

Circular Economy Landscape Map

INDIA


1.4 billion

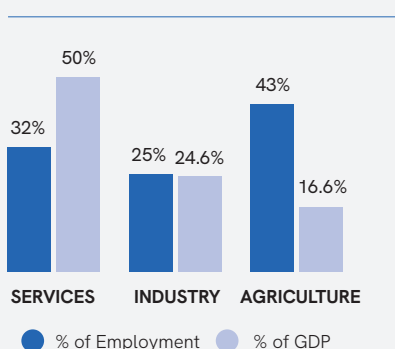
USD 3.176 trillion (GDP)

ECONOMIC STRUCTURE & TRENDS

Small and medium enterprises (SMEs) play a key role in most economies, particularly in developing countries. According to the World Bank, in some nations SMEs contribute up to 40% of the national income (GDP) (Bank, 2022). SMEs represent the majority of business globally (90%) and are an important contributor for economic development and job creation, generating 50% of global employment (Bank, 2022). Furthermore, the SME sector is fundamental for providing equitable jobs for women, youth and vulnerable groups. As drivers of employment generation, innovation, exports, and inclusive growth of the economy, micro, small and medium enterprises (MSMEs) play a fundamental role in India's economy (India S. C., 2022). Indian MSMEs are considered the backbone of Indian socio-economic development since they represent **45%** of total industrial production, **30.50%** of services and **49.5%** of India's total exports, with textiles, garments, different types of shoes, rice and castor oil among the major products exported by the Indian MSME sector (ibef, 2022). According to the Ministry of Micro, Small & Medium Enterprises, the MSME manufacturing segment alone contributes to 7.09% of GDP. Overall, MSMEs contribute to almost **30%** of India's GDP (Press Information Bureau, 2022). Besides contributing significantly to the economy in semi-urban and rural areas of India, the MSME sector is the second largest employer in India (after agriculture), employing around 100 million people (ibef, 2022).

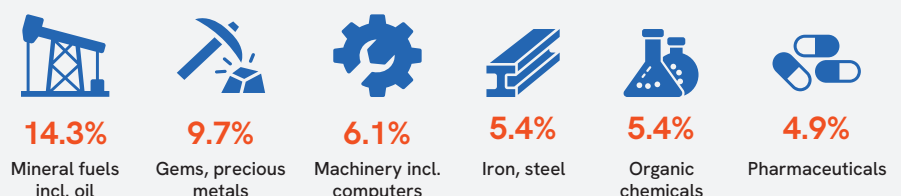
Despite the outbreak of COVID-19 and a challenging global economic environment, India has demonstrated resilience and strong economic growth. According to the International Monetary Fund, the country has become the fifth-largest economy in the world (IMF, 2022). Although the Indian economy will experience lower growth in the 2022-23 financial year compared to 2021-22, the country will remain one of the fast-growing major economies in the world with a forecasted growth rate of 6.9%, mainly driven by its robust domestic demand (World Bank, 2020). The main contributors to India's gross domestic product (GDP) are Services (47.6%), Industry (25.8%) and agriculture (16.7%) (Statista, 2022). Although services represent the major share of India's GDP, agriculture provides a greater percentage of employment. According to the Centre for Monitoring Indian Economy (CMIE), the share of agriculture in total employment has increased from 35% in 2017-18 to 45% in 2019-20 (Sharma, 2021). This shift could be attributed to the lack of employment opportunities in non-agricultural sectors, pushing the labour force to move into the agriculture sector. Agriculture further represents the primary source of livelihood for about 58% of India's population (IBEF, 2022).

Contribution to GDP and employment by sector ¹



Sources:
 1. Statista, 2021
 2. Daniel Workman, Worlds Top Exports, 2021
 3. Circular Economy Report, Kalaari Capital, 2022 / World Air Quality Report 2021

Principal exports ²



Key Facts ³

- Around 5% (63 million people) lack access to clean drinking water
- 20% (240 million people) lack access to electricity
- 50% of population lacks access to sanitation facilities
- Food wasted in India has a \$7B value annually
- 35 of the world's 50 most polluted cities are in India
- Conventional sources represent 67% of energy production

CIRCULAR ECONOMY SECTOR ANALYSIS

As economic growth continues along a linear economic model, India is on the track of an industrialisation path that threatens to exacerbate negative externalities and challenges such as pollution, greenhouse gas emissions, water and food scarcity. Furthermore, according to the latest IPCC report, exposure to rising sea levels and changing precipitation patterns makes India highly vulnerable to climate change. These climate change vulnerabilities will negatively impact India's farming and fishing industries which represent 20% of the GDP (Sirur, 2022). India could face a large decrease in the potential catch of two key commercial fish species and an 8.62% fall in the production of rice, wheat pulses, and coarse grains in 2050.

