



2022 Abu Dhabi Conference Report

“Global food security in the XXIs: Risks, Challenges and Solutions to ensure resilient and sustainable fresh food supply chains”

Abu Dhabi, *United Arab Emirates*



Stéphane Layani, Chairman WUWM:

"The time has come to address one of the most important challenges of the 21st century: global food security, and to achieve the sustainable development goals. We must act collectively to transform the world's food systems in the long term, in order to reduce the impact of our sector on the environment and climate and guarantee healthy and balanced fresh food for every inhabitant of the planet while respecting the richness of the agricultural and culinary traditions of each country."

**Ms. Mariam bint Mohammed Saeed Hareb Almheiri,
UAE Minister of Climate Change and Environment:**

"Food systems as a whole actually contribute over one-third of global human-generated greenhouse gas (GHG) emissions. Meanwhile, climate change is disrupting food supply, food availability, livelihoods, and human health, and rapidly upending the landscape for smallholder agriculture. These interlinked challenges require us to think about how we can sustainably increase food production, adapt and build resilience to climate change, and decarbonize our food systems."



**Mr. Thani bin Ahmed Al Zeyoudi,
UAE Minister of State for Foreign Trade:**

"The 2022 WUWM annual conference focused on the most crucial issues facing global economic security, namely food security and the need for a resilient food supply chain."



**Mr. Abdullah Humaid Al Hameli,
Chief Executive Officer AD Ports Group:**

"2022 WUWM Conference held in Abu Dhabi was very successful, with more than 700 confirmed delegates from 45 countries and more than 50 speakers who discussed the future of food security. Three agreements were also signed at the conference, each of which will help enhance Abu Dhabi's role in these efforts. KEZAD is at the forefront of the country's effort to become a leader in food security in the region and the world."





EXECUTIVE SUMMARY

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Two years of the COVID-19 pandemic, ongoing geo-political conflict, and widespread challenges linked to climate change are causing significant disruptions to global food supply chains. Staff shortages, border controls and air freight restrictions, increasing fuel prices, widespread sourcing issues and the effects of climate change are only some of the issues facing the global fresh food industry. At the forefront of a global food crisis threat it is more important than ever to foster urgent multi-stakeholder action to mitigate the impact of the current disruptions and to build greater fresh food supply chain resiliency in order to ensure food security worldwide in the forthcoming months, years and decades.

At a time where urgent action is needed to secure accessibility to food worldwide, WUWM Abu Dhabi 2022 brought together 550 high level public and private sector practitioners and experts on site and 300 online from more than 74 countries in productive dialogue around these key risks and challenges. with the aim of finding bold solutions, through international collaboration and cooperation, to identify pathways and practical tools to ensure more resilient and sustainable fresh food supply chains at international, regional and local level and to establish innovative mechanisms to ensure food security.

The conference reunited experts from international organizations (FAO, UN-Habitat), associations (Global Foodbanking Network, Global Alliance for Improved Nutrition (GAIN), Eat foundation, Eit, World Farmers Markets Coalition, HealthBridge, Local Governments for Sustainability, etc), local and national governments, wholesale markets, wholesalers, startups, and academia (MIT, club Demeter).

During the one day conference actors discussed all the major issues that we need to resolve in order to bring sustainability, resilience and efficiency to the fresh food sector as to ensure food security and reduce risks of food crisis.

The conference begun with opening speeches of Mr Layani, WUWM Chairman, Mr. QU Dongyu, Director-General of Food and Agriculture Organization of the United Nations (FAO), Ms. Maimunah Mohd Sharif, the Under-Secretary-General and Executive Director, UN-HABITAT and several Emirati authorities, such as Ms. Mariam bint Mohammed Almheiri, Minister of Climate Change

and Environment and Dr Thani bin Ahmed Al Zeyoudi, Minister of State for Foreign Trade. All the opening speakers noted the complicated scenario we are living in and the need to take rapid and coordinated actions at the international level to mitigate the risks of food shortages in the coming year as well as to create the necessary long-term alliances, strategies and innovations to ensure food security.

The first panel, composed of renewed experts from various backgrounds, discussed the theme “Cooperation and collaboration: Towards a collective approach to global food security challenges”. Among the topics debated were the difficult assessment of the impact of geopolitical conflicts on food supply and agricultural fertilizer distribution, pathways for mitigating the effects of climate change on food production, and cross-border collaboration and international coordination of stakeholders to ensure food security.

The second panel of the morning titled “Building up a new “food system architecture” that can enhance supply chain resilience through integrated fresh food logistics solutions” brought together stakeholders around current issues such as the confrontation between food sovereignty and international food trade, the role of wholesale markets and regional food hubs in building resilience in supply chains, and how to articulate together the necessary infrastructure to support a new food system architecture that can succeed in feeding 10 billion people in 2050.

The last panel of the morning concerned innovation: “Harnessing the potential of emerging technologies for more efficient and reliable food supply systems”. Panelists discussed how innovation and digital technologies are shaping fresh food supply chains: digital marketplaces, massive data analytics, and forecasting food supply by region. New players in the fresh food sector were also invited to showcase their innovations, including multistakeholder engagement to help reterritorialization of food systems, bigdata treatment for logistics, optimization and governments incentives to promote innovation that can lead the transition of food systems into sustainability.

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In the afternoon, four round tables were organized. The first, entitled «Assessing the role of governments and multilateral bodies in fostering and promoting food system transformation: How can governments and multilateral bodies cooperate with all the fresh food actors to enhance successful strategies?» allowed participants to explore issues around the engagement local governments in urban food policy (the importance of fresh food municipal markets to ensure food security and the engagement than municipal level can have in order to shape sustainable food systems), the importance of developing innovation multi-actors clusters to tackle major challenges of the sector (composed by practitioners, researchers and policy makers) and the implications of multi-level governmental bodies to address issues of food security and climate change effects.

The second session on «Building up sustainable food environments and efficient market systems: Exploring infrastructure for the efficient and sustainable fresh food value chain of the 21st century» looked at major loopholes of actual food systems: high post-harvest losses, lack of packaging, and poor transportation, with the aim of sharing innovative ideas for building sustainable food environments that can support efficient logistics and distribution from farm to fork.

The penultimate round table of the day returned to the issues of innovation: «Fostering innovation within the food supply chain». In this session, innovative solutions were discussed as a way to address the challenges facing local, national and global fresh food chains such as artificial intelligence, local energy production for cooling systems and alternative proteins.

Finally, the last round table «joining forces to implement circular economy strategies in the fresh food supply chain and drastically reduce food loss and waste» analyzed the benefits of implementing circular economy approaches in the sector, the involvement of all stakeholders in the fight against food waste and the recovery of waste. The stakeholders insisted on the fact that the fight against food waste is a social and environmental issue of primary importance.

To conclude, parties to the conference showed common interest in supporting measures to promote innovation, changes and collaborations between stakeholders.

We would like to thank all the participants for participating in the conference and sharing very priced valuable insights of their organizations, companies, and institutions.

The WUWM is certain that these insights will help to strengthen the ties between our sector and we are very looking forward to our next meeting in Mexico in October 2023.

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Morning Sessions



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WUWM Abu Dhabi 2022: “Global food security in the XXIs: Risks, challenges and solutions to ensure resilient and sustainable fresh food supply chains”

The conference began with speeches by the main organizers and international bodies present, welcoming all participants and defining the main points of discussion.

Welcome Address by Mr. Stéphane Layani, Chairman of the WUWM

Mr. Stéphane Layani, WUWM's Chairman, welcomed the 850 participants from all segments of the fresh food value chain and representing more than 74 countries. He expressed his gratitude to Captain Mohamed Juma Al Shamisi, CEO of Abu Dhabi Ports and Emirati authorities for their support in making the conference happen. He highlighted the urgent need to transform food systems due to multi-layered crises and structural shocks, such as climate change and food waste, in order to address food security and feed the expected 10 billion people by 2050. The aim of the conference was to act as a strategic platform to foster collaboration between different stakeholders of the food value chain and to scale up good practices, foster innovation and reach the Sustainable Development Goals (SDGs). Mr. Layani concluded by expressing his hope that the conference will be a turning point for the sector and that it will lead to a new sustainable “food architecture”.



