

Promotion of Countermeasures against Marine Plastic Litter in Southeast Asia and India

Final Narrative Report

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Promotion of Counter Measures against Marine Plastic in Southeast Asia and India-(*Final Narrative Report*)

Mumbai: The Energy and Resources Institute.

For more information

Dr. Anjali Parasnis
TERI
318, Raheja Arcade,
11, CBD Belapur
Navi Mumbai – 400703

Tel. 27580021
E-mail anjalip @teri.res.in Sec-
Fax: 27580022
Web www.teriin.org India
India +91 • Mumbai (0)22

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1. Executive Summary

Accumulation of waste plastic on land, fresh water and marine ecosystems has become a grave issue necessitating urgent attention of all the stakeholders. Globally, countries are formulating policies and drawing up road maps to tackle the issue of plastic- the synthetic material of the century.

With increasing urbanization and industrialization, applications of plastic in our daily lives are inevitable. With a huge population of around 7 billion people on this planet, no natural source would be able to fulfill the essential requirements of packaging material, medical devices, fabric, automobiles, electronic equipment, satellites, and so on. Thus, in this age of Information technology, advanced communication and automation, appropriate handling of plastic with critical due diligence to procurement, reuse, recycle, and disposal could be the only way out to this global concern.

The above could be achieved through public awareness, policies, appropriate infrastructure and robust research and development of scientific methodologies adopted at every stage of the process. Also, there is a need for collaborative action and combined efforts by government organizations, NGOs and citizens at the local, regional national and international levels to achieve the same.

In one such effort UNEP implemented the project 'Promotion of countermeasures against marine plastic litter in Southeast Asia and India'. Mumbai, being a coastal metropolitan city was one of the project locations in India.

TERI, as the outreach partner of UNEP for the project in Mumbai region, designed and implemented an action-oriented campaign '**Rethink Plastic**'. It focused on encouraging public participation to demonstrate and promote multiple reuse of waste plastic, encourage people to pledge against single use plastics and assess the public perception towards use and management of plastic. The campaign reached out to more than 20,000 individuals including local residents, active citizen group, corporates industrial organizations and academic organization and research institutes. The outreach activities conducted were:

1. **Training of Trainers:** to train students as trainers who would further reach out to their peers and intuitions to raise awareness about the problem of plastic pollution and encourage plastic reuse and recycle.
2. **Treasure Hunts:** to collect waste plastic bottles and saplings of native tree species growing along roadsides and in cracks and crevices of buildings and walls

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3. **Sapling plantation in waste bottles by volunteers:** to demonstrate effective reuse of waste plastic bottles and nurtures the planted saplings in these bottles. Later these saplings can be used for afforestation.
4. **Awareness workshops in colleges:** to create awareness about plastic use and management among the youth, gain insights about their views on plastic pollution and ways to tackle the same and engage them in the campaign activities.
5. **Waste Collection and characterization activity:** It was conducted along different marine ecosystems- mangroves (Vashi, Navi Mumbai), rocky beach (Chimbai Beach, Bandra) and creek (Gorai Creek, Charkop). The activity was done to assess the amount and type of plastic wastes entering the marine ecosystems through the leakage hotspots.
6. **Roundtable discussion:** A roundtable discussion on 'Plastic pollution and role of stakeholders' was organized. It was attended by expert representatives from academia, industries, corporates, NGOs, Civil Society Organizations and Grassroot stake holders like ferry boat owners and fishermen.
7. **World Wetlands Day 2020 Event:** Over 300 participants including delegates from NMMC, UNEP and TERI, local citizens, National Service Scheme (NSS) volunteers and college students attended the event
 - The event was organized to mark the celebrations of WWD and sensitize the community about plastic pollution in wetlands and their role in countering this concern.
 - Activities like panel discussion, making roadmap against plastic pollution, poster making, rangoli making and more were organized.
 - **Braille Book:** A draft of the braille book 'Introduction to Plastic Pollution' developed by TERI was handed over to representatives of the Hellen Keller Institute for Deaf and Deaf blind by Shri. Annasaheb Missal, Hon'ble commissioner, NMMC.
 - **Handing over of saplings:** On World Wetland Day 2020, 100 saplings were given to the Hellen Keller Institute of Deaf and Deafblind and 50 were given to Mr. Shripad Lele, a resident of Navi Mumbai. They will nurture the saplings and use them later for afforestation.
 - **Felicitation of citizens:** 5 citizens were facilitated for their exemplary action towards environmental betterment.
8. **Touch and feel kits for the visually challenged:** In addition to the Braille book, TERI also developed 2 touch and feel kits to explain the concepts 'Plastics in food chain' and 'Alternatives to plastic'.
9. **Pledge against single use plastic:** TERI reached out to individuals and organizations through online means (Google forms and emails) and awareness programmes, and urged them to pledge against single use plastics. More than 2000 Individuals took the pledge

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10. **Perception survey:** A perception survey was conducted to assess the perception of individuals about plastic use and management. The survey was conducted online using Google forms and QR code as well as through face to face interaction. More than 860 individuals responded to the survey.

