



INTERNATIONAL UNION of FOOD SCIENCE AND TECHNOLOGY

Strengthening Global Food Science and Technology for Humanity

Second IUFOST Global Food Summit

Summary Report of 18 September 2020 programme

Strategies for a Sustainable and Resilient Food System

Preface

Nations around the world are facing serious challenges relating to food, water and energy security, health and environmental change, and ever-increasing demands for science advice. The United Nations is convening a Food Systems Summit as part of its Decade of Action to achieve Sustainable Development Goals. The global pandemic has accelerated the need for a comprehensive and collective global response to the needs of future food systems.

The purpose of the second IUFOST Global Food Summit is to bring together those who provide advice to governments on these critical, global issues related to Global Food and Nutrition Security to share best practices and develop integrated action plans for now and in preparation towards the UN Food Systems Summit of 2021.

Introduction

This Summary reports on the second IUFOST Global Food Summit. The first took place under the auspices of the Irish Government at the time of the IUFOST World Congress in Dublin. Now IUFOST has reconvened for a second Summit to look at Food Systems. We are looking for new strategies - followed by concrete actions - towards a Sustainable and Resilient Food System.

IUFOST has examined various aspects of the problems surround the current global health crisis we all face. To date we have held three Scientific Roundtable meetings:

- The first, organized just as the pandemic was becoming globally recognized, was held by IUFOST in March 2020, co-organised with our national scientific body in China, Chinese Institute of Food Science and Technology, to look at Food Safety in the midst of COVID-19.
- This ground-breaking Scientific Roundtable was followed with a scientific Roundtable that focussed on Africa and the Near East and how COVID-19 was manifesting itself in the food systems and the potential devastation.
- Our third scientific roundtable gathered food regulators and representatives of the food production sector from Asia, Europe, South America and the Middle East. It was co-hosted by the Sustainable Food Systems Division of the United Nations Industrial Development Organization (UNIDO) and the Food Risk Analysis and Regulatory Excellence Platform (PARERA) of Université Laval, Québec, Canada together with IUFOST.

This brings us to this Summit. Its purpose is to identify Strategies for a Sustainable and Resilient Food System. IUFOST is enabled by its ongoing commitment to the UN Sustainable Development Goals; by its commitment through its Budapest and Cape Town Declarations to the objectives of the International Conference on Nutrition (ICN) and World Declaration on Nutrition, and we hereby re-commit ourselves to being active participants and agents for positive change towards a strong and resilient food system.

This programme was developed in five parts.

- The first session focussed on Setting the Multidisciplinary Global Stage
- The Second session looked at how Food Science and Technology contributes to the scientific Advancement of Evidence and Knowledge
- The Third session heard about Traditional Food Markets, and ways to build capacity in Food Systems
- The Fourth Session focussed on Mobilization and Capacity Building
- The Summit programme finished with a High-Level discussion around the many stakeholders whose actions determine food security and discussed key actions for Food Science and Technology.

Summary of Session 1:

Setting the Multi-disciplinary Global Stage: Meeting the challenge of ensuring sustainable, secure food systems in the face of COVID-19 pandemic

The session was chaired by Dr. V. Prakash, IUFoST President, Distinguished Scientist CSIR, India

The first speaker was **Gordon McBean, Past President of International Council for Science, Co-founder of Future Earth and Nobel Laureate**, who spoke on the *Challenge of feeding the pandemic world today and tomorrow*. He noted that for 2019 the World Economic Forum prepared a matrix of global risks mapped by their impact and probability and that the two greatest risks were climate change and extreme weather. Both of these had obvious impacts on another risk cited that was a food crisis, which was also a high impact but lower probability. However, the matrix had also cited as a risk of high impact and low probability, a disease pandemic. Given what has transpired in 2020, he noted that the matrix had underestimated the likelihood of the COVID-19 pandemic. He also drew attention to Goal Two of the UN Sustainable Development Goal that called for an end to hunger, achieve food security and improved nutrition and promote sustainable agriculture. To respond to these challenges, he suggested that a multi-disciplinary approach with a climate change perspective was needed but would require good governance to implement.