Mr. Qu Dongyu, Director-General of the Food and Agriculture Organization of the United Nations (FAO)

Mr. QU Dongyu, Director-General of the Food and Agriculture Organization of the United Nations (FAO), addressed the challenges posed by the COVID-19 pandemic, extreme weather conditions, and ongoing conflict to global food security and nutrition. The FAO estimates that 828 million people currently suffer from hunger, while 3.1 billion cannot afford a healthy diet due to a lack of access. To address these challenges, FAO recommends implementing

efficient logistics arrangements and traceability to ensure safety and reduce food loss, as well as investing in production, logistics, and technologies to increase efficiency and ensure food safety. Additionally, FAO calls for effective coordination between stakeholders, support for smallholder farmers, and policies that are supportive and inclusive for all stakeholders. By taking these actions, FAO believes that global food security and nutrition can be improved and our food system can become more efficient, inclusive, resilient, and sustainable.

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Keynote Address by H.E. Mariam bint Mohammed Almheiri, Minister of Climate Change and Environment, United Arab Emirates

H.E. Mariam spoke about the current challenges to global food security. She summarized these challenges as the three Cs: Climate change, Conflict and COVID-19, which have caused 828 million people to experience hunger in 2021, an increase of 46 million from the year before. She highlighted the UAE's food security strategy and strategic investments in key commodities and supply chain sectors as part of their efforts to build a resilient and sustainable supply chain. She mentioned the growth of the AgriTech sector in the UAE and the country's recent rank of number one in the Global Food Security Index. H.E. emphasized the importance of meaningful partnerships across the food supply chain to tackle the current situation of high commodity prices, disruptions, fertilizer access, and missed planting seasons. She also noted that food systems transformation will be a key role in COP 28 next year, as food systems contribute to a third of the world's greenhouse gas emissions. The Minister concluded her speech by expressing her pride at hosting the conference in the UAE and her hope for meaningful discussions.



Keynote Address of H.E. Dr Thani bin Ahmed Al Zeyoudi, Minister of State for Foreign Trade, UAE

H.E. Dr Thani bin Ahmed Al Zeyoudi, Minister of State for Foreign Trade, addressed the importance of resilient food supply chains and the impact that the global pandemic had on them. The global food system employs 1.5 billion people and has a total value of \$1.5 trillion. In 2019, the UAE imported food with a total value of \$24.7 billion (90% of the food national consumption). In order to build stronger, more resilient global supply chains, the UAE has secured trade and investments partnerships with key partners around the world and is investing in new technologies to develop new forms of agriculture in the country. The UAE has also created a food waste pledge to help the country reach the United Nations' mission to cut food waste by 50% by 2030. The aim is to create a holistic approach to the challenges of food security.



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Welcome Address by Mr. Abdullah Humaid Al Hameli, Chief Executive Officer – Economic Cities & Free Zones of AD Ports Group

Mr. Abdullah Humaid Al Hameli expressed that Abu Dhabi Ports Group is delighted to host the World Union Wholesale Market Conference 2022, bringing together leading companies and experts of the food industry for the first time in the Middle East. He noted that global food insecurity is a rising issue, with one in 10 people suffering from hunger and one in three lacking regular access to adequate food. Likewise, he acknowledged that the UAE has established a National Food Security Strategy 2051 to improve nutrition, reduce waste, and create diverse food sources. In this sense, he argued that Abu Dhabi Ports Group's economic cities and free zones are providing modern facilities for import, distribution, and processing of food. The Keystone Facility is the new state-of-the-art food hub to make trading more efficient and increase consumer choices. He concluded that the conference aimed to inspire and lead to practical outcomes to improve global food security.

Plenary sessions summaries

Panel 1: Cooperation and collaboration: Towards a collective approach to global food security challenges

It has been more than two years since the start of the COVID-19 pandemic, and global food systems and supply chains are now more vulnerable than ever. Ukraine's geopolitical conflict has caused a worldwide shortage of food and fertilizers, and the negative effects of climate change are having an ever-growing impact on food production. To address the urgent and severe dangers facing global food systems, this keynote panel brought together representatives from different industries to discuss the present state of global fresh food systems, the most significant risks and obstacles to global food security, and the actions taken to create a collective solution to global food security.

In this panel session the following topics related to global food systems were discussed and examined:

- 1— The current state of food security;
- 2— How to feed the global population amidst widespread health crises;
- 3— Risks and challenges to global food security;
- 4— Assessing the impact of geopolitical conflict on food supply and critical fertiliser distribution;
- 5— Mitigating the effects of climate change on food production;
- 6— Pathways to succeed in building sustainable food systems;
- 7— Cross-border collaboration and international stakeholder coordination to ensure food security.

The panel was moderated by **Ms. Jane Witherspoon**, Bureau Chief of the Middle East Euronews and the speakers in this session were: **H.E. Saeed Al Bahri Salem Al Ameri**, Director General Abu Dhabi Agriculture and Food Safety Authority (ADAFSA); **Mr. Abdullah Humaid Al Hameli**, Chief Executive Officer

– Economic Cities & Free Zones AD Ports Group; **Mr. Stéphane Layani**, Chairman of the World Union of Wholesale Markets, Chairman and CEO of Rungis International; **Mr. Javad Mushtaq**, Deputy CEO/Managing Director of EAT Foundation.

The moderator of the WUWM Abu Dhabi 2022 conference, **Ms. Jane Witherspoon**, discussed the current state of global fresh food systems and the risks and challenges facing global food security. **Mr. Saeed Al Bahri Salem Al Ameri** highlighted price increases and the lack of infrastructure in food supply chains as major challenges. Afterwards, he discussed Abu Dhabi's ambitious food security plan for 2051. This includes harvesting dates and fish for storage, building storage capacities and strategic storages, investing in sustainable agriculture, promoting bio-security, and encouraging private sector investment in the food system.

Mr. Saeed Al Bahri Salem Al Ameri:

"One of the major challenges and the most pressing challenges today are food price increases around the world"

Mr. Abdullah Humaid Al Hameli discussed how the Abu Dhabi Food Hub at Kezad would help support national and regional food security by investing billions in state-of-the-art infrastructure and ports. To continue, **Mr. Stéphane Layani** discussed the role of the WUWM in coordinating responses to global food system challenges, as well as their top five priorities for fostering the transition of food systems into sustainability, which include reducing the food carbon footprint, producing food near the market, reinforcing logistics, fighting food waste, and engaging consumers.

This panel session moved on the question of whether it is possible to feed a future global population of 10 billion people with a healthy, sustainable diet in accordance with planetary boundaries. The moderator posed the question of what the drivers behind the uneven distribution of food globally are. **Mr. Abdullah**

Humaid Al Hameli suggested that it comes from how we cooperate between farmers and consumers, as well as access to food in certain nations. Later on, **Mr. Javad Mushtaq** shared the key findings of the Eat Lancet Commission on Food Planet Health report. He concluded that it is possible to feed a global population of 10 billion with a healthy, sustainable diet by 2050. This would require significant shifts in both consumption patterns, as well as reducing waste in the food system. To achieve this, it was suggested that the global reference diet should be 2500 calories per person per day, with half of that consisting of fruits, vegetables, and an emphasis on reducing the overconsumption of animal-based proteins. In addition, regional diets should be adapted to what is produced in the region and cultural relevance should be taken into consideration. Overall, the report concluded that to shift diets, reducing the overconsumption of meat and animal-based proteins is key, as well as looking at a systemic approach including both the production and waste sides of the food system.

For **Mr. Saeed Al Bahri Salem Al Ameri**, one of the biggest challenges is that crops and varieties have been bred for environments different than the hot, arid climate of the UAE. The Abu Dhabi Agriculture and Food Safety Authority has launched an ambitious project to develop crops and varieties that can tolerate the climate of the region. This project will serve the entire region, with the goal of producing high yields with low inputs. Abu Dhabi is also using technology to improve its supply chain, with a platform to track the logistics of shipping from and to the United Arab Emirates, as well as a system to clear shipments within 20 minutes. In addition, a MoU was signed between Abu Dhabi and Kezad to improve processes at the food hub and ensure that goods do not need to wait for clearance from authorities.

After this intervention, **Ms. Witherspoon** invited the panel to identify the stakeholders who need a seat at the table to contribute meaningful policy and change. **Mr. Stéphane Layani** identified the various stakeholders who should be involved: farmers, logisticians, traders, importers, exporters, transporters, and financial entities. He encouraged transparency and dialogue between cultures and the different stakeholders, suggesting that meetings are an important first step. **Mr. Abdullah Humaid Al Hameli** of AD Ports Group put forward the role of the Middle East, particularly the UAE, in the global food supply chain. He also shared some examples of innovation and good practices, such as vertical farming and encouraging local production, to increase resilience and reduce dependence on importing products.

