Forwarded message ==========
From: Gopal <gopal.bhushal@gov.in>
To: "Mohit Surana"<mohit.surana@nic.in>, "Ravinder ."<sus-tex@gov.in>
Date: Wed, 14 Jan 2026 16:33:39 +0530
Subject: Fwd: Meeting notice : Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.

========== Forwarded message ==========

========== Forwarded message ==========
From: Neelam Rao <secy-textiles@nic.in>
To: "Gopal"<gopal.bhushal@gov.in>, "dkprajapati"<dk.prajapati@nic.in>
Date: Tue, 13 Jan 2026 17:41:30 +0530
Subject: Fwd: Meeting notice : Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: "secy-ipp"<secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "director"<director@neeri.res.in>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>, "mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-dhr"<secy-dhr@gov.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>, "secyhfw"<secyhfw@nic.in>, "seccpc"<sec.cpc@nic.in>, "secy-textiles"<secy-textiles@nic.in>, "secretary"<secretary@pharma-dept.gov.in>, "secydws"<secydws@nic.in>, "secy-dg"<secy-dg@icmr.gov.in>, "sanjiv01"<sanjiv.01@gov.in>, "lei-dpiit"<lei-dpiit@gov.in>
Cc: "NEHA PATANKAR"<neha.patankar@govcontractor.in>, "Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "vvyadav"<vv.yadav@nic.in>, "Mr Tanmay Kumar"<secy-moef@nic.in>
Date: Tue, 13 Jan 2026 17:25:34 +0530
Subject: Meeting notice : Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Best Wishes
Neelam Shami Rao
Secretary
Government of India
Ministry of Textiles
Udyog Bhawan
New Delhi
011 23061769
01123063644

Sir/Madam,

This is in continuation to the trail email.

2. The undersigned has been directed to inform that a meeting has been scheduled under

the **chairmanship of the Shri Neelesh Kumar Sah, Joint Secretary, Ministry of Environment, Forest and Climate Change at 12:30 PM on 15th January 2026 in Indira Paryavaran Bhawan**, New Delhi to review the progress made on the inputs/comments/action points of the concerned Ministries/ Department/Bodies in compliance to the order of the Hon'ble National Green Tribunal, dated 31.01.2024.

3. Further, Central Pollution Control Board is requested to make a presentation on the progress made on the action points in compliance to the directions dated 31.01.2024 of the Hon'ble National Green Tribunal.

4. Accordingly, it is requested that an officer well versed with the subject be deputed to attend the meeting.

This issues with the approval of the Competent Authority.

Regards

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: "secy-ipp"<secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "mohansv"<mohan.sv@neeri.res.in>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>, "mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>, "seccpc"<sec.cpc@nic.in>, "secy-textiles"<secy-textiles@nic.in>, "secretary"<secretary@pharma-dept.gov.in>, "secydws"<secydws@nic.in>, "secy-dg"<secy-dg@icmr.gov.in>, "G THIRUMURTHY Bangalore"<thiru.cpcb@nic.in>, "CPCB PWM"<pwm.cpcb@gov.in>, "lei-dpiit"<lei-dpiit@gov.in>, "sanjiv01"<sanjiv.01@gov.in>
Cc: "NEHA PATANKAR"<neha.patankar@govcontractor.in>, "Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "vvyadav"<vv.yadav@nic.in>
Date: Mon, 12 Jan 2026 20:29:19 +0530
Subject: Fwd: Reminder -II: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Sir/Madam,

The undersigned has been directed to inform that the meeting scheduled to be held under the chairmanship of the Shri Neelesh Kumar Sah, Joint Secretary, Ministry of Environment, Forest and Climate Change **at 11:00 AM on 13th January 2026 i**n Narmada Conference Room, Ground Floor, Jal Wing, Indira Paryavaran Bhawan , New Delhi on the subject mentioned **above has been postponed**.

The next date of meeting will be communicated in due course.

The inconvenience caused is regretted

Regards

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: "lei-dpiit"<lei-dpiit@gov.in>
Cc: "sanjiv01"<sanjiv.01@gov.in>, "Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "nehapatankarenv"<nehapatankarenv@gmail.com>
Date: Mon, 12 Jan 2026 17:54:39 +0530
Subject: Fwd: Reminder -II: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Dear Sir,

This is continuation of trail email.

It is requested to kindly make it convenient to attend the meeting.

The meeting link is given below:

https://moefcc.webex.com/moefcc/j.php?MTID=m7efe028c83c47020bf45826dfc08202b
Tuesday, January 13, 2026 11:00 AM | 2 hours | (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Meeting number: 2513 486 1241
Password: 172012

Agenda: Meeting regarding matter before National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood"

Regards

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: "secy-ipp"<secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "mohansv"<mohan.sv@neeri.res.in>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>, "mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>, "seccpc"<sec.cpc@nic.in>, "secy-textiles"<secy-textiles@nic.in>, "secretary"<secretary@pharma-dept.gov.in>, "secydws"<secydws@nic.in>, "secy-dg"<secy-dg@icmr.gov.in>
Cc: "NEHA PATANKAR"<neha.patankar@govcontractor.in>, "Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "vvyadav"<vv.yadav@nic.in>, "Mr Tanmay Kumar"<secy-moef@nic.in>
Date: Thu, 08 Jan 2026 15:46:21 +0530
Subject: Reminder -II: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Reminder -II

Sir/Madam,

This has reference to the trail email, Office Memorandum dated 16th September 2025 of the Ministry on the aforementioned subject matter.

2. The Hon'ble National Green Tribunal vide order dt. 31.01.2024, had inter-alia directed concerned Central Ministries/Departments/Bodies to take actions as per action points given in the NGT order and report progress/compliance in six months to MoEF&CC. The MoEF&CC has been further asked to compile the information received and file a comprehensive report in the NGT. The progress report/ compliance report/inputs are still awaited from Ministries/Departments/Bodies as mentioned in Para 3.

3. The progress report/compliance report/inputs are still awaited from the following Ministry/Department/Body on action points as given in table below:

Sr. no.	Ministry/Department/ Bodies	Action points in the action plan as per order of Hon'ble NGT
1	Central Pollution Control Board	Items No. 1 to 7 , 11 to 14, and 24 including inter-alia the following: uniform procedure for sampling and analysis of microplastics, preliminary listing of monitoring source of generation of microplastics, microplastic leakage pathways, bioassays, compilation of technologies for microplastic removal -meeting with stakeholders, awarding and execution of work, and standard development for microplastics.
2	Ministry of Textiles, Government of India	Item No. 15 regarding sustainable design and manufacturing of textiles.
3	Ministry of Road Transport and Highways, Government of India	Item No. 15 regarding road surfaces.
4	Department of Drinking Water and Sanitation	Item No. 20 concerning clean drinking water supply to all citizens in the country.
5	National Center for Sustainable Coastal Management	Item No. 24 regarding training and capacity building, including microplastic monitoring, analysis.
6	Department of Promotion and Industry and Internal Trade	Item no. 17 regarding microfibre filters in new washing machines

4. Ministry of Heavy Industries, Ministry of Housing and Urban Affairs, Ministry of Earth Sciences, Department of Chemicals and Petrochemicals, Department of Pharmaceuticals, Central Drugs Standard Control Organization, Department of Health and Family Welfare, Department of Promotion and Industry and Internal Trade, Department of Drinking water and Sanitation, Department of Water Resources, River development and Ganga Rejuvenation, Ministry of Jal Shakti,

National Environmental Engineering Research Institute and Department of Fisheries, who have provided their inputs/comments earlier, are also requested to provide an updated status on the progress made on the action points latest by **12th January 2026 (2:00PM).**

5. In view of the above, the undersigned has been directed to request progress report/compliance report/inputs latest by **12th January 2026 (2:00PM).**

6. Further, a **meeting has also been scheduled under the chairmanship of the Shri Neelesh Kumar Sah, Joint Secretary, Ministry of Environment, Forest and Climate Change at 11:00 AM on 13th January 2026 in Narmada Conference Room, Ground Floor, Jal Wing, Indira Paryavaran Bhawan** , New Delhi to review the progress made on the inputs/comments/action points by the concerned Ministries/ Department/Bodies in compliance of the order of the Hon'ble National Green Tribunal, dated 31.01.2024

7. Central Pollution Control Board is requested to make a presentation on the progress made on the action points in compliance to the directions dated 31.01.2024 of the Hon'ble National Green Tribunal.

