GCPMH 2023

Harnessing the Potential of Sustainable Manufacturing and Circular Economy in the Indian Chemical Industry

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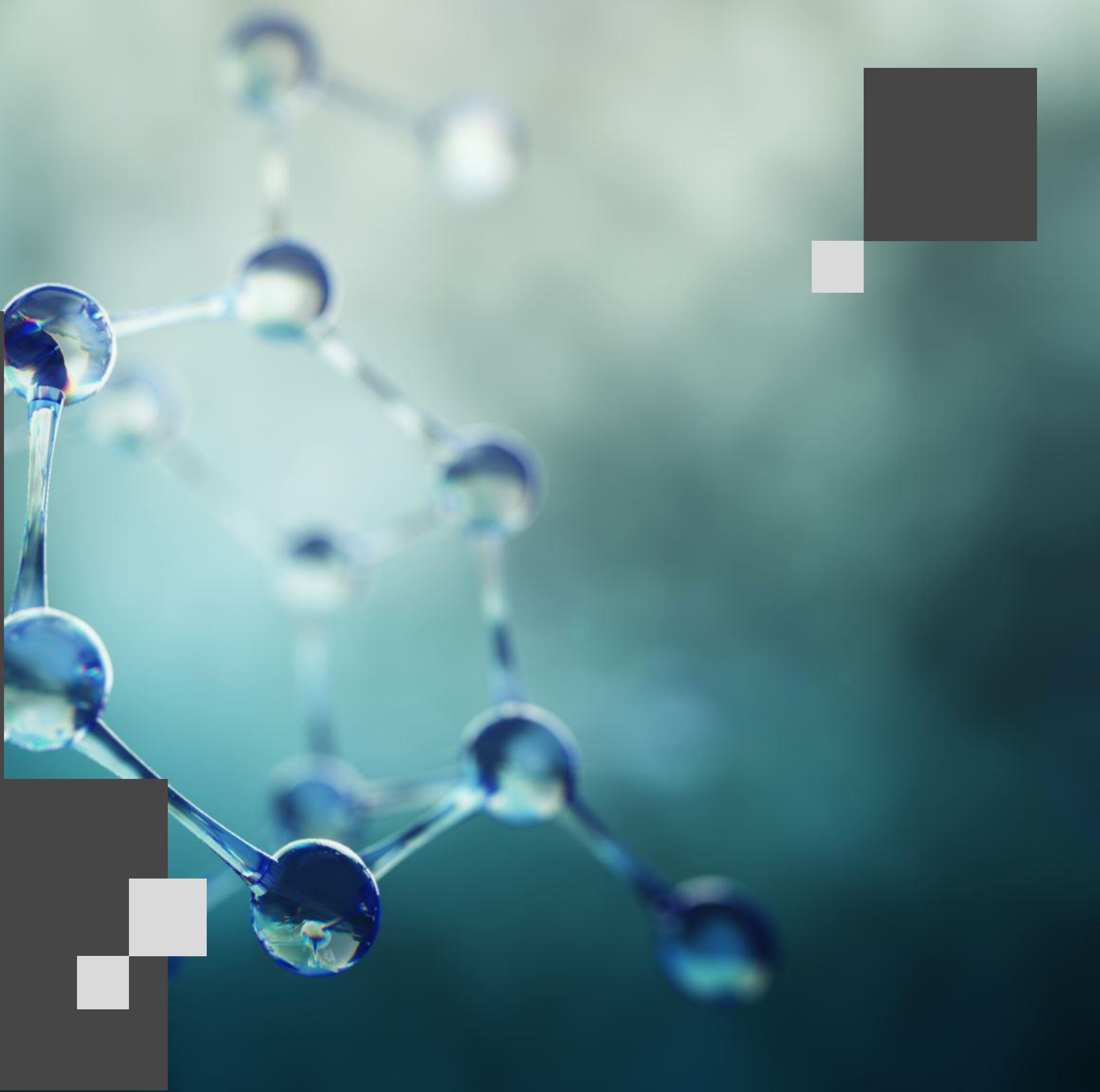
सत्यमेव जयते
रसायन एवं पेट्रो-रसायन विभाग
DEPARTMENT OF
CHEMICALS & PETRO-CHEMICALS



Indian economy has shown extreme resilience through global economic slowdown and Ukraine-Russia war during FY 2022-23

