

# World locations of minerals and energy resources

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## 1. Iron Ore



- **North America:** Lake Superior region, NE USA, Labrador, Newfoundland
- **South America:** Itabira (Brazil), Cerro Bolivar (Venezuela)
- **Europe:** Kiruna & Gallivare (Sweden), Bilbao (Spain)
- **Africa:** Bomi hills (Liberia), Postmasberg & Transval (South Africa)
- **Asia:** Krivoy Rog, Kerch (Ukraine) , Kuzbas, Magnetogorsk (Siberia), machuria (China)
- **Australia:** Iron knob, Mt.Goldsworthy

## 2. Manganese



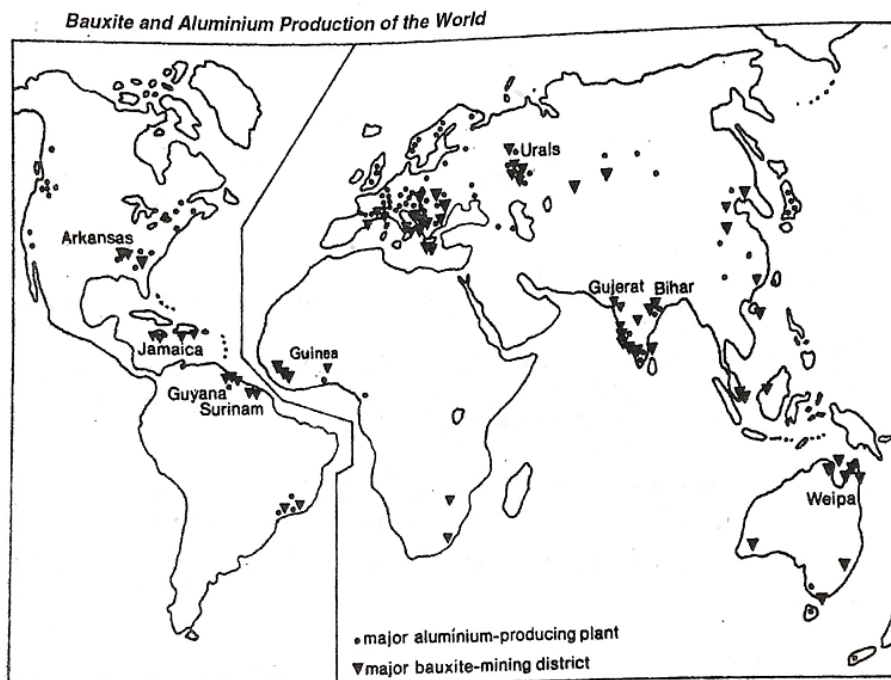
- **South America:** Macapa, Minas Geraise (Brazil), Western Mato grasso
- **Africa:** Zaire, Postmasberg (South Africa)
- **Asia:** Nikopol and Tokmak (Ukraine), Chiatura (Georgia), Urals

## 3. Copper



- **North America:** Sudbury, Lynn lake (Canada)
- **South America:** Casapalco (Peru), Chuquicamata & San Jose (Chile)
- **Africa:** Katanga
- **Asia:** Lake Balkash (Russia), Ulanbatore (Mongolia)

#### 4. Bauxite (Aluminium)



- **North America:** Alabama, Arkansas (USA)
- **South America:** Jamaica, Guyana, Surinam
- **Europe:** France, Hungary
- **Africa:** Guinea
- **Asia:** Urals, Krasnaya (Russia)
- **Australia:** Weipa, Cape York, Darling range