Regards

Dr. Amit Love
Scientist 'E' / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: <secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>, "mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>, "seccpc"<sec.cpc@nic.in>, "secy-textiles"<secy-textiles@nic.in>, "secretary"<secretary@pharma-dept.gov.in>, "secydws"<secydws@nic.in>, "secy-dg"<secy-dg@icmr.gov.in>
Cc: "NEHA PATANKAR"<neha.patankar@govcontractor.in>, "Amit.raj1979

Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "vvyadav"<vv.yadav@nic.in>, "Mr Tanmay Kumar"<secy-moef@nic.in>
Date: Tue, 30 Sep 2025 19:55:50 +0530
Subject: Reminder -I : Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Reminder -I
Sir/Madam,

This has reference to the trail email and Office Memorandum, dated 16th September 2025 of the Ministry on the aforementioned subject matter.

2. The Hon'ble National Green Tribunal vide order dt. 31.01.2024, had inter-alia directed concerned central Ministries/Departments/Bodies to take actions as per action plan given in the NGT order and report progress/compliance in six months to MoEF&CC. The MoEF&CC has been further asked to compile the information received and file a comprehensive report in the NGT. However, the progress report/compliance report/inputs are still awaited from Ministries/Departments/ Bodies as mentioned in Para 3 of the O.M.

3. The progress report/compliance report/inputs are still awaited from the following Ministry/Department/Body on action points as given in table below:

Sr. no.	**Ministry/ Department/ Bodies**	**Action points in the action plan as per order of Hon'ble NGT**
1	Central Pollution Control Board	Items No. 1 to 7 , 11 to 14, and 24 including inter-alia the following: uniform procedure for sampling and analysis of microplastics, preliminary listing of monitoring source of generation of microplastics, microplastic leakage pathways, bioassays, compilation of technologies for microplastic removal -meeting with stakeholders, awarding and execution of work, and standard development for microplastics.
2	Ministry of Textiles, Government of India	Item No. 15 regarding sustainable design and manufacturing of textiles.

3	Ministry of Road Transport and Highways, Government of India	Item No. 15 regarding road surfaces.
4	Department for Promotion of Industry and Internal Trade	Item No. 15 concerning laundry detergents.
5	Department of Drinking Water and Sanitation	Item No. 20 concerning clean drinking water supply to all citizens in the country.
6	National Center for Sustainable Coastal Management	Item No. 24 regarding training and capacity building, including microplastic monitoring, analysis.

4. Further, Ministry of Heavy Industries, Ministry of Housing and Urban Affairs, Ministry of Earth Sciences, Department of Chemicals and Petrochemicals, Department of Pharmaceuticals, Central Drugs Standard Control Organization, Department of Health and family Welfare, Department of Promotion and Industry and Internal Trade, Department of Drinking water and Sanitation, Department of Water Resources, River development and Ganga Rejuvenation and Department of Fisheries, who have provided their inputs/comments earlier, are also requested to update on the progress made on the action plan by **7th October 2025.**

5. In view of the above, the undersigned has been directed to request progress report/compliance report/inputs latest by **7th October 2025.**

Regards

Dr. Amit Love
Scientist ‘E’ / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

========== Forwarded message ==========
From: Amit Love <amit.love@nic.in>
To: <secy-ipp@nic.in>, "dci"<dci@nic.in>, "director"<director@iitrindia.org>, "director"<director@neeri.res.in>, "director"<director@ncscm.res.in>, "dg"<dg@cipet.gov.in>, "mscbcpcb"<mscb.cpcb@nic.in>, "secy-fisheries"<secy-fisheries@gov.in>, "secy-mowr"<secy-mowr@nic.in>, "secyurban"<secyurban@nic.in>, "shioff"<shioff@nic.in>, "secy-dhr"<secy-dhr@gov.in>, "secy-road"<secy-road@nic.in>, "secretary"<secretary@moes.gov.in>, "secyhfw"<secyhfw@nic.in>, "seccpc"<sec.cpc@nic.in>, "secy-textiles"<secy-textiles@nic.in>, "secretary"<secretary@pharma-dept.gov.in>, "secydws"<secydws@nic.in>, "secy-dg"<secy-dg@icmr.gov.in>
Cc: "NEHA PATANKAR"<neha.patankar@govcontractor.in>, "Amit.raj1979 Amit.raj1979"<amit.raj1979@nic.in>, "sahnk"<sahnk@cag.gov.in>, "vvyadav"<vv.yadav@nic.in>, "Mr Tanmay Kumar"<secy-moef@nic.in>
Date: Tue, 16 Sep 2025 17:37:49 +0530
Subject: Order of National Green Tribunal, Principal Bench in Original Application No.251/2022 on "Detecting micro plastic in Human Blood" - reg.
========== Forwarded message ==========

Sir/Madam,

This has reference to the Office Memorandum, dated 16th September 2025 of the Ministry on the aforementioned subject matter.

2. The Hon'ble National Green Tribunal vide order dt. 31.01.2024, had inter-alia directed concerned central Ministries/Departments/Bodies to take actions as per action plan given in the NGT order and report progress/compliance in six months to MoEF&CC. The MoEF&CC has been further asked to compile the information received and file a comprehensive report in the NGT. However, the progress report/compliance report/inputs are still awaited from Ministries/Departments/ Bodies as mentioned in Para 3 of the O.M.

3. Further, the Ministries/Departments/Bodies who have provided there progress report/compliance report/inputs earlier, are also requested to update on the progress made on the action plan provided.

4. In view of the above, the undersigned has been directed to request progress report/compliance report/inputs latest by **25th September 2025.**

This issues with the approval of the Competent Authority.

Regards

Dr. Amit Love
Scientist ‘E’ / Additional Director
Ministry of Environment, Forest and Climate Change
Government of India

Progress Report/ Inputs pertaining to Ministry of Textiles in compliance with the order of Hon'ble National Green Tribunal dated 31.01.2024 on "Detecting micro plastic in Human Blood".

