

## 2024\_86\_CEP\_GO: Bridging the Gap: Exploring Synergies and Trade-offs between Natural Climate Solutions and Clean Technologies for Effective Climate Change Mitigation

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Climate change is one of the most pressing global challenges of our time, necessitating urgent and innovative approaches to reduce greenhouse gas emissions and combat its impacts. Natural Climate Solutions (NCS) and Clean Technologies (CT) have emerged as promising pathways for climate change mitigation, each offering unique opportunities to address the crisis.

This research will explore the synergies and trade-offs between NCS and CT to develop holistic and integrated strategies for effective climate change mitigation. Specific objectives are: (1) identify and evaluate the potential synergies and trade-offs between NCS and CT in mitigating climate change, (2) understand the socio-economic, environmental, and policy implications of integrating NCS and CT approaches, and (3) propose integrated strategies that leverage the strengths of NCS and CT while mitigating potential conflicts.

The research will involve a comprehensive review of the existing literature on NCS and CT, examining their individual contributions to carbon sequestration and emissions reduction. Modelling tools will also be developed to assess the combined impact of NCS and CT in different climate scenarios and policy contexts.

The research then delves into the potential synergies between these approaches, investigating how they can complement and reinforce each other to enhance overall climate change mitigation efforts. By combining the strengths of NCS, which leverage natural processes like afforestation, reforestation, and wetland restoration, with CT, which utilize advanced technological solutions like renewable energy and carbon capture, this integrated approach presents an unprecedented opportunity to amplify the impact of climate actions.

By examining the challenges, constraints, and potential conflicts that may arise when coordinating these diverse approaches, the study aims to identify strategies for minimizing any negative impacts, maximizing the co-benefits, and ensuring that the adoption of NCS-CT approaches benefits all stakeholders, including vulnerable communities. A significant aspect of this research is the assessment of policy frameworks required to support the integration of NCS and CT. The research will explore existing policy barriers and offer innovative policy recommendations to incentivize and promote the adoption of integrated climate change mitigation strategies. This research necessitates an interdisciplinary approach that combines expertise in climate science, environmental policy, technology assessment, economics, and social sciences.

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