The second speaker was **Catherine Bertini, former Executive Director, World Food Programme and recipient of the World Food Prize**. She noted *five keys to successfully transform our food systems*. The first was improved research and development and particularly, reforming CGIAR, which would include more emphasis on post-harvest. Secondly, she noted that inappropriate nutrition needed to be addressed, particularly as obesity was a risk factor of serious COVID-19 infection outcome. The third key was the greater involvement of women and girls as they were often the providers of food for the family but just as often were the last to eat. Another key was greater investment in agriculture. Finally, she emphasized the importance of governance at the national and regional levels. Better structures need to be built to handle future emergencies.

The next speaker was **Charles Godfray, Director of the Oxford Martin School, University of Oxford, England: Perspective from a Population Biologist** who presented the changes related to the global pandemic from his perspective in United Kingdom. Professor Godfray observed that “The global food – the commodity system – has shown itself to be quite tremendously resilient”. He notes that this is good news but we should not become complacent. The capacity to respond to demands of consumers and to the disruptions in the food supply systems will need to be a focus for food scientists and technologists going forward. Professor Godfray mentioned that pre-existing health issues faced by many countries had become critical during the COVID-19 pandemic. In particular, he noted that obesity appears to be a risk factor for more serious outcomes and that the UK government had begun to encourage people to maintain appropriate body weight. As a population biologist, Professor Godfray stated that “we can be a global population without wrecking the environment”. He explained that “while the earth’s population is expected to plateau this century, the way we produce food now is unsustainable”. He noted that food production must be sustainable and intensified, diets need to be healthier and contain more sustainable foods and food wastage, which is estimated to amount to a third of all food produced, must be reduced,

although it cannot be eliminated altogether. Food Science and Technology has a pivotal role to play in responding to these challenges.

The last speaker was **Joachim von Braun, Chair of the Scientific Group, UN Food Systems Summit 2021**. He began by confirming that IUFoST is recognised globally as the scientific body representing Food Science and Technology. He noted that the UN Food Systems Scientific Group was responsible for ensuring the summit brings to bear the best evidence and helps expand the base of shared knowledge about experiences, approaches, and tools for driving sustainable food systems that will inform the future. The work of the Scientific Group would ensure the robustness and independence of the science underpinning dialogue of food system transformation decisions. It will also inform the content, recommended outcomes, and the asks and commitments that emerge from the summit. He foresaw that IUFoST would be an important partner in this effort to achieve a safe, secure and sustainable food supply and achieve UN summit goals.

Summary of Session 2:

Food Science and Technology: Advancing Evidence and Knowledge

Focus: Food and Nutrition Security: Implications, Challenges and Solutions for the Food Industry with reference to COVID-19 and future food systems

Chair: Dr. Aman Wirakartakusumah, Presiding Officer, IAFoST and Member, Scientific Group, United Nations Summit 2021

Junshi Chen, Member, Chinese Academy of Engineering; Chief Advisor of China National Centre for Food Safety Risk Assessment spoke about the relationship between *COVID-19 and food safety in China*. He focussed on three questions. The first was around COVID-19 as a Food Safety issue and Dr. Chen explained that it was not seen as a food safety issue but a disease of animal origin, mainly spread person to person. Responding to concerns by some that COVID-19 can be transmitted by food, Dr. Chen indicated that there have been no reports of foodborne transmission of COVID-19 and there have been many international agencies supporting this view, for example EFSA, USDA, WHO. Furthermore, the amount of virus on food packages is not sufficient for transmission. All corona viruses are susceptible to cooking, so it is important to avoid consumption of raw or undercooked animal sourced foods.

However, a recent outbreak in a Beijing agricultural market has raised issues. It has resulted in 368 patients; 70 per cent of vegetables consumed in Beijing come through this market and this Beijing strain is more infectious. Investigations and actions are ongoing including regulatory actions, immediate closure of the market, seafood and meat have been removed and destroyed as medical waste and there has been a suspension of serving seafood across Beijing.

The ongoing challenges to food safety around this virus include the need for more research on the detection of live virus present and ensuring that regulations are science based. The psychological effects of COVID-19 are greater than the COVID-19 food safety risks, so good communication is needed too.

