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PAPER II

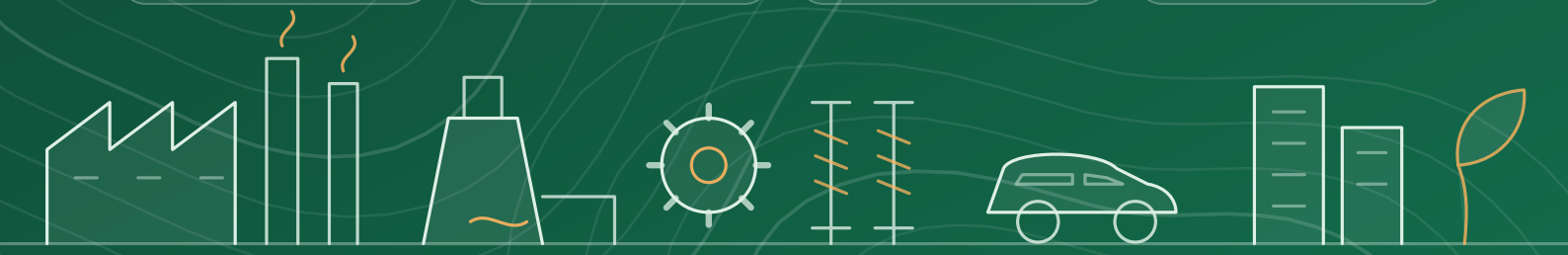
Industry Notes

The complete Industry section of Paper II — evolution and location of industries, major industries, small scale and cottage industries, industrial complexes and regions, planning, liberalisation and special economic zones, and tourism, with previous year questions.

Compiled by Arvind KrS

LOCATION FACTORS | MAJOR INDUSTRIES | INDUSTRIAL REGIONS | POLICY AND SEZS | TOURISM

26	5	65	136
Chapters	Units	Previous year questions	Diagrams and figures



IN THIS BOOK

01 Evolution, Location and Classification

02 Major Industries

03 Small Scale Industries, Industrial Houses and Regions

04 Planning, Policy and Special Economic Zones

05 Tourism

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Geography Optional — Industry

Paper II · Geography of India: Industry

Mains 2027 Edition · Compiled November 2026

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Questions or corrections: support@lotusarise.com

The outline map of India on the cover and on the chapter and unit pages is decorative and not to scale.

How to read these notes

Every chapter is marked against the questions UPSC has actually asked on it, so the points that matter most stand out on the first read and are quick to find at revision.

Iron and steel ranks as the foundation industry of any modern economy.

Yellow marker: key point. A point that carries the ideas UPSC has asked about in this chapter. Read these first, and make sure each one is in your answer.

Mini steel plant is a small, decentralised secondary unit that melts steel scrap, pig iron or sponge iron.

Blue marker: definition. The cleanest definition of a term, ready to open an answer with.

Indians smelted iron long before modern industry, as the **Mehrauli iron pillar** of the Gupta period shows.

Saffron underline: PYQ term. A key term or phrase that appears in this chapter's previous year questions.

Major Steel Plants of India PYQ 2017 · 2016

PYQ tag on a heading. The years in which UPSC asked about this section. Sections without a tag are background or linking material.

PYQ RADAR **2** questions Last asked **2017**

PYQ radar. At the start of each chapter: how many times the topic has been asked, and how recently. The contents page shows the same count for every chapter.

Suggested method. First read: the whole chapter. Revision: the yellow and blue marks, the tagged headings and the PYQ list at the end of the chapter. Last week before Mains: the PYQ list alone, answering each question in your head from the marked points.

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UNIT 02 | 10 CHAPTERS

Major Industries

Cotton, jute, iron and steel, automobile, aluminium, fertiliser, paper, chemical, pharmaceutical and sugar industries.



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PAPER II · INDUSTRY

Aluminium Industry in India



PYQ RADAR *No direct question yet: read for concepts, examples and links to other topics*

CONTENTS

01 Aluminium Industry
02 Previous Year Questions

- **Aluminium smelting** is India's **second most important metallurgical industry**, after **iron and steel**.
- India had **41.45 lakh tonnes of smelter capacity** and **74.75 lakh tonnes of alumina capacity** in 2023-24, and produced 4,159 thousand tonnes of aluminium. It ranked **2nd in the world**, as it also did in 2020.
- Its geography rests on one chain: **bauxite to alumina near the mines, alumina to metal near cheap power**.

01 Aluminium Industry

Character and Uses

- Properties: a **good conductor of electricity and heat**, elastic and flexible, and easily shaped into any form.
- **Uses:**
  - Production and distribution of electricity.
  - Household utensils and electric appliances.
  - Aeroplanes, railway coaches and bus bodies.
  - Nuclear and defence accessories.
  - Building, packaging and coinage.
- It increasingly **replaces steel, copper, zinc and lead** in many uses.
- Fastest growing metal: it grew nearly **20 times in sixty years**, against 6 to 7 times for other metals, on one older comparison. It remains the fastest growing non-ferrous metal in India.
- **Two segments:**
  - Upstream: primary aluminium made from raw materials, starting with bauxite mining.

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  - Downstream: primary metal processed into semi-finished goods such as **rods, bars, castings and forgings**, along with sheet, foil and extrusions.

- **Consumption pattern in 2003** differed sharply from the world's:

SECTOR	WORLD (%)	INDIA (%)
Electrical and electronics	9	**32**
Transport	**31**	18
Construction	18	16
Packaging	17	12
Consumer durables	6	6
Industrial machinery	9	4
Powders and chemicals	–	6
Others	10	6

- Per capita use: barely **500 grams** in an older count, against 5.9 kg in the USA and 3.6 kg in Brazil. Industry estimates put it near **4 kg in 2025**, against about 11 kg worldwide.

Raw Material: Bauxite

- **Bauxite** is the raw material. It is **bulky**, so moisture and impurities should be removed before the ore travels long distances.
- **Output is now far more concentrated than older accounts show.** Total resources were 4,958 million tonnes in 2020, and output was 23.97 million tonnes in 2023-24.

STATE	OLDER ACCOUNT	NOW
Odisha	Largest, over half of output; 1,370.5 million tonnes recoverable	**73.4% of output** (2023-24); 41% of resources (2020)
Jharkhand	**63.5 million tonnes** recoverable, all grades	8.5% of output; 289 million tonnes of resources
Maharashtra	About 10% of output; **87.7 million tonnes** recoverable	4.4% of output; 5% of resources
Chhattisgarh	More than 6% of output	4.3% of output; 20% of resources

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STATE	OLDER ACCOUNT	NOW
Madhya Pradesh	A main producer	2.5% of output; 4% of resources