Besides reducing up to 44% of India's GHG emissions in 2050, a circular economy path could generate benefits to the country of around US\$ 624 billion, the equivalent of 30% of India's current GDP (Morlet, et al., 2016). The Indian enterprise ecosystem has started to adopt new approaches that go beyond a linear model of production and consumption. Circular economy business models are starting to gain relevance in India, providing solutions that create innovative pathways for retaining the value of goods as long as possible while reducing waste and keeping value in the economy.

We have identified five consumer-focused business models with the potential to mainstream the circular economy in India. These business models are based on three principles: (1) reduce waste and pollution, (2) keep products in use, and (3) focus on regenerative systems). The first business model is the **circular supply chain**, which is driven by the principle of regenerative systems. These models aim to integrate renewable, recyclable, or biodegradable materials that can be used across lifecycle. The second business model sector gaining relevance in India is **recovery and recycling**, which is based on the principle of reducing waste and pollution. These business models aim to capture value from the waste stream (end-of-life products, waste products, by-products) and give a new meaning to the concept of waste. Some examples of business models are direct-to-consumer (D2C) brands selling products and accessories made from recycled materials. Another business model is **product life extension**, which is based on the principle of keeping materials and products in use. Enterprises focus on extending the use and working lifecycle of products that might be broken, out of fashion, or no longer needed through repairing, upgrading, and reselling. Other circular business models in India focus on providing solutions to address the underutilisation of assets. These business models are classified as "**sharing as a service**" and follow the principle of reducing waste and pollution. Enterprises in this sector connect two or more parties to increase net asset utilisation through co-access or co-utilisation. Some examples are platforms that allow C2C (customer-to-customer) sharing such as a carpool service or marketplace for people to lease or rent short-term lodging. **Product as a service** also represents an opportunity for enterprises in India. This type of business model is based on the principle of reducing waste and pollution. In this model, enterprises aim to tap the shift in consumer behavior towards access-over-ownership, thus, customers become users rather than product owners, customers buy a product's output rather than the product. For example, some manufacturers cover the total cost of product ownership while offering it to customers as a service. Some examples of a product as a service are asset leasing companies and subscription-based companies.

These circular business models can be adopted in multiple sectors, including in rare earth metal mining and use, fashion and textiles, agriculture and food, mobility and construction.

A significant opportunity relates to the lifecycle of **rare earth metals**, which are gaining relevance for the circular economy in India. Currently, less than 1% of rare earth metals are used and recycled. It is expected that the global demand for rare earth elements increases six times by 2040. The high dependency of India on imports from China (which controls over 85% of rare earth elements supply globally), represents an opportunity for local economic development through business models such as replacing rare earth metals with sustainable materials, urban mining practices, and industrial symbiosis.

During the last 15 years, the **fashion & clothing industry** has doubled its production. However, clothing use has shrunk by more than a third, mainly because of the rise of the fast fashion industry. This industry makes 10% of global carbon emissions, dries up water sources, and pollutes rivers and streams. Furthermore, it is estimated that more than 60% of fabric fibers are now synthetic (derived from fossil fuels). There is an opportunity to address circularity in this sector through a range of new business models focused on reusing and extending the lifespan of garments through rental or resale models (more users per product) (Raina, 2022). Other opportunities focused on reconverting upcycled factory waste into new textiles material, developing low-impact material alternatives such as vegan leather, making clothes high quality and durable (more use per user), and incentivising product longevity by repairing or remaking alternatives (Ellen MacArthur Foundation, 2021).

Agriculture represents another opportunity sector for the circular economy in India. Addressing food waste and asset underutilisation could generate annual benefits of \$61B in 2050. Currently, 850 million people are living in rural areas, of which almost 60% depend mainly on agriculture. According to the Circular Economy Report 2022 from Kalaari Capital, 40% of the food produced gets lost in the Indian value chain even before it reaches the consumer while 10% gets wasted at the consumption stage. There is an opportunity to address circularity in this sector through enterprises

offering Product-as-a-Service to help improve asset utilisation at the farming stages, product recovery and recycling models after the post-consumer stage, food distribution and access models, healthy and low-impact food alternatives and innovations that extend the lifespan of food and repurpose agricultural and food waste (Kalaari Capital, 2022).

Since 1980, the transport demand in India has grown by almost eight times. With a population of 1.4 billion people, domestic demand for personal **mobility** is expected to accelerate. In 2018 there were 22 cars per thousand individuals, however, by 2040 this is projected to grow to 175 cars per 1,000 individuals. Some business model opportunities in this sector are multimodal transportation systems, mobility-as-a-service (MaaS), manufacturing of electric vehicles and smart battery technologies.

