



CIRCULAR ECONOMY - GS III MAINS

Q. Adoption of a circular economy addresses mounting challenges concerning waste management and resource depletion in India to build a sustainable future. Elucidate (15 marks, 250 words)

News: *Careers in India's circular economy*

What's in the news?

- With mounting challenges concerning waste management and resource depletion facing us, students need to consider options in the circular economy to build a sustainable future.

Circular Economy:

- A Circular Economy is the one where products are designed for durability, reuse and recyclability and thus almost everything gets reused, remanufactured, and recycled into a raw material or used as a source of energy.

Principles:

- It includes 6 R's - Reduce, Reuse, Recycle, Refurbishment, Recover, and Repairing of materials.

Significance for India:

Adoption of a circular economy in India will result in yearly benefits of \$624 billion by 2050 and a 44% reduction in greenhouse gas emissions.

1. Construction:

- Circular Economy Principles can be incorporated into the design of the infrastructure to create more effective material cycles.
- More systemic planning of city spaces, integrated with circular mobility solutions, can contribute to higher air quality, lower congestion, and reduced urban sprawl.

2. Food and Agriculture:

- **Combining local knowledge and traditional methods** (like working with a large variety of species) with modern technology (like precision farming, and digitally enabled asset- and knowledge-sharing systems) could increase yield.
- **Reducing food waste** across the supply chain could make the Indian food system even more effective.
- **Urban and peri-urban farming** can bring food production closer to consumption, reducing food waste and transportation requirements.



3. Mobility:

- Circular economy helps the Building vehicles that rely on zero-emission propulsion technology could reduce negative externalities, such as GHG emissions, congestion, and pollution.

4. Job Creation:

- The circular economy is making this future a reality, creating circular jobs and fostering sustainable growth in India.
- The circular economy in India can create new job opportunities in areas such as recycling, refurbishment, and product design.

5. Reduce Green House Gas Emissions:

- In a circular economy, greenhouse gas emissions are automatically reduced.
- Efficient and circular use of materials in four key industrial materials (cement, steel, plastics, and aluminum), can help reduce global GHG emissions by 40 percent by 2050.

6. Address Environmental Pollution:

- The application of circularity in the economy creates vital ecosystems such as soil, air and water bodies.
- These ecosystems provide services such as cleaning, products such as fertile farmland, pollination and clean drinking water.

7. Resource Conservation:

- The extraction of raw materials and the dumping of waste have a negative impact on nature reserves. These nature areas are important for the preservation of ecosystem services, natural and cultural heritage.
- The circular economy also allows to decrease the dependence on importation of resources (raw materials, water, energy).

Government Measures:

1. Act and Rules:

- Plastic Waste Management Amendment Rules, 2021 - prohibits identified single use plastic items by 2022. Thickness of plastic carry bags increased from 50 to 75 micrometers from 2021 and to 120 micrometers with effect from 2022.
- It has also **mandated Extended Producer Responsibility (EPR)** that incorporates circularity by making manufacturers of products responsible for collecting and processing their products upon the end of the products' lifetime.

2. Guidelines for Plastics Management:

- Plastic Waste Management Amendment Rules, 2022 - The guidelines provide a framework to Strengthen the circular economy of plastic packaging waste.



3. India Plastics Pact:

- It is the first of its kind in Asia.
- The Plastics Pact is an ambitious and collaborative initiative to bring stakeholders together to reduce, reuse and recycle plastics within the material's value chain.

4. Project REPLAN:

- Project REPLAN (stands for REducing PLastic in Nature) launched by Khadi and Village Industries Commission (KVIC) aims to reduce consumption of plastic bags by providing a more sustainable alternative.

5. National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management:

- India launched a **nationwide awareness campaign** on Single Use Plastics on World Environment Day in June 2022.
- A **mobile app** for Single Use Plastics Grievance Redressal was also launched to empower citizens to check sale/usage/manufacturing of SUP in their area and tackle the plastic menace.

6. Recycling Initiatives:

- NITI Aayog has undertaken several initiatives to address the challenges in the utilization of waste as a resource and to evolve a perspective on the recycling industry in India. Progress has been made in promoting the usage of fly ash and slag produced in the steel industry in other sectors.

7. International Conferences:

- NITI Aayog has organized an international conference on 'Sustainable Growth through National Recycling' and has prepared strategy papers for resource efficiency in sectors like Steel, Aluminium, Construction and Demolition and e-waste.

WAY FORWARD

1. Provision of Incentives:

- The Government can incentivize India's production systems to adopt practices around the principles of circular economy so that they not only reduce resource dependency but also gain competitiveness. This requires a close collaboration between the Government and industry.

2. Collaboration with Business Ideas:

- Businesses can integrate circular economy principles into their strategy and processes. They can train current and prospective employees on circular product design and new business models.

3. Local Alternatives:

- Circular and local models have proven to be more resilient and efficient in addressing the needs of the masses.
- The Government should encourage local alternatives to enable local supply chains.



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4. Removing Red Tapism:

- The focus of the Government's effort has been more on recycling. Now the focus should shift up the value chain to include principles of circular economy in the design and manufacturing stages.
- The effort should be geared towards creating enabling regulatory frameworks and removing policy barriers.

5. Inclusion with Education:

- Circular economy principles should be embedded into education. Bringing circular economy principles into education, from school through to professional development, can equip learners with the right systems thinking skills and mindsets to become active shapers of a circular economy.

