

**Regional TEMs-M on “Circular economy solutions and innovations in water and energy management for the agri-food chain**



**CLIMATE WEEK**  
Salvador, Brazil 19-23 August 2019



**United Nations**  
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LATIN AMERICA  
& CARIBBEAN

**CLIMATE WEEK**  
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Climate Action in Latin  
America & The Caribbean:  
A Race We Can Win

BRIEF SUMMARY REPORT

**CIRCULAR ECONOMY SOLUTIONS AND INNOVATIONS IN WATER AND  
ENERGY MANAGEMENT FOR THE AGRI-FOOD CHAIN**

Regional Technical Expert Meeting on Mitigation (TEM-M)  
for the Latin America and Caribbean Region

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### Background

The secretariat of the **United Nations Framework Convention on Climate Change (UNFCCC)**, the **Technology Executive Committee (TEC)** and the **Climate Technology Center and Network (CTCN)** organized the regional technical expert meetings on 23 August 2019 during the LAC Climate Week. The expert gathering took place as part of the **technical examination process on mitigation**, which aims to identify and facilitate the implementation of activities that present high potential for emission reductions in order to boost climate action before 2020.

### Session Brief

The regional TEM-M focused on “**Circular economy solutions and innovations in water and energy management for the agri-food chain**”. The objectives were to discuss:

- Various ways of creating circular economies in the agri-food chain to reduce food waste, use energy, and water more sustainably that result in emission reductions and sustainable development benefits;
- Required business models and conducive policy environment for replicating and upscaling such circular economy solutions.

The meeting had about 120 participants from the governments, civil society, private sector, UN agencies and financial institutions.

Gonzalo Muñoz, Chile’s High-Level Climate Action Champion, highlighted in his opening remarks that, “The world is experiencing increase in global population as well as demand for food. At the same time, the agri-food chain is vulnerable to the predicted impacts of climate change. To meet future demands for food supply and increase the resilience of the agriculture sector, the sustainability of energy and water as inputs into the agri-food chain must be promoted. Circular economy solutions have a greater role to play in this regard.”

Tomasz Chruszczow, Poland’s High-Level Climate Action Champion, mentioned that both Parties and non-Party stakeholders should learn from the key messages highlighted during the meetings and implement them into practice. The replication and upscaling of these innovative solutions will increase the potential for Parties to reach their Nationally Determined Contributions and achieve the long-term targets of the Paris Agreement.



The overall session was divided into two segments. The first segment focused on learning from what works and where we are regarding currently used and available technological solutions and innovative approaches for circular economy in the agri-food chain. The second segment focused on ideas and suggestions for Parties and non-Party stakeholders (cities and businesses, and organizations) to replicate and upscale such innovative approaches.

In the first segment three high impact case studies from Brazil, Costa Rica and Chile were presented to address below key questions:

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- What circular solutions/innovations are available/used to better manage energy and water use in the agri-food chain?
- How these solutions have benefitted the agri-food chain, including emission reductions and sustainable development benefits?
- What can Parties and non-Party stakeholders learn from these solutions, including how the enablers were nurtured and challenges/barriers were overcome to result in emission reductions and sustainable development co-benefits?

The case study from Brazil highlighted “**Biogas applications for the Brazilian agro-industry**” which aims to reduce GHG emissions and dependence on fossil fuels through the promotion of biogas-based energy and mobility solutions within agro-industrial value chains in Brazil and strengthening of national biogas technology supply chains. The case study discussed the potential use of biogas to pursue sustainability in agribusiness; at the same time, an opportunity for local economic development. The case study shared the experience and lesson learnt for: (i) enhancing coordination between key sectors; (ii) preparing and adopting of policy instruments, fiscal policy and incentives; and technical regulation; (iii) validating and disseminating information to key stakeholders, covering data on biogas potential, biogas and biomethane technologies, validated business models, and other information relevant to project developers; (iv) increasing interest among investors in biogas and biomethane technologies by demonstration of high-potential business cases and facilitating market upscaling.



The case study from Chile presented “**Energy and Environmental Technology Transformation Program for the SME Segment of the Pork Industry**”, which aims to boosting circular economy within the swine industrial sector of Chile. The program is promoting the use of renewable energy and environmental technologies for the treatment of pig slurries that allow sustainable production in the long term, by reducing GHG and NH<sub>3</sub>, making the activity compatible with nearby communities. The small and medium scaled enterprises are encouraged to moving from the paradigm of a linear economy, where generating waste was part of the process, to a circular economy where the industry not only reduces greenhouse gas emissions significantly, but also

transforms waste into a product with added value that closes the productive cycle, such as bio-fertilizers made from pig slurry. Government and private sector collaboration has resulted to be a key factor for its success.

The case study from Costa Rica highlighted the efforts of the **NAMA Café** to promote the production and processing of low-emission and sustainable coffee in Costa Rica through the adoption of low-emission technologies. With technological changes, coffee producers are contributing to the reduction of greenhouse gases (GHG) and the efficient management of water and energy use, which simultaneously increases efficiency and reduces costs in their processes. In order to help the Costa Rican coffee sector to implement

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technology packages that help reduce GHG emissions and increase the efficiency of water and energy use, NAMA café has developed the incentive mechanism. As of February 2019, in the incentive mechanism, members may choose to receive a non-refundable monetary recognition for a maximum of three investment projects. The maximum amount of the incentive disbursement is 10% of the investment and may not exceed USD 15,000 per benefit. The eligible technologies include wet benefit, dry benefit, by-product treatment system, use of renewable energies, among others.