6.8%
GDP Growth 2022-23

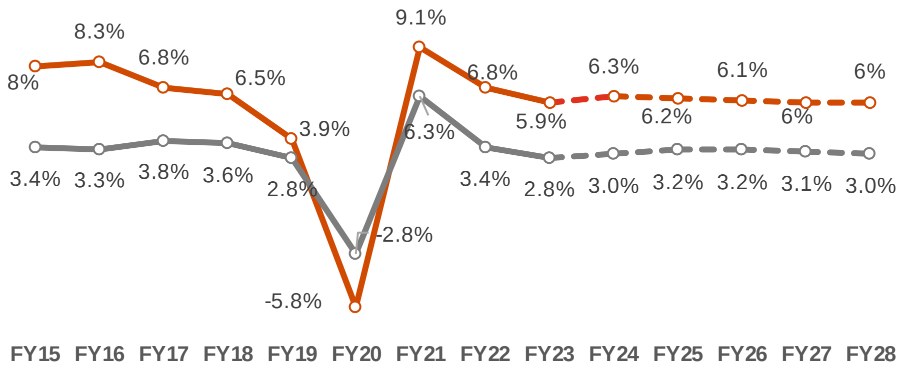
INR 2 Lac Cr
PLI Scheme – 14 sectors

5th Largest
economy in the world

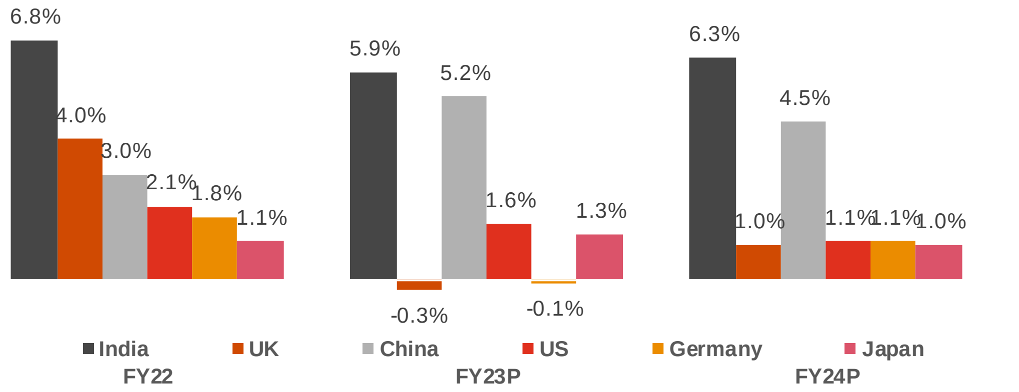
2/3rd of consumption growth – urban market

8.9%
Per capita GDP Growth FY 2022-27

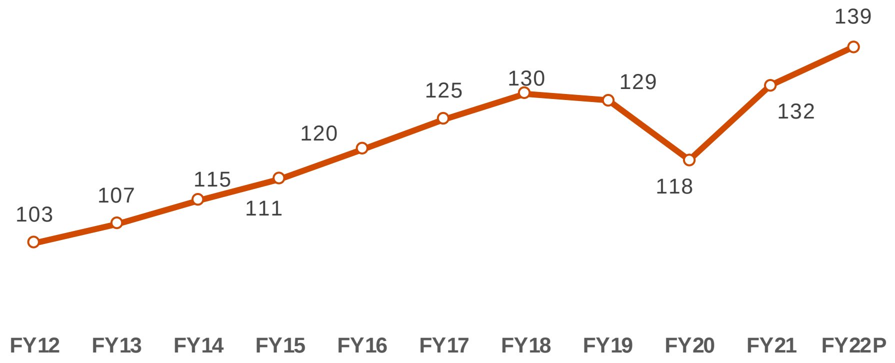
India Real GDP Growth, Annual % Change [1]



