

**Week 1 (Day 4)**

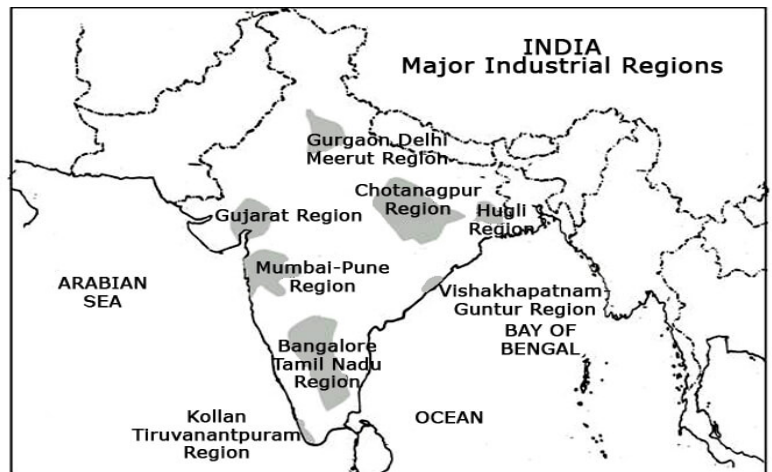
**1. Enumerate the location of industrial clusters in india. Examine the reasons for emergence (Answer in 150 words)** **10**

**Introduction:**

- There are regional variations in the levels of industrial development in India. Indian industries have concentrated in clusters at some locations. Most industrial regions in India have developed in the hinterlands of some major ports like Kolkata, Mumbai and Chennai.

**Main body:**

- Industrial regions have all the advantages like availability of raw materials, energy, capital and markets. **The six major industrial regions** are as follows -
  1. Hooghly Industrial region
  2. Mumbai – Pune Industrial region
  3. Ahmedabad – Vadodara region
  4. Madurai – Coimbatore – Bangalore region
  5. Chhota Nagpur plateau region
  6. Delhi and Adjoining region
- Besides these major industrial regions, there are 15 minor industrial regions and 15 industrial districts.

**Reasons for such clusters:**

- **The Chota Nagpur Plateau Region:**
  - **Discovery of coal and iron** in the Bihar- Orissa belt and location of these resources in close proximity to each other facilitated easy utilisation.

- Easy **availability of power** from the Damodar Valley Project and from coal-based thermal power projects helped in industrialisation.
- **Madurai-Coimbatore-Bengaluru Region:**
  - It is a predominantly cotton and sugarcane growing region.
  - The region receives **hydel power** from the Mettur, Sharavathi, Sivasamudram etc.
  - Various **public sector enterprises** located in this belt : the Hindustan Machine Tools, the Visvesvaraya Iron and Steel Works, the Bharat Electronics, BHEL, the Indian Telephone Industry and the Hindustan Aeronautics Limited.
- **Ahmedabad-Vadodara Region:**
  - The decline of the cotton textile industry of Mumbai due to high transportation costs of cotton from the peninsular region and easy access of Ahmedabad-Vadodara region to raw cotton worked to the advantage of this belt.
  - The **petrochemical industry** around Vadodara and Ankaleshwar developed after oil was discovered in the Gulf of Cambay.
  - **Location of Kandla port** is an obvious advantage.
- **The Mumbai region:**
  - Easy availability of raw cotton from the black soil belt of the Narmada and Tapti;
  - Coastal humid climate which was ideal for weaving and spinning;
  - Easy **import of capital goods** through the port.
- **Hooghly Industrial Belt:**
  - **Tea plantations** in close proximity in Assam and Bengal.
  - **Cheap labour** was easily available from thickly populated and out-migrating states of Bihar, Orissa and eastern Uttar Pradesh.

## Conclusion

- Thus emergence of these regions have led to imbalance in regional industrial development in india. The need of the hour is a good stable industrial policy .

**2. Coal-fired plants generate 72% of India's electricity. In spite of increasing renewable energy resources, coal mining is still inevitable for development in india. Discuss.**