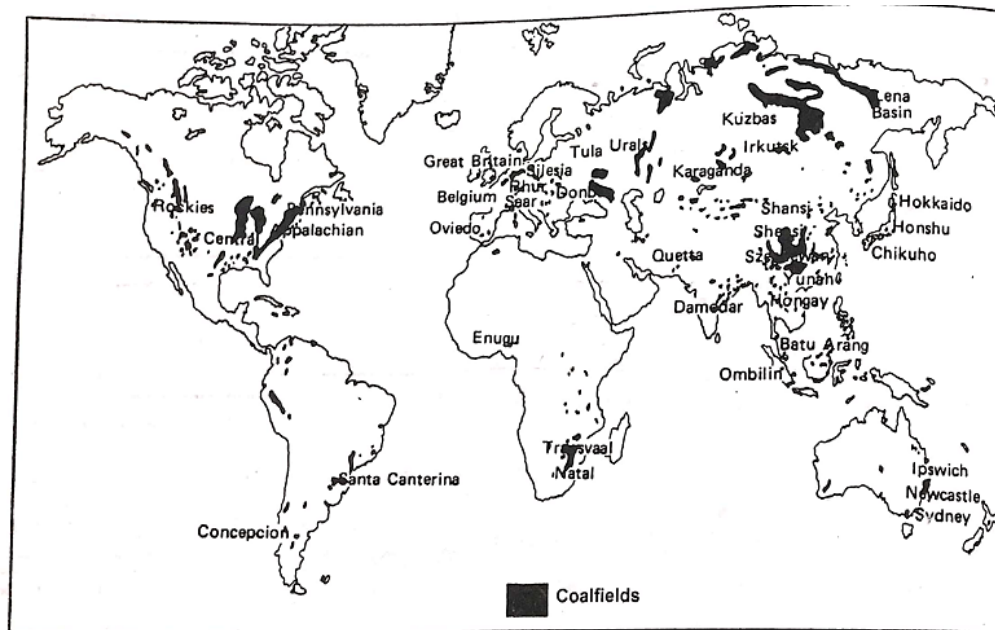
#### 5. Gold and silver

- **North America:** Yellowknife (Canada), California, Alaska (US)
- **Africa:** Witwatersrand (South Africa)
- **Asia:** Kolyma river, Lake Baikal
- **Australia:** Kalgoorlie and Coolgardie

#### 6. Tin

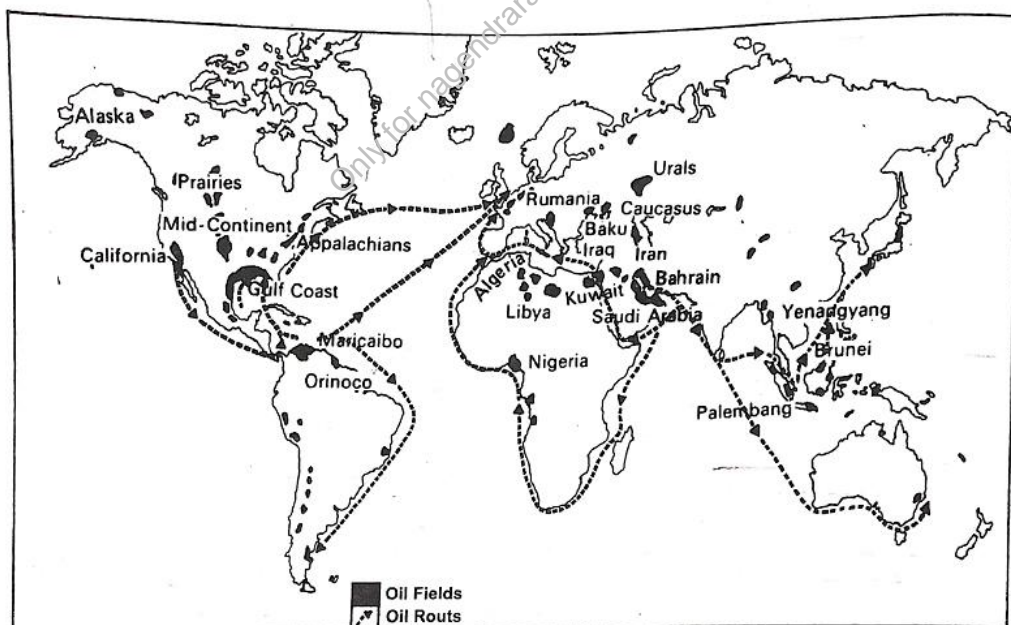
- **Africa:** Jos plateau (Nigeria)
- **Asia:** Kinta valley, Kelang valley (Malaysia), Kra peninsula, Phuket island (Thailand), Sumatra (Indonesia)

## 7. Coal



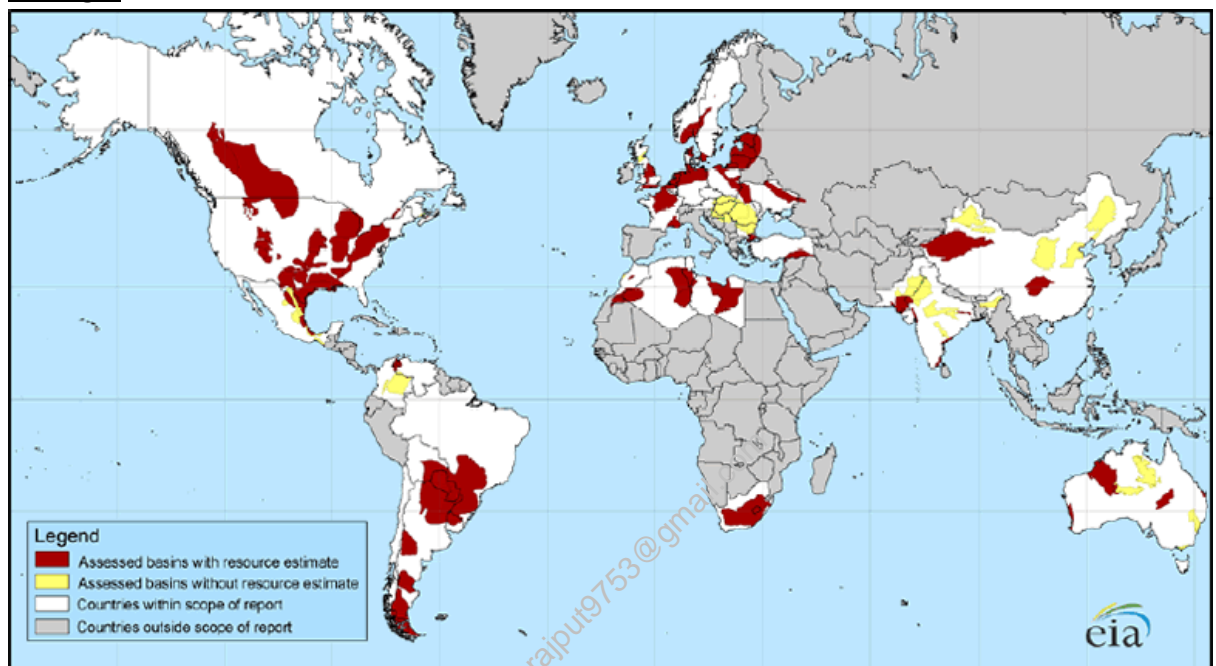
- **North America:** Pennsylvania, Appalachian, Rockies, Mexican gulf (USA), Vancouver, Nova scotia (Canada)
- **South America:** Santa Canterina (Brazil), Concepcion (Chile)
- **Europe:** Great Britain, Ruhr & Saar (Germany), Spain
- **Africa:** Zambia, Zimbabwe, Enugu (Nigeria), Transval & Natal (South Africa)
- **Asia:** Donetz, Donbas, Moscow – tula, Kuzbas, Urals, Lena (Russia), Shanzi, Shantung, Yunnan (China)
- **Australia:** Ipswich, New castle

