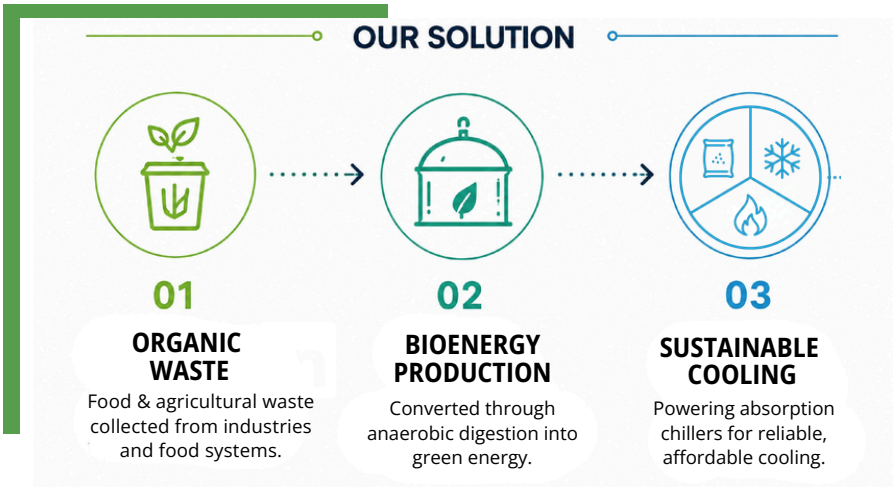
Kijani Cooling

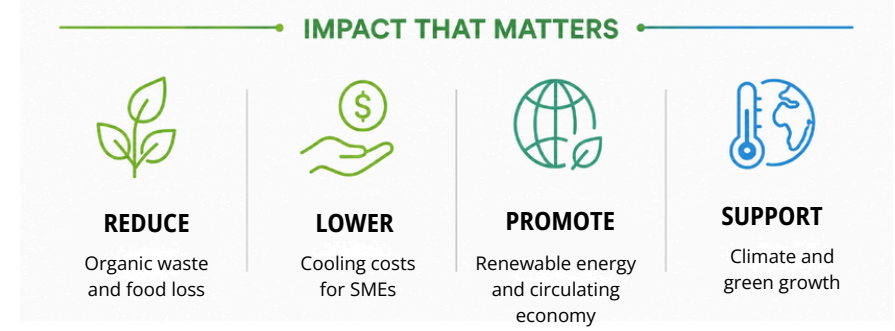
NEWSLETTER

July 2026

Transforming African Organic Waste into Green Energy for Cooling.

Valorizing Waste and Minimising Food Loss Towards Green Deal Priorities





MESSAGE FROM THE PROJECT COORDINATOR

Dear Readers,

We would like to introduce you to the 1st in a series of newsletters that will be published over the duration of the KijaniCooling project. KijaniCooling is an innovative project co-funded by the European Union under the Horizon Europe Research and Innovation programme. It seeks to leverage organic waste for green energy production, focusing on cooling and refrigeration solutions along the food supply chain. The first months of the project have been a great success, with numerous planned activities and services brought to life. In this special edition, we reflect on the key highlights of the year, celebrating the milestones achieved and the impact made.

We provide details on our exciting physical kick-off meeting that we organized in the capital of Kenya, Nairobi, in October 2024, some information on the pilot sites that we plan to deploy our solutions and our stakeholder engagement workshop. All these events have worked to bring our consortium members together, helped to understand the project objectives, vision and mission properly and to connect with the regions where the solutions will be implemented. We also provide some details of communication items such as our project website, our social media pages, our press release and our stakeholder engagement platform. Looking ahead, we're excited to share a glimpse of what 2026 holds for research and innovation stakeholders across Africa and Europe. Together, we will continue fostering collaboration and advancing our shared mission

WARM REGARDS

KijaniCooling Team

The consortium is made up of 14 partners from 7 European and 7 African countries

- **Technical University Dresden (TUD)**
- **Politecnico Di Milano (POLIMI)**
- **Italian National Agency of New Technologies, Energy and Sustainable Economic Development (ENEA)**
- **WAZIUP e.V.**
- **Innotec21 (IT21)**
- **INNEUROPE (INN)**
- **ESCI-UPF**

- **Dedan Kimathi University of Technology (DeKUT)**
- **Solar Freeze Limited (SF)**
- **Eco Holdings Limited (EHL)**
- **Biogas Solutions Uganda Limited (BSUL)**
- **National Agricultural Research Organization (NARO)**
- **University Gaston Berger (UGB).**
- **African BioEnergy Program Limited (ABPL)**