Johanna Lindahl, Scientist, International Livestock Research Institute, Vietnam, looked at *Food safety in informal markets*. Informal markets are very diverse including wet markets, with or without live animals present, and many different foods are sold. These markets contain a mix of people, animals, and foods. Some informal markets are more formal than others, some have certification, permits, inspections, regulatory officers, etc. Where there is little regulation and inspection it reduces our ability for early detection of outbreaks associated with these markets.

For disease emergence the problem is associated with the mixing of animals, foods and people. We must also remember there are many unwanted animals present as well, such as rats, pigeons, cats and dogs.

Demand for food is increasing, particularly for meat and dairy foods, especially in LMIC, especially in Sub-Saharan Africa and Asia. African Swine Fever (ASF) is particularly associated with food safety risks. But this area is often neglected, despite the human foodborne disease burden being similar in magnitude to HIV and Tuberculosis (TB).

COVID-19 lockdown disrupted food value chains with resulting economic impact. There have been pushes towards more formal value chains, but if value chains are longer, food safety risks can increase if they are not well managed, as they involve longer transport times.

Banning informal markets would also have an economic impact on how people can produce food, as producers that supply informal markets may not be connected to formal market systems. Pushing from formal food value chains can bring big risks if cold chains are inadequate. Yet the packaged products from formal markets can give a false sense of security. Furthermore, this may push towards monopolies which may be less resilient to shocks like we are currently experiencing than informal markets based on numerous small-scale value chain actors.

Alexandre Novachi, Technical Director, ABIA – Associação Brasileira da Indústria de Alimentação

looked at the *Challenges and solutions regarding the COVID-19 Impact on the Food industry*. He reported that ABIA members constitute 10 per cent of Brazil's GDP and therefore have a large impact on national security and sustainability. Although phenomena with similarities to the current crisis have been experienced before, the COVID-19 pandemic is new because it has been overwhelming in its global presence.

We need to be responsible with information. All of us are responsible for finding the way forward together and we need to follow the best science. Evidence-based science is the key.

When asked how IUFOST can leverage leadership to provide food chain unification to bring food from farms to consumers in a sustainable way, Dr. Novachi emphasized the importance of information coming from trusted sources. There is a need to produce documents to support companies quickly. It is important for consumers to know the safety of foods. Scientifically based and trusted information is key as we have experienced information coming from many sources, some of which are not science based and therefore, unreliable. We need to present a common scientific approach and basis on which to build effective and sustainable food systems.

Samuel Godefroy, former Director General of Health Canada's Food Directorate, former Vice Chair of the FAO/WHO Codex Alimentarius Commission, Full Professor University of Laval

Dr. Godefroy focussed on *COVID-19 Impacts for food regulatory systems in the short and medium term*.

Food regulation was impacted by the COVID-19 pandemic. Organisations had to rely on their business continuity plans and adapt. This included remote working, adapting functions not normally performed remotely -e.g. auditing and inspections. Competent authorities needed to preserve their existing mandate and control new hazards introduced by the pandemic. International collaboration was crucial. Networks played a key role for obtaining and sharing information in a timely fashion, these networks include INFOSAN (FAO/WHO International Food Safety Authorities Network) and the Heads of Food Agencies Forums (HFAF).

Food regulators had particular focus areas concerning COVID-19, including considering the risk of COVID-19 as a foodborne hazard. Evidence has shown this is not the case, but it has created a food security risk. Reporting this in a timely manner was important to counter speculation and fake news. The ability to give timely science and information outputs like this was key and allowed regulators to stand out as relevant sources of information amongst the many sources. Food regulators had to maintain the integrity of their regulatory function through adaptation.

A priority was to protect workers through adapting the work environment for COVID-19, including maintaining distancing and work reorganisation to allow things like hand washing, use of protective equipment, cleaning surfaces and the need for awareness. There was a need to minimise disruption to food chains whilst doing what was necessary to control risks.

