

India – Australia Industry and Research Collaboration for Reducing Plastic Waste

Both India and Australia suffer from large amounts of plastic waste ending up in landfill or leaking into waterways and oceans. This results in a loss of material value and creates adverse environmental impacts. Both countries also share the ambition to enable innovation across the plastics supply chain through research and industry collaboration to achieve a circular plastics economy. This collaboration prepares the foundation for a circular economy transition by identifying the size of the issue and creating a roadmap, co-developed with industry and government stakeholders, to drive change in plastics supply chains and to demonstrate innovation on the ground in a series of demonstration projects.



Bales of plastic bottles ready to recycle. Image Flickr



Collaboration

Six research organisations from both India – The Energy and Resources Institute (TERI), the Council of Scientific and Industrial Research (CSIR) and Development Alternatives; and Australia – University of New South Wales (UNSW), the University of Technology Sydney (UTS) and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) are collaborating on this three-year research project to catalyse innovation in plastic supply chains for greater circularity. The project commenced in July 2020.

Research outcomes

- A comprehensive knowledgebase of plastics material flows from import and domestic production, to use, disposal, recycling and reuse.
- A full supply chain analysis of plastics use in key sectors including packaging, agriculture, construction, automotive, electronics and household appliances sectors identifying supply chain actors and physical and monetary interactions.
- A roadmap identifying the main technical innovations, both at community and large industrial scale.
- A set of principles and strategies including institutional and economic factors, new business models and markets that facilitate the transition to a circular plastics economy.
- A series of circular economy demonstrations in urban and rural locations in India, both small and community scale.
- A continuous process of evaluation and learning that will build a knowledgebase that can be scaled up to the whole economy for all types of materials to foster circular interactions.

National circular economy roadmap for unlocking plastic waste transformation in India

This report would aim to:

- Establish an innovation partnership between industry, government, civil society and the R&D community to identify solutions within next 1-3 years.
- Reduce the amount of plastic that go to landfill or leak to the environment by 75% by 2030.
- Achieve a fully circular plastic economy through designing out waste, reusing and recycling of end-of-life materials by 2040.

Research Activities

The following outlines the broad activities to be undertaken by research teams comprised of a mix of researchers from the six partner organisations.

Metrics and Data

- Develop metrics and establish datasets that enable assessment of the magnitude of plastics waste and how quickly waste flows are growing in India.
- Develop an understanding of the main supply chains for different polymers in India and associated waste flow destinations and leakages to waterways and oceans.

Innovation and Technology

- Co-develop an industry and technology roadmap for a plastics circular economy unlocking future growth opportunities including short term opportunities for enhanced recycling of current plastics waste flows and accumulated plastic stockpiles and medium-and long-term strategies for industrial redesign and creation of new materials, products, processes and business models that allow for depolymerisation.

Policy and Behaviour

- Identify growth opportunities and new industries and factors enabling sector change including assessment of infrastructure, regulations, market access, sector structure, skills and culture and strategic planning through the road map process.
- Evaluate and monitor the initiative, identify policy implications for economic and employment growth enabled by new industries based on scientific innovation and plan for scale-up in follow-up bilateral activities between Australia and India.

Demonstration Projects

- Establish new opportunities and create innovation capacity through identifying local and Australian industry partners to establish demonstration projects through industrial redesign and new business models.
- Implement demonstration projects located in different parts of India, including both urban and rural locations, small community scale and large industrial scale applications.
- Undertake assessments of economic and environmental implications of the demonstration projects.

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