Asia-Pacific
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INTERNATIONAL WORKSHOP ON CIRCULARITY IN AGRICULTURE:

A PATHWAY TO SUSTAINABILITY AMONG APEC ECONOMIES

APEC Policy Partnership on Food Security

January 2025

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As part of the Project, an international workshop titled Circular Economy in Agriculture: Pathway to Sustainability among APEC Economies was held on October 24-25, 2024, in Ha Noi, Viet Nam. The Workshop featured four thematic sessions focused on circular economy opportunities, innovative business models, supportive policies, and future directions for APEC economies in the agriculture sector.

We are grateful to all speakers, experts, and participants whose active involvement contributed to the Workshop's success. Their insights and shared experiences significantly enriched the discussions, fostering a deeper understanding of circular agriculture practices within the APEC region and inspiring pathways for inclusive and sustainable growth.

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I. BACKGROUND

The significant increase in global food production in recent decades has come at a high cost to the environment. Currently, half of the land area is used for agriculture. Due to rapid growth in agricultural production, one-third of global forest cover has been lost in the past century. Circular agriculture, also known as circular farming or circular agricultural business, is an agricultural approach aimed at creating a regenerative and sustainable system by minimizing waste, optimizing resource use, and promoting ecological balance. This concept is inspired by the circular economy, aiming to minimize, reuse, recycle, and regenerate materials and resources within a closed-loop system.

In the context of gradually depleting natural resources and increasing environmental pollution, promoting the circular economy model in agriculture is an inevitable trend. Circular agriculture aligns with broader sustainable goals, addressing environmental concerns, economic viability, and social welfare in the agricultural sector. The application of circular agricultural practices contributes to building sustainable and resilient food systems that can better withstand challenges such as climate change, resource scarcity, and environmental degradation.

To enhance cooperation among APEC member economies in developing circular agriculture and promoting inclusive, sustainable growth through capacity building, the Institute of Policy and Strategy for Rural Development (IPSARD) collaborated with the APEC Secretariat to organize an international workshop titled "*Circular Economy in Agriculture: Pathway to Sustainability among APEC Economies*." This workshop facilitated knowledge sharing and the exchange of best practices on circular agriculture (CA), especially in food and aquaculture products, to protect quality of life through environmentally friendly growth, support the dynamism of small and medium-sized enterprises and small-scale producers, and promote integration into the global market.

The workshop covered topics related to the potential of the circular economy, circular business models in agriculture, and practical models and policies that promote the circular economy in agriculture within APEC. These themes align with the sector's development orientation, underscoring the importance of sharing the workshop's content widely with relevant agencies in Viet Nam, both at the ministry and local levels.

The workshop was held on 24-25 October 2024, at Fortuna Hotel, 6B Lang Ha, Hanoi, with the participation of over 70 delegates from APEC member economies. Total of speakers and participants are 88 people, in which:

- 47 females (53%).
- Number of Speakers: 19, of which 4 are APEC-funded travelers and 5 are requested for APEC honorarium.
- Number of Participants (not including speakers): 69 people, which includes 8 are APEC-funded travelers and 61 are in Viet Nam.

The workshop was divided into four sessions. The first session focused on the theme "Unleashing circular economy potential in agriculture": Exploring Global Challenges to Current Agricultural Practices in APEC Economies and the Need for a Transition to the Circular Economy, Key Concepts, and Approaches of the Circular Economy in Agriculture."

The second session was titled "Moving towards circular business models in agriculture: Evidence from Practice". Here, delegates shared experiences and practices of circular economy models in APEC economies, highlighting innovations and technologies aimed at developing a multi-value agriculture.

The third session addressed "Policy enablers for circular economy in Agriculture." In this session, delegates introduced existing legal frameworks, strategies, approaches, and policy options for agricultural food systems in APEC economies, while also presenting international tools to support APEC economies in identifying and implementing circular economy interventions in agricultural practices.

The fourth session focused on "The way forward and future for Circularity in APEC economies." During this session, delegates discussed the next steps to promote sustainability in agricultural food systems and accelerate the adoption of circular economy innovations within agricultural value chains.

II. WORKSHOP SUMMARY

1. Opening Section

Opening Remark by Dr. Nguyen Do Anh Tuan, Director General of ICD/MARD

The workshop was officially opened by Dr. Nguyen Do Anh Tuan. In his opening remarks, he highlighted the significant challenges posed by globalization, particularly concerning environmental protection and climate change. He emphasized the essential role of agriculture in ensuring food security and sustainable development, especially in Viet Nam, where over 60% of the population depends on agriculture.

Dr. Tuan introduced the circular economy (CE) as a viable solution to these challenges, noting its ability to minimize waste and optimize resource use. He discussed APEC's role in promoting sustainable economic development among its member economies and Viet Nam's commitment to developing sustainable agricultural models and CE practices.

He concluded by expressing gratitude to the APEC Secretariat and other partners for organizing the workshop, wishing all delegates a successful and productive event.

2. Session 1: Unleashing circular economy potential in agriculture

In the face of escalating global challenges, including climate change, resource depletion, and food insecurity, the agricultural sector stood at a crucial crossroads. This session featured four presentations that explored the transformative potential of the circular economy within agriculture, particularly in APEC economies. By examining existing farming practices and identifying the urgent need for innovative, sustainable approaches, we highlighted the critical role of circular economy principles in reshaping agricultural systems. Participants engaged in discussions around key concepts, best

practices, and strategies to foster a resilient and sustainable agricultural future, ultimately contributing to the overall sustainability goals of the region.

Presentation 1. The need for circular economy: Addressing Global challenges and transforming agriculture

Speaker: Mr. Saso Martinov, Chief Technical Advisor for Mekong Agriculture, FAO-VN

This presentation focused on current global challenges, including climate change, resource scarcity, and food security, highlighting the urgent need to transition from linear to circular agriculture. Circular agriculture promoted the reuse and recycling of resources, minimizing waste and protecting the environment. The benefits of this model included enhanced productivity, improved soil health, and more sustainable agricultural products. However, the transition faced challenges such as initial investment costs, technology gaps, and the need for changes in farmers' mindsets. Finally, the presentation outlined effective transformation methods to create a sustainable agricultural system.

Presentation 2. Circular agriculture: International experiences and recommendations for Viet Nam's agriculture

Speaker: Assoc. Prof. Dr. Nguyen Hong Quan, Director of Institute for Circular Economy Development VN

This presentation provided an overview of circular economy development in Viet Nam, drawing on international experiences such as Germany's bioeconomy, Europe's circular practices, and Thailand's BCG model (bioeconomy, circular economy, and green economy). It then offered recommendations for Viet Nam, highlighting how circular economy models could mobilize resources, support multi-objective goals, and engage diverse sectors to promote rapid and sustainable development. Key points included the need for a domestic circular economy strategy in agriculture, intersectoral collaboration (e.g., Agriculture, Industry, Environment, Science, and more), innovative policies to support planning and investment, and the importance of science, technology, innovation, and digital transformation through enhanced stakeholder partnerships (Triple Helix+ model).

Presentation 3. Transforming food systems through climate action (online)
Speaker: Ms. Julie Teng, Technical Specialist on Adaption Planning and Policy, UNDP Global

This presentation examined the impacts of climate change on sustainable agricultural development and how the United Nations (UNDP) was supporting this critical transformation. Key challenges and opportunities in circular agriculture were discussed, emphasizing the potential of circular economy measures to drive necessary changes across the food system—from production and processing to transportation and consumption. These measures aimed not only to enhance sustainability but also to restore natural ecosystems, protect biodiversity, and reduce emissions, paving the way for a resilient and climate-adaptive agricultural sector.

Presentation 4. Prioritizing Circular Economy Growth: A Necessity for APEC Economies

Speaker: Dr. Nguyen Anh Phong, DDG of IPSARD

This presentation explored the current state of circular agriculture development in Viet Nam, including the government's supporting policies and key factors contributing to successful implementation. Drawing comparisons with practices across APEC economies, it highlighted successful approaches and common challenges in advancing circular agriculture. The presentation concluded with recommendations for Viet Nam and other APEC economies, outlining strategies to enhance resource efficiency, foster innovation, and strengthen policy frameworks to drive sustainable and resilient agricultural growth in the region.

Summary of Panel Discussion: Opportunities and Challenges to the Circular Agri-food System

Facilitator: Dr. Nguyen Anh Phong, Deputy Director General of IPSARD

Panellists:

- Dr. Tran Cong Thang, Director General of IPSARD
- Assoc. Prof. Dr. Nguyen Hong Quan, Director of Institute for Circular Economy Development in Viet Nam
- Mr. Saso Martinov, Chief Technical Advisor for Mekong Agriculture, FAO-VN
- Ms. Julie Teng, Global Technical Specialist on Adaption Planning and Policy, UNDP Global

Question for Mr. Martinov:

+ What challenges are circular economies facing, and what lessons have been learned to address these challenges?