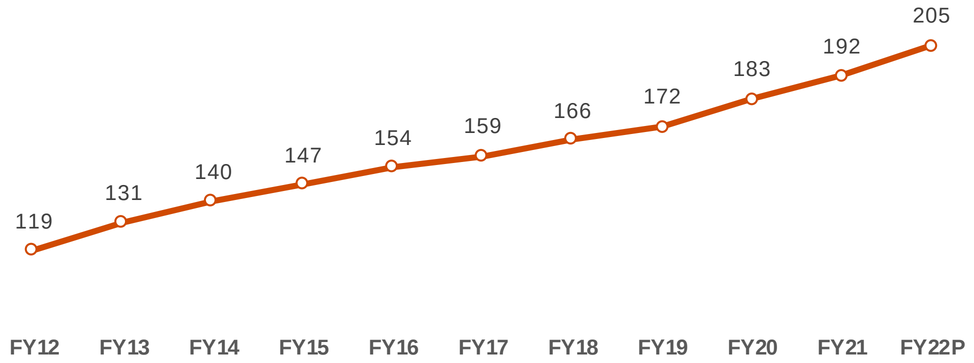
India Real GDP Growth, by Countries, Annual % Change [1]



Index of Industrial Production, base as FY12=100 [2]



Consumer Price Index, base as FY10=100 [3]



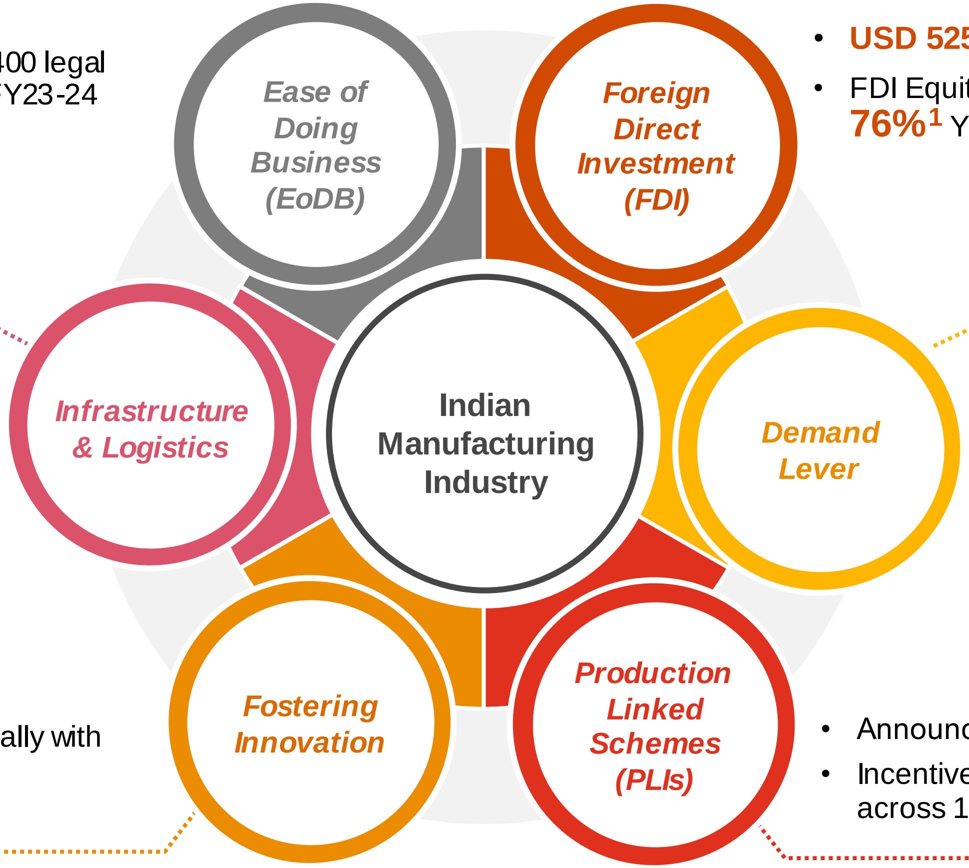
Source: 1- IMF, 2-MoSPI, 3- World Bank; Government of India

Supported by the growth levers across policy reforms, demand and innovation, India's outlook remains strong to be a global manufacturing hub

- India EoDB rank – **63** in 2022[1,2], improved by **79 places** since 2014
- More than 39,000 compliances reduced, and 3,400 legal provisions decriminalized as per Union budget FY23-24

- **100%** FDI automatic route in manufacturing
- **USD 525 billion**[1] FDI Equity Inflows during 2014-22
- FDI Equity inflow of manufacturing sectors increased by **76%**[1] YoY in FY 2021-22 (USD 21.34 million)

- **294**[1] projects (investment of ~ INR 7.23 lakh crores) added since January 2022
- **Gatishakti & National Logistics Policy** (multimodal logistics infrastructure for national transformation)