Another circular economy opportunity is in the **construction sector**, which contributes to 8% of the GDP, but accounts for 20% of total material demand. The sector generates a third of India's solid waste and consumes 34% of India's energy. It's estimated that by 2050, 60% of India's population will live in urban areas compared to 35% in 2021. While 70% of the buildings that will be used in 2030 are yet to be built, the construction sector represents an opportunity with estimated annual benefits of \$76B by 2050, especially for business models focused on energy-efficient construction, carbon credits neutralization, effective waste management, and modular construction techniques.

SMEs adopting Circular Economy models



Myles offers self-drive car rental services whether the users need it for a couple of hours or many days. (Foundation, 2016).



Furle is a subscription-based furniture rental platform that allows users to rent furniture monthly and use it for as long as they want or change it as per their needs.



Yulu shapes urban mobility across the country through a user-friendly mobile app using Micro Mobility Vehicles (MMVs).



Earth Tatva works to reduce mining for natural resources by 60% and lowering energy consumption through recycling fired ceramic waste.



Institute of Natural Organic Agriculture (INORA) supports households in converting their unused spaces (rooftops, terraces, or balconies) for urban farming that can enable local nutrient recovery.



RecycleX Private Limited collects industrial, plastic and construction waste from various sources. The waste is processed and used as raw materials to manufacture products.



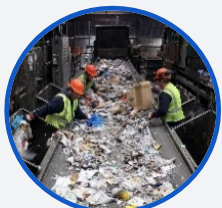
Doodlage makes innovative fashion designs with sustainable techniques of clothing by recycling post-consumer waste and post-cutting scraps into new fabrics.



