

## India's First Pilot Project for Underground Coal Gasification

## Why in News?

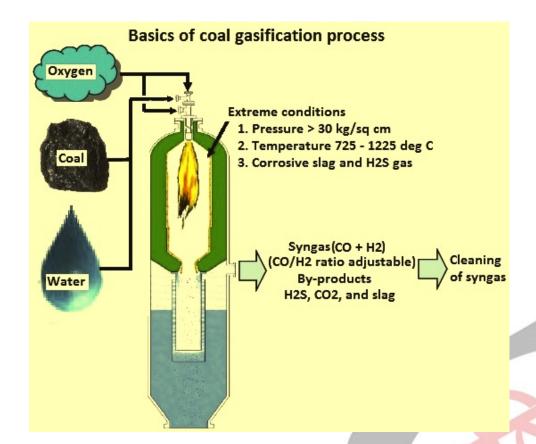
The Ministry of Coal, <u>Eastern Coalfields Limited (ECL)</u> is conducting a pilot project for <u>Underground Coal Gasification (UCG)</u> at the **Kasta coal block in Jamtara District,** Jharkhand.

## **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** <u>India's energy sector</u>, highlighting the <u>sustainable</u> and efficient use of the country's coal resources.

## **Coal Gasification**

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- 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.

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