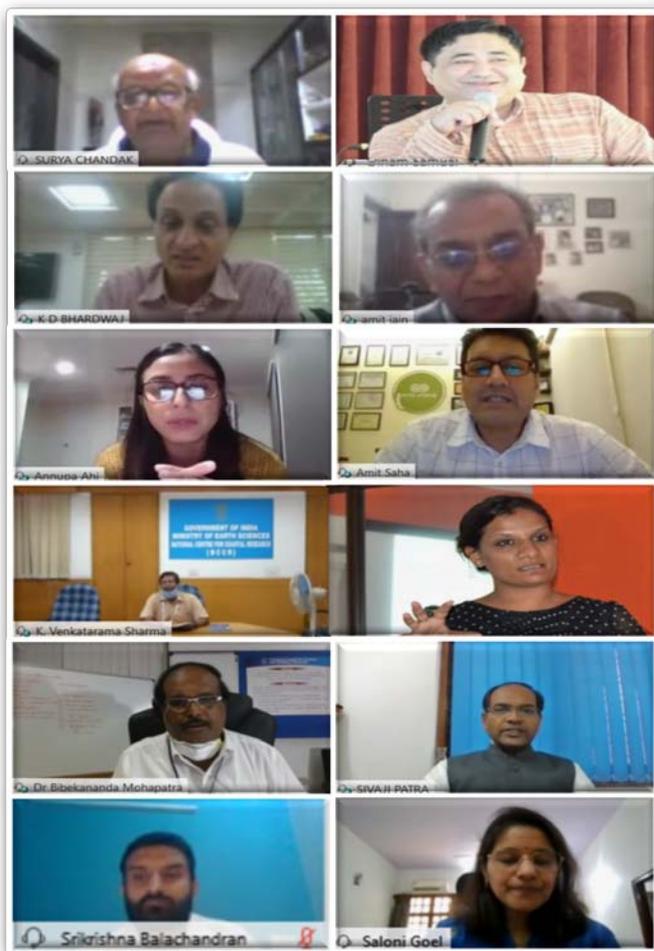


Proceedings

**National Policy Workshop Webinar Series on
“Countermeasures for Riverine and Marine Plastic Litter in India”**

22 May 2020 | 14:30 – 16:00 hrs



UN environment programme

Counter MEASURE FOR PLASTIC FREE RIVERS

National Policy Workshop (Virtual)
on
Countermeasures for Riverine and Marine Plastic Litter in India
12-22 May 2020

Webinar Session 6
Scenarios to Counter Plastics Litter by Overcoming Barriers and Identifying Enabling Measures
Date: 22 May 2020 | 14:30 – 16:00 hrs

Session Coverage

- Insights from the Countermeasure Project and Webinar Sessions 1-5
- Methodology and standardization for Plastic Hot spotting & Plastic Leakage Scenarios to adopt countermeasures in an urban setting in India
- Collection and Channelizing Plastic Bottle Recycling via Deposit/Refund System (DRS)
- Innovations Occurring Towards Plastics Substitutes / Alternatives and Product Design regarding Conservation in Applications of Plastics and Polymers
- Strategies to Fight Plastic Trash-Formulating a Sound National Policy and Robustly Implementing it
- Existing Status of Single use Plastics Bans in India and Recommendations for SUP Policy
- Strategy and Facilitation to encourage Co-processing of Plastic Waste in Cement Kiln
- Plastic Free Rivers and Seas for South Asia

Resource Speakers

- Mr. K. D. Bhardwaj, Regional Director, NPC
- Mr. Anant Jain, Director, IRG System South Asia
- Ms. Annuja Ahi, VP-Business Development, (Asia Pacific), TOMRA Systems ASA
- Mr. Anant Saha, Founder & CEO - ProIndia
- Dr. K. Venkatarama Sharma, Scientist-F, NCCB, MoES
- Ms. Swati Singh Sambyal, Waste Management Specialist, UN-Habitat India
- Dr. B. N. Mohapatra, Director General, NCCBM
- Dr. Sivaji Patra, Sr. Programme Officer, SACEP

Additional Panelists:

- Mr. Srikrishna Balachandran, UNDP
- Ms. Saloni Goel, UNEP

Moderator:

- Mr. S. P. Chaudhri, Former Deputy Director, UNEP & Professor Emeritus, BIMTECH

Coordinator:

- Mr. Osman Samad, Deputy Director, NPC

Registration Link
<https://npcindia.gov.in/NPC/User/unep>

Partner Agencies

Development Alternatives | chintan | teri

WEBINAR 6

**Scenarios to Counter Plastics Litter by
Overcoming Barriers and Identifying
Enabling Measures**

WEBINAR 6

Proceeding

Scenarios to Counter Plastics Litter by Overcoming Barriers and Identifying Enabling Measures

22 May 2020 | 14:30 - 16:00 hrs

Moderator

Mr. SP Chandak

Former Deputy Director, UNEP & Professor Emeritus, BIMTECH

Coordinator

Mr. Oinam Samuel

Deputy Director, NPC

INTRODUCTION

In the current plastics era, the problem of riverine and marine litter has emerged as a global concern as plastics leakage has been significant over the decades. To increase plastics and various material circularity aspects, leakage of plastic from the human technosphere needs addressing via countermeasures that would include a spectrum of policy interventions, effective implementation of rules, good depository schemes and economic instruments. Greater scope has arisen for a combination of informal and organized systems to work for collection of plastic waste and recycling arrangements, introducing new product designs to enable recycling and other novel treatment and disposal options, besides promotion and propagation of alternatives including bioplastics.

The objective has been to understand insights from countermeasure project for marine plastic litter in India and reflecting on the need for development of regional plastic leakage model to overcome barriers regarding database construction and analysis. Further exploring policy initiatives and roadmap for action ahead.