In the wake of what Mr. Layani and Mr. Humaid Al Hameli shared, Ms. Witherspoon invited Mr. Javad Mushtaq to share his insights on what was agreed on the United Nations Food Summit last year. Thus, **Mr. Mushtaq** explained that the UN recognized the need for a food system approach and put it on the agenda. This led to five action tracks, led by civil society organizations, that started the process of bringing private sector innovators, farmers, and other food system players into the UN system. The outcome was that over 100 countries began the process of creating national guidelines for food systems, but the challenge of finding a middle ground between countries that are meat consumers or meat producers was still difficult. Post-summit, coalitions such as the Healthy Diet Coalition, Food Forward Consortium, and Food Action Network have been established to advance the agenda. Mr. Mushtaq argued that the UAE has an opportunity at the COP 28 next year to put food systems on the agenda, and this could be a great opportunity to bring all representatives from the food system together to make breakthroughs. To solve the pressing immediate issue, the focus should be on consumption, as everyone can make better decisions on what they eat, which can drive the demand for healthier and more sustainable diets.

Mr. Mushtaq:

“Without doing sustainable and significant shifts in both the consumption patterns, the way we produce but also reducing the waste in the system, we can’t feed 10 billion people with healthy sustainable diets.”

To wrap up, the panel discussed the most pressing issues in the area of food waste and education. **Mr. Humaid Al Hameli** suggested that the most pressing issue was education, so that people would appreciate what they consume and consume less. In this light, **Mr. Layani** shared this opinion and added that education should begin early in life and that there should be more programs in schools to raise awareness on food waste. Finally, **H.E. Saeed Al Bahri Salem Al Ameri** added that investment in science and technology would enable local production of food and transport, as well as the right logistics and post-harvest technologies.

Panel 2: Supply Chain Resilience

Panel - Building up a new 'food system architecture' that can enhance supply chain resilience through integrated fresh food logistics solutions.

The Covid-19 pandemic has reignited the debate surrounding food sovereignty and the need to relocalise supply chains to create better resilience at the national level. Governments around the world are now discussing how to construct a new, sustainable and resilient food architecture. In a globalised food supply chain, what is the optimal approach to reach these objectives? Despite the fact that global food production has been at a record high in recent years, it is thought that up to one third of food produced for human consumption is lost or wasted. Thus, this session examined strategies and methods that can encourage more efficient, sustainable and resilient fresh food supply chains, from the perspective of national production, and through the implementation of more integrated logistics solutions.

The following topics were discussed and examined:

- 1— Food sovereignty versus international food trade
- 2— Evaluating if local food production can meet demand
- 3— Reorganizing food systems
- 4— Optimizing supply chains by addressing capacity and network shortages due to reduced and disrupted supply chains
- 5— Cross-border collaboration and customs
- 6— Gathering necessary equipment to support a new food system architecture
- 7— Examining the role of wholesale markets and regional food hubs in enhancing access and strengthening supply chain resilience

The panel was moderated by **Mr. Colin Foreman**, Editor of MEED. The speakers in this session were **Mr. Benoit Juster**, Executive Director of Operations Rungis International; **Dr. Christopher Mejía-Argueta** PhD, Director and Founder of MIT Food and Retail Operations Lab and Research Scientist of the MIT Center for Transportation and Logistics; **Mr. Nicolas Morinière**, Vice-President of the Import Compagnie Fruitière Group; **Dr. Fabio Massimo Pallottini**, Chairman of Italmercati-Italian Network of Wholesale food and fish Markets, Managing Director of Centro Agroalimentare Roma scpa (C.A.R.); and **Dr. Graham Sanders**, Chief Executive Officer Abu Dhabi Food Hub - KEZAD.

This session of the conference focused on supply chain resilience, with the challenges of COVID, conflict, and climate change at the forefront of the conversation. The key challenges in making supply chains more efficient were discussed, with the main challenge being to understand the strategy of the wholesale market, and to develop proper operations activities and Key Performance Indicators (KPIs). It was also noted that logistics infrastructure is not the only issue, but that it is also critical to understand how this will leverage operations. It was suggested that the four main flows of the supply chain should be considered, which are physical flows, information flow, cash flow, and knowledge. Furthermore, it was discussed that Internet of Things, traceability-linked emerging technologies, and horizontal collaborations are important elements of connecting these flows. Finally, it was noted that the key to success is to understand the shortcomings of small farmers and retailers, and provide the appropriate technology based on their level of maturity.

In this sense, **Mr. Nicolas Morinière**, from the Compagnie Fruitière Group, explained the company's approach to supply chain management, which is largely based on integration. According to him, integration allows total control of the process, from production to maturation, ensuring that goods delivered to market meet customer and citizen standards. Integration also minimizes market fluctuations and controls costs.

Later, **Dr. Fabio Massimo Pallottini** spoke about Italmercati's work to support equal access to food. He spoke about Covid's impact on the sector and how it has highlighted the importance of food security and distribution. He also spoke about the importance of sustainability, digitization, and strengthening ties to local and national production systems. In addition, Mr. Pallottini mentioned a project launched at the European level to further develop the elements of sustainability and digitalization of Italian markets.

Mr. Juster:

“Each wholesale market and each hub is an ecosystem. It’s a key aspect for optimizing global logistics and reducing the environmental footprint and carbon footprint”

Moreover, **Mr. Benoit Juster**, presented the Agoralim project, mandated by the French government. This project seeks to create a secondary wholesale market in the northern part of the Paris region, and is part of a broader initiative to develop a new field of activity in the agri-food sector, investing €1.5 billion over the next 15 years on a surface of 100 hectares. In contrast, **Dr. Graham Sanders** presented the Abu Dhabi Food Hub, which is a 3.5 square kilometer ecosystem a project aimed to become the world’s best food hub. It will integrate multimodal logistics functions, enabling buyers to purchase fresh, reliable, high-quality products online and have them delivered, while also providing an ecosystem where products can be stored, packed, traded, financed, customs cleared, inspected and moved. Additionally, the Food Hub will include a large food academy to train people vocationally and in degree and master’s courses, in partnership with some of the world’s best food education institutions. The ultimate goal is to turn out thousands of graduates to work in the UAE and beyond.

Following these interventions, the moderator asked **Dr. Christopher Mejía-Argueta** how important training and education is going to be going forward, and if other countries recognize it as something that needs to be addressed. Dr. Mejía-Argueta contended that education is one of the most important rights, as it can shape the future. He believes that providing proper training and education to all is extremely important. He also believes that academia can help by providing education, conducting research, and by promoting innovation. Furthermore, he highlighted the importance of logistics in global and local supply chains, and the need to develop cluster-based wholesale markets and high-tech markets. He also noted

the need to think about what emerging markets should be doing, suggesting the use of produce centres, public-private partnerships, and multi-layer, multi-to-multi models that should be considered in order to boost the food supply chain. He believes that the wholesale market can ‘orchestrate’ connections between smallholder farmers, retailers, restaurants, and consumers.

Later on, **Mr. Juster**, representative of the Agoralim project in Paris, discussed how France has a strategy to develop a network of major food hubs worldwide, with projects in places such as Africa, Europe, Asia and the Middle East, including Abu Dhabi. He further developed on the project in Abu Dhabi in cooperation with Kezad Group. Mr. Juster stated that to develop this concept of ecosystem, they need to promote local production and increase the part of local products, develop local food processing and transformation, promote education and training, develop up-to-date logistic solutions, and gather schools, universities, and training centers.

Dr. Pallottini pointed the importance of global systems and how wholesale markets can fit into the solution. He noted how, at international meetings, many of the same problems are shared amongst colleagues and highlighted the challenge of proactively creating innovation hubs in large wholesale markets, so that start-ups in the agri-food sector can grow. He suggested that the markets should look towards rarer infrastructure, but larger and more qualified ones, with more internal functions.



Dr. Sanders:

“One of the biggest impediments to people in growing their local production in agriculture or husbandry all around the world is access to the market.”

Following **Dr. Pallottini**’s presentation, the moderator asked the question of how to build a talent pool in a global company. **Mr. Morinière** replied that salary is the first demand of people, but the last motivation for hiring. Therefore, it is essential to train people, learn new skills and languages in order to keep them. In addition, he suggested recruiting more women to make the teams smarter. **Mr. Morinière** emphasized the importance of projects, such as the Spanish team’s plan to double its maturation capacity in three years, which requires the collaboration of many different departments. The moderator asked **Mr. Mejía-Argueta** about strategies in developing countries and how COVID has affected them. **Mr. Mejía-Argueta** responded that developing country systems have found a way to organize themselves, but that the role of government can be more transformative. He suggested that the government be a catalyst and help create public policies and intervention schemes so that the private sector, as well as academia, can work with the government.