MEET THE CONSORTIUM

KICK-OFF MEETING IN NAIROBI, KENYA

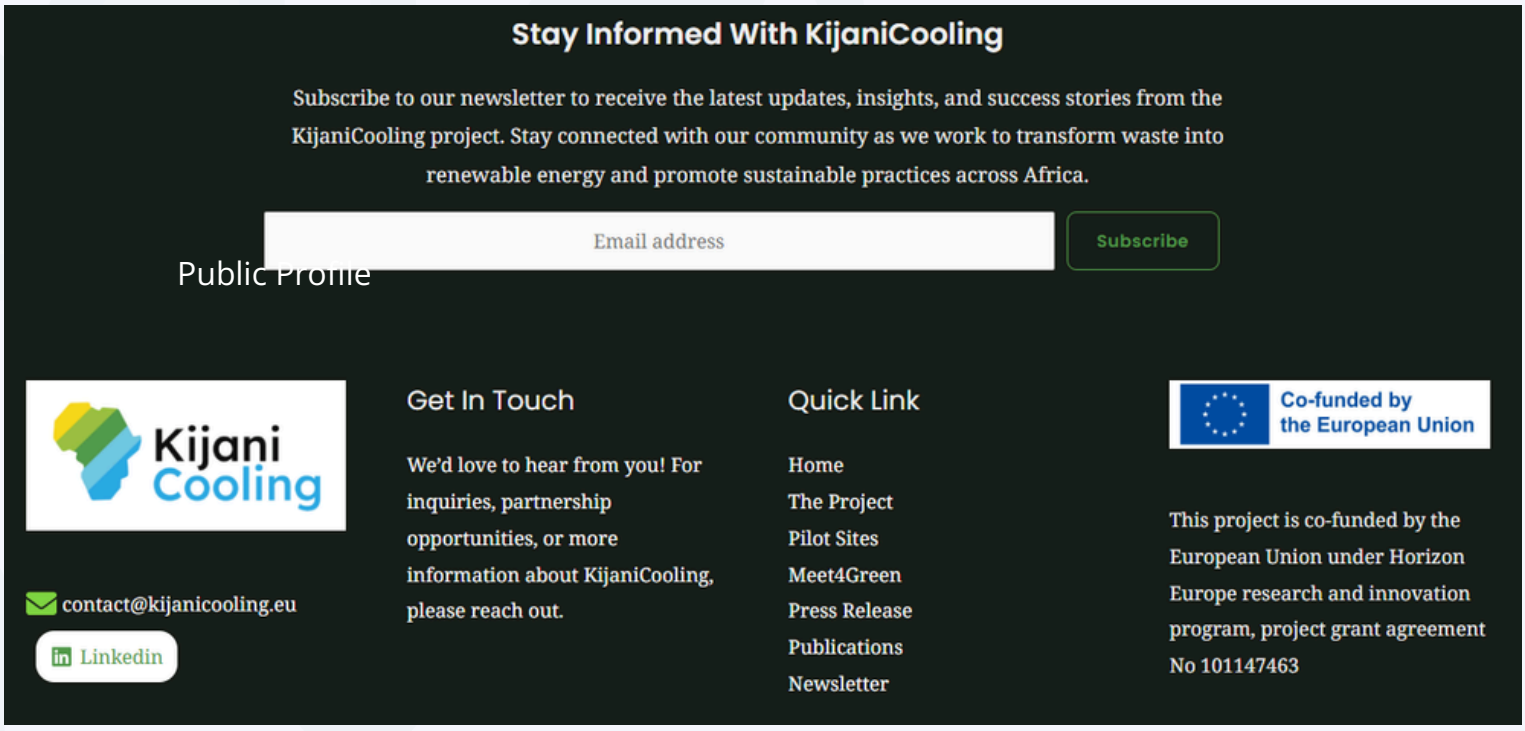
The Kick-off meeting for the KijaniCooling project took place in Nairobi, Kenya between 22nd to 24th of October 2024. This was an eventful 3 day meeting with the 1st day commencing with partner introductions, project tasks presentations, and brief discussions on the interrelationships of the tasks. The 2nd day opened with a visit to #Best Tropical Fruits Limited in Machakos county, Kenya which was the 1st pilot site for demonstration of the project solution. The meeting concluded with a strategic discussion workshop to further enable the understanding of the project objectives by the partners and prepare a 6-months work plan for the main activities. Visiting the best tropical fruits was important, as it provided the partners with a tangible assessment of the pilot sites ahead of the solution's physical development. The final day had a site pilot visit at Kangagi market in Kiambu county in Kenya and a stakeholder workshop to involve the key players in the biogas industry in the project development. Overall, KijaniCooling will work to introduce innovative smart systems in the biogas industry which would promote the use of clean energy.

