



RESET INDIA- CIRCULAR ECONOMY: CONCEPT AND CHALLENGES

CONTEXT:

- With a **growing population, rapid urbanisation, climate change and environmental pollution, India must move towards a circular economy.**
- An economic approach aimed at eliminating waste and the continual use of resources, circular economy offers a new paradigm that emphasizes on the need to take a comprehensive view of products and processes.
- At Circular Economy Symposium 2019, **NITI Aayog CEO said that Circular Economy has the potential to generate 1.4 crore jobs in next 5-7 years.**

WHAT IS CIRCULAR ECONOMY?

- The circular economy is a **model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible.** In this way, the life cycle of products is extended.
- This is a departure from the traditional, **linear economic model, which is based on a take make-consume-throw away pattern.**
- It **relies on large quantities of cheap, easily accessible materials and energy.**

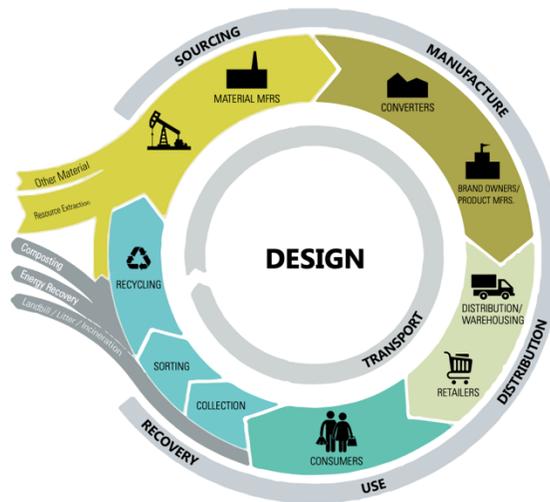
BACKGROUND:

- India has been **one of the fastest growing economies and is tipped to become the fastest growing major economy in the world.**
- This robust economic growth coupled with **rising household incomes have resulted in increased consumer spending,** which is expected to reach USD 4 trillion by 2025.
- With a **population of 1.3 billion people, accounting for 18% of the global population, living on only 2.4% of the world's surface, India is poised to face significant resource constraints.**
- India, thus, **must embark on a positive, inclusive and environmentally sustainable model of development.**
- There is increased demand for natural resources, be it land, soil, water or mined materials.
- In India, **extraction of primary raw materials increased by around 420% between 1970 and 2010.**
- India's **dependence on the international market for accessing critical resources like rare earth minerals etc. due to shrinking reserves, technical constraints etc.**
- Unlocking circular economy opportunities holds the key to lead this transformation towards building a low carbon resource efficient economy.
- The conventional growth model of India's manufacturing sector is running up against the planet's ability to provide and replenish finite resources.
- Additionally, the traditional linear economy approach results in **massive waste generation at all stages of a product life cycle.**
- Decoupling economic growth from resource use can be achieved by a circular economy approach based on sharing, leasing, reusing, repairing, refurbishing and recycling, in an (almost) closed loop, to limit the leakage of resources as much as possible.



- Essentially, circular economy goes beyond recycling and is based around a restorative industrial system geared towards treating waste as a resource.

Figure 1: Diagrammatic representation of a circular economy



CHARACTERISTICS AND PRINCIPLES OF CIRCULAR ECONOMY:

The following '5R' principles lies at the heart of achieving circularity in any product, process or service:

1. **Reduce:** The emphasis is on achieving resource efficiency by prioritizing use of regenerative and restorative resources.
2. **Reuse:** This encompasses two aspects – first is to reuse the useful parts / components of a product, wherever possible and second is to promote greater use of product-as-a-service through sharing platforms.
3. **Recycle:** Focus is on creating a closed loop system to utilize discarded material as a source of secondary resource, through extensive recycling
4. **Re-manufacture:** In this approach, idea is to create new products by utilizing waste streams through cooperation and collaboration between multi-sector industry actors or symbiotic relationship between a network of companies in a particular value chain
5. **Repair / refurbish:** The aim is to preserve and extend the life of a product that is already made by designing for the future. It is important to ensure at the design stage itself that the product is designed for appropriate lifetime and extended future use.



