Carbon Capture and Utilisation Testbeds

***Prelims**: Current events of national and international importance| Environmental issues*

Why in news?

Recently Central Government has approved setting up five carbon capture and utilisation (CCU) testbeds in the cement sector.

- **Carbon Capture and Utilisation (CCU) testbeds** – It aims is to develop and demonstrate net zero decarbonisation pathways using CCU technologies.

  Carbon Capture and Utilisation (CCU) is a process where carbon dioxide (CO2) emissions are captured from sources like power plants or industrial facilities and then used in various applications instead of being released into the atmosphere.

- **Initiative by** - Ministry of Science & Technology under a PPP (Public-Private Partnership) model.
- **CCU Applications** - Captured CO_2 will be converted into value-added products like:
  - Synthetic fuels
  - Urea
  - Soda ash
  - Food-grade CO_2
  - Chemicals
  - Concrete aggregates

Significance

- **Accelerates Net Zero Goals** – It supports India's 2070 carbon neutrality target and Paris Agreement commitments.
- It also supports India's Nationally Determined Contribution (NDC) under Paris Agreement.
- **Industrial Decarbonisation** – It enables clean tech transition in hard-to-abate sectors like cement, steel, and power.
- **Trade Competitiveness** – It prepares Indian industry for EU's Carbon Border Adjustment Mechanism (CBAM) by lowering carbon footprint.
- **Boosts Innovation** – It fosters academia-industry R&D collaboration in cutting-edge carbon capture and utilisation technologies.
- **Promotes Aatmanirbhar Bharat** – It reduces dependence on imported clean-tech solutions; promotes indigenous tech development.

Reference

[Times of India| Carbon Capture and Utilisation Testbeds]