The risks of large-scale biosequestration in the context of Carbon Dioxide Removal

The Paris Agreement and support for bioenergy and monoculture tree plantations

The Paris Agreement has set ambitious targets of limiting global temperature rise to 1.5°C, which will require a global transformation of agriculture, energy, and transport sectors. However, the balance between anthropogenic emissions and removals remains uncertain, and the Paris Agreement's long-term goal is to achieve carbon neutrality by 2050 or sooner. Several scientists and policy makers argue that many of the Agreements targets could be achieved through large-scale biosequestration, which involves the removal of carbon dioxide from the atmosphere through the growth of biomass such as trees and crops. However, the scientific and policy community has been divided on the potential of large-scale biosequestration to mitigate climate change.

The negative ecological and social impacts of monoculture tree plantations

While large-scale biosequestration can potentially provide significant environmental benefits, monoculture tree plantations can also have significant negative impacts, including biodiversity loss, social displacement, and the destruction of natural ecosystems. The negative impacts of monoculture tree plantations can be exacerbated by the use of intensive management practices such as deforestation, land degradation, and deforestation. These negative impacts can be reduced by implementing sustainable management practices such as agroforestry, silvopasture, and mixed-species plantations.

Governance is key!

In principle, addressing climate change through biosequestration requires multi-scale governance and the involvement of multiple stakeholders, including governments, international organizations, civil society, and the private sector. However, achieving this requires a coordinated and integrated approach that addresses the complex social, economic, and environmental challenges associated with large-scale biosequestration.

Positive alternatives and the different governance they require

Large-scale biosequestration schemes, in principle and as envisioned, are serious problems and require other than direct to monoculture tree plantations. The risks of large-scale biosequestration are associated with several negative impacts, including biodiversity loss, social displacement, and the destruction of natural ecosystems. These negative impacts can be reduced by implementing sustainable management practices such as agroforestry, silvopasture, and mixed-species plantations. This requires a coordinated and integrated approach that addresses the complex social, economic, and environmental challenges associated with large-scale biosequestration.