THE CASE FOR A CIRCULAR ECONOMY IN INDIA

- **Economic Impact:**
 - A circular economy development path in India **could create annual value of ₹14 lakh crore in 2030 and ₹40 lakh crore in 2050** compared with the current development scenario as costs to provide the same level of utility would be significantly lower in the circular development scenario.
 - By adopting circular economy approaches, **businesses could achieve material cost savings and increase their profits.** The key drivers include better product design, innovative business models, and reverse logistics.
 - India **can achieve competitive advantage over mature economies** by moving to a circular economy.
 - It has **the power to increase GDP, bring greater local employment in entry-level and semiskilled jobs and make companies less dependent on the volatility of the price of raw materials.**
 - This **gives businesses the chance to learn about their customer's usage patterns and behaviors,** as they get to interact more often with them.
- **Environmental Impact:**
 - A circular economy development path could significantly mitigate negative environmental externalities. For example, **greenhouse gas (GHG) emissions could be 23% lower in 2030 and 44% lower in 2050 compared with the current development scenario.**
 - A circular economy **could deliver benefits for the Indian population, such as cheaper products and services and reduced congestion and pollution.**
 - A circular economy development path **could halve carbon dioxide emissions by 2030, relative to today's levels.**
 - **Negative externalities such as land use, soil, water and air pollution are better managed, as well as the emission of toxic substances and climate change.**
- **Technological Impact:**
 - Leveraging digital technology to enable the circular economy **could reinforce India's position as a hub for technology and innovation.**
 - For example, in the food system, digitised supply chains and platforms for sharing assets (thus maximising their utilisation rate) and knowledge (best practices) among small farmers can create significant benefits.

CIRCULAR ECONOMY OPPORTUNITIES FOR INDIA

- **Cities and construction:** liveable cities with buildings and infrastructure that meet the future needs of India's expanding population
- **Food and agriculture:** a regenerative, restorative agricultural system that combines modern technology with traditional practices to meet India's growing food demand
- **Mobility and vehicle manufacturing:** a convenient, multimodal transport system enabled by digital technology, for resource-optimised and efficient mobility



BARRIERS TO THE IMPLEMENTATION OF A CIRCULAR ECONOMY MODEL

- **Economic Barriers**
 - Social and environmental externalities are not considered in prices, privileging financial market signals instead of people and nature when economic decisions are made;
 - Prices of raw materials are fickle and at low prices alternative, good quality secondary resources are not competitive;
 - Circular economy business models are harder to develop, as most investors are still working under a linear economy logic and sometimes upfront investments are required;
 - The demand for circular products and alternatives is still small,
 - There aren't still many qualified professionals with technical or 'information and communication technology' (ICT) knowledge.
- **Institutional Barriers**
 - The fact that our current economic system is geared towards the demand of the linear economy and ain't yet prepared to deal with circular economy entrepreneurs;
 - New business models may be challenging to implement and develop because of laws and regulations that aren't prepared for this kind of innovations;
 - Plenty of businesses rely on old and/or strong alliances, making it harder to create new alliances and therefore to close loops;
 - Many companies still have goals and appraisal systems that focus on short-term value creation, whereas the circular economy model is a long-term value creation model;
 - The GDP index doesn't consider social and environmental externalities, discouraging the creation of value in both these areas.

WAY FORWARD:

- **Build circular economy knowledge and capacity.**
- **Innovate to create new products and business models** and demonstrate their success.
- **Integrate circular economy principles into strategy and processes.** To have the right incentives for value creation in place, circular economy aspects should be taken into account when designing an organisation's governance structure.
- **Collaborate with other businesses, policymakers, and the informal economy.**
- **Invest in circular economy opportunities.**
- **Need for Legislation** to promote the circular economy in the country.
- Policies like Zero Effect, Zero Defect in manufacturing stage, National Electricity Mobility Mission Plan in consumption stage, and the various Waste Management Rules in disposal stage, if tweaked properly, can be the ideal for integrating circular economy into the fabric of the Indian economy.
- **Adequate financing** needed for realization of these newer opportunities through innovative financing instruments, such as Green bonds, municipal bonds, SDG-aligned bonds
- Government should:
 - set direction and show commitment. **Clear policies and communication** can encourage private and public investment in relevant research and business development.
 - Create **enabling regulatory frameworks and remove policy barriers.**
 - Create **platforms for multi-stakeholder collaboration.**



APTI PLUS
Academy For Civil Services
The Best IAS Academy In Eastern India SINCE 2006
An ISO 9001 : 2008 Certified Institute
Creating Civil Servants for the Nation



- Support circular models through **public procurement and infrastructure.**
- **Embed circular economy principles into education.**

<https://youtu.be/I0aJKy1FCpg>

<https://wsds.teriin.org/2018/files/teri-yesbank-circular-economy-report.pdf>

https://smartnet.niua.org/sites/default/files/resources/circular-economy-in-india_5-dec_2016_0.pdf

<https://youmatter.world/en/definition/definitions-circular-economy-meaning-definition-benefits-barriers/>