WEBINAR 6 AGENDA

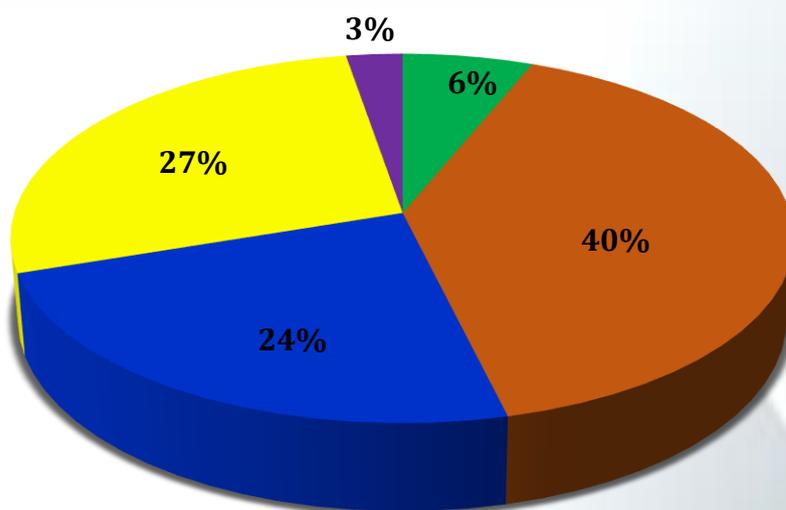


Time (hrs)	Theme/Topic	Speaker
14:30 - 14:35	Insights from the Countermeasure Project and Webinar Sessions 1-5	Mr. K D Bhardwaj, Regional Director,NPC
14:35 - 14:45	Methodology and standardization for Plastic Hot spotting & Plastic Leakage Scenario to adopt countermeasures in an urban setting in India	Mr. Amit Jain, Director, IRG System South Asia
14:45 - 14:55	Collection and Channelizing Plastic Bottle Recycling via Deposit Refund System (DRS)	Ms. Annupa Ahi, VP-Business Development, (Asia Pacific), TOMRA Systems ASA
14:55 - 15:05	Innovations Occurring Towards Plastics Substitutes / Alternatives and Product Design regarding Conservation in Applications of Plastics and Polymers	Mr. Amit Saha, Founder & CEO - ProIndia
15:05 - 15:15	Strategies to Fight Plastic Trash-Formulating a Sound National Policy and Robustly Implementing it	Dr. K. Venkatarama Sharma, Scientist-F, NCCR, MoES
15:15 - 15:25	Existing Status of Single use Plastics Bans in India and Recommendations for SUP Policy	Ms. Swati Singh Sambyal, Waste Management Specialist, UN-Habitat India
15:25 - 15:35	Strategy and Facilitation to encourage Co-processing of Plastic Waste in Cement Kiln	Dr. B. N. Mohapatra, Director General, NCCBM
15:35 - 15:45	Plastic Free Rivers and Seas for South Asia	Dr. Sivaji Patra, Sr. Programme Officer, SACEP
15:45 - 16:00	Panel Discussion and Question and Answers	Additional Panel Members: Mr. Srikrishna Balachandran, UNDP Ms. Saloni Goel, UNEP

PARTICIPANT PROFILE

The webinar was attended by 700 plus participants as located across 18 countries such as Denmark, Egypt, Ethiopia, Germany, India, Ireland, Malaysia, Netherlands, Norway, Pakistan, Philippines, Saudi Arabia, Sri Lanka, Taiwan, Thailand, United Arab Emirates, United Kingdom, United States of America etc. The participants were from across various sectors (public / private organizations, civil society, academia, embassy, and from across a range of national and multilateral institutions such as UN Organisations, GIZ, WWF, ZSL, World Bank, JICA, SACEP etc). The participant profile details are depicted in **Figure 1**.

Figure 1: Participant Profile



- International Organization
- Private Organization & industrial Association
- Civil Society
- Govt. Department & Public Organization
- Academia/Researchers

Sl. No.	Countries Attended
1	Denmark
2	Egypt
3	Ethiopia
4	Germany
5	India
6	Ireland
7	Malaysia
8	Netherlands
9	Norway
10	Pakistan
11	Philippines
12	Saudi Arabia
13	Sri Lanka
14	Taiwan
15	Thailand
16	United Arab Emirates
17	United Kingdom (UK)
18	United States of America (USA)

Total Attendance
716

WEBINAR PROCEEDINGS

The session was opened by a welcome to the moderator Shri S.P. Chandak, former Dy. Director UNEP and Professor Emeritus BIMTECH, and to all the resource speakers, panelists and attendees/participants on behalf of NPC and UNEP by Mr. Oinam Samuel, Deputy Director, NPC.

Shri S.P. Chandak thanked the organizers and briefly reflected on the webinar series and the insights being generated on the project theme and objective of the National Policy Workshop through webinars 1 – 5 and exhorted the speakers/panellists to maintain the momentum and to reflect on various dimensions of the works and towards sharing significant case examples and key recommendations that could guide policy initiatives and thereafter opened the forum for the resource speakers.

PRESENTATION 1:

Insights from the Countermeasure Project and Webinar Sessions 1-5 by Mr. K D Bhardwaj, Regional Director, NPC

The first presentation by Mr. K D Bhardwaj, Regional Director, NPC, reflected insights on the counter measure project for marine plastic litter in India, the 4 cities which were chosen for detailed study (namely Agra, Haridwar, Allahabad/Prayagraj and Mumbai) and the approach which was adopted during the execution of the project. Mr. K D Bhardwaj acknowledged the efforts of the partner agencies in this project which were engaged to carry out the perception survey studies and outreach activities as undertaken. He spoke about key activities undertaken and project deliverables.