- India's Urban Population will reach **675 million by 2035**[2,3] (39% growth over 2020)
- India's urban market shall account for **2/3rd** of consumption growth by 2025[2,3]

- **3rd**[1] largest tech-driven Start-up ecosystem globally with over 79,100 Startups
- **"Start up India"** initiative

- Announced as part of "**Atmanirbhar Bharat**"
- Incentive outlay of **INR1.97 Lac Cr**[1] (about USD 26 billion) across 14 sector

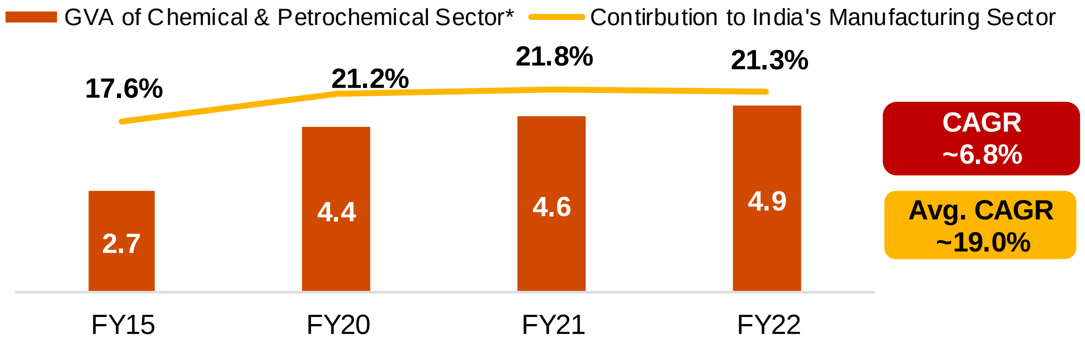
Source: 1- Press Information Bureau GoI, 2-World Bank, 3- UN Habitat World Cities Report 2022

Aided by policy incentivization and increasing domestic demand the Indian CPC industry has started playing a pivotal role in India's GDP

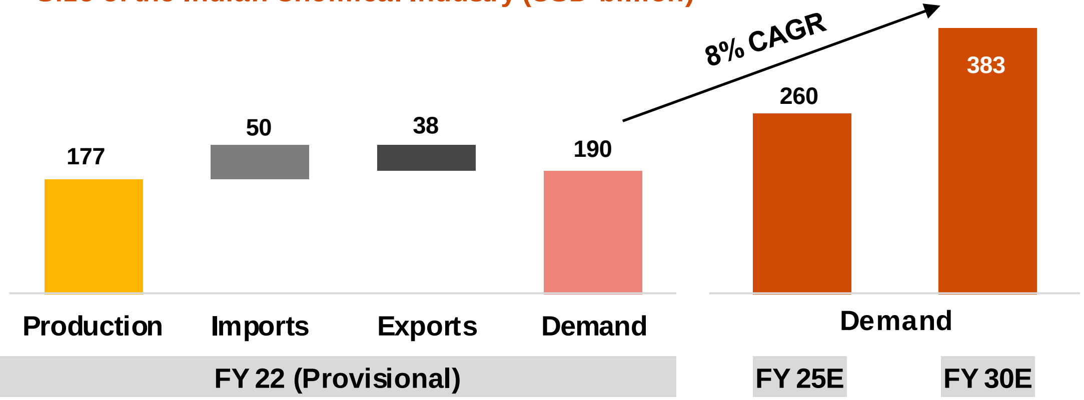
India Chemical and Petrochemical Industry

- **~7%** Contribution to India's **GDP**
- **12%** Average share in **total national exports**
- **11%** Average share in **total national imports**
- **6th** Largest **chemical producer** in world and 4th in Asia
- **3rd** Largest **consumer of polymer** in world
- **6th** Rank in world **exports of chemicals** excl. pharma
- **9th** Rank in world **imports of chemicals** excl. pharma
- **6th** Largest **chemicals market** in the world

Historic GVA from India's Chemical Industry (INR Lakh Cr) [1]



Size of the Indian Chemical Industry (USD billion) [1]



Industry Growth Drivers

- Establishment & advancement of integrated manufacturing Hubs through the PCPIR policy
- Growing demand from end use industries such as packaging, constructions, automotives, etc.
- Availability of skilled and low cost manpower
- FDI from prominent global players (BASF, Dow Chemicals, Bayer, etc.) present in the Indian market

