



Zero-Greenhouse Gas Emission Cooking Stoves in Urban Senegal Villages: Health and Sustainability Dynamics

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Abstract

Urban Senegal villages are grappling with high levels of indoor air pollution from traditional cooking stoves, which contribute to respiratory diseases and climate change. A mixed-methods approach combining quantitative surveys with qualitative interviews to assess stove usage patterns, household air quality, and socio-economic factors affecting adoption. Stove adoption was positively associated with improved respiratory health among women (75% reported reduced coughing), but varied by village socioeconomic status. While ZGGE stoves offer substantial health benefits, their widespread adoption requires addressing economic barriers and improving stove durability in less affluent communities. Implement subsidies for low-income households, enhance stove manufacturing quality to improve long-term use, and integrate community-led initiatives for greater acceptance.

Keywords: *Sub-Saharan, stove technology, sustainable development, qualitative analysis, environmental health, participatory evaluation, community engagement*

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