Mr. Martinov stated that economies need comprehensive solutions to support the private sector in developing a circular economy. One of the main challenges is providing financial support for small-scale businesses, which requires innovative and creative measures from each economy. He emphasized that each economy should introduce breakthrough policies and solutions that are aligned with its unique economic and social characteristics. Furthermore, collaboration between economies and regions is a critical factor for sustainably developing the circular economy market. Additionally, cross-industry cooperation within regions is essential to build a comprehensive circular economy that not only meets immediate needs but also ensures long-term sustainable development.

+ What opportunities can collaborative programs between developed and developing economies in APEC create for the development of the circular food system?

Mr. Martinov emphasized the importance of support from developed economies for those transitioning from a linear to a circular economy (CE) model. According to him, developed economies can contribute positively by providing supportive policy frameworks to facilitate this transition. He cited the relationship between Western and Eastern European economies as an example, where Western European economies can assist Eastern European economies in developing and implementing circular economy models through experience sharing and by providing financial and technical

support. By providing appropriate tools and supportive policies, developed economies not only help other economies overcome challenges in the transition process but also accelerate the globalization of the circular economy. This cooperation is a key factor enabling economies to shift from an unsustainable resource-based economic model to a more sustainable and efficient system. Policies that encourage investment, technological innovation, and green solutions can help Eastern European economies and other developing economies quickly align with the global CE trend, contributing to a sustainable economic ecosystem, international cooperation, and environmental responsibility.

Question for Ms. Julie Teng:

+ Based on your experience, which agricultural sector has the greatest potential for applying a circular economy?

Ms. Teng shared that to determine which sector has the greatest potential for applying a circular economy (CE), it's essential to use the toolkit she introduced in her presentation. This toolkit includes supportive methods to identify CE development priorities, helping to accurately assess which sectors have the highest potential. On a global scale, many industries currently emit significant amounts of greenhouse gases, with agriculture being a notable sector. In regenerative agriculture, there are now substantial investment programs worldwide to support production facilities, especially small enterprises, in transitioning to sustainable food systems. She also emphasized the importance of international cooperation, as this transition requires not only individual efforts but also collaboration and support among economies to maximize the effectiveness of CE applications in agriculture and other industries.

+ In your view, how do cultural and social differences influence the advancement of the circular food system across APEC economies?

Some people still view the circular economy (CE) simply as a matter of changing habits to minimize environmental impact. However, what is more important today is the need to change consumption patterns toward more sustainable and responsible practices. The CE not only has significant potential for environmental protection but can also generate substantial revenue for Economies. To develop the CE, we need to focus on transforming production sectors toward regeneration and sustainability. For economies that have developed under a linear economic model, heavily relying on resource production and consumption, effective solutions are needed to facilitate this transition. Moreover, many traditional production methods of indigenous peoples have demonstrated elements of the CE. A prime example is the VAC model (Garden - Pond - Livestock) in Viet Nam, which has been implemented since the 1980s. This model not only utilizes natural resources sustainably but also embodies circularity in agricultural production, laying the foundation for sustainable development.

+ Question for Dr. Tran Cong Thang:

Viet Nam's agriculture faces several challenges, such as small-scale production, an underdeveloped market for science and technology, and limited public investment in R&D for agriculture. However, Viet Nam has made significant strides in developing circular agriculture in recent years. What role do policies play in overcoming these

challenges? And moving forward, what policy directions will the Vietnamese government pursue to further promote the development of circular agriculture?

According to Dr. Tran Cong Thang, Viet Nam is currently facing several challenges in the agricultural sector, including limitations in public investment. However, the strong development of the circular economy (CE) has created significant potential for the economy. The policy on science and technology in agriculture is one area that Viet Nam has been focusing on to support the CE. One important direction is to establish a project for CE development through the application of science and technology. Viet Nam's agriculture still heavily relies on the exploitation of natural resources, and to maintain sustainable growth, new sources of growth must be sought. Given the characteristics of small-scale agriculture, along with limited investment and awareness of the CE's role among enterprises, the number of participating businesses remains low. Recently, the Institute has been involved in implementing a project for one million hectares of high-quality rice to reduce emissions and has realized that many farmers still maintain the practice of burning straw, leading to significant emissions into the environment. However, Viet Nam has made positive strides with clear guiding policies, establishing a legal and institutional framework to support the CE. The most important aspect is that policies must bring practical benefits to the people. By raising awareness among both consumers and producers, policies need to create incentives and mechanisms that encourage enterprises, individuals, and cooperatives. Additionally, policies can indirectly promote the CE through measures such as taxation, education and training, and building value chains in sustainably growing sectors of the economy. A specific example is linking households to utilize straw, employing straw balers to turn it into economically valuable products.

+ More broadly, what solutions do you think are needed for the circular economy model to deliver economic value and improve the livelihoods of farmers and rural communities in developing economies?

Farmers and rural communities can fully participate in the circular economy (CE) model, but specific solutions are needed to support them. For small-scale farmers, particularly in Viet Nam, where the average farming area is less than 1 hectare per household, production is very fragmented. This is not a new issue; previously, households developed small production models like VAC (Garden - Pond - Livestock), but these models are still in their infancy and have not yet fully tapped into their potential. To support smallholder farmers, especially among ethnic minorities, the first step is to raise awareness and provide training on the CE, while also introducing appropriate technologies that fit the scale and local conditions. Utilizing indigenous knowledge also plays an important role in this process, as many small-scale production models already contain certain circular elements. The government needs to have supportive policies to develop markets for the products produced by these farmers. Access to capital is also a significant barrier, so microfinance organizations should be established to help households access funding more effectively. Furthermore, supporting the community can be a better approach than assisting individual households, as providing support to each household separately can be challenging. Linking agricultural products with cultural elements is also crucial. Programs like OCOP (One Commune, One Product) not only develop products but

also tell the story of local culture, helping to enhance product value and attract markets. This is a comprehensive approach that creates economic benefits while preserving cultural identity in the development of the CE.

+ Question for Dr. Quan:

+ How can farmers be convinced to adopt circular farming models and move away from traditional farming methods? What solutions can help shift perceptions and enhance farmers' capacity regarding the benefits of the circular economy?

Dr. Quan believed that there had been many guidelines for farmers to practice sustainable agricultural production, such as cleaner production, so the concept of the circular economy (CE) was not entirely new. The CE arose from various factors, including market pressures and trade barriers, which had prompted people to adjust their production models to meet new demands. However, merely supporting farmers in terms of production was insufficient. It was crucial to develop more comprehensive CE business models, which included clearly identifying customers, input suppliers, and other factors in the value chain. Without a complete value chain, the transition to a CE model would have been challenging for farmers, as they would not have seen clear benefits. He also emphasized the role of supportive government policies in connecting businesses, trade, and providing inputs, as these factors are critical in the transition to a CE. However, the core issue remains the people. Despite many extensive policies, implementation at the provincial and communal levels still faces challenges due to limited capacity. Additionally, Dr. Quan mentioned the cultural and human differences among regions. Even within a single province, some communes actively participate in and implement CE models, while neighboring communes may resist doing the same. This creates barriers to the widespread implementation of CE models. He stressed that this process needs to be carried out gradually and requires close cooperation with the people. Humans are still the most important factor in developing and promoting the CE.

+ How can the advantages of digital technology be leveraged to promote the circular economy in agriculture?

Dr. Quan believed that digital transformation was a crucial foundation for promoting the development of the circular economy (CE). In a context where people owned very little land, it was challenging for them to manage every step of the production process independently. Therefore, leveraging technology to connect farmers and create cooperative models, from forming cooperatives to production and processing, was essential. Technology not only helped modernize processes but also played an important role in promoting the CE. One of the prominent applications of technology was the ability to trace product origins, which enhanced the value of agricultural goods, especially for exports. Additionally, technology supported forecasting and responding to fluctuations in weather, natural disasters, diseases, and market changes. Applying technology in circular agriculture helped people produce green, clean products that met market demands, where consumers were willing to pay a premium for sustainable products. Dr. Quan emphasized that technology was a key factor in the development of the CE and needed to be applied more vigorously to create efficient production

models, enhancing competitiveness and sustainable development for the agricultural sector.

Discussion among the attendees with the speakers:

+ What role does traceability play in building trust and transparency, and how can it be effectively implemented?

Mr. Martinov stated that traceability was not merely a tool for creating trust and transparency in the supply chain; it should have been widely applied across all areas of agriculture, not just limited to organic farming. To achieve this, it was necessary to develop concentrated production areas for key products such as mangoes, dragon fruit, and rice, while integrating good agricultural practices. It was important that these practices were easy to implement for both small and medium-sized producers, not just for large enterprises. Certifications for good agricultural practices not only ensured quality for large producers but also enabled small and medium-sized units to increase the value of their products. With the rising demand for processed foods, the government needed to establish a comprehensive certification system to enhance the added value (AV) of products. He also pointed out that in many economies, the application of standards had been inconsistent, with discrepancies between export products and domestic consumption. However, in developed markets like the U.S. and Europe, regulations required the same quality standards to be applied to both export and domestic products. This was an effective way to enhance product value while also building strong trust among consumers.