Drawing upon hands-on experiences of presented case studies, expert contributors and participants took part in the round table discussion. The roundtable discussion primarily addressed below key guiding questions:

- What should be the vision/goal in terms of harnessing mitigation potential and co-benefits of circular economy related policies, practices and actions in the agri-food chain, also in the context of enhancing mitigation ambition of countries?
- What are the specific financial, technology and capacity building resources necessary to upscale and replicate innovative circular economy solutions in the agri-food chain in the LAC region, that will contribute to achieve vision/goal discussed in the abovementioned questions?
- What are the ways forward and necessary actions to be taken by Parties, non-Party stakeholders and organizations to meet identified financial, technological and capacity building needs for circular economy solutions in the agri-food chain, including through regional mitigation initiatives/partnership?

All information on the regional technical expert meetings (including programmes, speakers, presentations) can be found at <https://unfccc.int/topics/mitigation/workstreams/technical-expert-meetings>

### Key messages

- In Latin America and Caribbean region, circular economy presents potential of new business opportunities to manage water and energy in the agri-food sector, reusing by-products, reduce end waste, and increase energy efficiency.
- Benefits of circular economy in the agri-food sector is not limited only to reducing emissions from fossil-fuel consumption but also minimizing socio-environment impacts, transforming the roles of small and medium enterprises, and ensuring sustainable agri-food production (such as demonstrated in the Chilean case).
- New approach and business models are needed to fully implement circular economy in the region, this needs to be supported by adequate access to finance and private sector engagement.
- Circular economy needs to be perceived as a business opportunity by showcasing that existent technologies and new business models are adequate.



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- More importantly circular economy could be enhanced through the change of behavior of end-users and consumers.
  - Private sector, financial institutions, and businesses can play a key role in driving innovative approaches, and should be made aware of life cycle impacts of their businesses and enabled to identify circular economy opportunities and to seize them. CTCN is supporting the shift towards a circular economy approach applied to the climate action in order to raise the ambition of the NDC implementation.
  - Governments can facilitate the transition to new business models and products, through establishing enabling environment within specific sector and territory through dialogue and partnership for specific solutions (such as demonstrated by the Biogas initiative in Brazil). They can also help by establishing direction of opportunities for circular economic in the country and ensuring coordination between national, regional and local levels.
  - Building capacities of stakeholders to engage and ensure ownership in implementing the new approach and business models is critical (as demonstrated in Caribbean project)
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### Annex 1 : Agenda

05'	<p>Brief introduction of the topic and speakers by the moderator</p> <ul style="list-style-type: none"> <li>• Claudia Octaviano, General Coordinator of Climate Change Mitigation of INECC in Mexico &lt;E-mail: <a href="mailto:claudia.octaviano@inecc.gob.mx">claudia.octaviano@inecc.gob.mx</a>; <a href="mailto:claudia.octaviano@gmail.com">claudia.octaviano@gmail.com</a> &gt;</li> </ul>
05'	<p>Opening remarks</p> <ul style="list-style-type: none"> <li>• Gonzalo Muñoz, Chile’s High-Level Climate Action Champion</li> </ul>
30'	<p><b>Case study presenters :</b></p> <ul style="list-style-type: none"> <li>• <b>Bruno Casagrande Neves</b>, Project Management Expert, United Nations Industrial Development Organization (UNIDO) &lt;Email : <a href="mailto:B.CASAGRANDENEVES@unido.org">B.CASAGRANDENEVES@unido.org</a>&gt;</li> <li>• <b>Ximena Ruz Espejo</b>, Technical Deputy Director, Sustainability and Climate Change Agency, Chile &lt;Email: <a href="mailto:ximena.ruz@ascc.cl">ximena.ruz@ascc.cl</a>&gt;</li> <li>• <b>Víctor Vargas Gamboa</b>, Encargado y Coordinador de Desarrollo Sostenible, Instituto del Café de Costa Rica, ICAFE &lt;Email address: <a href="mailto:vvargas@icafe.cr">vvargas@icafe.cr</a>&gt;</li> </ul>
15'	<p><b>Quick Q/A on case studies</b></p>
55'	<p><b>Moderated roundtable discussion based on the case study presentations and guiding questions</b></p> <p><b>Ice-breaking for roundtable discussion:</b></p> <ul style="list-style-type: none"> <li>• <b>Elon Cadogan</b>, National Project Coordinator, Caribbean Community Climate Change Center, Barbados &lt;Email : <a href="mailto:elon.cadogan@gmail.com">elon.cadogan@gmail.com</a>&gt;</li> <li>• <b>Ing. Quím. Jorge Castro</b>, División Cambio Climático, Ministerio de Vivienda, Ordenamiento Territorial y Medio Ambiente, Montevideo- Uruguay &lt;Email: <a href="mailto:jorge.castro@mvtma.gub.uy">jorge.castro@mvtma.gub.uy</a>&gt;</li> <li>• <b>Lisa Lafferty</b>, Carbon Trust &lt;Email: <a href="mailto:Lisa.Lafferty@carbontrust.com">Lisa.Lafferty@carbontrust.com</a>&gt;</li> </ul> <p><b>Contributors for roundtable discussion:</b></p> <ul style="list-style-type: none"> <li>• All the previous speakers</li> <li>• Audience</li> </ul>
5'	<p>Closing remarks</p> <ul style="list-style-type: none"> <li>• Tomasz Chruszczow, Poland’s High-Level Climate Action Champion</li> </ul>
5'	<p>Final summary/wrap-up by the moderator</p>

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## Annex 2 : Program photographs

