CIRCULAR BATTERY WASTE MANAGEMENT - ENVIRONMENTT

Parliamentary Question - Circular Economy For Batterie. India has implemented the Battery Waste Management Rules, 2022, to enforce a circular economy for all battery types through Extended Producer Responsibility (EPR). The rules mandate producers to meet recycling targets and use domestically recycled materials, formalizing the waste management sector via an online portal.

New Rules for Battery Waste Management

The Ministry of Environment, Forest and Climate Change (MoEF&CC) has implemented the Battery Waste Management Rules, 2022. This policy is a significant step towards promoting the recycling and refurbishment of batteries, aiming to establish a robust circular economy in India's rapidly growing battery sector.

Battery Waste Management Rules, 2022

Comprehensive Coverage - The rules are designed to be all-encompassing, applying to every category of battery sold in India. This includes - Electric Vehicle (EV) batteries, Portable batteries (in phones, laptops, etc.), Automotive batteries (used in conventional cars), Industrial batteries (for power backup, machinery, etc.)

Introduction of Extended Producer Responsibility (EPR) -This is the cornerstone of the new rules. It makes producers and importers legally responsible for the entire lifecycle of their products, especially after they become waste. Under EPR, they must meet specific annual targets for the collection, recycling, or refurbishment of used batteries.

Mandatory Use of Recycled Materials - To create a domestic market for recycled goods and reduce reliance on virgin materials, the rules mandate the use of a minimum percentage of domestically recycled materials in the manufacturing of new batteries. This provision will come into effect from the financial year 2027–28.

Formalisation of the Informal Sector - The rules aim to integrate the large informal waste collection and recycling sector into the formal economy. This is achieved through - Mandatory registration of all players, Allowing registered entities to trade EPR certificates, Providing support for upgrading informal recycling clusters into formal, compliant facilities.

EPR Online Portal and Progress

Functionality - A dedicated online portal has been established to serve as a centralized digital platform. It facilitates the registration of producers and recyclers, enables the exchange of EPR certificates, and allows for transparent reporting on compliance with the new rules.

Current Status - The portal has seen significant adoption -
3,664 producers and 442 recyclers have been registered so far. Producers have successfully procured EPR certificates for 7.29 lakh metric tonnes (MT) of key battery metals, against a total target of 10.96 lakh MT, demonstrating tangible progress.

Technology and Industry Initiatives

MeitY's Role in Upgradation - The Ministry of Electronics and Information Technology (MeitY) is actively promoting the upgradation of the informal recycling sector through its MSE-CDP scheme (Micro and Small Enterprises - Cluster Development Programme).

C-MET Indigenous Technology Transfer - The Centre for Materials for Electronics Technology (C-MET) has developed an indigenous technology for Li-ion battery recycling. This technology is being shared with startups and industries under Mission LiFE (Lifestyle for Environment), boosting self-reliance in this critical sector.

PLI-ACC Scheme (2021) - The Production Linked Incentive (PLI) scheme for Advanced Chemistry Cell (ACC) battery storage, launched in 2021 with an outlay of ₹18,100 crore, aims to create a domestic

manufacturing capacity of 50 GWh. The industry response has been overwhelmingly positive, with over 10 companies announcing plans for an additional 100+ GWh of capacity.

Collaborative MoUs (2024) - Labs under the Council of Scientific & Industrial Research (CSIR) have signed Memoranda of Understanding with private recyclers. These collaborations aim to facilitate technology transfer, build advanced recycling infrastructure, and secure a domestic supply chain for critical minerals recovered from battery waste.

The Circular Economy

Concept and Principles - A circular economy is an economic model that aims to eliminate waste and maximize the value of resources. Its core principles are:

Design for Longevity - Products are designed for durability, reuse, and easy recyclability.

The 6Rs - It is based on the principles of Reduce, Reuse, Recycle, Refurbish, Recover, and Repair.

Contrast with Linear Economy - It stands in direct opposition to the traditional linear economy model of "take–make–dispose," where resources are extracted, used, and then thrown away.

Need for a Circular Economy in India

Adopting a circular economy is essential for India due to several pressing factors:

1. Rapid economic growth, increasing urbanisation, and climate change.
2. Rising levels of waste generation across the country.
3. It supports Sustainable Development Goal 12 (Sustainable Consumption and Production).
4. It helps reduce India's import dependence on raw materials, cuts the national carbon footprint, and generates green jobs.

Global Experience - Several countries have already embraced the circular economy

1. Germany & Japan - Have adopted it as a core organizing principle of their economies.
2. China - Enacted a specific Circular Economy Promotion Law to regulate industries.
3. European Union - Is implementing a comprehensive Circular Economy Action Plan as part of its European Green Deal.

India's Policy Push

India is promoting a circular economy through a multi-pronged policy approach:

Key Regulations - The Battery Waste Management Rules, 2022, along with the Plastic Waste Management Rules, 2022, and e-Waste Management Rules, 2022, form the legal backbone.

EPR Framework - Extended Producer Responsibility is the central policy tool used to obligate producers to manage their end-of-life products.

Sectoral Action Plans - The government is developing specific action plans for high-priority sectors like e-waste, EV batteries, scrap metal, end-of-life vehicles, and municipal waste.

Benefits of a Circular Economy

1. Reduces pressure on finite natural resources.
2. Mitigates environmental degradation and the impacts of climate change.
3. Promotes inclusive and sustainable industrial development (ISID).
4. Aligns perfectly with the goals of the 2030 Agenda for Sustainable Development

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