There are ongoing challenges and questions including the need to explore the issue of virus in frozen foods, with food safety issues needing to be assessed scientifically whilst resisting the imposition of technical trade barriers that are not science based. There is a need to ensure regulatory functions can withstand future shocks, with prioritisation of functions, such as safety and preventing/minimising disruption. Delivery modes of regulation need to be adapted to withstand pandemics and tailored to local settings and needs. The importance of international collaboration and regional and global networks such as INFOSAN, HFAF and others was highlighted.

Summary of Session 3:

Food Science and Technology: Advancing Evidence and Knowledge Traditional Food Markets, Future Food Systems and Capacity Building

Chair: Dr. Cheikh Ndiaye, Executive Director African Food and Agriculture Skills Development Center, Senegal, and Chair, IUFoST Food Systems and COVID-19 Task Force.

The first speaker was **Ruth Oniang'o Chair Sasakawa Africa Association; Founder, Rural Outreach Programme; Africa Food Prize Laureate, Board Director, CABI** on the subject of *Mobilising young people, skills development, training and re-training for food security and stability*.

Ruth Oniang'o mentioned that Food issues have to be addressed scientifically. Capacity building is important in the present COVID-19 context. Collaboration in research with other countries is effective to obtain needed scientific information. However, no one is clear on how to protect the environment and work needs to be done to bring together various disciplines to find solutions. Traditional foods play an important role in food sustainability. Instead of importing food, dependence on the locally produced foods is recommended. Dr. Oniang'o emphasized, for example, that a skills development centre is necessary for the western African region. Education and training should be the focus.

The second speaker for this session was **V. Prakash, Distinguished Scientist, CSIR India and IUFoST President** emphasized the development of *Safe and nutritious foods to promote immune functions*.

Dr. V. Prakash asserted that the development of safe and nutritious food is necessary to promote and boost immune functions in the body. The role of Food Science and Technology is very crucial in this context as the food must retain the nutritional quality even after processing which is quite a challenge. Apart from the consumption of grains, fruits and vegetables, fish, meat, poultry, and eggs, the use of spices and condiments has to be increased, as some of the bioactive molecules in them have a profound boosting effect on the immunomodulatory functions. This is essential along with nutritional support to have an adequate amount of Vitamin D, C, Zinc, and Iron along with B Group of Vitamins. Exposure to sunlight is important for Vitamin D. Traditional wisdom and Ethnic food systems are considered the right combination and it is used over several generations where the body microbiome is nurtured to enhance the probiotics and prebiotics. This, alongside the application of modern science, plays an important role in providing the immunomodulatory function to the body through the desired nutrients. The challenge to IUFoST is to coordinate the capacity building globally in Food Science and Nutrition to provide the desired quality of food from Farm to the Consumer with safety embedded into it. The role of industries is very crucial to produce food products using innovative approaches and ensuring sustainability is built into them, along with the resilience of its acceptability across societies that have rich food cultures.

The next speaker, **Alejandra Medrano, Laboratorio de Bioactividad y Nanotecnología de Alimentos and ALACCTA President** spoke about the *Effect of nutrition & dietary habits during the pandemic*.

Dr. Medrano described the effect of nutrition and dietary habits during the Pandemic from results of the global survey conducted over the last few months. Physical activity is essential during COVID-19. She talked about socio demographic characteristics. She explained that, during COVID-19 pandemic, people are worried about their food habits. She suggested that the consumption of fruits and vegetables, probiotics, meat, seeds, and nuts that will improve the immunity increased during this critical time. The Food system should be made more sustainable going forward.

The fourth speaker for this session was **Lara Hanna-Wakim, Vice Director, Higher Center for Research, Full Professor at the Holy Spirit University of Kaslik (USEK), Lebanon**. *Accumulating the Scientific Evidence to present challenges and opportunities post pandemic for Future Food Systems* was the focus of her presentation.

Dr. Hanna-Wakim stated that nations around the world are facing serious challenges related to food, water and energy security, health, and environmental changes. Therefore, the novel corona virus comes at a time when most of countries are struggling with major food insecurity. In her opinion, the COVID-19 pandemic has accelerated the need for a comprehensive and collective global response to the need of future food systems. Consequently, there is a need to securing the global populations' future food supply and safety.

