



# Well-Drilling Initiative for CO2 Mineralisation

## Why in News?

**Indian Institute of Science Education and Research Bhopal (IISER Bhopal)**, in collaboration with Council of Scientific & Industrial Research-National Geophysical Research Institute (**CSIR-NGRI**), has initiated a [well-drilling project](#) as part of the **DeCarbFaroe Programme**.

## Key Points

- **DeCarbFaroe Programme:** This programme focuses on exploring **CO2 mineralisation in basalt** for carbon storage purposes, a crucial aspect of [carbon capture and storage \(CCS\) technology](#) aimed at addressing [climate change](#).
  - The project spans across nine countries in **Europe and Asia**, promoting scientific collaboration and knowledge exchange for advancing sustainable energy transitions. India plays a central role in this international effort.
- **Collaboration and International Insights:** The project extends from **PERBAS**, an international programme assessing the safety of carbon storage in flood basalts.
  - **PERBAS** incorporates valuable lessons from successful CO2 mineralisation trials conducted in **Iceland** and the **United States**, where CO2 was mineralised in basalt formations within two years.
- **Financial Support:** The **Department of Science and Technology, Government of India**, provides financial backing for both the **PERBAS** and **DeCarbFaroe** initiatives.
- **CO2 Capture and Storage in Basalt Formations:** CCS technology works by capturing CO2 from industrial emissions and injecting it deep underground for long-term storage.
  - The captured CO2 is mixed with water and injected into **geological formations**, such as [saline aquifers](#) or [Deccan Trap](#) basalt rocks.
  - **Basalt formations (Deccan Traps)** facilitate **rapid CO2 mineralization**, a process in which **CO2 reacts with basalt to form stable carbonate minerals** within a few years.
    - This mineralisation ensures long-term carbon storage with minimal risk of CO2 leakage, making it a safer option for long-term sequestration.
- **Significance:** **As India emerges as the third-largest carbon emitter globally, with significant reliance on coal, Carbon Capture and Storage (CCS) technology becomes essential. CCS allows for the continued use of coal while mitigating its environmental impact.**
  - Projections by the **Energy Information Administration (2009)** suggest that developing nations will contribute 59% of global energy growth and 94% of the increase in coal usage by 2030, exacerbating greenhouse gas emissions.