UNITED NATIONS FOOD SYSTEMS SUMMIT 2021 PRE-SUMMIT

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Powering Sustainable Cold Chain Solutions: Community Cooling Hubs Ensuring Nutritious and Healthy Food for All

Hosted by: UNEP-led Cool Coalition, UN Food and Agriculture Organization, Power For All

Event Recording: https://www.youtube.com/watch?v=onnLlxVUM-k

Event Material: https://coolcoalition.org/powering-sustainable-cold-chain-solutions-community-cooling-hubs-ensuring-nutritious-and-healthy-food-for-all/

EVENT REPORT

OPENING REMARKS: ZITOUNI OULD-DADA, DEPUTY DIRECTOR, OFFICE OF CLIMATE CHANGE, BIODIVERSITY AND ENVIRONMENT, FAO

Today, 800 million people go hungry following a year of lockdowns and stalling global economy. On the other hand, we still waste too much food: the third of the food that is produced for human consumption is thrown. We need approaches we can help us to address this problem and the cold chain is one of the high-potential opportunities in this process.

The lack of access to cold chains denies perishable food to reach the market safely and effectively. And food loss is not only about the loss of the food commodity but it's also the loss of all the energy water efforts and resources that went into producing this food. An estimated 20 to 40 percent of food production in sub-Saharan Africa is lost because of food processing and storage

Scaling up action to achieve efficient and climate-friendly cold chains contributes to achieving the Sustainable Development Goals, the Paris Agreement, and the Kigali amendment to the Montreal Protocol. This is why the international community recognized the role of cold chains in the food systems with the Rome declaration on the contribution to the Montreal protocol to food loss reduction through sustainable cold chain management

The aim of this event is to learn about ongoing activities in different parts of the world and to present some opportunities for countries to scale up action on sustainable cold chain.

KEYNOTE REMARKS: LIGIA NORONHA, UN ASSISTANT SECRETARY-GENERAL, HEAD OF UN ENVIRONMENT PROGRAMME'S NEW YORK OFFICE

Expanding access to sustainable and integrated cold chains is necessary to achieve the Sustainable Development Goals. Cooling plays a fundamental role in our food systems. Cold chains are critical to keep food fresh from farm to fork and deliver affordable, nutritious, and safe food while improving farmers' livelihoods. Sustainable cold chains can help reduce the 475 million tonnes of food lost each year due to lack of refrigeration. This is equal to 13% of total food production, worth $350 billion and enough to feed 950 million people.

To deliver on the Sustainable Development Goals and ensure nutritious and healthy food for all, we need to expand access to cold chains. But we cannot do so on a business-as-usual basis. **We need *sustainable* cold chains that provide a triple win on food, energy, and climate.** Global food cold chains are already responsible for 1% of greenhouse gas emissions and these emissions are projected to rise significantly. In India alone, emissions from cold chains are set to double by 2027 without interventions.

We need new business models that make cold chains affordable for small-scale and marginal farmers, and match the challenge with appropriate financial, data and policy support. We need system-wide solutions that use sustainable energy and ensure access to cooling services in rural areas, such as Community Cooling Hubs, an idea that has been selected as a game changing solution for the UN Food Systems Summit. You will hear more from Professor Toby Peters on this. We have an opportunity to rally commitments and take action on these solutions to transform our food systems while delivering on energy and climate.

We need to enhance coordination and coordinated action, to collect and share more data, to scale up what works. To get there, we need to overcome challenges around coordination. The development of sustainable cold chains requires a joined up multi-actor effort between government, transport and logistics companies, retailers, and the farming community. Such an integrated approach to sustainable cold chains is unlikely to emerge organically because the benefits are spread across many stakeholders, who lack capacity and incentives to coordinate strategically. Platforms like the Cool Coalition can play a 'systems integrator' role, bringing all the relevant stakeholders to the table.

Second, we need to create strong basis for action by collecting data and carrying out cold chain needs assessments. Tools like the data assessment framework prepared by UNEP's OzonAction programme and the Global Food Cold Chain Council can fill these gaps. The National Cooling Action Plans Methodology developed by partners in the Cool Coalition is another very useful tool. Third, we need to ensure that effective financing models and opportunities are available for those who need them. Finally, we need political leadership at the highest levels of government. The good news is that 82 countries have already signed up to the Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development.

This year we have a chance to take action on the energy-food-climate nexus through sustainable cold chain. This year offers us wealth of opportunities to translate the Rome Declaration into action and deliver on the energy-food-climate nexus through sustainable cold chains. We have an opportunity to make cross-cutting commitment on sustainable cold chains that can deliver at the High-Level Dialogue on Energy, the UN Food Systems Summit, and COP26. By acting on sustainable cold chains, we can give a much-needed shot in the arm for climate action, the energy transition, and sustainable food systems. Together, we can make a difference.