Highlights of these activities are summarized in the visual below:(Figure No. 1)

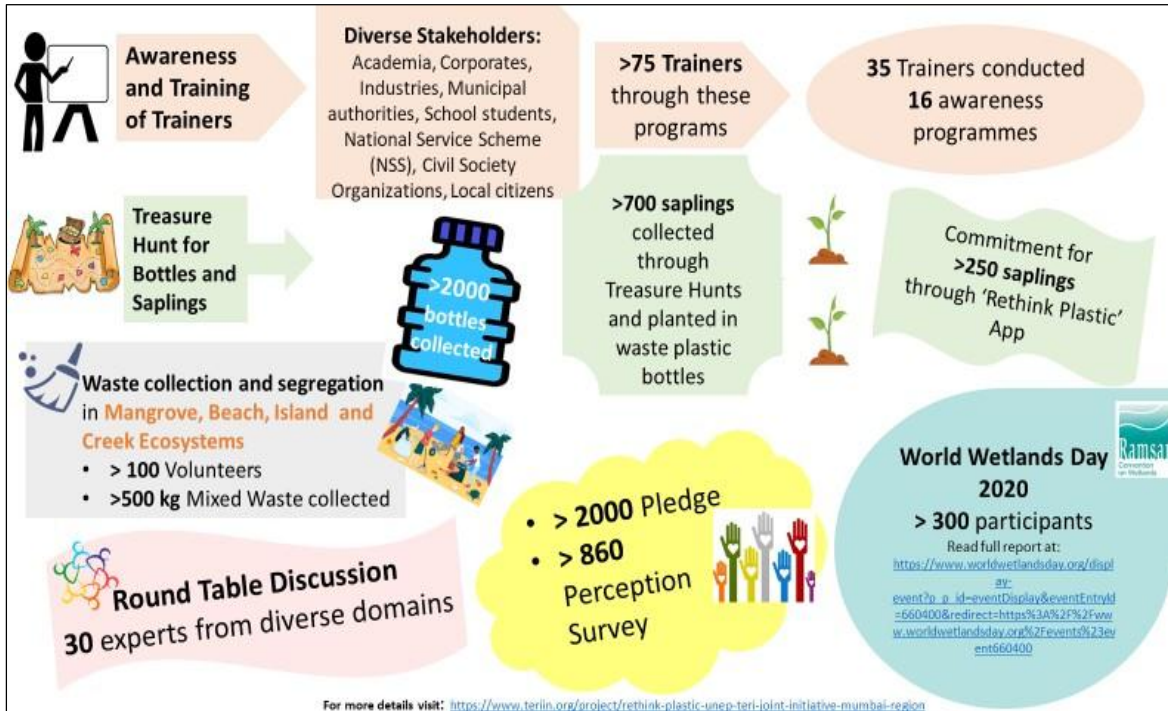


Figure No. 1: Highlights of activities conducted under the Rethink Plastic Campaign

2 City context/profile, objectives, scope of work and methodology

2.1 City Context:

Mumbai is an Indian coastal mega city also known as India's commercial capital; and is home to numerous small- and large-scale businesses, industries, educational institutes, government offices and private enterprises. Mumbai generates around 243 metric¹ Tonnes per day of plastic waste which is enough to completely fill up 500 shipping containers (size: 20 ft x 8 ft x 8.6 ft)² Lack of proper disposal methods and mismanagement cause a significant amount of this plastic to end up in the sea, which during storms and high tides is dumped back on the shore³. Plastic waste adds to the misery of Mumbai residents in the monsoons by clogging drains and sewer lines leading to water logging during monsoons⁴

Further, Mumbai has diverse marine ecosystems like sandy beaches and rocky coasts along with large mangrove stretches (66 sq. km.) along the creeks⁵. There are numerous concerns about usage and disposal of non- biodegradable materials, especially plastic. These include plastic accumulation in landfills, water bodies and natural habitats, leaching of chemicals from plastic products and breakdown of plastics into micro plastics that enter the food chain; and physical problems for animals and birds in the form of ingestion or entanglement in plastics. Thus, with the diverse marine ecosystems and huge population, Mumbai was a suitable location for implementing the said project on countermeasures for plastic pollution. TERI as the outreach partner of UNEP for the project in Mumbai, implemented an action oriented campaign 'Rethink Plastic '

1.2 Objectives of the campaign:

- To raise awareness about marine plastic litter (its sources, impacts and counter measures) among all stakeholders and instill a sense of commitment towards the environment through various outreach activities based on an action oriented approach.
- To encourage stakeholders to pledge against the use of single use plastics.
- To demonstrate and promote multiple reuse and responsible disposal of plastic waste while preventing plastic litter from entering the marine environment.
- To reuse at least 50000 waste plastic bottles to raise saplings of native trees (Peepal, Banyan, Fig, etc.) to offset the carbon footprint towards production of the plastic bottles
- To handover the saplings to interested groups/ organizations for further nurturing and afforestation

¹<https://portal.mcg.gov.in/irj/go/km/docs/documents/MCGM%20Department%20List/Environment/Docs/MCGM%20ESR%20English%20Report.pdf>