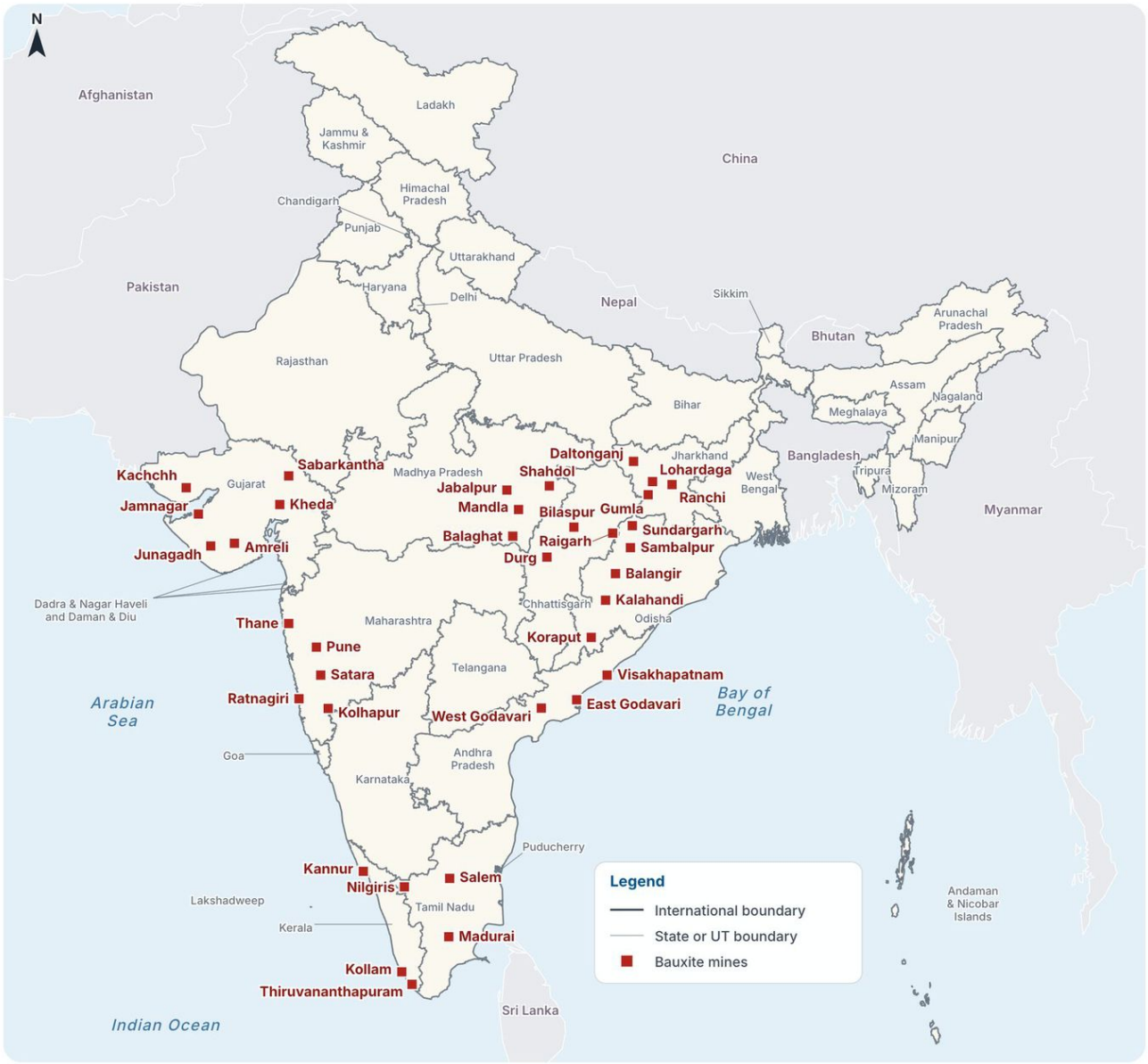
- **Where the ore lies:**
  - Odisha: the main belt is in **Kalahandi and Koraput**, and it continues into Andhra Pradesh.
  - Jharkhand: spread over Ranchi, Lohardaga, Palamu and Gumla, with some in Dumka and Munger. **Lohardaga** and its surroundings have high-grade ore.
  - Maharashtra: the largest deposits are in **Kolhapur**, capping the plateau basalts. Udgeri, Dhangarwadi, Radhanagari and Inderganj have rich ore, with **52–89% alumina**.
  - Chhattisgarh: the **Maikala range** in Bilaspur and Durg, and the **Amarkantak plateau** of Surguja, Raigarh and Bilaspur.
  - Madhya Pradesh: the Amarkantak plateau, the Maikala range in Shahdol, Mandla and Balaghat, and **Katni**, formerly part of Jabalpur district.
  - Smaller sources:
    - Andhra Pradesh: Visakhapatnam, East Godavari, West Godavari.
    - Keralam (Kerala): Kannur, Kollam, Thiruvananthapuram.
    - Rajasthan: Kota.
    - Uttar Pradesh: Banda, Lalitpur, Varanasi.
    - Jammu and Kashmir: Jammu, Poonch, Udhampur.
    - Goa.

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RESOURCES · BAUXITE

Bauxite Mines in India

Thirty-six mining districts across peninsular India, from Kachchh to Thiruvananthapuram.



Boundaries: Survey of India outline (datameet).

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Location Factors

- **The two stages locate differently:**
  - **Alumina refineries** stand near the mines, because the ore loses much weight.
  - **Smelters** need very large amounts of electricity, so they stand near **cheap power**, and most Indian smelters also stand near their refineries.
- Input ratios: about **6 tonnes of bauxite give 2 tonnes of alumina, which give 1 tonne of aluminium**.
- **Other inputs per tonne of metal:** about 0.26 tonnes of caustic soda and 0.09 tonnes of lime, with small amounts of cryolite, aluminium fluoride, calcium fluoride, calcined anthracite and soda ash.

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- Electricity: an older figure is **18,573 kWh per tonne**. Power makes up about **30–40% of production cost**, or 30–35% on a lower estimate, and this makes affordable power essential.
- **Power sources:**
  - Smelters often stand close to large power stations, and **hydroelectric sites** were favoured for lower carbon footprints: Hirakud, Rihand at Renukoot, and Mettur.
  - Indian smelters now mostly run on their own **captive thermal power**, which ties them to coal.
- **Site shortage:** the industry's need for very cheap power has long limited the sites that suit it.
- **Odisha is now the centre of gravity**, with Jharsuguda, Angul, Aditya and Hirakud smelters and three large refineries.

REFINERY	STATE	COMPANY	ALUMINA CAPACITY (THOUSAND TONNES)
Damanjodi	Odisha	NALCO	2,275
Lanjigarh	Odisha	Vedanta	2,000
Utkal Alumina	Odisha	Hindalco	1,500
Renukoot	Uttar Pradesh	Hindalco	700
Muri	Jharkhand	Hindalco	450
Belagavi	Karnataka	Hindalco	350
Korba	Chhattisgarh	BALCO	200

Aluminium Production Process

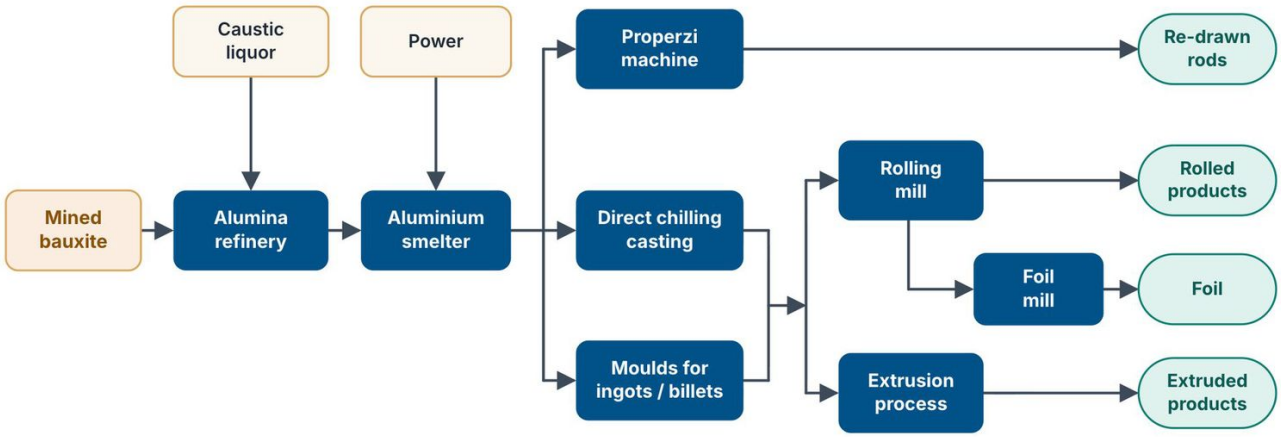
- **Refining (Bayer process, Carl Josef Bayer):** crushed and milled bauxite meets **caustic soda** in a pressure vessel at about 170–180°C. Filtering leaves behind **red mud**. Crystallisation gives aluminium hydroxide, and a rotary kiln turns that into **alumina**.
- **Smelting (Hall-Héroult process, Charles Martin Hall and Paul Héroult):** alumina is reduced to metal by **electrolysis** in carbon-lined cells, at a smelter. This step takes the huge electricity load.
- Finishing: molten metal is cast into ingots, billets and slabs, then **rolled, extruded or drawn** into sheet, foil, rods and wire.

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INDUSTRY · ALUMINIUM

Aluminium Process Flowchart

From mined bauxite through the refinery and smelter to rods, rolled products, foil and extrusions.