Countermeasures Project

- Project "Promotion of Countermeasures against Marine Plastic Litter in Southeast Asia and India" was launched in 2019 (also named as 'Counter MEASURE')
- Aiming to identify a region-based model for monitoring and assessment of plastic leakage and pollution reduction targeting land-based plastic leakage entering waterways
- Funded by the Ministry of Foreign Affairs (MOFA), the Government of Japan
- Implemented by the UN Environment Programme Regional Office for Asia and the Pacific in collaboration with National Productivity Council and local partners Chintan, TERI, and Development Alternative.
- Since October 2019, following key activities have been conducted:
 - Technical consultations and expert group meetings in India has been conducted on the methodology for identifying plastic leakage pathways and emerging know-hows on the science-policy interface on plastic leakage.
 - Data collection and surveys carried out in 4 cities in India: Agra, Prayagraj, Haridwar, and Mumbai.
 - Outreach activities have also been conducted with local partners in India to share findings from local surveys as well as to raise awareness about plastic pollution among citizens.
 - Identified about 50 categories of product based plastic litter at hotspots near rivers Ganga and Yamuna and about 40 types of polymer-based micro-plastics

Countermeasures Project

- Project deliverables:
 - Desktop review of plastics and plastic pollution
 - Plastic leakage pathways
 - Counter Measures
- NPC organized the National Policy Workshop through series of the webinar during 12-22 May 2020 (Six on-line sessions)
 - Sessions on
 - Science and technology of plastic pollution assessment,
 - Community perception and behavioural aspects,
 - Plastic waste management through circularity concept,
 - Plastic pollution impact on the riverine and marine ecosystem,
 - Scenario to counter plastic litter
- A specific session on plastic waste generation during COVID 19 spread in India has also been organized on 20th May, 2020

Webinar 1: The Science & Technology of Plastics & Techniques/best practices of plastics pollution assessment and investigation.

- First webinar was organized on 12th May, 2020 (2:30 PM – 5:30 PM)
- Attended by more than 700 participants from 12 countries representing public/private organizations, civil society, researchers, academia, and from across a range of national and multilateral institutions such as UN Organisations and the World Bank.
- Key highlights:
 - The importance of plastics and various polymers and their applications and concern
 - Need to revisit the behavioural approach to managing plastics including towards segregation and to have a system of well segregated plastic waste collection and recycling initiatives
 - Need to draft a national marine litter policy to control and manage the litter at the land boundary to prevent from entering the marine environment.
 - Importance of a detailed material balance of plastics production and consumption, and constructing a detailed leakage scenario: and Development of a standardized methodology for clean-up exercises for adoption
 - Types of plastic litter identified in 4 cities and efforts ongoing to develop a toolbox on plastic leakage scenario development and the need for constructing a harmonized methodology

Webinar 2: Community Perceptions and behavioural aspects for plastic management and promotion of countermeasures to address (Riverine and Marine) plastic litter

- 2nd Webinar was organized on 14th May, 2020 (2:30 PM – 5:00 PM)
- Attended by more than 450 participants from various countries representing public/private organizations, civil society, researchers, academia, and from across a range of national and multilateral institutions.
- Key highlights:
 - Plastic leakage scenarios in four cities Prayagraj, Agra, Haridwar and Mumbai developed by NPC using primary and secondary data and field observations
 - Perception surveys and outreach activities carried out by partner agencies, namely, Chintan in Agra, TERI in Mumbai and Development Alternative in Prayagraj and Haridwar
 - Importance of Faith-based Organizations (FBOs) for mass following, linkage to spiritual values and a scientific connect, influencing capacity on lifestyles etc.
 - Insights on recognition of Single Use Plastics (SUPs) and its understanding among the stakeholders
 - Systematic engagement and motivation of youth (middle school, colleges and Scouts and Guides) through game-based learning etc.
 - Education on plastic pollution science in youth which is considered more important than banning plastic items as better management of plastics will be the result.

Mr. K D Bhardwaj highlighted about the National Policy Workshop Webinar Series on Countermeasures for Riverine and Marine Plastic Litter in India during 12-22 May 2020 (six on-line sessions). He further shared key highlights of each webinar.

Webinar 1: The Science & Technology of Plastics & Techniques/best practices of plastics pollution assessment and investigation on 12th May, 2012

- The importance of plastics and various polymers and their applications and concern
- Need to revisit the behavioural approach to managing plastics including towards segregation and to have a system of well segregated plastic waste collection and recycling initiatives
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Webinar 3: "Promotion of countermeasures against marine plastic litter in Southeast Asia and India

3rd Webinar was organized on 16th May, 2020 (2:30 PM – 5:00 PM)

Attended by more than 700 participants from various countries representing public/private organizations, civil society, researchers, academia, and from across a range of national and multilateral institutions.

Key highlights:

- The importance of plastics product as well as product packaging redesign towards bringing circularity;
- Creating a responsible environment with a social, institutional and economic construct for the WARRIORS – SAFALI SATHIS – largely women towards enabling circularity in the plastic products economy;
- Need to incentivize recyclers to achieve circularity;
- Reverse Vending machine for PET bottles as a solution towards organized segregated waste collection;
- Issuance of plastic credit units as an economic instrument for plastic recyclers for encouraging collection of segregated plastic waste.
- Co-processing is a preferred technology for the disposal of plastic waste and Plastic to Diesel conversion technology
- Case study of implementation of Digital EPR Governance platform in Pune as a solution for Plastic Waste Management

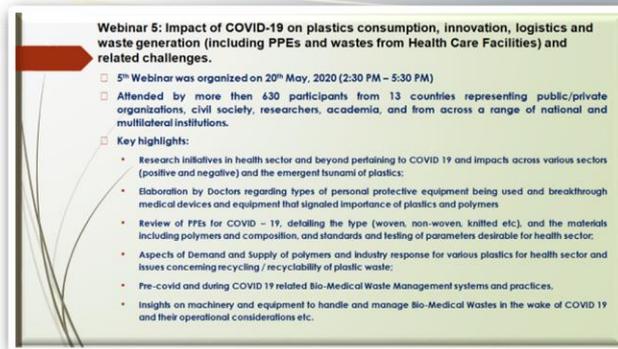
Webinar 4: Assessment of plastic pollution impact on natural capital and riverine and marine ecosystems needing policy intervention

4th Webinar was organized on 18th May, 2020 (2:30 PM – 5:00 PM)

Attended by more than 700 participants from various countries representing public/private organizations, civil society, researchers, academia, and from across a range of national and multilateral institutions.