Afterwards, **Dr. Sanders** was invited to discuss about the evolution of wholesale markets to food hubs and how the Abu Dhabi Ports Company is investing in a food hub. He highlighted the importance of efficient logistics and the need for a government-private-public partnership in order to ensure the success of such hubs. He believes that this model is duplicatable globally and would facilitate trade, which would in turn open markets for both incoming and outgoing products, thus providing access to local production. **Dr. Pallottini** added that there is a need for balance between globalization and trade, and consuming local products. He also pointed out that COVID has made it difficult for countries to produce large quantities of healthy products, and that infrastructure needs to respond to the requirements of consumers.

To continue, the moderator decided to introduce in the discussion the topic of food sovereignty. In this sense, **Mr. Morinière** discussed the importance of an integrated and symbiotic full value chain in order to promote food to the consumer. Next, **Mr. Juster** talked about the importance of working with all stakeholders, as well as the need to cooperate and build partnerships with these stakeholders and **Dr. Mejía-Argueta**, from MIT, noted that technology has advanced and now the challenge is to tailor the technology to those areas that need it most. **Dr. Sanders** mentioned the urgency to improve things incrementally every day and **Dr. Pallottini** concluded by expressing his optimism, noting that while there is still a lot of work to be done, there has been an evolution in quality.

Finally, **Mr. Morinière** spoke about the progress being made to improve wholesale markets globally. He noted that the next step is to be a concrete example, which is why they are developing six new hubs in Gabon, Uganda, Tanzania and Kenya. He also mentioned that they are not only producing, but also developing sales centers so that they can develop local production and use local markets. **Mr. Juster** added that each wholesale market and platform is an ecosystem and he thinks it is very important to strengthen and establish a relationship between these platforms in a global network. Moderator **Mr. Foreman** concluded that there are a lot of moving parts and challenges that come up all the time and it is a work in progress that needs to be discussed all the time.

Mr. Pallottini:

“It is very important not to fall into the idea of globalization and trade, more into the idea of consuming only the product grown a few kilometers away. Undoubtedly, there is a question of how to organize agriculture better in countries.”

Panel 3: Innovation Panel — Harnessing the potential of emerging technologies for more efficient and reliable food supply systems

This session explored how innovations and digital technologies can be used to positively shape fresh food supply chains by reducing waste, enhancing food safety, enabling cold chain capabilities, and optimizing production and transportation efficiency.

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In this panel session the following topics related to supply chain and tech challenges were discussed and examined:

- 1— Best practices to transform food systems
- 2— Fostering the cold chain
- 3— Internet-of-Things, Blockchain, Artificial Intelligence and Machine Learning
- 4— Digital marketplace
- 5— Data-enabled supply chains
- 6— Technology and supply chain risk management
- 7— Big data analytics and food supply forecasting

The panel session was moderated by **Mr. Feroz Sanaula**, Partner of Roland Berger Middle East and the speakers in this session were: **Mr. David Bucca**, Founder & CEO Change Foods, Inc; **Mr. Mohamed Al Hosan**, Domestic Direct Investment Director of Abu Dhabi Investment Office (ADIO); **Mr. Pierre Levy**, CEO and Co-Founder Califrais; **Mr. Muharrem Galip Onar**, Chief Digital Officer of Silal; and **Mr. Suresh Vaidhyathan**, Group Chief Executive Officer of Ghassan Aboud Group.

First the moderator, **Mr. Feroz Sanaula**, introduced a diverse set of guests discussing topics related to how innovation and various methodologies are changing how food gets from farm to fork. The discussion focused on how food used to be local, then how globalization has changed the way human populations source food, and finally the current trend back to local products.

Mr. David Bucca, a former Boeing engineer, shared how he changed careers to work on sustainable foods of the future. He talked about the inefficiencies in the food industry and how new technologies can create new proteins and foods in a sustainable way. He also talked about taking the cow out of the equation, mentioning Beyond Foods and others who are working to create meat from other sources. He pointed out the complexity of raising cows, the hormones and antibiotics used, and the fecal contamination. He concluded by saying that a technological disruption is needed to meet the need to double protein production over the next 20 to 30 years to feed an ever-increasing world population.

Mr. Bucca:

“We must find a disruptive way to change the way that we produce food, especially when we’re using a third of arable land globally for agriculture today.”

Following **Mr. Bucca’s** intervention, the Moderator asked **Mr. Mohamed Al Hosan**, of the Abu Dhabi Investment Office, on what he saw in terms of innovation and investment. In 2019, the Office announced a two-billion-dirham innovation program to encourage companies in the agriculture and food space to launch projects in Abu Dhabi. Currently, nine businesses have qualified for the program, many of which are women-owned and operated. In addition, the office is working closely with the Abu Dhabi Agriculture and Food Safety Authority and the Kezad Group to identify and create investment and business opportunities in the agriculture and food sector.



Afterwards, the panel moved to discussing the building of ecosystems, with a focus on the platform being built by **Mr. Pierre Levy** in Paris: Califrais. The platform seeks to optimize logistical and financial flows, digitalize them to make them more efficient and better for the planet, and provide easier access to local producers. **Mr. Muharrem Galip Onar**, explained the importance of balancing a global and local perspective in terms of logistics, security, and production of goods in strategic locations. To that end, they built IoT sensors and collected information on crops, soils, and weather conditions to improve planting, water management, and electricity for local farmers. They also launched the C-Lab app to connect farmers to technology, research and development. Through this platform, they aim to provide farmers with lessons learned, technology improvements, and on-the-ground technical assistance to increase efficiency and improve local products. This will help secure the food supply in the UAE and Abu Dhabi.

Later on, **Mr Suresh Vaidhyanathan**, spoke about the strategy his company employed to leverage technology and maintain a leading position in the market prior to the COVID-19 pandemic. He said that two platforms were created, one for food and one for auto parts, which would connect suppliers with small grocery stores, traditional retail and food service, and garages respectively. In addition, they complement the company's existing capabilities and can be expanded to other regions. In addition, they partnered with the food hub, but their strategy was to create an ecosystem that digitally included all participants and provided value to everyone.

In the wake of what had been discussed, the moderator introduced the challenges of reconciling sustainability with local production and food security. **Mr. Bucca** discussed the potential of a «glocal» concept, in which

technology can be used to disrupt traditional methods, and localized products can be shipped globally. **Mr. Al Hosan** highlighted the importance of making high technology affordable and sustainable. And finally, **Mr. Galip Onar**, added that technology should be used to create value for stakeholders and prioritize initiatives that affect farming and food security. It was agreed that technology should be used to create value, not just for its own sake.

To move forward, **Mr. Vaidhyanathan** suggested that the current gap between food wastage and hunger could be bridged by utilizing existing technologies such as blockchain or an independent framework. It was suggested that this could be a potential project for Chairman Stephane to take up. **Mr. Levy** elaborated that the real difficulty lies in the ability to adapt existing structures and the time necessary to understand the field in order to make the right innovations. He also noted that people typically don't like change, so it is necessary to make them realize they have a chance otherwise they won't survive. He concluded that digitalization of fresh produce logistics is necessary to make it better and to make it survive.

At this point, the moderator discussed the importance of collecting data and turning it into actionable insights to create desired outcomes. It was mentioned that agribusiness and food production are somewhat behind in this space, and the moderator asked the audience how much they have progressed in this area. **Mr. Bucca** provided a response from his perspective, citing the importance of data and optimization in achieving desired outcomes. He further discussed the need to look at the data to understand the biggest problems that need to be solved, such as reducing carbon emissions and minimizing food waste. He also highlighted the potential of additive manufacturing, which could lead to more efficient production of food.

Mr. Galip Onar:

“It’s about data sharing and how we can really have those data in a reliable, understandable way to really generate that value.”

Soon after, the focus of the discussion moved on data and the capabilities of platforms used to analyze it. **Mr. Galip Onar** spoke about the importance of data being actionable and how it can be used to create value. **Mr. Levy**, added that two different levels of data usage must be taken into account, looking at the past to improve what has been done and using AI to make predictions on consumption and inventory management. **Mr. Vaidhyathan** spoke about two major challenges in the industry. The first was the sense of protectionism around data, and the second was the lack of integration between systems, which affects the quality of data and the outcome.