The Ministry of Textiles has adopted a multifaceted approach to address and ensure widespread adoption of sustainable design and manufacturing practices, and addressing issues of pollution. A list of activities is as below:

i. The Government has played a critical role in facilitating a shift toward sustainability by establishing a Sustainability Section in the Ministry, and also constituted an ESG (Environment, Social and Governance) Task Force (**Annexure-1**) which aims to enable the transition of the textile industry to a sustainable and resource-efficient production system by engaging in deliberations with stakeholders of the industry in ascertaining the current status and issues for reducing environmental impact and adopting sustainable production models.

ii. In order to facilitate the textile industry to meet the required environmental standards and to support new Common Effluent Treatment Plants (CETP)/ upgradation of CETPs in processing clusters/ processing parks, the Government is implementing Integrated Processing Development Scheme (IPDS) since 2013. The scheme aims at facilitating the Indian textile industry to become globally competitive using environmentally friendly processing standards and technology. The scheme is being implemented for completing ongoing projects only. Under the Scheme, 6 projects have been sanctioned which are currently under implementation. Out of the total approved cost of Rs. 705.2 crores of GOI share, Rs. 213 crores has been released till date.

iii. A project titled 'Eliminating Hazardous Chemicals from the Apparel and Fashion Supply Chain' has been launched at Bharat Tex 2025 in partnership with UNIDO. The six-year project aims to eliminate hazardous chemicals from the apparel fashion supply chain in India while promoting sustainable practices aimed at reducing environmental impacts, particularly in terms of energy and waste use, and greenhouse gas emissions. The project aims to target 400 SMEs across 08 clusters and 04 brands. A project fact sheet is attached at **Annexure - 2**.

iv. As part of the National Technical Textiles Mission (NTTM), 17 R&D projects are being undertaken with focus on promotion of natural and/or bio fibres specially for

agro- and geo-textiles with the objective of enabling partial substitution of synthetic fibre-based materials over a period of time.

v. A pilot project by the Textiles Committee to develop an innovative and replicable textile waste management model in Navi Mumbai, as a template for managing post-consumer textiles and apparel was initiated and a toolkit is now being developed. Around 14.3Tonnes of waste has been collected until 13.11.2025, of which 250 products have been developed and livelihood for around 95 women entrepreneurs has been created.

vi. A four-year project titled ‘Accelerating the Transition of the Indian Textile Sector towards Circularity’ (InTex India) is being implemented in collaboration with UNEP with an aim to build capacity of 25 SMEs on evaluating their Product Environment Footprint (PEF) across their 5F value chain and with 05 brands on Eco-Innovation, thereby helping mitigate their environmental impact. A project fact sheet is attached at **Annexure - 3**.

vii. A three-year project titled ‘Mainstreaming Resource Efficiency & Circular Economy in the Indian Textile Sector’ has been launched at Bharat Tex 2025 in partnership with EU-India Resource Efficiency and Circular Economy Initiative (EU-I RECEI). The project aims to aims to promote sustainable modernisation with scalable and inclusive resource efficiency and circular economy-related policies and practices in India specifically in management of textile waste in industrial clusters and urban settings. A project fact sheet is attached at **Annexure - 4**.

viii. A Management Development Programme (MDP) was undertaken by National Institute of Fashion Technology (NIFT) in collaboration with United Nations Environment Programme (UNEP) on Sustainable Business Strategies for Fashion for mid- to senior-level managers, design professionals, entrepreneurs, consultants, etc. to enable them with means and strategies of effective implementation of circular design/ fashion practices.

ix. A non-financial Memorandum of Understanding (MoU) was signed to onboard upcycled textile products on the GeM catalogue and promote their procurement in regular Government practices. As part of the MoU, 38 textiles upcyclers have been registered and a dashboard for the same has been created (https://upcycle.trace-textiles.gov.in/). To enable procurement of upcycled

products, 50 categories have specifically been created for upcycled products on GeM.

x. A study in collaboration with UNIDO titled ‘Development of a Roadmap for Inclusive and Green Transformation of Manufacturing in India’s Textile Sector’, is being undertaken to co-create in a participatory manner a technology and innovation roadmap for the Indian textile and apparel sector with medium-term targets up to 2030 and a long-term vision up to 2047.

xi. A best practices workshop was undertaken with support of United Nations Industrial Development Organization (UNIDO) to discuss international best and leading practices in aspects related to the planning, development, construction, management and service delivery of industrial parks for enhanced economic, environmental and social performance and to showcase and discuss international good practices and best environmental techniques that can readily be adopted and scaled up by industry units, with the active engagement of the sector’s technical and related institutions.

xii. Circle Back Campaign was undertaken in collaboration with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) with an aim to create awareness among students in schools and higher educational institutions about the principles of circularity and sustainability including the importance of mitigating the impact of textile waste and addressing other issues of pollution. Campaign Report is attached as **Annexure 5**.

xiii. An awareness campaign through stakeholder engagement with MSMEs in Ludhiana cluster on Resource Efficiency (RE) and Circular Economy (CE) was undertaken through EU-Resource Efficiency Initiative, with focus on understanding the needs, challenges and interests of MSME on RE and CE with particular focus on water, energy and materials from September 2023 - December 2023. A Circular Economy Training Toolkit for Public Sector Officials was developed and a training undertaken with Textiles Committee officials, experts at Ministry of Textiles in December 2024. The textile toolkit in bilingual form was released during the Bharat Tex 2025.

xiv. A PG Diploma Programme was developed by National Institute of Fashion Technology (NIFT) in collaboration with UNEP on Fashion Innovation and Sustainable Design for Circularity to build an understanding of concepts, relevance and importance of Sustainable Fashion and Circularity.

*****

F.No. 11/3/2023-Fibre-I
Government of India
Ministry of Textiles
*****

Udyog Bhawan, New Delhi
Dated: 20th July, 2023

OFFICE MEMORANDUM

Subject: Constitution of an ESG (Environmental, Social, Governance) Task Force for enabling the Textile & Apparel (T&A) Sector to transition to a Circular and Sustainable Sector- reg.

In pursuance of the announcement made by the Hon'ble Minister of Textiles on 22nd April, 2023 at the Tamil Saurashtra Sangamam in Rajkot, it has been decided to constitute an ESG Task Force for engaging in deliberations with stakeholders of the industry in ascertaining the current status and issues in adopting sustainable production models which will enable the transition of the textile industry to a sustainable and resource-efficient production system. This transition will empower the Indian textile industry to position itself on the global map as a major player in sustainable and circular textiles.

2. The composition of the Task Force is as follows:

(a) Additional Secretary, Ministry of Textiles	Chairperson
(b) Joint Secretary (Fibre and Sustainability), Ministry of Textiles	Member Secretary
(c) Secretary, Textiles Committee	Member
(d) Chairman and Managing Director, Cotton Corporation of India	Member
(e) Head-Textiles, Bureau of Indian Standards (BIS)	Member
(f) Dean, National Institute of Fashion Technology, Delhi	Member
(g) Textiles Industrial Associations: CITI, SIMA, CMAI, AEPC, TEXPROCIL	Member
(h) Textiles Division of different Chambers of Commerce: FICCI, SGCCI, GCCI, PHDCCI, CII	Member
(i) Su.Re (Sustainable Resolution) Alliance	Member

3. **Terms of Reference:** Converge all stakeholders on one platform to deliberate upon various interventions needed to support emerging standards on sustainability and circularity globally and domestically. The ESG Taskforce will help in identifying measures to increase the export competitiveness of the textile industry through voluntary compliance measures. The Task Force will work on recognizing the hotspots in the textiles value chain and identify relevant stakeholders and interventions to minimize the negative impact on the environmental and social front.

4. The Chairperson of the Task Force may co-opt/associate representatives from Ministries/Departments, industries, and any other organizations, and experts, as deemed fit. The Chairperson may also constitute sub-groups for discussions on different aspects of the subject matter.

This issues with the approval of Hon'ble Minister of Textiles.

