

Governance of Bioenergy with carbon capture
and storage (BECCS)

**Situating Bioenergy with Carbon Capture and
Storage in the overall conversation on Carbon
Dioxide Removal**

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Observations

- Climate change is already affecting people, ecosystems and livelihoods all around the world
- Climate change is a fundamental threat to development, sustainable development and poverty eradication
- Carbon dioxide emissions continue to grow amidst world wide climate policies
- Stabilization of greenhouse gas concentrations at any level will require deep reduction in greenhouse gas emissions and also taking carbon dioxide out of the atmosphere
- A wide range of transformation pathways can be explored and implemented
- Among pathways are those involving Carbon Dioxide Removal methods

Carbon Dioxide Removal methods

- Enhanced biological production and storage on land – (biological)
 - Afforestation / Reforestation – Improved forest management
 - Sequestration of wood in buildings – biomass burial
 - No till agriculture – biochar – conservation agriculture – fertilization of land plants
 - Creation of wetlands
 - **Biomass Energy with Carbon Capture and Storage (BECCS)**
- Enhanced biological production and storage in ocean – (biological)
 - Ocean iron fertilization
 - Algae farming and burial
 - Blue carbon (mangrove, kelp farming)
 - Modifying ocean upwelling to bring nutrients from deep ocean to surface ocean
- Accelerated weathering – (chemical)
 - Enhanced weathering over land
 - Enhanced weathering over ocean
- Others (direct air capture with storage) – (chemical)

Biomass Energy with Carbon Capture and Storage

- Application of carbon capture and storage technology to energy derived from any form of biomass
- Has the potential for net carbon dioxide removal from the atmosphere
- Forms an essential component of the response strategy for climate change as considered in majority of scenarios
- Offers additional mitigation potential, but also an option to delay some of drastic mitigation action
- Offers prospect of negative emissions

Need to carefully look at concerns

- Requirement of wide-scale deployment of CCS
- Availability of land, water and fertilizer to supply biomass
- Slow deployment issue
- Maturity of the technology
- Permanence and resilience
- Costs and funding
- Uncertainties around viability of CCS
- Evaluation of the potential
- Impacts on various ecosystem services and sustainable development