

Assessing carbon capture technology

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Carbon capture and storage could be used to mitigate greenhouse gas emissions and thus ameliorate their impact on climate change. The focus of this technology is on the large-scale reduction of carbon emissions from fossil-fuelled power plants.

Research published in the *International Journal of Decision Support Systems* investigates the pros and cons, assesses the risks associated with carbon capture and provides a new framework for assessing the necessary technology.

John Michael Humphries Choptiany formerly of Dalhousie University in Nova Scotia and now at the Food and Agriculture Organization of the United Nations in Rome, Italy, together with colleagues at Dalhousie, Alberta Innovates - Technology Futures (AITF), and G BACH Enterprises Incorporated, explain how they have adopted information from the environmental, social, economic and engineering fields to create their assessment framework, which incorporates utility curves, criterion weights, thresholds, decision trees, Monte Carlo simulation, critical events and sensitivity analysis.

"Climate change is one of the most serious threats facing humankind," the team reports, "Carbon capture and storage (CCS) includes a suite of technologies and processes with the goal of mitigating climate change by capturing and storing anthropogenic CO₂ from various emitters, including fossil-fuelled power plants, in geological reservoirs."

The Intergovernmental Panel on Climate Change (IPCC) has recognized

that CCS should be one component of our response to [carbon emissions](#) and climate change, but there are many different approaches that could be taken, all with various risks.

The team obtained inputs from carbon capture experts that allowed them to use their framework to test drive three approaches to [carbon capture](#) in a flexible manner. Their case study provided validation for the framework and showed that it might also be used to assess the benefits of other [climate change](#) amelioration technologies.

More information: John Michael Humphries Choptiany et al. An MCDA risk assessment framework for carbon capture and storage, *International Journal of Decision Support Systems* (2015). [DOI: 10.1504/IJDSS.2015.074543](#)

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