

Briefing Note # 4

Ocean20: A Global Governance Framework for Ocean-Based Carbon Dioxide Removal (mCDR)

Key Recommendations:

1. Develop environmental integrity standards and a governance framework for Ocean-based carbon dioxide removal.
2. Create robust monitoring, reporting and verification protocols for Ocean-based carbon dioxide removal technologies.
3. Define pathways into compliance markets for Ocean-based carbon dioxide removal technologies that adhere to an established mCDR framework.

This briefing note was developed under the auspices of Ocean20 South Africa 2025 through a stakeholder consultative process.

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Ocean20: A Global Governance Framework for Ocean-Based Carbon Dioxide Removal (mCDR)

The ocean is Earth's greatest climate regulator. It absorbs around 40 % of our carbon dioxide emissions and over 90 % of the excess heat we generate. Yet despite this central role, the ocean remains underrepresented in the toolbox of our climate solutions. If we are serious about climate stabilisation, we must recognise the ocean not only as a victim of climate change but as part of the solution.

Despite our very best efforts since the adoption of the United Nations Framework Convention for Climate Change (UNFCCC) in 1992 and added energy and urgency to keeping temperature increase below 2° C as agreed to in the Paris Climate Agreement, anthropogenic emissions continue to destabilise the climate system. Couple this with the rapidly expanding need for carbon markets under the European Union Emissions Trading System, the Carbon Border Adjustment Mechanism, and stringent national laws demanding strict compliance with greenhouse gas (GHG) emissions, the demand is real not just for emission reductions, but durable removals that can lock away carbon for centuries, also one of the key findings of Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR6).

Ocean-based carbon dioxide removal, through approaches such as ocean alkalinity enhancement, iron fertilization, or seaweed systems, could in theory deliver gigaton-scale sequestration, another key finding of the US National Academy of Sciences¹.

However, a number of barriers exist:

- Scientific uncertainties remain very high.
- Ecological and social risks are real.
- The public legitimacy of these ideas is fragile.
- Few negotiators or policymakers are even aware of these approaches.

If left unchecked, ocean removals could enter markets in ways that are untested, inequitable, or environmentally damaging. If shaped responsibly, however, they could become a vital complement to our climate efforts.

The G20 should call for, and support, the establishment of a global governance and standards framework for marine carbon dioxide removal. This is not a call for deployment. It is not a call for large-scale manipulation of the ocean. It is a call for clarity, integrity, and safeguards before any deployment occurs. In short: a rules-based, precautionary approach, so that if ocean-based carbon dioxide removals are ever deployed, they are credible, equitable, and lawful.

¹ Available from National Academies news release. See at (<https://www.nationalacademies.org/news/2021/12/new-report-assesses-the-feasibility-cost-and-potential-impact-s-of-ocean-based-carbon-dioxide-removal-approaches-recommends-u-s-research-program>)

Three key recommendations:

1. Develop Environmental Integrity Standards. Clear rules for what constitutes legitimate ocean carbon removal, with safeguards for biodiversity, ecosystems, and communities.
2. Create Robust Monitoring, Reporting and Verification (MRV) Protocols. Independent systems to track carbon storage and ecological impacts — ecological MRV, not just carbon MRV.
3. Define Pathways into Compliance Markets. Integration into carbon markets should be conditional on meeting the highest scientific and ethical standards, with oversight by UNFCCC and by International Maritime Authority, World Trade Organisation, and other entities where relevant.

Why should the G20 take this on?

The G20 represents the largest emitters, the largest markets, and the actors with the capacity to shape the rules of the global economy.

The G20 can ensure:

- Science drives standards rather than speculation.
- Equity is built in from the start, so that Small-Island Developing States (SIDS), developing countries, coastal states, and Indigenous peoples are not left behind.
- The ocean is safeguarded while being recognized as part of the climate solution.

If the G20 does not lead, standards will be written by markets alone, and history shows us what happens when profit precedes precaution. We risk low-quality credits, ecological harm, and the erosion of public trust.