

**Speech by Dr Tan Lee Kim, Director-General, Food Administration & Deputy CEO, at the Global Summit on Regulatory Science on 19 October 2022, 9.00 a.m.**

Distinguished guests

Colleagues

Good morning. It is my pleasure to join all of you here today.

This is the first physical Global Summit on Regulatory Science since the COVID-19 pandemic. Singapore is honoured that the Global Coalition for Regulatory Science Research (GCRSR) committee has selected Singapore to host the event.

2 We have regulators from across five continents gathered here today to discuss emerging technologies and the translation of science into regulatory applications. The work by the Global Coalition as well as this summit is of great importance and relevance as the world strives to secure a sustainable global food supply of safe food.

**The need for regulatory science research**

3 Of the 17 Sustainable Development Goals outlined by the United Nations, the second of these goals, Zero Hunger, seeks to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture. Against the rising tide of global stressors such as climate change, animal disease outbreaks, rapid urbanisation and geopolitical tensions, reaching this goal seems like a tall order.

4 Innovations and technologies in food production and related sectors is a key strategy towards feeding the world in a sustainable, climate-resilient manner. Smart farming, urban farming, precision bio-fermentation, as well as cell cultured meat are but a few of such innovations. These new innovations and technologies can present new hazards to consumers.

5 For instance, in Singapore, we found that the use of LED lights in indoor vertical farming systems could introduce mercury contamination to the vegetables and herbs, if the LED lights are not made with a safe grade of polymeric encapsulant. This finding was the result of systematic, multi-disciplinary scientific investigation by my colleagues from the National Centre for Food Science to identify the source and understand the mechanism of mercury contamination. By understanding the risks, we can work with the farmers to put in place an effective monitoring system and prescribe effective regulatory measures to mitigate the food safety risks.

6 These examples highlight the importance of regulatory science research. As with all technological advances, we must be mindful of the potential impact on the health and safety of consumers. Summits like this today provide conversations crucial to help develop, refine and translate innovations and advancements into potential applications. These can then be used to support regulatory decision-making and ensure the continued safety of food.

### **Nanotechnology: Collective action is key**

7 This year, the theme of the summit is Advances in Nanotechnology for Food and Medical Products: Innovations, Safety, and Standards.

8 Nanotechnology has many applications in food and medical products, and has much potential to strengthen both global food security and safety. For example, nanotechnology applications like nanofertilisers and nanopesticides can enhance their effectiveness and efficiency, hence potentially increasing food production sustainably, especially in the face of climate change. Biosensors are also increasingly integrating nanotechnology for detection of a broad array of targets, ranging from protein molecules to pathogens to support food safety.

9 In Singapore, we have made some progress in this field. We have established capabilities to detect and characterise nanomaterials in food items like coffee creamers, milk, and breast milk storage bags. We have also established the use of 3D tissues to conduct in-vitro genotoxicity studies on nanomaterials, while reducing costs and turnaround time. Not only do these capabilities help us enhance Singapore's risk assessments and safeguard food safety, they also enable food innovation to take place.

10 Moving forward, my agency, the Singapore Food Agency (SFA) is looking to further expand our research in nanotechnology, specifically, to develop capabilities to study a more diverse range of both known and novel micro and nanoparticles in food and food contact materials, as well as deepening our toxicological studies on nanomaterials to further enhance our food safety risk assessment.

11 Yet, for a field as vast as nanotechnology, we might only have scratched the surface. There are still many areas to be studied and safety concerns to be addressed.

12 No single regulator can do so alone, so we need the collective action and collaborative effort of regulators and the research community worldwide to make strides in these fields, so that together, we can protect consumers.

### **Collaboration and partnership**

13 Nanotechnology is an emerging technology that promises wide applications in many fields. It is extremely important to ensure that the development and adoption of nanotechnology keep pace with robust regulatory science and regulatory framework.

14 An area that we can draw reference from is the regulatory approach for novel foods which Singapore would like to share. Novel foods is another nascent area in food innovation with much potential and unknown food safety risks. SFA has put in place a novel food regulatory framework. The framework facilitates companies producing novel food products in conducting safety assessments of their products for SFA's review before they are allowed for sale. Through this framework, Singapore became the first country in the world to approve a cultured chicken product.

15 SFA did this through collaboration and partnership with the academic and research community. We have a multidisciplinary expert working group to ensure that safety assessments are rigorously reviewed by experts specialising in areas such as food science, food toxicology, biotechnology and bioinformatics. SFA has also set up the Future Ready Food Safety Hub (FRESH as we call it) in partnership with the Nanyang Technological University and the Agency for Science, Technology and Research.

16 FRESH brings together the Government, industry and academia to drive food safety research and build food safety capabilities. I earlier mentioned the use of the 3D tissues to conduct genotoxicity assessments as part of Singapore's efforts in nanotechnology. This was, in fact, developed together with FRESH.

17 Collaboration and partnership to build mindshare across countries and to develop standards is another aspect. SFA is collaborating with several overseas regulators to further study the safety of novel foods. We are also collaborating multilaterally on a project with the FAO on the provision of scientific advice for countries to assure the safety of cultured meat.

18 I believe that this approach for collective and collaborative action in regulatory science is what we need for the field of nanotechnology as well. There is much work to be done before we can reap the value of this technology to contribute meaningfully to global food security. In this regard, SFA welcomes scientific collaborations and partnerships in those projects which I have earlier mentioned and we look forward to collaborating with one another to achieve much more together.

## **Conclusion**

19 With that, it leaves me to wish everyone a meaningful and fruitful summit. Thank you.