(Anil Kumar K.C.)
Under Secretary to Govt of India
Email: anilkumar.kc@gov.in
Phone No.: 23061030

To,

All members of the Task Force

Copy forwarded for information to:

1. PS to HMoT
2. PS to HMoST
3. PPS to Secretary (Textiles)

GEF 11178: Eliminating hazardous chemicals from apparel fashion supply chain in India

Project Objective

To eliminate hazardous chemicals from the apparel fashion supply chain in India while promoting sustainable practices and reducing environmental impacts, particularly in terms of energy and water use, and greenhouse gas emissions

Budget ($)

7.8 Million
GEF grant funding

44 Million
Co-financing

Target sector

Fashion

Governance

Implementing Agency

UNIDO

Executing Agency

वस्त्र मंत्रालय
MINISTRY OF TEXTILES

India

Global Environmental Benefits

*Mitigate **147 000** tons of GHG emissions directly and **294 000** tonnes indirectly*

2 128 000 hectares of landscapes under improved management to benefit biodiveristy by reducing **1277 tons** of pesticide use

***40 000** (60% women) people directly benefitting from project interventions and **80 000** (60% women) benefitting indirectly.*

Reduce **10 530** (direct) and **21 060** (indirectly) tons of toxic chemicals of global concern and their waste

***31 590** tons of solid and liquid POPs removed or disposed*

Focus materials

Natural viscose fibres from waste biomass (banana fibres)

Project components and activities

Component 1: Designing innovative, regenerative products and utilizing circular business models

- *Regenerative design in fashion houses*
- *Green procurement policy*
- *Ecosystem for circular business models*
- *Financial (tax) incentives*

Component 2: Innovative Materials-Substituting non-renewable materials in products

- *Guidelines for sourcing innovative materials*
- *Natural viscose fibres from waste biomass (banana)*
- *Guidelines for innovative investment criteria*
- *Pilot demonstrations of innovative materials*

Component 6: KM & Learning

- *India Child Project Portal*
- *Best practice for textiles packages*
- *Language inclusive knowledge products*
- *Collaborate & exchange amongst IP*

Component 3: Cleaner Production

- *National capacity building programme,*
- *RECP -solar (CST & SPV), Internet of Things*
- *Supplier reporting and self assessment tool*
- *financial incentive for suppliers + green finance*
- *Pilot demos for cleaner production*

Component 4: Sustainable Consumption

- *Sustainable procurement template*
- *Eco-labels and consumer information*
- *Trade controls on POPs treated materials*
- *Advocacy and training on sustainable fashion*

Component 5: Post-Use 9Rs

- *Policy on waste management, EPR guidelines*
- *Reverse logistics for post consumer waste*
- *Database for value chain actors for waste repurpose*
- *Women led 9R enterprises*

Co-finance partners

Birla Cellulose

South Gujarat Textile Processors Association

DEESAN GROUP

GATS

sidbi

DAT

Solidaridad

PAGE

FICO

TTE

Planned Interventions with Co-finance partners

Pilot demonstrations for innovative materials, RECP, waste management

Resource-efficient and cleaner production investments

Internet of Things (IOT) to enhance cleaner production

Coherent policies on resource management (chemicals, energy, water) in supply chains

Green public procurement policies for apparel fashion/textile houses/MSMEs

Contact
Dr Pankaj Kumar, National Project Coordinator
UNIDO, UN House, New Delhi- 110003
Email : p.kumar@unido.org / o.iti@unido.org

EU - India Resource Efficiency and Circular Economy Initiative (EU-I RECEI)

Mainstreaming Resource Efficiency & Circular Economy in the Indian Textile Sector

Context

The 2020 EU-India Joint Declaration on Resource Efficiency and Circular Economy (RECE) initiated the the EU-India RECE Partnership. It brings together representatives of relevant stakeholders from India, EU and its Member States (MS), including governments, businesses, academia and research institutes. It aims to strengthen dialogue and cooperation between the EU and India in areas of RE&CE.

The EU-India Resource Efficiency and Circular Economy Initiative (RECEI) is an important vehicle to:

1. further the EU-India cooperation on RECE;
2. promote RECE approaches in both EU and India, through mutually agreed activities;
3. foster exchange of experiences between EU Member States and India for RECE implementation including institutional and financial mechanisms;
4. examine aspects of enabling RECE ecosystems and information tools/capacities; and
5. provide technical assistance relating to RECE activities at national and international level.

Project Name	EU - India Resource Efficiency and Circular Economy Initiative (EU-I RECEI)
Commissioned by	European Union (EU) and German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)
Nodal Ministry	Ministry of Environment, Forest and Climate Change (MoEFCC), Government of India
Nodal Implementation Agency	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
Duration	February 2024 – September 2026

Objective

Sustainable modernization, scalable and inclusive RECE-related policies and practices in India, that draw inspiration from EU experiences, standards and tools to facilitate the setting-up of sustainable value chains are adopted and promoted.

Outputs

Output 1: Adoption and implementation of national RECE policies, including India's national Extended Producer Responsibility (EPR) framework and other policy instruments, such as Deposit Refund Scheme (DRS), are facilitated in selected sectors at national and state level.

Output 2: Implementation of circular economy solutions in inclusive value chains and circular business models are fostered in two selected states.

Output 3: Cooperation between EU and India private sector, youth and civil society on RECE is intensified, including engagement with RECE Industry Coalition, in fields such as remanufacturing, eco-design, innovation, uniform CE measurement and reporting.

Background

The Indian textile and apparel sector encompasses the entire value chain, from raw material and fibre production to post-consumption management techniques. It is key to economic development and employment generation in the country. India is the world's second-largest producer of textiles and garments. In 2023, it was the sixth-largest exporter of textiles spanning apparel, home and technical products, and third largest in textiles and apparel comprising 3.9% of the global trade.

The textiles and apparel industry contributes 2.3% to the country's GDP, 13% to industrial production and 12% to exports earnings. The textile industry has around 45 million workers employed in the textiles sector, including 3.5 million handloom workers including women and rural population.

Global Gateway

Co-funded by the European Union

Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection

Implemented by

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Approach

Given its significance, the textile sector also needs to rapidly transform towards sustainability and circularity by addressing environmental and socio-economic impacts.

In 2022, recognising the need for a sustainable circular approach, Ministry of Textiles set up a sustainability cell, and has proposed a Sustainable Bharat Mission for Textiles (SBM-T) with focus on incentivizing resource use efficiency, setting up of recycling hubs (pre and post-consumer), setting up centres of excellence for textile technology, knowledge management e-portal, and encouraging innovation and start-up excellence. It underlines the importance of collaboration between all stakeholders to unlock sustainable growth potential of the sector.

Aligining with the vision of SBM-T, in the textile sector, the EU-I RECEI project aims to promote sustainable modernisation with scalable and inclusive resource efficiency and circular economy-related policies and practices in India, standards and tools to facilitate the setting-up of sustainable value chains are adopted and promoted.

Activities

To this end, the following activties are planned:

Facilitating Cluster Development through enhanced RE&CE towards CE Value Chains

a. Undertaking assessment study of a selected cluster

b. Undertake consultations with industry stakeholders including Micro, Small & Medium Enterprises (MSMEs) to identify key needs and priorities for RECE including skills gap, traceability measures, existing practices and technologies,

c. Document national and global best practices.

d. Develop resource optimisation tools for MSMEs

e. Undertake training and capacity building on RE tools for MSMEs and industry professionals

Strengthening Circular Supply Chains for Textile Waste

a. Undertak textile flow assessment study including assessing textile waste flows with value-chain analysis covering upstream inputs, midstream sorting, downstream recycling/ repurposing/ landfilling/ incineration pathways

b. Strengthen value-chain for textile recovery models including partnerships at city level and building linkages with existing CE models and practices

c. Enable innovative entrepreneurship model by empowering women entrepreneurs and promoting alternatives for selected SUP-banned items through management of textile waste by repairing/ reuse/ repurpose/ processing/ donation/ reselling programs

Enhancing RE&CE Skilling in the Sector

a. Undertake a current and future RECE Skilling needs assessment

b. Design an RECE skilling toolkit and modules

Promoting Stakeholder Partnerships and Knowledge Exchange

a. Facilitate exchange between start-ups and investors to secure funding, mentorship, and market access.

b. Promote know-how and knowledge exchange between textile clusters with special focus on women entrepreneurship

c. Facilitate partnerships with corporate buyers and sustainable fashion brands to ensure market access.

d. Foster collaboration between EU and India to advance RECE practices.