Key highlights:

- Snapshots of work undertaken by NPC in respect of microplastic survey in river Yamuna and river Ganga;
- Need to establish health related hazards due to plastic/microplastic on human health with rigorous studies.
- Case study of development of a framework and assessment of the ecosystem services of Ganga River.;
- Methodologies and challenges in microplastic assessment in freshwater, and impact of plastic waste usage in road construction.
- Aspects of Life cycle assessment of plastic products in Plastic value chain
- Overview of Ocean Plastic Tamed into an Opportunity in Circular Economy – OPOCE project being implemented by SINTEF in India, China, Myanmar, Thailand and Vietnam
- Overview of Indo-Norway Marine Pollution Initiative for Developing coherent systems for data collection and analysis for the state of Gujarat



Webinar 3: Promotion of countermeasures against marine plastic litter in Southeast Asia and India on 16th May, 2020

- The importance of plastics product as well as product packaging redesign towards bringing circularity;
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Webinar 4: Assessment of plastic pollution impact on natural capital and riverine and marine ecosystems needing policy intervention on 18th May, 2020

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- Overview of Indo-Norway Marine Pollution Initiative for Developing coherent systems for data collection and analysis for the state of Gujarat

Webinar 5: Impact of COVID-19 on Plastic Waste Generation (used PPEs and wastes from HCFs) and Upcoming Challenges on 20th May, 2020

- Research initiatives in health sector and beyond pertaining to COVID 19 and impacts across various sectors (positive and negative) and the emergent tsunami of plastics;
- Elaboration by Doctors regarding types of personal protective equipment being used and breakthrough medical devices and equipment that signaled importance of plastics and polymers
- Review of PPEs for COVID – 19, detailing the type (woven, non-woven, knitted etc), and the materials including polymers and composition, and standards and testing of parameters desirable for health sector;
- Aspects of Demand and Supply of polymers and industry response for various plastics for health sector and issues concerning recycling / recyclability of plastic waste;
- Pre-Covid and during COVID 19 related Bio-Medical Waste Management systems and practices,
- Insights on machinery and equipment to handle and manage Bio-Medical Wastes in the wake of COVID 19 and their operational considerations etc.

PRESENTATION 2:

Methodology and standardization for Plastic Hot spotting & Plastic Leakage Scenario to adopt countermeasures in an urban setting in India by Mr. Amit Jain, Director, IRG System South Asia

The presentation consists of four slides:

- Project Conceptualization:** A flowchart showing the process from Perception Survey Findings and Secondary Data to Field Reconnaissance, Identification of Cleanup sites, Application of Fuzzy Logic, Verification/Ground Truthing, Counter Measures, and Outreach Plan, leading to Policy and Behaviour Change.
- Conceptual Methodology (Catchment Area Based):** A diagram illustrating the Journey of Plastics from Sources (Urban, Rural, Forest, Fauna) through a Terrestrial Ecosystem (Air, soil, water) to a Marine Ecosystem (Sink). It includes visualization of rain/fall, UV, and various carriers.
- Conceptual Methodology (Contd.):** A diagram showing the Plastic Value Chain Boundary Conditions within a geography, including Material Engineering, Production & Business Model, Consumer Use, Reuse & Behavior, Collection, Recycling & Repurposing, and Conversion & Disposal. It highlights data points for collection, interpretation, and analysis.
- Conceptual Methodology (Contd.):** A diagram showing the Mapping of Plastic Value Chain Geographically in an Urban Context, involving Deskwork & Survey (Desk review, Physical Inspection, Interview, Remote sensing, GIS, Mobile Application), Georeferencing (Administration, Road, Drainage, City canal, Facility, Land-use, Elevation (DEM)), and GIS Analysis (Plastic leakage Scenario). It includes steps: 1. Methodology check list including options, 2. Optimized GIS Format, and 3. Leakage Scenario including data.

The second presentation was made by Mr. Amit Jain, Director, IRG System South Asia. Mr. Amit Jain explained about the conceptual approach, methodology and hotspot identification & plastic leakage scenario (fuzzy based model) undertaken during the conduct of the study as part of the project with NPC and UNEP. He also explained about various tools/techniques adopted, such as (i) Reconnaissance & Perception Survey, (ii) GIS Technique & Fuzzy Approach, (iii) Microplastic Cleanup Assessment (land/ bank), (iv) Microplastic Assessment (river/ water body), (v) Waste Management Data Templates (input/ output, mass balance approach) etc.

He further highlighted the challenges and lessons learned in terms of data availability & data mapping, customization & uniform application of methodology, identification of sampling location, modeling considering length of the river i.e. towns / cities downstream of river – need for phase 2 planning & implementation and application of counter measures.

Mr. Amit Jain concluded his talk by highlighting following recommendations:

- Application of standard assessment methodology (developed under countermeasure project) for scaling up;
- Stage & time wise plastic phase-out to be strengthened across plastic value chain for selected items;
- Creation of drivers of recycled plastics sector
- Support for enhancing plastic segregation by strengthening waste management infrastructure and development of ecosystem (EPR, Instruments, Incentives Up & Down, Pricing)
- Strengthening of reporting, monitoring & evaluation, and regulatory capacity;
- Incentivising innovative product/package design to support recyclability
- Application of LCA for scientific environmental evaluation of alternatives.
- Awareness raising & behavior change

PRESENTATION 3:

Collection and Channelizing Plastic Bottle Recycling via Deposit Refund System (DRS) by Ms. Annupa Ahi, VP-Business Development, (Asia Pacific), TOMRA Systems ASA

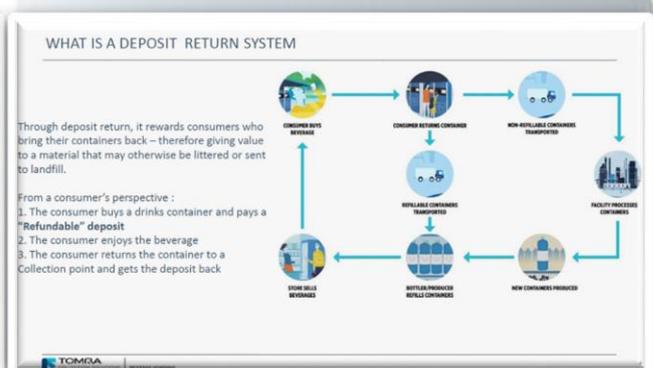
CONTEXT TO THE TALK

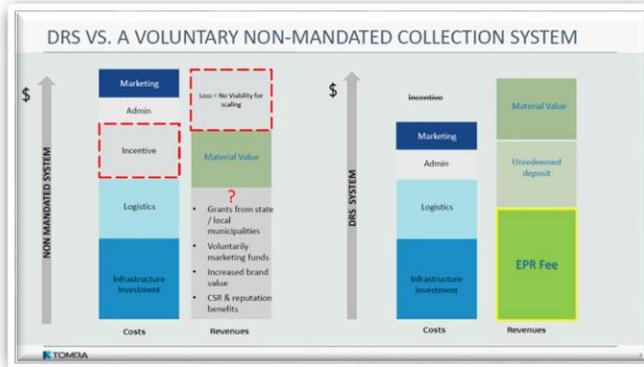
Countermeasures for Riverine and Marine Plastic Litter in India : Collection and Channelizing Plastic Bottle Recycling via Deposit Refund System

There are claims of very high rates of Plastic especially PET recycling in India (largely by informal sector). Therefore why is DRS needed?



