

INTERNATIONAL UNION OF FOOD SCIENCE AND TECHNOLOGY



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ABOUT IUFoST

IUFoST is the global scientific organization representing more than 300,000 food scientists and technologists through its work in over 100 countries around the world. It is a voluntary, non-profit association of national food science organizations linking the world's food scientists and technologists. IUFoST is one of only 39 scientific unions elected into membership of the International Science Council by its multi-disciplinary peers and IUFoST is the sole representative of the discipline of food science and technology. IUFoST also represents international food science and technology community to other international organizations, such as WHO, FAO, UNDP and UNIDO.

VISION

**To strengthen the application of food science and technology
for the benefit of all humanity**

MISSION

Promote international co-operation and information exchange, to provide education and training to food scientists and technologists around the world and to promote professionalism and professional organization among food scientists and technologists.

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Dear Friends,

I am writing to all of you, though belated, firstly to wish you and your family & friends a Happy, Healthy, and Safe Year 2021. We all underwent the extremely difficult year of 2020 with the pandemic that has not spared any region of the world. Many fought through the disaster and some were lucky, but many were not. This pandemic also shattered most of the economies globally, disrupted the Food Chain and sent a firm message across to everyone, including food scientists and policymakers at large, about the inter-dependency and inter-connectivity of all subjects, regions, and nations as one large family. The fragility of the food system is apparent more than ever. Science must play a central role in the recovery process and in future sustainability and resiliency. This is also the time for us to reflect as Food Scientists, Technologists and Engineers on the crucial role we need to play in delivering safe and nutritious food from Farm to the Consumer by primary, secondary, and tertiary processing, with the intervention of Industries at different levels while paying respect to the hundreds of years of the social systems in place in any region.

The central role of Food Science in the Food chain has begun to be better understood during this worldwide pandemic. The role played by local solutions of adaptable, affordable, and accessible technologies in many cases to solve global problems at multi-sectoral levels is already clear to us. This may minimize further issues regarding dislocation in the food systems and also ensure the safety of food in such pandemic conditions - all with the intervention of knowledge through science and its application. The role of sustainable nutritious food in boosting the Immunity of individuals is another important scientific push that has brought Food Science closer to Nutrition Science than ever. This synergy is essential to ensure that the right nutrition reaches everyone, not only in the

time of pandemics. Scientists working together have a greater role to play in the battle against the pandemic of malnutrition, undernutrition, anemia; and a healthy mother and child on the one side, and the billions of overweight people due to lifestyle patterns and bad diets on the other. This is where Food scientists and technologists play a crucial role with appropriate innovations to reduce food costs while increasing the nutrition received per plate with a variety of foods containing dairy products, fruits, vegetables, staples, meat, fish, poultry, spices and condiments based on the local food and dietary habits with resilient sustainability.

With the advancement of Food Science and modern tools, previous technologies are becoming obsolete at an alarming rate. The need to focus on innovative and newer technologies utilizing co- and by-products, water and energy saving in the food industries is becoming a significant challenge for the Value Chain. Food Industries worldwide including micro, small, medium, and global industries must gear up by applying global knowledge and local solutions together with academia and R&D organisations worldwide. This will also ensure a sustainable and holistic integrated approach in-keeping with the United Nations Sustainable Development Goals.

Working together integrating local solutions for global problems and global solutions for local problems with a science-based approach is a way forward for ensuring a healthy world with Food and Nutrition Security. IUFoST through its board, fellows, members, and various working groups, academy, and Scientific council and committees move forward with confident optimism to partner in these challenging goals and with dedication in the focused areas of Food Science and Technology.

The best to all of you from Team IUFoST.

Vish Prakash

IUFoST BOARD REPORT

The General Assembly of 20 August 2020 ratified the decisions and actions of the Board and supported the aims and objectives of the Union as expressed at the meeting. This Board Report follows the Report to the General Assembly in August, and the previous reports of May and January 2020.

Rebuilding and good governance continue to be the focus of the Board's work following the affirmation of its actions and proposed activities by the General Assembly. The General Assembly votes were overseen by the IUFoST Chartered Accountants who pronounced the process transparent and verified the results. The Board's culture is one where all members are treated with respect and collegiality and mindful of the exercise of their duties to serve the greater good of the Union.

The Board has continued to hold monthly Board meetings. All Board Directors have been involved in all the work of the Union and this has allowed the Board to practice governance that is not divided between operational branches. This democratic and effective approach to governance has served well.

The Board of Directors manages the work of the Union and works with all its committees to achieve the Union's objectives. Since the General Assembly, the Board has initiated and/or approved many actions to benefit the Union, both administratively and scientifically. Members will see an outline of some of these measures and scientific actions in the following pages. IUFoST has turned its attention to science again with the support of its members, the Scientific Council, the International Academy of Food Science and Technology and its Fellows as well as other friends and colleagues.

IUFoST Adhering Bodies and Academy Fellows were encouraged in July 2020 to nominate members for IUFoST Working Groups and Committees. More than 70 nominations were put forward and from them working groups were established in the three main areas of IUFoST Focus: Education, Food Safety and Food and Nutrition Security. The emphasis again has been placed on bringing young scientists forward and they are now active in every working group in the Union. The Academy is represented permanently in the Board of Directors and an Early Career Scientist representative is welcome to participate in the meetings. In total there are more than 15 working groups working on your behalf and to represent your interests in the Union. You will see more about them in the coming pages.

The Board is pleased also to report new and returning country members are being added to the roster of the Union. There is new Adhering Body representation for Canada and new members include Portugal and Mexico.

Lastly, more good news. **[THE 2022 World Congress in Singapore dates are set for 23-28 October 2022 and a wonderful programme incorporating New Zealand on day one is planned. Mark your calendars. Italy has been awarded the 2024 IUFoST World Congress, the next biennial congress after Singapore.](#)**

The Board wishes to take this opportunity to thank everyone for their dedication and service and is grateful for all their expertise in guiding IUFoST forward.

IUFoST GLOBAL FOOD SUMMIT

IUFoST convened its Second GLOBAL FOOD SUMMIT in September 2020 to bring together educators, industry, international organisations and policy makers to discuss the needed central role of Food Science and Technology in decision making for the sustainability of Future Food Systems.

The first Summit 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. This Summary reports on the five focus areas of the second IUFoST Global Food Summit.

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

The session was chaired by Dr. V. Prakash, IUFoST President, former CSIRO Mysore Director, 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 under-estimated 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.

Charles Godfray, Director of the Oxford Martin School, University of Oxford, England was the next speaker with the Perspective of a Population Biologist who presented the changes related to the global pandemic from his perspective in United Kingdom. Professor Sir Charles Godfray observed that “The global food – the commodity system – has shown itself to be quite tremendously resilient”. He noted that this was 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.

*“If we want to achieve sustainable development of the food system, we must rely on food science and technology innovation.”
Prof. Sir Charles Godfray*

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 Committee, 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.

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. Session two summary.

Chair: Dr. Aman Wirakartakusumah, Presiding Officer, IAFoST and Member, Scientific Committee, 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 likely 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 had raised issues. It had 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.

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.

“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.”
Dr. Alexandre Novachi

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.

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 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.

Food Science and Technology: Advancing Evidence and Knowledge

Traditional Food Markets, Future Food Systems and Capacity Building, Session three summary.

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.”
Prof. Ruth Oniang'o

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* who 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.”
Dr. Alejandra Medrano

The next speaker, *Alejandra Medrano, Laboratorio de Bioactividad y Nanotecnología de Alimentos and ALACCTA President* presented the results of a questionnaire prepared in Latin America on Effect of nutrition & dietary habits during the pandemic. Dr. Medrano described the effect of nutrition and dietary habits during the Pandemic taken from results of the global survey conducted over the last few months. It determined that physical activity has been essential during COVID-19.