Contribution to 2030 Agenda

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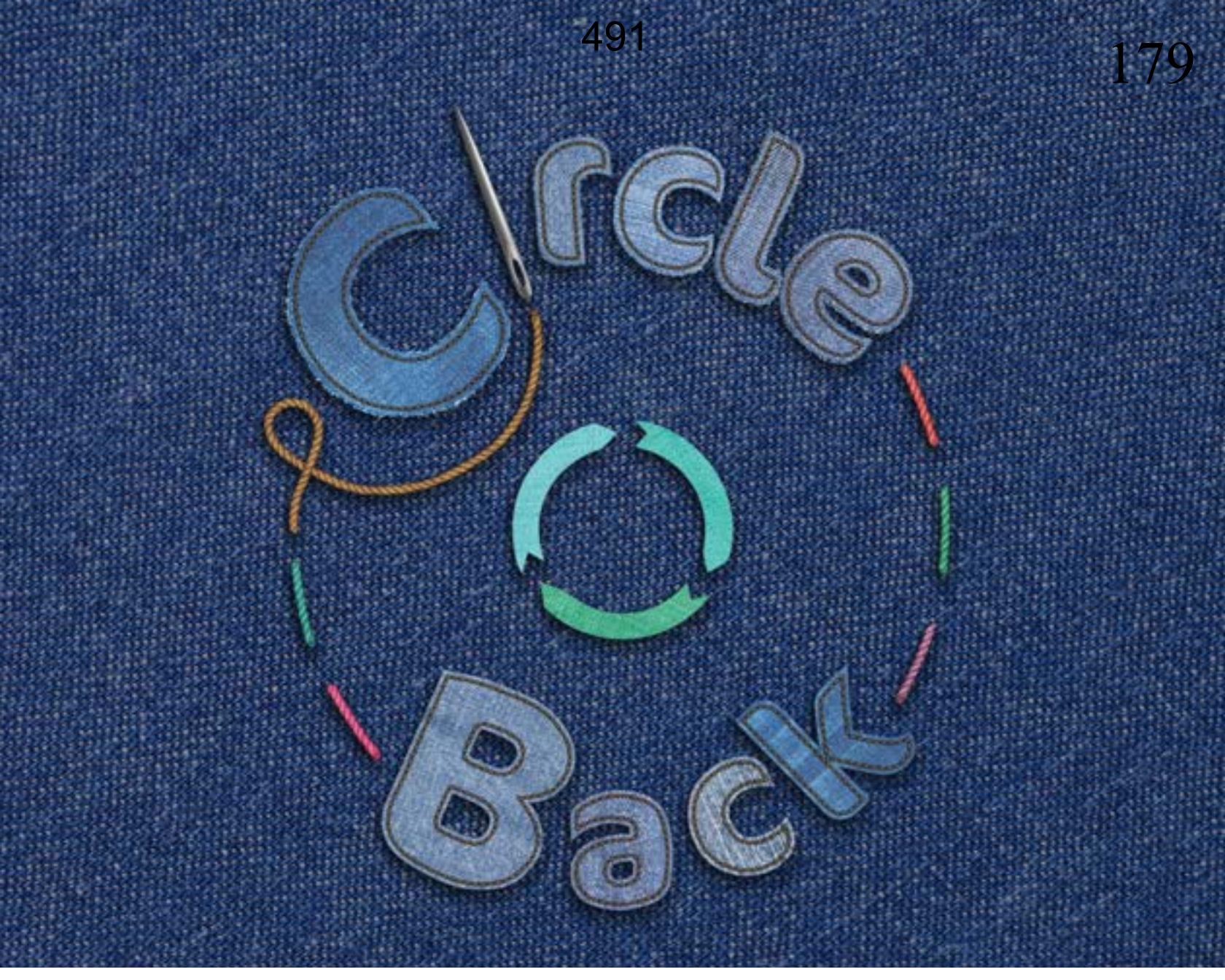
As at February 2025

Scan here,
To know more!

491

179



german cooperation
DEUTSCHE ZUSAMMENARBEIT

Implemented by:

giz

Funding Programme:

Partners in Transformation
develoPPP

Knowledge Partner:

Vertiver
enabling sustainability

वस्त्र मंत्रालय
MINISTRY OF TEXTILES

Circle Back

Message

The textile and apparel industry, a cornerstone of India's economy and its second-largest employer, plays a pivotal role in both socio-economic growth and environmental sustainability. India's textile heritage, rooted is in centuries-old practices of resourcefulness and minimal waste, through traditional methods such as upcycling garments, using natural dyes, handloom weaving, and the culture of mending. Recognizing the importance of these traditional practices, the Ministry of Textiles is now refocusing on enhancing resource efficiency, cleaner production, and embracing circularity across the sector.

The Circle Back campaign, developed in partnership with GIZ India, was conceptualized to align with the Ministry's sustainability agenda. It focused on not only raising awareness and inculcating circular values among the young leaders but also on taking the time to listen to their inputs and ideas.

Circle Back was derived from the ideals laid out by Mission LiFE, a flagship campaign of Ministry of Environment, Forest and Climate Change, which was launched by the Hon'ble Prime Minister during COP26. By aligning with the principle of transforming persons into 'pro-planet people', Mission LiFE promoted environmentally-conscious lifestyles. Representing various such ideas of circularity and sustainability, Circle Back also saw the launch of two-mascots, "Taanka" and "Cut-Put-Li".

Designed to be interactive and experiential for all age groups, especially for our young leaders, Circle Back focused on pushing the boundaries of creativity and imagination. This booklet offers a summary of the activities, outputs, and impact of the campaign, and I hope it serves as a source of inspiration for larger audiences. The Ministry of Textiles looks forward to supporting such interventions in the future.

I appreciate GIZ India for taking up this important initiative and hope that campaign will be furthered to raise awareness in the younger generation and inspire them to adopt an environmentally friendly lifestyle.

Smt. Prajakta L. Verma
Joint Secretary
Ministry of Textilesrbeit (GIZ), India

Foreword

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), is the German development agency working jointly with public and private sector partners in India for sustainable economic, ecological, and social development. On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), GIZ also supports public-private partnerships through its DeveloPPP program.

With a wide portfolio of projects dedicated to sustainability and circularity in India's textile and apparel value chain, GIZ supports engagement and action at multiple levels to demonstrate positive results on the ground. With this spirit, the CircleBack campaign was conceptualised in partnership with the Ministry of Textiles, Govt. of India, and Vertiver, to generate awareness and sensitise the younger generation about textile waste.

The aim was to make the campaign interactive and experiential, and I express my gratitude to the leaders, faculty and students of all the schools and higher education institutions that we partnered with, including the Indian Institute of Technology, Delhi and National Institute of Fashion Technology, Delhi. Additionally, the campaign focused on sharing its insights with sectoral stakeholders and representatives from education governance bodies such as the CBSE and NCERT to create an opportunity for further dialogue and replication.