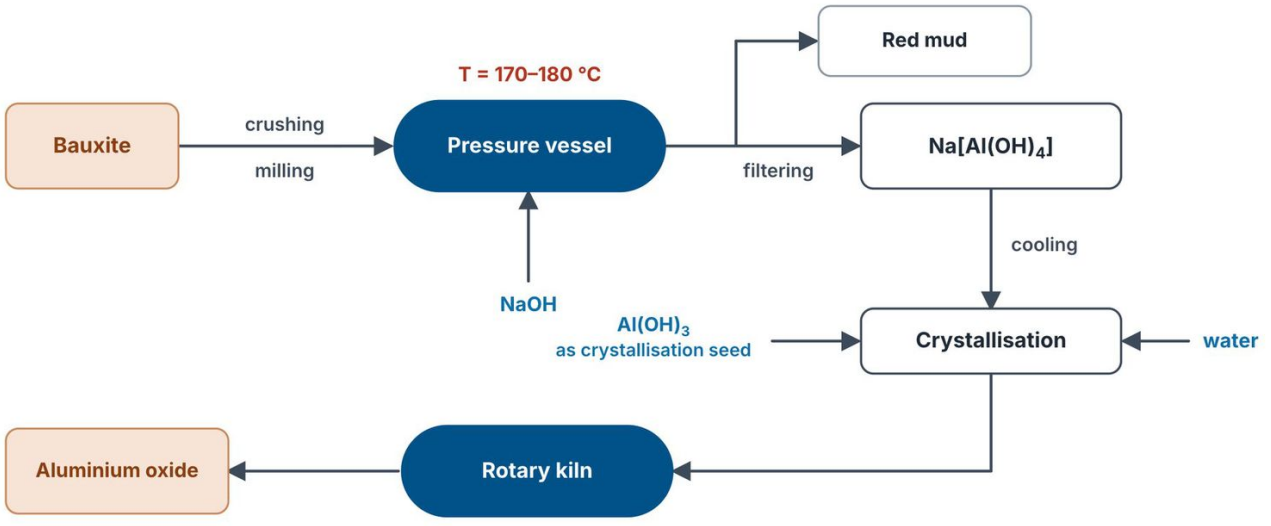


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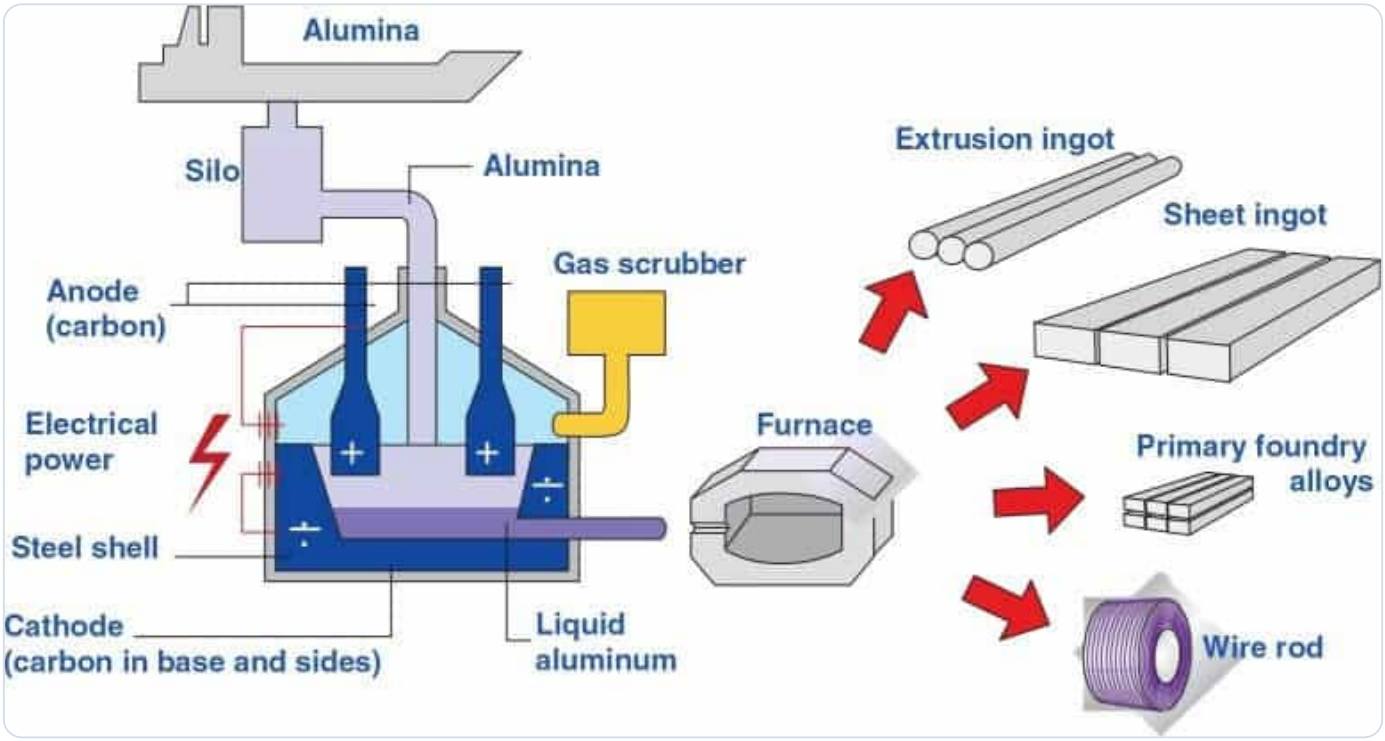
INDUSTRY · ALUMINIUM

Bayer Process

Bauxite is digested with caustic soda under pressure, filtered, crystallised and calcined to aluminium oxide.



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Aluminium Smelting Plants in India

LOCATION	STATE	COMPANY	SMELTER CAPACITY, 2023-24 (THOUSAND TONNES)
Jharsuguda	Odisha	Vedanta Aluminium (VAL)	**1,750**
Korba	Chhattisgarh	Bharat Aluminium Co (BALCO)	590
Angul	Odisha	National Aluminium Co (NALCO)	460
Renukoot	Uttar Pradesh	Hindustan Aluminium Co (HINDALCO)	410
Aditya	Odisha	HINDALCO	360
Mahan	Madhya Pradesh	HINDALCO	359
Hirakud	Odisha	HINDALCO	216
Alupuram	Keralam	HINDALCO	Smelter closed in 2003
Mettur	Tamil Nadu	Madras Aluminium (MALCO)	Smelter closed in 2008

- **Korba has since grown.** A new potline of 0.435 million tonnes, using 525 kA cells, took BALCO to **1 million tonnes in October 2025**.

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- **Production:**

YEAR	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2006-07	2011-12
Thousand tonnes	4.0	18.5	168.8	199.0	451.1	620.4	1,061.2	963.2