Dr. Medrano 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 from SWOTs, prepared by members of the IUFOST Task Force on Food Systems and COVID-19, 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.

Food Science and Technology: Advancing Evidence and Knowledge Capacity Building: Mobilisation, Session four summary.

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

Ali Badarneh, Chief of the Sustainable Food Systems and Nutrition 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.”
Dr. Ali Badarneh

UNIDO/FAO 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.

Summary of High Level Discussion. Session 5.

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 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 focused on helping Food Systems achieve the 2030 sustainable development goals. The results will be submitted to the UN Food Systems Summit and will form the basis for multi-disciplinary collaborations in research and development.

IUFoST SCIENTIFIC ROUNDTABLES (SRDs)

The series of Scientific Roundtables on current and important issues began with two subjects: SRD1 - *Food Losses and Food Waste* and SRD2 - *Climate Change and Food* just over a year ago. These were followed by an Extraordinary Series developed during the COVID-19 health crisis to assist and inform scientific actions during the pandemic. As you may recall, these Roundtables focussed first on China and Food Safety Implications.

IUFoST invited the Chinese Institute of Food Science and Technology (CIFST) to cooperate in a roundtable on COVID-19 and Food Safety and convened an Extraordinary Scientific Roundtable (SRD3) entitled ***COVID-19 and Food Safety and its implications, Challenges and Solutions for the Food Industry.***

This was followed by the second in the Extraordinary Series on the subject of ***COVID-19 Crisis: Implications for Food Systems in Developing Economies - Focus on Africa and Lebanon*** (SRD4). The critical importance of ensuring that developing economies are supported by the international community as they prepare to contain the spread of COVID-19 was highlighted in this Scientific Roundtable that brought together internationally renowned experts in food science looking at nutrition, agriculture, regulation, epidemiology, and industry to address challenges specific to Africa and Lebanon.

The next scientific roundtable (SRD5) was on the subject of ***Supporting the Resilience of the Food Production Sector and Limiting Food Supply Disruption During COVID-19 Pandemic***, (SRD5) in which IUFoST partnered with the Nutrition and Food Systems Division of the United Nations Industrial Development Organisation (UNIDO) and the Food Risk Analysis and Regulatory Excellent Platform (PARERA) of Université Laval, Quebec, Canada, to hold a roundtable discussion to share perspectives of the food production sector as to the challenges they faced, solutions developed and lessons learnt and those of food regulators in various parts of the world as to their efforts to prevent disruption of the food supply chain and contribution to maintaining safety of food products and confidence of consumers.

SRD6 Food Processing Overview – Perceptions, Policies and Implications for Future Food Systems.

Excerpt from IUFoST SIB on Food Processing Opportunities and Challenges:” (authors Julie Jones and

Emmanuel Hatzakis). *With a projected global population of almost 10 billion people by 2050 and limited natural resources available, sustainable production of adequate high-quality food is a major challenge facing our society. Food processing and preservation are among the most powerful tools available to achieve the goal of feeding the constantly increasing population because they are useful in addressing both post-harvest and consumer food losses. Food processing and full utilization of resources help to achieve food safety, increase shelf life, and improve the nutritional value of foods. Typical food processing includes operations such as mixing and formulating raw materials, pasteurization, heating, freezing, chilling, filtration, drying, fortification, packaging and the addition of preservatives, colorants, and flavors. In this sense, cooking is a form of food processing. Nowadays, the majority of foods sold in grocery stores have been subjected to some degree of processing; however, people and organizations often give different definitions of “processed food”.*

Food processing eliminates pathogenic microorganisms, may increase the availability or preservation of nutrients, and even reduce or deactivate innate harmful components. However, it is also evident that certain processes may result in the reduction of nutrients or potential bioactives. Some formulations increase ingredients that can contribute to poor health when consumed in high amount. Others may employ additives to extend shelf life and maintain flavor, texture and safety. Concerns have been raised among consumers and some health professionals about the potential negative effects of processed foods on human health and their relation to the obesity epidemic and chronic diseases such as type-2 diabetes and cardiovascular disease, in a scenario of increased sedentarism, reduced time for food preparation at home and overeating. These concerns are mainly associated with food products that have been subjected to heavy processing or contain components that dietary guidance recommends ‘to limit’, such as sugar and salt. The impacts of processed foods on human health status have been studied using various systems to characterize the foods... However, there is lack of agreement among the various systems as to placement of foods into a

category. Some focused less attention on the degree and complexity of processing and more on a food's formulation such as the presence of detractor ingredients or food additives including added nutrients and packaging."

With this background the **SRD6 Food Processing Overview – Perceptions, Policies and Implications for Future Food Systems** Roundtable was organised in December 2020, and chaired by Dr. Fereidoon Shahidi and Dr. Vish Prakash as an Overview to address issues of classification of processed foods and the role of Food Processing and its sustainability in the wider context of Food Science and Technology.

The first invited speaker was **Dr. Nathan Anderson, Institute for Food Safety and Health, Food and Drug Administration, FDA, USA**. He provided basic reference points for food processing, such as the definition of food processing as the conversion of raw materials into ingredients that make a food product. There are many ways in which food can be processed, for example: removal of the inedible parts of the product by shelling or peeling. Some processes minimally alter the product by peeling, slicing, dicing, chopping and even fringing, as examples. The bulk of food processes are designed to prevent post harvest losses and extend the shelf life of the material by reducing or eliminating the microbial activity that would spoil the product.

Dr. Anderson delineated the general concepts associated with food processing encompassing thermal processing such as blanching, pasteurization, sterilization, canning; removal of thermal energy by reducing the temperature, i.e. refrigeration, cooling, freezing; removal of moisture from some products by drying, evaporation, dehydration and concentration. (This controls water activity, limiting microbial growth and the addition of salts or even sugar also contributes to limited microbial growth). The role of pH or the acidity of the food and its optimization based on the type of food, use of preservatives, fermentation, use of packaging and also processes such as Modified Atmosphere Packaging (MAP) does enhance the shelf life. Other novel and emerging processes and technologies use radiation, high pressure, radio frequency processes, microwave processing, and the use of certain regulatory cleared additives and preservatives to extend the shelf in combination with low-temperature storage. A combination of

these methods labeled as hurdle technology is also in vogue in bulk processing. Thus the term Food Processing is not just limited to one process and refers to many different approaches and involves understanding the structure-function of foods in this process.

The second speaker, **Dr Alexander Mathys, Head, Sustainable Food Processing Laboratory, ETH Zurich, Switzerland** focussed on food process innovations that can solve many of the present issues. Classification of food processing (inclusive of sustainability factor), such as thermal and non-thermal processing, biotechnology-oriented processing, mechanical processing, chemical processing (which is being gradually replaced by physical processing) and can be inclusive of LCSA – Life Cycle Sustainability Assessments.

In a typical food processing arena, a combination of products and services that considers all the dimensions of sustainability, not only the environmental part but also the social part, including nutrition and health is important. This helps food scientists to better evaluate the existing states of technologies and provide more new and novel sustainable solutions. If there is too much focus on cost reduction, issues might arise on nutrition and health effects, which may not be considered as being favourable.

Current research focus for Dr. Mathys includes alternative single cell technology based on microalgae, which can be grown through different means. If one integrates some of these new emerging technologies, it is necessary to ensure these are aligned and firmly based on science. Integration of microalgae-based technology can be used to increase nutritional aspects of food and its impact on the mouthfeel and that the food is safe for consumption. The lower value chain approach is based on insects and alternative animal sources, for example black soldier fly larvae, grown in an organic environment, where the focus is mainly on feed, wastes to produce protein and fat.

