

SESCOM Hands Over Tanzania's First Locally Developed Solar Hybrid Dryer to Transform Horticultural Value Addition in Morogoro

Research, local innovation and strategic partnerships deliver a new generation of food-processing technology for Tanzania's horticulture sector

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A New Milestone for Tanzania's Horticulture Sector

Midway through the handover ceremony for the SS2 Solar Hybrid Dryer and the official launch of the Morogoro Food Processors Incubation Centre, the national grid supply unexpectedly failed. The ceremony continued without interruption: the public address system and music equipment kept running on power drawn from the very technology being launched. It was an unplanned but fitting demonstration of the dryer's purpose - a reliable, locally engineered solution that keeps food processing running while reducing dependence on conventional energy sources.

On 9 July 2026, Sustainable Energy Services Company Limited (SESCOM) formally handed over the SS2 Solar Hybrid Dryer to the Morogoro Food Processors Cluster Initiative (MFPCI), marking a significant milestone in Tanzania's efforts to cut post-harvest losses, expand value addition and promote locally manufactured technology. The handover formed part of the official launch of the Incubation Centre, established through the Tanzania Horticultural Association (TAHA) with the support of development partners.

From Research Concept to Local Innovation

The SS2 Solar Hybrid Dryer was developed through a collaborative research project bringing together SESCOm and TAHA as Tanzania based partners and Brunel University London, BioPower Technologies Limited, Sematics Limited and Agri Food X Limited, the UK based partners with financial support from Innovate UK. Rather than importing a complete system, SESCOm conceived, designed, fabricated, assembled, integrated and commissioned the entire dryer locally in Tanzania.

The project progressed systematically - from concept development and engineering design, through local fabrication and integration of renewable energy systems, to field testing, refinement and final deployment at a commercial food-processing facility. The result demonstrates that Tanzanian engineers, working alongside international research partners, can develop advanced food-processing technologies that respond directly to local needs.

Designed, Manufactured and Tested in Tanzania

Development began with engineering design of the dryer chamber, followed by fabrication of the dryer structure and integration of its mechanical, electrical and renewable energy systems at SESCOm's workshop in Dar es Salaam.

The completed system combines a 7.80 kW solar PV array with three lithium batteries rated at 15.5 kWh each, a 12 kW hybrid inverter, and an advanced Human Machine Interface (HMI) controller. The HMI allows operators to monitor drying temperature, airflow, humidity, energy consumption, battery charge and solar generation in real time.

Following assembly, the system underwent three months of testing and refinement at SESCOM's demonstration site, processing a range of fruits, vegetables and spices under varied operating conditions. This phase allowed SESCOM's engineers to optimize airflow, refine system controls and validate overall performance ahead of deployment.

Testing results showed the dryer can:

- Completes drying within approximately 2–5 hours while ensuring uniform and consistent drying performance.
- Produces high-quality dried products by retaining natural color, texture and overall product quality.
- Provides safe and hygienic drying by protecting produce from dust, insects, rain and other contaminants.
- Operates efficiently under all weather conditions through hybrid solar PV, heat pump technology and automated controls, reducing reliance on grid electricity.
- Demonstrates reliable, user-friendly performance across a range of horticultural crops, confirming its readiness for commercial deployment.



Journey of SS2 dryer from its design, fabrication, testing to its actual installation site

Innovation Highlights

The SS2 Solar Hybrid Dryer is powered by a combination of solar energy, battery storage and grid electricity, ensuring reliable operation even during periods of unstable power supply. Its hybrid design draws on solar energy during the day, switches to stored battery power when solar availability is limited and falls back on the grid whenever required — supporting continuous operation regardless of conditions.

Unlike traditional open-air drying, which is highly vulnerable to weather, dust, insects and contamination, the SS2 dryer provides controlled drying conditions that improve product consistency, hygiene and quality. It demonstrates a batch capacity of 160–220 kg under normal operating conditions within a cycle of 2-5 hours, with potential to scale to approximately 1,000 kg per day depending on product type, moisture content and drying configuration, making it adaptable to a wide range of agricultural products and commercial processing needs.



SS2 Dryer can dry different products-some packed for business by MFPCI members

Beyond its technical performance, the dryer illustrates the wider potential of renewable energy for productive use in agriculture and food processing, extending well beyond household energy access, and underscores its role in supporting climate-smart agriculture across Tanzania's agricultural value chains.

Installation, Commissioning and Knowledge Transfer

Following successful testing, the dryer was transported to the Morogoro Food Processors Cluster Initiative, now transformed into an Incubation Centre. SESCOM engineers completed installation, commissioning and system verification within two weeks.



To ensure sustainable operation, seven operators; four men and three women received intensive practical training covering food preparation, drying techniques, machine operation, HMI controls, hygiene, preventive maintenance, troubleshooting and occupational safety. Each participant received operator and user manuals, maintenance procedures and a toolkit for routine servicing.



