

# Cost benefit analysis of solar energy in ghana

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"In the face of climate change and limited access to modern agricultural technologies, cocoa farmers in Ghana are particularly vulnerable. The International Water Management Institute (IWMI) is bridging the gap between these smallholder farmers and sustainable solutions like solar irrigation through innovative financing models," says Kekeli Gbodji, research officer, Inclusive Agricultural Finance, International Water Management Institute, West Africa.

Ghana's cocoa sector has long struggled with water management. With rainfall becoming increasingly unreliable due to climate change, farmers are facing lower yields and deteriorating crop quality.

Solar irrigation presents a viable solution, but its adoption has been slow due to high upfront costs and insufficient access to credit. Recognising this barrier, IWMI, in collaboration with key stakeholders, developed an innovative financing model designed to ease the financial burden on cocoa farmers.

This new model, validated at a recent workshop involving banks, irrigation suppliers, and farmers, is centred around a first-of-its-kind co-created finance solution. Local banks, including Access Bank Plc, in partnership with organizations like the Mastercard Foundation, have committed to offering low-interest loans for solar-powered irrigation equipment.

The introduction of this financing option marks a turning point for Ghana's cocoa sector, enabling farmers to invest in solar irrigation, improve their productivity, and withstand climate-related challenges.

In collaboration with the International Water Management Institute (IWMI) and with support from the MasterCard Foundation, we are committed to providing innovative, tailored financial solutions that meet these farmers' needs.

"Through flexible, low-interest loans for solar irrigation equipment, we aim to boost productivity, strengthen resilience, and uplift livelihoods. This initiative underscores our dedication to sustainable progress and our commitment to empowering the communities we serve," says Pearl Nkrumah, executive director

The real genius of this model lies not only in the provision of loans but also in its flexibility and inclusivity. Farmers can now access loans with a flat interest rate of 7% and repayment terms of up to four years, including a six-month moratorium. This flexibility allows cocoa farmers to recover from potential crop failures before they begin loan repayments, offering a much-needed buffer against the inherent risks of farming.

A particularly innovative aspect is the promotion of group ownership models. By pooling resources, farmers

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can form small groups of three or larger collectives of five to share the costs of irrigation equipment.

This approach not only reduces the financial burden on individual farmers but also fosters collaboration and knowledge sharing among farming communities. Additionally, it makes irrigation technology more accessible to smallholder farmers, particularly those who otherwise wouldn't be able to afford the upfront costs.

Solar irrigation enables cocoa farmers to adapt to climate change while also boosting their yields, securing their income, and safeguarding the future of Ghana's cocoa industry.

This model can serve as a blueprint for other sectors, demonstrating how innovative financial solutions can unlock new technologies and lead to the widespread adoption of climate-smart agriculture across the Global South.

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