At the conclusion of the panel session, the moderator asked for parting thoughts from the participants. **Mr. Vaidhyathan** then commented on how this idea can be applied to cellular agriculture and how it can be used to create products with a much lower footprint than traditional products. He discussed the three golden rules of making these products accessible to everyone: they should be cheaper, conveniently accessible, and taste delicious. **Mr. Galip Onar** emphasized the importance of change and technology in creating value and that working collaboratively could lead to better lives and communities. **Mr. Levy** suggested multiplying the tools, events and other opportunities that help people understand and adapt to changes. He highlighted the need for all stakeholders to be on a collaborative mode for a digital system and for more training and academies to create awareness. **Mr. Al Hosan** highlighted the importance of a government role in the process, with long-term plans and targets. **Mr. Bucca** noted that the second domestication of microbes is creating a lot of disruption, and that the food and agriculture industry is catching up to other industries. Finally, the moderator, **Mr. Sanaulla** ended the conference with a reminder that the ultimate goal is to ensure that no one goes hungry and that everyone should strive to contribute to that space.



Roundtables summaries



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Roundtable A: Assessing the role of governments and multilateral bodies in fostering and promoting food system transformation: How can governments and multilateral bodies cooperate with all the fresh food actors to enhance successful strategies?

During this session, participants explored how collective efforts can help drive greater efficiency, cooperation, and sustainability.

The discussion was chaired by the WUWM Secretary General **Ms. Eugénia Carrara** and included: **Ms. Delphine Acloque**, PhD Researcher and Consultant on Food Studies and Agriculture Club Déméter; **Mr. Peter Defranceschi**, Head of the Global Food Programme ICLEI; **Mr. Phillip Grant**, Chief Executive Officer of Hunts Point Produce Market; **Mr. Richard McCarthy**, Provisional President at World Farmers Markets Coalition; **Mr. Marcello Vicovaro**, International Consultant at the Social Innovation and Sustainable Markets Development Food and Agriculture Organization of the United Nations (FAO); and **Mr. Andy Zynga**, CEO of EIT Food.

The roundtable discussion aimed to improve multilateral cooperation and create sustainable solutions to address the current food system issues.

According to **Ms. Delphine Acloque**, the Middle East and North Africa (MENA) region faces several key challenges in achieving food security, including:

- 1— The rapidly increasing population and the speed of urbanisation are creating new food trends in an environment where water is scarce.
- 2— Conflicts and geopolitical tensions are heavily disrupting the food supply chains
- 3— The MENA Region, due to its climate and environmental context, is highly dependent on food imports

Over the last two decades, the increasing concern about the environment and climate change, as well as the lack of success from previous agricultural strategies, have pushed food security and agricultural policies to the forefront of the political agendas of countries in the MENA region.

Despite the implementation of national strategies such as the UAE'S National Food Security Strategy 2051 (2018) and the Sustainable Agricultural Rural Development Programme 2018-25 in Saudi Arabia, there are still significant disparities among MENA countries in terms of their ability to execute such strategies.

Ms. Acloque suggested that a common food governance for the MENA region should be implemented in order to ensure equal access to safe and nutritious food. This approach should be based on collaboration rather than competition, and should lead to a long-term solution for food, water, and health security similar to the European Common Agricultural Policy.

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Mr. Defranceschi presented the role that local governments can play to foster better food systems. He stressed that at ICLEI level they are promoting several actions in Europe to reduce food loss and waste and enhance the consumption of healthier diets in urban areas. One of these projects is SchoolFood4Change (SF4C). Launched in 2020, SF4C seeks to develop innovative solutions and tailored, locally adaptable good practices for schools, school meal providers, responsible public authorities, and policymakers. Over 600,000 children and young people in 12 EU member states have already benefited from sustainable and healthy school meals provided in over 3,000 schools. Another project is the "EU School Scheme and the Manifesto on minimum standards for public canteens". This petition is part of the «Buy Better Food campaign» and contains a proposal for implementing the objectives of the European Union's (EU) Farm-to-Fork strategies on sustainable food procurement. Lastly, the CityFood Programme is designed to accelerate local and regional government action toward sustainable food systems transformation.

Mr. Richard McCarthy highlighted the significance of constructing resilience within the food system to ensure that citizens will have access to diversified selection of healthy food next to their house. In this regard he outlined the important role that fresh food street markets

Mr. Defranceschi:

"Local governments are major players in order to succeed the transition of food systems"

play in order to foster accessibility better diets. Quoting the joint white paper entitled "Strengthening Local Fresh Food Markets for Resilient Food Systems", written by the World Farmers Markets Coalition, the HealthBridge Foundation, and WUMW, among other leading figures in the food industry, he remarked that this important contribution to food policy could bring about greater health, wealth, and versatility, as well as allowing individuals to choose and buy better food for themselves (more fruits and vegetables) and for the planet (local food, good quality fresh food). He also stressed the need to :

1— Map all fresh food markets - both formal and informal - in order to bring awareness to the public and private stakeholders of the potential of wholesale markets in safeguarding food security.

2— We should view ourselves (all the fresh food actors) as allies, not opponents, in the food industry

3— We should invest in leadership and management, as well as rural leadership with farmers.

Dr. Andy Zynga explained how EIT Food is a prime example of how multilateral actors can engage with the food sector to create successful strategies for food safety and security. He noted that the European Union founded EIT Food to address and reform the food system, and collaborated with numerous food actors around the world to do so.

The projects that are being implemented are designed to address the following issues:

- 1— The reduction of the risk of non communicable diseases through malnutrition;
- 2— The reduction of the risk of obesity with the focus on child obesity, also based on malnutrition;
- 3— Reduce the negative impact of the food system on the environment with a focus GHG emissions and water;
- 4— Improve circularity of the food system, so to reduce food waste and loss;
- 5— Improve the condition for better trust of consumers in the food system to bring innovation on the plate.

He emphasized the importance of uniting countries, regions, cities, and villages in order to reach a consensus concerning the main issues of the food system. It is vital to fund projects that involve the private sector, governmental organizations, NGO's, startups, and universities.

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EIT Food seeks to incorporate all three aspects of the "Knowledge Triangle Innovation", as proposed by **Dr. Zynga**, which consists of consensus, finance, and public-private partnerships. In fact, EIT Food has several strategies for addressing food challenges; innovation, education on how to improve the food system, business development to increase the number of players in the fight against food insecurity, and public engagement to increase consumer confidence.

In the last five years, the organization has accomplished much. Yet, according to him, by joining forces, we can strive to enhance food security on a global scale.

Mr. Phillip Grant outlined the importance of the relationship between Hunts Point Produce Market - one of the most important food markets in New York - and governmental bodies to ensure food security. He highlighted that the market serves over 2,500 grocers, 7,000 visits daily, 23,000 restaurants, 2,000 direct jobs, and 5,000 indirect jobs nationally. He also discussed the impact of the market on the local and national economy, and noted that the pandemic has highlighted how essential wholesale markets are. **Mr. Grant** introduced a recent project financed by local and federal stakeholders, with a total of \$250 million in investments, which will allow to modernize Huns market infrastructure. This will create 1,000 new jobs and support an additional 2,000 jobs indirectly. He also highlighted the market's commitment to donating over 15

Mr. Grant:

"Our market supplies 25% of New York City's fresh produces."

million pounds of fresh produce to food insecure communities annually. In closing, **Mr. Grant** thanked WUWM's membership and leadership for always being at the forefront of food systems and innovation, and extended an invitation to anyone who may have the chance to visit New York City.

Overall, according to **Mr. Marcello Vicovaro**, the world is not making sufficient progress towards achieving food security and nutrition targets.

While there have been improvements in the rate of child stunting and exclusive breastfeeding, obesity is a growing concern. Additionally, more than 3 billion people are not able to afford a healthy diet. Furthermore, more than 55% of the population lives in urban areas, and it is expected to rise 68% by 2050. Therefore, cities and local governments are essential in developing sustainable food systems. The «Mapping of Territorial Market» (2022) from the FAO found that market infrastructure was inadequate, particularly in regards to warehouses, cold-chain, food loss traceability and labeling systems. These systems were particularly weak. This negative impact on food safety is problematic because it affects:

- Food safety
- Products desirability
- Informed consumers of purchasing choices

Finally, Vicovaro emphasized the necessity of government involvement in enhancing food markets and the need for public-private collaborations to invest in market renovation and modernization. He also noted that successful models of food retail environment management, which promote nutritious diets, should be shared with other markets interested in transforming their food systems.

Overall, every speaker emphasized the importance of increasing substantial investments in the organization of the food sector and treating food access and security as a priority of state policy through comprehensive food governance.



Roundtable B: Building up sustainable food environments and efficient market systems: Exploring infrastructure for the efficient and sustainable fresh food value chain of the 21st century

Covid-19 has highlighted the fragility of the current food system and has prompted the need for innovative solutions to ensure food access for people globally. Research has revealed that a third of fresh produce is wasted or lost. The session looked into the shortcomings of the fresh food supply chain and proposed creative ideas to create a sustainable food environment that can facilitate efficient transportation from farms to consumers.