The CircleBack campaign supported exploration of innovative ideas and creation of a beautiful exhibition with products from discarded textiles. The students' enthusiasm and brilliance were highly appreciated by everyone. We hope this aesthetic compilation of the campaign and its impact encourages our readers to replicate this endeavour in their institutions, at any possible scale. GIZ India looks forward to witnessing this transformation.

Mrs. Meghana Kshirsagar
Senior Advisor
Climate Change & Circular Economy
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), India

Introduction

In a world where the environmental impact of textile waste is becoming increasingly alarming, it is essential to bring together development agencies, government bodies, academic institutions, and technical experts to create a dynamic platform for innovation and action. Such collaborations foster a community of informed and proactive individuals who are equipped to make a tangible difference. This is where the CircleBack Campaign enters the frame.

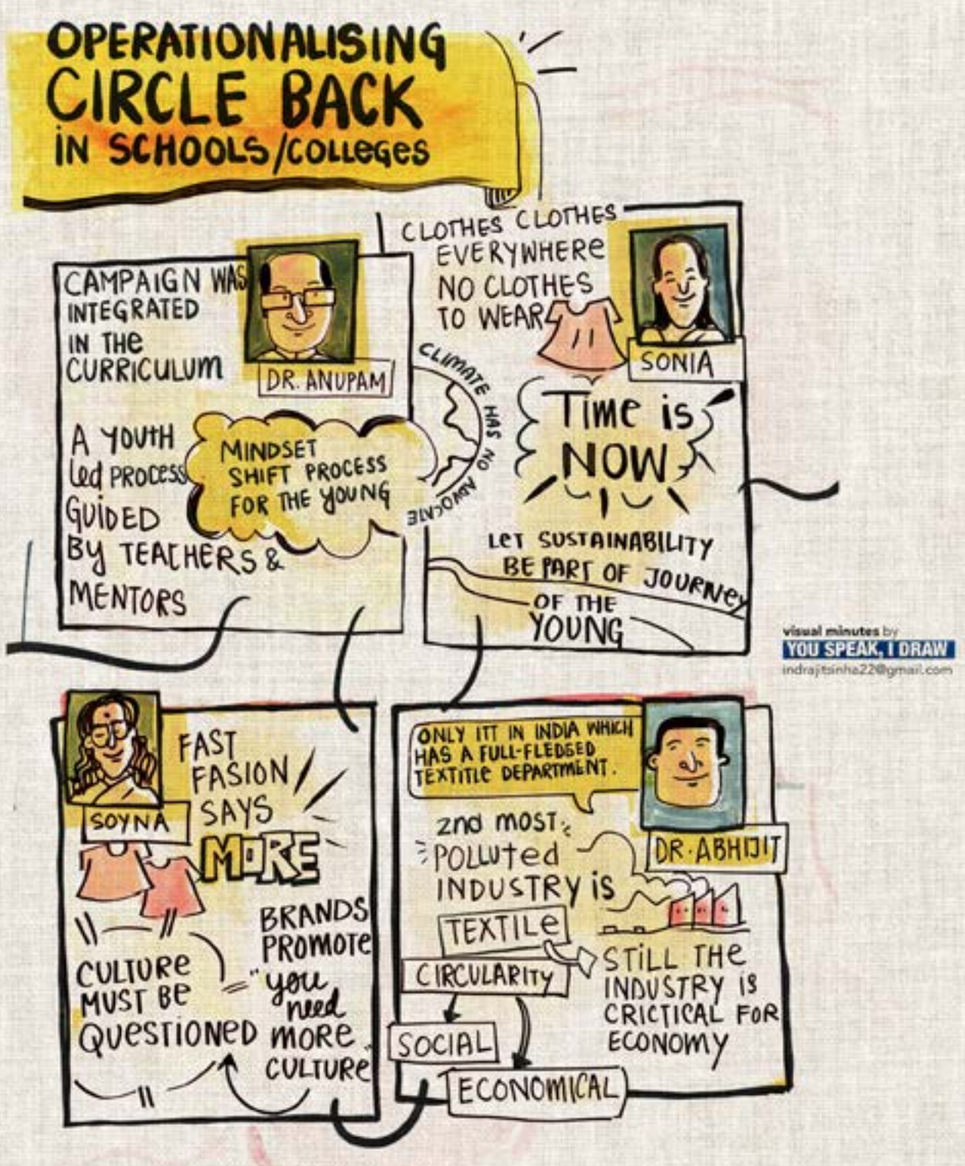
The CircleBack campaign is a call to action. It's about **taking the first step towards a world where waste is minimised, and resources are reused creatively and efficiently**. As you delve into the stories and successes of the campaign, we hope you are inspired to join us in this vital journey. Together, we can weave a more sustainable future, one thread at a time.

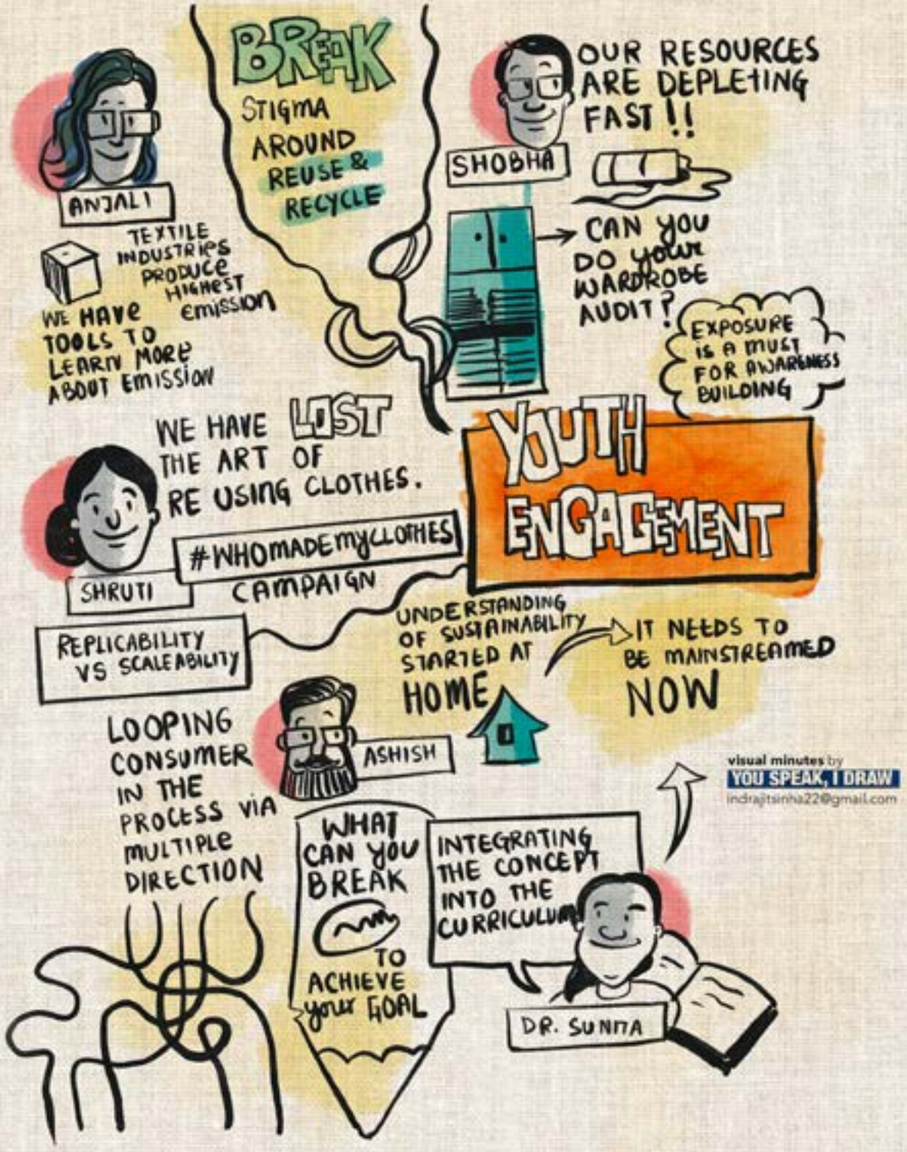
CircleBack is more than just a campaign; **it's a movement towards a sustainable future**. Launched with the vision of transforming the way we perceive and handle post-consumer textile waste, CircleBack seeks to engage, educate, and inspire the younger generation. The goal has been to deeply integrate circularity and sustainability into the core of our society.