PRESENTATION: COMMUNITY COOLING HUBS - TOBY PETERS, PROFESSOR COLD ECONOMY, UNIVERSITY OF BIRMINGHAM

The Centre for Sustainable Cooling bring together multi-disciplinary expertise and industry. We have some £20M of research work currently looking at powering Sustainable Cold Chain Solutions and the development of Community Cooling Hubs Ensuring Nutritious and Healthy Food and Access to Cooling for All.

Only 15% of all food that would benefit from refrigeration is refrigerated and up to 40% of food is lost between farm and market in sub-Saharan Africa, 2/3 in the first mile. In short food saved is as important as food produced. In Rwanda, food loss equates to 21% of its total land use, 16% of GHG emissions, and 12% loss to its annual GDP. But it is important to remember that for example, 80% of Africa farms are smaller than two hectares; in combination they produce 70% of the continent's total food.

How can we create the local and global "field to fork" connectivity to nutritiously feed 10bn people from hundreds of millions of small-scale farmers whose livelihoods and well-being are often dependent on only 1-2 hectares, as well as ensure they are climate change adaptation ready and resilient, and do so sustainably?

Key challenges include: Lack of market data, lack of access to finance and to energy, lack of training and skills, and the fragmented nature of agricultural land-holdings in low- and middle-income countries. Cold-chains are complex, multi-dimensional integrated, seamless, and resilient networks of refrigerated and temperature-controlled pack houses, distribution hubs and vehicles used to maintain the safety, quality, and quantity of food, while moving it swiftly from farm gate to consumption centre. Post-harvest emissions that would be added from cold-chain operation could be more significant than the food emissions avoided by cold-chain.

In addition to agriculture, cooling cuts across many rural sectors and applications such as medical, space cooling for comfort, productivity and educational attainment, domestic food storage. Rapid, mass immunization to counter Covid is a new challenge –80% of the population, potentially with two injections. The vaccine is temperature sensitive. The cold chain must work seamlessly from point of manufacturer to multiple outreach sessions across both storage and mobility.

Efficient and environment-friendly cooling and cold-chain can only be achieved if the entire system is designed cohesively and an integrated systems approach is applied, that converges diverse cooling requirements across the end-to-end ecosystem. We have developed a needs-driven system approach to cold-chain and cooling to deliver against the pillars of social need, affordability and accessibility, business and economic opportunity, climate, energy, and resilience.

One output is Community Cooling Hubs (CCH) - an integrated approach to meet the broad portfolio of a rural community's cold-chain and wider cooling needs and be economically, environmentally, and socially sustainable. By combining a systems-level view of such community cooling needs, with new business models such as 'servitization', CCHs are designed to affordably meet aggregated rural community cooling needs, providing a pathway to efficient capacity utilisation of a financially viable, accessible, low-carbon cold chain and cooling development.

On a technical level CCH allow to use of all energy resources and to have a smart combination and interconnection of energy vectors: solar energy, waste heat and bioenergy directly converted into cooling, together with integrated thermal energy storage. At the policy level, CHH contribute towards the UN Sustainable Development Goals (SDGs), the Paris Agreement related Nationally Determined Contributions (NDCs), and the Kigali amendment to the Montreal Protocol simultaneously.

For delivery, we have launched with United for Efficiency, the Africa Centre of Excellence for Sustainable Cooling and Cold-Chain. Further Centres are in development in in other markets, the next in India. Underpinned with £multi-million public sector investments by the Governments of UK and Rwanda, scheduled to open in 2022 with a 96-acre campus in Kigali, Rwanda.

It will showcase local market useability 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 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

It works across: postharvest handling, storage, quality, process, and packing; distribution, cold chain, and logistics; energy and energy storage; data and digital transformation. It will include a business start-up and incubation suite and quality control and certifications centre. It will cascade knowledge through Living Labs Located in strategic locations throughout Africa We are already working on our first Living Lab in Kenya.

Cold chain can enhance economic wealth, cash flow and security for farmers and improve food quality, safety, and value to the customer; and achieves this with minimum environmental impact. To transform the cooling and cold-chain sectors to deliver access to sustainable cooling for all who need it in the shortest possible time, we have to collaborate at all levels – communities, industry, private sector, governments, academia, development institutions and civil society among others.

Working with FAO, Power for All, the Cool Coalition can mobilize the commitments, actions, collaborations to deliver gamechanger innovations required to ensure nutritious and healthy food and access to cooling for all.