The discussion engaged multiple experts in the food sector: **Mr. Graham Burne**, Chief Operating Officer of the Logistics Cluster AD Ports Group; **Ms. Kristie Daniel**, Program Director of Livable Cities, HealthBridge; **Mr. Mansoor Al Marar**, VP of the Industrial Business Development KEZAD Group; **Dr. Saul Morris**, Director of the Programme Services Global Alliance for Improved Nutrition (GAIN);

Mr. Fabrice Panza, Manager at Global Cool Chain Solutions Etihad Cargo; **Dr. J.S. Yadav**, Managing Director National Council of State Agricultural Marketing Boards, New Delhi.

Mr. Burne outlined how AD Ports Group is aiding the construction of infrastructures to create a sustainable and durable food supply chain. The outbreak of COVID-19 has highlighted the following needs:

- The need for collaboration between all of the entities involved in supply chains.
- Governments and private entities must work together to promote the consumption of locally-grown food;
- As well as to bring sustainability and innovation to the supply chain system.

AD Ports Group operates around the globe in ports, economic zones, maritime, logistics, and digital businesses. In order to continue sustaining the food supply chain, the group has achieved various results across each sector:

- At ports, 52% of solid waste is recycled using autonomous trucks that produce low emissions.

- In the maritime sector, there has been a shift towards the use of low-emission fuels, such as biodiesel, for transshipment and maritime services in order to reduce the environmental impact of ships.

- Digitalization improved efficiency resulting in a significant decrease in CO2 emissions - 439 tonnes to be exact - and a reduction of 122 million sheets of paper.

- Regarding economic cities and free zones, infrastructure is being built to enable energy efficiency and accommodate multiple waste recycling industries.

- The AD Ports Group is taking steps to reduce their carbon emissions by replacing old diesel trains with new, more efficient electric models.

KEZAD Group is striving to create one of the largest industrial ecosystems in the world. They are already UAE's largest operator of fully integrated economic zones and business services. Their industries and developments encompass a wide range of sectors, with a focus on the food industry. They offer efficient waste management infrastructure, as well as specialized logistics solutions for packaging. But more specifically:

- They have developed a Food Cluster with the goal of developing tailored solutions for food production with state-of-the-art infrastructures;

- They have established of Modular Pre-Built Food Facilities with scalability options, so as to develop various projects with food specialty specifications;

- They are building the Abu Dhabi Food Hub: the largest wholesale market in the UAE (3.3 square kilometers!) for food trading, in collaboration with Rungis and Ghassan Aboud. It is planned to be inaugurated in 2024.

- They have founded the Al Ain Agtech Park, a specialized development created to support smart farming companies, providing them with all the necessary infrastructure. The Park's goal is to increase domestic production capacity, and to bring universities, experts and industries together to advance agri-technologies and foster agricultural innovation.

Mr. Al Marar:

“The food hub will act as a dedicated hub for trade, wholesale, warehousing, and distribution industries.”

Following the lead of AD Ports Group and KEZAD, Etihad Cargo is taking action in the UAE to develop an efficient and sustainable food supply chain. All three companies have highlighted the importance of increased collaboration with government entities, customers and partners, as this is a critical component of transforming the food system.

Mr. Panza shared that the key to improving quality management is to involve and collaborate with small teams, disseminate information, be open and honest, and strive for adaptation and creativity. With regards to fresh food value chains, from the UAE to Asia, the development of infrastructure for an efficient and sustainable system is in the works.

Dr. Yadav, Director General of the National Council of State Agricultural Marketing Boards in New Delhi, emphasized the important role of the big three countries (India, China and Indonesia) in reforming the Asian food system. He noted that these three countries are home to 75% of the Asian population and will account for 60% of Asia's GDP by 2030. Therefore, their food transitions will have an immense effect on regional and global food systems. In India, food demand is rising, forcing the country to import large quantities of vegetables and oils. India currently has more than 6,000 wholesale markets that focus on farmer- and customer-oriented strategies. Yet, most of them are making efforts to move towards more sustainable and resilient modes that will ensure the country's food security, such as the new project of India International Horticulture Market, Ganaur & Integrated Logistic Centre, NIAM institutional support and COSAMB coordination near Delhi.



Dr. Yadav:

“According to FAO data, sustainable products are 30% more expensive than traditional products, so it is expected that higher-income countries will be the most active in the shift to sustainable food up to 2030.”

According to Dr. Yadav, some of the major problems that wholesale markets in India will face are:

- Waste Management
- Hygiene Standards
- Lack of Market Space
- Changing Consumer Habits
- Implementation of Technology

Digitizing Supply Chain Management will bring numerous benefits such as increased transparency, security, and efficiency. In India, this digitization could lead to the improvement of predictive analysis for crops and livestock, climate monitoring and forecasting, control over risks, and better product quality.

Ms. Kristie Daniel, Program Director at HealthBridge, discussed a project involving street markets in Hanoi, Vietnam. Markets are vital to Asia’s culture and economy, and in Hanoi, they serve nearly half the population

living within 300 meters of a fresh food retailer. People want markets to be improved, not replaced. However, governments are trying to modernize their cities by replacing street markets with more modern ones. This is due to unsanitary conditions, crowded areas, unsafe working conditions, and lack of proper signage. Street markets often use umbrellas, tents and other unsafe means to set up shop.

The project aimed to make structural changes, such as improving drainage and moving electrical wires underground, with the support of the Tan Mai People's Committee. To re-imagine the street market, UN-Habitat was consulted, along with other NGOs, to create a waste classification system and provide training on food safety and hygiene to 60 vendors. To reduce space and traffic problems, HealthBridge provided two sample shelves for vendors so that they would not take up too much space on the road and their products would be more visually appealing. Despite the appearance of Covid-19, the project has been well received by vendors and residents alike as it has significantly helped the community.

Dr. Morris:

“Poor food environments often display a lack of access to healthy food options, known as a food desert, and an abundance of unhealthy food, known as a food swamp.”

Dr. Morris, GAIN's director, highlighted the organization's efforts to build infrastructure for healthy and nutritious food value chains in low-income settings. GAIN's vision is to build a world without malnutrition, where all people are able to access and consume safe and healthy food. To achieve this, their mission is to improve nutritional outcomes by increasing the

availability and consumption of safe, nutritious food, especially among the most vulnerable. In response, GAIN has focused on helping people by providing affordable infrastructure. **Dr. Morris** explained some of the organization's projects, which aim to make food cheaper, safer, and healthier in low-income countries, the first of which is a fish hub project. This future hub will have several features that will make it very efficient. It will have a reliable power supply provided by a solar battery microgrid, a fish processing area for cleaning and packaging, a desalination purification system for clean water and a cold storage area for the prevention of fresh fish.

COVID 19 has exposed the fragility of the food system. To address this, GAIN has created Keeping Food Markets Working (KFMW) as a response to the pandemic. This program offers assistance to people employed in the food system, small and medium enterprises who supply nutritious foods, and helps keep fresh food markets open. The primary objectives of the interventions are:

- Building resilience of small- and medium-sized enterprises (SMEs)
- Maintaining and reinforcing efforts in Large-Scale Food Fortification
- Ensuring food markets stay open and are operating safely
- Investing in nutrition security for key workers in the food system
- Supporting effective policy making and coordination during the pandemic

The last program was established to promote innovation and catalyze private sector engagement in producing and marketing more nutritious foods for lower income households in Sub-Saharan Africa. GAIN focused on the Tarakwo Dairies company, a milk collection and processing business based near Eldoret, in Uasin Gishu County, Kenya, and supported by the MNF Program since 2015. With GAIN's support, Tarakwo has started pasteurizing a part of its milk and selling it directly to consumers in two automated milk dispensaries (or ATMs) in Eldoret.

The speakers all concluded that in order to progress, a systemic and collaborative approach must be taken. This means that a variety of parties must work together on specific plans and require additional funds to support innovation and digital transformation, which have been demonstrated to be essential in improving the global food system.



Roundtable C: Fostering innovation within the food supply chain

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During this session, innovative solutions were discussed as a way to address challenges facing local, national, and global fresh food chains.