## 8. Petroleum



- **North America:** Gulf coast, Appalachian, California, Alaska (USA), Prairies, Edmonton, Calgary (Canada)
- **South America:** Maracaibo, Orinoco basin (Venezuela), Magdalena (Columbia), Punta Arenas (Chile), Falkland
- **Europe:** North Sea, Norway
- **Africa:** Algeria, Libya, Nigeria – Niger delta
- **Asia:** Dhaharan, Quatif (Saudi Arabia), Mosul, Kirkuk, Zubair (Iraq), Masjid Sulaiman (Iran), Kuwait, Bahrain, Qatar, Abudabhi (UAE); Baku (Azerbaijan), Urals, Caucasus, Caspian sea, NW Siberia, Sakhalin (Russia); Sumatra, Borneo (Indonesia); Brunei; Sarawak, Sabah (Malaysia), China

## 9. Shale gas

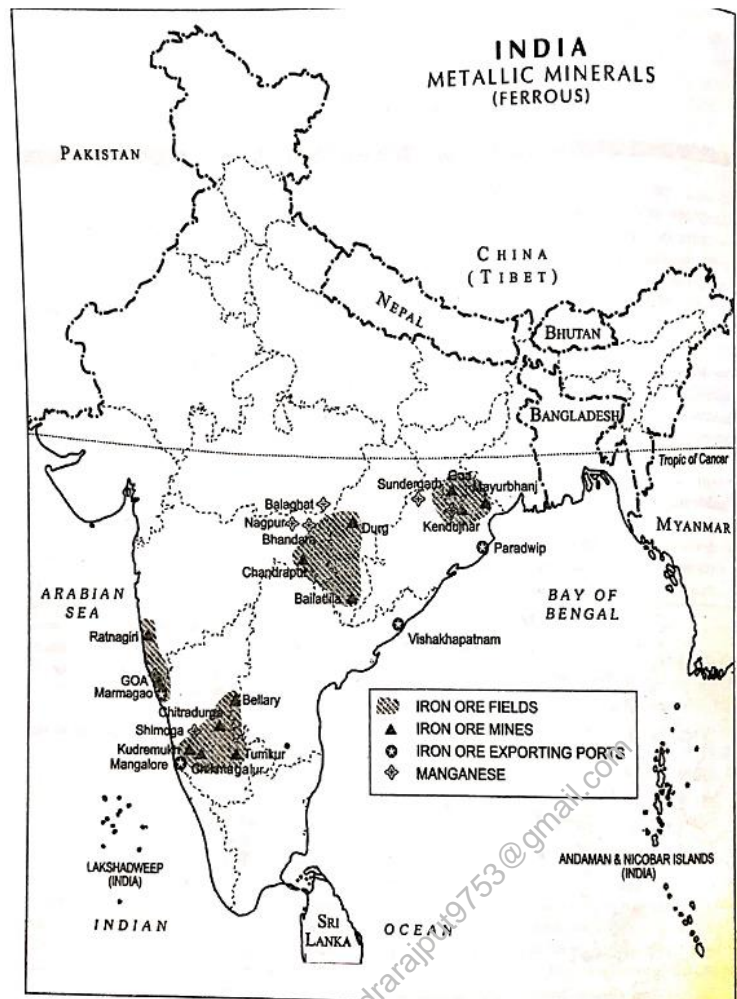


- China, Argentina, Algeria, USA, Canada, Mexico, Australia, South Africa, Russia, Brazil



