

NET
RAPIDO



‘Sewage Treatment for the Skies’

Mobilising carbon dioxide removal through
public policies and private financing

PROJECT PARTNERS

Mälardalen University
Perspectives Climate Research
Climate Strategies

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Carbon Dioxide Removal as a Public Service

What is CDR?

The mitigation of climate change to limit global warming to well below 2 °C, as specified in the Paris Agreement, builds on two pillars. The first pillar is rapid and deep reduction of greenhouse gas (GHG) emissions from burning of fossil fuels, industrial processes, and destruction of forests and other ecosystems to near-zero. The second pillar – often contested but increasingly seen as crucial – is carbon dioxide removal (CDR), i.e. the practice of actively removing CO₂ from the atmosphere and durably storing it.

With an emphasis on emissions reduction, both pillars complement each other in the quest to achieve greenhouse gas-neutrality, a balance of emissions and removals.

Many forms of CDR exist; some based on accumulation of carbon in the biosphere, others through underground storage or mineralisation. Nature-based approaches tend to be cheap, but their storage is not inherently certain, whereas technological approaches for underground or mineralised storage tend to be very expensive but come with high permanence.

Public policies and public funding are essential for CDR to contribute to meeting the goals of the Paris Agreement.

Unlike emission reductions through renewable energy, most CDR approaches do not produce goods or services with revenues, as they represent a public good. In some cases, other policy objectives are sufficient to generate some CDR results (e.g. through afforestation, reforestation, or ecosystem restoration). But those primarily pursue different objectives and should not be seen as substitutes for carbon-focussed policies (that need to ensure permanence and stringent monitoring of carbon-flows).

Most CDR approaches are not feasible on their own and are being bypassed by most commercial and concessional finance. CDR thus represents a public service – like wastewater or solid waste treatment requiring public policies to internalise this otherwise uneconomic activity.

Policymakers may need to not only mobilise funding to cover up-front capital costs and CDR-related research, design, development, and demonstration (piloting) (RDD&D) in the near-term, but also long-term operational cost. **The key challenges will be to:**

- **Drive down the costs of CDR (particularly with high inherent permanence) through competitive, yet adapted R&D funding as well as piloting.**
- **Prevent rent-seeking by making public funding transparent, competitive, and continually assessed.**
- **Pick winners, but also advance a broad range of approaches with uncertain potentials.**



How can public policies scale-up CDR?

Public policies should create a virtuous cycle of careful, yet deliberate applied learning initially tailored to diverse CDR approaches, allowing for cost reductions, and gradually transitioning into permanent efficient operation through carbon pricing instruments.

Specific absolute volume targets

Include specific absolute volume targets for CDR, e.g. in the Nationally Determined Contribution (NDC). The targets should be differentiated into technology categories to cater for the very different characteristics of the technologies with regard to costs and technological maturity. This will be supported by proper monitoring, reporting and verification (MRV) and accounting of CDR in national GHG inventories and NDCs.

Enable access to finance

Dedicated subsidies can push – and inclusion in carbon pricing systems (domestic or regional emissions trading) and baseline and credit systems – can ‘pull’ CDR forward. A differentiation between approaches with differing permanence is needed. The incentives should promote cost reductions and prevent subsidy waterbeds. Access to international public climate finance should be enabled by appropriate terminology and selection criteria.

Minimum standards for CDR and removal credits

Accounting in the context of the Paris Agreement’s Enhanced Transparency Framework should be made sufficiently robust to address the challenges of CDR. In Domestically, governments may eventually provide ‘guardrails’ for private sector mitigation claims to strengthen environmental integrity.

Eliminate regulatory barriers

Domestic regulatory barriers to CDR should be eliminated, such as by streamlining underground storage permitting processes or supporting storage site screenings. This should also happen internationally, by acting on the amendment of the London Protocol allowing for transboundary CO₂ transport.



Scaling up carbon markets for CDR

In the long-term, public policies should generate an increasingly universal carbon price – sufficiently high and stable to generate significant investment in CDR infrastructure (thus allowing learning while scaling). The accelerated cost decrease witnessed for solar and wind power in consequence to public policies incentivising early adoption serve as a learning example. To facilitate the scaling-up of efficient carbon pricing for CDR:

Consider CDR under Article 6 of the Paris Agreement

Actors negotiating, piloting, and operationalising international market-based cooperation under Article 6 of the Paris Agreement should consider the particularities of CDR concerning, inter alia, permanence, leakage, additionality, baseline setting, MRV, and accounting, including corresponding adjustments. A crucial period for this is the workplan once Article 6 rules have been arranged.

Support the development of CDR MRV methodology elements

Development cooperation agencies, public and private sector climate finance actors should support early MRV methodology development for CDR to ensure realistic potential projections and reliable tracking of removal results. This should be aligned with requirements under Article 6 and should strive for high environmental integrity while keeping the associated transaction costs manageable.

Pilot high-quality voluntary market CDR transactions

Voluntary carbon market actors should pursue CDR and removal credits based on transparent and sufficiently stringent MRV approaches appropriate to the respective use-cases for the acquired units. Specific guidelines and certifications by renown voluntary carbon market initiatives should help establish comparability and credibility in voluntary CDR transactions.

Proactive public engagement in all planning and implementation phases from the beginning is in all actors' best interests to allow for long-term public support and success in mobilising CDR as part of mitigation action.



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Disclaimer

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You can find more information on the research project on the project website: <http://negative-emissions.info/>

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