Solar energy installation in-Bastos Yaounde. Photo Credit: Elias Ngalame

AI-powered irrigation system boosts vegetable yields in Cameroon's Buea

By Elias Ngalame

PRODUCING food all year round in Buea in Cameroon's Southwest Region has become increasingly difficult for many smallholder farmers amid erratic rainfall, water scarcity, and unreliable energy supplies.

Unpredictable weather patterns caused by climate change, limited access to resources, and outdated farming practices have also resulted in lower agricultural productivity.

But an AI-powered smart irrigation system by Mumita Holdings, an agro-based company, is helping farmers improve their yields and income amidst these challenges.

"Our objective has been to specifically support vegetable farmer networks in Cameroon to achieve SDG 2, to end hunger, achieve food security and improved nutrition and promote sustainable agriculture. To this end, we are providing access to modern sustainable production tools to produce nutritious food all year round, helping to reduce the over reliance on artificial supplements to curb malnutrition," says Emer Felix, the CEO of Mumita Holdings.

The system leverages artificial intelligence to monitor soil moisture levels, weather conditions, and crop needs, enabling precise irrigation scheduling that conserves water while enhancing crop yield.

Solar energy is utilised to power the system, ensuring its operation in off-grid rural areas and reducing energy costs. "Climate change remains a major setback to food crop production in Cameroon in particular and Africa in general. The coming of innovation solution through AI-powered smart irrigation systems with solar energy is a welcome relief," said Augustine Njamnshi, the CEO African Coalition for Sustainable Energy & Access (ACSEA).

To empower the smallholder vegetable farmers to generate sustainable income, they are also provided with low-cost greenhouse technology solutions and irrigation systems, such as sprinklers and drip systems, in addition to being sensitised about climate change adaptation.
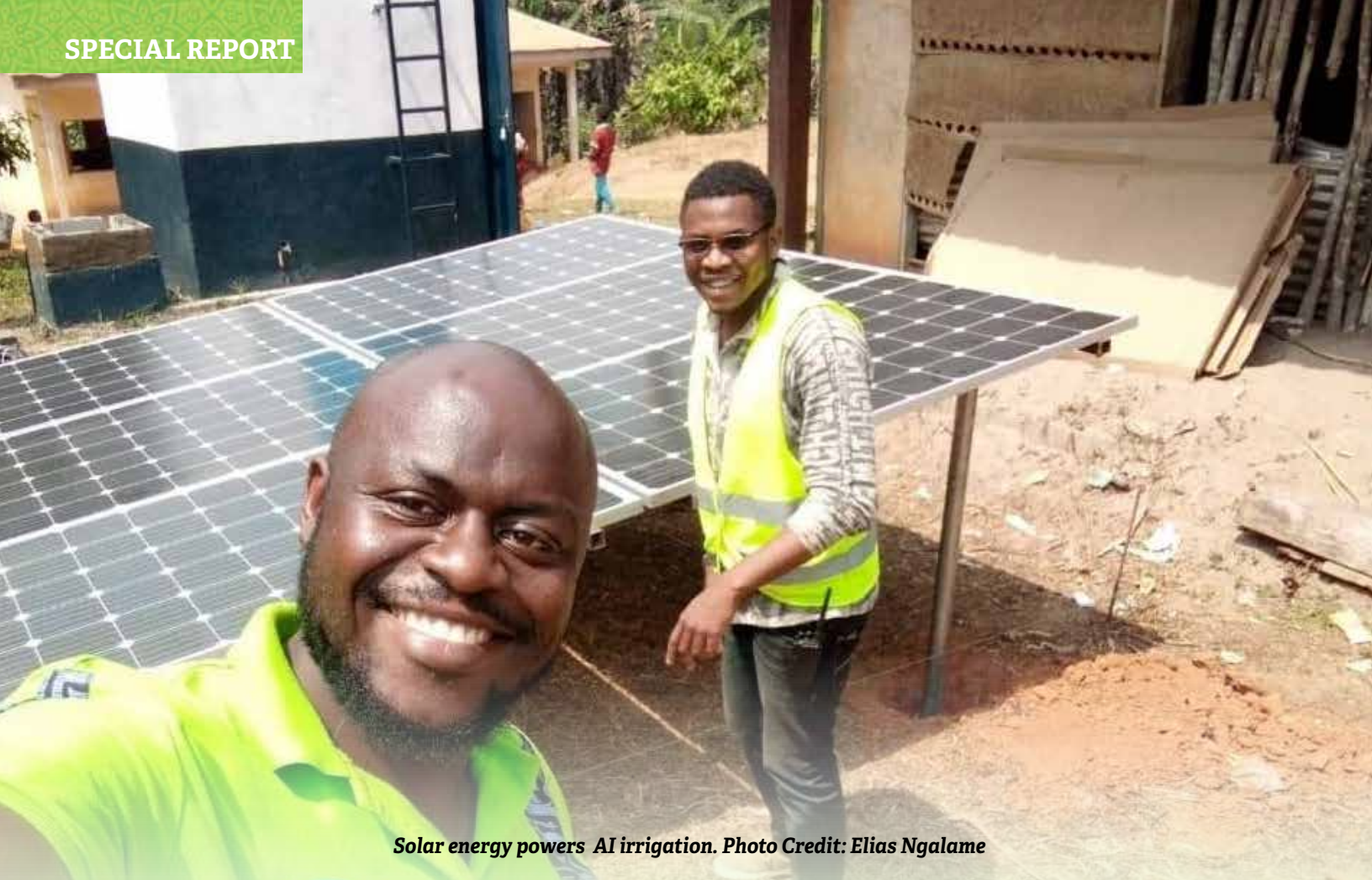
Solar energy powers AI irrigation. Photo Credit: Elias Ngalame