These processes have to be aligned with multi-indicators of three-dimensional sustainability assessments. Using a combination of these nutritional values can hence be increased without adding any artificial ingredients. For example, the micro-algae biomass itself could increase the levels of vitamins B and E. or the extrusion process can deliver the right

structure that can enhance mouth feel to attract consumers and can also deliver the product with a safety net, which is essential. Further bridging the gap by use of a multi-hurdle technologies concept is also important. Some emerging sterilization options and hurdles technologies used include high energy electron beam, low energy electron beam, plasma technology, UV radiation, dry heat, wet heat, and others in combination. Thus the combination of the technologies paves the way for an optimistic view of food technological processes in food processing.

The third speaker was **Prof. Paulo Sobral**, ZEA-FZEA, University of Sao Paulo, Brazil. He emphasized that food processing for some reason has received a negative image among a section of consumers and among some professionals in the food and feed sector. The classification by some of the term “ultra-processed foods” and their associations are implicated.

Dr. Sobral indicated that some concepts are used to create this classification and it has many dynamics and possible misuse too. He gave the example of Brazil, where there is no production of casein and lactose. In the panelist’s knowledge, lactose is not used in any formulation of products in Brazil and thus generalization needs to be avoided at a global level. Another cited example was regarding foods processed by hydrogenation; a process that exists only for one kind of material to produce oil with a higher degree of saturation but if it is done partially then creation of trans fatty acids will occur that are deleterious to the health. Another area that requires clarity is in extrusion and moulding. The simplest extruder used is the meat grinder, in as much as it destroys the meat structure, it mixes all the ingredients in several cycles. After the extrusion, the product is moulded and finally deep fried. However, modern engineers have added the latest technologies to this process for controlling any variables, precision wise. Many times the term ‘ultra-processing’ is misleading, and hence generalizations must be avoided. There is confusion in the NOVA classification and Dr. Sobral gave a number of examples to make this point of classification and indicated how the market and consumers view this differently.

Prof. Pur Hariyadi, Professor of Food Science and Technology, Indonesia and Vice-Chair CODEX was the fourth speaker. He began by indicating that food processing is a part of a more complex food system. The food system we currently have is not sustainable in his view. Focus needs to be more on

affordability aspects. Indicators are clear that current food systems do not address malnutrition. From the environmental aspect, our system is fragile as proven by the recent pandemic and its effect on food systems. The systems currently depend on a few commodities e.g., rice, wheat, maize etc. Affordability is a key factor to consider. We need to encourage diversity of products. The health and welfare of people must be considered and also inclusivity and local sustainable practices of the people. Food processing is not just the treatment of food substances by changing its properties to preserve it, to improve its quality or to make it functionally more useful but goes beyond that. We have to improve and assure food safety using the principles of food processing. Nutrition and sensory quality, functionality, and sustainability, among others, should also be the focus. He further emphasized that food has many functions and values (traditional, energy, microbial, therapeutic, social, and cultural, among others). Classifying foods based on the degree of processing is not always correct and is potentially misleading.

Dr. Ian Noble, Chair of the UK Food Innovation Network Advisory Board was the next speaker.

He focussed on the importance of providing sustainable, safe, nutritious and affordable processed food in the context of the United Nations sustainable development goals (SDGs). A question arose regarding the position of food in the SDGs. The role of food is integral in contributing to the achievement of the goals. He clearly emphasized that science and the technological expertise should be included across the whole food system in order to solve problems of food challenges. Urbanization has been a key driver of the modern economy. We need to be able to solve the challenges it brings along too. Food waste and resource constraints aspects come together. He also mentioned that waste occurs and depends on where you live in the world. This is normally in areas having commercial transactions. This aspect is a very important factor to consider across the production chain. We need to make sure that consumers value food as food but not as a commodity which can be discarded or simply replaced. We have to be careful using the costly resources. We also need to ensure that the consumers have choices available for them. Product design at the food system level will aim at capturing the following design attributes such as consumer satisfaction, environment suitability,

conserving natural resources and addressing biodiversity, efficiency through minimizing waste losses and valorizing sidestreams and inclusion by managing ingredient variability through supply chains that rewards small holder farmers. Understanding food architecture is key to handling ingredient variability. He concluded by saying that the the future of the science of food will need to be more multi-functional, collaborative and holistic to secure future food systems.

The sixth speaker was **Dr. Carlos Monteiro, School of Public Health at the University of Sao Paulo, Brazil**. He emphasized that the focus needed to be on food and what he termed 'ultra-processing' and the linked with non-communicable diseases (NCDs), the evidence and policy implications. Further, he said that food processing is important in the definition of healthiness of the diets. Healthy diets are based on the variety of fresh or minimally processed foods while restricting highly processed foods. Work has been done to classify foods according to food processing by many people, for example the NOVA food system classification. This food system classification is based on the extent and the purpose of industrial processing. This leads to the classification of foods into four food groups according to Dr. Monteiro. They are: Fresh or minimally processed; Processed culinary ingredients; Processed foods; and Ultra-processed foods (UPF).

He also mentioned that the aim of the food industry in producing these products is to preserve foods, to increase the shelf life of food, and also, to make it more diverse in terms of preparation and composition. The ultra-processed foods are not modified foods but are formulations of several ingredients (original or chemically modified food substances obtained with the fractioning of whole foods and additives that are used not only to preserve foods but to make the final product more palatable). The aim here is to produce products that are alternatives to other novel food groups. Thus the food industry has been successful in the sale of such products according to Dr Monteiro. In terms of evidence linking ultra-processed foods to NCDs, there are around 550 papers in *PubMed* that use the term ultra-processed foods, he said, and the amount of literature is vast in terms of systematic reviews of such products. Studies show that the more the person consumes ultra-processed foods,

the higher the risks of obesity, diabetes, hypertension, cardiovascular disease, and metabolic syndrome, among others. To examine the causes, we need to have randomized control trials. In terms of evidence, ultra-processed foods deteriorate the overall dietary nutrient profile of foods in general.

More ultra-processed food in the diet means a higher energy density of the overall food in the diet and for many countries policy implications for national dietary guidelines are needed in view of UPF, he mentioned. Five countries i.e., Brazil and Israel among others, have official national dietary guidelines that use specifications. The guidelines have four recommendations based on NOVA: Fresh or minimally processed foods should be the basis of the diet; processed culinary ingredients should be used in small amounts; processed foods to be eaten in small amounts; and ultra-processed foods should be avoided. However, there are differing views on this globally.

Summaries from the Chairs: Dr. Fereidoon Shahidi and Dr. Vish Prakash summarised the Roundtable by concluding that optimization must be established on a scientific basis in labelling food processors in one way or the other. It is necessary to rely on indicators such as Food Processing classifications such as NOVA together with other scores and indicators e.g., nutriscores and environmental and life cycle analyses among others. When using many of the indicators, it would be important to look at correlations more than direct proof of scientific link and mechanisms using multilateral and evidence-based science. The role of excessive sugar, salt and saturated fats in prevalence of NCDs is very clear both from the nutritional studies globally and the societal health indicators. There is also a need to make sure that ultra processing is not equated to junk foods or rather diets, as no food is junk! Aspects of quality and safety must be considered amongst other factors in the processing of foods. Not only do the micro-and macronutrients in foods need to be preserved, but they also need to taste like when they were fresh and wholesome, especially perishables. That is a bigger challenge for the food scientists and technologists. The positioning of traditional foods, especially covering fermentation, does not find a prominent place in any of the classification models considered during

this Roundtable. An in-depth knowledge of what people have been eating over centuries in different regions is very important. The world is now coming back to food and nutrition for prevention of diseases, especially due to the recent pandemic and the role of Immunity. One cannot generalise the various expressed opinions for any particular food or globally. It has to be firmly based on science and traditionally what one is used to as staples. Food habits are difficult to change overnight. A sustainable approach is very important together with a holistic approach to energy and water conservation. The Roundtable Chairs thanked all the speakers for their valuable inputs.