Numerous studies show that over 80% of ocean litter derive from land-based sources.
Hereof, over 30% are beverage container (bottles/cans) or beverage container related (caps/straws) items.





Deposit return systems are proven to drive behavioural change, dramatically reduce littering, and facilitate sustainable recycling outcomes – all in an economically viable way.

- ~98% of deposit containers are collected in Germany
- ~84% of polls show the public are strongly in favor
- Michigan has avoided over \$330m in litter clean-up costs

TOMRA

The third presentation was undertaken by Ms. Annupa Ahi, VP-Business Development, (Asia Pacific), TOMRA Systems ASA, who elaborated on the collection and channelizing of plastic bottle recycling via deposit refund system (DRS). She explained about deposit refund system (DRS) and why DRS is needed. She explained that through deposit return, the system rewards consumers who bring their containers back – therefore giving value to it as material that may otherwise be littered or sent to landfill. She narrated from a consumer’s perspective that the consumers buy a drinks container and pays a “refundable” deposit, the consumer enjoys the beverage and the consumer returns the container to a collection point and gets the deposit back.

She reflected that there are claims of very high recycling of plastic, especially PET recycling in India (largely by informal sector), and that there was potential for DRS application. Ms. Annupa Ahi highlighted the EU directive and global shift to DRS. She emphasized that deposit return system are proven to drive behavioural change, dramatically reduce littering and facilitate sustainable recycling outcomes – all in economically viable way. She concluded her presentation by sharing DRS impacts, benefits and keys facts.

PRESENTATION 4:

Innovations Occurring Towards Plastics Substitutes / Alternatives and Product Design regarding Conservation in Applications of Plastics and Polymers by Mr. Amit Saha, Founder & CEO - ProIndia

(1) Polymer Innovation

- Ability to delayer the MLP – CreoSolv by Unilever
- Ability to Replace Aluminium as O2 & Moisture Barrier - EVOH by **Dow Retain** – Compatibilizers
- Nylon & Polyester Busters – Additives from Resin Cos
- Back to PolyOlefins from QuantaFuel
- Bio Compostable Plastics – by many players

Retain
polymer modifier by **Dow**

CreoSolv Process

End-of-life options for BIOPLASTICS
– Closing the loop –

Biodegradable & compostable plastic products

Organic recycling

Biorefinery

Biogas

Biogas treatment

Industrial compost plant

(2) Packaging Harmonisation

- Harmonization is Happening in Europe why not India
- Monomerization – Single Family Plastic for Multi Layer
- Maximum Inerts upto 8 %
- Moving Away from Polyester & Nylon (Non Recyclables)
- Moving Away from Aluminium (EVOH)
- Harmonisation creates single waste stream
- Gulka Industry moved away from Plastic
- Is FMCG waiting for a BAN for plastic use in Sachets

EUROPEAN PLASTICS PACT

Bringing together European companies and governments to coordinate their resources and strategies to reduce plastic waste

COLLECTIVE ACTION BY EUROPEAN PLASTICS PACT

Reduce plastic waste by 30% by 2030

Reduce plastic waste by 50% by 2040

Reduce plastic waste by 75% by 2050

Reduce plastic waste by 90% by 2060

Reduce plastic waste by 95% by 2070

Reduce plastic waste by 98% by 2080

Reduce plastic waste by 99% by 2090

Reduce plastic waste by 100% by 2100

KETAN Silver GULKA

Mr. Amit Sahain his presentation delved on multiple types of innovation towards plastics substitutes such as (i) Polymer Innovation – towards recyclability & biodegradability, (ii) Packaging Harmonization – towards single streaming of flexible, (iii) Delivery & Consumption Innovation – towards lesser use of single use, (iv) EPR Innovation – bringing polluters & conservers together– plastic exchange and (v) Innovation to Commercialization – plastic index for all.

(3) Delivery Innovation

- ◆ Milk Man delivery in our times
- ◆ Washable & Reusable Containers
- ◆ Common Logistics for Multi brand
- ◆ Excellent COVID – Home Consumption
- ◆ Food Delivery (BC) 15BN plastics PA - Can it be in Reusable Containers
- ◆ Returnable Plastics (Like returnable Glass) for Beverages

Plastics Innovation – Design / Substitute / Alternative

(3) Consumption Innovation

- ◆ NO Secondary Packaging
- ◆ Loose Sales (like Grains in Big Bazaar)
- ◆ Bring your Own Container

Plastics Innovation – Design / Substitute / Alternative

(4) Plastic Xchange – Bring Polluters & Preventors together

◆ Who puts out Plastics into Environment

- ◆ PIMBOs
- ◆ Bulk Waste Generators
- ◆ Offices / Malls / Apartments
- ◆ Stores / Delivery / Couriers / Ecom
- ◆ Citizens

◆ Who takes away plastics from Environment

- ◆ Municipalities
- ◆ Cement Companies
- ◆ Waste Management Companies
- ◆ Recyclers
- ◆ Waste Pickers

- ◆ MOU between Stock Exchange and ProIndia
- ◆ Plastic Credit Units (PCU) would be generated by Conservers – like recyclers, municipalities, WM Companies
- ◆ PCU would be Required by Polluters
- ◆ PCU would be defined , certified like commodity
- ◆ PCU would be traded at Xchange