PANEL DISCUSSION:

POWERING SUSTAINABLE COLD CHAIN SOLUTIONS FOR PEOPLE AND THE PLANET

MODERATOR: Zitouni Ould-Dada, Deputy Director, Office of Climate Change, Biodiversity and Environment, FAO

Javier Manzanares, Deputy Executive Director, Green Climate Fund

- Sustainable approaches to cooling and food cold chains fit at the centre of GCF's mission, given the role of cold chain in both mitigating and adapting to climate change, and its impacts on food security.
- It is important to bridge the cooling access gap affecting 1 billion people with sustainable technologies, not high carbon systems, which may have lower initial cost but be very inefficient and have higher operation costs.
- Cold chains can support climate friendly sustainable development in four areas at least: energy efficiency, improved food security, inclusive growth by strengthening livelihoods for smallholders, through post-harvest food loss reduction, and the commercialization of agricultural produce for market
- The GCF aims to help countries implement replicable and scalable projects, establish new markets for efficient and climate friendly cooling technologies, build financial products for their uptake, support a green and resilient recovery.

Vikas Chaube, Joint Secretary, Logistics Division, Department of Commerce Ministry of Commerce and Industry, Government of India

- The Ministry of Commerce and Industry is framing the national logistics policy and is looking at various supply chains, including the farm to fork food chain. In India there is both surplus food which is getting wasted and malnutrition and hunger. This is one of the basic challenges and a key policy area of work.

- This is a long-standing problem that requires working across silos in the government, at national and subnational level. We need to think of infrastructure, energy use, and involve private investment to ensure the expansion of the cold chain infrastructure, but not with business-as-usual interventions.
- Currently creating a national directory to collect supply chain information and policy, which can be co-used by other actors when developing interventions and policy mechanisms.

Kevin J. Fay, Executive Director, Global Food Cold Chain Council

- The Global Food Cold Chain Council came together in 2014, announced at the UN Secretary General's Climate Summit. Idea was to focus on supporting the transition to low GWP refrigerants and high energy efficient cold chain technologies, as part of the push towards what became the Kigali Amendment.
- The purpose of this international industry coalition is to help bring together programs that have worked successfully to help facilitate technology innovation to reduce food loss and waste, to meet the objectives of the HFC phase down, to expand the accessibility to the agriculture industry from farm to fork, in a way that's sustainable and helps the populations around the world.

Ben Valk, Global Head, Food and Agricultural Partnerships, Rabobank

- Rabobank in its international business is entirely focused on food and agribusiness, especially on the transition to sustainable food systems. Rabobank aims to be one of the leading bankers' financiers, knowledge partners and leaders in this area. As such, cold chain is extremely important for Rabobank.
- Need to start interventions as early in the value chain as possible, and that means close to producers (dairy, fruits and vegetables, meat). We need to be there where the produce is still at its most fresh. At that stage we can preserve food quality, but once the produce is lost because of lack of cooling, this loss is irreversible.
- Rabobank, FAO and World Bank are endeavoring on a project in Kenya with solar-cooled containers that can be loaded on trucks, follow the different growth seasons of different crops, and move produce from farm to form. We use them currently for avocado, tomato, green beans, mangoes but they can also be used for cooling meats, dairy, fish.
- As a banker, I'm enthusiastic about these projects, because I see the upside in the business case and to decide on the bankability or investability of projects. I always have to ask myself: are farmers having a good business case in this? Do processors, traders, aggregators, retailers? The upside in cooling is that we preserve more of the crop, that we preserve a higher quality that can hopefully also make a higher market price. In some cases, we can also check payments for nature-based services.

Javier Manzanares: Why are sustainable cooling and cold chains such an important part of climate adaptation and mitigation, and what is GCF's strategy to scale up action on these important areas of work?

- Sustainable cooling and cold chain are the critical aspect in mitigation and adaptation efforts. The GCF's strategy is to support integrated supply chain idea's instead focusing on single specific technology. We are working across supply chain ranging from Net-zero cooling to equipment efficiency, HFC transition, manufacturing and cold chain solutions which are critical form health perspective in these pandemic times and space cooling and urban design.
- The GCF is indeed testing business models and innovative financing mechanisms to encourage further investment towards sustainable cooling. A few models are already available in the energy efficient and climate friendly cooling, including on-bill financing, CaaS, revolving funds and de-risking investments.
- We are working to build a robust pipeline of projects and some of the already considered ideas are (1) Cooling Hubs: one stop shops for cooling services in rural setting; (2) Off-grid Cooling: supply cold-chain solutions to increase capacity of rural energy generation and extra revenue for mini-grid suppliers; (3) Cold chain as service.