Food Processing SRDs will continue

The second in the new series of IUFoST Food Processing Scientific Roundtable Discussions (SRD 8) will take place in mid March with the focus on **Food Processing: The Science Behind Food Regulations**. The perspective in this second Food Processing SRD is to bring together different regulatory opinions to discuss the policies and regulations in effect for food processing in different regions of the world and to have a closer look at the scientific evidence behind those regulations.

The third in this series around Food Processing will focus on the role of **Traditional Food Processing** for safe and nutritious food in the sustainable food systems agenda.

SRD7 – SUSTAINABLE FOOD PACKAGING – Thursday, February 25 at 13.00 GMT

“Sustainable packaging (also referred to as eco-friendly, environmentally-friendly and green packaging) is frequently discussed in the popular and trade media and is something to which almost all major food companies have publicly committed. However, defining what sustainable packaging actually is presents a challenge and there is no single universally-accepted definition.” (Gordon Robertson, IUFoST Scientific Information Bulletin in Sustainable Packaging.) The Panelists including Nathalie Gontard, France; Alejandro Ariosti, Argentina; Claire Sand, USA; Srinivasa Gopal, (India) will discuss ‘Over and Under Packaging’ Biobased Plastics, Environmental impacts of Packaging, value-added food processing by utilization of emerging food packaging techniques, latest innovations in food safety and packaging recycling. Join us on February 25th.

SCIENTIFIC INFORMATION BULLETINS (SIBs)

The latest IUFoST SIB produced under the auspices of the IUFoST Scientific Council, *The Dynamic Transformation of micro-and nano-particle of lipids in gastrointestinal tract: pros and cons for the potential healthy effects of food components*, prepared by Hang Xiao is about to be released and several other Scientific Information Bulletins (SIBs) have been peer reviewed and published in the last months: *Food Processing Opportunities and Challenges* prepared by Emmanuel Hatzakis and Julie Jones and one on *Partially Hydrogenated Oils* prepared by Obadina Adewale, Gerald Moy and

Fereidoon Shahidi. All SIBs are available through <https://iufost.org/scientific-information-bulletins-sibs/> SIBs Coming up in the next few months:

- 3D-4D Printing of Food
- Bubbles in the Development of Food Structure
- Immune Improvement – Bioactive Antioxidant constituents in Food
- Food Processing in the Era of Reduced Water and Energy Availability (a new SIB series)

IUFoST SPECIAL SESSIONS AT EFFoST MEETING, NOVEMBER 2020

What Can Food Science do to Mitigate Obesity? – Session 1

There is a global pandemic of overweight and obesity and related non-communicable diseases demanding changes in lifestyle. Processed foods, particularly calorie-dense foods, are regularly implicated as important drivers of obesity trends. What is the role of food science in developing and promoting healthier foods and in mitigating unhealthy foods? What is the positive offer that food science will make in the battle against obesity? This session facilitated an exchange of information and dialogue between food science, nutrition and public policy. Presentations included public health nutrition; public policy to review different policies and regulatory status in different countries, and food science and nutrition practitioners working on healthier food innovations and interventions (both public and private).

Bringing Food and Nutrition Sciences together to tackle obesity

Professor Mike Gidley, Director, Centre for Nutrition and Food Sciences, Queensland Alliance for Agriculture and Food Innovation (QAAFI), Australia

Professor Gidley began the session by outlining the recently released Australian Academy of Science decadal plan for the science of nutrition, (available at <https://www.science.org.au/supporting-science/science-policy-and-analysis/decadal-plans-science/nourishing-australia-decadal-plan>), its pillars and key recommendations. This plan addresses the opportunities and challenges for science to improve public health and the role of foods in delivering change.

Dr. Gidley highlighted how food science can intersect with nutrition to tackle chronic conditions such as obesity. Two key challenges for food science are firstly the reality that nutrition and health outcomes arise from the balance of foods in a diet rather than individual foods, and secondly that current food labelling does not recognise the important role that food physical structure plays in addition to composition in determining nutritional outcomes.

Anti-obesity of food phytochemicals and beyond

Professor Yen-Chen Tung, Department of Nutrition, China Medical University, Taichung City, Taiwan

As Professor Yen-Chen Tung explained, the incidence of obesity has gradually increased in recent years due to sedentary living and the consumption of calorie-dense food. Obesity is a risk factor related to diabetes, heart diseases, and cancer. The main cause of obesity is an energy imbalance between calorie intake and calories expended. Diet, exercise, medicine, and surgery are the most used strategies to fight obesity, but these methods still have some disadvantages and

side effects. Therefore, scientists want to find some phytochemicals from food to help control body weight. Today, there are lots of phytochemicals that have been proposed for their effects on decreased lipid accumulation through regulated lipogenesis, lipolysis, browning, or modulated gut microbiota in vivo and in vitro.

Etiology of Obesity: A Genetically Induced Metabolic Survival Defense Due to Unhealthy Food Habits: Aerobic vs. Anaerobic Events

Professor Debasis Bagchi, Director of Scientific Affairs, VNI Inc. Lederach, Pennsylvania, USA

The focus of Professor Bagchi's presentation was on the increasing obesity in the 21st century as a challenging problem to nutritionists and health professionals. Conventional dogma asserts that overindulgence of high energy foods and lack of physical exercise are responsible for the global obesity epidemic. Clearly, obesity is linked to greater availability and consumption of unhealthy, energy-dense, high calorie processed foods. But the many decades of a plethora of medical and commercial weight loss programs have been unable to achieve sustainable loss of body fat implementing drug management, low calorie nutrition and exercise programs. So, the obesity epidemic, including rebound weight gain, and related comorbidities (i.e. diabetes, CVD, and inflammatory disorders) continues to escalate. One of the lesser addressed functions of body fat is as survival insurance. When the body experiences chronic nutritional deficiencies, toxic insults, trauma, excessive physical exertion, stress, etc., all of which are characterized by a hypoxic anaerobic bio-environment, the genetic survival programming transitions into a state of survival panic. In this energy-conserving state, increasing survival insurance, as body fat storage, is unregulated. In this state, an individual can eat a

lower quantity of foodstuffs but still store more energy as body fat. Body fat storage is therefore unregulated by disrupted metabolism in the obese individual, as compared to a lean individual. We hypothesize that disrupted metabolism and unhealthy food habits lead to an upsurging anaerobic/acidic physiological environment in conjunction with chronic inflammatory disorders. This cascade of events induces a metabolic shift toward cellular anaerobic glycolysis, and a compensatory expenditure of alkalinizing histidine molecules from the heme protein of deconjugated hemoglobin, which lead to an array of diverse degenerative disorders. In this scenario, aggressive calorie reduction programs combined with rigorous exercise, while inducing a short term 'phase 1' reduction in weight, primarily as fluid and lean tissue loss and lastly as possible fat loss, ultimately,

phase 2 survival genetics induces an increase in fat storage signaling. This leads to the well-known phenomenon of rebound weight gain, which generally results in gaining a somewhat greater amount of fat than was originally lost. The major emphasis should be given to optimizing molecular mechanisms that recalibrate the 'set point' of healthy metabolism, which governs food intake, energy homeostasis, and body fat storage requirements, especially important in an obese individual. In our presentation, we can demonstrate how healthy food habits, nutrition, appropriate dietary supplementation, and physical activity can enhance a healthy aerobic environment to boost competent gene expression and healthy metabolism.

Food System Transformation and the Evolving Role of Food - Session 2

Much of the food security literature and data globally focuses on agriculture and nutritional composition of Foods but not the role of food processing in the Chain including primary, secondary and tertiary processing. Food systems are transforming from traditional systems of low-income countries to transitioning systems in lower-middle income countries and in modernizing systems in middle- and high-income countries with the contribution of food science to food and nutrition security. This session highlighted the role of food processing at different stages of food system transformation and how this influences food security, nutrition security, quality and safety.

Future Food Science

Professor Ian Noble, Senior Research, Development and Quality Director, Mondelez, UK.