# India – Mineral and Energy resources

## 1. Iron

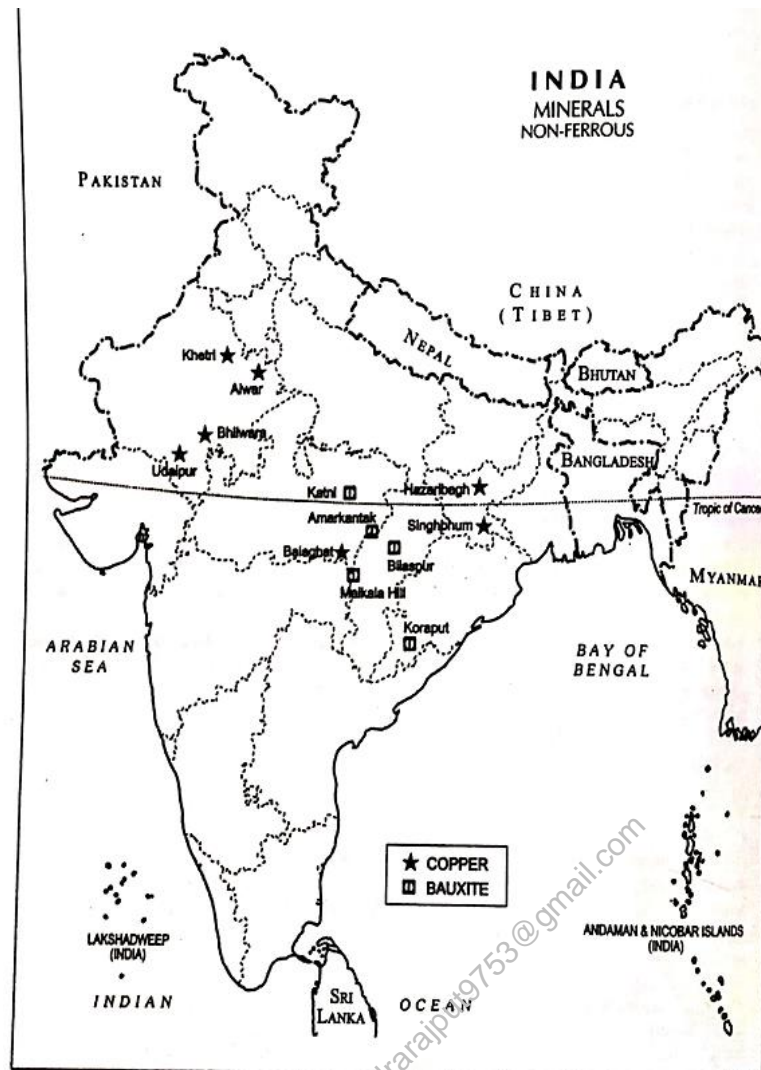


- ✓ Odisha: Gurumahisani, Sulepat and Badam Pahar in Mayurbhanj district; Baramjader group extended in Keonjhar and Sundergarh districts.
- ✓ Singhbhum district of Jharkhand
- ✓ Bailadilla of Bastar district in Chhattisgarh;
- ✓ Sandoor Hills at Bellary - Hospet region and Bababudan Hills at Chikmagalur district in Karnataka;

## 2. Manganese

- ✓ Keonjhar and Karaput region in Orissa
- ✓ Balaghat and Chindwara in Madhya Pradesh
- ✓ Nagpur and Bhandara in Maharashtra
- ✓ Panchmahal in Gujarat
- ✓ Vishakhapatnam and Srikakulam in Andhra Pradesh
- ✓ Singhbhum in Jharkhand
- ✓ Udaipur and Banswara in Rajasthan

### 3. Copper



- ✓ Singhbhum in Jharkhand;
- ✓ Jhunjhunu, Bhilwara, Alwar and Udaipur in Rajasthan; Khetri Mine in Rajasthan has been a major copper extracting region since the age of Indus valley civilization.
- ✓ Balaghat in Madhya Pradesh;
- ✓ Guntur and Nellore districts in Andhra Pradesh.

### 4. Bauxite

- ✓ Ranchi and Palamau in Jharkhand
- ✓ Sarguja, Shahdol, Durg and Balaghat in Madhya Pradesh;
- ✓ Kolaba, Thane and Ratnagiri in Maharashtra;
- ✓ Belgaon and Bababudan Hills in Karnataka;
- ✓ Palni, Javdi and Shevaroy hills regions in Tamil Nadu

## 5. Mica

- ✓ Muscovite and Biotite types of mica are extracted from Hazaribagh, Singhbhum and Palamu districts.
- ✓ Other major mica producing regions are Gaya and Munger in Bihar
- ✓ Nellore and Khammam in Andhra Pradesh
- ✓ Udaipur and Bhilwara districts in Rajasthan.