Dr. Wakim presented a SWOT analysis conducted in 16 different countries that had been broken down into seven categories consisting of Central and South America, Africa, Europe, Near-East, South-East Asia, North America and East Asia. She pointed out that the objective behind conducting this SWOT analysis was to better understand Strengths and Challenges, and for identifying both opportunities open to the consumers and the threats they face in view of this global crisis. She highlighted then opportunities and challenges related to each category and the role of Food Science and Technology to address these challenges.

She stressed the importance of the role of Food Science and Technology in i) fostering collaborative relationships between industry, academia and government to address food science and technology and food safety issues and initiatives ii) uplifting and valorising traditional foods locally to satisfy local and global markets iii) implementing a beneficial application of Science and Technology to improve food systems and secure a capacity building by dissemination of improved knowledge.

Summary of Session 4:

Food Science and Technology: Advancing Evidence and Knowledge Capacity Building: Mobilisation

Chair: Dr. Fereidoon Shahidi, Chair of IUFoST Scientific Council

Ali Badarneh, Chief of the Sustainable Food Systems Division, Agri-Business Development Department, at the United Nations Industrial Development Organization (UNIDO) presented the *Pandemic Impacts on industrial sector and capacity building for future food systems*

UNIDO is contributing to food systems to help them be more resilient through project work across different countries. Some aspects include sharing information on how to work and mobilize resources. Industrial production has been greatly impacted by the pandemic with, as an example, approximately 81 per cent of countries experiencing a decrease in industrial production with the average being about 6 per cent. 43 of 46 countries examined have experienced a lower level of trade in goods. More than half of SMEs (Food Systems) have experienced severe losses in revenues and one-third fear they may be out of business without further external support within one month from this date. It differs from country to country, but the impact of the pandemic on food systems is clear.

UNIDO/FAO survey conducted a survey on impact of COVID-19 on Agro-processing food system in Africa in Cote d'Ivoire, Ethiopia, Kenya, Madagascar, Nigeria, and Zambia. The survey covered following areas: supply side and the flow of raw materials; workforce and employment status; financial situation (current and forecast); markets; existing support measures by the government; Immediate and short-term needs for resilience; situation forecast for 2020. The data collection results indicated reduced capacity utilization; disruption of supply chain; increased cost of raw materials input; reduced revenue; immediate short-term need – working capital; reduced 2020 output and earnings.

UNIDO is responding to the needs by preparing and containing (supporting the preparation during the health crisis and containing its economic consequences, protecting supply chains, the production sector and its workers. It is responding and adapting (supporting the production sector to adapt and respond, utilizing inclusive and sustainable solutions, and building resilience). UNIDO is looking to help the production sector to recover and transform (support the recovery and transformation towards inclusive resilient and sustainable economies and to provide resources to solve the problems of food systems during pandemic.

James McIntyre, Program Lead, Education and Skills – West, Central and North Africa, Mastercard Foundation: Empowering Young People

On the subject of *Empowering young people* which was acknowledged as a very important theme and the major thrust of Mastercard Foundation education work in Arica, James McIntyre indicated that the Education skills in west, north and central Africa exhibit a great diversity. It is vital for the future of Africa for education to be inclusive and far reaching. Africa is already the youngest continent and it is projected that by 2075, the population will surpass China and India together. The future will depend on how the continent harnesses young people's capacity and they are the generation who will have the biggest challenges to solve including food security and climate change. At present there are 2075 projects in which Mastercard has partnered with institutions and these projects include food security and safety. People

need knowledge and competencies. The agriculture sector has potential for the future work force, and for future opportunities in food processing and distribution. Most countries have capacity building potential in energy and agriculture. Primary education, and secondary education are the central focus of Mastercard Foundation and skills training to promote food security, including training in agriculture, food science, food processing industry. The purpose is to grow the competencies and skills in this changing world in the midst of fundamental challenges. There are many ways in which Food Science and Technology should continue to be part of the development of skills training to secure a sustainable food system through a knowledgeable workforce.