Vapor-transfer irrigation system is a novel irrigation method that uses water efficiently and allows brackish or saline water to be used without expensive purification or desalination processes (Foundation, 2016).



PadCare Labs installs collection bins in public washrooms at 50% of the cost. The collected pads are processed into output which is then sold to vendors for recycling.



Karo Sambhav offers e-waste solutions and EPR (extended producer responsibility) services to producers and brands helping close their material loop.



BatX Energies recovers critical Rare Earth metals from end-of-life Lithium-ion batteries.



Binbag Recycling promotes circular integration in the Electrical & Electronic Equipment (EEE) supply chain by recycling e-waste and recovering rare earth materials from end-of-life products.

Features of the Circular Economy

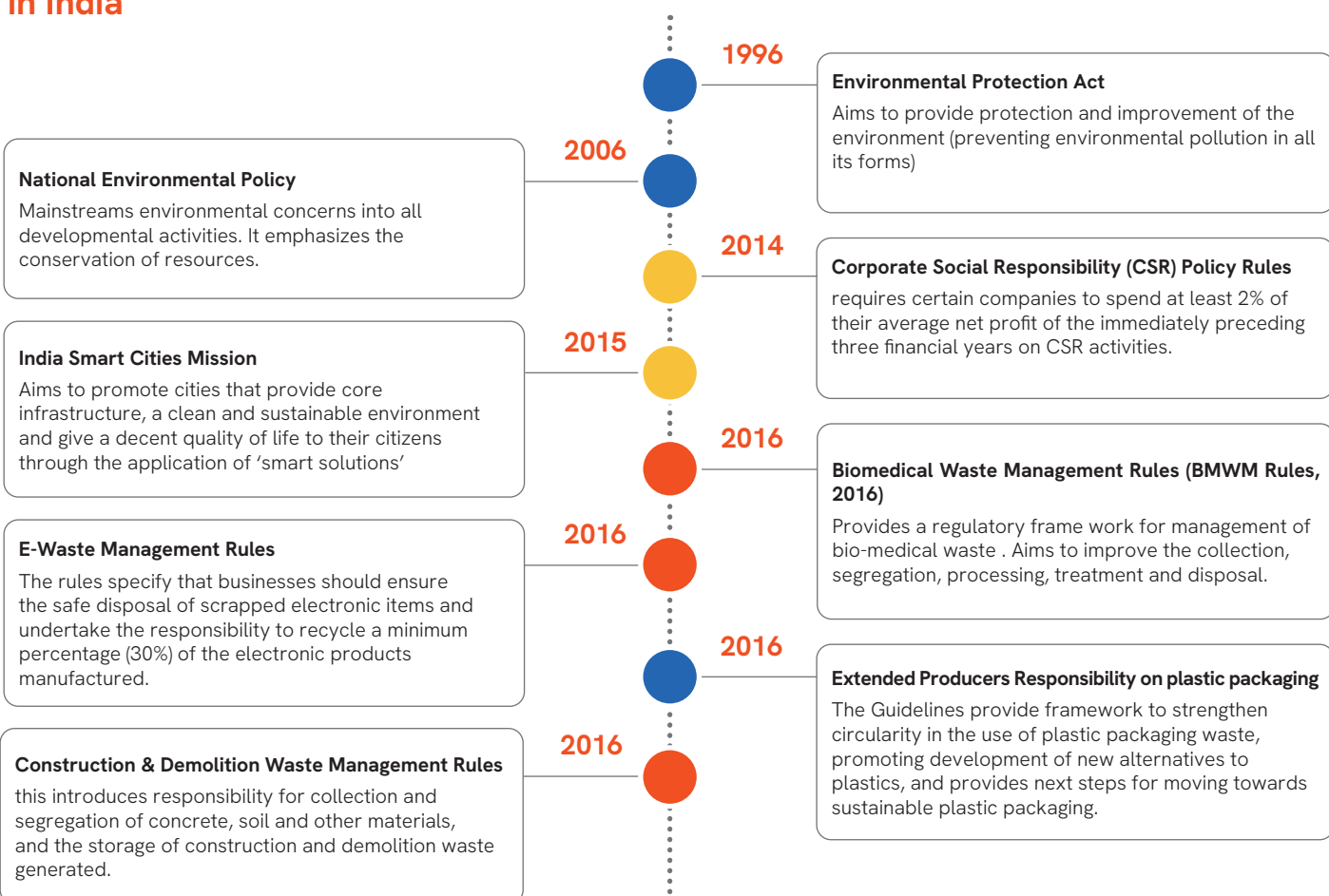
- India generates over **150,000 tons** of municipal solid waste (MSW) per day. However, only **83%** of the waste generated is collected and **less than 30% is treated** (Kaalari, 2021).
- India has a large dependence on oil and gas imports, which represent **77% of its domestic needs**. This situation makes the nation particularly vulnerable to global events that cause dramatic fluctuations in oil prices (Kaalari, 2022). This situation could represent a risk for the plastic recycling industry. Since PET is made from the by-products of crude oil, when the prices for oil fall, the costs of virgin plastic drop and manufacturers prefer virgin over recycled PET (recykal, 2023).
- The current economic growth in India has a negative **disparity in income and resource distribution**. In this sense, adopting a circular economy model allows not only for better resource utilization but also can be leveraged to provide more equitable growth (Kaalari, 2022).
- No cities in India met the WHO air quality guideline** of 5 µg/m³. In 2021, 48% of India's cities exceeded 50 µg/m³, or more than 10 times the WHO guideline. (IQAir, 2021)