Dr. Noble spoke about the vital role that the Food System plays in our world today - an importance that is reflected in the UN Sustainable Development Goals, the majority of which are either directly related to food or have clear connectivity. Addressing these challenges requires the science of food to continue evolving, embracing and resolving today's challenges to our Food System. In the second half of the 20th Century those challenges were the provision of sufficient, safe and affordable food; challenges that were met. As Food Scientists we now need to extend our science to address the 21st Century challenges before us, as we lead to continually improve the efficiency and sustainability of our Food System, finding new routes to consumer accepted nutritious foods in a manner that continues to grow economic and social inclusivity, contributing towards the Sustainability Development Goals.

Emerging Food Processing Technologies for Leveraging Food System Sustainability

Doctoral Candidate Iris Haberkorn presented research work being conducted by her and Alexander Mathys at ETH Zurich, Switzerland .

Emerging food processing technologies covering process-product-operation interactions that can leverage food system sustainability, where selected examples of (I) innovative thermal, (II) mechanical, (III) electro-magnetic, and combined preservation processes were introduced by the presenter. Innovative thermal process intensification by micro-process engineering enables an ultra-short thermal treatment of foods within milliseconds (ms) by employing high surface area-to-volume ratios, for example. Such ultra-short pasteurization and sterilization at high temperatures, but with holding times within the range of ms would allow the preservation of liquid foods with improved quality. Mechanical batch high-pressure processing combined with focused investigations of property changes within pure water or more complex systems, including microorganisms, enables a detailed understanding of the respective process-product-operation interactions, it was found. In-depth investigations of spore inactivation mechanisms allow the

optimization of classical high-pressure preservation through combined thermal and mechanical processes for developing innovative multi-hurdle technologies including high-pressure thermal sterilization and continuous ultra-high pressure processing up to 450 MPa. Electro-magnetic based nanosecond pulsed electrical field (nsPEF) and low energy electron beam (LEEB) enable an efficient use of biomass for food production. Applying emerging continuous process concepts could enable gentle microbial control of liquid foods by nsPEF treatments and low water activity foods with LEEB, while maintaining their organoleptic properties.

Session Chairs Dr. Pingfan Rao and Dr. Fereidoon Shahidi thanked all the speakers at this EFFoST (European Federation of Food Science and Technology – the regional body for Europe in IUFOST) session who provided their expert analysis, research and insights on these major food and social issues, indicating the challenges and providing solutions through Food Science and Technology. This is an area of continuing IUFOST scientific focus.

IUFOST/CIFST 10TH ANNUAL INTERNATIONAL FORUM ON FOOD SAFETY AND HEALTH

The 10th annual International Forum on Food Safety and Health, jointly organised by IUFOST and the Chinese Institute of Food Science and Technology (CIFST) was successfully held in plenary session in person and by virtual means in Beijing on December 3, preceded by virtual concurrent sessions held in the days beforehand. The Forum received broad attention from various communities in China and abroad and strong support from the State Administration for Market Regulation, the Ministry of Science and Technology, the Ministry of Agriculture and Rural Affairs, the China Association for Science and Technology, the Beijing Association for Science and Technology and various international organizations.

As an influential and high-end event for the global food safety, nutrition and health field, the Forum seeks to rise to the challenges emerging in the food sphere both in China and abroad, and to explore a high-quality and sustainable development path for China's food industry and provide more scientific solutions for China and the world to tackle food safety and health issues.

The Forum was attended by a Chinese expert delegation, which was led by four members of the Chinese Academy of Engineering; Chen Junshi, Pang Guofang, Sun Baoguo and Ren Fazheng, and more than 80 globally influential experts and representatives of international organizations including IUFOST President Vish Prakash and Past President, Pingfan Rao. On December 3, delegates gathered in the main session for in-depth discussions around new demands on and new challenges facing the food safety and health field in the post-pandemic era.

Prof. Sun Baoguo, Member of the Chinese Academy of Engineering, Vice President of the Chinese Institute of Food Science and Technology, and President of Beijing Technology and Business University, stated that in 2020, the outbreak of COVID-19 has dealt a heavy blow to China's

economy; facing the test of the pandemic, the food industry as a guarantee of the people's livelihood has made significant contributions to China's social and economic development. However, the pandemic exposed many issues in the food industry, such as incomplete supply chain for raw & auxiliary materials, the lack of resilience in the cold-chain logistics in the face of pandemic, the inadequate supply of health products lagging behind the rapid growth of market demands, which demands urgent and coordinated solutions with supports of technologies.

"Amid the severe impacts of the pandemic, this forum is a large-scale event with extensive influence, compared with other international exchange activities on food safety and health. This event has witnessed great success for ten years straight; the topics have also changed, from concerns about the food safety in the beginning, to safety and health, and now to studies on the correlation between food, immunity enhancement and human health in the post-pandemic era, which is becoming a common goal shared among global scientists." - Prof Sun Baoguo

Meng Qinghai, Vice President and the Secretary of the Secretariat of China Association for Science

and Technology pointed out that the food industry has been placed at a new starting point for safety, health and green development. Building international relationships and sharing landscapes for food safety requires the cooperation among scientists and entrepreneurs in the food industry both in China and abroad.

In his remarks, *Liang Gang, Deputy Director of the Department of Food Safety Sampling Inspection and Monitoring of the State Administration for Market Regulation*, stated that with the ongoing spread of the COVID-19 pandemic, the virus has been repeatedly spotted in the packaging of cold-chain foods; holding this Forum at such an important stage would not only help facilitate the guidance of public opinions and enhance international exchanges, but also provide technical support for the supervision of China's food safety.

Tian Jianxin, Deputy Director of the Department of Food Safety Standards, Risk Surveillance and Assessment of the National Health Commission, pointed out the necessity of enhancing risk communication, ensuring publicity of science and technologies, so as to improve the public awareness of food safety and health science and bring benefits to people across the country. Besides, he also stressed the importance of unleashing the role of industrial experts in assuming social responsibilities, spreading scientific general knowledge and contributing to the food safety and public health.

Hu Yifeng, Deputy Director of the Department of Science and Technology for Rural Development of the Ministry of Science and Technology, remarked that the outbreak of COVID-19 has posed severe challenges to China's food industry, arousing widespread concerns about food safety and public health. Therefore, it is necessary for the food technology community and the industrial circle to closely cooperate to confront the challenges in the post-pandemic era and explore a new path for innovative development.

In the midst of the COVID-19 pandemic, this Forum took the initiative to lead multiple symposia and training sessions through video-links, which attracted broad attention from the technology circle and the industrial community.

During the main session, experts from a wide variety of organizations delivered keynote speeches including Mr. Gabor Molnar, Associate

Industrial Development Expert Sustainable Food Systems Division Department of Agri-business, United National Industrial Development Organization (UNIDO), Samuel Godefroy, Former Director General of Health Canada's Food Directorate, Charles Godfray, Director of the Oxford Martin School and Mike Gidley, Director of the Centre for Nutrition and Food Sciences, U. of Queensland.

Dr. Junshi Chen spoke first to three questions of public concern: Is the COVID-19 pandemic a food safety issue? Will the virus spread via foods? How did the pandemic influence food safety? Dr. Chen gave clear responses that the pandemic is neither a food safety issue, nor a food-borne illness, but an animal-borne disease like the avian influenza; existing scientific evidences and WHO statements show that the virus cannot be transmitted via foods, but can contaminate foods in the areas stricken by the pandemic, and can exist for a long time in frozen and humid environment; the COVID-19 pandemic is not a food safety issue, but will pose challenges to food safety and impose negative impacts on food safety.

The cold-chain logistics have been repeatedly seen as a risk source of COVID-19, which makes it necessary to identify a solution to enhance the safety control capacity of the cold-chain logistics for imported foods.