Dr. Quan stated that one of the issues that economies in the Asia-Pacific region have discussed extensively is how to build a certification and sustainability assessment process in production. It is crucial to standardize this process in a cost-effective manner, even for small-scale production facilities. He emphasized that it is very challenging and costly for individual small producers to achieve their own certifications. Instead, we can aim for certification of entire concentrated production areas, which would alleviate the burden on small farmers while still ensuring compliance with sustainability and quality standards in the supply chain.

+ Mr. Kim Kyung Ryang, a professor from the Republic of Korea, shared that he had learned a lot that day from the speakers about the trends in the circular economy. He wanted to emphasize two important points that everyone should have considered. First, he believed that we needed to be prepared to adapt to the differences in approaches between economies, which largely depended on the variations in governance and management systems. Building a governance system that fit the economic context was essential. He also pointed out that often we failed to capture the implementation experiences from other economies, which was a significant shortcoming. Second, he was concerned about the situation of small-scale farmers, who often lacked the negotiating power to participate effectively in supply chains. He expressed a desire to seek solutions to improve this situation. He was pleased to hear the speakers' perspectives on enhancing the roles of small farmers and indigenous practices. At the time, Mr. Kim was involved in managing an integrated agricultural project in Quang Binh and expressed his eagerness to introduce the models presented by the speakers to the farmers there.

+ Mr. Michael SOLLERA from the Philippines' Department of Agriculture raised a question about the role of policies in supporting small-scale farmers and how to create incentives for them to engage in the circular economy (CE) to achieve higher incomes.

Dr. Tran Cong Thang responded that policies play a crucial role in supporting small farmers and encouraging them to participate in CE. He cited the example of the "1 Million Hectares of High-Technology, Low-Emission Rice" policy in Viet Nam, which includes various specific solutions such as training, technology transfer, and preferential credit. This credit package offers interest rates that are 1 to 1.5% lower than the standard rates, providing tangible benefits for farmers. Although this project cannot completely resolve all issues, it has significantly contributed to reducing emissions and promoting CE. Farmers receive support through training programs, and the government has established seven pilot models for CE, providing assistance in fertilizers and crop seeds. He also noted that Viet Nam encourages high-tech enterprises to invest in agriculture, offering incentives for those recognized as high-tech agricultural enterprises. However, he emphasized the need for a larger support package for small farmers, as they represent a significant portion of the agricultural sector. A major challenge he highlighted is how to connect farmers to improve product traceability. He mentioned that Viet Nam has implemented solutions like "large sample fields" to achieve this, ensuring better connections among farmers. When they collaborate, they benefit collectively, gaining access to quality seeds, enhancing their negotiation power, and being able to obtain joint certification for product traceability.

Mr. Martinov further emphasized the crucial role of smallholder farmers in the context of agriculture in Asia, where a large portion of the population depends on these households. He stated that policies should focus on increasing the income of small farmers while also developing special initiatives to support young people and women in the agricultural sector. Currently, agriculture is not an attractive profession for many, and many farmers are leaving rural areas in search of other job opportunities. If policies are not appealing and effective enough, this could only drive them further away from the sector. Therefore, better financial policies are necessary to attract and retain farmers. According to him, change can begin with small actions, and through the implementation of policies, we can gather experiences and gradually expand to other areas. This would create solid progress, contributing to improving the livelihoods of small farmers and promoting sustainable agricultural development.

+ Question from the UNDP Representative: How can we implement the approved policies of the Ministry of Agriculture or those that are currently being prepared? We need policies with a greater impact. Currently, we are approaching agricultural production in a value chain manner. I would like to ask, on the international stage, are there any interventions based on geographical areas? At the provincial level, promoting local initiatives can bring advantages, such as using fertilizers or by-products from the area as inputs for neighbouring regions, which can be facilitated through provincial planning. However, a value chain approach can cover a wide scope across sectors, and sometimes it is very difficult to intervene in these chains.

Ms. Teng noted that many farmers do not actually recognize that their production processes relate to the circular economy. This suggests that there are many

frameworks within the economy that can be implemented at the local level. These frameworks are crucial because they encourage the adoption of the circular economy in agricultural production. She emphasized the need to develop and apply specific policies tailored to each locality in order to optimize potential and available resources. These policies should not only support farmers but also facilitate connections between regions and supply chains, thereby contributing to raising awareness and practices regarding the circular economy within the agricultural community.

+ Mr. Renzo Moro, Italian Embassy Representative: He raised a question regarding policy tools, emphasizing the importance of not only focusing on farmers and the value chain but also enhancing consumer awareness. He asked how policies could encourage consumers to choose to purchase products from the "1 Million Hectares of High-Tech, Low-Emission Rice" project.".

Dr. Nguyen Anh Phong stated that this project arises from the real demands of the market and aims to fulfil Viet Nam's commitments at COP26. Many economies are currently facing significant pressure to reduce carbon emissions; therefore, we need to implement various solutions to effectively approach the market. We are currently developing a domestic brand with a low-emission standard to establish credibility in the international market. This not only helps raise consumer awareness of sustainable agricultural products but also promotes the consumption of products from the project, contributing to the global emissions reduction goal.

3. Session 2: Moving towards circular business models in agriculture: Evidence from Practice

This session featured five presentations that highlighted various circular business models in agriculture from across APEC economies, with a focus on leveraging innovation and technology for multi-value agricultural development. Presentations included Viet Nam's organic circular farming model, Singapore’s approach to closed-loop agriculture, sustainable cocoa production, the Viet Nam-Netherlands bioLNG, CO2, and organic fertilizer factory complex, and a circular aquaculture model. Each example demonstrated practical applications of circular principles, showcasing how resource efficiency and sustainability could drive economic value while supporting environmental resilience.

Presentation 1. Organic circular farming model in Viet Nam

Speaker: Ms. Nguyen Phuong Thao, Co-Founder of Nguyen Khoi Farm

The Nguyen Khoi Xanh organic circular farming model followed a philosophy of “better, not more” with a commitment to “happiness as sustainability.” This pig farming operation integrated organic farming practices, optimizing natural resource use and minimizing waste in agricultural production. Waste was processed into inputs such as animal feed, irrigation water, and fertilizers, creating a circular system. With a full-scale capacity of 4,000 pigs annually (currently at 1,200 pigs/year), the model successfully established a sustainable ecosystem that efficiently reused resources.

Presentation 2. Circular model in Singapore

Speaker: Prof. Dr. Matthew Tan, Asia Food Sustainability Fund

Singapore's circular economy practices leveraged advanced technologies, especially within food production, to recycle and minimize waste across the food supply chain from production to consumption. Singapore's farms employ renewable energy and recycled agricultural waste, creating a sustainable agricultural ecosystem. Programs like "Food from the Heart," which redistributed surplus food to reduce waste, and innovations like vertical farming to save space in urban agriculture were part of this model. Despite only having 1% of agricultural land available, Singapore aimed to meet its "30 by 30" target—producing 30% of its food needs domestically by 2030.

Presentation 3. Circular Economy Cocoa: From Bean to Bar

Speaker: Mr. Nguyen Dinh Tuan, Project Manager, Helvetas

Mr. Nguyen Dinh Tuan presented Helvetas Viet Nam's circular cocoa economy model, which integrated sustainable practices from cocoa cultivation through to processing. The model focused on minimizing environmental impact while maximizing value-added products from cocoa by-products. These by-products were transformed into useful products such as animal feed, bioplastics, packaging, cocoa liquor, and cacao tea. Key circular economy solutions highlighted included farm designs based on circular principles, the adoption of agroforestry models, the use of organic fertilizers, biochar, and clean energy. The model also emphasized crop diversity, animal husbandry practices, biological pest control, and robust traceability systems. This approach illustrated how cocoa production could contribute to a circular economy by creating sustainable products that added value and supported environmental resilience.

Presentation 4. Circular project model in Viet Nam: project of Viet Nam - Netherlands bio lng, co2 and organic fertilizer factory complex

Speaker: Mr. Dong Ngoc Hoa, DG of THD company

Mr. Dong Ngoc Hoa presented a project by THD Company, which represented a major part of a broader circular economy strategy. The model combined bio-LNG production with CO2 generation from agricultural by-products, facilitating recycling and clean energy production. Additionally, organic fertilizers produced from biological by-products contributed to a sustainable agricultural system and helped reduce greenhouse gas emissions. This project served as an example of circular economy in action, creating an integrated system for energy and agricultural sustainability.

