



WORLD SUSTAINABLE DEVELOPMENT SUMMIT 2023

MAINSTREAMING SUSTAINABLE DEVELOPMENT
AND CLIMATE RESILIENCE FOR COLLECTIVE ACTION

February 22-24, 2023
New Delhi



Transition towards Circular Economy in the Plastic Sector

THEMATIC TRACK SUMMARY

Venue: Casuarina, India Habitat Centre

Date: 23rd February 2023

Time: 11:30 am - 1:00 pm (IST)

Suggested Citation

World Sustainable Development Summit (2023), Transition towards Circular Economy in the Plastic Sector, Thematic Track Summary (Rapporteur: Mandavi Singh), New Delhi: The Energy and Resources Institute.

Actionable Messages

Message 1: As India raises its material living standards, there's going to be more plastic in the economy, so its management is crucial.

Message 2: All types of plastics must be recognized, and engaging stakeholders across the supply chains is required for effective regulation. At the same time, there is a need to have decentralized, locally relevant goals and policies.

Message 3: Improved metrics, data, and indicators will allow to set targets to empower all players in the ecosystem towards a common achievement. The quest for a recycling modernization fund in India is on. This fund could provide finances for a partnership between the government and industry to expedite the establishment of the recycling industry, and bring technologies – available globally – to India for necessary implementation.

Message 4: Better data collection, data transparency, and monitoring are needed so that the progress in bringing circularity to the plastics economy is understood well.

Message 5: It is important to look into the recyclability of plastics and the efficiency of how much and how many times a particular plastic gets recycled; recycling can alter the property and thus reduce the value of the recycled material.

Narrative

The thematic track session titled, “Transition towards Circular Economy in the Plastic Sector” was conducted as part of the World Sustainable Development Summit (WSDS) - the annual flagship initiative of The Energy and Resources Institute (TERI). The aim of the session was to bring stakeholders across a unified platform, to provide their perspectives and expectations with the hope of integration in the upcoming roadmap of the *India Australia Industrial and Research Collaboration for Reducing Plastic Waste*. This three-year research exercise is funded by Commonwealth Scientific and Industrial Research Organisation (CSIRO). Six organizations from the two countries (TERI, CSIR-NEERI, DA from India; and UNSW, UTS and CSIRO from Australia) have come together with the ambition to enable innovation across the plastic supply chain through research and industry collaboration. The moderator for the session was **Dr. Rita Dhodapkar, Principal Technical Officer and Science Secretary, CSIR-NEERI**.

The session started with a welcome address by **Mr. Souvik Bhattacharjya, Associate Director, TERI**, who thanked the dignitaries for joining the session and highlighted the three-year research project, *India Australia Industrial and Research Collaboration for Reducing Plastic Waste*, a research collaboration among six organizations that aims to enable innovative solutions across plastic supply chains for reducing waste, and pointed out that it laid the foundation through metric and data development and technological interventions across different stages of the product value chain, identification of opportunities across different sectors as well as on ground demonstration of projects for circular economic transition. At the same time, the project explores opportunities of newer and sustainable materials that can also replace plastics while promoting complete circularity, thereby furthering the ambition of India’s flagship program, ‘LiFE’, and strengthening the EPR.

