



Energy Consumption, Food Production and Economic Growth Nexus: A Review

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Author's contribution

The sole author designed, analysed, interpreted and prepared the manuscript.

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Abstract

Energy consumption, food production, and economic growth are interdependent dimensions of sustainable development, yet their combined relationship remains insufficiently examined in low-electrification economies. This review synthesises evidence on the energy–food–growth nexus in Uganda through a three-dimensional framework comprising energy access, agricultural productivity, and economic growth. Uganda provides an instructive case because agriculture remains central to output and employment, while reliable modern energy access is uneven and national-grid coverage remains limited. The reviewed evidence indicates that energy constraints affect agricultural activities across pre-harvest, harvest, and post-harvest stages, including irrigation, mechanisation, processing, storage, and transport. Uganda's continued reliance on biomass, alongside a hydropower-dominated electricity system, also produces distinct short- and long-run relationships between energy use and economic activity. In addition, current energy and agricultural policies are largely implemented through separate institutional arrangements, limiting coordinated responses to the interdependencies identified in the literature. Important evidence gaps remain, particularly the scarcity of sub-national panel data linking household energy access, agricultural output, and income. The review therefore highlights the need for spatially disaggregated data, quasi-experimental research designs, and integrated assessment approaches. Coordinated energy–agriculture planning, decentralised renewable energy,

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