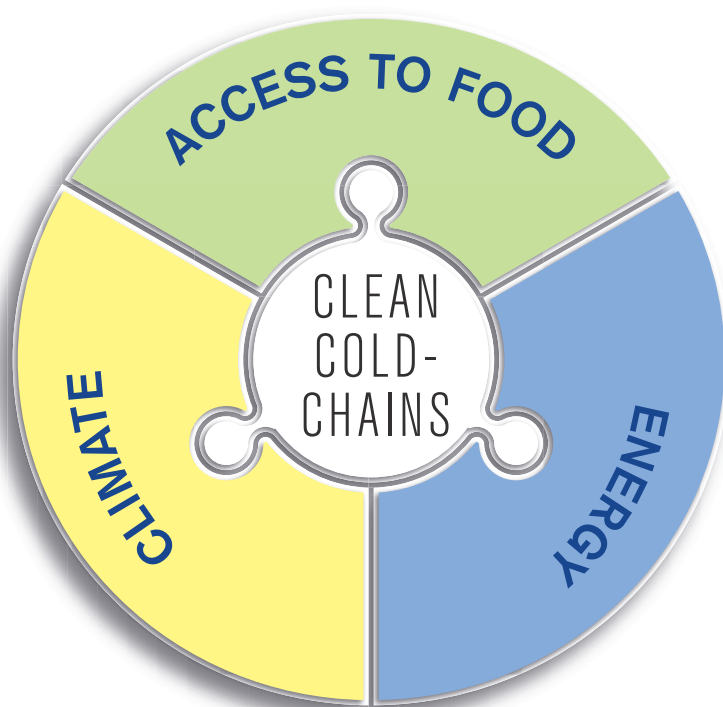
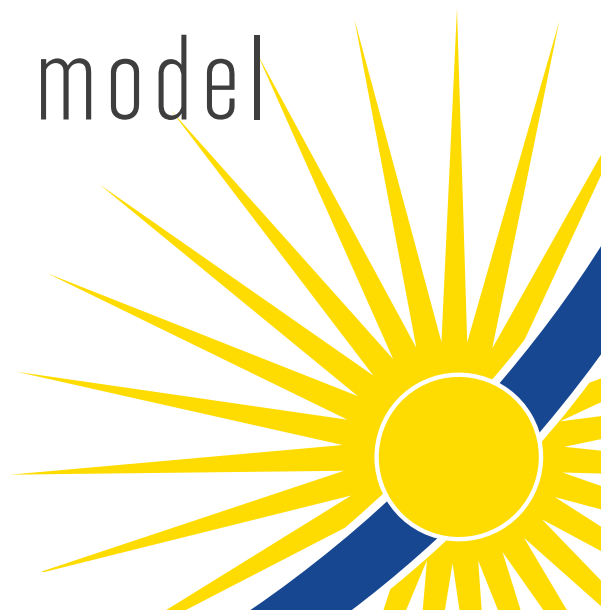




# Pathways for Industry Engagement



A co-investment model



# WORLD LEADING COLLABORATION



# ACES



Africa Centre of Excellence for  
Sustainable Cooling and Cold-Chain

“Accelerating  
sustainable  
solutions”

The **Africa Centre of Excellence for Sustainable Cooling and Cold-Chain** (ACES) was established in 2020 by the Governments of the UK and Rwanda, Centre for Sustainable Cooling, UNEP United for Efficiency and University of Rwanda with the vision to create a world-leading Government, Academic, Industry, Community and NGO collaboration to accelerate sustainable

solutions to simultaneously address two urgent and interconnected global challenges - food loss and access to cold-chain and cooling. The project is pan-African and the Steering Committee includes the African Union and the East African Community Secretariat. A first Living Laboratory (or community cooling hub) affiliated with the Centre is under development in Kenya.

## ACES GOVERNMENT & ACADEMIC PARTNERS



UNIVERSITY OF  
BIRMINGHAM



EST 1892  
**LSBU**

# THE ACES VISION

ACES is scheduled to open in 2022, hosted by the University of Rwanda (Kigali) with its own 96-acre campus and including bespoke new build facilities. ACES will accelerate deployment of sustainable (environmental, economic and social) cold-chain solutions throughout Africa by

providing market knowledge, applied research and development, technology/solutions trial and demonstration, capacity building, plant design, and business incubator and innovation services to community enterprises, industry, governments and other clients.