Source: 1- MoSPI, DCPC, IMF, Industry Sources

Changing industry landscape is driving the Indian Chemical Industry towards the next wave of growth and presenting newer opportunities

Global Trends

01

Changing lifestyle impacting demand
Wide demographic profile impacting demand patterns

02

Shift of economic power
Emerging players drive consolidation and strive for self-sufficiency

03

Development of alternate maritime trade routes
Trade conflicts cause uncertainty and shift in global supply chains

04

Accelerating integration
Consolidation for greater scale, portfolio prioritization downstream

05

Sustainability
ESG impact becomes management imperative, stricter regulations

Opportunities for Atmanirbhar Bharat

Consistently changing lifestyle to drive shift in domestic demand of chemicals and polymers in end-use sectors

Greater economic influence of India at global level due to
- Government incentives and policies for Make in India
- Improved ease of doing business
- Rapid development of infrastructure to support manufacturing

Shift of trade route from Pacific to Indian Ocean Region expected by 2030
- India & China to become the largest manufacturing hub globally
- Ease of access to neighboring markets

Investments by petrochemical and downstream opportunities by Indian O&G players due to ease of feedstock challenges and achieve scale to fortify competitiveness

Continued dependence on crude-oil derived products by India and other developing nations due to rapid demand growth vs dawdling supply growth (low capital availability) compared to developed nations

High-growth prospects in relevant end-use sectors are expected to drive the demand for chemicals in the long-term

Industry Growth enablers –

- Third-largest polymer consumer globally
- Rising penetration of polymer products due to lifestyle changes
- Government incentives for Make in India
- High demand drive of value-add polymers for high-performance applications
- Stringent emissions norms – sustainable, circular products/ solutions

Sectors	GDP Share[1,2,3] 2022	Sector Projected Growth[1,3,4] 2022-30	Sector Growth trends
Agriculture	18% *GVA share*	++	Demand growth from differentiated products
Infrastructure & Construction	9% *GVA share*	+++	Accelerated capital investments through govt. initiatives
Automotive	6%	++	Increase in market penetration, demand rise of rubber, FDI inflow
Packaging	5%	++++	Variable consumer buying patterns, focus on exports to EU
Chemicals	5%	+++	Focus on specialties & fine chem, demand from end-use sector
Electronics & Electricals	4%	++++	Govt. schemes, PLIs, large consumer base, 'Digital India' initiative
Pharmaceuticals	2%	+++	Diverse consumer profiles and needs, lifestyle changes

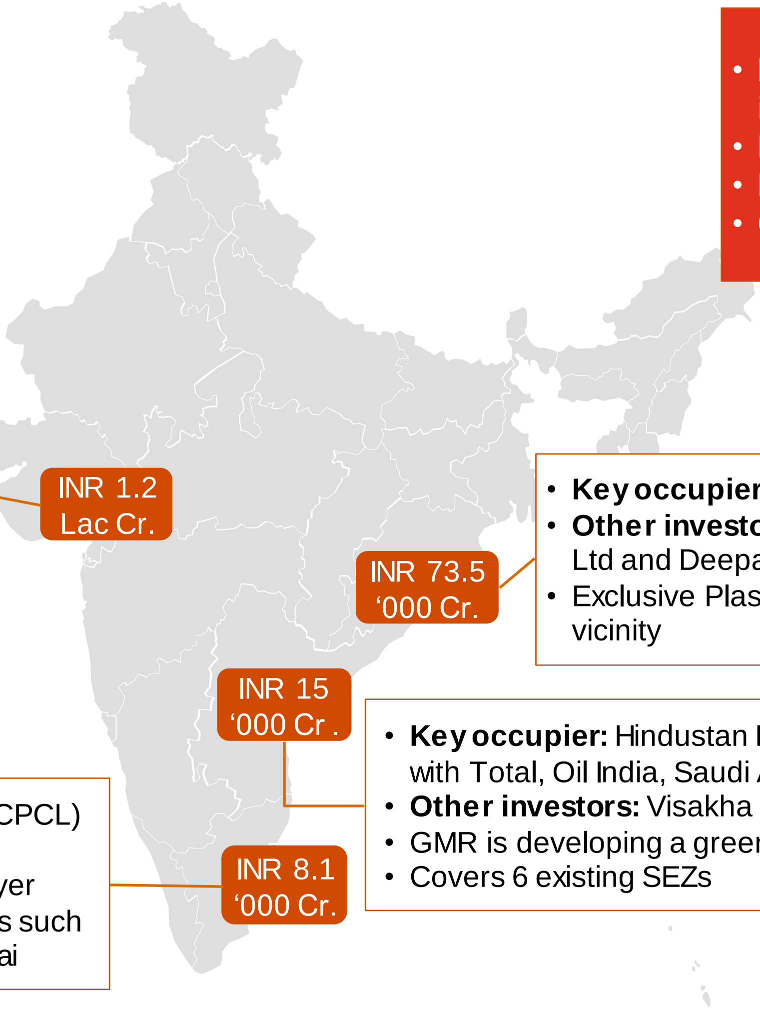
→Sector projected growth over 2022→
++ +++ ++++