Plastics Innovation – Design / Substitute / Alternative

(5) Plastic Index - Create Common Path – One Index of measurement

- ◆ Awaiting National EPR Framework
- ◆ What's the Target for Recovery & Recycling for PIMBOs
- ◆ Is EPR =
 1. Awareness
 2. Waste Picker Welfare
 3. Actual Recovery & Recycling against Plastic Put Out
 4. None of the Above
 5. All of the Above
- ◆ Can there be One Model for above and each Stakeholder simply replicates the same
- ◆ Benefits of Scale & Scope
- ◆ Can create Plastics Recycling as Industry

Constructs of the Plastic Index

The Index is proposed to comprise of the following broad dimensions for capturing data and information:

Plastic Consumption Reducing plastic consumption in production & packaging to gain visibility of total plastic used & what can be substituted	Plastic Waste Management Minimising plastic waste generation and management to leverage opportunities for optimizing cost	Regulatory/Standards/Decisions Harmonising EPR (Extended Producer Responsibility) & other initiatives to ensure compliance to current regulations & readiness to future regulations	Accountance Good management practices for limited resources required to ensure effective planning, action & monitoring
Recyclability Use of circular plastics (recyclable, re-usable, biodegradable), and design changes to facilitate recycling to reduce waste and ensure business continuity	Collaboration/Integration Collaborating with suppliers, suppliers and customers (consumers to local operators, co-create solutions and minimise operational risk	Innovation Innovation in production/design, processes and business models to reduce plastic waste and gain an edge over peers	

Plastics Innovation – Design / Substitute / Alternative

Mr. Amit Saha concluded his presentation by giving following remarks:

- ✚ Incineration is NOT Recycling
- ✚ Incineration is Wasteful & Not Resource Efficient
- ✚ Current Practice is due to lack of Collection, Sorting & Recycling Infrastructure
- ✚ We do NOT Lack Ideas – We lack Commitment for Plastics Circularity
 - Plastics to Roads
 - Plastics to Tiles
 - Plastics to Fuel (Pyrolysis)
 - Plastics to Plastics
 - Bottle to Bottle

PRESENTATION 5:

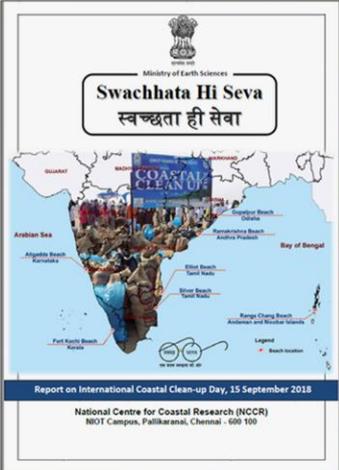
Strategies to Fight Plastic Trash-Formulating a Sound National Policy and Robustly Implementing it by Dr. K. Venkatarama Sharma, Scientist-F, NCCR, MoES

A whole new world of possibilities beckon!

Page 12



- The Hon'ble Prime Minister of India received the UN Champions of the Earth Award for the year 2018 for India's extensive efforts to beat plastic pollution including an ambitious pledge to eliminate all single-use plastic in the country by the year 2022



Report on International Coastal Clean-up Day, 15 September 2018
National Centre for Coastal Research (NCCR)
NIOI Campus, Palikaral, Chennai - 600 100



Development of Regional Action Plan On Marine Litter

MARINE LITTER IN THE SOUTH ASIAN SEAS (SAS) REGION

Country Report - INDIA

UNEP National Environment Programme/UNEP South Asia Sustainable Environment Programme, NCCR
Ministry of Earth Sciences, Government of India

STRATEGIES TO FIGHT PLASTIC TRASH – Formulating a sound National Policy and robustly implementing it

The fifth presentation was delivered by Dr. K. Venkatarama Sharma, Scientist-F, NCCR, MoES who emphasized that no legal mechanisms/framework, institutional framework & policies specifically for riverine & marine litter management, even though there are umbrella legislation for marine pollution control & prevention.

Dr. K. Venkatarama Sharma appealed towards a policy needed to be framed to control and manage the litter at the land boundary as it is difficult / impossible to remove the litter once it enters the marine environment and a well coordinated sound National Policy needs to be formulated by involving all concerned stakeholders – Govt, industry, NGOs, people with a clear roadmap of the milestones that have to be met the policy needs to be robustly implemented to achieve the Zero Plastic goal.

He further discussed that many countries do not have in place a national marine litter policy. There are action plans though that attempts to mitigate the problem. Worldwide inputs of marine litter into oceans are increasing despite international, regional and national efforts, essentially this is due to lack of binding international legal instruments, lack of implementation & enforcement of existing regulations & standards and due to lack of awareness among main stakeholders

Dr. K. Venkatarama Sharma concluded his presentation by summing up strategies to fight plastic trash.

PRESENTATION 6:

Existing Status of Single use Plastics Bans in India and Recommendations for SUP Policy by Ms. Swati Singh Sambyal, Waste Management Specialist, UN-Habitat India

Ms. Swati Singh Sambyal in her presentation highlighted the Central Pollution Control Board (CPCB) Gap Analysis 2019 reports inadequacy in implementation of PWM Rules, 2016. She mentioned that CPCB has recently remarked that states and UTs are not furnishing adequate information regarding plastic waste generation records, creation of state-level advisory bodies, framing of bye-laws, marking and labeling of multi-layered plastic, the number of plastic manufacturing and recycling units within their jurisdiction. The board also rued the fact that there is dearth of concrete preventive and regulatory measures as envisaged under Plastic Waste Management Rules, 2016.

Status of plastic bans in India

- More than 20 states have notified a full or partial ban on SUP, Maharashtra being the first.
- Some states like Telangana, UP, Odisha, Maharashtra, Tamil Nadu, and Himachal Pradesh banned plastic bottles and Tetra packs, single-use straws, plastic/Styrofoam tea cups/containers, etc.
- But many like Bihar or Nagaland banned only polythene bags.
- Maharashtra has classified SUPs into three categories—products that are banned, those allowed with EPR and those that are exempted.
 - It has banned plastic carry-bags, plastic & thermoool cutlery and dish/bowl used to package food in hotels, non-woven polypropylene bags, pouches for liquids and decorative materials made from plastics and thermoool.
 - For other SUPs, it has prescribed buy-back schemes as part of the Extended Producers Responsibility (EPR) of companies. It exempts plastic used for packaging medicines.
 - Also, it has allowed the use of compostable plastics for nurseries, horticulture, agriculture and handling of solid waste.

