

# TDB National award, 2021

May 26, 2021

**In news-** A Bangalore based startup received the National Award 2021 from Technology Development Board (TDB).

## ***More information-***

- The startup was awarded for developing a **commercial solution for conversion of CO<sub>2</sub> to chemicals and fuels.**
- **Breathe Applied Sciences**, a startup **incubated at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR)** developed efficient catalysts and methodologies for the conversion of CO<sub>2</sub> to methanol and other chemicals.
- It was started from the generous funding from the **Department of Science and Technology (DST) Nano Mission.**
- The technology has led to **improvisation of process engineering to enhance the production of chemicals and fuels from anthropogenic CO<sub>2</sub>** generated from various sources including coal and natural gas power generation sectors, steel industry, cement industry, and chemical industries.
- It helps in **integrating multiple components involved in the CCUS** (Carbon capture, utilization, and sequestration) to develop a complete solution for the environmental issues due to global warming.
- In the pilot mode, the current capacity of CO<sub>2</sub> conversion is 300 kg per day, which can be scaled up to several 100 tons on an industrial scale.

## ***Carbon capture, utilisation and storage (CCUS)-***

- CCUS is an important **emissions reduction technology** that can be applied across the energy system.
- CCUS technologies involve the **capture** of carbon dioxide (CO<sub>2</sub>) from fuel combustion or industrial processes and

the **transport** of this CO<sub>2</sub> via ship or pipeline.

- This CO<sub>2</sub> is **used as a resource** to create valuable products or services or its permanent storage deep underground in geological formations.

CCUS technologies provide the **foundation for carbon removal or “negative emissions”** when the CO<sub>2</sub> comes from bio-based processes or directly from the atmosphere.