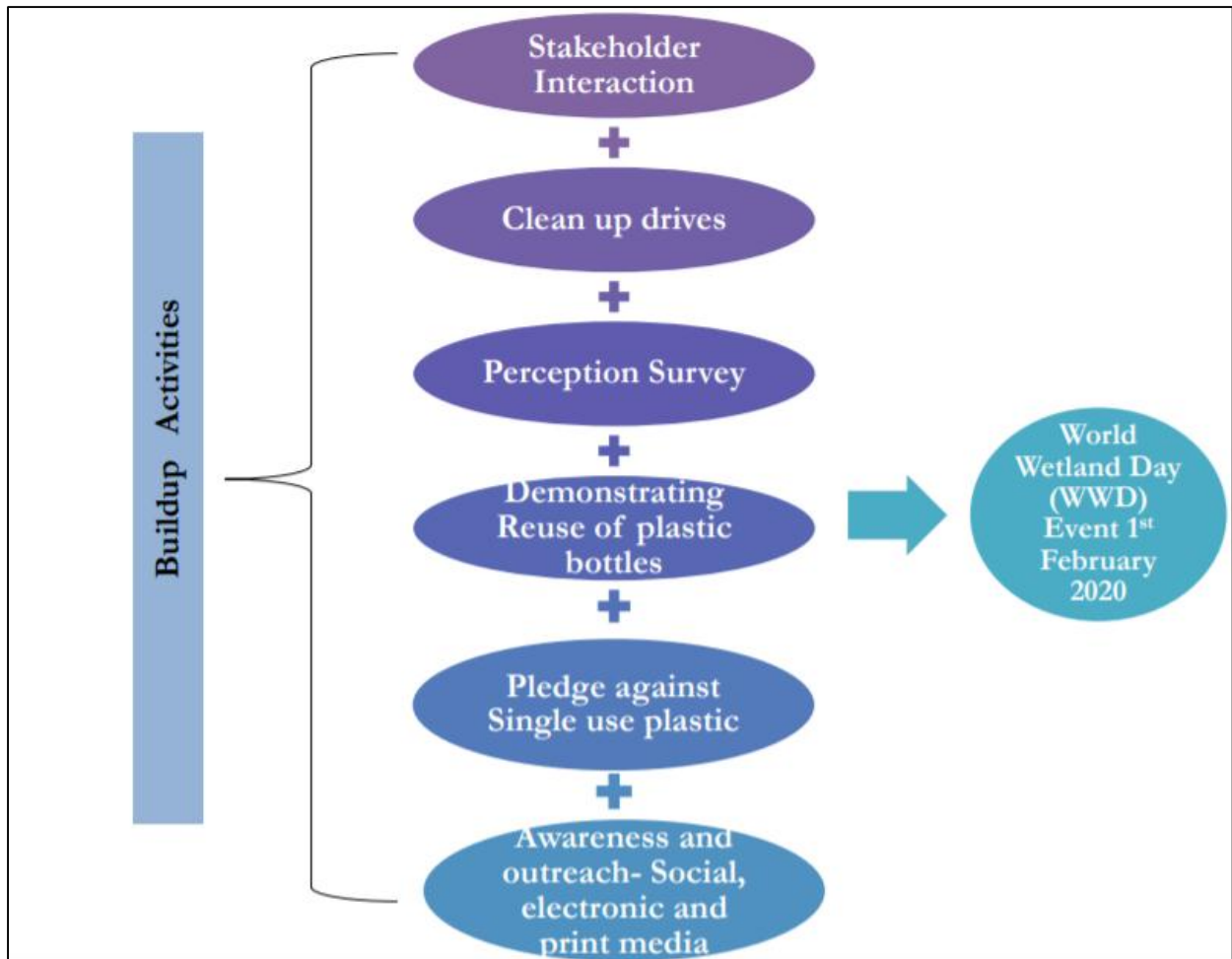
²<https://www.earthrelocation.com/container-dimensions>

³<https://www.cntraveller.in/story/mumbai-gets-its-annual-reminder-from-the-arabian-sea-marine-drive-juhu-beach/>

⁴<https://www.firstpost.com/india/mumbai-rains-environmentalists-say-flooding-will-persist-as-long-as-ill-planned-construction-plastic-pollution-continue-6965441.html>

⁵<http://fsi.nic.in/isfr2017/isfr-mangrove-cover-2017.pdf>

2.3 Methodology



Picture No. 1 Approach for the campaign

3 Perception Survey study

The survey was conducted as an attempt to get an insight of people's perception about use of plastic in daily lives, management of plastic waste at household level and awareness about the impacts of plastic pollution, and alternatives to plastic. More than 860 respondents took the survey.

3.1 Methodology

The surveys were conducted through online mode using Google Forms (<https://drive.google.com/open?id=1A-VksO-GT6tZGDOF2cBr90GrTp83wohCPfyAiWyNDbM>) and through face to face interaction with respondents. Link of the Google form was shared through emails and QR codes. The face to face interactions were done with the help of volunteers from national Service Scheme (NSS) Units of various colleges in Mumbai. Over 600 responses were received online and nearly 200 surveys were conducted in person.

