



# Solar-Powered Irrigation and Agricultural Yield Enhancement in West African Villages,

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## Abstract

This study examines the impact of solar-powered irrigation systems on agricultural productivity in West African villages. A qualitative study employing interviews, focus groups, and document analysis was conducted among farmers and local communities to assess the technological and socio-economic impacts of solar irrigation systems. Farmers reported an increase in average annual yields by 20% due to consistent water supply from solar-powered systems, with significant improvements in crop diversity and quality. Solar-powered irrigation significantly enhanced agricultural productivity in West African villages, leading to improved food security and economic benefits for farmers. Government and development agencies should prioritise the scaling-up of solar irrigation projects in underserved rural areas to maximise yield gains and farmer welfare.

**Keywords:** *African geography, qualitative methodology, solar energy, agricultural productivity, development evaluation, rural sustainability, indigenous knowledge systems*

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