



Solar Irrigation Systems and Farmer Cooperatives in Maasai Agriculture: An Impact Evaluation

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Published: 19 May 2002 | **Received:** 17 March 2002 | **Accepted:** 29 April 2002

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DOI: [10.5281/zenodo.18739710](https://doi.org/10.5281/zenodo.18739710)

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Abstract

Solar irrigation systems have been introduced in Maasai regions of Kenya to enhance agricultural productivity through cooperative farming models. Quantitative analysis was conducted using data from a sample of Maasai farmers who adopted irrigation systems within their cooperatives over two years. The introduction of solar irrigation significantly increased maize yields by an average of 30% compared to non-irrigated plots, with cooperatives demonstrating higher productivity through collective decision-making and resource sharing. Solar irrigation systems coupled with effective farmer cooperatives have the potential to boost agricultural productivity in Maasai regions. Government support for solar irrigation projects should be complemented by strengthening cooperative structures to ensure equitable benefits among farmers.

Keywords: *Maasai, Irrigation, Cooperatives, Renewable Energy, Development Economics, Smallholder Agriculture, Quantitative Analysis*

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