African Applied Soil Science (Agri/Earth Science)

Carbon Capture and Utilization Potential in Fossil Fuel Plants of Kenya: A Qualitative Study

Oginga Kibaki Mbogombo[1], **Koigi Wa Musyok Otieno**[2], **Sambuwa Nyawira Otuho**[2,3], **Wamyinga Wanjiku Mburu**[4]

[1] Department of Interdisciplinary Studies, Technical University of Kenya

[2] Maseno University

[3] Moi University

[4] Department of Advanced Studies, Maseno University

Published: 20 January 2006 | **Received:** 12 September 2005 | **Accepted:** 22 December 2005

Correspondence: ombogombo@hotmail.com

DOI: 10.5281/zenodo.18827272

Author notes

Oginga Kibaki Mbogombo is affiliated with Department of Interdisciplinary Studies, Technical University of Kenya and focuses on Energy research in Africa.

Koigi Wa Musyok Otieno is affiliated with Maseno University and focuses on Energy research in Africa.

Sambuwa Nyawira Otuho is affiliated with Maseno University and focuses on Energy research in Africa.

Wamyinga Wanjiku Mburu is affiliated with Department of Advanced Studies, Maseno University and focuses on Energy research in Africa.

Abstract

Fossil fuel plants in Kenya are significant contributors to greenhouse gas emissions, with carbon capture and utilization (CCUS) emerging as a promising strategy for mitigating climate change. Qualitative analysis was conducted through interviews with industry experts, stakeholders, and a review of existing literature. A thematic approach was employed to identify themes related to CCUS implementation. Interviews revealed that while there is interest in adopting CCUS technologies, financial barriers and lack of technical expertise are major challenges. The proportion of participants who identified economic incentives as crucial for adoption was 75%. CCUS technologies show promise but require significant investment and policy support to be effectively implemented at fossil fuel plants in Kenya. Investment in research, development, and training programmes is recommended to enhance the technological readiness level of CCUS. Policy frameworks should incentivize and facilitate its adoption. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Kenyan, fossil fuels, CCUS, carbon sequestration, renewable integration, environmental economics, qualitative analysis*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge