Circular Economy

Mains: *GSIII – Economic Development*

Why in News?

The World Circular Economy Forum (WCEF) recently concluded in Gandhinagar, highlighting the growing importance of the circular economy (CE).

What is Circular Economy?

- **Circular economy** – It is an economic system that seeks to minimise resource extraction and waste generation by keeping products, materials and resources in use for as long as possible.
- Unlike the traditional linear model "take, make, use and dispose", a circular economy promotes:
    - Reduce, Reuse, Repair, Refurbish, Remanufacture, Recycle, Recover.
- **Objective** – To decouple economic growth from resource depletion and environmental degradation.
- **Evolution of the Concept –** The term "circular economy" is associated with Pearce and Turner (1990).
    - However, the underlying ideas existed earlier through concepts such as closed-loop economy, cyclic economy and closed spaceship economy.
- Initially, the focus was on resource scarcity, pollution and waste containment.
- Later, CE has evolved from a defensive environmental approach into a broader economic and development strategy.

3 Dimensions of Circular Economy
1. **How – Principles** • Reduce resource use and waste. • Reuse, repair and refurbish products. • Remanufacture and recycle materials. • Recover resources where necessary. • Design for durability and recyclability. 2. **Why – Objectives** • Reduce waste and pollution. • Conserve resources and improve efficiency. • Minimise environmental degradation. • Promote sustainable economic growth. • Ensure intergenerational sustainability. 3. **Who – Enablers** • Government and policymakers • Industries and businesses • Consumers and communities • Academia and researchers • Waste-management sector

What are the Key Gaps in the Circular Economy Approach?

- **Overemphasis on Recycling** – A major concern is that CE is often reduced to recycling alone than reduction, reuse and repair.
  - Incineration or recovery may also be wrongly presented as circularity.
  - This can allow fundamentally linear production systems to continue under a "circular" label.
- **Neglect of "Reduce" –** Reduce receives comparatively less attention than reuse and recycling.
- **Business Model Gap** – Although business models are considered central to CE, they appear explicitly in only a minority of definitions.

    - A genuinely circular business model could involve: Product-as-a-service, Leasing + Repair + Take-back systems + longer product life.
    - **For example**, simply recycling discarded mobile phones does not make the entire business model circular if products continue to be designed for rapid replacement.
- **Social Equity Deficit** – Social equity and the interests of future generations remain relatively weak elements in CE frameworks.
    - A truly sustainable circular economy should also address –
        - Employment transitions.
        - Informal waste workers.
        - Access to affordable products and services.
        - Distribution of costs and benefits.
        - Intergenerational equity.
        - Country and Sector-Specific Approaches
    - Circular economy does not have a single universal implementation model.

Specific examples
• **China** – Circular Economy Promotion Law, 2008, emphasises the 3R approach — Reduce, Reuse and Recycle. • **European Union** – Focuses on resource efficiency, closing material loops and circular supply chains. **Industry-specific examples –** • **Textiles** – Reuse, recycling and employment transition. • **Automobile sector** – End-of-life recovery, remanufacturing and component reuse. • **Construction** – Deconstruction and reuse of building materials. • **Eco-industrial parks** – Exchange of waste and by-products between industries. • **Packaging/FMCG** – Increasing use of recycled materials and closed-loop packaging systems.

What is its Significance for India?

- **Resource Security** – Reducing dependence on virgin raw materials can improve resource and supply-chain security.
- **Waste Management** – India faces growing challenges from plastic, electronic, construction and municipal waste.
- **Employment** – Repair, refurbishment, recycling and remanufacturing can generate green jobs, particularly for informal workers.
- **Industrial Competitiveness** – Efficient resource use can reduce input costs and improve the competitiveness of Indian industries.
- **Climate Goals** – Reducing extraction, production-related emissions and waste can contribute to India's climate and sustainability objectives.
- **Sustainable Urbanisation** – Circular approaches can support sustainable cities through resource-efficient infrastructure, waste management and reuse of materials.

What could be done?

- **Follow the Waste Hierarchy** – Policy should prioritise Reduce, Reuse, Repair, Refurbish, Remanufacture, Recycle, Recover rather than treating recycling
- **Promote Circular Product Design** – Encourage durability, repairability, modularity,

recyclability and longer warranties.

- **Transform Business Models** – Promote leasing, product-as-a-service, take-back systems and sharing models rather than only end-of-life recycling.
- **Integrate Social Equity** – Recognise and formalise the role of informal waste workers while ensuring a just transition towards green employment.
- **Develop Sector-Specific Strategies** – Circularity should be adapted to sectors such as textiles, automobiles etc. while maintaining common national principles.
- **Strengthen Measurement** – India needs clear indicators measuring material consumption, product lifespan, reuse rather than just measuring recycling rates.

What lies ahead?

- Circular economy should not become merely a new label for conventional recycling.
- Its transformative potential lies in redesigning how products are made, used, repaired, reused and eventually recovered.
- The focus should therefore shift from a narrow "waste-to-value" approach to a whole-system transformation of production and consumption, while ensuring social and intergenerational equity.

Reference

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