



Community Solar Gardens for Off-Grid Villages in Eastern Madagascar: Access and Sustainability

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Abstract

Community solar gardens are being explored as a sustainable solution to provide off-grid villages with electricity in Eastern Madagascar. A mixed-methods approach involving surveys, interviews, and cost-benefit analyses was employed to evaluate the impact of solar gardens on energy access and economic viability. Semi-structured interviews revealed that 75% of participants found the solar garden beneficial for their daily activities. Cost-benefit analysis showed a return on investment within three years in all surveyed villages, with an average cost per household

at 100. Community solar gardens present a viable option for providing off – grid villages with energy access \wedge financial viability. $Y = \beta_0 + \beta_1 X + \epsilon$, \wedge inference is reported with uncertainty – aware statistical criteria.

Keywords: Madagascar, Off-Grid, Community Energy, Solar Gardens, Renewable, Sustainability, Participatory Approach

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