

Natural Carbon Sinks and Net Zero Plans

Prelims: Current events of national and international importance | Environment

Why in News?

A recent analysis warns that weakening natural carbon sinks particularly forests and oceans could undermine global Net Zero strategies.

Natural Carbon Sinks

- Natural carbon sinks are ecosystems or processes that **absorb more carbon dioxide (CO₂) from the atmosphere than they release.**
- Major natural sinks include:
 - **Forests** - Absorb CO₂ through photosynthesis and store carbon in vegetation and soils.
 - **Oceans** - Absorb atmospheric CO₂ through physical and biological processes.
 - **Soils and wetlands** - Store large quantities of organic carbon.
 - **Peatlands** - Important long-term carbon stores.

Key 2025 Estimates

- **Oceans absorbed:** ~12 GtCO₂
- **Forests absorbed:** ~6 GtCO₂
- **Total anthropogenic CO₂ emissions:** ~48 GtCO₂
- Thus, natural sinks absorbed roughly **40%** of human-generated CO₂ emissions.

Reason for weakening of Natural Carbon Sinks

- **Deforestation**-Global Forest area has declined by approximately **1.5 million sq km since 1990.**
- **Forest fires** - Increasing frequency and intensity of fires can convert forests from carbon sinks into carbon sources.
- **Climate change** - Higher temperatures, drought and changing precipitation can reduce ecosystem carbon uptake.
- **Ocean changes** - Warming and other changes can affect the ocean's capacity to absorb and store CO₂.
- **Ecosystem degradation** - Damage to forests, wetlands, peatlands and marine ecosystems reduces carbon-storage capacity.
- **Inadequate financing** - Natural carbon sinks remain insufficiently valued in climate and carbon markets.

Natural Sinks vs Engineered Carbon Removal

Natural ecosystems currently operate on a far larger scale than engineered carbon-removal technologies.

In 2025: Amount of CO₂ Removed

Natural Ecosystems (Natural Carbon Sinks)

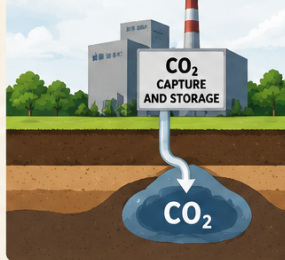


Engineered Carbon Removal

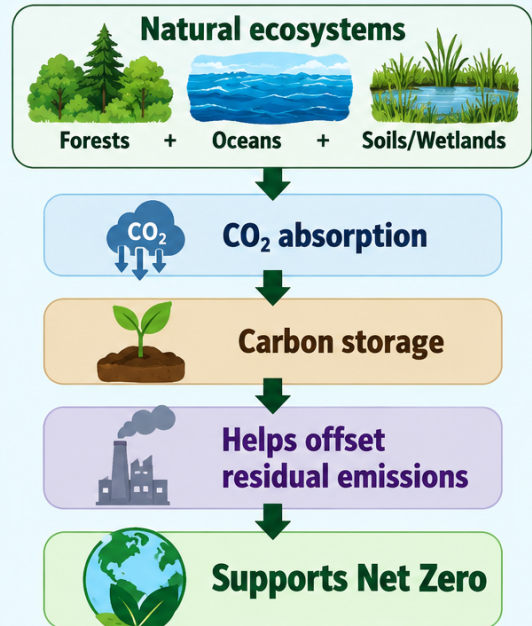
Direct Air Capture (DAC)



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How Natural Ecosystems Support Net Zero



This illustrates the **enormous current dependence** of climate strategies on natural ecosystems.

Reference

[Down To Earth | Weakening natural carbon sinks threaten Net Zero plans](#)