India’s First Pilot Project for Underground Coal Gasification | Jharkhand | 27 Jun 2024

Why in News?

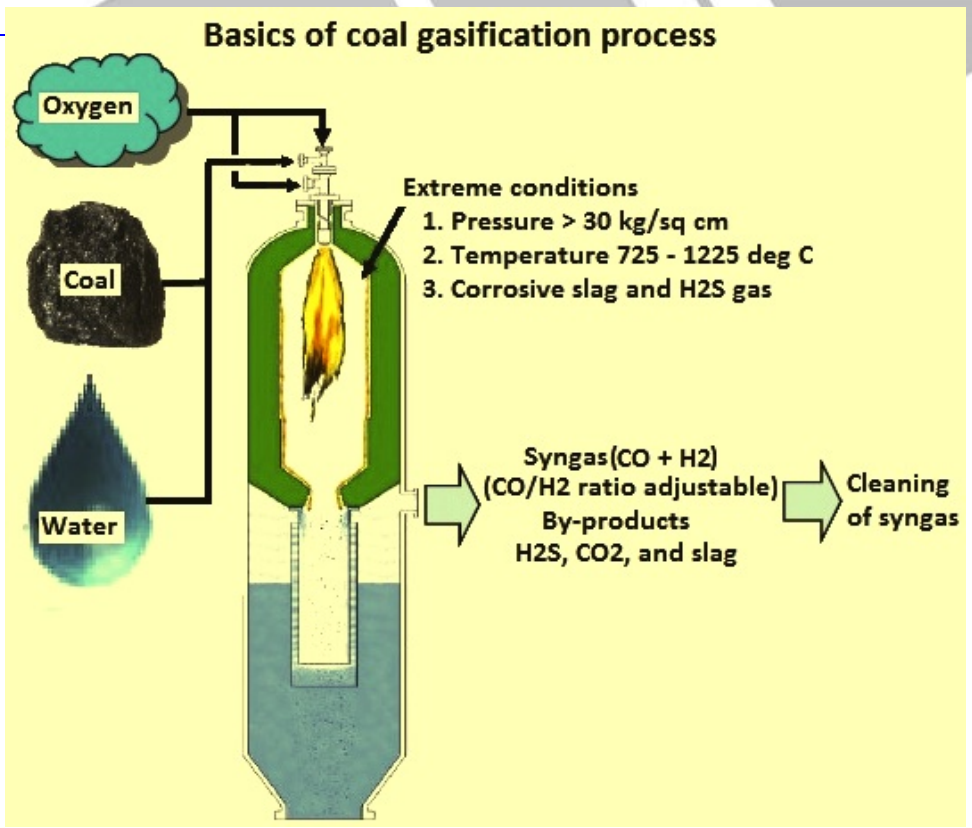
The Ministry of Coal, Eastern Coalfields Limited (ECL) is conducting a pilot project for Underground Coal Gasification (UCG) at the **Kasta coal block in Jamtara District,** Jharkhand.

Key Points

- It aims to revolutionise the coal industry by using **in-situ coal gasification** to **convert it into valuable gases such as** methane, hydrogen, carbon monoxide, and carbon dioxide.
  - These gases can be utilised to produce **synthetic natural gas, chemical feedstocks for fuels**, fertilizers, **explosives,** and other industrial applications.
- The Ministry of Coal is fully committed to promoting coal gasification projects, recognizing their potential to transform coal into various **high-value chemical products.**
  - The **first phase** involves creating a **Technical Feasibility Report** through borehole drilling and core testing. The **next phase** will **focus on coal gasification** at a pilot scale.
- The successful execution of this pilot project is expected to **create transformative opportunities for** India's energy sector, highlighting the sustainable and efficient use of the country's coal resources.

Coal Gasification

//



- **Process:** Coal gasification is a process in which coal is **partially oxidised with air, oxygen, steam or carbon dioxide to form a fuel gas.**
    - This gas is then used instead of piped natural gas, methane and others for deriving energy.
    - In-situ gasification of coal – or **Underground Coal Gasification (UCG)** – is the technique of converting coal into gas while it is still in the seam and then extracting it through wells.
- **Production of Syngas**: It produces Syngas which is **a mixture consisting primarily of methane (CH4), carbon monoxide (CO), hydrogen (H2), carbon dioxide (CO2) and water vapour (H2O).**
    - **Syngas** can be used to produce a wide range of **fertilizers, fuels, solvent and synthetic materials.**