The presentation on the project roadmap was delivered by **Dr. Heinz Schandl, Senior Principal Scientist, CSIRO**. He stated that the collaborative research project has been an important milestone in learning from each other when dealing with shared global intractable problems like plastic waste management. Dr. Schandl said that this project posed questions like, ‘How much plastic is there in India? Where is it used? Where does it flow to? Where does it end up? In regards with the project’s roadmap, Dr. Schandl mentioned that it has jointly been developed in participation with the Indian industry, government, and communities, and it is addressing the issue of setting a single clear framework of how we are going to engage with the plastic circular economy. He stressed on the need to have a transition body if we want to move to a different way in which we manage an industrial ecosystem with a bulk material flow. He highlighted that all types of plastics are needed to be recognized and engagement of all stakeholders across the supply chains is required for effective regulation. At the same time, it is important to set decentralized, locally relevant goals and policies. Local-level integration of learnings across supply chains, phasing out the plastics that are of low value, accessible recycling infrastructure and technologies, supporting circular economy with public procurement policies, fiscal and tax incentives come under the overall strategy of the roadmap. Seven elements of the Indian plastics circular economy were presented, which are recycling, production, consumption, infrastructure, commercial viability, consistence compliance, and awareness and readiness. Dr. Schandl discussed the possibility of a collaborative approach between India and Australia for creating a recycling modernization fund to accelerate the establishment of the recycling industry to bring the technologies forward, and the establishment of the plastics circular economy ‘Innovation Hub’. He concluded by stating that he is looking forward to something ambitious and beautiful, which is a plastic circular

economy in India, and hoped that the roadmap will be picked up by the government and its recommendations will be considered.

Following the presentation, **Dr. Atul Narayan Vaidya, Director, CSIR-NEERI** insisted that plastics must be looked as a material that has virtues and qualities of being durable. At the same time, it is also a menace to the environment and it seems there is no alternative to plastics; hence, its management is a necessity. He talked about looking into the aspects of recyclability of plastics, how many cycles before polymer starts losing its property, and policies or regulations and circular economy scenarios before investigating the end-of-life of materials. Plastic cannot be generalized as it has a lot of variations and it needs different pathways for disposal for which there must be technology-based solutions for different types of plastics. Physical and chemical restrictions are present for recyclability and that cannot be overlooked in circular economy. The increase in virgin plastics, the rise in production and consumption should match the concept of circular economy in the current economic scenario. He also flagged the issue of having a critical look at the production vis-à-vis demand vis-à-vis circular economy.

Ms. Leena Nandan, Secretary, MoEF&CC delivered the keynote address and applauded that India has been first among the nations to call for a ban on single-use plastics. The extended producer responsibility (EPR) framework on various categories of material can bring in circularity. In this regard, CPCB has done a commendable job of bringing together producers, importers, recyclers to one portal. But there is a need to look at the larger narrative of who is producing, at what extent and capacity, and what will happen to the people who are producing this, how do we actually take care of the issue from the inception stage itself, Ms Nandan shared her concern. Banning and enforcement are necessary but that is never going to be sufficient. Roadmap is going to be of immense value to the nation. Access to technology, funds for using that technology, science-backed alternatives, and a market for these alternatives are the questions we need to address, she averred. She said that she would be happy to push this agenda and the roadmap with the sister ministries, the line departments, and organizations, and would take forward those recommendations too. Plastic waste must be properly segregated, aggregated, and brought into the recycling stream to deal with the menace of plastic pollution, said Ms Nandan, while highlighting the PM's 'LiFE' initiative. Green credits can help in plastic waste management and regulation. She concluded that NEERI is doing a great job in developing the technologies and the roadmap brings hope.

Adding to the list of special speakers, **Dr. Ashok Khosla, Chairman, Development Alternatives**, expressed that the roadmap is ready to be written as a first-generation attempt to solve the problems related to plastics. To eliminate plastic waste, we really have to look at the whole issue from the origin to the final destination of the plastics. The concept of waste in plastics doesn't make sense unless you change many things and that change requires innovation, new types of products and business models. There is a need for new technologies, economic principles, ways of measuring benefits and costs, and not externalizing them, but making sure they're counted in a full-cost, full-benefit accounting methodology. We need new business ecosystems and an infrastructure which encourages the adoption both from a point of view of benefits to individual consumers as well as to the public goods and the environment. We need new policy frameworks and public infrastructure, we need new behavioural patterns, new consumption and production systems, and of course, new ways of assessment and foresight mechanisms. When we

adopt a new invention, we need to know what the negatives and positives are. Synergies with non-plastic goals can be another essential consideration. By elucidating the example of Cairo's system of 'collection to disposal', he highlighted the need to look at it as a business that generates value at every stage. In Cairo, there's a small township, where some of the richest people make good money and their sole profession is collection of plastic waste. He concluded by stressing on partnerships with a local start-up, local government body, and a large business and corporation for developing economically viable solutions.