- **Showcase** local market usability and value proposition of technologies available for integrated solutions to strengthen supply chains.
- **Help** least-served communities work in partnership with industry and academia to reduce food loss and increase access to cold-chains and cooling; key to many basic societal services and needs.
- **Provide** the skills and encouragement to young people to access exciting careers in fast-growing global sectors.
- **Deliver** industry the right environment, sales channels and support for the development, demonstration and marketing, and installation and maintenance of new technologies.
- **Create** fit-for-market step-change pathways to net zero cold-chain and cooling.
- **Develop** innovations that are fit for purpose in the environment – providing incubation and new business initiatives.



## ACES



Africa Centre of Excellence for  
Sustainable Cooling and Cold-Chain

ACES will apply and bring to market new zero ODP and low GWP alternatives and accelerate the transition in Africa to energy efficient, environmental and sustainable refrigeration and food preservation.

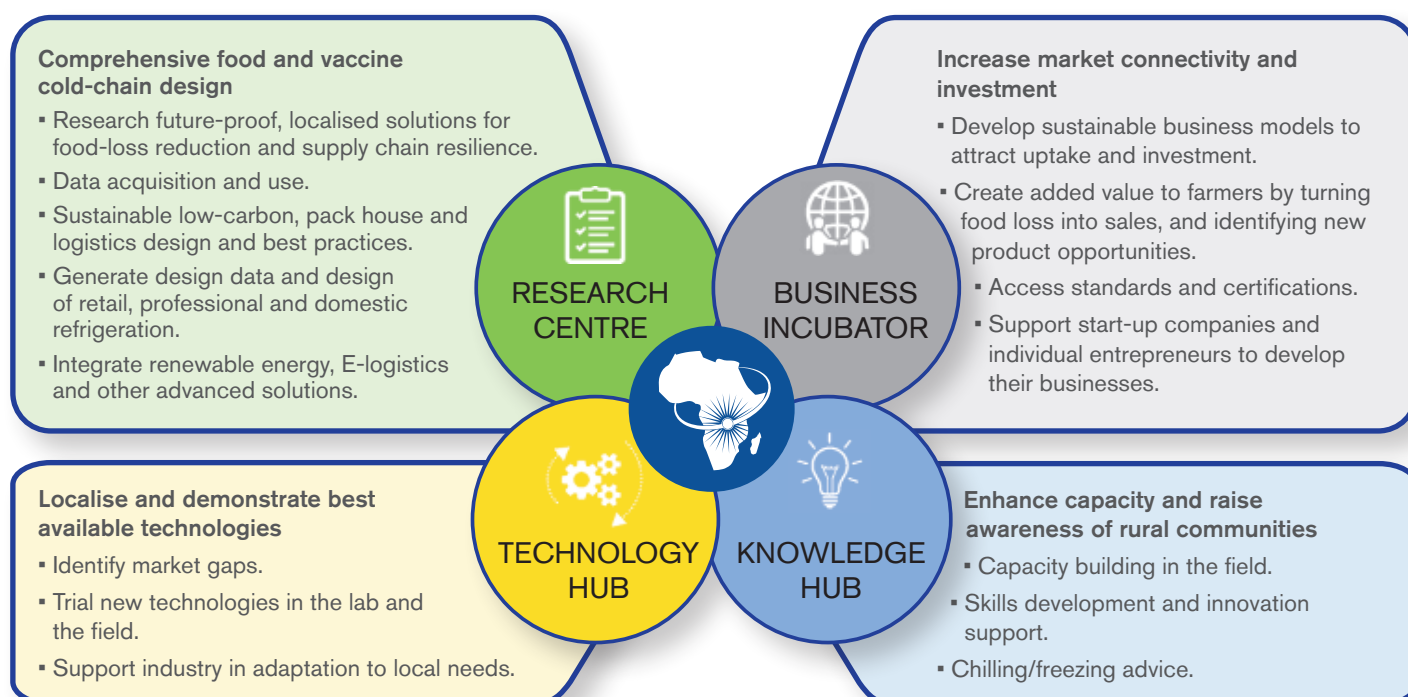
# WHY ENGAGE WITH ACES?

ACES offers a platform for industry to steer the future of cold-chains and support development of cutting edge financial and business structures for entering new markets and expanding current markets. ACES offers an unparalleled means to explore African cooling and cold-chain market opportunities, to demonstrate and prove technology in-market, build after-sales capability, engage with the financing mechanisms and shape policy.