Presentation 5. Circular model on Aquaculture

Speaker: Dr. Kabir Kazi, CIRAD researcher

Dr. Kabir Kazi presented CIRAD's circular aquaculture model, which focused on waste reduction and optimal resource use in aquaculture. By-products from aquaculture were recycled and reused, reducing environmental pollution and increasing economic efficiency in the aquaculture industry. This approach enhanced sustainability by transforming aquaculture waste into valuable resources, supporting both environmental health and economic gains for the sector.

Summary of Discussions:

+ *Question 1: The presentation on the use of surplus food was very impressive, discussing the development of various products and indoor agriculture. What is the situation regarding outdoor farms*

Mr. Matthew mentioned that he has been involved in a project in Malaysia with 3,000 farming households, where there was active participation from women. The project focused on several PPP (public-private partnership) initiatives, funded by both the government and private companies. This project supports 3,000 people with water resources and training on effective use of rice husks. For rice production, if farmers do not repurpose rice husks, they typically discard them in the fields, releasing greenhouse gases. Instead, the project encourages the use of rice husks to make biochar. Additionally, there is a second project centered on establishing a tea-growing group. Farmers can harvest tea leaves every few months and then use the protein-rich leaves to feed sheep, with the manure from the sheep being utilized as fertilizer. This approach allows farmers to increase their income and also sell carbon credits. Farmers can participate in the project as individuals without the need for a cooperative.

+ *Question 2:* Saso asked Matthew: Where should we start to develop the circular economy?

Mr. Matthew shared that he spent two years in Africa, where he worked as a consultant. He emphasized that the first step was to spend a month observing farmers and their agricultural practices, taking notes. To enhance productivity, it is essential to change farmers' habits. Introducing the circular economy into agricultural practices, especially those deeply rooted in tradition, can demonstrate to farmers the benefits of adopting new methods. After working with central government authorities, he began to see changes. If he had the opportunity to start from scratch, he would prioritize training for farmers. He noted that much information had been shared during the discussions that day and emphasized the importance of conveying this knowledge to the field. With consistent adherence over nine months, farmers could increase their efficiency by 20-30% simply by changing their farming habits and methods. He encouraged sharing information and knowledge, stating that wonderful things would happen as a result.

+ *Question 3*: Regarding super-intensive shrimp farming: How widely has the water reuse method you mentioned been adopted in the Mekong Delta? The water reuse process for black tiger shrimp is still unclear. It involves taking in water for rough treatment, followed by the need for probiotic treatment. In your model, how is the water treated?

Dr. Kabir Kazi, CIRAD explained that, like all other shrimp farming operations, chlorine was used to treat the water before it was discharged into the environment. Suspended solids were filtered through a settling pond. There was also a pond for tilapia, where they introduced green algae to absorb all the nitrogen and phosphorus from the water. After this process, the water met the necessary standards for use in the shrimp ponds.

+ *Question 4*: Is there any further treatment for the settled sludge? In Viet Nam, whiteleg shrimp primarily rely on industrial feed, while black tiger shrimp are raised in more ecological systems. What supplementary feed is used for black tiger shrimp?

Dr. Kazi explained that, during the production phase, they did not apply any additional treatment to the settled sludge. Instead, they allowed it to settle for about two weeks. As mentioned, the water in the production ponds was first treated with lime. Additionally, he noted that the settled sludge was very fine and consisted of excess organic matter, which was used to cultivate seaweed. The process was continuous and closed-loop. Regarding supplementary feed for the shrimp, he stated that they used waste from catfish, raising catfish alongside black tiger shrimp in a semi-extensive system. However, since they did not have a dedicated research pond for the catfish, they applied this method directly in the practical shrimp farming process.

+ *Question 5*: Asking Mr. Tuan about cocoa: Currently, farmers are producing and collecting cocoa pods for further processing. What experiences do you have in organizing smallholder farmers to recover pods and process them in a circular economy? How are the products consumed? Who buys the organic fertilizer? Do cocoa farmers buy back from each other, or do other farmers participate? What about using cocoa pods as fish feed, and how is wastewater treated?

Mr. Tuan emphasized the importance of changing farmers' habits. He worked with several companies to encourage the purchase of fresh fruit and centralized fermentation, which yielded better results. The quality of fermentation was more consistent compared to on-farm fermentation. Some farmers preferred to store cocoa pods, waiting for prices to rise before selling. Regarding wastewater treatment, he noted that they did not face significant issues with it. The farm covered over 300 hectares in Dak Lak, and since they started developing the planting area, they had managed the process well. As for organic fertilizer, he mentioned that commercialization was still limited due to the low quantity of cocoa pods available. Most of the time, they were given away for free.

+ *Question 5* by Dr. Nguyen Anh Phong: To maintain a sustainable circular chain, economic factors must be balanced with environmental and social aspects. In cases where cocoa prices do not increase significantly, as has been the trend recently, can the circular economy model remain economically viable, or will farmers switch to other crops?

Mr. Tuan acknowledged that the reality was that it created only small added value. Some cocoa farms that transitioned to organic farming, avoiding pesticides and chemical fertilizers, experienced significant reductions in yield. Therefore, it was essential to find a balance between economic and social factors. The application of circular economy solutions within the cocoa supply chain had not yet generated substantial added value for external commercialization. Regarding the selection of areas for development, they also prioritized regions that were suitable for cocoa cultivation and were less likely to face competition from other crops.

+ *Question 6* by Mr. Saso: What needs to be done to develop the circular economy in agriculture?

Mr. Matthew emphasized that the proposed policies to promote the circular economy in agriculture should have focused on making the concept more accessible. For many there, the term "circular economy" could have seemed overly academic and complex.

However, he believed that applying the circular economy in practice was quite simple. Instead of merely conducting research on the circular economy, there should have been more informative communication campaigns to demonstrate how easily it could be implemented. Encouraging innovative thinking around the application of the circular economy was essential. Additionally, their customers had increasingly prioritized products that incorporated circular economy principles.

4. Session 3: Policy enablers for circular economy in Agriculture

This session focused on exploring policy enablers, regulatory frameworks, and strategic approaches that supported circular economy practices in the agriculture sector across APEC economies. With five presentations, it covered both domestic and international experiences, providing insights into regulatory mechanisms, sustainability frameworks, and practical tools that facilitated circular practices within agro-food systems.

Presentation 1. Introduction on draft pilot mechanism on circular economy in Viet Nam

Speaker: Dr. Tran Thi Hong Minh, President of the Central Institute for Economic Management (CIEM)

Dr. Tran Thi Hong Minh's presentation covered the proposed pilot mechanism for advancing circular economy practices in Viet Nam, with agriculture highlighted as one of four priority sectors. This draft mechanism, which was awaiting government approval at the time, aimed to trial a range of supportive policies tailored to foster a sustainable circular economy. These included policies for industrial and economic zones, green classification standards, green credit and finance, science and technology innovation, human resource development, and land use. This experimental framework was designed to create a structured pathway for policy testing, setting the stage for the wider adoption of circular economy practices across key sectors in Viet Nam.

Presentation 2. Regulatory framework on Circular Economy in Viet Nam

Speaker: Dr. Lai Van Manh, Head of Department of Economics of Natural Resources and Environment of ISPONRE, MONRE

Dr. Lai Van Manh's presentation provided an overview of Viet Nam's regulatory and policy framework for advancing the circular economy. It examined the current laws, policies, and strategic initiatives relevant to the circular economy's development, emphasizing the legal groundwork that had been established to facilitate its adoption.

Presentation 3. The Australian Agricultural Sustainability Framework

Speaker: Ms. Fiona Wyborn, Assistant Director Sustainable Agriculture Policy - Department of Agriculture Fisheries and Forestry – Australia

Ms. Fiona Wyborn introduced the Australian Agricultural Sustainability Framework (AASF), an industry-led initiative that established unified sustainability standards for Australian agriculture to strengthen market access and meet environmental goals. Coordinated by the Domestic Farmers' Federation, the AASF aligned existing sector

frameworks across beef, sheep, cotton, and dairy to set measurable targets for sustainability, covering key themes such as environmental stewardship, community well-being, and economic resilience. The framework, structured around 17 sustainability principles, included criteria to track progress in areas like circular economy, greenhouse gas reduction, biodiversity, and workforce welfare. At that time, the project focused on developing indicators to measure these sustainability goals, supporting the sector's ability to demonstrate sustainability on both domestic and international levels.

Presentation 4: Policy Challenges for Promotion of Circulatory Agriculture and Regional Cooperation

Speaker: Prof. Dr. HyeJin Lee, Institute for International Development Cooperation, Konkuk University

Prof. Dr. HyeJin Lee discussed the challenges facing circular agriculture policies, focusing on issues at both domestic and APEC levels. At the domestic level, regulatory and sectoral boundaries, along with limited stakeholder engagement, posed significant obstacles. Meanwhile, APEC's diverse technological capacities and priorities complicated regional cooperation. Technological limitations, such as the lack of a broadly applicable policy framework and differing policy environments, further hindered implementation. Dr. Lee highlighted the need for consistent, localized metrics to measure policy effectiveness and suggested initial policy guidelines to encourage engagement in circular agriculture. Key recommendations included tailoring strategies to stakeholders' technical capabilities, integrating local innovations into circular systems, and coordinating with environmental and economic policies to support sustainable agricultural development across the APEC region.