The roundtable was chaired by **Ms. Laura Buckwell** Journalist and MC and the speakers in this session were: **Dr. H.E. Mariam Harib Sultan Al Suwaidi**, Acting Deputy Director General for Operational Affairs at Abu Dhabi Agriculture and Food Safety Authority (ADAFSA); **Mr. Simon Bussy** PhD, Managing Director & Chief Scientific Officer of Califrais; **Mr. Luke Tay**, Founder of Cornucopia FutureScapes; and **Mr. Jordi Valls Riera**, Director General at Mercabarna.

The first market digital innovation for a better fresh food supply chain was presented by **Dr. Simon Bussy**, co-founder of Califrais, in collaboration with Rungis Market, the biggest wholesale market in France.» :

Califrais is using artificial intelligence to revolutionize the food supply chain. They offer a single order platform on their website, with delivery available until midnight for the next day. Califrais allows customers to save time and money by using a wide network of suppliers and optimizing orders. They are also committed to sustainability, using natural gas trucks for deliveries and reducing food waste through

stock digitization and optimization. Califrais aims to improve the economic and ecological competitiveness of wholesale market players, as well as the safety and resilience of the food supply chain. Since February, Califrais has been very successful, delivering to over 10,000 customers, with 50 Rungis merchants joining their platform. Overall Califrais wants to:

- Improve the economic and ecological competitiveness of wholesale market players.

- Improve the safety and resilience of the food supply.

- Reduce the carbon emissions from logistics flows and food waste from wholesale markets.

Mr. Jordi Valls Riera, General Director of Mercabarna, discussed the sustainability initiatives implemented by his marketplace in Spain. He began by highlighting the important role that the public-private partnership between Mercabarna and more than 600 companies plays in the success of the market, which serves more than 10 million consumers per year and 23,000 users per day. In addition, Mercabarna is taking on «Mercabarna Environmental Sustainability Projects» to support sustainable mobility, energy transition and the circular economy. Some of these initiatives are a photovoltaic plant for shared self-consumption or a cooling energy distribution network.

Mr. Jordi Valls Riera:

“Mercabarna donates 1.5 million kilos of food to the Food Bank, reducing food waste by 0.26% and recycling 77% of all products.”

Mercabarna's goal is to align our efforts with the European Green Deal, REPowerEU, and the Sustainable Development Goals (SDGs). They aim to reduce their carbon dioxide footprint and energy costs, as well as reduce their dependence on operational costs due to energy price variation. Their complete implementation plan, starting with public buildings and then transitioning to private ones, is projected to provide 23 GWh/year, which is 25% of our total annual consumption, and avoid 6,000 t CO₂e/year in emissions. They are certain to carry out these projects through a Special Purpose Vehicle with a public-private partnership.

As stated before, Asian markets are set to experience a huge shift in food trends over the next decade, as consumers are becoming more numerous, sophisticated and demanding. **Luke Tay**, founder of Cornucopia FutureScapes estimates that as Asian consumers are becoming more affluent, sophisticated and demanding, an incremental food spend of more than 2.4 trillion dollars will occur by 2030.

The shift in consumers trends is mainly:

- Looking for healthier diets and fresh, locally grown food
- Safe and traceable sources
- Sustainable consumption
- Alternative protein (plant-based meat alternatives)
- Increment of online purchasing

He also detailed how transnational cooperation can be built to improve value chains through agrifood-water-energy pacts, new food productions and AI and big data. Moreover, he emphasized the role of the public sector as an ecosystem regulator in food systems, but also as a promotor and a masterplanner of new ways to make and distribute food. Self-sufficient city food projects were presented, a topic that illustrates the complexity of supplying food to megacities of millions of inhabitants. The case of Singapore was detailed: the city currently imports 90% of its food from abroad, but through an ambitious program it intends to provide 30% of its food needs thanks to local agriculture and fishing by 2030.

The participants concluded by emphasizing the importance of fostering innovation within wholesale markets and associated businesses to meet the challenges of the 21st century.

Mr. Luke Tay:

“We need to see crises as opportunities to change the food system and to have a climate-smart agriculture”





Roundtable D: Joining forces to enforce circular economy strategies in the fresh food supply chain and drastically reduce food loss and waste

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The purpose of this session was to explore the major issues concerning food security, food safety, and nutritional quality around the world, and to better understand and clarify what is meant by food insecurity.

The roundtable was chaired by **Mr. Ioannis Triantafyllis**, Vice-Chairman of WUWM and General Manager of the Central Markets and Fishery Organization of Greece and the speakers in this session were: **Ms. Juliette Coca**, Founder and President of Circular Influence; **Ms Eve Crowley**, Deputy Regional Representative for Latin America and the Caribbean FAO; **Mr. Arturo Fernandez**, Director of WUWM Latin America; **Ms. Lola Roman Gallego**, Corporate Development Director at Mercamadrid; **Ms Ana Catalina Suarez Peña**, Latin America Regional Director at The Global FoodBanking Network; and **Ms Seta Tutundjian**, Founder and Chief Executive Officer at Thriving Solutions.

Economy is an important factor in addressing climate change, and it is essential to transition from a linear to a circular economy. Linear economies prioritize profitability over the entire product life cycle, while circular economies focus on sustainability. **Ms. Seta Tutundjian**, founder of Thriving Solutions, outlines that the principles of a circular economy are to:

1— Eliminate waste and pollution through designing for circularity.

2— Circulate materials and products by

keeping material in use and prolonging their value.

3— Regenerate nature by sourcing products produced in ways that improve local biodiversity, air and water quality.

However, there are still numerous barriers, namely:

— regulatory (lacking of policies that support the transition),

— cultural (lacking awareness and willingness to engage with the circular economy)

— technological (lack of technologies that can ease the implementation of circular economy)

— market (a lack of economic viability of business models focused on circular economy)

Ms. Juliette Coca, CEO of Circular Influence, presented her company, which is specifically designed to encourage a circular economy in the fresh food supply chain. Circular Influence is a multi-stakeholder knowledge and innovation-driven community working to promote inclusive, circular and regenerative economic practices in line with the UN Sustainable Development Goals and the Paris Agreement. She also noted that for successful transformation, disruptive innovations in climate technologies, business models, and mindsets are needed across all sectors to decarbonize the economy and restore our planet's environment.

Ms. Juliette Coca:

“We need a more inclusive, circular and regenerative economy, aligned with the UN Sustainable Development Goals and the Paris Agreement.”

Circular Influence supports initiatives from existing companies, startups, and entrepreneurs that create sustainable business models to solve the most critical climate and environmental challenges. Through radical collaboration and collective action, the company funded by **Mrs. Coca** has built partnerships with private sector investors, corporations, governments, and civil society to invest and support the scaling of these solutions around the world. Additionally, 37 CleanTech Startups have been incubated in 7 countries and 85 startups have been supported in total over the past three years.

We are all well aware that wholesale markets can be instrumental in reducing food loss and waste and wastage. **Mr. Arturo Fernandez**, Director of WUWM Latin America, stressed that the focus needs to be on inclusivity and participation vision throughout the supply chain, as public policies have failed to integrate and generate a counterforce for new ways of looking at food consumption and production. Especially in Latin America, Fernandez pointed out that there has been a worsening in the hunger condition in the whole continent. To face food insecurity and to prevent food loss and waste, WUWM Latin America built a Master Plan for 2030 and there are eight components:

- 1— Food waste reduction
- 2— Strengthening of investments
- 3— Focus on employment
- 4— Regional protocols
- 5— Logistics and planning
- 6— Knowledge promotion
- 7— Human capital development
- 8— Strategic agenda

The Latin America Group of WUWM has proposed the development of “Sustainable Agrifood Competitiveness Circuits”, an initiative that brings together different stakeholders of the agri-food supply chain and involves them in the transformation process. This project is currently being promoted in five areas of Mexico. There is also a pilot test, that is intended to be implemented in the most important markets of Mexico: Chicoloapan, Tecámac, Viñedos San Marcos, Aguascalientes, and Huixcolotla Puebla. The system is designed to reduce food loss and waste, and convert waste into compost and vermicompost for farmers.

Ms. Lola Roman Gallego, the Corporate Development Director at Mercamadrid, presented an example of successful practises from her Members. The goal of Mercamadrid is to become 100% circular, and their main lines of action are:

- 1— Promoting sustainable, efficient and connected mobility in the food distribution sector
- 2— Energy-efficient and independent Mercamadrid
- 3— Sustainability plan: To reduce the environmental impact of market activity
- 4— Renewal and development of new infrastructure for sectoral transformation
- 5— Knowledge, innovation and social economy ecosystem

Mercamadrid is taking initiatives to promote more sustainable mobility, such as providing electrical charging points, installing photovoltaic devices, and using LED lighting. Additionally, they have established ‘Hidrogena’ a plant that produces and supplies green hydrogen for trailers and industrial applications.

