



# Solar-Powered Cooking Stoves in Rural Ethiopia: Innovations and Health Outcomes Analysis

Mulugeta Abiyo<sup>1</sup>

<sup>1</sup> Adama Science and Technology University (ASTU)

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**Correspondence:** [mabiyo@yahoo.com](mailto:mabiyo@yahoo.com)

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## Author notes

*Mulugeta Abiyo is affiliated with Adama Science and Technology University (ASTU) and focuses on Arts & Humanities research in Africa.*

## Abstract

Rural households in Ethiopia rely heavily on traditional biomass cooking methods, which contribute to indoor air pollution and health issues. A mixed-methods approach combining surveys with focus group discussions in selected rural communities, utilising data from 150 households for quantitative analysis and thematic content analysis for qualitative insights. Solar-powered cooking stoves were adopted by 42% of the surveyed households, leading to a reduction in indoor air pollution levels by an average of 35% compared to traditional methods. The adoption of solar-powered cooking stoves shows promise for improving household energy efficiency and reducing health risks associated with traditional biomass use. Government subsidies and community engagement programmes should be implemented to encourage wider adoption of these technologies in rural Ethiopia.

**Keywords:** *Ethiopia, Rural Development, Renewable Energy, Indoor Air Pollution, Public Health, Biomass Cooking, Mixed-Methods Analysis*

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