1.3 Demographics

A. Age group:

<20 years- 42.7%
20 -29 years- 43.4%
30- 39 years- 6.6%
>40 years- 7.3%

B. Gender:

Female- 52%
Male- 48%

C. Education:

Graduation- 70.3%
Post graduation and above- 20.3%
Senior secondary schooling- 8.8%
Secondary schooling- 0.6%

1.4 Perception of respondents

96% respondents considered plastic to be a problem for health and environment
80% respondents perceived that plastic can be recycled
85% respondents preferred using cloth bags over paper and plastic bags for shopping
74% respondents perceived that charging a price for plastic bags would be effective in reducing the usage of plastic carry bags
56% respondents practiced segregation of biodegradable and non-biodegradable wastes
60% respondents were aware about micro plastics and their impacts

4 Clean up activities and Campaigns

4.1 Site description and Its Rationale

By looking at Mumbai's diverse ecosystems/habitats, 3 waste collection and characterization (clean up) activities were organized under the counter measures project by TERI in association with National Productivity Council (NPC). The information about these cleanup activities are collated in Table No. 1

Table No. 1: Brief information on Cleanup activities conducted under the Counter measures project

Date	Site and Habitat	Ecosystem/ Habitat	Rationale of Site selection
02.11.2019	Sagar Vihar, Navi Mumbai (Pilot scale)	Mangrove Ecosystem	<ol style="list-style-type: none"> 1. Mangroves act as buffer against extreme weather events such as hurricanes, coastal floods. 2. They Stabilize coastline and slows down soil erosion rate 3. Act as source of livelihood for local communities – fishing, collection of honey, tannins and wax⁶ 4. But in today's scenario, this pristine ecosystem is turning into waste dumping location. 5. Waste, especially plastic litter proves to be a grave threat as it gets accumulated and is retained in the mangroves for long periods Further, debris of plastic wastes also interfere with biological interactions in the mangrove ecosystem 6. Hence, the event was organized in order to clean up mangrove sites with the objective of creating awareness about marine litter, especially plastic, and the importance of waste segregation, along with removal of waste from the mangrove areas
03.12.2019	Chimbai beach, Bandra, Mumbai	Beach Ecosystem	<ol style="list-style-type: none"> 1. Chimbai beach is part of Chimbai village and it's one of Koliwada (fishing village) located in the western suburb of Bandra. 2. Village consists of a bunch of small houses constructed in a congested settlement pattern and have small lanes on the sea front 3. Poor waste management in Chimbai village is one of the major causes leading marine litter on the sea front.
02.03.2020	Charkop, Mumbai	Creek Ecosystem	<ol style="list-style-type: none"> 1. The site at Charkop, a low lying area, near Gorai creek, where water gets collected during high tides is

⁶ <http://fsi.nic.in/isfr2017/isfr-mangrove-cover-2017.pdf>

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Date	Site and Habitat	Ecosystem/ Habitat	Rationale of Site selection
			<p>one such point, where all types of waste from the nearby area is disposed.</p> <p>2. This area is surrounded by slums from 3 sides wherein most of the waste gets dumped directly by the dwellers into this patch of water body</p>

Along with these cleanup activities, TERI, on the occasion of World Wetlands day (02.02.2020) conducted only waste collection drive (no segregation) at Sagar Vihar, Vashi, Navi Mumbai.

4.1.1 Overview of Waste collection

Table No. 2: Overview of Waste collection

No.	Location	No. of Volunteers	Number of Bags used	Amount of Waste collected in Kg
1	Sagar Vihar and Mini Sea Shore (Pilot scale)	18	17	281
2	Chimbai beach, Bandra, Mumbai	34	8	126.65
3	Charkop, Mumbai	15	8	59.001
4	Sagar Vihar (World Wetlands Day Event)*	85	18	100

*: During the World Wetlands Day (02.02.2020), only waste collection drive was organized.

4.1.2 Before and After Scenario (Cleanup activities)



Picture No. 1: Before and After cleanup scenario at Mini Sea Shore, Navi Mumbai

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Picture No. 2: Before and After cleanup scenario at Sagar Vihar, Navi Mumbai

Note: At this particular location, due to site conditions only accessible areas were covered for clean up

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Picture No. 3: Before and After cleanup scenario at Chimbai beach, Bandra, Mumbai

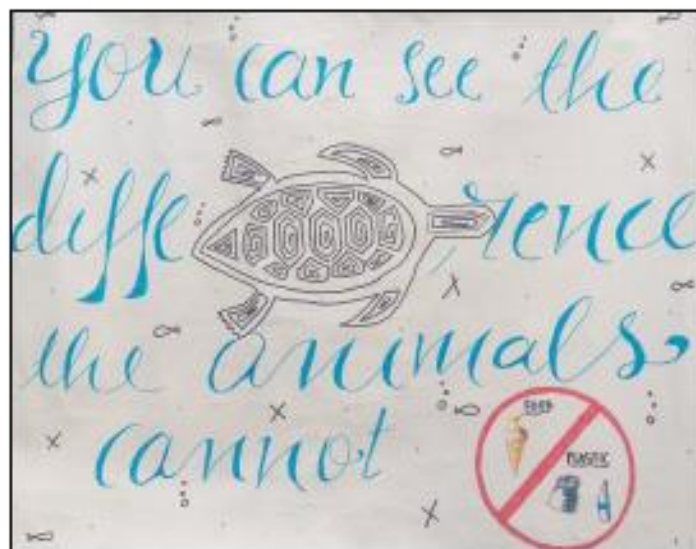
Note: Bamboos were used to mark the grid area

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Picture No. 4: Before and After cleanup scenario at Charkop, Mumbai

4.2 Outreach materials (used during cleanup activities)



Picture No. 5: Posters prepared by school students depicting awareness messages



Figure No. 2: Banner used during all clean up activities conducted under the counter measures project

4.3 Other Activities under the Rethink Plastic Campaign

4.3.1 Outreach event at Gateway of India and Gharapuri Island

TERI organized an outreach event at Gateway of India and Gharapuri Island on 22nd January 2020 with active participation of student volunteers from the **NSS Unit of Kishinchand Chellaram (K.C.) College, Mumbai**. The activity was organized as part of the TERI- UNEP (United Nations Environment Programme) campaign 'Rethink Plastic'.