## 6. Coal



Coal Distribution in India

- ✓ The main regions of Gondwana rocks are found in West Bengal, Jharkhand and Orissa from where 76% of the total coal production is found.
- ✓ The first effort made to extract coal with modern technology in India was at Raniganj coal region in West Bengal. Raniganj area of West Bengal, located in upper valley of Damodar river, is the most important and the largest coal area of India.
- ✓ A good quality of Bituminous coal is found in Jharia, Bokaro, Giridih, Karanpura, Ramgarh, etc. of Jharkhand.
- ✓ Tata-Paradih-Ramkola of Chhattisgarh
- ✓ Talchar- coal area of Orissa (Brahmani river valley)

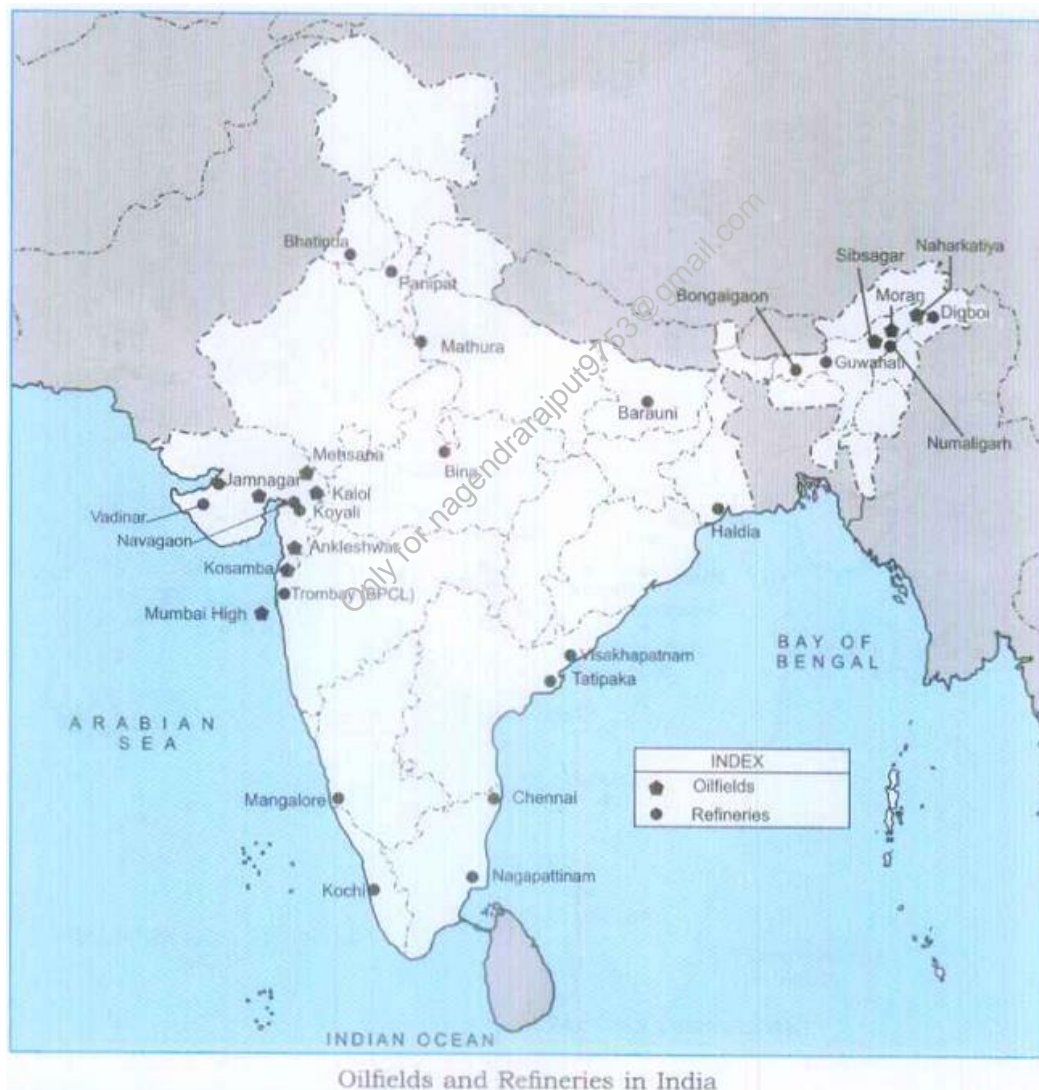


- ✓ Singreni coal areas (Krishna Godavari river valley) of Andhra Pradesh are other major important area of coal.
- ✓ Tertiary coal is found in Neyveli (Tamil Nadu, famous for Lignite) and Palana (Rajasthan).

**Table 11.1. Gondwana Coalfields**

State	River Valley	Coalfields
1. Jharkhand	Damodar	Jharia, Karnpura, Ramgarh, East and West Bokaro, Giridih, Auronga, Hutar and Daltonganj.
2. Odisha	Mahanadi	Sambalpur, Sundargarh and Talcher.
3. Madhya Pradesh	Mahanadi/Son	Singrauli, Narsingpur, Chhindwara, Betul.
4. Chhattisgarh	Mahanadi/Son	Sarguja, Sendurgarh, Rampur, Korba and Raigarh.
5. Maharashtra	Godavari	Kamptee, Wardha valley, Chandrapur and Yavatmal.
6. Andhra Pradesh	Godavari	East and West Godavari.
7. Telangana	Godavari	Adilabad, Khammam and Warangal.
8. West Bengal	Damodar	Raniganj, Bardhaman, Bankura, Purulia, Darjeeling and Jalpaiguri.

