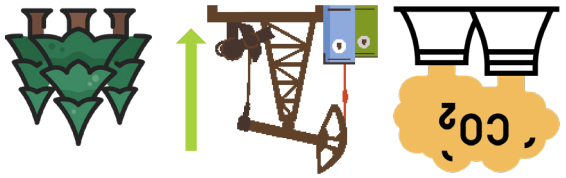


FUTURE OUTLOOK

01 CDR needs to reach 5-10 Gt CO2/year by 2050

02 Expected cost reductions (DAC potentially $100/ton CO2 by 2030)

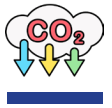
03 Increasing integration into climate strategies

04 Expansion of carbon markets

RESEARCH DIRECTIONS

Technology improvement

Ecological impact assessment



Carbon storage advancements

Monitoring and verification systems

Socioeconomic research

Governance and ethics frameworks

KEY CHALLENGES AHEAD

- Balancing CDR with emissions reduction
- Ensuring sustainable large-scale deployment
- Navigating geopolitical implications

FUTURE OUTLOOK

For more in-depth information on Carbon Dioxide Removal, visit:

IPCC Special Report on Carbon Dioxide Removal: www.ipcc.ch/report/ar6/wg3/

Carbon Direct - CDR Primer: cdrprimer.org/

IEA - Direct Air Capture: www.iea.org/reports/direct-air-capture

Contact Information for Relevant Organizations

Carbon180: carbon180.org, info@carbon180.org

Global CCS Institute: www.globalccsinstitute.com, info@globalccsinstitute.com

Carbon Dioxide Removal Leadership Initiative (CDRLI): www.cdrleadership.org, info@cdrleadership.org

OpenAir Collective: www.openaircollective.com, hello@openaircollective.com

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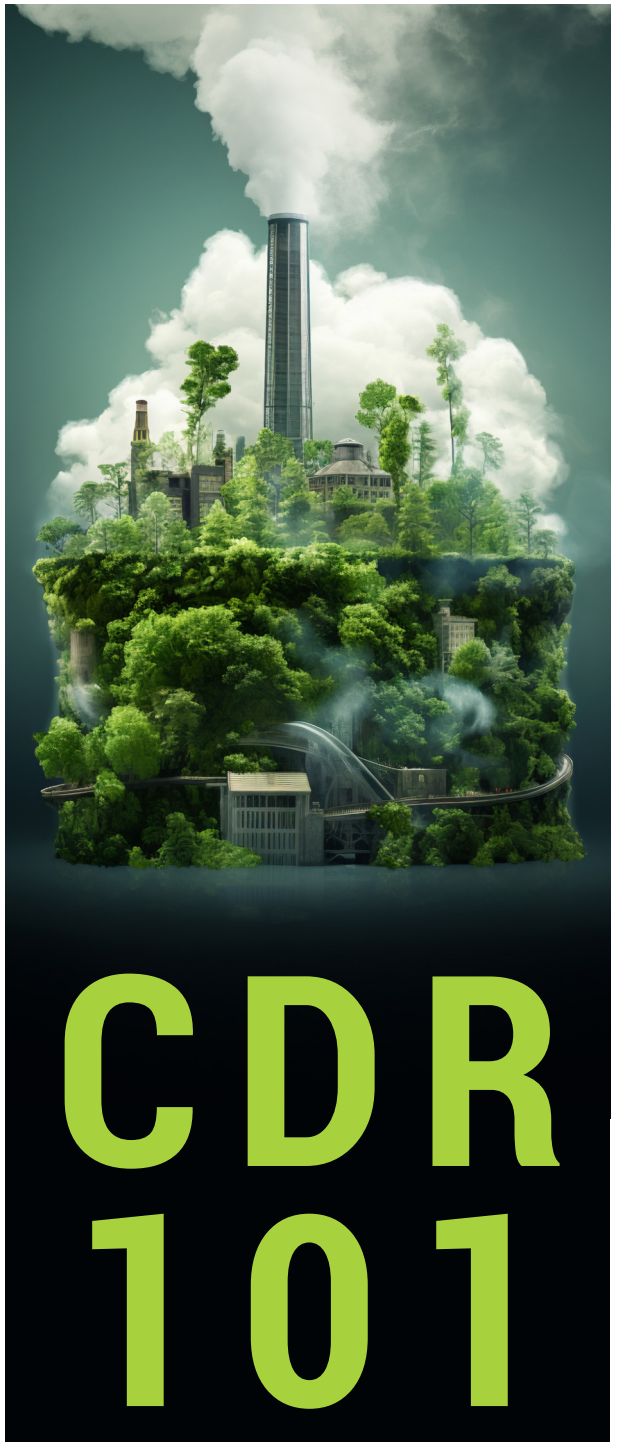


CDR 101

WHAT IS CARBON DIOXIDE REMOVAL?

Carbon Dioxide Removal (CDR) refers to techniques actively removing CO_2 from the atmosphere and storing it long-term. It's crucial for climate change mitigation, especially when rapid decarbonization alone may not meet global climate goals.

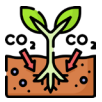
IMPORTANCE AND GOALS FO CARBON DIOXIDE REMOVAL

- Critical for net-zero emissions and limiting global warming
- Addresses historical and hard-to-abate emissions
- Aims to remove gigatons of CO_2 annually
- Complements emission reduction efforts
- Supports Paris Agreement targets

MAIN CDR METHODS

Natural Approaches

Afforestation/ Reforestation



Soil carbon sequestration

Coastal blue carbon

Enhanced weathering

Technological Approaches

Direct Air Capture (DAC)

Bioenergy with Carbon Capture and Storage (BECCS)

Biochar production

Ocean alkalinity enhancement

CURRENT IMPLEMENTATION

Limited deployment, mostly in pilot stages

Natural approaches more widely implemented

Growing investment, but insufficient for large-scale deployment

Emerging carbon markets and incentives

GOVERNANCE & POLICIES

- **Paris Agreement** recognizes CDR's importance
- National policies emerging (e.g., US 45Q tax credit, EU Carbon Removal Certification Framework)
- Over **1,700 companies** with net-zero targets including CDR
- **Research funding** increasing (e.g., US DOE's $3.5 billion for DAC hubs)

KEY STATISTICS

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DAC plants operational, capturing *~0.01 Mt CO_2/year*

$1.3b

Global *CDR investment* reached in 2022

~2Gt

CO_2/year removed through Nature-based solutions

~2.5Mt

CO_2/year captured with BECCS projects in 6 countries

BENEFITS & CHALLENGES

Benefits	*Challenges*
• Significant climate impact potential • Economic opportunities • Ecosystem services improvement	• High costs (DAC: $250-600/ton CO_2) • Energy intensity • Land use competition • Environmental impact concerns • Scaling difficulties

KEY STAKEHOLDERS

Governments and policymakers

Scientific community

Private sector

NGOs and environmental organizations

Financial institutions

Landowners and farmers

Indigenous communitie

General public