15 NSS volunteers, along with **Dr. Satish Kolte, District Coordinator, NSS, Mumbai City** and **Mr. Kedarnath Ghorpade (Urbanist and Researcher)** joined the **TERI team** for the following activities:

1. Perception survey through interviews of locals and tourists on 'Plastic use and management'
2. Collection of waste plastic bottles- to be reused for raising and nurturing saplings of native trees
3. Encouraging individuals to take a pledge against single use plastics

The volunteers were first briefed by the TERI team about the project and the issues the project was aiming to address, such as plastic pollution, micro plastics, toxic chemicals that leach out from plastics, and their impacts on health and environment. The volunteers were then divided into teams led by TERI representatives to conduct the survey by approaching different groups of people. The teams also collected waste plastic bottles from the vicinity to re-use as sapling planters.

The enthusiastic volunteers actively also participated in the perception survey and took the pledge against single use plastic too. Through the activity, **more than a 100 people** were surveyed and their answers and observations recorded. The survey was conducted in English, **Hindi** along with the local language **Marathi**, to aid the respondents and obtain the most accurate responses and also maximize the outreach potential. The volunteers successfully collected **over 200 waste plastic bottles** from the Gharapuri Island that would have otherwise gotten added to the trash in the area. The action oriented outreach activity not only fulfilled its objectives but also motivated the young participants to stop using non-recyclable plastic and actively participate in the upcoming campaign activities.

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Picture No. 6: Volunteers at Gharapuri Island



Picture No. 7: Volunteers conducting perception survey at Gharapuri Island (left) and treasure hunt for waste plastic bottles (right) on island

4.3.2 World wetlands Day 2020 Event

On the occasion of WWD 2020, TERI organized a half day event on 2nd February, at Veer Savarkar Udyan, Sagar Vihar; Vashi that had the backdrop of the mangroves and Flamingoes. The event was part of the 'Rethink Plastic' campaign being implemented in Mumbai as part of UNEP's 'Counter measures project'.

Shri. Annasaheb Misal, IAS, Hon'ble commissioner, NMMC, was the Chief Guest for the event. Over 300 people including citizens, officials from UNEP, NMMC and TERI, students as well as NSS volunteers participated in the event. Key highlights of the event are:

□ TERI has specially created Google forms and Rethink Plastic App to take pledge, perception survey and register the contribution of saplings raised in waste plastic bottles. QR codes and links of the same were displayed, keeping in mind the tech savvy young participants and the motto of saving paper. The campaign has received more than 860 responses to the Perception survey; more than 2000 individuals have taken the pledge against single use plastic and commitment for over 600 saplings has been received.

1. TERI has committed to develop a **Braille book** on the theme of the campaign and the draft was handed over to a representative of Helen Keller Institute for deaf and deaf blind, Navi Mumbai.
2. **150 saplings** raised in waste plastic bottles were handed over to Helen Keller Institute for Deaf and Deaf blind (100), and Mr. Shripad Lele (50). They shall nurture the saplings at institutional and individual levels respectively; and later use it for afforestation.
3. 5 individuals carrying out exemplary action toward environmental betterment were **felicitated**
4. Volunteers drafted **Roadmap to tackle plastic pollution** in Maharashtra by the year 2030.
5. A **panel discussion** was organized to obtain insights from experts and youngsters on the issue of 'Plastic Pollution'. Outcomes of these interactions shall be included in the policy recommendation that will be submitted to the Hon'ble Chief Minister of Maharashtra to develop a roadmap against plastic pollution in the state.
6. Cleanup of mangroves: volunteers collected **over 100 kg of plastic** and handed it over to NMMC for disposal. This was highly appreciated by the Hon'ble Commissioner, NMMC.
7. The TERI team made a **collage using waste plastic material**
8. 10 Volunteers used old bottle caps to display the message '**Save Oceans**'
9. 40 Volunteers participated in rangoli making, poster making and warli painting on the theme '**Save Wetlands from Plastic Litter**'
10. Ms. Neeta Karnik of 'Aapli Pishvi' initiative displayed the **cloth carry bags** made by her team of women volunteers, **using old clothes** like sarees and dupattas.
11. **25 volunteers** planted saplings of native trees in waste plastic bottles.
12. Healthy snacks- Millet Idlis and fruit salad were served, in line with TERI's promotion of healthy food for nutrition security.

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Picture No. 8: Group Photo of representatives of Helen Keller Institute for Deaf and deaf blind and NSS students displaying the message 'Save Oceans' made using caps of waste plastic bottles (Top); Cleanup in the mangroves (Bottom Left); Hon'ble Commissioner (NMMC) handing over draft of Braille Book on Plastic Pollution to representatives from Helen Keller Institute for Deaf and deaf blind (Bottom right)



Picture No. 9: Participants making Posters (Left) and Rangoli (Right) on the theme 'Save Wetlands from Plastic Litter'.