## 7. Petroleum and Natural Gas



- ✓ Assam region: Digboi, Naharkatiya, Hagriyan-Moran and Surma river valley. Natural gas is also found in Bagriyan-Moran area.
- ✓ Gujarat region: Khambakt and Ankleshwar while oil regions are extended upto Navgaon, Kosamba, Olpad, Dholka, Mehsana, Kalal etc.
- ✓ Mumbai High region, 176 km away from the Mumbai coast
- ✓ Region off-shore in Krishna - Godavari river valley.

#### 8. Shale gas

### **Prospective basins for phase 1 shale oil and gas exploration**



# India – Industrial regions





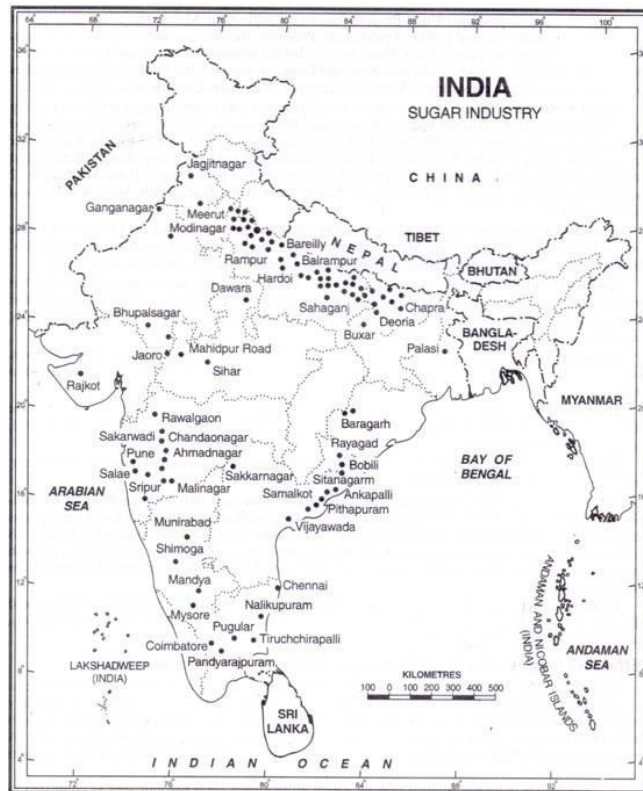


FIG. 27.17. India : Distribution of Sugar Industry



Metal Based Industries

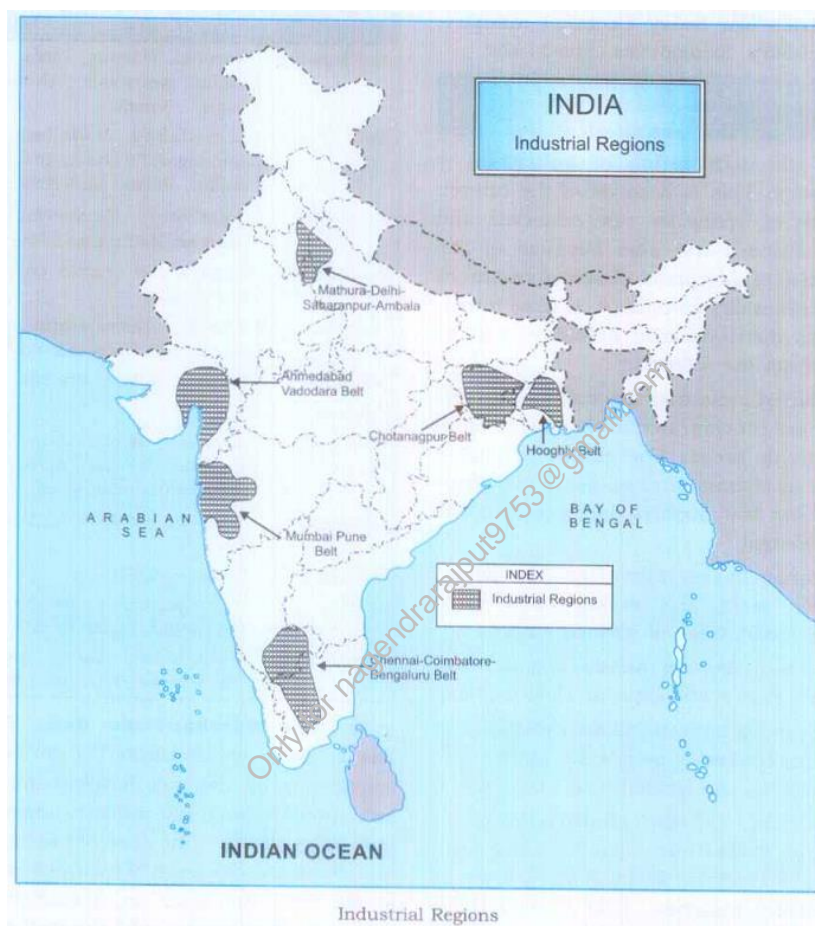
### Major Industries in India

Industry	States and Main Centres of Production
<b>1. Iron and Steel</b>	<ol style="list-style-type: none"> <li>1. <b>Tata Iron and Steel Company (TISCO)</b> — Jamshedpur, Jharkhand</li> <li>2. <b>Bokaro Steel Plant</b> — Hazaribagh, Jharkhand.</li> <li>3. <b>Durgapur Steel Plant</b> — Burdwan, West Bengal.</li> <li>4. <b>Bhilai Iron and Steel Plant</b> — Durg, Chhattisgarh.</li> <li>5. <b>Rourkela Steel Plant</b> — Sundargarh, Odisha.</li> <li>6. <b>Indian Iron and Steel Company (IISCO)</b> — IISCO Plants are located at Burnpur, Hirapur and Kulti, near Asansol, West Bengal.</li> <li>7. <b>Vishvesvaraya Iron and Steel Limited</b> — Shimoga, Karnataka.</li> <li>8. <b>Vijayanagar Steel Plant</b> — Bellary, Karnataka.</li> <li>9. <b>Vishakhapatnam Steel Plant</b> — Vishakhapatnam, Andhra Pradesh.</li> <li>10. <b>Salem Steel Plant</b> — Salem, Tamil Nadu.</li> </ol>
<b>2. Heavy Engineering Industry</b>	
<b>(A) Shipbuilding</b>	<ol style="list-style-type: none"> <li>1. <b>Hindustan Shipyard Limited (HSL)</b> — Vishakhapatnam, Andhra Pradesh.</li> <li>2. <b>The Cochin Shipyard</b> — Cochin, Kerala.</li> <li>3. <b>The Garden Reach Workshop</b> — Kolkata, West Bengal.</li> <li>4. <b>The Mazagaon Dock Limited (MDL)</b> — Mumbai, Maharashtra.</li> </ol>