Audience

Circle Back aims to create awareness about principles of circularity and sustainability amongst students in schools and higher educational institutes.

This movement seeks to create systemic change by integrating circularity into the design and production processes at the beginning of the value chain, instead of concentrating the burden of textile waste management at the end-of-life stage.

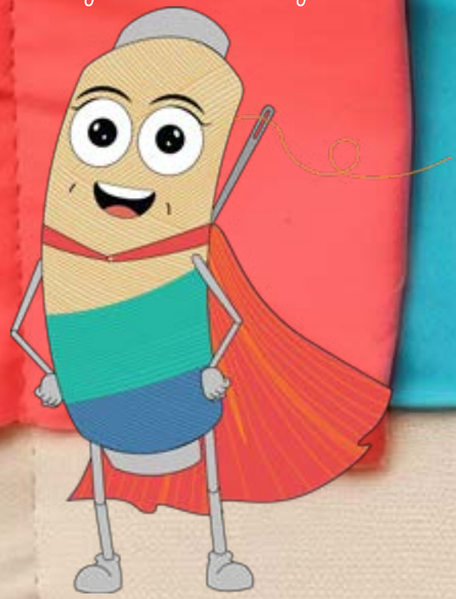

OPERATIONALISING
CIRCLE BACK
IN SCHOOLS/COLLEGES
CAMPAIGN WAS INTEGRATED IN THE CURRICULUM
DR. ANUPAM
A YOUTH led PROCESS GUIDED BY TEACHERS & MENTORS
MINDSET SHIFT PROCESS FOR THE YOUNG
CLOTHES CLOTHES EVERYWHERE NO CLOTHES TO WEAR
SONIA
CLIMATE HAS NO ADVOCATE
Time is NOW
LET SUSTAINABILITY BE PART OF JOURNEY OF THE YOUNG
visual minutes by
YOU SPEAK, I DRAW
indrajitsinha22@gmail.com
SOYNA
FAST FASION SAYS MORE
CULTURE MUST BE QUESTIONED
BRANDS PROMOTE "you need more" CULTURE
ONLY IIT IN INDIA WHICH HAS A FULL-FLEDGED TEXTILE DEPARTMENT.
DR. ABHIJIT
2nd MOST POLLUTED INDUSTRY is TEXTILE
CIRCULARITY
SOCIAL
ECONOMICAL
STILL THE INDUSTRY IS CRICTICAL FOR ECONOMY


ANJALI
BREAK
STIGMA AROUND REUSE & RECYCLE
SHOBHA
OUR RESOURCES ARE DEPLETING FAST!!
TEXTILE INDUSTRIES PRODUCE HIGHEST EMISSION
WE HAVE TOOLS TO LEARN MORE ABOUT EMISSION
CAN YOU DO YOUR WARDROBE AUDIT?
EXPOSURE IS A MUST FOR AWARENESS BUILDING
YOUTH ENGAGEMENT
WE HAVE LOST THE ART OF RE USING CLOTHES.
SHRUTI
#WHOMADEMYCLOTHES CAMPAIGN
REPLICABILITY VS SCALEABILITY
UNDERSTANDING OF SUSTAINABILITY STARTED AT HOME
IT NEEDS TO BE MAINSTREAMED NOW
LOOPING CONSUMER IN THE PROCESS VIA MULTIPLE DIRECTION
ASHISH
WHAT CAN YOU BREAK TO ACHIEVE your GOAL
INTEGRATING THE CONCEPT INTO THE CURRICULUM
DR. SUNITA
visual minutes by
YOU SPEAK, I DRAW
indrajitsinha22@gmail.com

Mascot

Taanka embodies the needle and thread with best tal-mel (coordination) - a dynamic duo on a mission to bring fabrics back to life! These magical tools don't care about the colour, the age, or the wear and tear of the fabric—they're here to stitch, mend, and transform ordinary cloth into something extraordinary.

Taanka's mission is to inspire us not to judge a fabric by its appearance, but to see it through the eyes of imagination. She wants to motivate us to **get creative and give old fabrics a new identity, breathing life into them with a touch of repair and a dash of imagination!**



Cut-Put-Li, a distinctive mascot, face expressions inspired from phad painting, crafted from wood, unlimited repurposed threads , fabrics, and patches, which also have needle as a tool to recreate, serves as a unique symbol promoting recreation, imagination, and an eco-friendly ethos on the path towards circular textiles.

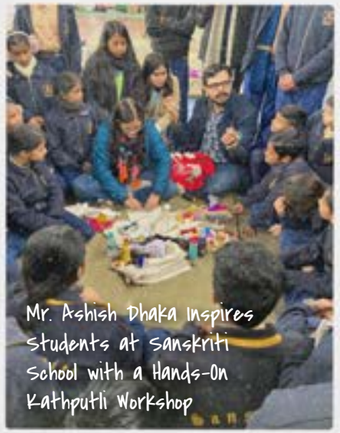
Inspired by traditional Kathputli puppetry, **Cut-Put-Li symbolises a departure from mainstream fashion trends.** It encourages mindful choices that contribute to creating a better, more sustainable world.

Institutions

An Outstanding Response to the Campaign at The Mother's International School

Students at Dr. B.R. Ambedkar School of Specialized Excellence Creating Kathputlis

The Exceptional Craftsmanship Behind Each Kathputli



Mr. Ashish Dhaka Inspires Students at Sanskriti School with a Hands-On Kathputli Workshop

Institution Partners

Institution Partners

Insightful Seminar Held at the Indian Institute of Technology (IIT), Delhi

A Rich Array of Engaging Sessions with Design Students at the National Institute of Fashion Technology (NIFT), Delhi

The Joint Secretary, Ministry of Textiles, Explores Innovative Approaches to Circularity

Enthusiastic Students Sharing Stories About Their Kathputlis and Creations

A Few More Adorable Kathputlis

CircleBack Symposium

Insights from Policy Makers

CBSE and NCERT Representatives in Dialogue on Integrating Sustainability into the Curriculum

CircleBack Symposium

Engagement

Conversations with the Ministry of Textiles, schools and colleges, innovators, designers and NGOs

Campaign results

6505

PEOPLE ENGAGED

through social media campaign

500+

IMPRESSIONS

on social media

1000

STUDENTS IN CONVERSATION

over 200 pursuing higher education

350

KATHPUTLIS

crafted using used/discarded textiles and decorative material from their homes

25

FACULTY MEMBERS

engaged with the campaign and committed to continuing the dialogue

45

RESEARCH POSTERS

on the importance of re-purposing post-consumer textile waste

11

COUTURE OUTFITS

designed with post-consumer textile waste

"Sustainability and circularity are a response to solving and resolving problems related to the environmental impact of our actions,"

"For any change to happen we must **equip our stakeholders with information**. What we communicate and how we communicate, plays an important role," adding "**the key lies in understanding our consumers**. And these consumers don't mean some remote third person, it includes all of us. **The choices we make**, & how we make those choices and what are the reasons we make them."