5 Training and Workshops

5.1 Details of training conducted

5.1.1 Awareness and Sensitization Programme and Training of Trainers (ToTs):-

Table No. 3: List of Awareness workshops and ToT conducted by TERI

NO.	List of awareness Workshops	No. of Participants
1	Thane Belapur Industrial Association (TBIA) ,Navi Mumbai	11
2	Institute of Science (IoS), Mumbai	7
3	R. D. National College	300
4	K.C. College, Mumbai	102
5	Maharshi Dayanand College, Mumbai	100
Total Participants		520
No.	List of Training of Trainers sessions conducted*	No. of Participants
1	Orientation Programme – Karmaveer Bhaurao Patil (KBP) college, Vashi, Navi Mumbai	30
2	KBP college, Vashi, Navi Mumbai	30
3	ICLES Motilal Jhunjhunwala college, Navi Mumbai	17
Total Participants		78

*: Further total 35 trainers from above mentioned participants conducted 17 ToT sessions in their respective colleges thereby continuing the chain of creating new trainers and creating awareness on plastic pollution specifically Single use plastic



Picture No. 10: ToT conducted at KBP college, Navi Mumbai (left) and Group of NSS volunteers at KC College, Mumbai during an Awareness workshop

Table No. 4: Important links related to Awareness workshops and ToTs

NO.	Topic	Links
1	ToT presentation	https://www.teriin.org/sites/default/files/files/Annexure_B2_ToT-Presentation.pdf
2	Informative booklet by TERI	https://www.teriin.org/sites/default/files/files/Annexure_B4_Informative-booklet_TERI-UNEP_%20Rethink-Plastic-Campaign_2019-2020.pdf
3	Awareness programme and ToTs	https://www.teriin.org/sites/default/files/files/Annexure_F_Awareness-Programmes-and-ToT.pdf
4	ToTs (by Trainers)	https://www.teriin.org/sites/default/files/files/Annexure_G_Tot-By-trainers-min.pdf

5.1.2 Treasure Hunts

Details of Treasure Hunts for saplings

Table No. 5: List of treasure hunts conducted for saplings by TERI

No.	Location	No. of Volunteers	No. of saplings collected
1	TBIA campus, Navi Mumbai	11	25
2	NRI complex, Seawoods, Navi Mumbai	6	35
3	Institute of Science, Fort	7	35
4	Airoli, Navi Mumbai	55	187
5	CBD Belapur, Navi Mumbai	4	50
6	Dombivali, Thane district	3	20
7	Anushaktinagar, Mumbai	3	15
	Total	89	367

- **Commitment for sapling contribution through Rethink Plastic App:** Commitment for 272 saplings, of these 220 saplings have been committed by an NGO, **Srishti: a beginning of new hopes.**
- Commitment of Saplings by different institutions

Table No. 6: List of Commitments for Saplings received from Colleges of Mumbai – Navi Mumbai

No.	Location	No. of saplings committed
1	KBP college, Vashi, Navi Mumbai	58
2	ICLES Motilal Jhunjunwala college, Navi Mumbai	100
3	Maharshi Dayanand College, Mumbai	216
	Total	374



Picture No. 11: Glimpses of Treasure hunt for native saplings

A. Details of Treasure Hunts for waste plastic bottles

Table No. 7: List of Treasure hunts for waste plastic bottles

No.	Location	No. of Volunteers	No. of waste plastic bottles collected
1	Friends Academy School, Mumbai	463	950
2	NRI complex, Seawoods, Navi Mumbai	2	10
3	Belapur, Navi Mumbai	5	50
4	Gharapuri Islands	15	200
	Total	485	1210



Volunteers collecting waste plastic bottles during Treasure Hunts



Picture No. 12: Glimpses of treasure hunt for waste plastic bottles

For more Information, kindly click

<https://www.teriin.org/sites/default/files/files/Annexure K Treasure-Hunt.pdf>

<https://www.teriin.org/sites/default/files/files/Annexure I Treasure-Hunt-and-Plantation-at-Airoli.pdf>

5.1.3 Outreach Event at Gateway of India and Elephants (Gharapuri) Islands

TERI organized an outreach event at Gateway of India and Gharapuri Island on 22nd January 2020 with active participation of student volunteers from the NSS Unit of Kishinchand Chellaram (K.C.) College, Mumbai. The activity was organized as part of the TERI- UNEP (United Nations Environment Programme) campaign 'Rethink Plastic'

15 NSS volunteers, along with Dr. Satish Kolte, District Coordinator, NSS, Mumbai City and Mr. Kedarnath Ghorpade (Urbanist and Researcher) joined the TERI team for the following activities:

- Perception survey through interviews of locals and tourists on 'Plastic use and management'
- Collection of waste plastic bottles- to be reused for raising and nurturing saplings of native trees
- Encouraging individuals to take a pledge against single use plastics

The enthusiastic volunteers actively also participated in the perception survey and took the pledge against single use plastic too. Through the activity, **more than a 100 people** were surveyed and their answers and observations recorded. The survey was conducted in **English, Hindi along with the local language Marathi**, to aid the respondents and obtain the most accurate responses and also maximize the outreach potential. The volunteers successfully collected **over 200** waste plastic bottles from the Gharapuri Island that would have otherwise gotten added to the trash in the area. The action oriented outreach activity not only fulfilled its objectives but also motivated the young participants to stop using non-recyclable plastic and actively participate in the upcoming campaign activities.



