Rural microgrids tanzania

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Off-grid electrification will be critical to reach Sustainable Development Goal 7, modern energy for all, by 2030. Energy leaders across the region can look to the experience of Tanzania, which has doubled the number and capacity of its mini-grids since 2008, for important lessons.

Rural electrification is a key component of the government"s plan to make Tanzania a middle-income country by 2025. Tanzania estimates that about half its rural population may be served more cost-effectively by decentralized options than by centralized grid expansion.

In 2008, Tanzania adopted a groundbreaking Small Power Producer framework to encourage investment in the sector. Since then, the number of mini-grids in the country has doubled. Today, the national utility (TANESCO), private businesses, faith-based organizations and local communities own and operate over 100 mini-grid systems with a total installed capacity of 157.7MW, serving over 180,000 customers. By comparison, Tanzania"s central grid has installed generation capacity of approximately 1,500MW, with mostly hydro and natural gas.

A new report from Tanzania Traditional Energy Development Organization (TaTEDO) and WRI examines Tanzania"s mini-grid experience and proposes five key action areas that energy practitioners across the continent can focus on to accelerate the deployment of this electrification option in their countries.

There is a dearth of knowledge about mini-grids, even in countries where they have been used. Understanding how these systems have fared in the past and the reasons for their success and failures is essential for successful future deployments. Likewise, maintaining an active database of existing mini-grids--their technical characteristics, funding sources and tariffs, as well as their quality-of-service metrics--could be valuable to stakeholders involved in mini-grid implementation.

As our report shows, local mini-grid developers face several capacity issues in accessing financing, developing effective business models and managing mini-grid systems. Investments in building the capacity of local entrepreneurs to develop bankable proposals and effective business models will be key to sustainable mini-grid development over time.

Mini-grids can support local development efforts by enabling income-generating activities and promoting agriculture, health and education. These sectors will also create sustained demand for mini-grid electricity, ensuring the financial viability of the systems over time.

Given the critical linkages between mini-grids and development, governments and developers must invest resources into systematic qualitative and qualitative studies that can inform rural development programs and energy access strategies.

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Advancements in technology, falling prices of renewable technologies and emerging innovative business and delivery models are aligning to make mini-grids a transformative solution in sub-Saharan Africa. With useful lessons provided by countries like Tanzania, energy practitioners in the region can now learn from others" experience and act.

JUMEME Rural Power Supply recently launched phase one to commission by June 11 solar-hybrid minigrids for 20 villages and more than 80,000 villagers. Eleven more minigrids are slated for another 23 villages, 160,000 people, in phase two.

Equipping households with digitally networked solar panels, batteries, inverters and smart meters, JUMEME makes use of a pay-as-you-go service model to generate revenues and earn a return on its investment.

"Besides the existing legal framework and the favorable solar resources, our decision to invest in Tanzania is a direct consequence of the low electrification rate in the country. Solar hybrid mini-grids are the least-cost electrification option, especially in rural areas, and the pay-as-you-go business model of JUMEME makes electricity consumption for the customer affordable," said Leo Shieferm?ller, director of RP Global Africa. RP Global Africa"s parent, RP Global -- an independent power producer -- is JUMEME"s majority shareholder.