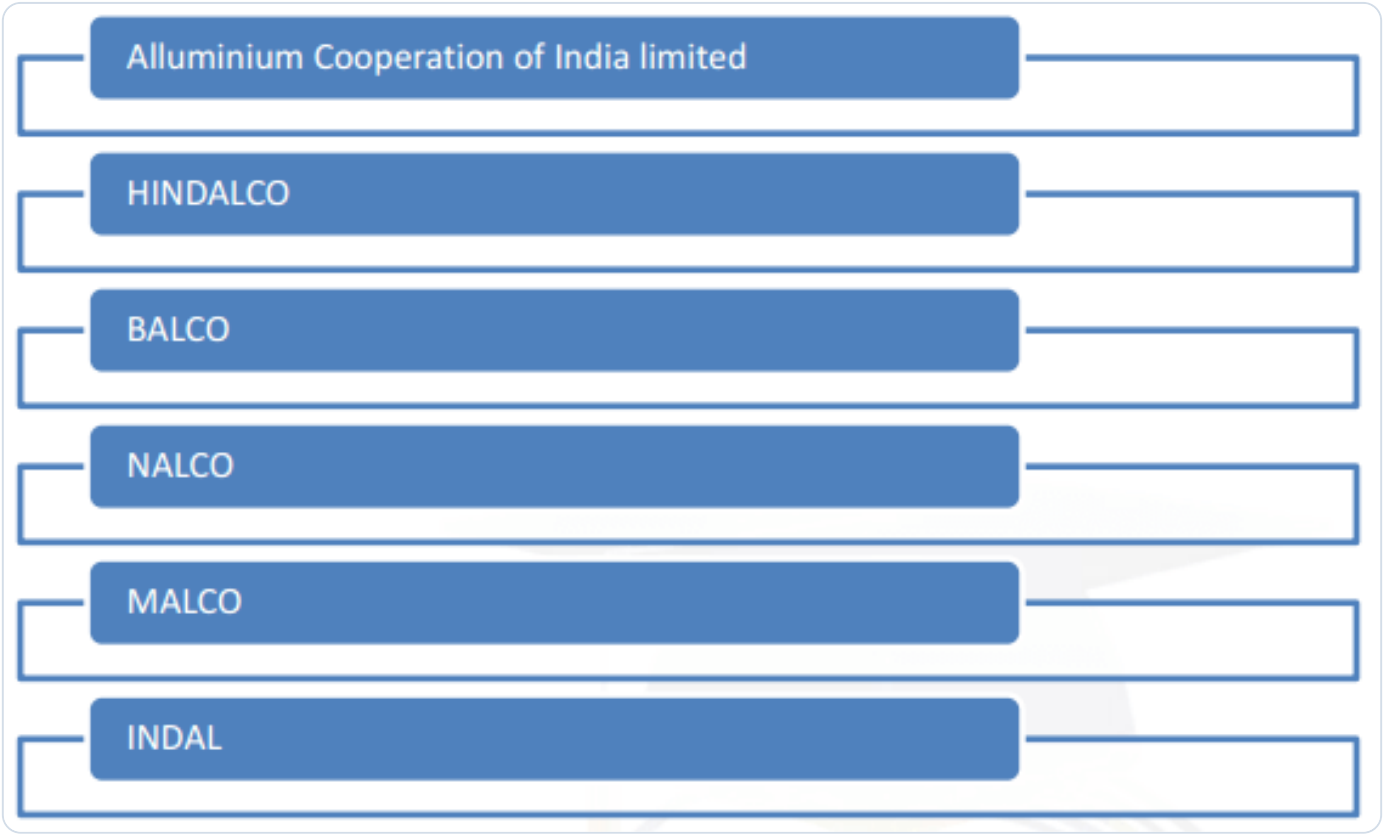
- Output rose slowly during the first three Plans, then reached a first peak in 2006-07. **Power shortages and interrupted bauxite supply** then held it back, before large new smelters opened in Odisha and elsewhere.

Evolution of Aluminium Industries in India

- It is among the **youngest of metal industries**. Commercial production became possible only with the **electrolytic process of 1886**.
- Bauxite is abundant across the earth's crust, but **sizeable concentrations are rare**.
- **Fabrication of utensils** from imported metal began in India in 1929.
- 1937: the **Aluminium Corporation of India** was formed, but its first venture was delayed. It was the first real attempt to make aluminium in India.
- 1938: the **Indian Aluminium Company (INDAL)** began production at **Alupuram, Kerala**. In **1940** the government gave it support through import tax exemption and a heavy duty on imported aluminium.
- 1942: the Aluminium Corporation began producing **alumina at Jaykaynagar, West Bengal**, and metal followed in 1944.
- **The Second World War** gave the industry its push. These two firms remained the only producers until 1960.
- **Second Five Year Plan:**
  - **INDAL** added **Hirakud, Odisha**. It had rolled sheets from imported alumina since 1943, and had refined Indian bauxite since 1948.
  - **HINDALCO** was set up at Renukoot, Uttar Pradesh, in **1958**.
- **Third Five Year Plan:**
  - **MALCO**, operating since 1965, at Mettur, Tamil Nadu.
  - **BALCO**, established in 1965, at Korba, Chhattisgarh, in the public sector.
- 1970: INDAL set up a plant at **Belgaum (Belagavi), Karnataka**.
- **1981:** NALCO was formed. Commercial production began in 1988-89.
- Reform: the industry was **decontrolled in 1989** and gained further from **liberalisation in 1991**.

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Aluminium Industries in India



- On this chart, "Alluminium Cooperation" should read **Aluminium Corporation**.
- **Hindustan Aluminium Company (HINDALCO), Renukoot:**
  - Set up in **1958**. All of its production facilities for alumina, metal and fabricated goods are at the **Rihand dam** in Sonbhadra, Uttar Pradesh.
  - It was long described as India's **largest integrated primary producer** and Uttar Pradesh's **biggest industrial enterprise**.
  - Bauxite: from **Lohardaga** (Jharkhand) and **Amarkantak**, on the Madhya Pradesh–Chhattisgarh border.
  - Renukoot is **Hindalco's largest smelter**, within a group capacity of 13.45 lakh tonnes.
- **Jaykaynagar, near Asansol, West Bengal (Aluminium Corporation of India):**
  - The **first to make aluminium from Indian bauxite**. Registered in **1937**, it made alumina from 1942 and metal from 1944.
  - It ran a **captive coal mine and thermal station**, along with alumina, reduction, sheet rolling and utensil units.
  - **Kolkata** provided its market.
- **Bharat Aluminium Company (BALCO), Korba:**
  - Established in **1965**, with Soviet help. Its first plant, of **one lakh tonnes**, made alumina from 1973 and metal from about 1975.
  - **Bauxite** came from the **Phutkapahar** region and Amarkantak.
  - Other units: Bidhanbag near Asansol, gained by nationalisation in 1984, and **Ratnagiri (Maharashtra)**, listed with 50,000 tonnes.

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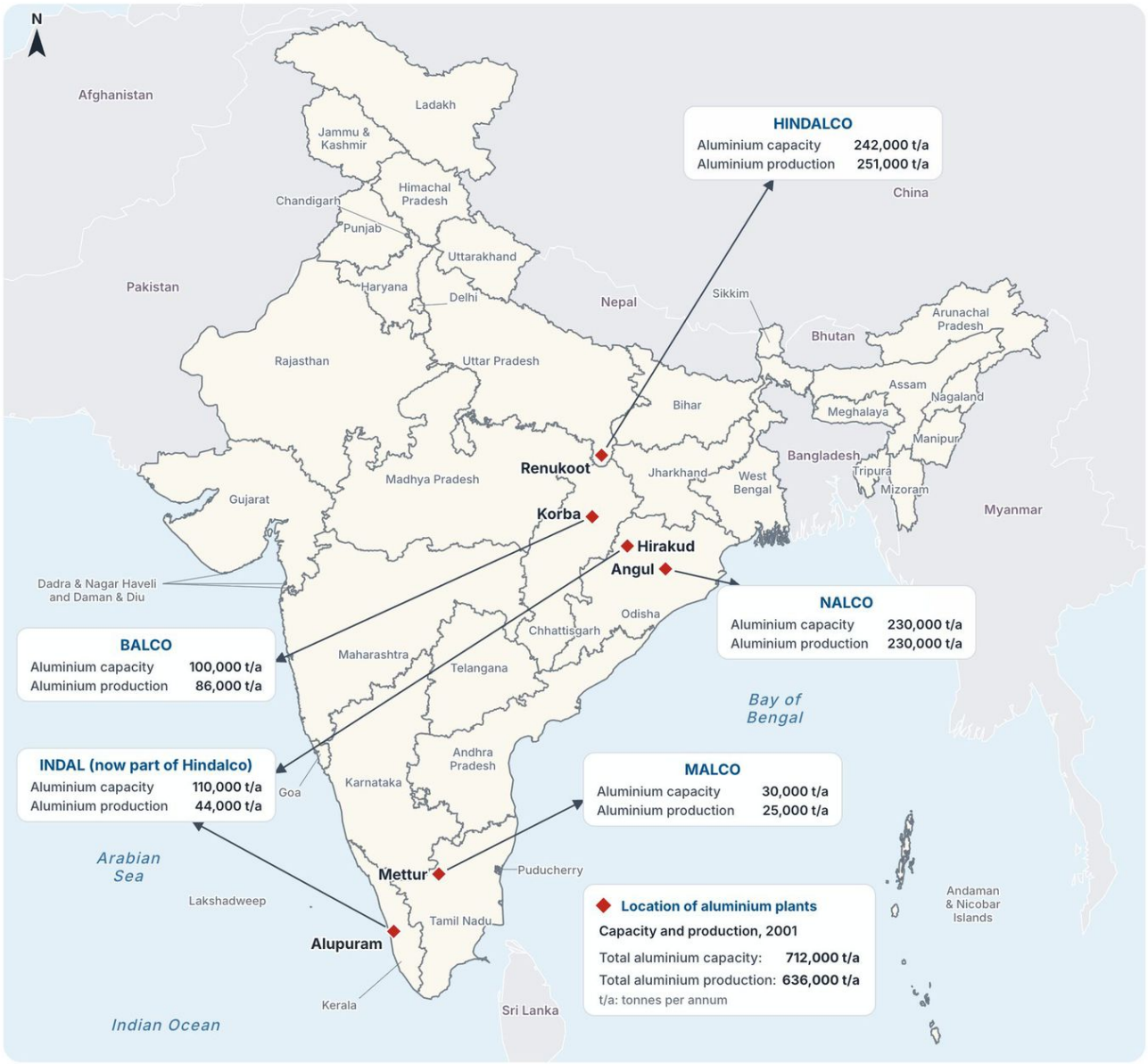
  - Disinvestment: the government sold **51% to Sterlite Industries in March 2001**. It is now in the Vedanta group, with the government holding the rest.
- **National Aluminium Company (NALCO):**
  - **Formed in 1981.** Its integrated complex has its refinery at **Damanjodi**, near Jeypore in Koraput district, with bauxite from Panchpatmali.
  - Smelter: at **Angul**, then in Dhenkanal district. It started at about 2,18,000 tonnes and now has **4.6 lakh tonnes**.
  - **State-of-the-art facilities**, and long called India's largest bauxite–alumina–aluminium complex.
  - Exports: more than **3.75 lakh tonnes of alumina**, through **Visakhapatnam port**.
  - Expansion: bauxite mining went from 48 to 63 lakh tonnes and alumina from 15.75 to 21 lakh tonnes, with captive power of **1,200 MW**.
  - Standing: it has been called the **world's lowest-cost producer**, among the top 10 companies, and **second to Hindalco** in India. By 2023-24 smelter capacity, Vedanta (with BALCO) and Hindalco were both larger.
  - Plans: a fifth refinery stream to reach **3.1 million tonnes of alumina**, and a new 0.5 million tonne smelter at Angul by about 2030-31.
- Madras Aluminium Company (MALCO), Mettur: operating since **1965**, with power from the nearby **Mettur dam**. Its smelter has been closed since December 2008.
- Indian Aluminium Company (INDAL): plants at **Alupuram** and **Hirakud**. It merged into **Hindalco in 2004**.
- Vedanta Aluminium, Jharsuguda: the largest smelter site in India, with **17.5 lakh tonnes** of capacity. It cast 1.83 million tonnes in 2024-25.