Picture No. 13: Participants Group photo at Gharapuri Island (left) and during conducting perception survey at the Gateway of India (right)

For More information:

https://www.teriin.org/sites/default/files/files/Annexure_H_Activity-at-Gharapuri-Island-and-Gateway-of-India.pdf

5.1.4 Round Table Discussion on Plastic Pollution and Role of Stakeholders

A roundtable discussion on the theme ‘Plastic Pollution and Role of Stakeholders’ was jointly organized by The United Nations Environment Programme (UNEP), University of Mumbai, and The Energy and Resources Institute (TERI), on December 23rd, 2019, at the University of Mumbai campus in Fort, Mumbai.

Around 30 stakeholders attended the discussion forum and made key contributions. There was consensus amongst the stakeholders regarding the severity of marine plastic litter. Academic organizations and Civil Society Organizations (CSOs) shared various initiatives undertaken by them to contain plastic pollution by involving the youth and the citizens. The participants expressed their concerns about entry of micro-plastics in the food chain and especially bioaccumulation in fish. The discussion proved to be a great platform for the stakeholders to share their experiences/ research findings regarding plastic pollution, identify strengths and loopholes of existing policies while suggesting better policy interventions and discussing practical action at the individual/ organizational levels.

The discussion ended with all the stakeholders taking a Pledge to not use “Single Use Plastic” and endorsed on the “Rethink Plastic” campaign jointly implemented by UNEP and TERI.



Picture No. 14: Prof. Suhas Pednekar, Hon. Vice Chancellor, University of Mumbai taking a pledge to stop using single use plastic (*Top*) and Stakeholders at the Round Table Discussion (*Bottom*)

For More Information

1. **Presentation:** https://www.teriin.org/sites/default/files/files/Annexure_B3_Roundtable-Discussion-Presentation.pdf
2. **Report:** https://www.teriin.org/sites/default/files/files/Annexure_E_Report_UNEP_Round-Table-Discussion_Dec23_2019.pdf

5.2 Outreach materials prepared for promoting Rethink Plastic campaign and inviting volunteers for participation

Three posters were designed by TERI to promote the campaign and invite volunteers for participation.



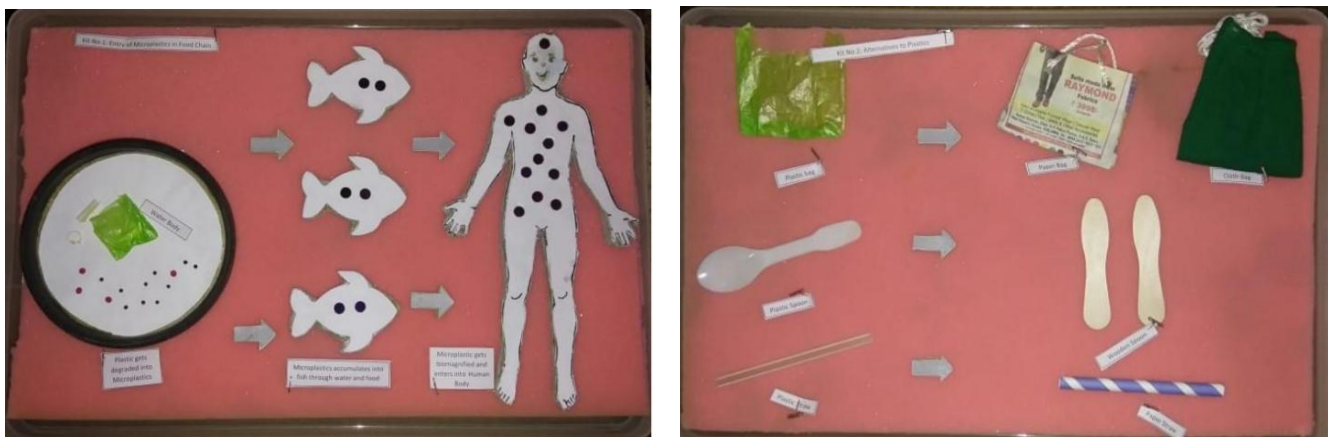
Figure No. 3: Posters designed by TERI for promoting Rethink Plastic campaign

5.3 Outreach materials prepared for differently abled stakeholders

In order to reach out to the visually challenged TERI developed a braille book 'Introduction to Plastic Pollution'. Further, two touch and feel kits were also developed to explain them the concept of 'Alternatives to plastics' and 'Microplastics in food chain'.

Braille book: https://www.teriin.org/sites/default/files/files/Annexure_B6_%20Braille-Booklet-on-Plastic-Pollution.pdf

Touch and feel kits



Picture No. 2 Touch and Feel Kits for visually challenged: Microplastics in food chain (Left) and Alternatives to Plastics (Right)

5.4 Feedback and Recommendations from the Stakeholders

- A. Regarding the Training of Trainers (ToT) and Awareness workshops, TERI got following major feedback from the stakeholders
1. The Workshop and TOTs provided insights about
 - Different types of plastics, uses and ill effects of plastic
 - Magnitude of plastic pollution
 - Practical actions to counter the problem of plastic pollution
 - Alternatives to plastic
 2. Such campaigns and workshops must be conducted more often across various educational institutions to sensitize and mobilize the youth
 3. Need for stringent and united action against plastic pollution is needed by all

Feedback form link for TOTs and Awareness workshops

<https://docs.google.com/forms/d/e/1FAIpQLSdLrJ3sDSKPSozZkJdwCApxvM6A7egnufc9CB1AU9KO4dKcg/viewform>