- Obtain market intelligence to support strategies on market entry or expanding presence.
- Showcase technology in-country within the Centre providing a location for potential buyers to see the technology in operation.
- Amplify business opportunities that come with system-level approaches.
- Secure in-market capacity building and skills development to support uptake of best practices and technology deployment and after-sales services.
- Join and support a business incubator including full-service training, business model design, skills development and innovation support to underpin technology and service deployment.
- Access data acquisition and interpretation systems.
- Access state-of-the-art research facility, test and development equipment, and technology demonstration in the field.
- Integrate with sustainable, low-carbon packhouse and logistics design services.
- Access renewable energy and e-logistics services.
- Access international certification. Apply for certificates to increase market opportunities and qualify in-country service providers.
- Co-develop research programmes on future-proof, localised solutions for food loss reduction and increased farmer income.

# ACES ACTIVITIES

ACES is based on four fundamental key components. See next page for more details.





- ACES will increase the understanding of local agricultural production systems and markets, as well as post-harvest/post-slaughter biology of food (fresh produce, grains, meat, fish and dairy) in order to develop sustainable technologies adapted to their needs, while being energy efficient and reducing physiological and nutritional food loss and waste.
- ACES will produce comprehensive food and vaccine cold-chain and cooling system designs, reproducible worldwide (Community Cooling Hubs).
- ACES will develop and validate novel control systems and methodologies for community-owned energy systems.
- A multidisciplinary team of experts in the UK, Rwanda and other African countries will advise and lead on research and innovation, and will welcome collaboration with industry partners.



## RESEARCH CENTRE

- The Centre will demonstrate best available technologies and integrated solutions across the supply chain, showcasing cutting-edge solutions for a sustainable food system.
- ACES will include the necessary equipment to mimic the real-world scenario, adapting innovative technology to local needs for in-country markets and export.
- ACES will provide support in selection of cooling products to fulfil needs.
- In particular, we will be looking to deploy technology for:
  - Packhouse facilities: variable temperature rooms, controlled atmosphere equipment (including software and controllers), freezer, blast chiller/freezer tunnel, vacuum cooler. Facilities include washing equipment, grading, conveyors, weighing and packing equipment.
  - Logistics: improving transport at all stages of the food system, from harvest to last-mile, to minimise losses and maintain quality.
  - Environmental test room for development and testing of retail, professional and domestic refrigeration equipment.
  - Facilities to test and develop refrigerated trucks and containers.
  - Example refrigeration technologies for use in training and development.
  - Data collection and analysis systems and software.
  - Energy systems: solar panels, solar thermal, energy storage, mobile thermal energy storage, hot water heat reclaim system and heat pumps.
  - Laboratory: digital refractometer, heat pumps, texturometer, automatic titrator tristimulus colourimeter, balance, stomacher, colony counter, autoclave, incubator, laminar flow air cabinet.
- Technology will be underpinned by monitoring and control systems to enable efficient control, aggregation of services, fair sharing of jointly-owned energy services and to protect the life of expensive assets.



## TECHNOLOGY HUB

- ACES will support rural communities and agricultural, food systems and cold-chain enterprises with increased market connectivity and investment through an incubation suite, providing support services from business start-up, capacity building, market development, system design (including through simulation) to financial strategies.
- ACES will support communities and cold-chain operators in developing fit for market product specifications.
- It will help international companies engage with local businesses in order to expand influence and improve global distribution network.
- The Centre will contribute to increasing resilience in import-export activities and will include a Quality Control and Certifications Centre to ensure compliance with international standards.



## BUSINESS INCUBATOR



## KNOWLEDGE HUB

- ACES will build capacity in the field and promote the growth of skills in country through certified training programmes and outreach.
- It will develop and provide train the trainer programmes to train local staff (including through Living Labs) based on use, service, maintenance, followed by continuous development programmes to ensure skills are kept up to date.
- It will generate critical capacity building and knowledge to benefit business and the local communities.
- ACES will develop design standards and accreditation.
- ACES will lead the digital transformation of cold-chain in Africa, developing needs assessment tools, data capture and use monitoring, virtual models, electronic trading and fulfilment platforms.

As part of the academic aspects of the Centre, alongside training and capacity building and Continued Professional Development (CPD) courses, ACES will develop research initiatives and create MSc and PhD funding programmes including Rwanda-UK international courses.

# THE ACES PROGRAMME

## Phase 1 (completed)

Conduct cooling needs assessment to provide foundation for the design concept of the Centre; initial design concept.