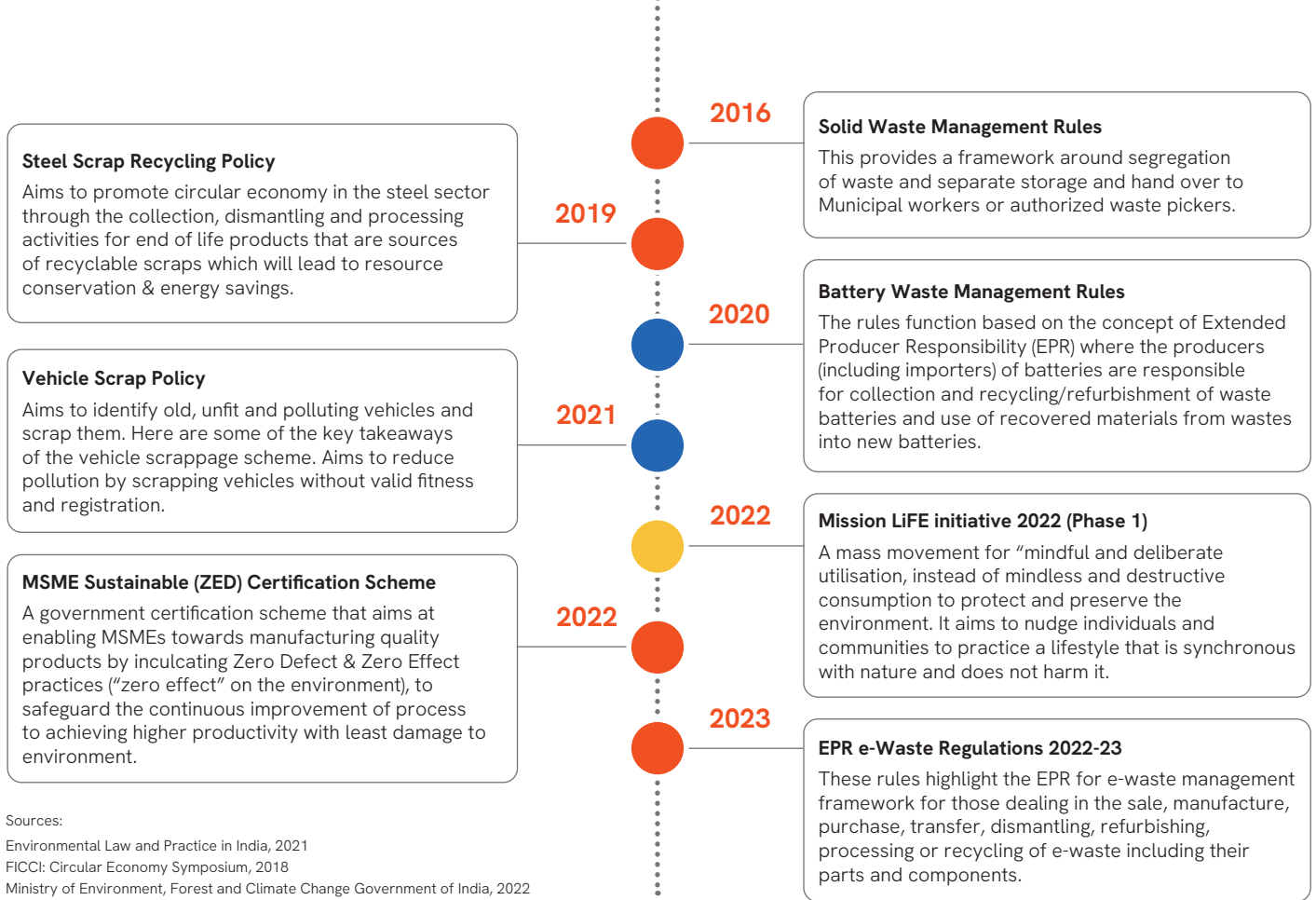
MOVEMENT TOWARDS A CIRCULAR ECONOMY AT THE POLITICAL LEVEL

In recent years, the Indian Government (through a joint effort with civil society, non-governmental organisations and the private sector) has launched ambitious programmes to support the achievement of the Sustainable Development Goals and the Paris Agreement (SEED, 2021). Policies that focus on implementing India's priorities and commitments in the circular economy, however, continue to focus on individual sectors and themes, and tend to be fragmented, lacking a systemic approach. This poses a challenge for MSMEs that want to adopt circular economy models (SEED, 2021). The following list summarises the existing policy framework with positive implications for promoting the circular economy in India. These frameworks are divided into three main clusters: **Climate change / Sector plans / Socio-economic development plans**.

Landscape Policy in India

● Climate change ● Sector plans ● Socio-economic development plans





Although multiple policies and schemes have emerged to promote circular economy models in the Indian economy, most focus on administrative or regulatory instruments (bans, standards, taxes, fees, licenses, etc.). More attention should be put into mechanisms that also incentivise MSMEs and help them to bear the price of adopting Circular economy models such as subsidies and access to more funding opportunities. Furthermore, there is a gap in policies focused on informative instruments (labelling and awareness-raising campaigns among industries and society) and policies focused on closing the capacity gap that minimizes "Know-How" barriers on the topic of circular economy.

SUPPORT MOVEMENT TO THE CIRCULAR ECONOMY

According to the Climate Policy Initiative's Green Finance Report, green finance flows in India are falling far short of the country's current needs. To successfully achieve India's Nationally Determined Contributions (NDCs) under the Paris Agreement, the country needs around USD 2.5 trillion from 2015 to 2030, or an equivalent of USD 170 billion annually. The tracked green finance in 2019/2020, however, only reached around USD 44 billion, just 25% of India's needs (Khanna et al., 2022). During the COP26 Summit in Glasgow, 2021, the government of India announced the Pancharit targets, five elements to deal with climate change: (1) India will reach its non-fossil energy capacity of 500 GW by 2030, (2) Meet 50% of its energy requirements from renewable energy by 2030, (3) Reduce the total projected carbon emissions by one billion tonnes from now until 2030, (4) Reduce the carbon intensity of its economy by more than 45 per cent by 2030, and (5) by the year 2070, India will achieve the target of Net Zero. Under this context, India will need to increase the amount of green finance and its mobilisation in a much faster way (Khanna et al., 2022).

Increasing access to finance for MSMEs in the circular economy offers an opportunity to deploy green finance to impactful projects at scale. Currently, the main challenges for the MSME sector in India to access finance include burdensome collateral requirements, nascent or not yet implemented regulations and policies, high lending rates, complex processes for accessing finance, and the absence of financial knowledge of the relevant schemes (Rajamani et al., 2022). The following table shows different sources of financial support for SMEs in India.