- B. Recommendations received from the stakeholders (Round Table Discussion)
1. Raising awareness about responsibility of users in terms of plastic use and management by local authorities and plastic manufacturers
 2. Encourage research on Life Cycle Assessment of Plastics and Micro-plastics
 3. To combine the Rethink Plastic App with other large- scale projects
 4. Emphasis needs to be on measures to tackle plastic pollution can be taken using the existing technologies
- C. Feedback from the stakeholders (Round Table Discussion):
1. A good initiative to bring together diverse stakeholders for sharing their knowledge and experiences; and initiating informed action.
 2. Representatives from Municipal corporations need to be a part of such discussion*

Feedback link for reference :

https://docs.google.com/forms/d/17HR5QKNEdEM3jOgtVhoEKU06jOKKadDNKy6ZgP-JLqI/viewform?edit_requested=true

**Representatives from Brihan Mumbai Municipal Corporation (BMC) and Navi Mumbai Municipal Corporation (NMMC) were not able to attend the discussion due to the then ongoing Swachh Bharat Sarvekshan*

6. Media outreach in English and vernacular media-evidence as images, links, cuttings of newspaper etc

2 Events which were conducted under the Counter measures project by TERI was extensively covered by media. These events were

- Round Table Discussion : Plastic pollution and Role of Stakeholders (December 23rd, 2019)
- World Wetlands Day 2020 at Sagar Vihar, Navi Mumbai (February 2nd, 2020)

Table No. 8 and Table No. 9 shows the updated grid with circulation details for all publications and details of coverage (Coverage Basis Press Release) for above mentioned events

Table No. 8: Coverage Basis Press Release for Round Table Discussion

Date	Headline	Publication and Language	Page No.	Edition	Circulation/ Monthly visitors
24.12.2019	Here's where your plastic goes: Inside marine species	The Hindustan Times (English)	NA	Online	11,360,000
	Mumbai: 'Every 100gm of fish has 80 microplastic particles'	The Times of India (English)	NA	Online	72,020,000
25.12.2019	Here is where your plastic goes: Inside marine species	Loksatta (Marathi)	19	Mumbai	8,000

Table No. 9: Coverage Basis Press Release for Round Table Discussion for World Wetlands Day 2020 event

Date	Headline	Publication and Language	Page No.	Edition	Circulation/ Monthly visitors
03.02.2020	Clean-up drives carried out on World Water Day	The Times of India (English)	7	Navi Mumbai	45,000
04.02.2020	The Rethink Plastic Campaign held at Sagar Vihar	Lokmat (Marathi)	3		12,000
		Maharashtra Times (Marathi)	4		12,500
		Nave Shahr (Marathi)	1,4		8,000
		Newsband	1,4		25,000
04.02.2020	Clean up drives carried out on World Wetlands Day	Sakal (Marathi)	3	8,000	
		Tarun Bharat (Marathi)	2	15,500	

7. Recommendation for way ahead

7.1 Success factors/learning's for effective and sustained outreach and public engagement

- Involvement of diverse stakeholders and action oriented approach to encourage participation and gathering their perception
- Involvement of differently abled stakeholders in the campaign was an effort to ensure holistic approach
- The campaign was a great success due to participation of the youth who were willing to come forward and contribute
- Use of latest social media platforms and technologies like Apps and QR codes to keep aligned with the youngsters and ensure greater outreach

7.2 Policy recommendations

The policy makers must focus on the following aspects while developing policies for tackling plastic pollution:

A. Awareness

- Raising awareness about responsibility of users in terms of plastic use and management by local authorities and plastic manufacturers
- Mobilizing the youth for better impact
- Reaching out to all stakeholders, building capacity and encouraging large industries/manufacturers and organizations to revisit their plastic use and make it more sustainable
- Reaching out to citizens using the trending social media platforms and interactive multimedia

B. Research and development

- Policies should emphasize on collation and comparison of data required to ensure progress in plastic management
- Encourage research on Life Cycle Assessment of Plastics and Micro-plastics; and study the micro-plastic bio-accumulation in marine organisms (fish, mollusks) and its impact on human health due to consumption of these organisms and other items containing micro-plastic.
- Focus on developing affordable technology and equipment required to measure the extent of microplastic
- Develop affordable and easily available alternatives to plastic.

C. Plastic management

- Encourage segregation and collection of recyclable plastic through incentivization; and ensure it reaches the recycling units.
- Identify and map plastic leakage hotspots.
- Implement bans and laws should promptly; delay at the grass roots implementation should be avoided by the authorities.

7.3 Counter measures for plastic pollution

1. Mapping of Leakage points of marine plastic at source using Geographical Information System across Mumbai Metropolitan Region
2. Segregating plastic waste during Clean up drive and connecting with plastic recyclers.

7.4 Sustaining project impact

The activities conducted as part of the project that would help achieve sustainable impact are:

1. Trainers trained through various awareness programmes and training of trainer sessions. The campaign helped create a batch of **75 volunteer trainers**. Of these, 36 trainers conducted 16 awareness programmes in colleges. They have shown interest in continuing this activity even after the campaign.
2. Various institutes have showed interest in conducting such awareness workshops in future
3. The cleanup drives received a great response. The volunteers can continue such activities on weekly or monthly basis with citizen groups like the Mangrove Marshals.
4. The trees raised in waste plastic bottles would be nurtured and used for afforestation.



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