PARTNERS DRIVING INNOVATION

Dresden University of Technology
ENEA ITALIAN NATIONAL AGENCY FOR NEW TECHNOLOGIES, ENERGY AND SUSTAINABLE ECONOMIC DEVELOPMENT
UNESCO Chair ESCI-UPF In Life Cycle and Climate Change
SOLAR FREEZE Post harvest solutions for small holder farmers, with small holders by small holders.
WAZIUP
Africa BIOENERGY program moto safi, mbolea shwari
INNOTEC 21
Inneürope
POLITECNICO MILANO 1863
Biogas SOLUTIONS UGANDA LTD
ECoH Environmental Conservation & Health Sustainable Agricultural Solutions
NARO
UNIVERSITE GASTON BERGER SAINT-LOUIS DU SENEGAL

INTRODUCING LEAP-RE IN KIJANICOOLING

KijaniCooling will have a strong linkage with the LEAP-RE initiative. The project will identify and participate in several events, workshops and webinars that have a strong relation with the project objectives. Understanding past initiatives and their solutions and challenges will enable an efficient implementation of the project by preventing re-invention of the wheel. Identifying the lessons learnt and successes from these initiatives will provide the project with a solid foundation where its activities will be built upon. The project is currently collecting these initiatives which will be placed in a database for frequent referencing. The project is also interested in organizations already associated with the LEAP-RE initiative for partnerships and joint participation in related proposals. If you are a LEAP-RE affiliated organization and are interested in working with KijaniBox please subscribe through our website.



PILOT VISITS TO DEMONSTRATION SITES

KENYA

These visits highlight the potential impact of KijaniCooling sustainable waste processing solutions in local markets and industries

Best Tropical Fruits

The KijaniCooling project team conducted a stakeholder engagement visit to Best Tropical Fruits Ltd. in Machakos on 23rd of October, 2024 to explore sustainable practices and identify operational challenges. Key points from the visit included: Fruit Processing & Waste Generation - Processing mangoes, avocados, and macadamia results in substantial organic waste, requiring efficient management strategies

Kangagi Market

The KijaniCooling project team explored Kangagi Market in Kiambu County on 24th of October, 2024 to evaluate waste management practices and local resource utilization. Key findings included: the market generates large amounts of organic waste primarily from unsold produce, waste management challenges and limited infrastructure for sorting and preparing waste complicates the potential for sustainable processing. The market will benefit from Biodigester technology.

UGANDA

A detailed field assessment was carried out in Uganda to evaluate biomass availability across three pilot sites in Uganda.

Kyeyo Farm

The primary biomass feedstock is cow dung, with an estimated daily availability of around 10 tons. A visit to the farm revealed large quantities of this resource lying unused in piles within the compound, representing a missed opportunity for energy production and environmental management. In addition, secondary biomass streams include approximately 9 tons of poultry waste and 500 kilograms of pig waste per day.

Nansana Market

The Nansana Daily Market, designated as a virtual MarketBox site, generates an estimated 12 tons of organic waste daily, largely consisting of banana peels and food scraps. These wastes are commonly dumped behind market structures or along roadside areas. Waste collection is managed by four municipal trucks that remove unsorted garbage once per day, indicating that source segregation is not yet in place.

Uganda Industrial Research Institute

Here, the primary waste streams stem from agro-processing activities. Approximately 200 liters of liquid waste is generated daily from milk processing operations, based on a throughput of 6,000 liters of milk per day. Additional waste includes 100 kilograms of animal skins per month and a small but steady volume of meat scraps, estimated at 3 to 4 kilograms per day.