Source: 1- Press Information Bureau GoI, 2-Invest India Forum , 3- India Brand Equity Foundation, 4- PlastIndia, Industry sources

India is establishing itself as global manufacturing hub through earmarking strategic locations for integrated sustainable and circular PCPIRs

- **Strategic locations at ports for domestic and global markets**
- **Availability of adequate land with govt. agencies/ developers**
- **Excellent connectivity**
- **Investments in utilities and services**

- **Institutional mechanism for management & implementation**
- **Deregulated industry with 100% FDI**
- **Ready availability of technical & skilled manpower**
- **Opportunities management through PPP**



- **Key occupier:** ONGC Petro additions Limited (OPaL)
- **Other investors:** RIL, OPaL, ONGC, GACL, Petronet LNG, BASF, ABG, Adani, Welspun, Godrej & Boyce, GAIL, GSPC, Pidilite, Grasim, NOCIL, China Steel among others

- **Key occupier:** Indian Oil Corporation Ltd. (IOCL)
- **Other investors:** IFFCO, Paradip Phosphates Ltd, Paradip Carbon Ltd and Deepak Fertilizers & Petrochemicals
- Exclusive Plastics Park at Paradip Gopalpur industrial area & SEZ in vicinity

- **Key occupier:** Hindustan Petroleum Corporation Ltd. (HPCL) led consortium with Total, Oil India, Saudi Aramco and Gas Authority of India Ltd. (GAIL)
- **Other investors:** Visakha Refinery
- GMR is developing a greenfield captive port at Kakinada
- Covers 6 existing SEZs

- **Key occupier:** Chennai Petroleum Corporation Ltd. (CPCL) refineries, Chennai & Nagapattinam
- **Other investors:** Tanfac Industries, Asian Paints, Bayer MaterialScience, Chemplast in Cuddalore, and players such as Saint Gobain, Asahi in Sriperumbudur near Chennai

Source: DCPC, FICCI, Industry Sources

As countries are witnessing adverse impacts of climate change and waste management, need for sustainability has become crucial

Need for sustainability

01 *Climate Change*

- Rapid industrialization, combined with industrial emissions have accelerated deterioration of environment
- Impact of climate change is experienced globally with change in weather patterns and impact on economies

02 *Waste Generation & Management*

- Growing urban population with increase in consumer spending is prime source of waste generation
- Poor waste management among individuals along with inefficient practices for waste disposal

03 *Overexploitation of natural resources*

- Resource scarcity has led to increased resource price volatility and tighter environmental standards
- Increasingly stringent environmental regulation such as ban on single use plastics, etc.