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RESOURCES · ALUMINIUM

Location of Aluminium Plants in India, 2001

Six plants of five companies, with each company's aluminium capacity and production in 2001.



Boundaries: Survey of India outline (datameet).

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- The capacities on this map are for **2001**, when the total stood at 7.12 lakh tonnes. The total was 41.45 lakh tonnes in 2023-24, Jharsuguda does not appear, and INDAL is now part of Hindalco.

Problems of Aluminium Industry in India

- Power: **high cost and shortage of power** are the major hurdles, and the lack of cheap power has been a main brake on growth.
- **Production bottlenecks:**
  - Dislocation of supply from the grid.

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    - Total stoppage of power.
    - The response has been for smelters to build **their own thermal power plants**, which raises their exposure to coal cost and carbon rules.
- **Old technology:** smelters that are decades old use more power and cost more to run.
- **Bauxite left unused:**
    - **Vast east coast deposits** long lay idle after their discovery.
    - Refineries at Damanjodi, Lanjigarh and Rayagada now use this belt.
    - Mining can still be refused. All **12 gram sabhas rejected bauxite mining in the Niyamgiri hills in 2013**, after a Supreme Court order, and **Gandhamardan** was abandoned earlier.
    - India **imported 4.49 million tonnes of bauxite in 2023-24**.
- Controlled prices: the industry once sold to **State electricity boards** at unremunerative prices, and control reached commercial grade metal too. This eroded profits until the **decontrol of 1989**.
- **Costly inputs:** high input costs make it hard to compete abroad.
- Imported inputs: essential materials such as **cryolite and fluoride** are still imported.
- **Demand and supply:**
    - An older picture had **demand above 1 million tonnes a year against output of about 0.5 million tonnes**, with a shortage of primary metal for core sectors.
    - Output is now over 4 million tonnes. **Imports have grown too**, mainly because demand has risen across many sectors.
- **Barriers to entry:**
    - Economies of scale: costs, chiefly power, fall as size rises, so small plants struggle.
    - Huge capital: small entrepreneurs cannot enter easily.
    - Long set-up time: a plant of BALCO's size takes about **3–4 years** to work.
    - Control over mines: existing players hold the known bauxite mines, which affects ore prices for others.
    - Scarcity of power: as above, a basic constraint on growth.
    - Government factors: environmental clearance and the allotment of mines take long.
    - Land: existing players can expand on brownfield sites more easily than a newcomer can start a greenfield one.
- International competition: India's bauxite grade is good, but output and product quality have lagged **Australia, Canada, France and the USA**.
- **Labour:** strikes and unrest have also held the industry back.
- Outlook: the Ministry of Mines' vision document of **4 July 2025** aims at a **sixfold rise in output by 2047**, bauxite capacity of 150 million tonnes, and a doubling of recycling.

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Previous Year Questions

No direct PYQ has been asked on this sub-topic yet.

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UNIT 04 | 7 CHAPTERS

Planning, Policy and Special Economic Zones



Planning; new industrial policies; multinationals and liberalisation; special economic zones.

CHAPTERS

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Special Economic Zone (SEZ)



PYQ RADAR 2 questions Last asked **2022** 2022 · 2018

CONTENTS

01 Special Economic Zone
02 Previous Year Questions

- A **Special Economic Zone (SEZ)** is a specifically delineated duty-free enclave, deemed to be **foreign territory** for trade operations, duties and tariffs.
- The concept is expected to bring the State large gains in economic and industrial development and new employment. SEZs are meant to work as **engines of growth**.
- **31 March 2026:** India had **277 operational SEZs** with **32.61 lakh jobs**, and their **exports in 2025-26** reached **₹16,36,192 crore (US$ 185.28 billion)**.

01 Special Economic Zone PYQ 2018

- **SEZ** is a broad term for a region whose economic laws are more liberal than those elsewhere in the country, in order to make goods globally competitive. It covers more specific kinds of zone:

ZONE	MEANING	WHERE OR WHAT
Free Trade Zone (FTZ)	Goods landed, stored, handled, manufactured or reconfigured and re-exported under special customs rules, generally free of duty	Major seaports, international airports, national frontiers
Export Processing Zone (EPZ)	Area set up to raise commercial and industrial exports through foreign investment	Tax exemptions, a barrier-free environment
Free Zone (FZ)	Also free economic zone or free economic territory: companies taxed very lightly or not at all	Set by trade and commerce administrations

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ZONE	MEANING	WHERE OR WHAT
Industrial Estate (IE)	Infrastructure made ready for entrepreneurs	Also industrial park, zone, area or township
Free Port (FP)	Little or no tax. Geographically inside a country but outside it for tax purposes	Designated by government
Urban Enterprise Zone	Tax concessions, infrastructure incentives and reduced regulation, to draw firms to a zone	Free of certain local, state and federal taxes and restrictions

History of Free Trade Zones

- **Ancient roots:** free ports are traced back to the ancient Mediterranean, with Robert C. Haywood of the World Economic Processing Zones Association citing Tyre and Delos.
- **First modern zone:** the **Shannon Free Zone in Ireland (1959)**.
- **Asia's first EPZ** opened at **Kandla, Kutch, in Gujarat**, in **1965**, among the earliest in the developing world.
- **More Indian zones followed:**
  - Santacruz Electronics EPZ at Mumbai (1973).
  - Noida, Falta, Kochi and Madras (Chennai) (1984).
  - **Visakhapatnam** (established 1989, working from 1994).
- **China** began its economic makeover in **1978** and grasped the power of the idea.
  - Deng Xiaoping's reforms created the zones of **Shenzhen, Zhuhai and Shantou in 1980**, and then Xiamen. In 1984 the opening was widened to coastal cities.
  - By **2000**, one zone at Shenzhen was **exporting three times as much as India**.
- **Worldwide count:** older accounts gave about **2,000 free zones in 150 countries**. The **United Nations Conference on Trade and Development** counted more than **5,000 (2019)**, and about 7,000 in 145 countries by 2022.

Kinds of SEZ

- SEZs can be categorised by **sector, function or location**, and each has **processing and non-processing areas**.

