

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF SCIENCE AND TECHNOLOGY
RAJYA SABHA
UNSTARRED QUESTION No. 3162
ANSWERED ON 27/03/2025

PLASTICS AND THE CIRCULAR ECONOMY

3162 DR. SIKANDER KUMAR:

Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

- (a) whether Government has signed any agreement to enable downstream production of circular plastics and sustainable chemicals;
- (b) if so, the details thereof;
- (c) whether financial assistance has been provided to foster indigenous technological advancements in sustainability, if so, the details thereof; and
- (d) the steps taken to establish a self-reliant circular economy reducing reliance on imported crude oil and fostering employment generation?

ANSWER

MINISTER OF STATE (INDEPENDENT CHARGE) FOR THE
MINISTRY OF SCIENCE AND TECHNOLOGY & EARTH SCIENCES
(DR. JITENDRA SINGH)

(a) to (b): Yes Sir. Technology Development Board (TDB), a statutory body under Department of Science and Technology (DST), has signed an agreement with M/s APChem Private Limited, Navi Mumbai (2025), for production and commercialization of purified pyrolysis oil to enable downstream production of circular plastics and sustainable chemicals.

Council of Scientific & Industrial Research (CSIR) has signed Memorandum of Understanding (MoU) with Delhi Development Authority (DDA) and Municipal Corporations of Delhi in 2019 for setting up of a plant to convert waste plastic to diesel and tiles using technologies developed by CSIR-Indian Institute of Petroleum (CSIR-IIP), Dehradun and CSIR-National Physical Laboratory (CSIR-NPL), Delhi.

CSIR-Indian Institute of Chemical Technology (CSIR-IICT), Hyderabad has a technology for converting different plastic waste to value-added products such as green plasticizers, fuel oil, preparation of monomers and hydrogen. Agreements have been signed with, CDG Petchem Limited, Hyderabad; Clean Seas India Private Limited, Hyderabad; Khar Energy Optimiser, Hyderabad; Resqpol Private Limited, Hyderabad and KLJ Private Limited, Delhi.

(c) Yes Sir. In order to foster indigenous technological advancements in sustainability, DST's TDB has provided financial assistance for development of an integrated plant for the recovery of precious metals from E-waste, Jeweller's waste, Automobile catalyst waste and also for setting up of a commercial plant for recycling Li batteries and E-waste using indigenous technology.

CSIR had sanctioned Rs. 345 crores to its constituent laboratories in the last three years for 15 projects supported under different categories to foster indigenous technological advancements in sustainability.

Department of Chemicals and Petrochemicals (DCPC) has setup 18 Centres of Excellences (CoE) to promote research on recycling process technologies, development of eco-friendly processes and products to minimize waste generation, reduce energy consumption, utilize renewable feedstocks, development of biodegradable and bio-based chemicals for various applications, etc.

(d) Government of India has undertaken several steps across ministries to establish a self-reliant circular economy, generate employment and reduce dependence on imported crude oil, as detailed below:

- Ministry of Environment, Forest and Climate Change (MoEF & CC) has issued Plastic Waste Management Rules, 2016, and the Plastic Waste Management Amendment Rules, 2021, enforcing Extended Producer Responsibility (EPR) for plastic packaging, mandating recycling and reuse. The ban on single-use plastics (effective from 2022) encourages alternative materials and reducing petroleum-based imports.
- Ministry of Petroleum and Natural Gas (MoP & NG) are scaling up biofuel production, reducing crude oil imports and creating rural jobs in biomass supply chains.
- Ministry of Housing and Urban Affairs (MoHUA) has setup Material Recovery Facilities (MRFs) nationwide, employing thousands in waste segregation and recycling, while promoting circularity in plastics.
- DST through Waste Management Technologies (WMT) program, has been supporting research and innovation on circular economy with potential to ameliorate the environmental load from the huge amount of residuals generated by industrial development and consumption lifestyle.

These efforts are collectively building self-reliant circular economy and also helping generation of employment.