Li Ning, Vice President of CIFST and Deputy Director of China National Center for Food Safety Risk Assessment (CFSA), who used to work as part of the NHC's expert group to prevent the pandemic at the frontline in Dalian, briefed on the specific measures for disease control of cold-chain logistics.

"By ensuring the liquidity of supply chain, strengthening the digital technology application in the supervision of food safety, and enhancing the global food safety regulatory measures, the challenges brought by the COVID-19 outbreak will be transformed into opportunities in the future."
Prof Sam Godefroy

The global food technology community and industrial circle need to reflect on a series of issues, such as what challenges will the global food industry face in the post-pandemic era, how to conduct strategic deployment and scientific planning for technological innovation, nutrition

and health and resource allocation to meet the consumers' new demands.

To tackle that, Mr. Gabor Molnar, Associate Industrial Development Expert Sustainable Food Systems Division Department of Agri-business, United National Industrial Development Organization (UNIDO) shared insightful views on global food safety and sustainable development, and the impacts of the pandemic on the capacity building of the industrial circle and the future food system. He pointed out that it is necessary to confront the pandemic and accelerate industrial development and reform.

In his report, Dr. Li Yongjing, Honorary Vice President of CIFST and Regional President Asia Pacific, Food and Beverage of DuPont Nutrition & Biosciences, briefed in details with statistics on the impacts of the pandemic on the food industry, and identified the future development trend from the perspective of analysis of customer demands. With the control of the pandemic becoming a new normal, consumers are prone to enhance their health management on their own, and pay more attention to the health and safety specifications and sustainable development of the products. Besides, the pandemic has aroused concerns of unprecedented level about safety and health among the public. At the same time, the consumers are increasingly relating their behaviors and diet habits to the health of this planet. The changes of consumption behaviors and demands have triggered the health and safety reform in the food industry. Functional foods, plant-based foods and foods for senior citizens are encountering new opportunities.

Prof. Luo Yunbo, Honorary Vice President of CIFST, Director of Special Food Research Center, China Agricultural University, shared his reflections on the innovative development of the food industry in the post-pandemic era.

Prof. Mike Gidley, Director of the Centre for Nutrition and Food Sciences in the Queensland Alliance for Agriculture and Food Innovation at the University of Queensland, provided a brief on the ten-year plan of Australia's nutrition science for the next decade, and stressed the specific methods for disciplinary integration of food science with nutrition science, in a bid to help students access information, products and systems regarding chronic diseases (such as obesity).

Based on the epidemiological survey data obtained at the frontline in Wuhan, Ding Gangqiang, Vice President of CIFST and Director of National Institute for Nutrition and Health, China CDC, presented his analysis on the health and nutrition conditions of senior citizens, and defined the development direction for the food industry to meet the demands for health and nutrition of the senior population.

Entrepreneurs Dialogue Summit

The organisers also introduced the Entrepreneurs Dialogue Summit. The dialogue was jointly presided over by Prof. Luo Yunbo from China Agricultural University and Huang Guosheng from China Food Newspaper. Huang stated that the outbreak has had an enormous and far-reaching impact on China's economy and society. Representatives from the Yili Group, the Sinar Mas Group, DuPont Nutrition and Bioscience, Walmart, the Friso, the Yantai Shinho, the Lesaffre, Ecolab and other enterprises shared their respective strategic plans and strategies for the post-epidemic era.

- Science and technology first: a technology-driven path towards future
- Three scientific views on strengthening the technological support for China's food detection methods

Oriented towards industry innovation, experts unscrambled the latest needs of the food industry for detection methods from a professional and forward-looking perspective. They shared views on issues of concern, including detection of functional nutrients, application of fast detection techniques to microbial control of dairy products, IT application to pesticide residues and detection of newly discovered pollutants, and formed three scientific views on strengthening the technological support for China's food detection methods.

At the "International Forum on Food Safety Best Practices", experts suggested that sound supplier management throughout the industry chain, as an important part of ensuring food safety, is especially important for food safety. To maintain effective and orderly supplier management, building common perceptions and values with suppliers and common codes of conduct is helpful for promoting food safety culture construction.

In recent years, China's food safety environment continues to improve owing to concerted efforts

of regulators, scientific & technological and industrial circles. However, as food supply chains are increasingly globalized and complicated, the food industry still faces new unknown challenges. In his keynote speech, Dr. Junshi Chen pointed out that safe food was produced rather than regulated or detected. China's Food Safety Law stipulates that food producers assume the primary responsibility for food safety. But due to a relatively backward structure of the food industry, namely a large number of small and medium-sized enterprises (SMEs), food safety problems still occur from time to time. Given this, leading food enterprises should play a leading and exemplary role by sharing their successful experience in ensuring food safety in production, processing and transportation.

2020 was a critical year for the implementation of the Healthy China 2030 Plan and the National Nutrition Plan (2017-2030) while COVID-19 enables the public to recognize the importance of boosting immunity and maintaining their health.

At the Session "New Opportunities for the Special Food Industry in the Post-pandemic Era", Prof. Ren Fazheng, Member of CAE and Director of the Institute of Nutrition and Health, China Agricultural University, and other Chinese and foreign authoritative experts from the governments, businesses, universities and research institutes pooled their ideas on how to help the special food industry break new ground and seize new opportunities in the post-pandemic era through in-depth communication and discussion. Experts pointed out that highly nutritious dairy products would usher in a period of development opportunities. With growing demand for food for special medical purposes (FSMP), formulas for special medical purposes will also enter a period of rapid development. With inadequate public awareness of FSMP, FSMP should be regulated and applied reasonably. China should strengthen the research on nutrition science and promote the regulated management and reasonable application of FSMP. Thirdly, China should explore standards and a regulatory system with Chinese characteristics to unleash the vitality of the industry.

The scientific basis of plant-based foods should be consolidated. At the Session "Scientific Issues and Future Challenges of Plant-based Foods", experts said that what underlay plant-based foods, as a

new trend of the food industry, should be down-to-earth scientific research. At present, plant-based foods are faced with the following two scientific problems:

First, many core technologies are yet to be upgraded. China's plant-based meat simulation technology cannot meet the requirements of industrialized mass production or commercialization. For relatively sophisticated plant-based minced meat products, product quality varies; in terms of taste and flavor, regulating flavor by adding meat flavor could cause problems such as poor flavor embedding, weak aroma and soybean odor of soybean protein products. Second, the problem of low nutrient density should be addressed. Over the past three to four decades, dietary patterns of Chinese residents have changed dramatically with animal food consumption continuing to increase. From the perspective of nutrition, many of the plant-based foods show lower density of nutrients than meat products, so how plant-based foods could meet the need for human health should be explored.

The launch of new products one after another and stricter requirements for enterprise management have driven more and more producers to shift their focus to hygienic design and production process management. The European Hygienic Engineering & Design Group (EHEDG), held two workshops on hygienic design, one for meat processing enterprises and the other for dairy processing enterprises. Experts and representatives present shared and discussed the standards and regulations that should be observed in the production process, principles for hygienic design of factories and relevant cases.

Experts present stated that ensuring product safety from the source required enterprises to strictly abide by regulations and standards in the process of production. For production and processing, factory design and production flow management should be regulated in accordance with published standards pertaining to factory construction and production flows. In addition, enterprises should develop towards modern processes, automated equipment, intelligent manufacturing and electronic management, thereby improving the comprehensive competitiveness of enterprises and the industry.

FOCUS ON IUFoST and IAFoST TEAMS

MEET THE IUFoST and IAFoST TEAMS

IUFoST delivers on its mission to ‘Strengthen Global Food Science and Technology for Humanity’, guided by the Cape Town Declaration, during a time when the world is seeing further significant increases in population and spikes in food prices, and food insecurity often driven by major climatic disturbances, health crises, as well as surges in energy prices. World and G20 leaders continue to stress the Millennium Sustainable Development Goals (MDGs), with their aim to improve world food security, to make major reductions in world hunger and poverty, while investing in education and sustainability.