MS. PRAJAKTA L. VERMA
Joint Secretary, Ministry of Textiles

"We try to tell the **youth of the country**, what the **importance of reducing and reusing** is. Until the time we don't inculcate a sense of pride in the students that they are doing a great service to society by reducing waste, we won't be able to **generate ownership** in them with respect to circularity."

MR. HIMANSHU GUPTA
Secretary CBSE

"We chose to work with schools and academic institutions because **empowering youth is essential to driving sustainability.** By collaborating with Government institutions and private partners, we're laying the building blocks required for the **transformative change needed to tackle post-consumer textile waste**.

MS. MEGHANA KSHIRSAGAR
Senior Advisor, GIZ India

Engaging with schools and academic institutions was imperative because **every piece of textile carries a story.** By involving young minds, we are inspiring them to **reimagine these stories through the lens of sustainability and circularity**, turning the conventional into something transformative."

MR. ASHISH DHAKA,
Co-founder, Beyni Boi and
Faculty, Pearl Academy of Design

"This campaign has offered **our students invaluable hands-on experience in promoting sustainability**, and the success of their upcycling projects has been truly inspiring. We're **eager to continue these activities next semester and take this initiative even further**."

DR. ANUPAM JAIN
Director, NIFT Delhi

"The workshop made us **question our habits**. Students now want to create more, and it has **facilitated conversations on circularity in our school**, which is now reflected in the students' actions as well."

MS. SONIA SIKKA
Vice-Principle, Dr. BR Ambedkar
School of Specialised Excellence

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Campaign Partner: Vertiver Pvt. Ltd.

Design: Daalcheeni

Photo credits: GIZ India, Vertiver Pvt. Ltd.

On behalf of
GIZ India

New Delhi, 2024

"You cannot get through a single day without having an impact on the world around you.

What you do makes a difference, and you have to decide what kind of difference you want to make.'

– Jane Goodall


The climate really
intra — recycle
Delhi International Airport
Ltd enters into a deal
with an NGO which will
recycle the waste paper
generated in its offices

InTex India

www.unep.org/intex-india

InTex India

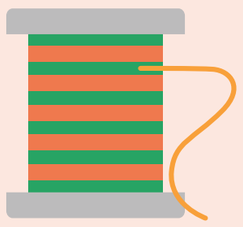
Ministry of Environment of Denmark

वस्त्र मंत्रालय MINISTRY OF TEXTILES

UN environment programme

What is InTex India?

The project **'Accelerating the Transition of the Indian Textile Sector towards Circularity'** (InTex India) is a four-year UNEP project funded by **Denmark** and implemented in collaboration with the **Government of India's Ministry of Textiles**. InTex India aims to accelerate the transition of the Indian textile sector towards circularity.



Why?

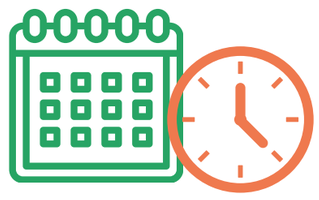
- The textile sector is crucial for India's economy and workforce. In an interconnected global value chain, integrating circular practices will improve the sector's competitiveness and market access. India's textile clusters are a particularly effective method to speed India's transition to circularity.

The UNEP Textile Initiative

- InTex India is part of the **UNEP Textile Initiative**, contributing towards UNEP's overall goal of transforming towards a circular textiles value chain through policies, financial measures, advocacy, and industry practices and norms.

- InTex India will contribute to all the three areas of focus for UNEP: **scaling circular business models**, **addressing overconsumption and overproduction, and eliminating hazardous chemicals.** It builds on the approach already demonstrated in the UNEP EU-funded InTex project, and fosters South-South collaboration with the African countries of this project.

Project duration



From December 2023 to September 2027

" Achieving circularity in textiles will require entirely new business models and conducive policy frameworks to evolve from an industry producing large volumes of disposable items, to one producing valuable items that remain in use for a long period before being repurposed or recycled. "

(UNEP 2020, **Sustainability and Circularity in the Textile Value Chain - Global Stocktaking**, www.unep.org/resources/publication/sustainability-and-circularity-textile-value-chain-global-roadmap)

3 key concepts

Eco-innovation

UNEP's **Eco-innovation approach** guides SMEs in incorporating circularity and resilience into every aspect of their business strategy and underlying business models, operations, products, and processes to reduce the environmental and social impact of human activity.

This results in an agile, reactive, and competitive company. UNEP provides a manual, sector guidance, and other tools to apply the eco-innovation approach. The UNEP eco-innovation website can be found here: http://unep.ecoinnovation.org/

Product Environmental Footprint

The **European Commission's Product Environmental Footprint (PEF)** measures the environmental performance of a good or service throughout its life cycle (from extraction of raw materials, through production and use, to final waste management).

As it is a standardized methodology, SMEs can gain competitive advantage and credibility by using PEF, providing a robust way for consumers to compare the environmental footprint of their products to that of similar products or to the European benchmark.

Circularity

Circularity provides a model to transform the current economic system towards a sustainable future.

As outlined in the **UNEP circularity platform** (www.unep.org/circularity) circularity's underlying objective is that materials should be kept at their highest possible value as they move and are retained within the value chain. Circularity builds on a guiding principle: "Reduce by design", as well as value-retention processes: Refuse, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose and Recycle.

InTex India

WHAT

The project will work with the **industry at brand level** and in **two textile clusters in India**:

- Support SMEs in clusters to calculate their Product Environmental Footprint (PEF)
- Support SME brands to implement and communicate about circular business models

With the **India Government**, the project will:

- Build capacity and support the development and implementation of circular textile policies.
- Create convening opportunities for government, companies and organisations to coordinate and align on circular textiles ambition at national, regional and global level.

WHO

- **Businesses**, particularly SMEs, must integrate life cycle approaches into their business practices and implement circular business models if they are to not only stay ahead of increasing environmental regulations but improve their competitiveness and market access.

- **The Indian government** has set high ambitions for the competitiveness of its textile sector and its sustainability performance; it is also looking to match this with a suite of policies and instruments that not only encourage a shift towards competitive circularity while taking into account the needs of SMEs.

Why India?

India is the third-largest exporter of textiles globally, with a share of 5% of global trade. **The textiles sector in India accounts for approximately 2.3% of India's GDP** and is India's **second-largest employer**, employing 40-50 million people across the value chain.

Women represent 39% of India's textile workforce, making it a significant sector for the introduction of gender responsive measures and improvements.

How will SMEs benefit from the project?

Knowledge building

- Learn about eco-innovation, PEF and circular business models and how to market those
- Gain access to tools and guidelines that can help make your business more sustainable, circular and resilient

Data analysis

- Learn how to calculate and communicate the environmental footprint of your textile product
- Access PEF-compliant LCA datasets, learn how to collect relevant LCA data and generate PEF studies

Technical assistance

- Develop a new business strategy and underlying business models, and receive support in implementing these and communicating about them to consumers, following UNEP's eco-innovation approach
- Get support in analyzing your product environmental footprint to guide decision-making on improved product design and manufacturing.