Coal Bed Methane - UPSC Environment & Ecology Notes

Coal bed methane (CBM) refers to a reserve of natural gas stored in coal seams. It is an unconventional form of natural gas. In this article we'll discuss Coal Bed Methane, its uses and challenges associated with it in relevance to the IAS Exam.

This topic is important for the UPSC Examination for General Studies Paper 3 Environment and Ecology as CBM is also seen as a **clean energy source**. Coal Bed Methane could also be an important topic for the UPSC Prelims Exam.

What is Coal Bed Methane?

Coalbed methane (or coal bed methane), which is also known with varying names such as coal seam gas, coal-mine methane, coalbed gas, is a form of natural gas that is extracted from the coal beds. It has become popular in recent times as it is considered a clean energy source.

In countries like the USA, Australia and Canada, it has become an important energy source.

- CBM is methane adsorbed into the solid matrix of the coal.
- CBM is formed during the process of coalification, the transformation of plant material into coal.
- It occurs in underground coal mines where it presents a serious safety risk.
- It would help in increasing domestic gas production.
- Also, because of the lack of hydrogen sulphide, it is called 'sweet gas'.

Also read about **Shale Gas** for Important Prelims Facts for UPSC 2020.

Uses of CBM

Some of the uses of coalbed methane are listed below:

- It is used in industries for the production of cement, methanol, etc.
- It is used in steel plants as well as rolling mills.
- It can be used as a feedstock for fertilisers.
- CBM is used in the generation of power and is an environment-friendly source.

Also read about **Hydrocarbon Exploration and Licensing Policy (HELP)**.

Concerns and Challenges of CBM

There are a few concerns and challenges associated with using coal bed methane. They are discussed below:

- Disturbance of the lands drilled (for coal bed methane) and its effect on wildlife habitats results in ecosystem damage.
- Water discharges from CBM development pollute the downstream water sources.
- In the process of extraction of CBM, a large amount of salinized water is released into freshwater ecosystems. This could pose adverse impacts. Disposal of the salinized water is an issue.
- Previously, CBM has been a cause of a large number of explosions in the underground mines.
    - However, at present, the gas has been vented to the surface from underground mines.

- Methane is emitted during the process of extraction of CBM. Methane is a greenhouse gas and hence raises concerns.
- In the early stages of recovery, the production behaviour is complex and would be difficult to predict.

Coal Bed Methane India

With the fifth-largest proven reserves of coal globally, according to the Directorate General of Hydrocarbons, India holds significant prospects for exploration and production of CBM.

- India's CBM resources are estimated at around 92 trillion cubic feet (TCF), or 2,600 billion cubic metres (BCM).
- India's Coal and CBM reserves can be found in 12 states.
- Gondwana sediments of eastern India possess the bulk of Coal and CBM reserves.