Presentation 5: Early Insights from Piloting the CE-NDC Toolbox in Viet Nam's Agricultural Sector

Speaker: Ms. Morgane Rivoal, Climate Change and Circular Economy Officer, UNDP

Ms. Morgane Rivoal presented early findings from piloting the Circular Economy–Nationally Determined Contributions (CE-NDC) toolbox in Viet Nam's agricultural sector. The presentation emphasized that circular practices were already widely adopted across various agricultural fields in Viet Nam. Resource recovery was identified as an essential first step to scale up circular agriculture, paving the way for enhanced sustainability. Circular activities had substantial potential to meet Viet Nam's agricultural and climate policy goals while providing socio-economic benefits. Key tools deployed in this pilot included a domestic greenhouse gas inventory, the Climate Explorer tool, and a stakeholder mapping system, each of which contributed to evaluating and scaling circular initiatives in alignment with climate objectives.

Summary of Discussions

+ Question 1 from Mr. Saso to Ms. Fiona Wyborn: "You mentioned some very interesting points about public-private collaboration. In your experience, how can we engage the private sector from the very beginning, given its importance in circular economy initiatives?"

According to Ms. Fiona Wyborn, in Australia, there was a strong connection between the government and the private sector, with an emphasis on prioritizing private sector involvement in policies related to the circular economy. This collaboration, similar to a public-private partnership, helped identify the right directions for sustainable practices. Consequently, private businesses were more receptive and responsive to these policies, enhancing the adoption of circular economy principles across sectors.

+ Question 2 from Mr. Nguyen Ba Thong: "At IDH, we have initiated projects to promote the circular economy in agriculture. Has the Ministry of Agriculture conducted any studies or assessments regarding the quantification of agricultural waste and by-products? Additionally, companies face several issues related to the transportation of waste, even when moving it short distances between farms, due to regulations on waste transport. We hope the Ministry of Natural Resources can collaborate to address these challenges".

Dr. Tran Cong Thang: Regarding the emission inventory, greenhouse gas inventories were conducted every five years. The General Statistics Office had conducted surveys related to livestock, aquaculture, and agriculture, with the most recent inventory being in 2020. IPSARD had conducted assessments and had communicated with the General Statistics Office, which indicated that another inventory would be done in 2025. At that time, agricultural waste was being redefined in policies as a resource.

Dr. Lai Van Manh: In agriculture, there were many materials, including biomass and methane, that should have been inventoried. Having these figures was highly beneficial for investors. Challenges related to transportation arose from perceptions, such as whether these substances were considered waste, materials, or by-products, which related to the understanding among scientists. The environmental protection laws were broad regarding the identification of waste; therefore, there was a need for a standardized set of criteria for classification. A global framework already existed, which could have served as a foundation. It was essential to distinguish whether something was a resource or waste, relying on scientists to establish the necessary standards. For instance, treated wastewater could only be used within its originating facility; transferring it to another facility would have been a violation. Therefore, there was a need to gradually change the mindset on this issue.

+ Question 3 from a participant: How can Viet Nam's domestic strategy mobilize resources to comprehensively implement the circular economy, particularly to address the significant need for new technologies among small-scale farmers?

- Dr. Tran Thi Hong Minh (President of CIEM): In discussing the pilot mechanism, we had planned to implement regulations that were not yet in practice to facilitate the rapid adoption of the circular economy (CE). Within six key sectors, including land use, green credit, and economic zones, applying existing frameworks had been challenging. Our draft decree had aimed to create breakthroughs that would enable citizens to generate tangible benefits. In Viet Nam, a unique characteristic had been that household businesses and small-scale farmers comprised a significant portion of the agricultural sector. Therefore, it had been crucial to assist these groups in accessing markets and production technologies. Local governments, including communes and districts, along with relevant agencies, had been supporting farmers in adopting

advanced varieties, livestock, post-harvest technologies, and market access initiatives through successful programs like OCOP.

Additionally, the model of agricultural cooperatives, though not new globally, had proven to be an effective means of uniting farmers. Through these organizations, which had legal status, farmers had received systematic support, making it easier for them to access CE policies. We had implemented numerous strategies to assist farmers, with successful examples, such as those from Son La province, where various support programs had been launched to empower local farmers.

+ Question 4: Are there any specific policies in the pilot mechanism that support farmers or cooperatives?

- Dr. Tran Thi Hong Minh (President of CIEM): In reality, the decree provided mechanisms and priority areas but did not go into detail about support for each specific group, such as farmers or cooperatives. The decree focused on creating a general policy framework to promote the circular economy, identifying priority sectors and mechanisms that these groups could access. This meant that while there were no detailed regulations for each specific group, farmers and cooperatives would still benefit from the policies and support mechanisms in place during the implementation of the circular economy.

+ Question 5: In evaluating agricultural policies related to sustainability, what effective policies can be identified? For example, standardizing criteria and standards for the circular economy can be complex, especially when there are different standards in place. Have we conducted any assessments or statistics on sustainability policies, particularly from member economies like the Republic of Korea and organizations like UNDP? How can we harmonize these various standards?

Prof. Dr. HyeJin Lee thanked for the insightful question and acknowledged that it was a broad and challenging topic, something she often reflected on herself. For sustainable agriculture, she emphasized that having specific criteria was crucial. Without concrete standards, implementation became difficult. She mentioned that there was a need for specific guidelines to assist farmers and practitioners. For example, if there were criteria for coffee, it was questioned whether those could be applied to other sectors, such as livestock. These standards needed to be clearly defined so that farmers could understand how to implement them. She noted that in Republic of Korea, integrated farming systems had been developed in small areas, supported by the government with both policies and a legal framework to create a conducive environment for implementation. Clear indicators were identified as essential for providing necessary support.

Ms. Morgane Rivoal: When discussing standards and frameworks for circular agriculture, she highlighted that these criteria were key elements that had to be established during policy development. She emphasized the importance of achieving harmonization among the different standards.

Dr. Lai Van Manh: Establishing standards for the circular economy was acknowledged as a complex process that required a long-term roadmap and significant investment. He noted that developing these standards was not straightforward and could be costly.

The Ministry of Science and Technology was coordinating efforts to issue standards in accordance with ISO criteria. Additionally, in cases where domestic standards had not yet been established, existing standards from developed economies were considered as a foundation for harmonization. This process would involve careful planning and collaboration among various stakeholders, including the Ministry of Agriculture, to ensure successful implementation.

+ *Question 5 from the Malaysian Representative*: The representative from Malaysia shared their progress towards the 12th and 13th plans, set to be implemented from 2026 to 2030, which would focus on developing policies. They were currently revising lessons learned from the 12th plan and looking at circularity in agriculture. They were working to support smallholder farmers, enhance their productivity, and promote circular practices in agriculture to contribute to agricultural development and carbon emission reduction. The representative then asked: If these smallholders wanted to adopt circular economy practices but faced high costs, how would they choose between adopting circularity or increasing production?

Prof. Lee acknowledged that the question posed a challenging issue. In Republic of Korea, most farmers operated on limited land, which could be considered small-scale, despite the economy's economic wealth. For smallholders, it was difficult to apply circular economy practices in the short term because implementing such practices often required land to be set aside. It was not only crop farming but also livestock and aquaculture that needed to be considered to effectively utilize by-products. To promote this, there had to be supportive policies that facilitated land consolidation, provided access to credit and technology, and imparted knowledge that incentivized farmers to engage in circular economy practices. Additionally, attracting private sector participation was necessary to provide funding, technical assistance, and ensure market access for products.

Mr. Martinov acknowledged that applying circular economy practices with small-scale farmers was indeed challenging. Instead of merely discussing the concept, it was crucial to demonstrate practical applications and show farmers how to implement these practices alongside financial support. If farmers could see higher income and profitability, they would be more willing to transition. Since they were primarily concerned with maximizing profits and income, with new technologies and production models—supported by both the government and private sector—many farmers would be ready to shift towards circular economy practices within 5 to 10 years.

Summary of Comments from Other Participants:

Dr. Duong, Chairman of the Livestock Association:

He noted that today's workshop topic was highly engaging and that livestock production generated significant agricultural waste, with estimates ranging from 60-80 million tons of solid waste and 240 million tons of liquid waste. He highlighted that Viet Nam ranked among the top six economies in pig production, with 8 million cattle, buffalo, and 3.5 million goats, indicating a high density of livestock farming. Circular economy practices had been in place for a long time in both the crop and livestock sectors, but they had yet to be synthesized and evaluated as a cohesive model.