- The role of the GCF is precisely to de-risk investments and provide technical assistance. We have a program called Readiness Program, which has an allocation of up to 1 million dollars per country a year and that's exactly the objective of the program.

Vikas Chaube: What is the Government of India's strategy to deliver sustainable food cold chains to small scale farmers and rural communities? What are the challenges ahead?

- Farmers comprise a large part of the Indian society. The welfare of the farmers is integrated in every strategy, including when developing cold chain infrastructure connecting rural producers to consumption centres.
- Our strategy revolves around the four key areas including right technology, robust transportation, financing and capacity building and trainings. Largely we focus on building the infrastructure with the principle of shared use, rather than sectoral use. For example, by utilizing the concept of community cooling hubs for multiple purposes.
- From the energy and technology perspective, India was key in establishing the International Solar Alliance (ISA), which has a strategic focus to work on hybrid, solar based integrated cooling solutions including for cold chains.
- India has also published the India Cooling Action Plan (ICAP), which apart from seeking reduced cooling demand also aim to create capacity building of technicians and building cold chain infrastructure with the aim to double the framer's income. In this framework, Hariyana State is planning to establish 350 pack house technologies in rural parts.
- GOI's schemes such as Kisan Rath helping connecting farm producers to logistics companies through digital mediums, Kisan Rail to increase market reach of farmers, Kisan Udan and creating warehouse through PPP financing modes are important to mention here.
- On financing, a Mission on integrated Horticulture, Pradhanmantri Sampda Yojna are working effectively. On the capacity building front, the National Cold Chain Resources Centre and Centre for Excellence in Technology Management are important agents of change.
- India is a vast and diverse country: this creates complexity and produces challenges in implementation. We have large interdependencies such as the form of energy we use, technology choices and socio-economic system, which is the crux in putting together the fragmented efforts into something holistic.

Kevin J. Fay: What are the key pillars for action that countries need to work on to deliver sustainable cold chain models and solutions for all?

- We are promoting a system of four pillars, starting with data gathering and modeling, so that each country can understand the status and needs of the cold chain for the agriculture community. We have partnered with UNEP OzonAction to develop a questionnaire and a model and we're piloting that in six countries today: Bahrain, Bosnia Herzegovina, Senegal, Paraguay, the Maldives and North Macedonia.
- The second pillar is the development of a technology matrix. We learned from the Montreal Protocol, the most successful technology transition treaty ever implemented, that UNEP OzonAction and the Multilateral Fund there have a role to play, but we want to bring global experts to identify technology needs, and how to get sustainable technology to rural areas and farmers community, for example under the Cool Coalition.
- The third pillar is the identification of a finance mechanism, first for capacity building, which we think the GCF can assist on, to help constitute these data gathering and modelling exercises, but also for developing educational programs necessary for the agriculture community and small farmers on the potential benefits and role of the cold chain in doing.
- The fourth is the finance mechanism necessary for the expansion of sustainable coal chains Rabobank, the World Bank and GCF will be key in this process.

- Ultimately, the four pillars make up the framework for how we wish we will be going forward collectively, so we can achieve the 12.3 sustainable development goal of reducing food loss and waste by fifty percent by 2030.
- We are currently advocating for the uptake of these principles at the Food System Summit and hope that these four pillars become the framework moving forward, so that we can knit all existing programs together to build sustainable cold chain expansion for the benefit of food security, the economy, and the environment.

Ben Valk: What are the existing challenges in financing sustainable cold chains for all, and how can banks like Rabobank support this process?

- First, there is a need for very high-level evaluation of the business case for cooling in value chains. If the business case doesn't improve the situation, it will be very hard to sustain, and subsidies will not solve the issue. We have to get the business case right, and not just as a one-time assessment but a constant evaluation and monitoring of that business case of all involved values and partners over time.
- When we have that business case and there is a basis for investment and financing by private sector entities, which should always be the starting point. We sometimes need public sector financing to de-risk or support the investments. Projects for implementation require funding which can sometimes be obtained from the business case in the value chain itself but very often it cannot. It requires a lot of design, outreach to rural areas, technical assistance, policy development that requires funding separately. Normally that is not too much money, but it needs to be put on the table.
- Second, even when assuming a positive business case, we are still concerned about the transition to a new financial dynamic, which is supposed to be better for all actors. However, the transition is sometimes insurmountable or difficult. Maintaining the status quo is always less risky than applying changes. The end situation may be better, but the change is still the issue. So, we need to de-risk the transition and that's exactly where I think the GCF, the World Bank and regional development banks can come in.
- Some of the things that we need from these actors is easy access to their DV scheme, we need smaller tickets, especially at the beginning, not the 5 million plus that are normally available, we often need to do local currency financing and de-risking the local currency risk.
- My message is that there's a positive business case to act on cold chains, and hence we can really deliver on this challenge if we work together. I am very excited to work with the Cool Coalition to make this a reality.