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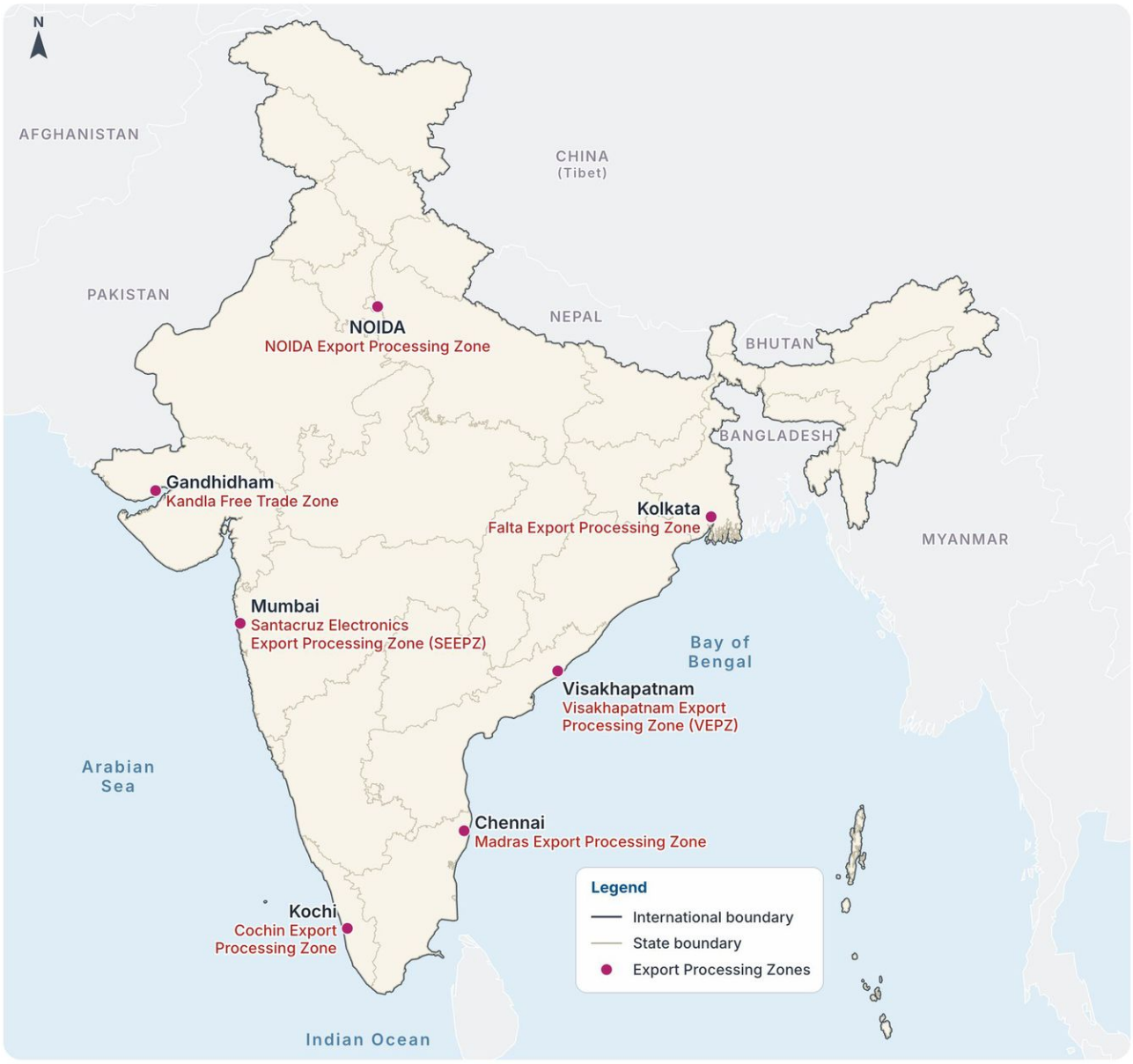
- Since **17 December 2019** all SEZs are treated as **multi-sector**, so units from any sector can sit side by side.

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INDUSTRY · SPECIAL ECONOMIC ZONES

Export Processing Zones of India

The seven early zones that later became Special Economic Zones.



Boundaries: Survey of India outline (datameet). Not to scale.

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- This map marks the seven early EPZs that became SEZs. Kandla, Santacruz and Kochi converted first, with others following by 2003.

Fundamentals of SEZs

- SEZs differ basically from traditional free zones. They are much larger and offer a broader range of facilities:
  - Single-window management
  - Streamlined procedures

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  - Duty-free privileges
  - Access to the domestic market on a duty-paid basis
- **Cardinal factors** decide whether an enclave is called an EPZ, FTZ or SEZ:
  - Appropriate infrastructure and transport facilities
  - Low factor cost
  - Flexible labour laws
  - Currency convertibility
  - Stable legal and administrative regime
  - **Commitment to the canons of an open economy**

Role of SEZs in the Indian Economy

- To give an internationally competitive environment.
- To encourage foreign direct investment (FDI) and enhance GDP.
- To increase India's share in global exports.
- SEZ exports were once put at **26% of India's total exports**, and they have kept rising in absolute terms.

YEAR	SEZ EXPORTS	GROWTH OR NOTE
2009-10	₹2.2 lakh crore	Older series
2011-12	₹3.64 lakh crore	15.4%
2023-24	₹13,55,220 crore (US$ 163.69 billion)	7%
2024-25	₹14,63,669 crore (US$ 173.07 billion)	8%
2025-26	₹16,36,192 crore (US$ 185.28 billion)	11.79%

- **Gujarat led** with about **₹4.06 lakh crore** in 2025-26.

Salient Features of SEZs PYQ 2022

- **Self-certification for export and import:**
  - Movement of goods rests on **self-declaration**.
  - There is **no routine examination** without a specific order from the Development Commissioner or the authority.
- **Subcontracting:** a unit may subcontract part of its product or process to other units, even abroad.
- **Fiscal incentives:**
  - **Excise and customs duty exemption** on capital assets, consumable stores and raw materials bought from the domestic market.

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  - Older package: exemption from sales tax, import duty, income tax, minimum alternate tax and dividend distribution tax.
  - Later changes: minimum alternate tax exemption ended from 1 April 2012, and dividend distribution tax exemption for developers from 1 June 2011.
  - Central Sales Tax, Service Tax and State sales tax have merged into GST. Supplies to SEZs are **zero-rated** under the Integrated GST Act, 2017.
- **Single-window clearance:**
  - Documents go to one place on a regular basis, for Central and State approvals.
  - Proceedings are shorter and save time.

SEZs in India

- **Asia's first EPZ** came up in **1965 at Kandla**, Gujarat.
- EPZs had a similar structure to SEZs, but **multiple controls, weak infrastructure and an unstable fiscal regime** limited them.
- **The SEZ Policy of April 2000**, in the Export-Import Policy, set out to fix these problems. SEZs ran under the Foreign Trade Policy from November 2000 to February 2006.
- **The Special Economic Zones Act was passed in 2005**, and the Act and **SEZ Rules came into force on 10 February 2006**.
- India's SEZs were closely modelled on China's successful example.
- **Numbers:**
  - **June 2012:** 143 operational, and 634 formally or in-principle approved, led by Andhra Pradesh, Tamil Nadu, Karnataka and Maharashtra.
  - **Earlier count:** 379 notified and 265 operational, with about 64% in Tamil Nadu, Telangana, Karnataka, Andhra Pradesh and Maharashtra.
  - **31 July 2026: 372 notified** and **277 operational**, so **95 are not working**. Haryana (14), Telangana (12) and Karnataka (11) have the most idle zones.

MEASURE (31 MARCH 2026)	VALUE
Formal approvals	418
Notified	368
Operational	277
Units approved	7,013
Land for SEZs	42,800 hectares
Investment	₹7,59,870 crore (₹4,036 crore in February 2006)

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MEASURE (31 MARCH 2026)	VALUE
Employment	32.61 lakh (1.35 lakh in February 2006)

- **The Board of Approval** is the apex body, headed by the **Secretary, Department of Commerce**, in the Ministry of Commerce and Industry.
- **Domestic Tariff Area:** the rest of India outside SEZs. Goods sold from an SEZ into it are treated as **imports**, and supplies into an SEZ as **exports**.