"This includes training farmers on reducing the use of pesticides and fertiliser for production and decreasing the quantity of waste vegetables thanks to knowledge about post-harvest techniques," Emer says.

In addition, Mumita Holdings produces dehydrated vegetables to reduce post-harvest losses and increase their shelf life by incorporating a zero-waste plant. Indigenous vegetables are converted into semi-finished, nutrient-rich products that meet market demands, reduce malnutrition, and enhance food security.

"By providing free capacity building, offering consultation services, providing quality planting materials and regular follow ups, the company is able to grow and retain its customer base by building awareness among farming communities. This includes the local youth and women," said Ekungwe Christopher, the Southwest delegate for agriculture.

He emphasised the importance of leveraging technologies like AI, Internet of Things (IoT), and drones to address challenges in agriculture, especially climate change.

The government, he said, has resolve to collaborate with other stakeholders to enhance agricultural productivity and food security as directed by President Paul Biya, with plans to extend the adoption of these technologies to unserved and underserved areas of the country.

With funds received from the Global Center on Adaptation through the Youth Adapt programme, Mumita is set to purchase more equipment such as packaging machines, vegetable dehydrators and freezers to increase production capacity and efficiency.

During a tour of designated vegetable farms in Buea supported by Mumita Holdings the regional delegate spoke of a government plan to establish a learning centre for farmers on the use of AI, IoT, and other technology solutions in partnership with the University of Buea's department of agriculture.

Mumita Holdings boss highlighted the company's commitment to set up innovation hubs and develop training modules to empower local communities and provide job opportunities in the digital services sector and related industries.

Cameroon has a high rate of illiteracy and inadequate access to high-quality education, especially in rural areas. However, the digitisation of education, especially in the agricultural sector, has bridged the gap through efforts such as online learning platforms and smart classrooms.

"Cameroon is fostering a new generation of technologically literate citizens who will contribute to the country's long-term prosperity and share their knowledge beyond its borders," a Ministry of Agriculture document notes.

AI-powered weather forecasting tools assist farmers in making intelligent planting, irrigating, and harvesting decisions, reducing the risks associated with climate change, the document states.