Financial support	
Science and Engineering Research Board (SERB)	Start-up Research Grant (SRG) scheme aims to assist researchers to initiate their research career in a new institution. It is a two-year grant meant to enable researchers working in frontier areas of science and engineering

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Department of Science and Technology (DST)	Finance scientific and technological surveys, research design and development and Support and Grants-in-aid to Scientific Research Institutions, Scientific Associations and Bodies. Additionally, it promotes innovations in the sector of SMEs
Department of Electronics and Information Technology (DeitY)	Through a Multiplier Grants Scheme (MGS) for collaborative R&D between industry and academics/ R&D institutions for development of products and packages, the government provide financial support that is up to twice the amount provided by industry
Council of Scientific and Industrial Research (CSIR)	Provides funding and grants. Enhance quality of life of the citizens of India through innovative Science and Technology, globally competitive R&D, by developing sustainable solutions and capacity building
The Ministry of New and Renewable Energy	Provides financial support for projects related to renewable energy development
Startup India	Through the Startup India Seed Fund Scheme (SISFS) they provide financial assistance to startups for proof of concept, prototype development, product trials, market entry, and commercialisation
Pradhan Mantri MUDRA Yojana (PMMY)	Provides loans up to 10 lakh to the non-corporate, non-farm small/micro enterprises. These loans are classified as MUDRA loans under PMMY. These loans are given by Commercial Banks, RRBs, Small Finance Banks, MFIs and NBFCs
Atal Innovation Mission	Through the Atal New India Challenge supports innovators to create products/solutions based on advanced technologies in areas of national importance and social relevance through a grant-based mechanism
Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE)	Aims to strengthen credit delivery system and facilitate flow of credit to the MSME sector. Provides collateral-free loans for MSMEs and selected startups.
Venture Capital Assistance Scheme	Is financial support in the form of an interest free loan provided by Small Farmers Agribusiness Consortium (SFAC) to qualifying projects to meet shortfall in the capital requirement for implementation of the project.
Raw Material Assistance Scheme	Provides financing options to purchase raw material (both indigenous & imported). This gives an opportunity to MSMEs to focus better on manufacturing quality products.



Although the circular economy is an emerging topic in India, over the past five years the country has already attracted investments totaling **\$1.8B** across subsectors. It is estimated that around **60%** of the deal volume and around **80%** of the value of deals are focused on mitigation-oriented innovations in energy and sustainable mobility (Kaalari, 2021).

According to the Ministry of External Affairs of the Government of India, by 2030, the country will become the world's third-largest economy, accounting for **8.5%** of the global GDP. In this sense, if the global circular economy reaches US\$ 4.5 trillion as predicted, India could have a **US\$ 45 billion** opportunity only by capturing the 1% of this market (Ministry of External Affairs, 2022).

The Micro, Small & Medium Enterprises (MSME) segment is one of the key players in the transition towards sustainable development in India. Hence, the development of this segment is extremely critical. Mentoring and support mechanisms are necessary to promote a culture of innovation and entrepreneurship and to improve awareness and knowledge of businesses and policy-makers to foster the creation of circular business models and experts in the topic. To archive this, India will need a strong ecosystem with actors that encourage and support circular economy projects to overcome financial, skills, market, knowledge, and technological barriers. The following table provides a list of key players providing non-financial support to circular economy MSMEs in India.

Non-financial support

Foundation for Innovation and Technology Transfer (FITT)	Aims to foster, promote and sustain commercialization of Science and Technology in the Institute for mutual benefits. It offers incubation and mentoring programs focus on sustainability to foster entrepreneurship and nurturing startups
National Science & Technology Entrepreneurship Development Board (NSTEDB)	Aims to promote knowledge driven and technology intensive enterprises
Ministry for Skill Development & Entrepreneurship (MSDE)	Is the responsible for co-ordination of all Skill Development efforts across the country
Ministry of Small & Medium Enterprises (MSME)	Aims to facilitate the development of MSME enterprises and enhance their competitiveness
Partners in Change (PiC)	Promotes responsible business in India and human rights in business
AAU Incubation Center (AIC Anand)	Supports startups in agriculture, food processing and allied sectors. Offers business support, training, mentoring, and incubation
Google for Startups Accelerator: Circular Economy	Offers ten weeks of virtual programming, which includes mentoring and technical support from Google engineers and external experts through a mix of 1-to-1 and 1-to-many learning sessions
The Circular Impact Market Accelerator (CIMA)	Mentor and coaching from industry experts: product development, tech, business models, among other areas based on the intervention focus
The Incubation Network	Support startups and Enterprise Support Organisations with technical and financial support, networking, partnerships, and more to scale their innovations.
Incubator for Social Enterprises and Entrepreneurs for Development (ISEED)	Provides mentoring and networking, collaborative research, entrepreneurship training and capacity building and supporting innovations
RAISE incubation center	Aims to nurture start-ups working in the area of Agri Tech/Agri Business, Rural Livelihood and Women Empowerment/IT/IOT (fundraising, business plan, legal compliances and operational challenges)
NSRCEL Sustainability Incubation Program	Offers capacity building and mentorship to enterprises that address sustainable, environmental and social impact through the lens of mobility
Ekonnnect Knowledge Foundation (SEED India Hub)	Offers awareness, capacity building, education and entrepreneurship programs in environmental management and sustainability
Maker's asylum	Is a community makerspace that works at the intersection of education & open innovation offers an open source projects for startups in the areas of hardware, design and sustainability.
Recity	Offers waste management services and recycled packaging solutions to create a circular economy of plastics.
AIC Sangam	Incubator dedicated to fight Climate Change focused on areas such as energy transition, Circular Economy, Competent SMEs, and Climate smart Land use
Development Alternatives	Offers capacity building programs focused on Natural Resource Management, Clean Technology Solutions, Strengthening Institutions, Basic Needs Fulfillment, Enterprise Development, Employment Skills
Small-Scale Sustainable Infrastructure Development Fund	Provides financial, technical and training services.
AIC SELCO Foundation	Aims to provide management expertise, intellectual capital, and support to enhance the capacity of potential local energy enterprises to innovate and deliver energy-based solutions
AIC Raise Incubation Centre	Offers equipment and operating facilities, key domain knowledge support, mentoring, business planning support, access to seed capital, market information, management, business strategy, industry partners, and training