Baba Kalyani Committee

- The Ministry of Commerce and Industry set up the **Baba Kalyani committee in June 2018** to study SEZ policy, and it reported in **November 2018**.
  - Its aim: make the policy compatible with the World Trade Organisation, bring in global best practice, and get the most from capacity and output.
- **Recommendations:**
  - **Shift from export growth** to broad-based employment and economic growth: **Employment and Economic Enclaves (3Es)**.
  - **Separate rules** for manufacturing and service SEZs.
  - **Move from supply-driven to demand-driven** 3E development, weighing industry needs and existing inventory in the region.
  - Ease of Doing Business in 3Es, in step with State initiatives, with **one integrated online portal** for investment, operations and exit.
  - Better competitiveness through funding high-speed multi-modal connectivity, business services and utilities.
  - Integrated industrial and urban development, with walk-to-work zones, and Centre–State coordination to link initiatives.
  - Procedural relaxations for developers and tenants, on operations and exit.
  - Extended sunset clause and retained tax or duty benefits.
  - Broad-banded definition of services, allowing several services together.
  - Additional enablers and relaxations.
  - **A unified regulator for International Financial Services Centres (IFSCs).**
  - Use of multi-services IFSC SEZs for all inbound and outbound investment.
  - Incentives for domestic institutions that use IFSC services.
  - Extension of the services export incentive scheme.
  - Other sectors allowed to invest in sector-specific SEZs and 3Es.
  - Flexible long-term leases for developers and tenants.
  - Subcontracting for customers outside 3Es and SEZs with no cap.
  - Specified domestic supplies supporting **Make in India** counted in net foreign exchange (NFE).
  - No export duty on goods supplied to developers and used in making exports.

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- Flexibility in using non-processing area (NPA) and selling space to investors and units.
- Infrastructure status, for finance and long-term borrowing.
- Promote MSMEs in 3Es, and let manufacturing-enabling service firms locate there.
- Dispute resolution through arbitration and commercial courts.

Reforms Since 2019

- Unified regulator: the **International Financial Services Centres Authority** now regulates IFSCs such as GIFT City.
- **17 December 2019:** minimum land fell to **50 hectares** for most SEZs (25 hectares in the North-East, Himachal Pradesh, Uttarakhand, Goa and Union Territories). IT, biotechnology and health SEZs have no land minimum.
  - The older sizes were 1,000 hectares for multi-product and 100 for sector-specific, cut to 500 and 50 in 2013.
- **3 June 2025:** minimum land fell to **10 hectares** for SEZs making only semiconductors or electronic components, with sales to the domestic market allowed after duty.
  - Units at Sanand and Dharwad are the first such cases.
- **DESH Bill:** the **2022-23 Budget** proposed a law for **Development of Enterprise and Service Hubs** to replace the SEZ Act.
  - It would have made enterprise and service hubs and eased domestic sales. It has stalled, and the government has worked through rule changes instead.
- **Budget 2026-27:** a one-time concessional duty on domestic sales by eligible manufacturing units, up to a set proportion of exports, to use idle capacity hit by trade disruption. Tax incentives also favour data centres in SEZs.

Some Important SEZs in India

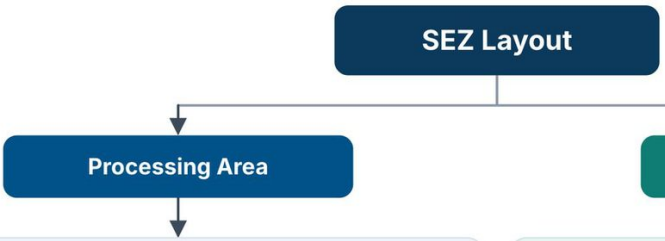
- **Karnataka:**
  - Karnataka Biotechnology and Information Technology Services: biotechnology SEZ, 43 acres, Electronics City, Bengaluru.
  - Shree Renuka Sugars: cane-processing complex of 100 hectares, with a sugar plant, power station and distillery, at Burlatti in Belagavi district.
  - Wipro Infotech: IT and IT-enabled services at Electronics City and Sarjapur, Bengaluru.
  - Hewlett Packard India Software Operation: IT.
  - Hassan: food processing over 157.91 hectares, and pharmaceuticals, biotechnology and chemicals over 281.21 hectares.
- **Others worth noting:**
  - SEEPZ: Andheri (East), Mumbai.
  - Navi Mumbai: multi-product.
  - West Bengal: Salt Lake Electronic City, Manikanchan (gems and jewellery), Calcutta Leather Complex and Falta food processing.
  - Port-led and newer zones: Kandla, Mundra, Sri City and GIFT City.

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SEZ Layout

Every SEZ is divided into a processing area and a non-processing area.



- Processing area is the demarcated area in an SEZ where units can be located for the manufacture of goods or rendering of services.
- **Minimum processing area is now 50% in every SEZ.**

OLDER RULE
50% for multi-product SEZs and up to 90% for product-specific SEZs.

Non-processing area is intended to provide support facilities to the SEZ processing area and may include:

- Educational institutions
- Hospitals
- Hotels
- Recreation and entertainment facilities
- Residential and business complexes

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Land Use Distribution in SEZs

Share of land for each use, by type of SEZ. The minimum land sizes in the table headings are the older ones.

Land use distribution (%)	Multi-product Older minimum: 1,000 ha	Sector-specific Older minimum: 100 ha	IT/ITES Older minimum: 10 ha
Residential	35	50	50
Public utility	15	10	10
Recreational	10	15	
Transport and communication	15	15	
Green belt	10		

How the minimum land size has changed

Older sizes
Multi-product: 1,000 ha
Sector-specific: 100 ha
IT/ITES: 10 ha

2013
Multi-product: 500 ha
Sector-specific: 50 ha

17 December 2019
Most SEZs: 50 ha
North-East, Himachal Pradesh, Uttarakhand, Goa, UTs: 25 ha
IT, biotechnology, health: no land minimum

3 June 2025
SEZs making only semiconductors or electronic components: 10 ha

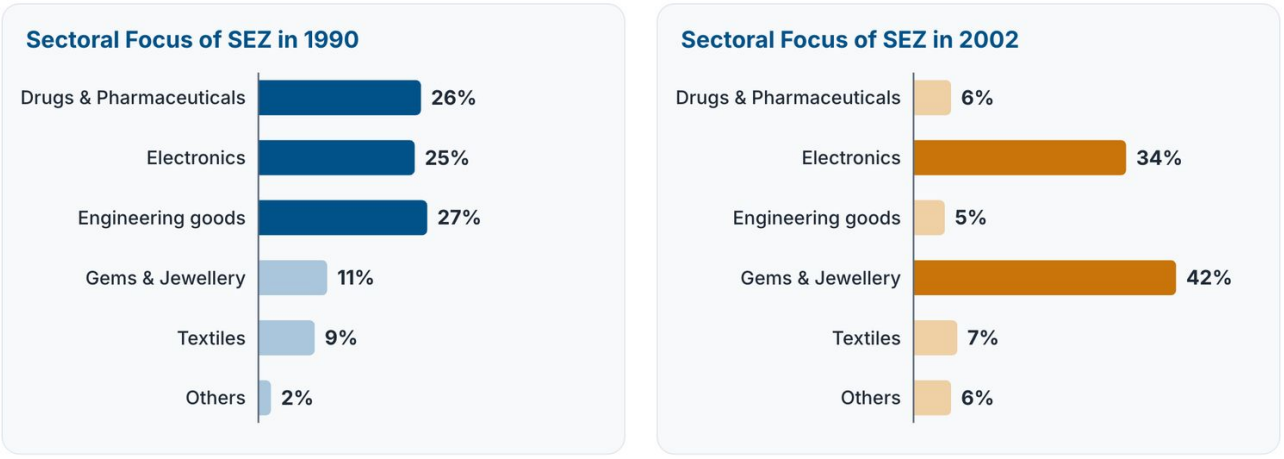
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Sectoral Focus of SEZs, 1990 and 2002

Percentage share of each sector in each year. The stronger bars mark the leading sectors.



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- The charts show the sectoral focus of the zones: engineering, electronics and drugs led in 1990, and gems and jewellery with electronics in 2002.

