Carbon Sequestration

How is Carbon Sequestration done?

Carbon dioxide is naturally captured from the atmosphere through biological, chemical, and physical processes. These changes can be accelerated through changes in land use and agricultural practices, such as converting crop and livestock grazing land into land for non-crop fast-growing plants. Artificial processes have been devised to produce similar effects, including large-scale, artificial capture and sequestration of industrially produced carbon dioxide using subsurface saline aquifers, reservoirs, ocean water, ageing oil fields, or other carbon sinks, bio-energy direct air capture when combined with storage.

What are the advantages and disadvantages of Carbon Sequestration?

Advantages

Planting trees and managing their development is a proven way to reduce the number of harmful particulates in the air. Carbon sequestered is carbon not emitted into the atmosphere. Less carbon in the atmosphere will reduce the greenhouse gas effect and lessen the impacts of climate change.

Significance

- According to the Paris Climate Accord, the members ratified the deal has to work towards the goal of achieving net-zero emissions, which is crucial to limit global warming. This scenario, calls for rapid scale-up of carbon capture, use and storage (CCUS). The process involves capturing CO_2 emissions from coal and gas power plants, and from heavy industry, for deep underground storage or re-use.

To read more about the Paris Agreement, its objectives and targets, read from the linked article.

Disadvantages

- Carbon dioxide may be stored deep underground. At depth, hydrostatic pressure acts to keep it in a liquid state. Reservoir design faults, rock fissures, and tectonic processes may act to release the gas stored into the ocean or atmosphere.
- The use of the technology would add 1–5 cents of cost per kilowatt-hour, according to an estimate made by the panels about climate change. The financial costs of modern coal technology would nearly double if the use of CCS technology were to be required by regulation. The cost of CCS technology differs from the different types of capture technologies being used and with the different sites that it is implemented in, but the costs tend to increase with CCS capture implementation. One study conducted predicted that with new technologies these costs could be lowered but would remain slightly higher than prices without CCS technologies.

To know about the carbon cycle and its impact, check the linked article.

Frequently Asked Questions on Carbon Sequestration

Q 1. What are the different types of Carbon Sequestration?

Ans. The different types of Carbon Sequestration include:

- Biological Carbon Sequestration
- Geological Carbon Sequestration
- Industrial Carbon Sequestration
- Technological Carbon Sequestration

Q 2. What is the difference between a Carbon sink and a Carbon Source?

Ans. Anything that absorbs more carbon from the atmosphere than it releases is called a carbon sink. Anything that releases more carbon in the atmosphere than it absorbs is called a carbon source.