

## Success Story

# Empowering Smallholder Farmers Through Solar-Powered Agricultural Equipment Services

*"For years, we struggled with inconsistent water supply for our rice farms, relying heavily on unpredictable rainfall and, in some cases, diesel-powered generators that cost us so much to irrigate our farms", Hajia Rawiyya reflects on their journey to building climate resilience and increasing productivity for women in rice farming in Jigawa State, Nigeria.*

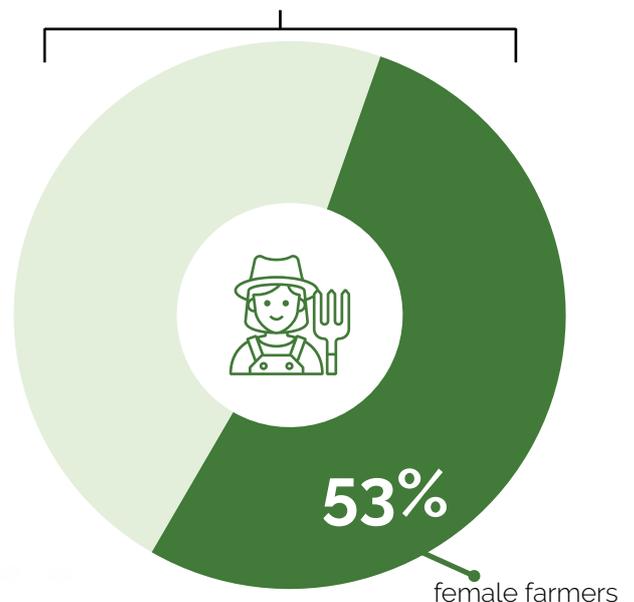
*"I was spending close to N500,000 a circle on fueling costs to water my 1-hectare rice farm. But everything changed when we got a solar irrigation system through the cluster solar irrigation model promoted by CESEL<sup>1</sup>, with support from Propcom+. This transformed our irrigation practices," she stated.*

Nigeria's agricultural sector faces huge challenges, including a heavy reliance on rain-fed agriculture. According to a Federal Government report, only 5.4% of agricultural farmland in Nigeria is currently irrigated<sup>2</sup>. Many farmers, like Rawiyya, Dayibba, and Aisha, rely mostly on rain-fed farming, which has record-low productivity year after year.

CESEL, a Nigerian renewable energy social enterprise, piloted a rent-to-own cluster irrigation facility, which it called the Irri-Go model, as part of the Sustainable Rice Intensification (SRI) pilot implemented by

Propcom+. Three farming clusters, totalling 43 smallholder farmers (53% females) in Hago, Hantsu and Mushewa, Jigawa State, received the irrigation infrastructure through the Irri-Go rent-to-own model facilitated by CESEL.

**3** farming clusters piloted the cluster solar irrigation model in Jigawa State



<sup>1</sup> Community Energy Social Enterprise Limited (CESEL)

<sup>2</sup> <https://www.yieldgap.org/nigeria>



The Hago farming cluster in Jigawa State with the solar-irrigation pump in their rice farm

This model targeted clustered farmers like Rawiyya, Dayibba, and Aisha, who together own up to 5 hectares of land. It enabled these farmers to pool their resources to benefit from a single irrigation set-up, making it more cost-effective than individual irrigation ownership.

*"Because of the solar-irrigation system, we can now comfortably farm rice twice a year due to the availability of water",* says Dayibba, who co-heads the Hago cluster with Rawiyya. *"Other farmers who don't use solar energy are only able to farm once and do not make any significant profits because they are relying on just rainfall",* Dayibba added.

With the solar irrigation system, these smallholder farmers now have a reliable and consistent water supply for their rice fields, pushing down production costs and increasing their yields and incomes.

*"This solar irrigation model has freed up money for us to invest in other inputs such as fertilizer",* said Aisha, a member of the Hago cluster. *"I was spending N400,000 before now to produce 1.5 acres of rice, and I get 30 bags and earn N1.1 to 1.2 million as income, but with the solar irrigation, I spent 580,000 to produce 1 hectare, got 96 bags, sold each bag of paddy at N51,000 and made almost 5 million Naira as income,"* Aisha said with a gleeful expression.

The solar irrigation system is not only beneficial for these women but also for the environment. Solar irrigation uses clean, renewable energy, reducing their reliance on diesel pumps and lowering their carbon footprint. Data from evaluation findings from the Propcom+ SRI pilot indicated that up to 108 tonnes of Co2 was avoided from 194 ha of farmland under the solar irrigation services supported by Propcom+. This aligns with Propcom+'s commitment to supporting the resilience of smallholders and small-scale entrepreneurs to climate change while increasing their productivity and incomes, reducing GHG emissions and maintaining natural ecosystems.



Dayibba and Rawiyya who co-head the Hago cluster in Jigawa State.

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