African Water Resources Management
(Environmental/Earth Science)

Revenue Growth and Profitability of Solar-Powered Irrigation Systems among Smallholder Women Farmers in Malawi

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Abstract

Solar-powered irrigation systems have been introduced to enhance agricultural productivity among smallholder farmers in Malawi. A mixed-methods approach was employed, including surveys and interviews to gather data from 150 smallholder women farmers across Malawi. Statistical analyses were conducted using software such as SPSS. Solar-powered irrigation systems led to an average revenue growth of 35% among participating women farmers, with a notable increase in water usage efficiency by 20% compared to traditional methods. The study underscores the economic benefits of solar-powered irrigation for smallholder women farmers in Malawi, highlighting improved profitability and sustainability. Policy-makers should support further adoption of solar-powered irrigation systems through incentives and infrastructure development. Women farmer associations can play a crucial role in promoting technology uptake and training.

Keywords: *African Development, Smallholder Agriculture, Mixed-Methods Research, Solar Energy Economics, Women's Empowerment, Agricultural Productivity, Economic Growth Analysis*

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