Dr. Prashant Gargava, Member Secretary, Central Pollution Control Board, in his thematic address, talked about the honourable Prime Minister's global initiative, 'Life for Environment (LiFE)' with an emphasis on transitioning from a 'throw-away' culture to 'circularity'. As per the estimates, we have four billion tons of plastic waste being generated every year. This entire waste must be channelized for proper management. The current EP framework is enabling not only in terms of managing the waste effectively, but also bringing in a circularity into the entire aspect. It also mandates recycled material use for different categories of plastics. So, it helps develop a business model ecosystem. CPCB has developed a portal where the entire process starts with producers, importers, brand-owners getting registered onto the portal. Through a verifiable system, the quantity of plastics that they put into the market is examined through automated fixing-up targets. Different channels are in place for fulfilling the CPCB obligations to ensure transparency. He concluded by stating that CPCB is ensuring that EPR gets enforced properly, and it is also facilitating R&D support for creating the infrastructure so that the framework is not reduced to being a command-and-control kind of thing.

Following the discussion, moderator **Dr. Rita Dhodapkar, Principal Technical Officer and Science Secretary, CSIR-NEERI**, opined that plastic value chain has so many practical challenges including the recognition of plastic as resource material. Taking forward the discussion, Dr. Dhodapkar asked **Mr. Mahesh Patil, Chairman, Goa State Pollution Control Board** about the role of an implementation agency and a regulatory body in plastic waste management at the state level. What are the challenges being faced and what were his thoughts on the success of EPR policy in the current scenario, asked Dr. Dhodapkar. In his answer, Mr. Patil stated that Goa has the highest per capita consumption and it is critical for a state where we have a floating population of three times of the total population; so, the first challenge is, how to get rid of it and there cannot be a single solution. He said, the regulative framework should not be only about polluter pay/punish approach, but more on sensitization of every stakeholder, which is most important since we have banned single-use plastics. He added that it is a combined effort to deal with plastic pollution; one is, as a regulator, all states should not allow manufacturing; number two concern is about its replacement, how we can replace it with a more sustainable option. He concluded that EPR is helping the country, but it's still a long way to go.

Dr. M Abul Kader, Principal Director & Head, Central Institute of Petrochemicals Engineering & Technology (CIPET), Ahmedabad, talked about circular economy in the plastic sector and how it can be eased through technological interventions supporting artificial intelligence. The modern sensor technology, infrared technology, hyper selective or hyperspectral imaging technology, x-ray fluorescent technology are advancements in the sorting methodology. He said, a material should be designed in such a way that after the end of the product, it

undergoes complete degradation. He stated that CIPET India has 40 research centres exclusively for the biodegradation type of business facilities helping in the R&D and awareness regarding recyclability of plastics, thus ensuring circularity in the plastic sector.

Dr. Monique Retamal, Research Director, University of Technology, Sydney, Institute for Sustainable Futures, Sydney, Australia briefed that recycling is critical for circularity. Collaborations between research and industry, commercialization, networking across supply chains and source systems can enable technology to work effectively. She insisted on having better data collection and transparency along with education and awareness-raising to enable the enforcement of good policies, and ensuring active participation among the industry and communities. She concluded by saying that research can help find systems that are context suitable to engage with experimentation and analysis.

Sharing her experiences and views on material flows and recycling modernization fund in India, **Dr. Medha Tadpatrikar, Director, Rudra Environmental Solutions** said, the problem is that chemical recycling is not getting popular or there are not many recyclers in India, and the ULBs are unaware of the latest technologies. Even with knowledge, the money becomes a big factor and here, a recycling modernization fund is something which can elevate the sector. A decentralized model can work and that is what her company has been trying to do over the years, she shared.