John McDermott, Director, CGIAR Research Program on Agriculture for Nutrition and Health, International Food Policy Research Institute (IFPRI)

John McDermott discussed *Resource Mobilization for Global Food Security*. In the agriculture, nutrition and health sector, he leads projects worth 85 million dollars. Working across sections and securing resources from banks and foundations are an important part of all work to build capacity.

The agriculture, nutrition and health programs are areas of IUFOST interest in policy and practice. John McDermott, as Chair of the IUFOST Food Security Committee, has been sharing his experiences and believes the focus should include training in education, in food security and nutrition, food systems, food safety, science and technology capacities, food policies. How should IUFOST mobilize resources? Resources means people, institutional partners, and money for the major purposes of research, training, and education. The priority topic is food security and nutrition, as well as food systems, food safety and science and technology capacity. The focus of mobilization is towards public sector donors, but an Interface of public and private organizations is important. The main region targeted by donors is Africa, 60% of funding goes to Africa; South Asia is the next region and then support for East Asia. The priority at the moment is on countries of central Africa, for example, Ghana and Kenya. Beyond the banks, government, institutions also provide resources by grants of project financing. Private sector foundations can provide resources.

The high-level Discussion on actional deliverables through IUFOST was moderated by John McDermott and included Gordon McBean, Peter Lillford (co-author with Anne-Marie Hermansson of the IAFOST Report on Global Challenges and Critical Needs for Food Science and Technology) other distinguished Summit speakers and Adhering Body representative Prof Gbenga Ogunmoyela.

Deliverables will be developed through IUFOST and Working Groups established through this Summit.

1. The Role of Food Science and Technology in production, processing, storage, packaging, distribution
2. The role of Food Science and Technology in healthy diets, nutrition, food safety and capacity building
3. The role of Food Science and Technology in technical innovation, research, education, advice for agriculture as a sector and perspectives for attracting investment for capacity building.

With the purpose of forging

- strategic foundations for multi-lateral development of global food safety and security policies and actions with specific attention to COVID-19 and pandemic situations and their effect on the Food Systems.
- interactions throughout the global scientific community committed to implementing strategies and programmes to avoid or mitigate further crises impacting global health and welfare and to promote sustainability.

The Summit aims to produce tangible actionable items toward achievable goals for all international stakeholders and policy makers by focusing and collaborating on strategies and actions regarding Food Sustainability and a resilient Food System that can care for the health and well-being of all populations with the use of Food Science and Technology. This IUFoST work is action-oriented and focused on helping the UN Summit of 2021 on Food Systems achieve the 2030 sustainable development goals and the food safety and security of the world's populations.

We welcome you as we begin our work and look forward to many of you working alongside us in the weeks and months ahead.

The IUFoST Food Systems and COVID-19 Task Force is thanked for facilitating this Summary: Cheikh Ndiaye (chair), Srnivasa Gopal, Ralf Greiner, Lara Hanna-Wakim, Theodore Knight-Jones, Suzana Lannes, Gerald Moy, Bola Osinowo and Chibuike Udenigwe.

Summit Speakers' biographies, ppts, and other reference materials may be obtained through secretariat@iufost.org.

This information is available to all with notification to the IUFoST Secretariat secretariat@iufost.org and recognition of source. Thank you.

The International Union of Food Science and Technology (IUFoST) stimulates the ongoing exchange of knowledge in those scientific disciplines and technologies relating to the expansion, improvement, distribution and conservation of the world's food supply. The international food science and technology scientific community works within the Union to exchange ideas and develop strategies to meet the vision and mission of IUFoST.

The Union works with other international organizations such as FAO, WHO and UNIDO to fulfill its mission. It is the elected global representative of Food Science and Technology in the International Science Council (ISC). IUFoST's vision is to **Strengthen Global Food Science and Technology for Humanity**.

IUFoST's mission is to: (a) Promote international co-operation and information exchange. (b) Provide education and training to food scientists and technologists around the world. (c) promote professionalism and professional organization among food scientists and technologists d) globally represent food scientists, technologists and engineers together with IUFoST national scientific bodies to promote research, innovation and to provide strategies that strengthen food science and technology as it works to ensure safe, secure and nutritious food for all.

For more information visit www.iufost.org, Contact: Secretariat@iufost.org.