Challenges associated with the ban in Indian States

Lack of efforts from administration to implement the ban: There has been little action to stop plastic bag manufacturing or transport. Also, administration has not taken any action to stop vendors to dole out plastic bags or to penalize consumers who are taking the banned bags. Even in cases where there has been action, it is for limited time- which meant that the bags vanished from the market for a while, but came back soon.

Non-availability of alternatives: There has been very little effort to ensure availability of other materials. Also, lack of support to alternative industry means that they are relatively expensive and hence consumers or vendors do not prefer it.

Low Public participation: Community interest and involvement is of paramount importance when it comes to successful implementation of any environmental initiative. Government has failed to initiate behaviour change, though it has been able to create awareness at many levels.

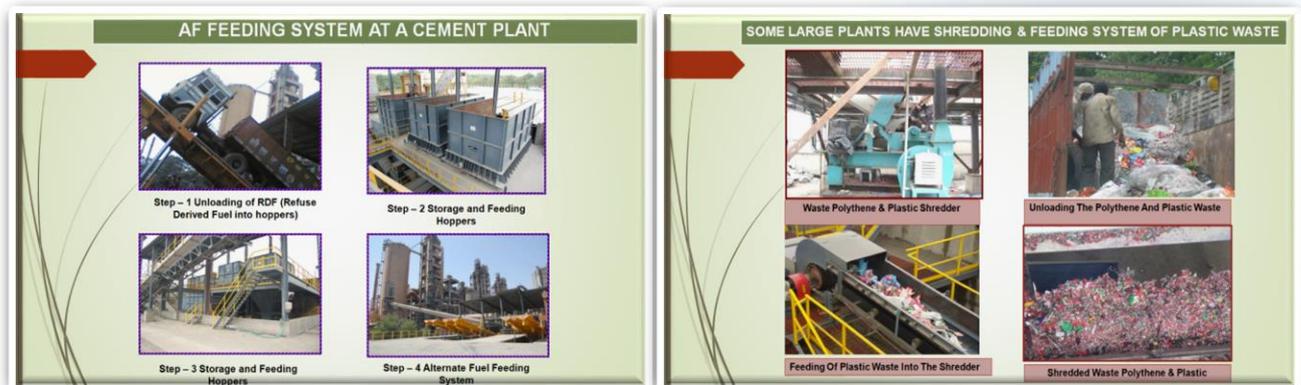
Stiff resistance from the Plastic industry: For example, in case of Delhi, the ban was challenged in the court and could not be implemented. In case of bans on single use plastic as well, similar problems have surfaced. The All India Plastic Manufacturers Association contends the ban in Maharashtra has cost manufacturers millions of dollars and tens of thousands of workers their jobs, and the Tamil Nadu Plastics Manufacturing Association has challenged the Tamil Nadu ban in court.

Ms. Swati Singh Sambyal further discussed about the status of plastic bans in India. She shared that more than 20 states have notified a full or partial ban on SUP, Maharashtra being the first. She also addressed various challenges associated with the ban in Indian States and the challenges are (i) Lack of efforts from administration to implement the ban, (ii) Non-availability of alternatives, (iii) Low Public participation and (iv) Stiff resistance from the Plastic industry.

In her recommendations she emphasized the importance of identifying the most problematic SUP items and assesses the extent of their impacts before imposing bans. A clear definition of SUPs in the Indian context is needed. She expressed the need for a national action plan or guidelines for phase-wise banning of plastic items. Plastic items should be classified on the basis of material qualities, recyclability, availability of alternatives, and livelihood security of the informal sector working with them. She further addressed incentivise effective waste management with focus on segregation, collection and recycling, Effective implementation of EPR and Design and circular innovations. In her concluding perspectives she emphasized that the government should invest money in and encourage setting up of ventures that provide sustainable products as an alternative to the non-recyclable products in vogue at present. It should accelerate business-driven innovations and help scale circular economies that focus on systemic stalemates in global material flows so that the need for disposal of materials is delayed.

PRESENTATION 7:

Strategy and Facilitation to encourage Co-processing of Plastic Waste in Cement Kiln by Dr. B. N. Mohapatra, Director General, NCCBM



The presentation by Dr. B. N. Mohapatra delved on best option for disposal of plastics co-processing in cement plant, co-processing in cement kilns is recognized as the best waste disposal option, much ahead of conventional land filling and incineration, owing to nil residue after disposal and complete material and energy recovery. The organics, in the wastes, are completely destroyed and the inorganic are immobilized in the clinker matrix, the intermediate product of cement. After the waste is co-processed, it becomes a part of the product and therefore, no liability lies with the waste generators, whatsoever.

He addressed that there are wide range of temperature zones in cement kiln process with different residence times which provide opportunities to fine tune waste management systems appropriately.

In addition he highlighted strategy to encourage co-processing in cement industry as follows:

- Plastic waste specifications to be formulated for co-processing
- Most of the cement plants don't have any shredding facilities. This will require local bodies to establish material segregation & recovery facilities (MSRF) to pre-process the littered plastics
- Some large cement plants have shredding facilities and they can pre-process the incoming segregated waste.
- Implementation of extended producer responsibility
- Strong database of types of plastics and their composition and region wise availability

PRESENTATION 8:

Plastic Free Rivers and Seas for South Asia by Dr. Sivaji Patra, Sr. Programme Officer, SACEP

The eighth presentation by Dr. Sivaji Patra, Sr. Programme Officer, SACEP, commenced with the status of marine litter quality data availability statuses in South Asian Sea (SAS) Region.