About scaling up the use of non-plastic alternatives to packaging in India, **Mr. Amit Lahoti, Senior Commercial Director and General Manager - Asia, Ball Beverage Packaging** opined that plastics are hard to abate, hence, their alternatives are important. Given the volume of work around plastics, if even 10% of that energy could be invested in finding sustainable alternatives, that will be of great service to the sector, he explained. Consumer-awareness, identification of the places and sectors where plastics can be replaced are important considerations, he said.

In her closing remarks, **Dr. Vibha Dhawan, Director General, TERI** thanked all the stakeholders, the dignitaries, and panelists, and added that though plastic has become a part of our life and abating it in our lifetime seems hard, it can be brought about by changing our lifestyle and being responsible in our consumption patterns.

Making Words Count @WSDS 2023

“	<p>The India Australia Industrial and Research Collaboration for Reducing Plastic Waste project's roadmap is a clear indicator for business fraternity, policymakers, and manufacturers to see what and where we stand in terms of plastic and its whereabouts. Collaborative approach is needed for the roadmap implementation.</p> <p style="text-align: right;">Dr. Heinz Schandl Senior Principal Scientist, CSIRO</p>
“	<p>It has to be a technology-based solution for plastic management. We must look into recyclability of plastics and its efficiency. Circular economy cannot be feasible if we don't talk about EOL (end-of-life) of materials, especially plastics.</p> <p style="text-align: right;">Dr. Atul Narayan Vaidya Director, CSIR-NEERI</p>
“	<p>Plastics are not going to get banned; we have to be creative enough to bring innovative solutions. Synergy of plastic waste management and other sectors is needed to add high value to the product.</p> <p style="text-align: right;">Dr. Ashok Khosla Chairman, Development Alternatives</p>
“	<p>EPR is facilitating the circular economy approach. CPCB is trying to facilitate how alternatives to plastics can be eased into economy, while also accommodating the R&D support for the stakeholders.</p> <p style="text-align: right;">Dr. Prashant Gargava Member Secretary, CPCB</p>
“	<p>Circular economy is critical in India. Management of plastics can lead to a lesser flow of materials in the economy.</p> <p style="text-align: right;">Dr. Rita Dhodapkar Principal Technical Officer & Science Secretary, CSIR-NEERI</p>
“	<p>Sensitization of stakeholders is important and EPR is helping us, but it's still a long road ahead.</p> <p style="text-align: right;">Mr. Mahesh Patil Chairman, Goa State Pollution Control Board</p>
“	<p>Doing continuous recycling is not efficient as it leads to quality reduction; hence, newer technological interventions are needed. CIPET is doing R&D for recycling technology for management of plastics.</p> <p style="text-align: right;">Dr. M Abul Kader Director, CIPET, Ahmedabad</p>
“	<p>There is a need for better data collection, transparency, and efficiency in plastic waste management. We must focus on reduction of plastics as well.</p> <p style="text-align: right;">Dr. Monique Retamal Research Director, ISF-UTS</p>
“	<p>Looking for plastics alternatives is the need of the hour. Consumer awareness is needed for people associated across the plastic value chain.</p> <p style="text-align: right;">Mr. Amit Lahoti Senior Commercial Director & General Manager - Asia, Ball Beverage Packaging</p>

“	<p>Chemical recycling is not getting popular due to cost constraints. Technology costs are high and recycling fund could be one step forward toward implementation of new recycling infrastructure.</p> <p style="text-align: right;"><i>Dr. Medha Tadpatrikar</i> <i>Director, Rudra Environmental Solutions</i></p>
“	<p>There is a need to look at the larger narrative about production, consumption, and EOL of plastics. Green credits can help in plastic waste management and regulation. The Ministry is going an extra mile to create efficient plastic waste management on many fronts and is not just imposing new rules.</p> <p style="text-align: right;"><i>Ms. Leena Nandan</i> <i>IAS, Secretary, MoEFCC</i></p>