IUFoST is playing its part by its efforts with its national scientific body members, its Academy Fellows and through developing productive partnerships internationally. IUFoST has focused its efforts in three key areas of Food Safety, Education and Food and Nutrition Security.

IAFoST, the ‘Centre for Food Science Excellence’, which is at the forefront of all IUFoST activities, welcomed the 12th Class of outstanding food scientists, technologists and engineers to the International Academy of Food Science and Technology in 2020. Academy Fellows also elected Professor Sir Charles Godfray, the 2020 IUFoST Distinguished Lecturer, into the roster of Fellows. The Fellows Induction Ceremony, led by Dr. Roger Clemens, although necessarily conducted by video, was nonetheless an outstanding and important occasion. For those wishing to see and hear the ceremony, please contact the IUFoST Secretariat for a copy of the video presentations. This induction ceremony will be replicated on the occasion of the IUFoST World Congress in Singapore, where both the 2020 Fellows and the 2022 Fellows will be formally acknowledged in person and at the other Fellows celebrations in October 2022.

IAFoST Fellows 2020

Our congratulations are offered again to these **New Fellows** inducted in August 2020:

Cesarettin Alasalvar – Turkey; Richard Archer – New Zealand; Sheryl Barringer – USA; Bhandari Bhash – Australia; Jianshe Chen – China; Munir Cheryan – USA; Manjeet Chinnan – USA; Jeff Farber – Canada; Navam Hettiarachchy – USA; Afam I.O. Jideani – South Africa; Kiyoko Kubomura – Japan; Ken Lee – USA; Jiang Lianzhou – China; Chii-Cherng Liao – Taiwan; Gustavo Gutierrez-Lopez – Mexico; Ken Marsh – USA; Yasuki Matsumura – Japan; Cheikh Ndiaye – Senegal; Minh Nguyen – Australia; Keshavan Niranjana – United Kingdom; Indrawati Oey – New Zealand; Adebola Osinowo – Nigeria; Parachuri Rao – India; Ricardo Simpson – Chile; Rakesh Singh – USA; Kenneth Swartzel – USA; Carol Wallace – United Kingdom; Dorota Witrowa-Rajchert – Poland; Ahmed Yousef – USA.

The IUFoST Board of Directors, Scientific Council and Members of the Academy Council are elected by the General Assembly and Academy Fellows respectively. IUFoST continues to work together with its regional bodies, disciplinary and special interest groups to further its Mission. Members of IUFoST Working Groups are appointed by the IUFoST Board of Directors from among nominations received from IUFoST Adhering Bodies, Academy Fellows and Committee members. More than 70 nominations were received and we thank everyone who submitted nominations. There will be other opportunities for those not successful on this occasion. We welcome everyone’s contributions to the mission of IUFoST.

IUFoST Working Groups Term 2020 – 2023

Terms of Office for Working Groups: The Term of Office for IUFoST Working Group is three years (until August 2023). Working Group members meet electronically unless other opportunities arise, and in person if possible, at the IUFoST World Congresses where they will be formally recognized by the General Assembly. Working Groups report to the IUFoST Board of Directors every few months.

- Three working groups in **Education**:

Representation from: Australia, Brazil, Canada, China, Costa Rica, Cuba, Greece, Indonesia, Japan, Korea, Mexico, Nigeria, Philippines, Portugal, Spain, UK, USA

- One working group in **Education/Food Safety** curricula related to Task Force on Global Food Safety Curricula
- Three Working Groups in **Food Safety**:

Representation from: Argentina, Canada, China, Cuba, India, Indonesia, Ireland, Japan, Korea, Japan, Mexico, New Zealand, Nigeria, South Africa, Uruguay

- Two Working Groups and a Task Force in **Food and Nutrition Security**

Representation from: Senegal, India, Germany, Lebanon, Tanzania, Brazil, Switzerland, Nigeria, Canada, China, South Africa, Costa Rica, USA, Nigeria, Colombia, Cuba, Cambodia, Vietnam, Japan, New Zealand

- Early Career Scientists Section (ECSS)

Representation from Philippines, Indonesia, Poland, USA, China, Ireland, South Africa, Japan, Germany, Kenya, Denmark, Nigeria, India, Canada, Mexico, Switzerland, Croatia, Singapore, Portugal

IUFoST Outreach Committees

- International Science Council (ISC), other International Organisations
- CODEX
- CODATA

Other new focus areas and working groups

- International Relations/Strategies
- Library and Resource Centre: Database collection
- Publications

IUFoST Operational Committees

- Articles and By-Laws Committee
- Ethics Committee
- Finance Committee
- Global Outreach/Industry Relations
- Nominations and Elections Committee

China, Taiwan, Poland, Thailand, Malaysia, USA, Australia, Canada, Japan, Canada, Ireland, Philippines, Singapore, New Zealand, Brazil, UAE, Turkey

Governance

- Board of Directors
- Academy Council
- Scientific Council
 - Early Career Scientist Council

CODATA Report

As CODATA held a key meeting in late 2020, A brief report prepared by Dr. C-K Wang is included here, including proposed IUFOST actions.

1. Current pilot activities are under DDI-CDI (Data Documentation Initiative-Cross Domain Integration) including:

Digital Representation of Units of Measure

Semantic Interoperability and Conceptual Framework (good practice for semantic resources and vocabularies)

Supporting further refinement of the DDI-Cross Domain Integration specification.

Policy Monitoring Indicator

Infectious Diseases: projects looking at data integration in infectious disease research, surveillance etc.

Resilient and Healthy Cities

Global Open Science Cloud: CAS-funded project as the first project under the Decadal programme.

Collaboration with GO FAIR: FAIR DOs, FAIR Implementation Profiles (FIPs)

Data Together Collaborations

2. Key Dates and actionable activities in 2021

Call for Sessions at SciDataCon/IDW

<https://www.scidatacon.org/IDW2021>

*** 31 March 2021 is the deadline for session proposals.**

* Call for Task Groups, released by 12 May 2021, deadline 12 July 2021.

* Call for Nominations to the Executive Committee, Secretary General and Treasurer to be released by 12 May 2021 with a deadline 12 July 2021.

* International Data Week, Seoul Republic of Korea, 8-11 November 2021

* General Assembly, 12-13 Nov 2021

ACTION proposed: a) IUFOST to submit session proposal and present one issue i.e., food processing and health; big data for Food Science and Technology. B) IUFOST could submit a task group about big data and hunger treatment. c) IUFOST can join International Data Week 2021.

AWARDS and COMPETITIONS

IUFOST Rose Spiess Video Award Winners

IUFOST is delighted to announce the winners of the **IUFOST Rose Spiess Video Award for 2020.**

Congress organisers New Zealand Institute of Food Science and Technology (NZIFST) joined with the Rose Spiess Foundation to deliver the awards for this year as the World Congress was cancelled due to the global health crisis.

The Winners are:

FIRST PLACE - "Global Food Security Index"

Tan Tong Qi Shandi, Ang Yu Xi, Valerie Soh Rui Qin, Chee Xuan Ping, Tang Xin Yi, Angeline Tan Hui Lin, from Nanyang Polytechnic, **Singapore**

SECOND PLACE - Edible grasshopper"

Loretta Nsenene from University of Nairobi, **Kenya**

THIRD PLACE - “Future Vision on Fish Waste”
Peter Hartono and Thomas Hartono, University of Otago, **New Zealand**

HIGHLY COMMENDED - “Consumo Imprefecto”
By Daniella Barahona Pereira and Saúl Chaves Barrantes of the University of Costa Rica, **Costa Rica**

HIGHLY COMMENDED - “Huang Long Bing: The crisis by Citrus industry” by Megan Shieh, Chapman University, USA and Megumi Ikeda, California State University, Northridge, **USA**

HIGHLY COMMENDED - “Cassava Gary Processing”, by Hannah Mugure Kamano-Kamau, KIRDI, **Kenya**.