<b>(B) Automobile</b>	<ol style="list-style-type: none"> <li>1. <b>Bus and Trucks</b> — Pune, Mumbai, Chennai, Kolkata, Jamshedpur, Lucknow, Uttarakhand.</li> <li>2. <b>Jeeeps</b> — Jabalpur (MP), Mumbai.</li> <li>3. <b>Cars</b> — Gurgaon (Haryana), Kolkata, Chennai, Mumbai, Bengaluru, Sanand (Gujarat).</li> <li>4. <b>Two and Three Wheelers</b> — Mumbai, Pune.</li> </ol>

<b>(C) Railway Locomotives</b>	<ol style="list-style-type: none"> <li>(i) <b>The Chittaranjan Locomotive Works</b> — West Bengal;</li> <li>(ii) <b>The Diesel Locomotive Works</b> — Varanasi (UP);</li> <li>(iii) <b>The Integral Coach Factory</b> — Perambur, Chennai;</li> <li>(iv) <b>The Rail Coach Factory</b> — Kapurthala, Punjab.</li> </ol>
<b>(D) Aircraft</b>	<ol style="list-style-type: none"> <li>(i) <b>The Hindustan Aeronautics Ltd. (HAL)</b> — Nasik, Koraput, Hyderabad, Kanpur, Lucknow, Bengaluru.</li> </ol>
<b>(E) Heavy Electrical</b>	<ol style="list-style-type: none"> <li>(i) <b>The Heavy Electrical Ltd.</b> — Bhopal, Madhya Pradesh;</li> <li>(ii) <b>The Bharat Heavy Electrical Ltd.</b> — Haridwar (UP), Ramchandrapuram (Telangana), Tiruchirapalli (Andhra Pradesh);</li> <li>(iii) <b>The Hindustan Cables Factory</b> — Jhansi (UP) and Rupnarainpur, West Bengal.</li> </ol>
<b>(F) Heavy Machines and Tools</b>	<ol style="list-style-type: none"> <li>(i) <b>The Hindustan Machine Tools (HMT)</b> — Bengaluru, Karnataka;</li> <li>(ii) <b>The Heavy Machine Tools Plant</b> — Ranchi, Jharkhand;</li> <li>(iii) <b>The Machine Tools Corporation of India</b> — Ajmer, Rajasthan;</li> <li>(iv) <b>The Praga Tools Ltd.</b> — Secunderabad, Andhra Pradesh;</li> <li>(v) <b>The National Instruments Factory</b> — Kolkata, West Bengal.</li> </ol>
<b>3. Electronics</b>	<ol style="list-style-type: none"> <li>(i) <b>The Indian Telephone Industries (ITI)</b> — Bengaluru, Karnataka;</li> <li>(ii) <b>The Electronics Corporation of India Ltd. (ECIL)</b> — Hyderabad, Andhra Pradesh;</li> <li>(iii) <b>The Bharat Electronics Ltd. (BEL)</b> — Bengaluru, Karnataka.</li> </ol>