## Phase 2 (current)

*Working with collaboration partners and Founder Industry Partners - as below.*

- Full design of the ACES Headquarters.
- Staffing definitions and initial hiring.

## Phase 3 (2022)

*Working with collaboration partners and Founder Industry Partners*  
Set-up ACES.

- Equipment selection, procurement, installation and commissioning at the ACES Headquarters and commencement of initial Living Laboratory(ies).
- Training and train the trainer.

## Phase 4 (2023 and onwards)

*Working with collaboration partners and Founder Industry Partners.*  
Scale-up to pan-African Living Laboratories with demonstrations of ACES solutions in communities in numerous countries.

## HOW TO ENGAGE FOUNDER INDUSTRY PARTNERS

Founder Industry Partners will be offered early involvement in ACES and the opportunity to become embedded in the design, technology specification and operation of the Centre and the development of train the trainer and research programmes. Partnership will be gained in return for a commitment to provide tangible support over an initial three-year period, through a combination of financial investment and contribution in-kind.

- **Financial investment:** cash fees to support research and market engagement programmes, or commission bespoke research.
- **Contribution in-kind (CiK):** the provision of technology/equipment together with appropriate training and other services.

# BENEFITS FOR INDUSTRY PARTNERS

- |   |   |   |
|---|---|---|
| <ul style="list-style-type: none"> <li>▪ The opportunity to network and collectively problem solve with other financiers, industry members, researchers and policy-makers.</li> </ul>           | <p>equipment financing models and engagement with finance partners.</p>   | <ul style="list-style-type: none"> <li>▪ Access to output of ACES technology research, including quarterly briefings.</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ Supporting the design and equipment specification phase.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ First rights to engage with the Living Lab programme and active engagement in the development of cold-chain solutions and their financing models.</li> </ul> | <ul style="list-style-type: none"> <li>▪ Support with market entry, initially through ACES and then through the emerging in-country Centre's network of Living Labs.</li> </ul> |
| <ul style="list-style-type: none"> <li>▪ Supporting the development of courses, train the trainer and capacity building programmes.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ A seat on the Industrial Advisory Panel.</li> </ul>  | <p>Opportunity to nominate Industrial Research Programme projects.</p>  |
| <ul style="list-style-type: none"> <li>▪ First option to provide in-kind equipment.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Opportunity to shape ACES strategy and capability.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Showcase technology and deliver training/design services in country.</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ Showcasing technology and services, contributions in high-profile events and communications at national, regional and international levels.</li> </ul> | <ul style="list-style-type: none"> <li>▪ Opportunity to play an integral role in growing the strengths and capabilities of ACES.</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Access to state-of-the-art simulation and data analysis software developed by the Centre's researchers.</li> </ul>                     |
| <ul style="list-style-type: none"> <li>▪ Named involvement as a Founder Industry Partner and inclusion in appropriate literature, media and marketing/communication materials.</li> </ul>       | <ul style="list-style-type: none"> <li>▪ Help shape training programmes for in-country installation, maintenance and service technicians.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Access to academics and research groups around the Universities.</li> </ul>  |
| <ul style="list-style-type: none"> <li>▪ Active engagement, through the Business Incubator, in the development and delivery of the techno-economic models,</li> </ul>                           | <ul style="list-style-type: none"> <li>▪ Industrial secondments to work on company specific R&amp;D projects.</li> </ul>  | <ul style="list-style-type: none"> <li>▪ Access to collaborative workspaces.</li> </ul>   |
|   | <ul style="list-style-type: none"> <li>▪ Technology demonstration and exhibition spaces.</li> </ul>   | <ul style="list-style-type: none"> <li>▪ Access to outputs of ACES market research, localisation and market intelligence, including quarterly briefing.</li> </ul>              |
|   | <ul style="list-style-type: none"> <li>▪ A seat on the quarterly Programme Board.</li> </ul>  |   |

## EXPRESSION OF INTEREST

Please note that there will be many other ways to get involved with ACES

**[www.coolingafrica.org](http://www.coolingafrica.org)**

Food and pharma cold chain stakeholders (e.g., food production, food manufacturing, energy stakeholders, cooling manufacturing, certification bodies) are invited to put forward expressions of interest to contribute / collaborate with ACES. Please complete an Expressions of Interest form [click [HERE](#)]. This will be reviewed by the Centre's Technical Advisors who will be able to advise on the different options available to achieve your goals.

For more information about  
how to engage, please contact  
[info@coolingafrica.org](mailto:info@coolingafrica.org)

# ACES



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