Mr. Arturo Fernandez:

“Extreme poverty touches between 9 and 10% of the global population, it means that almost 800 million people have only 1.9 USD to live per day”

Ms. Lola Roman Gallego:

"To reduce food waste and loss, Mercamadrid donates to the Food Bank of Madrid, helping over 90,000 people since 2017"

According to **Ms. Ana Catalina**, Latin America Regional Director at The Global FoodBanking Network, food banks have a major role in achieving food security and preventing food loss and waste. The Global FoodBanking Network has over 500 food banks in 44 countries, serving over 30 million people. The aim of food banks is to reduce hunger and ensure that food that could otherwise be lost or wasted is donated to those who are in need.

Ms. Eve Crowley, the Deputy Regional Representative for Latin America and the Caribbean at the Food and Agriculture Organization (FAO), believes that wholesale markets and food banks are essential in ensuring food security and providing people with healthier food options in low-income countries. Since 2018, the FAO has been working to revitalize and modernize the region's wholesale markets by giving them the

necessary knowledge and technical skills to supply food more efficiently, especially during the COVID-19 pandemic. However, there can also be negative impacts on urban areas, including traffic congestion, food waste, and the high expenditures electricity, water, and gas. Consequently, there is an urgent need for urban policies that address both the positive and negative impacts of wholesale markets.

In addition, investing in and working closely with wholesale markets can help set standards for food safety and e-commerce. Furthermore, digitization is transforming the traditional role of wholesale markets, moving them into the «fourth generation of wholesale markets.» Ultimately, **Ms. Crowley** recommends that wholesale markets, both large and rural, work together to ensure the continuity and improvement of the food supply chain from producers to consumers.

All of the players in attendance demonstrated how they are trying to solve the major problems in our current food system. The round table showed that contributing to the reduction of hunger is a priority, both as a socio-environmental commitment and as an urgent need to professionalize the sector. This will improve market conditions, produce healthier and cheaper food and mitigate climate change by reducing greenhouse gas emissions and avoiding food loss and waste.

The roundtables demonstrated the importance of sharing knowledge, educating and raising awareness, and of having innovative ideas from different countries in order to collaborate globally and meet the SDGs by 2030.



Annex: Program and summary of the panels and roundtables and speakers of the Conference

Panel 1: Cooperation and collaboration: Towards a collective approach to global food security challenges

This first panel gathered industry leaders from various backgrounds to discuss the current state of global fresh food systems, the greatest risks and challenges to global food security, the actions being taken, and the lessons learned.

Moderator: **Ms. Jane Witherspoon**, Bureau Chief of the Middle East Euronews

- **H.E. Saeed Al Bahri Salem Al Ameri**, Director General Abu Dhabi Agriculture and Food Safety Authority (ADAFSA)
- **Mr. Abdullah Humaid Al Hameli**, Chief Executive Officer – Economic Cities & Free Zones AD Ports Group
- **Mr. Stéphane Layani**, Chairman of the World Union of Wholesale Markets, Chairman and CEO of Rungis International
- **Mr. Javad Mushtaq**, Deputy CEO/Managing Director of EAT Foundation.

Panel 2: Supply Chain Resilience Panel - Building up a new 'food system architecture' that can enhance supply chain resilience through integrated fresh food logistics solutions

This session concentrated on how integrating logistics solutions can improve the efficiency, sustainability, and resilience of fresh food supply chains.

Moderator: **Mr. Colin Foreman**, Editor of MEED

- **Mr. Benoit Juster**, Executive Director of Operations Rungis International
- **Dr. Christopher Mejía-Argueta** PhD, Director and Founder of MIT Food and Retail Operations Lab and Research Scientist of the MIT Center for Transportation and Logistics
- **Mr. Nicolas Morinière**, Vice-President of the Import Compagnie Fruitière Group
- **Dr. Fabio Massimo Pallottini**, Chairman of Italmercati-Italian Network of Wholesale food and fish Markets, Managing Director of Centro Agroalimentare Roma scpa (C.A.R.)
- **Dr. Graham Sanders**, Chief Executive Officer Abu Dhabi Food Hub - KEZAD.

Panel 3: Innovation Panel - Harnessing the potential of emerging technologies for more efficient and reliable food supply systems

The panelists in the third session discussed how innovation and digital technologies shape the fresh food supply chain.

Moderator: **Mr. Feroz Sanaula**, Partner of Roland Berger Middle East

- **Mr. David Bucca**, Founder & CEO Change Foods, Inc
- **Mr. Mohamed Al Hosan**, Domestic Direct Investment Director of Abu Dhabi Investment Office (ADIO)
- **Mr. Pierre Levy**, CEO and Co-Founder Califrais
- **Mr. Muharrem Galip Onar**, Chief Digital Officer of Silal
- **Mr. Feroz Sanaula**, Partner of Roland Berger Middle East
- **Mr. Suresh Vaidhyanathan**, Group Chief Executive Officer of Ghassan Aboud Group.

Roundtable A: Assessing the role of governments and multilateral bodies in fostering and promoting food system transformation: How can governments and multilateral bodies cooperate with all the fresh food actors to enhance successful strategies?

During this session, participants explored how collective efforts can help drive greater efficiency, cooperation, and sustainability.

Moderator: **Ms. Eugenia Carrara**, Secretary General of the World Union of Wholesale Markets (WUWM)

- **Ms. Delphine Acloque**, PhD Researcher and Consultant on Food Studies and Agriculture Club Déméter
- **Mr. Peter Defranceschi**, Head of the Global Food Programme ICLEI
- **Mr. Phillip Grant**, Chief Executive Officer of Hunts Point Produce Market
- **Mr. Richard McCarthy**, Provisional President at World Farmers Markets Coalition
- **Mr. Marcello Vicovaro**, International Consultant at the Social Innovation and Sustainable Markets Development Food and Agriculture Organization of the United Nations (FAO)
- **Dr. Andy Zynga**, CEO of EIT Food.

Roundtable B: Building up sustainable food environments and efficient market systems: Exploring infrastructure for the efficient and sustainable fresh food value chain of the 21st century

This session looked at current challenges that the sectors are facing, such as high post-harvest losses, lack of packaging, poor transportation with the aim of sharing innovative ideas to build up sustainable food environments that can support farm-to-fork efficient logistics and distribution.

- **Mr. Graham Burne**, Chief Operating Officer of the Logistics Cluster AD Ports Group
- **Ms. Kristie Daniel**, Program Director of Livable Cities, HealthBridge
- **Mr. Mansoor Al Marar**, VP of the Industrial Business Development KEZAD Group
- **Dr. Saul Morris**, Director of the Programme Services Global Alliance for Improved Nutrition (GAIN)
- **Mr. Fabrice Panza**, Manager at Global Cool Chain Solutions Etihad Cargo
- **Dr. J.S. Yadav**, Managing Director National Council of State Agricultural Marketing Boards, New Delhi.

Roundtable C: Fostering innovation within the food supply chain

During this session, innovative solutions were discussed as a way to address challenges facing local, national, and global fresh food chains.

Moderator: Ms. Laura Buckwell Journalist and MC

- **Dr. H.E. Mariam Harib Sultan Al Suwaidi**, Acting Deputy Director General for Operational Affairs at Abu Dhabi Agriculture and Food Safety Authority (ADAFSA)
- **Ms. Laura Buckwell**, Journalist and MC
- **Mr. Simon Bussy** PhD, Managing Director & Chief Scientific Officer of Califrais
- **Mr. Luke Tay**, Founder of Cornucopia FutureScapes
- **Mr. Jordi Valls Riera**, Director General at Mercabarna.

Roundtable D: Joining forces to enforce circular economy strategies in the fresh food supply chain and drastically reduce food loss and waste

The goal of this session was to analyze the key challenges facing food security, food safety, and nutritional quality across the globe, and to dispel misconceptions as they redefined what food insecurity means.

Moderator: Mr. Ioannis Triantafyllis, Vice-Chairman of WUWM and General Manager of the Central Markets and Fishery Organization of Greece

- **Ms. Juliette Coca**, Founder and President of Circular Influence
- **Ms. Eve Crowley**, Deputy Regional Representative for Latin America and the Caribbean FAO
- **Mr. Arturo Fernandez**, Director of WUWM Latin America
- **Ms. Lola Roman Gallego**, Corporate Development Director at Mercamadrid
- **Ms. Ana Catalina Suarez Peña**, Latin America Regional Director at The Global FoodBanking Network
- **Ms. Seta Tutundjian**, Founder and Chief Executive Officer at Thriving Solutions.



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