

Technical Expert Meetings on Mitigation : Session Plan

Organized as part of Technical Examination Process on Mitigation

Organizers : GIZ and FAO

**Session II : Decarbonizing the post-harvesting phase of the agri-food chain**

Date	Time	Venue
20 June 2019	14:00-15:30	Room GENF The World Conference Center Bonn

The proportion of emissions from sections of the food chain after food leaves the farm is larger in high-income countries than in lower-income countries. Nonetheless, about 40% of the food losses and associated GHG emissions occur at storage, transport and processing levels in low-income countries<sup>1</sup>. The topic of decarbonizing the post-harvesting phase of the agri-food chain, which still gains in importance when energy efficiency aspects are included is, hence, a global one.

Sustainable cooling for all is the next frontier – and the central element of this session. In Europe more than 75% of our food goes through the cold chain at some point. A 2015 World Health Organization report concluded that 600 million people – almost 1 in 10 worldwide – fall ill after eating contaminated food and 420,000 die every year. Cold chain is key. The consequences of food loss are far beyond hunger, farmer poverty and inflated food prices. Post-harvest food loss occupies a land area almost twice the size of Australia, consumes 250 km<sup>3</sup> of water per year, three times the volume of Lake Geneva; and emits 3.3 billion tonnes of CO<sub>2</sub>, making it the third biggest emitter after the US and China<sup>2</sup>. Cooling takes place at various levels: small-scale farm level for e.g. milk cooling; but also at the level of small to medium sized entrepreneurs. The use of renewable energies and natural refrigerants such as hydrocarbons or CO<sub>2</sub>, is cutting-edge technology in this context. Training of cooling technicians to handle installation, maintenance and dismantling / end of life treatment of state of the art energy efficient appliances and cooling systems is a necessary first step.

Energy efficiency in processing is the second focus of this session. Remarkable results can be achieved in that respect in the post-harvesting phase of the agri-food chain with the right set-up. Benefits can directly reach smallholder farmers without affecting export results.

Financially viable solutions of renewable energy as well as energy efficiency and water saving measures for the post harvesting phase of the agri-food chain contribute to various sustainable development goals (SDGs). They help to meet the overall energy needs (SDG 7- clean energy as well as energy efficiency), to avoid food losses (SDG 2- zero hunger), to encourage responsible production and consumption (SDG 12) and to reduce GHG emissions (SDG 13-climate action). Furthermore, they also contribute to SDG 6 (avoid water losses), SDG 8 (full and productive employment and decent work for all by improving working conditions through training), and SDG 9 (industry, innovation and infrastructure). A universal access to cooling may be added to

---

<sup>1</sup> <https://ccafs.cgiar.org/bigfacts/#theme=food-emissions&subtheme=supply-chain>

<sup>2</sup> <http://www.ccacoalition.org/en/blog/cooling-all-%E2%80%93-18th-sustainable-development-goal>

this list as it is highly relevant to talk about fresh food, safe medicines and protection from high temperatures<sup>3</sup> in this context.

During the session, with the help of high impact case studies/examples, currently available technological solutions and innovative approaches for business model assessments, climate-friendly agricultural processing solutions that bear great adaptation and scaling-up potential in the short term will be discussed. Participants are expected to contribute their knowledge about specific barriers for a conducive enabling environment and how they can be overcome. They are also invited to complement the speakers' proposed fast gains until 2020.

The 90-minute session will have expert interventions at three market places with a 3-5 minutes input per presenter. Once finished, the participants can revert to the individual speakers and pose questions. The market place session is followed by a moderated roundtable discussion, that includes Q&A as well as inputs from the audience. The structure looks as follows:

5'	Brief introduction of the topic and speakers by the moderator <ul style="list-style-type: none"> <li><b>Ms. Marion Canute, Communication Specialist</b></li> </ul>
20'	<p><b>Market place 1 – Promising solutions to promote refrigeration equipment for food value-chains</b></p> <p>This market place captures how cutting edge technologies from the cooling sector are made available to the wider public and can be adapted locally, with the help of a Do It Yourself (DIY) approach, to fit the specific industry requirements. This includes training of technicians to support sustainable job creation as well as environmental gains through the safe and efficient handling of the new technologies:</p> <p>Key guiding questions:</p> <ul style="list-style-type: none"> <li>Can the promotion of DIY solar refrigeration for agricultural value-chains be a strategy to reduce the final price of the technology, create specialized jobs locally and bring the technology closer to the user?</li> <li>How can we sensitize and activate academia, companies and entrepreneurs in developing/emerging countries to engage in local production?</li> <li>How can scaling-up be accelerated?</li> <li>How can well trained cooling technicians provide for higher energy efficiency of cooling appliances and reduce the use of refrigerants that are harmful for the ozone layer as well as the climate?</li> </ul> <p><b>Expert contributors :</b></p> <ul style="list-style-type: none"> <li><b>Mr Julian Krüger (In-person participation)</b>, University of Hohenheim, Institute of Agricultural Engineering, Germany : presenting on <a href="#">“Do It Yourself - Solar Cooling Units” Training</a></li> <li><b>Mr Antoine Azar (In-person participation)</b>, HEAT Consultant / Trainer: presenting on <a href="#">natural refrigerants training for technical experts</a></li> </ul>
20'	<b>Market place 2 – Energy Efficiency in the tea value chain – can energy efficiency bills make a difference?</b>

<sup>3</sup> <https://www.seforall.org/content/seforall-launch-cooling-all-secretariat>

	<p>This market place points out how important national policy regulations and other organizational specificities are necessary to encourage industries to engage in energy efficiency measures. Experience shows that these interventions have a strong positive effect on GHG mitigation and operational cost reductions. In e.g. Kenya they were also very impactful for smallholder farmers working in the tea value chain.</p> <p>Key guiding questions:</p> <ul style="list-style-type: none"> <li>• What is the energy-consumption outlook of the Kenyan tea sector and tea making process?</li> <li>• What are specific features of industry partnerships and local conditions that enable a successful introduction of energy efficiency measures?</li> <li>• What support and from whom do energy auditors need to be as effective as possible?</li> <li>• How could good examples from one industry be passed on to another? How to cross border?</li> </ul> <p><b>Expert contributors :</b></p> <ul style="list-style-type: none"> <li>• <b>Mr Macben Makenzi (In-person participation)</b>, Certified Energy Manager and national GIZ Powering Agriculture staff: presenting on energy audits in Kenya</li> <li>• <b>Ms Jennifer Sharp (In-person participation)</b>, Ethical Tea Partnership: presenting on their partnerships with local industries in e.g. Sri Lanka and Kenya</li> </ul>
20'	<p><b>Market place 3 - How to assess business models of renewable energy solutions in the post-harvesting phase of the agri-food chain?</b></p> <p>This market place showcases business models of renewable energy applications in the post-harvesting phase that can pay themselves, provided that key aspects are considered. The market place also provides analysts with a methodological framework how to approach such models.</p> <p>Key guiding questions:</p> <ul style="list-style-type: none"> <li>• Is cold storage a viable business model? What are necessary conditions?</li> <li>• What elements cannot be missed when assessing renewable energy cooling solutions at farm level?</li> <li>• What production factors need be considered when talking about sustainable cooling solutions?</li> <li>• How to technically screen a value chain before suggesting renewable energy cooling solutions?</li> </ul> <p><b>Expert contributors :</b></p> <ul style="list-style-type: none"> <li>• <b>Ms Georgia Badelt (In-person participation)</b>, Founder &amp; Director of <a href="#">GeoCode International</a>: presenting on positive and negative aspects of solar cooling business models – experiences from solar cold rooms in Nigeria and small scale milk cooling in Kenya</li> <li>• <b>Mr Olivier Dubois (In-person participation)</b>, Food and Agriculture Organization (FAO) of the United Nations: presenting on cost and benefits of clean energy technologies in the milk, vegetable and rice value chain (<a href="#">INVESTA</a>) – the case study is related to cooling (domestic biogas-powered milk chillers; or solar cooling)</li> </ul>

20'	<p>Joint discussion around fast gains to strengthen the collaboration for <a href="#">greater pre-2020</a> mitigation.</p> <ul style="list-style-type: none"><li>• Previous speakers</li><li>• Ms Stefania Bracco, FAO (<b>Remote-online participation</b>)</li><li>• Ask audience for other examples of fast gains!</li><li>• Wrap-up the session</li></ul>
5'	<p>Closing remarks by the moderator</p> <p><i>Let us all remind ourselves and spread the word of good, tested technology examples!"</i></p>