Our Services: The Application Solution Boxes

FarmBox

Transforming farm waste into energy

FoodBox

Transforming industrial food waste into energy

MarketBox

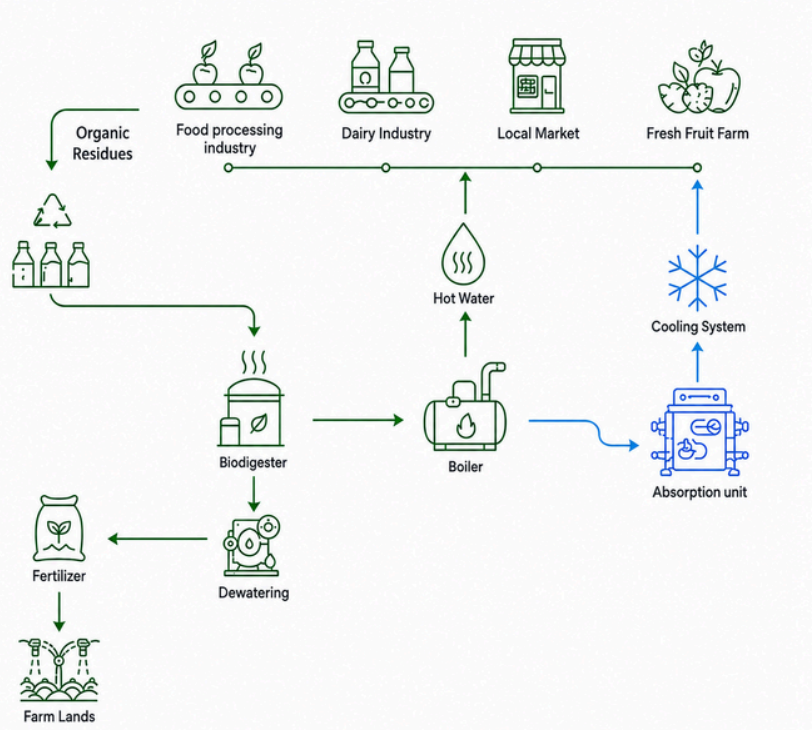
Transforming market waste into energy

In the remaining project time, KijaniCooling will work towards creating sustainable services to different targets of users in the biodigester sector. These services will be packaged as customized solutions called the Application Solution Boxes (ASBs). The ASBs include the FoodBox, the MarketBox and the FarmBox. The FoodBox will provide dedicated services to food processing industries such as those that work with fruits and packaged food products; the MarketBox will target markets and provide services such as on-site cold storage and heating; the FarmBox will provide solutions to farm owners such as those in the dairy farming sector. These boxes will be tested in the three pilot countries of the project - Kenya, Uganda and Senegal. The project will design cost-effective biodigesters and develop sustainable business models for the services to the target clients.

Understanding the Bio-digester Users

- Smallholder Farmers (FarmBox): Livestock and mixed-crop farms (dairy, poultry, etc.) can feed manure and farm residues into a biogas ASB for on-farm energy.
- Agro-Processors (FoodBox): Local food processors (fruit/vegetable canneries, juice makers, small slaughterhouses) generate large organic byproducts.
- Market Vendors (MarketBox): Fresh-produce markets and cooperatives need cold storage to reduce losses.

AUTOMATION ON THE BIODIGESTER



To enhance operational efficiency and ensure optimal performance of our ASB systems, we are now integrating smart automation technologies into the bio-digester and chiller units. This development marks a significant step forward in the evolution of the ASB solution; from a standalone bioenergy converter to a fully supervised and data-driven energy system.

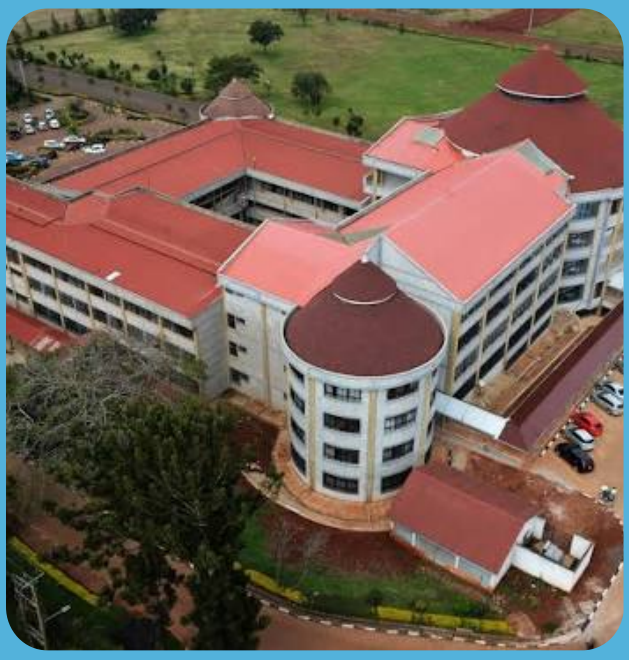
The integration centers around a Smart Monitoring and Supervision System, designed to automate key processes in the waste-to-energy cycle. In the bio-digester, the system continuously monitors critical parameters such as temperature, pressure, biomass level. In the chiller, the system monitors the temperature, flow rate and pressure. These real-time readings are analyzed through an intelligent control logic that automatically adjusts system operations, helping maintain ideal conditions for biogas production and preventing process interruptions.