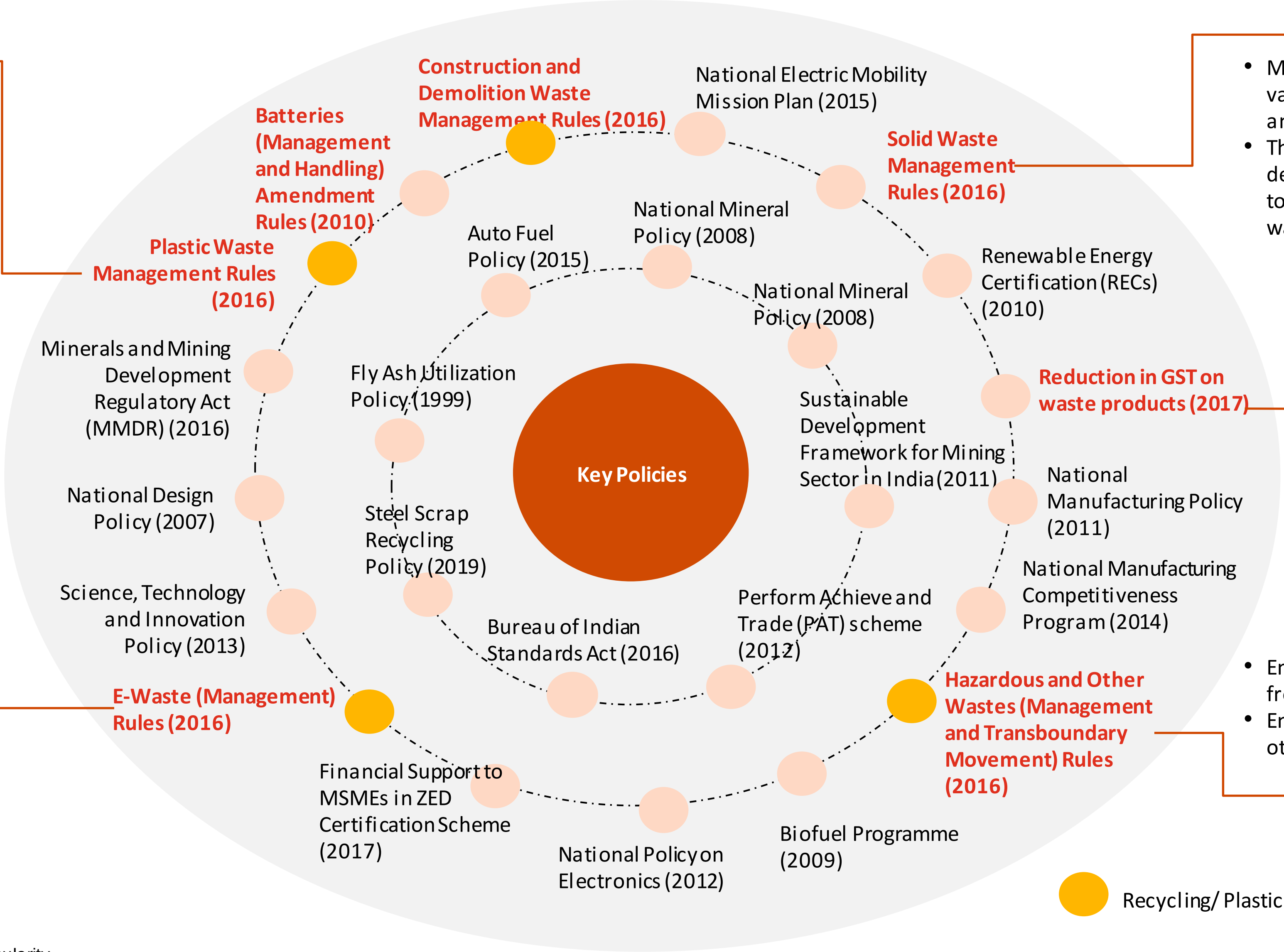
04 *Consumer Consciousness*

- Rise in consumer awareness on impact of products on environment
- Demand for more environmentally friendly and socially responsible products and services

Indian government has also undertaken multitudes of initiatives to support adoption of circular economy

- Mandate on producers and brand owners to introduce collect back systems as per EPR
- Increase in minimum thickness of plastic bags to reduce free distribution by retailers
- Ban and penalties on manufacture of multi-layer plastic (non-recyclable or non-energy recoverable or with no alternate use) packaging
- Plastic waste management fee through pre-registration of the producers, importers and vendors

- Responsibility to collect and recycle e-waste generated during manufacture process
- EPR to collect end-of life E-waste and properly store, transport and treat it before recycling or disposal



- Mandate on source segregation of waste for value addition and promote recovery, reuse and recycle
- The industrial estate/SEZ/industrial park developers need to allocate at least 5% of the total project area for resources recovery from wastes and build recycling facility.

- Reduction in GST rates on electronic waste from 28% to 5%
- Reduction in GST rates from 18% to 5% on plastic wastes as well as other waste or scrap of glass and rubber waste

- Emphasis on recovery and reuse of materials from hazardous and other waste materials
- Ensuring management of all hazardous and other waste materials

Recycling/ Plastic conversion related regulations/policies

Thank You