Socioeconomic Implications of Direct Air Capture for Carbon Removal

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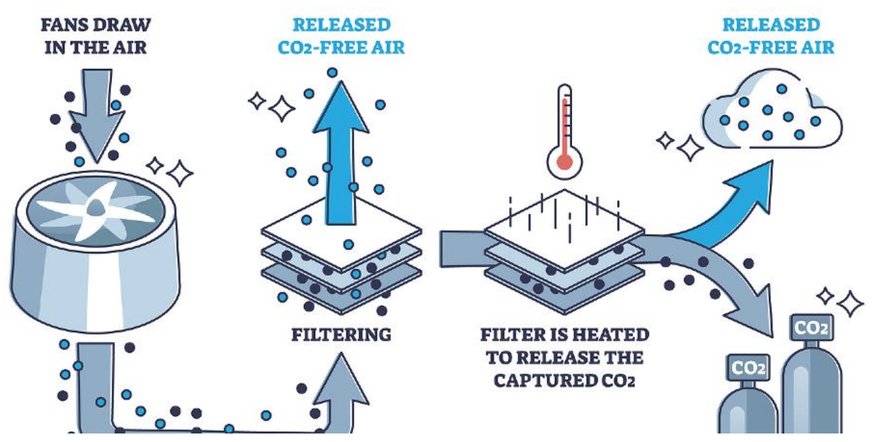
INTRODUCTION

Direct Air Capture (DAC): An emerging technology-enhanced solution for Carbon Dioxide Removal (CDR).



Economic Feasibility: High operational costs and energy demands pose challenges for widespread adoption.

Social Equity Concerns: Current implementation pathways may disproportionately affect vulnerable communities due to cost burdens and localized environmental impacts.

Knowledge Gaps: Further investigation is crucial to assess DAC's socio-economic implications, ensuring equitable benefits across diverse populations.

OBJECTIVE

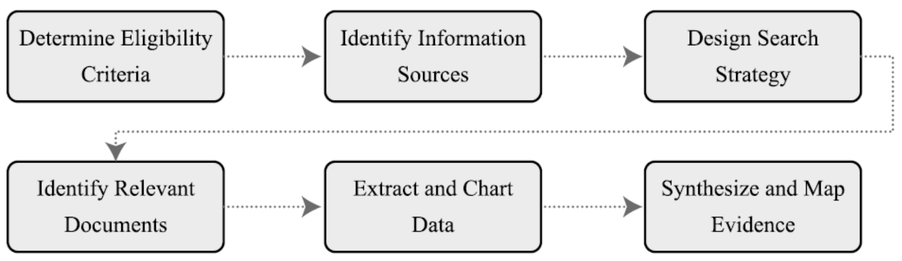
Conducting a systematic scoping literature review to analyze and synthesize the existing body of knowledge on the socioeconomic implications of DAC systems.

A scoping review examines the extent, range, and nature of the existing research to address two questions:

1- To what extent have existing studies investigated the socioeconomic implications of implementing DAC systems?

2- What are the knowledge gaps, and what potential directions exist for future studies?

METHOD



Search and synthesis process

ELSEVIER Scopus

Clarivate™ Web of Science

TITLE-ABS-KEY("Direct Air Capture" OR "DAC" OR "DACCS") AND TITLE-ABS-KEY("justice" OR "equit" OR "Social acceptance" OR "Social Perception" OR "just transition" OR "socio-economic impact" OR "socioeconomic impact")*

RESULTS

Scope of the existing studies

- Economic Viability and Cost Analysis
- Market Development
- Energy Requirements
- Public Perception Analysis
- Basic Discussions on Equity Considerations
- Policy and Governance

Potential Future Research Directions

- Comprehensive Socioeconomic Impact Assessment
- Equity-Focused Analysis
- Scalability and Regional Feasibility
- Public Engagement and Communication
- Energy Systems Integration and Innovation
- Cross-Sectoral Synergies with other CDR Systems
- Global Equity-Centered Policy Frameworks

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