Training to SS2 Solar dryer operators and leaders of MFPCI

Official Launch and Stakeholder Commitment

Speaking at the launch and handover ceremony, Morogoro District Commissioner Hon. Musa Kilakala, representing the Regional Commissioner, commended Innovate UK, SESCO, TAHA, Trademark Africa, Brunel University London, and Bio Power Technologies, Sematics and AgriFood X for their support to innovation within Tanzania's horticulture sector.

After viewing the value-added products processed and displayed at the Incubation Centre using the SS2 dryer, Hon. Kilakala expressed confidence in the technology's potential to transform horticultural processing, commending the quality, preservation, packaging and presentation of the products on display. He noted that the dryer would help improve product quality, strengthen the competitiveness of Tanzanian goods and create new business opportunities for farmers, processors and entrepreneurs in both domestic and international markets.

He called on MFPCI to ensure proper management, maintenance and effective use of the dryer and associated technologies, to deliver long-term benefits for processors, strengthen horticultural value addition, stimulate business growth and contribute to national economic development.



Launching of the SS2 solar dryer by Morogoro District Commissioner, at Kihonda Magorofani Area.

SESCOM's Commitment to Innovation and Local Manufacturing

Speaking on behalf of SESCO, Project Coordinator Mr. Shukuru Meena thanked Innovate UK for supporting the research and acknowledged the collaboration of TAHA, Brunel University London, Bio Power Technologies and all project partners.

“This project demonstrates that Tanzania has the engineering capability to design and manufacture advanced food-processing technologies locally. By investing in research, innovation and local manufacturing, we can develop practical solutions that improve livelihoods while strengthening national industrialization.”

— Mr. Shukuru Meena, Project Coordinator, SESCO

Mr. Meena encouraged processors to apply the knowledge gained during training and to maintain the equipment properly to ensure a long service life. He also stressed the importance of strengthening local manufacturing industries capable of producing processing equipment domestically — reducing dependence on imported machinery and lowering investment costs.

As the developer of the SS2 Solar Hybrid Dryer, SESCO remains committed to advancing research, innovation and local manufacturing of renewable energy technologies that address real challenges in Tanzania's agricultural sector. Working with industry partners, research institutions and development organizations, SESCO aims to expand access to sustainable agro-processing solutions, strengthen the productive use of renewable energy and support the growth of competitive value-added industries across the country.

TAHA's Commitment to Supporting Processors

Speaking during the ceremony, TAHA management — represented by Mr. Antonio Coello, Development Manager, and Mr. Simon Mlay, Chief Programme Manager — outlined the objectives and strategic role of the

Morogoro Food Processors Incubation Centre in strengthening horticultural value addition and supporting the growth of processing enterprises.

They reaffirmed TAHA's commitment to continue working with SESCOM, development partners and other stakeholders to provide processors with technical support, capacity building, quality improvement initiatives, post-harvest management solutions and market development opportunities. Through the Incubation Centre, TAHA aims to create a platform where processors can access appropriate technologies, improve product standards and build competitive businesses capable of reaching wider markets.



Mr. Antonio Coello from TAHA, giving speech during official launching and handover of SS2 solar dryer

Technology Welcomed by Processors

Processors, represented by Cluster Secretary Mrs. Dotto Tiliho and Cluster Facilitator Dr. Jasmine Tissekwa, welcomed the SS2 Solar Hybrid Dryer as a game changer. They noted that they had long struggled with high production costs, unpredictable weather, contamination during traditional drying and limited market access; challenges they expect new technology to help overcome.

Processors and farmers can expect the SS2 Solar Hybrid Dryer to:

- Reduce post-harvest losses by an estimated 40–60%.
- Cut drying time by approximately 50–70%.
- Reduce electricity consumption by an estimated 60–80%.
- Improve product quality while enhancing food safety and hygiene.
- Enable reliable all-weather drying through hybrid solar and heat pump technology.
- Increase income by expanding access to higher-value domestic and export markets.
- Create greater opportunities for women and youth to participate in value-added processing enterprises.
- Support year-round value addition, improving productivity and farmer livelihoods.

Processors also requested continued support for certification, packaging improvement and market linkages to fully capitalize on the new capability.

Scaling Up the Innovation

The project opens significant opportunities for scaling the SS2 Solar Hybrid Dryer across Tanzania — through commercial production, the establishment of regional demonstration centers, integration of IoT-based monitoring systems, and adaptation of the technology for drying fish, meat, cereals, spices and medicinal plants.

It also lays the groundwork for exporting Tanzanian-manufactured drying technology to neighbouring countries, further strengthening the role of renewable energy in agricultural transformation across the region.

Building the Future of Tanzanian Agro-Processing Technologies

The development and handover of the SS2 Solar Hybrid Dryer marks more than the completion of a research project. It shows how collaboration between local industry, universities, research institutions and development partners can translate innovation into practical technologies that benefit communities directly.

For SESCO, this achievement marks the beginning of a new generation of Tanzanian-engineered, renewable energy-powered agro-processing technologies. Through continued investment and partnership, SESCO aims to advance sustainable agricultural development, strengthen climate resilience and support Tanzania's broader economic transformation.