

How has solar technology changed agriculture in Sudan?

Agriculture offers significant opportunities in Sudan but often relies on diesel-powered water pumps. Introducing solar technology has increased land use and productivity by nearly 50%. For Abdel Rahman Isam Ahmed and his family, the results have been immediate and transformative. "I was not eager to farm before," he said.

Can solar power be used in Sudan?

To demonstrate the potential of renewables in Sudan, a \$4.4 million Global Environmental Facility (GEF) grant allowed UNDP to trial 29 solar-pumped farms in the Sahara-encompassed Northern State. This provided two years (four seasons) of crucial data and experience for farmers before rolling out an additional 1,440 pumps by 2022.

Are solar power generators a problem in Sudan?

An economic comparison between three types of electricity generators; stand-alone PV modules (50 Wp), two imported gen-sets (0.5, 2.4 kW), and a small mini-grid system (313kW peak) proved challenging in adopting PV systems in Sudan (Dongola and Northern Kurdufan).

Should Sudan invest in solar energy?

Given the strong support of the population for this technology and the high solar radiance across the country, Sudan, primarily represented by the government, needs to grasp this rather invaluable opportunity to invest in solar energy. However, the government's present tax policies and lack of incentives act as a large barrier against its diffusion.

Could solar power help Sudan's Energy deprived population?

The energy-deprived population of Sudan, which is more than 70%, could definitely find optimum solutions through various solar technologies.

Is sustainable agriculture necessary in Sudan?

Sudan needs sustainable agriculture, as evidenced by its ranking of 167 out of 188 in the 2015 Human Development Index. This ranking highlights the prevalence of food insecurity and poverty within the nation.

This report evaluates the impact of climate-smart agriculture practices on yields and examines the productivity of key crop value chains and showcases. ... South Africa (119) Indonesia (108) Brazil (97) Canada (93) ... It discusses the potential role of small-scale solar-powered irrigation technologies in improving agricultural productivity.

With the solar-powered water pump providing clean water for the animals, Lokuru's community can ensure the well-being of their livestock, a fundamental aspect of their livelihoods. The initiative goes beyond water



# South Sudan solar for farming

access; it includes training community workers like Lokuru in veterinary care.

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One of the tools provided to the farmers is solar minigrid technology from Sunnova, which is being used to power off-grid irrigation systems at three newly established farms in Aweil, South Sudan. Minigrids, which are sometimes referred to as remote microgrids, are typically used in remote areas that do not have access to a central grid.

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The "Solar for Agriculture" initiative forms part of UNDP Sudan's broad efforts to drive solar and wind energy forward in agriculture, transport, housing, and infrastructure, aiming to reduce climate impact and reliance on imported fossil fuels, generate livelihoods and increase Sudan's economic potential.

The deployment of solar power for irrigation purposes is for Aweil, South Sudan. Utilising a "feed-forward" model that contracts with local farmers, SMI provides them land, tools and training in return for a fair share of the profits to replicate and reinvest the same model in other communities.

U.S.-based global energy services firm Sunnova Energy International has partnered with non-profit organization Seeding Mercy to provide energy access to rural farmers in South Sudan through off-grid solar powered irrigation pump systems.

Solar water pumps for Sustainable Agriculture in Sudan: Promotion of renewable energy and sustainable financial modality as gateway to improve farmers' livelihoods and GHG reduction

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Using a basic plug and play solar system which powers a small submersible water pump, farmers can use the flexible hose system to water their crops and provide the livestock with water. The system consists of foldable 200Wp solar panels, which only need to be plugged into a controller, which powers a water pump.

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To address the issue of water scarcity, the Rainmaker Organization for Sustainable Development installed solar-powered water pumps and sensor-driven drip irrigation systems in villages across South Sudan.

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