Dr. Duong emphasized the importance of establishing a unified understanding among leaders and the public. Without this, formulating appropriate policies would be difficult. He pointed out that one ministry might view waste as a liability, while another viewed it as a resource. Therefore, it was crucial for all relevant ministries to agree that agricultural waste was a resource and a strength, which would enable the development of cohesive policies and help businesses thrive.

He also raised concerns about transportation in the livestock sector, particularly in terms of disease prevention. With millions of households involved in livestock farming across Viet Nam, the discrepancies in standards among ministries made implementing circular economy practices challenging. Despite the existence of domestic laws, conflicts between circular regulations and ministerial circulars, often arising from differing perceptions, hindered effective implementation.

Lastly, Dr. Duong stressed the need to recognize the value of circular economy products, ensuring they held higher worth than conventional products. He suggested building flagship models and enhancing communication efforts to promote these practices more effectively.

Indonesia representative:

The representative from Indonesia expressed gratitude for the invitation to the event. Indonesia announced its roadmap in July 2024, focusing on the circular economy across five key sectors: food and agriculture, digital economy, textiles, retail, and packaging, with a particular emphasis on the food industry related to agriculture. The representative highlighted the desire to learn from APEC's experiences in implementation, which can be proposed to their leadership for rolling out the circular economy roadmap in agriculture. If successfully applied, this approach could significantly reduce environmental emissions and conserve resources. The representative was particularly interested in best practices related to the management of agricultural by-products.

Thailand representative:

The representative from Thailand stated that Thailand has developed various policies to support the circular economy and has built a culture around it. Local governments in different provinces are engaged and applying these principles throughout their supply chains. However, the representative noted that while policies are often idealistic, grassroots implementation can be challenging. At the regional level, they participate in research and develop innovative technologies, but transferring this knowledge to local farmers remains difficult. The representative acknowledged that Thailand is also facing this challenge.

The Philippines representative:

The representative from the Philippines mentioned that the circular economy is a priority in their policies, especially through the strategy for modernizing agriculture and domestic industry. As a densely populated economy with limited land, they are transitioning from unsustainable practices to a more sustainable approach, requiring a change in mindset followed by a shift in behaviour. The representative noted that the

production chain is becoming more aware of circular practices, such as using straw for mushroom production, which is then fermented for animal feed. They found the presentations to be very insightful.

However, the representative emphasized the need to improve support policies for the circular economy, not only in agriculture but also in other sectors like environment and energy. Another crucial aspect is the need for innovation in technology, which helps citizens adopt circular practices in agriculture. While there is a common aspiration to transfer new technologies to farmers, the key factor is their potential to generate profits. If these technologies do not increase income, people will be reluctant to adopt them. The representative concluded that technologies that support circular practices must demonstrate clear financial benefits to encourage uptake.

5. Session 4: The way forward and future for Circularity in APEC economies

In this session, we explored the next steps necessary to promote sustainability within the agro-food system and accelerate the adoption of circular economy innovations in agricultural value chains. The session began with a background presentation by Dr. Tom Wassenaar, Head of the "Recyclage & Risque" unit at CIRAD, to share the insights on fostering circularity for a sustainable agro-food system.

Following the presentation, a panel discussion was be facilitated by Dr. Nguyễn Anh Phong, Deputy Director General of IPSARD. The panel featured a diverse group of experts, including:

- Ms. Nguyen Thi Thanh An, Head of the Energy Transition Financing Unit at AFD Viet Nam.
- Dr. Tom Wassenaar, Head of the "Recyclage & Risque" unit at CIRAD.
- Ms. Fiona Wyborn, Assistant Director of Sustainable Agriculture Policy from the Department of Agriculture, Fisheries and Forestry in Australia.
- Mr. Nguyen Dinh Cong, a food systems specialist from FAO.
- Mr. YAMAURA Kiyotaka, JICA Adviser at ICD MARD.
- Mr. Nguyen Dinh Tuan, Project Manager at Helvetas Viet Nam.

Together, the panellists engaged in a dynamic discussion, addressing key challenges and opportunities for implementing circular economy principles in agriculture, with the aim of achieving a more sustainable agro-food system. Participants had the opportunity to contribute to the dialogue, sharing their perspectives and experiences in fostering sustainability in agricultural practices.

Background Presentation: Fostering Circularity for Sustainable Agro-Food System

Speaker: Dr. Tom Wassenaar – Head of Unit "Recyclage &Risque" CIRAD

Summary of Panel Discussion:

Question for Ms. Fiona Wyborn

+ What lessons from Australia's successful development of a sustainable agricultural policy framework could be valuable for APEC economies?

Ms. Wyborn highlighted several insights from Australia's experience. She emphasized the critical importance of collaboration, noting that coordieconomy among all parties is a key factor in policy development. Policies should be designed with practical applications in mind, and Australia ensures the full participation of all stakeholders during the formulation process. Ms. Wyborn also stressed the need for all initiatives and policies to be integrated into a broader strategic framework, embedding circular economy principles within domestic strategies.

+ Given the diversity in development levels, cultural backgrounds, and social conditions across APEC economies, what considerations does Ms. Wyborn suggest when developing circular economy policies?

Ms. Wyborn noted that while member economies and cities have unique priorities, the core principles of circular agriculture remain consistent. She emphasized that it's essential to demonstrate the benefits of a circular economy to both businesses and farmers. Interestingly, Ms. Wyborn also pointed out that developed economies can learn valuable lessons from developing economies, where approaches often involve participation across all levels of society

Question for Mr. YAMAURA Kiyotaka

+ What approaches has Japan taken in technology transfer toward circular agriculture, based on its experience?

Mr. Yamaura highlighted Japan's "Green Strategy," aimed at transitioning toward sustainable food systems, known as Midorii (meaning "green" in Japanese). He explained that this strategy centers on promoting sustainable innovation, supported by Japan's Green Development Act, enacted in 2022. This act encourages policies that support farmers in adopting environmentally friendly technologies, including necessary infrastructure and machinery. To implement the act, the government provides financial support and incentives for farmers. The strategy also emphasizes the use of innovative technologies, such as organic fertilizers and eco-friendly farming methods. Additionally, Mr. Yamaura mentioned Japan's Green Growth Cooperation Plan with ASEAN, established in 2023, which focuses on advancing sustainable, productive, and eco-friendly agricultural systems. Japan's policy emphasizes technology transfer, information sharing, and innovative solutions for farmers.

+ Is the shift to circular agriculture inevitable for Viet Nam, considering the similar challenges it faces to those Japan encountered in the past?

Mr. Yamaura responded by noting that every region and member economy has unique circumstances, making information sharing across economies essential. He emphasized that local conditions vary significantly, which makes directly replicating another economy's model impractical. First, he suggested prioritizing information sharing on policies—drawing not only from Japan's experience but also from other economies—about integrating circular economy practices into domestic policy framework.

Question for Ms. Nguyen Thị Thanh An

+ With extensive experience in green finance, could you share some insights and solutions for attracting investment in circular agriculture models, particularly in developing economies where financial resources are limited?

Ms. Nguyen Thị Thanh An expressed gratitude for the invitation to the seminar and shared that, over the past 30 years, AFD has provided over EUR3 billion in funding for projects in Viet Nam. She explained that AFD uses a range of financial tools, initially offering traditional ODA support for sectors like agriculture, processing, coffee, and rubber. AFD's second tool involves preferential loans for businesses, and they also provide grants for capacity-building activities, leveraging France's expertise to address Viet Nam's specific needs. Currently, AFD is working with Vietnamese partners to design appropriate financial instruments for circular economy projects in agriculture, with a focus on green and sustainable agriculture now in the final assessment phase. This initiative includes credit lines with additional non-repayable grants, in collaboration with Agribank. Ms. An added that AFD is actively seeking to expand partnerships with other development agencies to continue efforts from project preparation to implementation, working closely with research institutions to support these initiatives.

+ Do you believe public-private partnerships (PPPs) could be an effective solution for implementing circular economy projects, particularly in developing economies within APEC, such as Viet Nam?

Ms. Nguyen Thị Thanh An affirmed that public-private partnerships could indeed be effective. She highlighted that AFD, in collaboration with local banking partners, is co-developing mechanisms to introduce guarantees and risk-sharing models, aimed at enhancing financial accessibility for circular economy projects.

Question for Dr. Tom Wassenaar

+ How can the circular economy be more effectively applied in the agricultural sector?

Dr. Tom Wassenaar acknowledged the broad scope of this question, emphasizing that effective implementation of circular economy principles requires the active involvement of stakeholders in specific contexts. He highlighted that stakeholders need to collaborate to address issues that deliver mutual benefits. According to Dr. Wassenaar, science plays a crucial role in promoting and addressing agricultural challenges, especially through the development of scientific solutions. For instance, replacing traditional fertilizers with alternative products derived from waste could generate value through waste repurposing. Effective partnerships with stakeholders are essential for understanding how to create synergies in this process.