CLOSING REMARKS: HONORABLE MINISTER DR JEANNE D' ARC MUJAWAMARIYA, MINISTRY OF ENVIRONMENT, RWANDA

Distinguished participants, ladies, and gentlemen. It is a pleasure to engage on this topic which is so critical to the future of Africa's sustainable development, and undoubtedly critical for our friends throughout the developing world. Thank you for the fruitful discussions on powering sustainable cold chain solutions. I would like to briefly recap some key context and then extend a special invitation to you. As we have heard, around one-third of greenhouse emissions globally come from agriculture. In sub-Saharan Africa, between 30% and 50% of the food we produce is lost to the detriment of farmers, malnourished consumers, and the environment.

Rwanda's Cabinet issued a National Cooling Strategy in 2019 with a stark synthesis of these considerations and recommendations to tackle cooling challenges directly and holistically. In the same year, we endorsed the *Rome Declaration on the Contribution of the Montreal Protocol to Food Loss Reduction through Sustainable Cold Chain Development*, which recognised the key role of the cold chain in the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals related to ending hunger and poverty, food security, improved nutrition, climate action, sustainable agriculture and fisheries, health, and well-being.

Cooling is complex and cuts across agriculture, health, and industry sectors. Therefore, it needs to be addressed comprehensively and continuously. Narrow and short-term interventions will not suffice if we are serious about the issues before us – for example, occasional reports, isolated areas of research, a few training courses, or one-

off demonstrations of cold stores or other equipment in lieu of an integrated system simply will not bring about the rapid and large-scale transformation that is needed.

Therefore, I invite you to join the Africa Centre of Excellence for Sustainable Cooling and Cold-Chain (ACES) – a newly established, game changing initiative that is pan-African in scope and designed to disrupt a business-as-usual scenario that is no longer viable. ACES aims to unlock the pathway for Africans to lead the word in the sustainable cooling and cold chain arenas. Over the past year, the Governments of Rwanda and the United Kingdom have partnered with the United Nations Environment Programme's United for Efficiency Team, the Centre for Sustainable Cooling, and leading universities to launch and operationalize ACES. It is a permanent Centre of Excellence that is truly interdisciplinary and tailored to address the myriad challenges that we explored in today's session.

ACES offers a strategic approach to pursue applied research into areas of greatest need, support entrepreneurs by linking them with investors, teach new students as well as build the expertise of seasoned equipment technicians and local farmers, and interface with officials on policies that enable cold-chain solutions to thrive. ACES is designed as a hub and spoke model, with its headquarters at the University of Rwanda's Rubirizi campus in Kigali serving as the central point for developing innovative solutions and convening international collaborators. The headquarters will interconnect with a network of affiliated "living laboratories" throughout Africa.

These cooling hubs in rural locations will implement and help refine the market-based solutions for the cold-chain and post-harvest management developed by the Centre, exchanging lessons learned and inspiring other rural communities to scale-up these approaches. We established governance structures with top officials and experts from the public, private, academic, and civil-society sectors, including from the East African Community Secretariat and African Union to ensure continental-scale representation.

ACES offers an unparalleled opportunity to help meet national development targets while fulfilling obligations under the Kigali Amendment to the Montreal Protocol and the Paris Climate Agreement. Please reach out to Rwanda's Ministry of Environment, UNEP United for Efficiency, the University of Rwanda, or our partners from the UK to get involved as ACES blazes this new trail. Together we will deliver solutions needed to underpin a prosperous, healthy, integrated, and climate-friendly Africa. Thank you for organizing this great event, we look forward to the journey ahead.

ABOUT THE COOL COALITION

Launched at the First Global Conference on Synergies between the 2030 Agenda and Paris Agreement, the Cool Coalition is a global multi-stakeholder network that connects a wide range of key actors from government, cities, international organizations, businesses, finance, academia, and civil society groups to facilitate knowledge exchange, advocacy, and joint action towards a rapid global transition to sustainable cooling.

In September 2019, the Cool Coalition became one of the official outcomes and "Transformation Initiatives" put forward by the Executive Office of the Secretary-General for the UN Climate Action Summit in New York. The Cool Coalition has already over 120 partners driving change in the cooling sector who pledged to share knowledge, advocate, and act on sustainable cooling.

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