A core advantage of the automation system is its remote accessibility. Operators can view performance dashboards, receive alerts, and make manual adjustments from a central interface, reducing the need for constant on-site supervision. This capability is especially valuable for rural deployments or pilot projects spread across large distances.

ASB MANUFACTURING AND TRAINING AT DeKUT

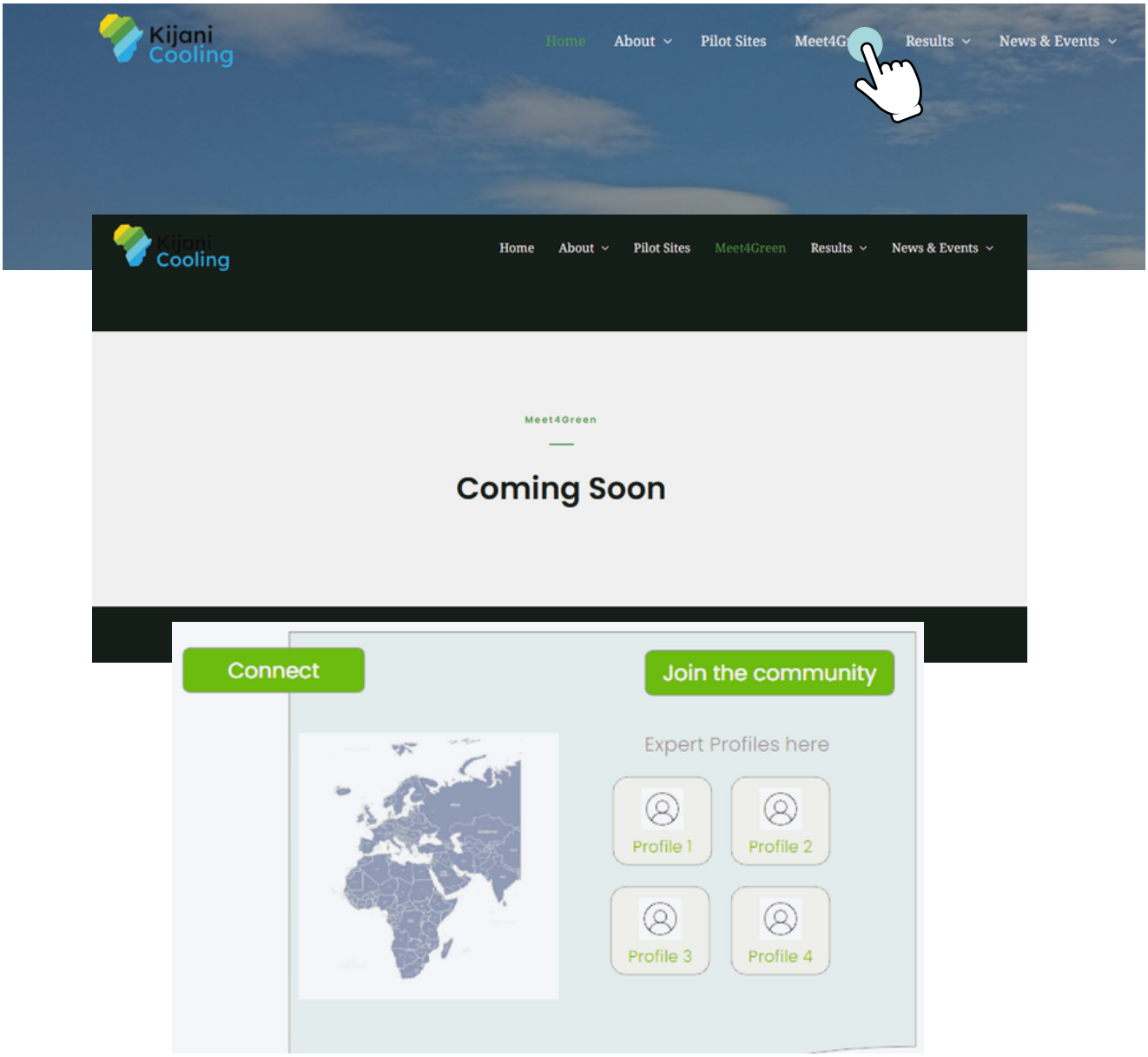
As part of its mission to catalyze sustainable development through localized innovation, the KijaniCooling project is championing the local assembly and training model for its ASBs. At the core of this initiative is the Co-Creation Factory, with Dedan Kimathi University of Technology (DeKUT) in Kenya playing a leading role in regional implementation. Through DeKUT, local technicians and engineers will manufacture and assemble the ASB and create a Manufacturing Catalogue that other interested stakeholders can use. The catalogue ensures uniformity, quality control, and easier sourcing of materials to support smooth operations and future replication across Africa.