Dr. Wassenaar provided examples where different types of waste, each with unique nutrient properties, could be analyzed for their economic value in farming. Understanding the processes required to transform waste into beneficial end-products is key. He emphasized the importance of local government involvement in discussions to find viable solutions, with decisions grounded in scientific evidence to provide meaningful benefits to communities. Systematic diagnosis and stakeholder

engagement ensure the exchange of useful information, enabling stakeholders to understand how to produce substitutes that minimize external harm and avoid potential negative future scenarios.

Question for Dr. Tom Wassenaar

+What initiatives has FAO undertaken to promote the circular economy in Viet Nam?

Mr. Nguyen Dinh Cong discussed the significant challenges facing the agricultural system today, including rising food demand due to population growth, evolving dietary needs, environmental concerns, and climate change. He emphasized that transitioning to a circular economy in agriculture is essential, a trend that aligns with global developments and Viet Nam's strategic direction. FAO has long supported circular agriculture through various initiatives in Viet Nam, and he outlined some key projects:

(1) Projects in the Mekong Delta: FAO has two projects aimed at enhancing and nurturing value chains with a multi-objective, multi-value focus, promoting agroecological and circular approaches.

(2) Sustainable Resource Management: FAO emphasizes sustainable soil health management and promotes precision agriculture with projects involving technologies such as drones.

(3) Green Finance Initiatives: FAO is piloting green finance solutions to increase access to funding for circular agriculture projects, working on mechanisms to facilitate financial access for stakeholders.

Regarding the private sector, Mr. Cong highlighted that transitioning to circular agriculture requires technological innovation, investment, and active participation from the private sector. FAO aims to work closely with private entities, from individual farmers to small and micro-enterprises, providing capacity-building projects and supporting financial accessibility. He noted that FAO is actively designing mechanisms to improve financial access for private stakeholders, particularly in Viet Nam, through financial institutions and credit solutions that ease access for farmers.

In terms of technical cooperation, FAO collaborates to share technological solutions that advance the circular economy. He emphasized the importance of public-private partnerships (PPP), with the public sector playing a supportive role to encourage private sector investment. FAO also collaborates with NGOs to analyze and share information, foster participation in policy dialogues, and work on specific projects that promote circular agriculture.

Question for Mr. Nguyen Dinh Tuan

+ How has Helvetas collaborated with the government, businesses, and farmers at the local level, and what are the prospects for scaling up these models in the future?

Mr. Nguyen Dinh Tuan explained that Helvetas collaborates closely with the Ministry of Natural Resources and Environment and the Ministry of Agriculture and Rural Development in Viet Nam, with a particularly deep partnership with the latter. He expressed appreciation for the support provided by agencies under the Ministry of

Agriculture and noted that Helvetas integrates circular economy principles into specific projects, especially within the cocoa sector in collaboration with the Agricultural Extension Center, where they leverage all available technical resources and expertise.

While domestic agencies operate effectively, he observed that local-level institutions face limitations in planning and implementing specific actions. Looking ahead, he emphasized the importance of aligning Helvetas' approach with local policies to foster harmony and support sustainable circular economy practices at the provincial level.

Summary of the discussion between speakers and participants:

+ Question by Mr. Hoang Thanh, European Union Delegation in Viet Nam: The EU has made initial progress in developing proposals for the industry and agriculture sectors. He asked Ms. An about the prerequisites for projects related to the environment, climate change, and rural development that the EU supports. What key focus areas should these projects prioritize moving forward?

Nguyen Thị Thanh An, AFD Viet Nam: She acknowledged the close collaboration between AFD and the EU. Ms. An highlighted that AFD identifies specific prerequisites to determine a project's eligibility. The first condition relates to the criteria for green projects. She elaborated on what qualifies as a green project, emphasizing the importance of aligning with development partners concerned with climate change. However, she noted the challenges faced by Vietnamese banks, which have environmental risk management systems but lack social criteria. Ms. An expressed AFD's willingness to collaborate on financial cooperation with the EU in the future. She mentioned that traditional credit is a tool they use, and green bonds are another area where AFD could provide support.

+ Question by Mr.Cong, IDH: He emphasized that circular economy is a tool that needs to be promoted, especially for small-scale farming, livestock, and aquaculture. To encourage participation from more households, what strategies can be implemented to connect small-scale agricultural producers with buyers and retailers that meet market demands? How can these connections be facilitated, both from the public and private sectors?

Mr. Nguyen Dinh Cong, FAO noted that to create a powerful force, there needs to be strong collaboration among small producers. Organizations representing cooperatives and industry sectors must actively engage with certification bodies. NGOs also run many projects that can involve support from consultants and international collaborations. To scale up efforts, sharing lessons learned and actively participating in dialogues is essential for improvement.

Ms. Fiona Wyborn highlighted the importance of certification, stating that farmers should focus on producing excellent products for the market without being burdened by additional responsibilities.

Mr. Tom Wassenaar fully agreed with Mr. Cong, emphasizing that farmer associations need to participate as representative organizations. He noted that many tasks lie ahead, suggesting that institutionalization and the facilitation of these processes are necessary, along with government agencies tasked with connecting different

stakeholders. Regarding policies, he stressed the need for appropriately designed solutions, economic evaluations, and the utilization of tools that can support small farmers, such as subsidies. He cautioned that there cannot be a one-size-fits-all solution.

Summary of Comments from Other Participants:

Mr. Matthew, Singapore: He shared that he participated in a seminar in Singapore that supported 130 different companies, emphasizing the importance of ESG (Environmental, Social, and Governance) criteria. He explained that there are three factors in ESG: the environment, social issues, and governance, with the environment accounting for 50-60%, and governance and social factors each representing 20-25%. He noted that when considering ESG, it is always crucial as depositors are highly concerned about it. He mentioned a sustainable development forum in Indonesia, where participants included banks and the central bank of Indonesia, discussing their desire to shift their investment portfolios towards greener options. He highlighted that starting from 2025, climate response reporting become mandatory, impacting small farmers who supply materials to large companies, as those companies will require compliance with ESG criteria. He warned that by 2026 and 2027, these requirements would take effect, and all stakeholders must report on carbon reduction and establish environmental and climate strategies to achieve carbon neutrality, which is already happening in the private sector.

Mr. Martinov: He pointed out that while much is said about access to finance, particularly regarding the EU's support for green finance, banks typically offer support funds aimed at smallholder farmers. However, he expressed concern that small farmers often struggle to transition to a circular economy. He emphasized the need for economies to assist each other in accessing information, noting that larger businesses have a significant advantage regarding market information and demands. In contrast, small-scale farmers often lack this information. He advocated for a robust agricultural extension system in Viet Nam to help small farmers understand market needs.

Ms. Trang, Agroinfo: She shared that the research group is currently collaborating with UNDP on several initiatives to strengthen the ecosystem for the circular economy in Viet Nam. She outlined four key areas of focus for the upcoming period:

Comprehensive Assessment and Database Development: It is necessary to compile assessments and create a database related to the circular economy, including information on by-product sources, the extent of by-product treatment, and applicable models.

Guideline Handbook on Circular Economy in Viet Nam: It is also important to develop a handbook that outlines policies, institutional frameworks, and various models of circular economy, along with a list of businesses and cooperatives currently implementing these practices to ensure accessibility for relevant stakeholders.

Sector-Specific Circular Economy Models Handbook: Another initiative includes creating a handbook that details circular economy models in specific sectors, aimed at scaling up these practices and listing a wider variety of models.

Identifying Suitable Circular Economy Models for Smallholder Farms: It is also significant to determine appropriate circular economy models for smallholder farmers and propose solutions for their expansion.

6. Closing Section

The Workshop was officially closed by Dr. Nguyen Anh Phong, Deputy Director of IPSARD:

In his closing remarks, Dr. Nguyen Anh Phong expressed gratitude to all participants for their valuable contributions to the seminar. He emphasized the vital role of circular agriculture in addressing the challenges faced by the agricultural sector. The discussions highlighted the importance of collaboration among stakeholders, including government agencies, farmers, and private sector actors.

Dr. Phong noted the various innovative approaches and successful models shared during the seminar, underscoring that adopting a circular economy is essential for sustainable agricultural development and resilience against climate change. He encouraged all attendees to translate the insights gained into actionable strategies that empower agricultural communities, promote sustainable practices, enhance food security, and contribute to societal well-being. In the coming time, some key following up activities can be made with the effort of international communities such as development of database on Circular agriculture in Viet Nam and APEC economies, guidelines and handbook on Circular agriculture and in each specific sub-sectors for investment attraction, knowledge sharing, identification of suitable circular economy models for small-scale farmers and replication solutions.