Non-financial support

AIC IISER Pune SEED Foundation	Supports the set up and infrastructure in the form of co-working office space for young startups and entrepreneurs.
	Offers capacity building programs, infrastructure, mentorships, access to capital, networking, and partnerships for tech entrepreneurs
Catalyst AIC	It is India's first dedicated centre for promoting collaboration and entrepreneurship in the Climate and Environment sector.
Climate Hub - Goa	Focus on sectors such as circular economy, organic waste management, e-waste, among other. Offers waste management solutions to help business to fulfill their responsibilities and take concrete steps towards environmental and economic sustainability
Recycling Hub	Focus on sectors such as circular economy, organic waste management, e-waste, among other. Offers waste management solutions to help business to fulfill their responsibilities and take concrete steps towards environmental and economic sustainability

Networks, Platforms & Projects

WasteAid	Provides business mentorship programmes, seed funding and further business incubation support to local circular economy and recycling entrepreneurs.
India Plastic Pact	It is a collaborative initiative (businesses, governments and NGOs) to reduce, reuse, and recycle plastics in their value chain. Aims to reduce the use of problematic plastics in India.
The Circular Collective	A collective that Facilitates, Activates and Enables discussions for Circular Economy in India. They collaborate with companies and academic institutions to accelerate Circular Transition in India
Circular Economy Network - India	Aims to connect with planet-conscious professionals, entrepreneurs and organizations that are working to close the loop on the waste in low to middle-income countries
The Alliance of Indian Waste Pickers (AIW)	An alliance that aims to ensure the inclusion of waste pickers in various national-level programmes. They offer policy analysis and recommending policy measures to all levels of governments-, capacity building and research
WEEE Forum - India	Through exchange of best practice and access to its reputable knowledge base toolbox, the WEEE Forum enables its members to improve their operations and be known as promoters of the circular economy
International Council for Circular Economy	ICCE is the largest international network for professionals, corporates, and organisations working in the Circular Economy. Our mission is to accelerate the transition to a circular economy
Indian Youth Climate Network	IYCN is a coalition of young people & youth-oriented organisations to action on climate change.
The Circular Economy Catalyst	Aims to support over 220 entrepreneurs to create profitable circular economy business models that generate income, positive environmental impacts and jobs.
EU-India Resource Efficiency Initiative (REI)	Support and strengthen dialogue and cooperation on resource efficiency and circular economy by bringing together representatives of relevant stakeholders from both sides
Prevention of Marine Litter in the Lakshadweep Sea (PROMISE)	It aims to prevention and leakage of wastes from land-based sources into the Lakshadweep Sea in line with Sustainable Consumption & Production (SCP) approach.
The Protoprint Project (TPP)	Is a collaborative initiative to transform the informal recycling sector through the gradual implementation of a systematic and self-sustaining (circular) model for waste plastic recycling.
The Good Fashion Fund	It aims to create systemic change in the textile & apparel industry by financing the implementation of highly impactful & disruptive production technologies in Asia.

Networks, Platforms & Projects

Circular Economy Solutions Preventing Marine Litter in Ecosystems (CES)

The project aims at preventing marine litter and plastic leakages by demonstrating technological solutions to reduce, reuse and recycle plastics

Circularity of Low-Value Plastics

The objective of the project is to implement an inclusive collecting and safe processing model that formalize & incentivised Low-Value Plastics (LVP) to keep them out of the oceans.

Circular Apparel Innovation Factory

It is an initiative that brings together key stakeholders in the apparel industry in India to collaborate and work together on achieving a more sustainable industry.