To further ensure sustainability, the project includes a robust training and curriculum development program which includes hands-on technical training in welding, fabrication, refrigeration systems, and electrical installations, operational and maintenance guidance for the biodigester and absorption cooling systems, entrepreneurial and business-skills training aligned with the “Business-in-a-Box” model.



KIJANICOOLING TO INFLUENCE GREEN POLICY

To effectively implement the ASBs as services to the consumers, KijaniCooling will need to work closely with government agencies, energy-related parastatals, and policymakers to achieve its objective. A map of key stakeholders for consultation during the implementation of the project in the pilot sites has already been developed. Engagement with some of these stakeholders in the Kenyan ecosystem has already started. A stakeholder database will be created during the project period, and stakeholders will be given access to the Meet4Green Platform, where they can collaborate and access services developed during the project period. If interested in being a stakeholder, please include your details through our website or share a message in any of our social media channels.



STAKEHOLDER WORKSHOP

On **October 23rd**, we concluded our kickoff meeting with a highly engaging **stakeholders' workshop.** This session provided an excellent opportunity to connect and collaborate with key stakeholders including:

- GIZ Representatives in Kenya
- Best Tropical Fruits
- Kangagi Market

This productive exchange highlighted the importance of partnership and dialogue as we embark on the KijaniCooling project — a European-funded initiative committed to fostering sustainable solutions.

Thank you to everyone who participated and contributed to this meaningful discussion. We are excited to move forward with your support and collaboration

First Stakeholder Validation Workshop in Uganda

On **April 15th, 2025,** the KijaniCooling Consortium, through its partner Biogas Solutions Uganda Ltd (BSUL), held its first Stakeholder Validation Workshop in Kampala, Uganda. The event convened key stakeholders from Uganda's agriculture and energy sectors to review user survey findings and validate the direction of the KijaniCooling project. To ensure that this solution meets the real needs of its users, the workshop was organized to validate findings from a recently conducted user survey. The data gathered from dairy farmers, market actors, and agro-processors served as the foundation for the event's discussions. Participants included dairy farmers, market authorities, agro-processors, and representatives from national institutions such as Ministry of Energy and Mineral Development (MEMD), Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), National Agricultural Research Organisation (NARO), Kampala Capital City Authority (KCCA), CARE International in Uganda. The workshop highlighted the urgent need for decentralized, renewable energy-powered cooling systems. It featured presentations on survey data, technology showcases, and a panel discussion on the economic viability, scalability, and policy support needed for waste- to-energy innovations like KijaniCooling.

Visit our Website and Social Media

We are pleased to announce the launch of the KijaniCooling official website! Visit us at www.kijanicooling.eu. The website serves as a central hub for project information, including pilot site updates, news, publications, event details, and partner highlights. Explore the project, meet the team, and stay connected with all our activities.

Follow us on the KijaniCooling LinkedIn Page. This page will feature real-time updates, partner stories, photos from the field, and opportunities to connect with our growing network of stakeholders across Europe and Africa. We warmly invite partners, policymakers, community organizations, academia, and industry players to follow us and be part of the conversation.

Your engagement is vital to the success of KijaniCooling. Whether you're in the waste management sector, renewable energy, agriculture, or local governance, we welcome you to:

- Follow us on LinkedIn (linkedin.com/company/kijanicooling-horizon-europe)
- Subscribe to our newsletter via the website (https://www.kijanicooling.eu/)
- Share your feedback, insights, or collaboration ideas

Together, we can drive sustainable change and co-create solutions that benefit communities across Africa and beyond.

PAST AND UPCOMING EVENTS

Thank you for reading! We hope that you have enjoyed the latest edition of the newsletter and thank you for following us on our journey! For more information on the project results and outcomes, please feel free to visit us on our website:

Yours Sincerely,

KijaniCooling Project Team

PARTNERS DRIVING INNOVATION

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