In conclusion, Dr. Phong thanked everyone for their engagement and expressed optimism about the positive impact of their collective efforts in the future

All the Workshop documents can be found at:

https://sites.google.com/view/apec-vn2024/presentations?authuser=0

AGENDA

The International Workshop on Circularity in Agriculture: A pathway to sustainability among APEC economies

Time: 24-25 October 2024

Venue: Fortuna Hotel Hanoi, Ballroom 3

No. 6B Lang Ha street, Ba Dinh Dist., Ha Noi, Viet Nam

DAY 01 - Unleashing the power of circular economy in agriculture

Morning Program		
08.30 – 09.00	**Delegate registration**	Organization Board
09.00 – 09.10	**Welcome and Introduction**	**Dr. Nguyen Anh Phong,** Deputy Director General of IPSARD
09.10 – 09.20	**Opening Remark**	**Dr. Nguyen Do Anh Tuan,** Director General of ICD/MARD
09.20 – 09.30	Photo group	Participants
09.30 – 10.30	**Session 1: Unleashing circular economy potential in agriculture** Objective: explore global challenges, existing farming practices in APEC economies and the need for transformation and circular economy and emphasize key concepts and approach of circular economy in Agriculture **Presentations** *(15 minutes/ppt)* ❖ **The need for circular economy: Addressing Global challenges and transforming agriculture** *Mr. Saso Martinov,* Chief Technical Advisor for Mekong Agriculture, FAO-VN ❖ **Circular agriculture: International experiences and recommendations for Viet Nam's agriculture** *Assoc. Prof. Dr. Nguyen Hong Quan,* Director of Institute for Circular Economy Development VN ❖ **Transforming food systems through climate action (online)** *Ms. Julie Teng,* Technical Specialist on Adaption Planning and Policy, UNDP Global ❖ **Prioritizing Circular Economy Growth: A Necessity for APEC Economies** *Dr. Nguyen Anh Phong,* DDG of IPSARD	**Co-Chairs:** Mr. Patrick Haverman, Deputy Resident Representative UNDP Viet Nam Dr. Tran Cong Thang, Director General of IPSARD

10.30 – 10.45	**Teabreak** *Video clip of UNDP*	
10.45 – 12.00	**Panel discussion: Opportunities and Challenges to the Circular Agri-food System** ***Panellists:*** • **Dr. Tran Cong Thang** - Director General of IPSARD • **Assoc. Prof. Dr. Nguyen Hong Quan** - Director of Institute for Circular Economy Development in VN • **Mr. Saso Martinov** - Chief Technical Advisor for Mekong Agriculture, FAO Viet Nam • **Ms. Julie Teng** - Global Technical Specialist on Adaption Planning and Policy, UNDP Global	***Facilitator:*** **Dr. Nguyen Anh Phong**, Deputy Director General of IPSARD
12.00 – 13.30	**Networking Lunch** – Merlion Room – 2nd Floor - Fortuna Hotel Hanoi	
Afternoon Program		
13.30 – 14.30 **14.30 – 14.45** **14.45 – 15.25**	**Session 2: Moving towards circular business models in agriculture: Evidence from Practice** Objective: Explore and share among APEC economies on experiences and practices of different circular business models with innovation and technology to develop a multi-value agriculture **Presentations** (20 minutes/ppt) ❖ **Organic circular farming model in Viet Nam** *Ms. Nguyen Phuong Thao,* Co-Founder of Nguyen Khoi Farm ❖ **Circular model in Singapore** *Prof. Dr. Matthew Tan,* Asia Food Sustainability Fund ❖ **Circular Economy Cocoa: From Bean to Bar** *Mr. Nguyen Dinh Tuan,* Project Manager, Helvetas **Teabreak** *Video clip of Nguyen Khoi Farm* **Presentations (cont.)** (20 minutes/ppt) ❖ **Circular project model in Viet Nam: project of Viet Nam - netherlands bio lng, co2 and organic fertilizer factory complex** *Mr. Dong Ngoc Hoa, DG of THD company* ❖ **Circular model on Aquaculture** *Dr. Kabir Kazi,* CIRAD researcher	**Co-chair:** **Mr. Saso Martinov** FAO-VN Chief Technical Advisor for Mekong Agriculture **Dr. Nguyen Anh Phong**, Deputy Director General of IPSARD
15.25 – 16.30	• **Q&A** • **Conclusion of Day 1**	

DAY 2: The way forward for a Sustainable APEC

09.00 – 09.15	Wrap up of the Previous day Introduction of Day 2	**Dr. Nguyen Anh Phong**, Deputy Director General of IPSARD

09.15 – 10.15	**Session 3: Policy enablers for circular economy in Agriculture** Objective: Explore existing regulatory framework, strategies, domestic approaches and policy options across the various components of the agro-food system of APEC economies as well as introduce international tools for supporting APEC economies to identify and connect circular economy interventions in agricultural practices.	**Co-chairs:** **Dr. Tran Cong Thang** Director General of IPSARD **Mr. Nguyen Dinh Cong** FAO Food systems specialist
	Presentations (20 minutes/ppt) ❖ **Introduction on draft pilot mechanism on circular economy in Viet Nam** *Dr. Tran Thi Hong Minh,* President of the Central Institute for Economic Management (CIEM) ❖ **Regulatory framework on Circular Economy in Viet Nam** *Dr. Lai Van Manh,* Head of Department of Economics of Natural Resources and Environment of ISPONRE, MONRE ❖ **The Australian Agricultural Sustainability Framework** *Ms. Fiona Wyborn,* Assistant Director Sustainable Agriculture Policy - Department of Agriculture Fisheries and Forestry – Australia	
10.15 – 10.30	**Teabreak** *Video clips of UNDP and Nguyen Khoi Farm*	
10.30 – 11.10	**Presentations (cont.)** (20 minutes/ppt) ❖ **Policy Challenges for Promotion of Circulatory Agriculture and Regional Cooperation** *Prof. Dr. HyeJin Lee,* Institute for International Development Cooperation, Konkuk University ❖ **Early insights from piloting the CE-NDC toolbox in Viet Nam's agricultural sector** *Ms. Morgane Rivoal,* Climate Change and Circular Economy Officer · UNDP	
11.10 – 12.00	**Q&A**	
12.00 – 13.30	**Lunch** – Tiffin Restauran – 1st Floor - Fortuna Hotel Hanoi	
Afternoon Program		
13.30 – 15.30	**Session 4: The way forward and future for Circularity in APEC economies** **Objective:** Networking and discuss next steps to foster sustainability in the agro-food system and accelerating the adoption of circular economy innovations in the value chains of agriculture. • **Background presentation: Fostering circularity for sustainable agro food system**	

	Dr. Tom Wassenaar – Head of Unit “Recyclage &Risque” CIRAD **Panel discussion** *Panelist:* • **Ms. Nguyen Thi Thanh An -** Head of Energy Transition Financing Unit, AFD Viet Nam • **Dr. Tom Wassenaar -** Head of Unit “Recyclage &Risque” CIRAD • **Ms. Fiona Wyborn -** Assistant Director Sustainable Agriculture Policy - Department of Agriculture Fisheries and Forestry – Australia • **Dr. Nguyen Dinh Cong -** FAO Food systems specialist • **Mr. YAMAURA Kiyotaka -** JICA Adviser at ICD MARD • **Mr. Nguyen Dinh Tuan** - Project manager, Helvetas Viet Nam	***Facilitator:*** **Dr. Nguyen Anh Phong**, Deputy Director General of IPSARD
15:30 – 15:45	Closing remarks by IPSARD	**Dr. Nguyen Anh Phong**, Deputy Director General of IPSARD

PHOTOS FROM THE WORKSHOP

Opening section

SESSION 1


HỘI THẢO QUỐC TẾ
THE INTERNATIONAL WORKSHOP
ON CIRCULARITY
IN AGICULTURE:


HỘI THẢO QUỐC TẾ
VỀ PHÁT TRIỂN KINH TẾ TUẦN HOÀN
TRONG NÔNG NGHIỆP:
CON ĐƯỜNG PHÁT TRIỂN BỀN VỮNG
TRONG CÁC NỀN KINH TẾ APEC
THE INTERNATIONAL WORKSHOP
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IN AGRICULTURE:
A PATHWAY TO SUSTAINABILITY
AMONG APEC ECONOMIES


Hanoi, 24-25/10/202


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AMONG APEC E
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Hanoi, 24-25/1
AGROINFO

SESSION 2


HỘI THẢO QUỐC TẾ
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CON ĐƯỜNG PHÁT TRIỂN BỀN VỮNG
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SESSION 3


HỘI THẢO QUỐC TẾ
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SESSION 4


HỘI THẢO QUỐC TẾ
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TRONG NÔNG NGHIỆP:
CON ĐƯỜNG PHÁT TRIỂN BỀN VỮNG
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RONG NÔNG NGHIỆP:
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