Advantages of SEZs

- **Growth and development:** SEZs act as growth hubs that boost trade through simple procedures.
- **Foreign investment:** relaxed trade rules give foreign investors attractive terms.
- **Technology and global markets:** foreign investors bring their technology and best business practices into India.
- GDP and economic model: they work as growth engines and raise economic activity in their area.
- **Jobs:** more economic activity brings more employment.

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Benefits and Incentives of SEZs: Part 1

An older list of what a unit in an SEZ enjoys. Some entries predate later changes.

- Duty-free enclave throughout stay in SEZ
- **Tax-free enclave throughout stay in SEZ** OLDER
  Later changes: 100% of export income exempt for the first 5 years, 50% for the next 5, and 50% of ploughed-back profit for a further 5. The sunset clause shuts out new units from 1 April 2020. Minimum alternate tax exemption ended from 1 April 2012.
- Most operations are online / single window
- Liberalised labour norms
- 24 × 7, 365 days operations
- Subcontracting: job works are allowed

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Benefits and Incentives of SEZs: Part 2

An older list of what a unit in an SEZ enjoys. Some entries predate later changes.

- 100% FDI through automatic route
- 100% capital account convertibility
- **No minimum export obligation**
  Units must still earn positive net foreign exchange, counted over 5 years.
- No fixed value addition norms (except diamonds)
- Freedom from industrial licensing
- Local sales allowed on payment of full duties
- Declared foreign territory for duties and taxes
- Facilities of offshore banking units

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- These lists show the benefits and incentives of SEZs. Some entries, such as tax-free status for the whole stay, predate the changes noted above.

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Disadvantages of SEZs

- **Land acquisition at very low prices** cost farmers their land and income, and led to violent protests.
  - **Nandigram (2007):** a proposed chemical hub and SEZ was shelved after police firing on 14 March.
  - **Goa (2007–08):** the State turned against SEZs after protests.
- **Revenue loss:** tax holidays cost the exchequer. The **Comptroller and Auditor General (2014)** put direct tax and customs forgone at about **₹83,105 crore for 2006–13**.
- **Land banks:** many traders seek SEZ status to get cheap land. The same audit found **only 62% of notified land in actual use**.
- Weak response: applications for Export Oriented Units do not match those for SEZs, feeding doubts that the project would meet its promise.
- **Idle zones:** about a quarter of notified zones are not working in 2026.

SEZ Act of 2005

- **The basic idea:** the infrastructure and business climate of the whole economy cannot be transformed overnight, whereas SEZs can be built faster and work as **efficient enclaves**.
- The **SEZ Act, 2005** gives the legal framework for establishing SEZs and for units in them.
- **Main objectives:**
  - Generation of additional economic activity
  - Promotion of exports of goods and services
  - Promotion of investment from domestic and foreign sources
  - Creation of employment
  - Development of infrastructure facilities
- **Salient features:**
  - A designated duty-free enclave treated as foreign territory for trade operations, duties and tariffs.
  - No licence needed for imports.
  - **Net foreign exchange:** units must be net earners. The older three-year test is now **positive NFE counted cumulatively over five years** from the start of production.
  - Activities allowed: manufacturing, trading and services.
  - Full freedom for subcontracting.
  - Domestic sales bear full customs duties and import policy.
  - No routine customs examination.
- **Income tax (Section 10AA):**
  - **100% of export income is exempt for the first 5 years**, **50% for the next 5**, and 50% of ploughed-back profit for a further 5.
  - An older shorthand gave 5 years, then 50% for 2 more and 3 more on half the profit reinvested.
  - **Sunset:** units starting after the clause took effect from **1 April 2020** do not qualify. Developers' benefit under Section 80-IAB ended from 1 April 2017.
- For developers: raw materials from cement to steel to electrical parts carry **zero tax and duty**.

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- Land: early practice saw government acquire large tracts for developers. **Land is a State subject**, and is now procured under State policies.
- Use of area: an early norm kept 25% of the area for export-related activity and 75% for economic and social infrastructure, with SEZ benefits on the whole area. Now **at least 50% must be processing area**.
- **Sector-specific and multi-product SEZs** were both provided for:
  - Sector-specific: up to 7,500 houses, hotels of 100 rooms, a 25-bed hospital, schools and other institutions, and a multiplex of 50,000 sq m.
  - Multi-product: up to 25,000 houses, a 250-room hotel, a 100-bed hospital and a multiplex of 2 lakh sq m.
- Labour flexibility: Gujarat amended the Industrial Disputes Act in 2004 to ease termination rules in SEZs.

Impacts of SEZs PYQ 2022

- **Suitability for sustainable development** is mixed.
  - **Economically**, SEZs bring exports, jobs and capital, as the figures above show.
  - **Socially**, they raise concerns over land loss, labour conditions and the benefit of those displaced.
  - **Environmentally**, coastal zones threaten mangroves and groundwater recharge, and enclave growth can add pollution.
- The tables below list the positive effects and hurdles for the nation, business, people and the environment.

Positive Impacts of SEZ		
To Nation	**To Business houses**	**To people**
○ World class business environment ○ Increased FDI ○ Higher economic growth ○ Infrastructural development ○ Export growth ○ Employment opportunities ○ Exposure to technology and global markets.	○ Hassle free operating environment ○ Single window clearance ○ Simplified procedure for setting up business, compliance procedure with self certification ○ Duty free import ○ Tax exemption – VAT, CST, ST, other levies ○ External commercial borrowings ○ 100% profit repatriation from export earnings	○ Employment opportunities ○ Impact on lifestyle and standard of living ○ Business infrastructure combined with social facilities ○ Better work culture, good education, leadership vision

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Hurdles posed by SEZ			
To Nation	**To Business houses**	**To people**	**To environment**
○ Loss of revenue	○ Land acquisition ○ Single window actually is not ○ No strategic planning for electricity, water	○ Grabbing of fertile land ○ Water scarcity ○ Food scarcity ○ Exploitation of labour ○ Landless farmers	○ Mangrove destruction ○ Destruction of ground water recharge system ○ Pollution

SWOT Analysis of Indian SEZs

Strengths

- Modelled on Western zones and the SEZs of China
- An established legal redress system
- Relatively low labour costs
- Employment opportunities
- A large English-speaking, skilled workforce
- Exposure to technology and the global market
- Worldwide acceptance of capabilities in:
  - Pharmaceutical manufacturing and research
  - Clinical trials
  - Manufacturing design and consultancy, IT and IT-enabled services
  - Malls and hotels
  - Hospitals
- Financial and other institutional networks

Weaknesses

- Poor infrastructure and transport facilities
- **High cost of capital**
- Inadequate institutional support
- Political changes
- **Inappropriate locations**

Opportunities

- An alternative manufacturing base, especially compared with Chinese SEZs
- Investment in core strengths such as IT, software products and services
- New ports and airports planned with the SEZ concept in mind

- A large NRI base that has invested little in greenfield development in India

Threats

- Buying and selling patterns may not last. As industries relocate to other developing countries, new competitors will emerge.
- Opposing interests
- The prospect of more restrictive labour laws
- A rising rate of rejection of proposals to set up SEZs

Export Processing Zones

- **Meaning:** an export processing zone (EPZ) is an enclave with duty-free imports and simple procedures, set up so that firms can make goods for export.
- **Growth in India:**
  - **Kandla (1965)** was the first in Asia, followed by **Santacruz, Mumbai (1973)** for electronics and gems.
  - Later came Noida, Falta, Cochin, Chennai, Visakhapatnam and Surat.
- **Limits:** small size, weak infrastructure and controls kept their export share low.
- **From EPZ to SEZ:** the Export-Import Policy of 2000 began converting them into **Special Economic Zones**, and the SEZ Act of 2005 gave these a legal base.
- **Geography:** most are on or near the coast, or close to major cities, so as to use ports and skilled workers.

Previous Year Questions

2022	Discuss the salient characteristics of industrial complexes of Western India. Examine the impact of SEZ policy on the region.
2018	Assess the suitability of Special Economic Zones (SEZs) for sustainable economic development in India.

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26	5	65	411
Chapters	Units	Previous year questions	Pages

IN THE COMPLETE BOOK

01 **Evolution, Location and Classification** 4 chapters · from page 6

02 **Major Industries** 10 chapters · from page 54

03 **Small Scale Industries, Industrial Houses and Regions** 4 chapters · from page 217

04 **Planning, Policy and Special Economic Zones** 7 chapters · from page 276

05 **Tourism** 1 chapter · from page 384

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