The Status of Marine Litter quantity data availability statuses in South Asian Seas (SAS) Region



Country	Quantity Data availability at area/region level	Quantities of Marine Litter Data availability at National Level
Bangladesh	Litter classification information available. But actual quantity not available.	Total Quantity Data not available. But estimation was done by using beach collection data.
India	Status of marine litter indicated 14 segments/regions. But not quantity not available	Quantity Data not available
Maldives	Regional data not available	Quantity Data not available
Pakistan	Regional level classification of marine litter is available. But not quantity data not available	Quantity Data not available
Sri Lanka	Regional level classification of marine litter is available. But same areas quantity data available.	Quantity Data not available



Marine Litter Issues availability statuses in South Asian Seas (SAS) Region



Country	Ecological Issues	Social Issues	Economic Issues
Bangladesh	No site specific data available to indicate exact issues	General statements but not any quantifiable information	Tourist areas have some impacts but not quantified General statements
India	No country specific information but general impacts information indicated	General statements but country and sites specific social issues not available	General statements but not any quantifiable information
Maldives	No country specific information	General statements and also indicated that it is an emerging issues but country and sites specific social issues not available	Economic impacts due to the marine litter on Maldivian economy are not currently well understood.
Pakistan	No country specific information available	General statements but country and sites specific social issues not available	Indicated Tourism is affecting General statements but not any quantifiable information
Sri Lanka	Little information indicated that coral reefs and mangroves in the certain areas have been affected. But national level information not available	General statements but country and sites specific social issues not available	Indicated that tourism gaining is very high but economic lost and issues due to marine litter to tourism is not specifically

Dr. Sivaji Patra discussed about the quantity data availability at area/regional and national level. He indicated that Litter classification information was available whereas quantity data not available. He also addressed the marine litter issues availability statuses in South Asian Seas (SAS) Region in respects of ecological issues, social issues and economic issues.

He highlighted the special goals to reduce marine litter. He further talked about strategies needed for management of marine litter for SAS regions

Dr. Sivaji Patra addressed the major gaps and challenges for SAS region on managing the marine litter and he concluded his presentation by indicating the following recommendations:

- Establishment of new institutional system SAS region level as well as country level to tackle the marine litter problem
- Assistance to enact specific law or act for each SAS country to properly manage marine litter
- Establishing regional level legal institutional structure to facilitate implementation of international convention, agreement, laws, regulations and treaties
- Introducing urgent project to collect marine litter data in SAS countries
- Preparation and implementation of the proper direct development activities plan to minimize coastal and marine litter in SAS region
- Preparation of research and survey programme to study all aspects of marine litter in SAS region
- Preparation of regulation and enforcement programme for each SAS country to manage the marine litter
- Preparation of country specific education and awareness programme to manage marine litter
- Amending existing instruments to narrow exceptions and clarify enforcement standards
- Establishment of comprehensive national marine litter programmes

SALIENT FEATURES OF WEBINAR 6

The session and presentations highlighted a range of issues and the following aspects:

- Application of standard assessment methodology (developed under countermeasure project) for scaling up;
- Stage & time wise plastic phase-out to be strengthened across plastic value chain for selected items;
- Creation of drivers of recycled plastics sector
- Support for enhancing plastic segregation by strengthening waste management infrastructure and development of ecosystem (EPR, Instruments, Incentives, Pricing)
- Strengthening of reporting, monitoring & evaluation, and regulatory capacity;
- Incentivising innovative product/packaging design to support recyclability
- Application of LCA for scientific environmental evaluation of alternatives.
- Awareness raising & behavior change
- Collection and channelizing plastic bottle recycling via deposit refund system (DRS).
- Deposit refund system has proven to drive behavioural change, dramatically reduce littering and facilitate sustainable recycling outcomes – all in economically viable way.
- Multiple types of innovation towards plastics substitutes such as (i) Polymer Innovation – towards recyclability & biodegradability, (ii) Packaging Harmonization – towards single streaming of flexible, (iii) Delivery & Consumption Innovation – towards lesser use of single use, (iv) EPR Innovation – bringing polluters & conservers

together– plastic exchange and (v) Innovation to Commercialization – plastic index for all.

- A policy needs to be framed to control and manage the litter at the land boundary as it is difficult or impossible to remove the litter once it enters the marine environment and a well coordinated sound National Policy needs to be formulated by involving all concerned stakeholders – Govt, industry, NGOs, people with a clear roadmap of the milestones that have to be met the policy needs to be robustly implemented to achieve the Zero Plastic goal.
- Importance of identifying the most problematic SUP items and assesses the extent of their impacts before imposing bans. A clear definition of SUPs in the Indian context is needed. The need for a national action plan or guidelines for phase-wise banning of plastic items. Plastic items should be classified on the basis of material qualities, recyclability, availability of alternatives, and livelihood security of the informal sector working with them.
- Incentivise effective waste management with focus on segregation, collection and recycling, Effective implementation of EPR and Design and circular innovations.
- The government should invest money in and encourage setting up of ventures that provide sustainable products as an alternative to the non-recyclable products in vogue at present. It should accelerate business-driven innovations and help scale circular economies that focus on systemic stalemates in global material flows so that the need for disposal of materials is delayed.
- The option exists for disposal of plastics via co-processing in cement plant, co-processing in cement kilns is recognized as a good waste disposal option, much ahead of conventional land filling and incineration, owing to nil residue after disposal and complete material and energy recovery. The organics, in the wastes, are completely destroyed and the inorganic are immobilized in the clinker matrix–the intermediate product of cement. After the waste is co-processed, it becomes a part of the product and therefore, no liability lies with the waste generators, whatsoever. Further, wide range of temperature zones in cement kiln processes exist with different residence times which provide opportunities to fine tune waste management systems appropriately.
- Plastic waste specifications to be formulated for co-processing
- Most of the cement plants don't have any shredding facilities. This will require local bodies to establish material segregation & recovery facilities (MSRF) to pre-process the littered plastics and that some large cement plants have shredding facilities and they can pre-process the incoming segregated waste.
- Implementation of extended producer responsibility
- Strong database of types of plastics and their composition and region wise availability
- Establishment of new institutional system SAS region level as well as country level to tackle the marine litter problem
- Assistance to enact specific law or act for each SAS country to properly manage marine litter
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KEY QUESTIONS RAISED BY ATTENDEES / PARTICIPANTS

The session was concluded by answering of a series of questions by the speakers and panellists that were put up by several participants in the workshop.

ENCLOSURES:

- **Press Release (s)**
- **Programme Agenda**
- **Session Flyer**
- **Concept Notes**
- **Presentation by each resource speaker**