Global Alliance For Mass Entrepreneurship

It is an organisation that aligns the ecosystem and mobilizes action to address systemic challenges to job creation in India. Brings together a cross-section of alliances, partners, funders, and other players in the ecosystem who can help inspire an entrepreneurial movement across the country.

Green Finance in India



Green finance flows increased by **150%** from FY2017/FY2018 to FY2019/FY2020. The **public sector** flows increased by 179% while the **private sector** flows by **130%**. Although the increase is positive, still far from the USD 2.5 trillion that India requires to achieve its NDCs.



Domestic sources of finance represent the majority of green finance in India. They accounted for 87% and 83% in 2019 and 2020, respectively. The private sector is the biggest contributor to domestic sources of finance with around 59% (USD 22 billion).



Government Budgetary spending (Central and State) and PSUs were the main contributors to the public sector flows of finance with approximately **54% and 46%** respectively.



International sources of finance increased from 13% in FY 2019 to 17% in FY 2020. **Public sources accounted for the majority of the flows 60% of international finance.** Foreign Direct Investment (FDI) flows had considerable growth. Although there has been an important increase in international sources of finance, the sector of green finance only represents ~3% of total FDI inflows to India.



The total fund flow towards climate mitigation measurements ended up in three main sectors: **Clean energy (42%), Energy efficiency (38%), and Clean transport (17%).** Solar projects attracted the biggest share of financial investments. They represent 41% of the total finance flows to the clean energy sector.



The clean transportation sector received the maximum funding from **public sources (96%)** amounting to INR 58 thousand crores for FY2019/FY2020. Domestic finance inflows and international flows represent 72% and 27% of the total capital received from public sources.



The sector of energy efficiency received the majority of its finance from the **private sector (91%),** of which, domestic funds accounted for 96% vs the 4% of international flows.



Adaptation funding reached USD 5 billion. The major source of finance was **domestic (94%)** with the central and state government budgets as the two principal contributors.

CONCLUSION

This landscape report identifies the key actors and economic sectors of the circular economy transformation in India. Furthermore, it looks to outline demands and potential opportunities across different industries that play a fundamental role towards more sustainable development in India.

India's goals are clear: in 2070, the country will achieve the target of Net-Zero by scaling up its non-fossil energy capacity, reducing carbon emissions and the carbon intensity of its economy. Although India has made progress towards its targets, significant challenges remain, including population growth, rapid urbanisation, food and water scarcity, environmental pollution, infectious diseases, and climate change. Circular enterprises developing and promoting circular economy products and services struggle to scale up in the market, leading them to operate at a small scale or pilot level. Some of the main challenges for SMEs in India are related to institutional/regulatory gaps, lack of technology (mostly physical or mechanical), lack of structured integration of the informal sector into formal, low investments and access to finance, and absence of adequate business models.

The following list highlights key aspects to keep in mind when referring to the circular economy in India:

1. Micro, Small and Medium Enterprises (MSME) are considered the “**backbone**” of Indian socioeconomic development. MSMEs contribute to almost 30% of India's GDP.
2. Textiles, garments, different types of shoes, rice and castor oil are among the major products exported by the Indian MSME sector.
3. The main contributors to India's gross domestic product (GDP) are **(1)** Services (47.6%), **(2)** Industry (25.8%) and **(3)** agriculture (16.7%). Agriculture is one of the major players in the country and represents the primary source of livelihood for about 58% of India's population.
4. its young population and emerging manufacturing sector are putting India on the track of an industrialization path similar to the developed countries, which includes the associated negative externalities it entails.
5. In 2021, No cities in India met the WHO air quality guideline of 5 µg/m³ and the country was home to **11** of the **15** most polluted cities in Central and South Asia.
6. Exposure to rising **sea levels** and **changing precipitation** patterns makes India highly vulnerable to climate change. It will negatively impact India's farming and fishing industries, and the production of rice, wheat pulses, and coarse grains.
7. A circular economy path can reduce up to **44%** of India's GHG emissions by 2050 and generate benefits of **US\$ 624 billion** (the equivalent of 30% of India's current GDP).
8. Indian circular economy enterprises are disrupting the traditional linear economy through business models focused mainly on **(1)** sharing as a service, **(2)** product as a service, **(3)** fashion & clothing industry, **(4)** agriculture, **(5)** mobility, **(6)** construction sector, and **(7)** rare earth metals.
9. India has achieved significant progress in policy development, being the **National Environment Policy** and the **MSME Sustainable (ZED)** Certification scheme some of the most remarkable frameworks as the long-term development blueprint for the country.
10. Some of the main challenges faced by MSMEs in India are **(1)** lack of access to finance/loans **(2)** necessity of collateral, **(3)** regulatory issues and inflexible policies, **(4)** high lending rates, **(5)** complex processes, and **(6)** absence of financial knowledge of the relevant schemes.

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