**(Answer in 150 words)**

**10**

### **Model Structure**

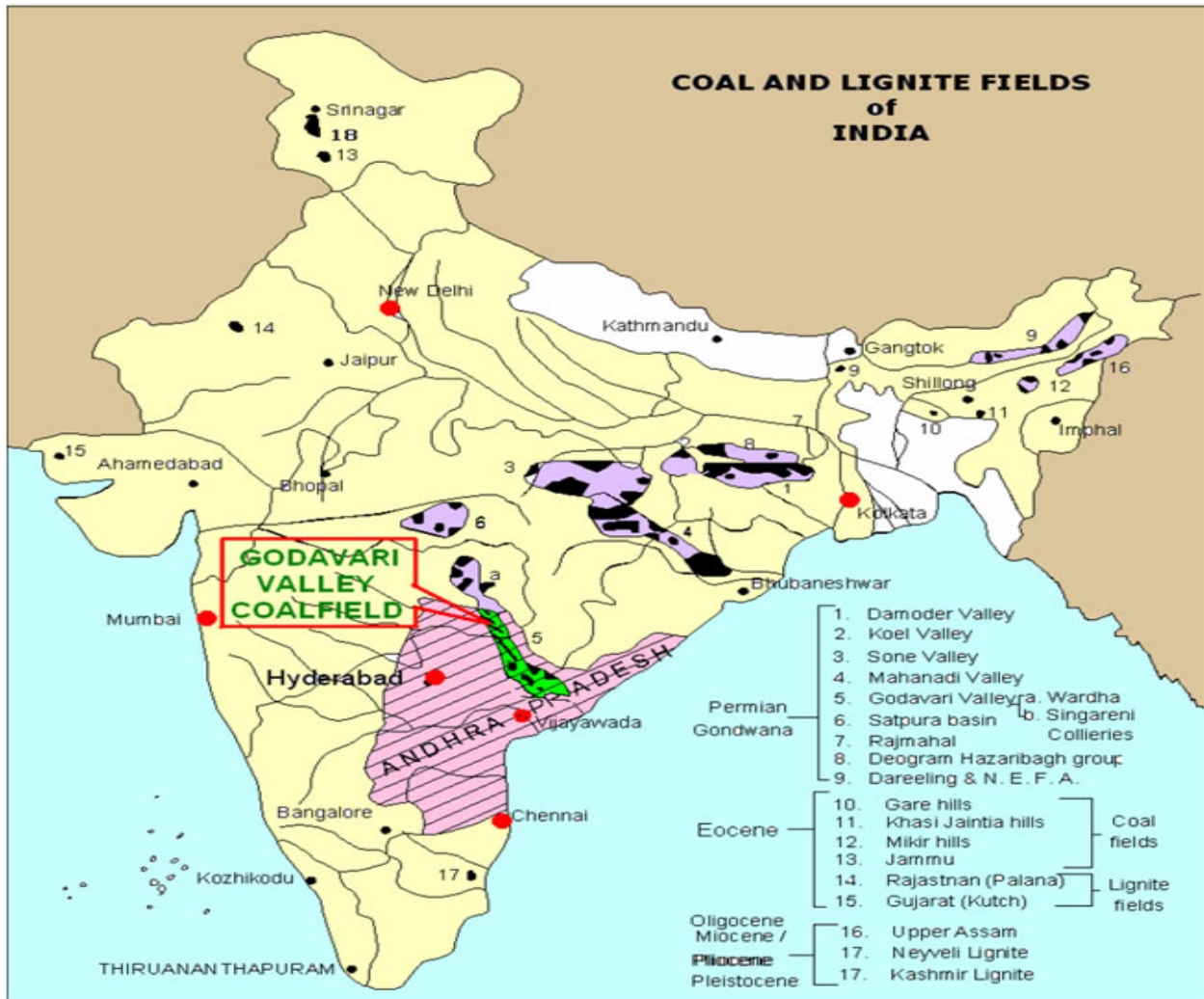
#### **Introduction:**

- India added around 15.4 gigawatts (GW) of renewable power capacity in 2021, the third highest after China (136 GW) and the United States (43 GW) (Renewables Global status report)

#### **Main body:**

**COAL DEPENDENCE IN INDIA:**

- India has the **fourth largest coal reserves** in the world, being in abundance and cheap it makes a wonderful source of fuel for a developing country like India.
- Energy sector of India revolves around **BLACK GOLD** which has dominating use in three sectors i.e Power, Steel and Cement out of which 60% is used in electricity generation.
- Lack of advanced technology and resources for large scale generation of nuclear, wind and hydro power etc. adds more to this dependence.
- Coal is a major source to produce electricity, which is directly proportional to development.
- **New schemes** like SAUBHAGYA needs increased power generation and coal is reliable.
- After agriculture, the coal industry is the **largest employer** in the primary sector in India.
- Direct reliance of some heavy industries on coal, makes the coal mining inevitable.
- It is by far **cheaper** than nuclear, natural gas, or oil. Hydro usually will be slightly cheaper. And peak demand time problems of renewable sources.
- Coal also provides a **stable source of energy** (no oil price fluctuations, no sudden scarcity like you experience with natural gas) and there is abundant supply throughout the world.



**Way forward:**

- Clean coal technology
- Large Battery storage capacity
- Thorium electricity generation project
- various initiatives like International Solar Alliance, INSPIRE and SATAT (Compressed Biogas as fuel) etc.

**Conclusion:**

- The NITI Aayog’s Draft National Energy Policy (DNEP) predicts that between now and 2040, there will be a quantum leap in the uptake of renewable energy together with a drastic reduction in fossil fuel energy intensity.