Call for Entries – International Competitions

A. International Science Council Awards

Programme 2021

1. Science for Sustainability Award for outstanding scientific contribution to the achievement of the Sustainable Development Goals using an interdisciplinary approach (one award)
2. Science-for-Policy Award for outstanding contribution to, stimulation of, support for or communication of the findings of international scientific research and scholarship relevant to international policy challenges (one award)
3. Policy-for-Science Award for outstanding contribution to developments in the science system that enable science to contribute more effectively to major debates in the international domain (one award)
4. Scientific Freedom and Responsibility Award for outstanding contribution to defending and promoting the free and responsible practice of science (one award)
5. Early Career Scientist Award for exceptional contribution to science and international scientific collaboration by early career researchers (six awards: one award to a scientist from each of (i) Africa, (ii) Asia, (iii) Australia and Oceania, (iv) Europe, (v) North America, and (vi) South America and the Caribbean) There is no limit to the number of candidates nominated per category and per

organization in general, hence, an organization may nominate several candidates, which may or may not be for the same Award category.

The deadline for submission of nominations for the ISC Awards Programme 2021 is 1 March 2021. Please indicate IUFOST in the submission under “on behalf of which ISC Member, Affiliated Body or partner organisation...”: in your nomination and send a copy of your nomination submission to the IUFOST Secretariat for our records. ISC link for nominations:

<https://council.science/current/news/nominations-isc-awards/>

B. International Innovation Award for Sustainable Agriculture on the theme ‘Innovation to transform food systems’

The call for applications for the second edition is now open. Individuals, private companies and institutions worldwide are being called to submit agricultural innovations that demonstrate concrete results and contribute to the environmental, economic and social dimensions of sustainable development.

The award does not only acknowledge digital innovation, but also new or existing products or practices that are used in a specific context, to increase effectiveness, competitiveness and resilience. It is divided in two categories:

Category A: USD 30,000 is awarded for excellence in digitization and innovation for sustainable food systems.

Category B: USD 30,000 recognizes an innovation that specifically empowers youth (under 35) in sustainable food systems.

All innovations must apply to agriculture and pastoral systems only.

<http://www.fao.org/innovation/awards/en/>

More information is included in the terms and conditions and the application form can be downloaded from the website.

Deadline: 19 March 2021

http://www.fao.org/fileadmin/user_upload/faoweb/Innovation-awards-2021/Terms-Conditions.pdf -

FINANCIAL AND ADMINISTRATIVE UPDATE

Bookkeepers:

IUFoST changed its bookkeepers in August 2020 as the previous bookkeepers were not communicating adequately enough with the Treasurer or Executive Director to enable us to receive the necessary information to deal with all IUFoST financial matters, including dues. The new bookkeeping company is based in Guelph, Ontario, Canada and is highly recommended. Monthly costs also are only half of those of the previous bookkeepers. These new bookkeepers have proven to be both accessible and helpful.

IUFoST Bank:

Until several months ago, the IUFoST bank accounts were distributed through a Canadian Imperial Bank of Commerce (CIBC) bank in Vancouver, home of one of the previous treasurers. Now IUFoST has consolidated its banking with the CIBC in Guelph, Ontario, Canada. These IUFoST accounts can be maintained at the location indefinitely, regardless of the residence of the Treasurer, while still offering the Treasurer and designated Finance Committee members the ability to administer/view the accounts when and as necessary. IUFoST adhering bodies and other vendors have been advised of the updates as it necessitated changes in account numbers to reflect the Guelph, Ontario rather than Vancouver, British Columbia location, for both US\$ and Cdn\$ accounts. At the moment both the old and new accounts are still operational to ensure that there is a smooth transition.

Chartered Accountants:

With General Assembly approval in August 2020, IUFoST formally changed its Accountants, as the previous accountants were restricted in their communications and not adequately able to provide answers to questions posed to them, plus they were unduly expensive. The new Chartered Accountants have an excellent reputation and are located in Burlington, Ontario, close to Guelph, Ontario and therefore providing a hub in that area for IUFoST financial affairs.

IUFoST/Government Record Keeping:

The Chartered Accountants who prepared the 2019 financial statements in July 2020 also sent the required financial information to the Canadian Government and this has been acknowledged as successfully received and noted by the Canadian Government agencies overseeing Not for Profit organisations. IUFoST paid and filed the Annual Return due to Corporations Canada on October 21 for 2020 (required to do so between 15 October and 15 December). Directors' Insurance was renewed from September 2020 – September 2021.

Update on Dues, Income and Expenditure:

IUFoST has expressed its appreciation to those Members who completed their dues obligations in spite of the pandemic situation during the greater part of 2020. We explained last May 2020 that IUFoST is very much aware of the challenges everyone has been facing during this time of upheaval and uncertainty. We asked then that you pay the dues when you are able for the year and if it may be longer, to please confirm a timeframe so we can maintain our records. However, we know you also understand that membership dues form an important part of the IUFoST operating income and contribute to the livelihood and success of IUFoST. Dues letters will be issued from the Secretariat by end of February. The Union has remained secure because of careful accounting, including a severe reduction in expenditure for lawyers and accountants and consultants and despite loss in income from all sources due to the pandemic situation and previous internal IUFoST issues. IUFoST Members will receive the 2020 Financial Statements once they have been reviewed by the Chartered Accountants.

IUFoST World Congress 2022

Get Ready for IUFoST Congress 2022 in Singapore - Mark your calendars: **23 – 28 October 2022** for this World Congress that will be held at the spectacular Marina Bay Sands Convention Centre in the heart of eclectic, sophisticated and diverse Singapore, with science, food and cultural experiences to be laid out for you. Full support and involvement by all levels of Singapore government, Singapore tourism, the ASEAN region, our regional group FIFSTA and all our friends and colleagues await you. This is a congress with a twist:

- Singapore has given New Zealand a Half A Day Centre Stage on Day 1 of World Congress 2022 – to fulfil New Zealand’s dream of organising a World Congress after 50 years!
- New Zealand will then hand over the Congress Flag to Singapore in the afternoon of Day 1 and the Grand Opening of Singapore World Congress 2022 will begin with a BANG!

Join us!

Survey for IUFoST Interventions in UN Food System Summit

Dear Friends and Colleagues,

This note is with reference to discussions you may remember we have held regarding the UN Food Systems Summit and the numerous ways in which IUFoST and IAFoST are preparing interventions. Please read and respond to the attached survey information. This survey has been reviewed and produced in two easy ways - google forms and fill in word docs. Dr. Aman Wirakartakusumah, Presiding Officer of the International Academy, was able to provide us with some clear outlines regarding the types of information most valuable to receive from us from the perspective of the United Nations Systems Summit Scientific Committee, in which he is a member. You will find this information in the second part of the outline brief. (see [Survey on IUFoST website](#) - front page.)

Google Link: <https://bit.ly/3rMIHnA>

Please complete and return this survey before March 3rd and please endeavour to have as many colleagues as possible do the same. It is an important part of our work.

Thank you from the IUFoST Board of Directors and the IAFoST Council

Questions, comments on this IUFoST Report are welcome. The next Interim Report is planned for August 2021, around the time of the IUFoST Members Meeting.

*IUFoST Monthly News Bulletins begin on the third Thursday of March (18) and on the third Thursday of each month onwards. For those wishing to send news to be distributed with the e-bulletins, please send it to the Secretariat (secretariat@iufost.org) by 10th of each month to be included in that month’s issue.
Subject: IUFoST Monthly News*

Adhering Bodies wishing for IUFoST Endorsement, involvement in or sponsorship of its activities, should make these requests to the IUFoST Secretariat. Subject: IUFoST Endorsement