4. Space Technology	<ol style="list-style-type: none"> <li>1. <b>The Indian Space Research Organisation (ISRO)</b>, — Bengaluru, Karnataka.</li> <li>2. <b>Satellite Launching Station</b> — Sriharikota, Andhra Pradesh.</li> <li>3. <b>National Remote Sensing Agency</b> — Hyderabad, Andhra Pradesh.</li> <li>4. <b>Chandrayaan-I</b> — India's First Scientific Mission to Moon.</li> </ol>
5. Software Industry	Bengaluru and Hyderabad.
6. Entertainment	Mumbai, Kolkata, Chennai and Pune
7. Petrochemical Industry	<ol style="list-style-type: none"> <li>1. <b>Herdillia Chemicals Ltd.</b> — Chennai, Tamil Nadu.</li> <li>2. <b>National Organic Chemicals Industries Ltd.</b> — Mumbai, Maharashtra.</li> <li>3. <b>Petrofils Cooperative Limited (PCL)</b> — Three plants located at Vadodara and Naldhari in Gujarat.</li> <li>4. <b>Indian Petrochemical Corporation Ltd.</b> — Vadodara, Gujarat.</li> <li>5. <b>The Bongaigaon Petrochemicals Ltd.</b> — Bongaigaon, Assam.</li> <li>6. <b>The Reliance Industries:</b> Hazira, Gujarat.</li> <li>7. <b>Haldia Petrochemicals Ltd.:</b> Haldia, West Bengal.</li> <li>8. <b>The Indian Oil Corporation:</b> Three plants in Gujarat and Panipat.</li> </ol>



# World locations – industries

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## ➤ North America:

### USA

- ✓ Pittsburgh – Iron and Steel capital of the world
- ✓ Los Angeles – Hollywood
- ✓ Chicago – Meat processing
- ✓ Detroit – Automobile
- ✓ San-Francisco – IT
- ✓ Seattle – Lumbering and aluminium industry

### Canada

- ✓ Montreal – Ships and aircraft
- ✓ Quebec – Ships
- ✓ Ottawa – Paper
- ✓ Toronto – Engineering and Automobile

## ➤ South America:

### Brazil

- ✓ Sao Paulo – Textile and coffee
- ✓ Rio de Janeiro – Coffee and textile

### Argentina

- ✓ Buenos Aires – Ship building
- ✓ La Plata – Chemical and Iron and steel

### Chile

- ✓ Valparaiso – Oil and petroleum

### Venezuela

- ✓ Maracaibo – Oil refineries

## ➤ Europe:

### Britain

- |              |                           |
|--------------|---------------------------|
| ✓ Manchester | - Cotton Textile          |
| ✓ Liverpool  | - Ship Building           |
| ✓ London     | - Engineering & Transport |

### France

- |                          |                        |
|--------------------------|------------------------|
| ✓ Paris                  | - Aircraft & Transport |
| ✓ Champagne and Bordeaux | - Wine & Liquor        |
| ✓ Lorraine-Saar region   | - Iron & Steel         |

### Germany

- |             |                           |
|-------------|---------------------------|
| ✓ Dortmund  | - Iron & Steel            |
| ✓ Frankfurt | - Engineering & Transport |

### Netherlands

- |             |                                     |
|-------------|-------------------------------------|
| ✓ Rotterdam | - Marine Engineering, Ship building |
| ✓ Amsterdam | - Diamond polishing                 |

### Italy

- |                               |                |
|-------------------------------|----------------|
| ✓ Milan (Manchester of Italy) | - Silk Textile |
| ✓ Turin (Detroit of Italy)    | - Automobiles  |

➤ **Asia:**

Russia

- |                             |                             |
|-----------------------------|-----------------------------|
| ✓ Moscow and Gorki          | - Iron Steel, Chemicals     |
| ✓ Magnitogorsk              | - Iron Steel, Oil refining  |
| ✓ Leningrad (St Petersburg) | - Textile, Chemicals, Paper |
| ✓ Moscow-Ivanovo            | - Cotton Textile            |

Ukraine

- |                     |                                  |
|---------------------|----------------------------------|
| ✓ Kirov Rog-Rostogo | - Iron & Steel, Heavy Industries |
|---------------------|----------------------------------|

Japan

- |                               |  |
|-------------------------------|--|
| ✓ Nagoya (Detroit of Japan)   | - Aircraft, Automobile                   |
| ✓ Osaka (Manchester of Japan) | - Ships, Iron & Steel                    |
| ✓ Kobe and Kyoto              | - Ships, Iron & Steel                    |
| ✓ Nagasaki                    | - Iron & Steel, Ship building, Machinery |
| ✓ Tokyo                       | - Engineering & Textiles                 |

China

- |                                       |                                 |
|---------------------------------------|---------------------------------|
| ✓ Shanghai                            | - Textiles & Machinery          |
| ✓ Wuhan                               | - Textiles, Ships, Iron & Steel |
| ✓ Beijing                             | - Textiles, Machinery           |
| ✓ Anshan-Mukden (Pittsburgh of China) | - Iron & Steel                  |

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