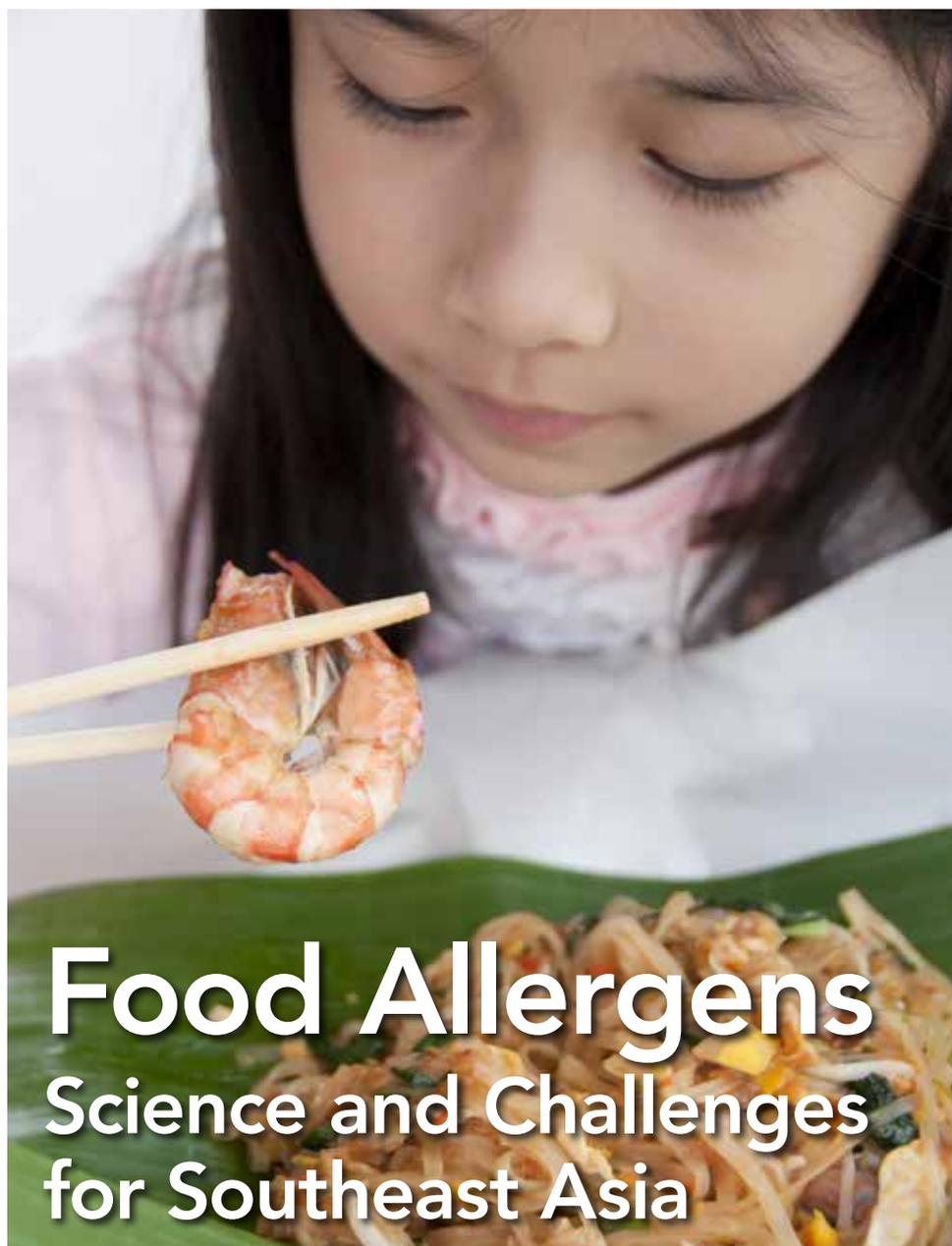


Science InSight

News and Updates on Nutrition, Food Safety and Health



Maternal, Infant and Young Child Nutrition Updates from Cambodia, Laos and Myanmar
Nutrition Labeling, Claims and Communication Strategies 9th Regional Seminar held in the Philippines
Consumer Science and Behaviors Understanding Consumer Behaviors and Food Choices in Indonesia
Sustainability, Genetics and New Technologies Development and Production of Cereals
Food Safety Advances in Analytical Technologies

From the Executive Director



The past six months was a busy and fruitful period, with an array of scientific topics addressed by our Regional Science Clusters and Country Committees, facilitated through our seminars and workshops. Several of these can be gleaned from the Summary Reports in this issue of ScienceInsight.

The branch was also invited to share the preliminary results of three of our research projects held in collaboration with regional scientific institutions. These were presented at 2 well recognized international conferences, the Global Forum on Research and Innovation for Health 2015 that took place in Manila in August, and the International Conference on Diet and Activity Methods (ICDAM), held in early September in Brisbane, Australia.

Each year, ILSI SEA Region would hold its Annual Meeting in April in Singapore. This year, for the first time, the branch decided to venture out and held the annual event in Bangkok, Thailand, just before the famous Water Festival that usher in the Thai New Year. The meeting was met with the enthusiastic support from many members, Scientific Advisors and other stakeholders, who attended from around the region that made this once-a-year gathering a great success and memorable. We also had the honor of hosting the new ILSI President Dr. Rhona Applebaum, who attended our Annual Meeting as part of her visit to several ILSI Asian branches. Dr. Applebaum shared her vision and plans for strengthening the new One ILSI Global Project that foster cross entities collaboration within ILSI internationally, during her 2-year term as President. In conjunction with the Annual Meeting, a 1.5 day seminar and workshop on Food Allergens was organized, to share scientific insights and address increasing concerns and heightened awareness of food allergies incidences within the region.

Another first was a seminar and workshop held in Myanmar on Maternal, Infant and Young Child Nutrition in July, that was also attended by the relevant health authorities personnel from Myanmar, Cambodia and Laos.

We encourage you to gain insights from reading the reports of these and other events held that also addressed pertinent issues from Consumers Science in Indonesia; Sustainability, Genetics and New Technologies in Australia; to Analytical Methods for Food Safety Testing in Singapore. You may also wish to visit our website to access the presentations which have been made available for most of the seminars.

We thank the many scientists, members and participants who have contributed to the success of our program in one way or another, and last but not least, the efficient staff in Singapore and coordinators of ILS SEA Region Country Committees, without whose support and hard work the successful implementation of our programs would not have been possible.

Boon Yee Yeong
Executive Director, ILSI SEA Region

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ILSI SEA Region Annual Meeting 2015

ILSI SEA Region held its 2015 Annual Meeting from April 9 to 10, 2015 in Bangkok, Thailand. It was the first time that the Annual Meeting was held outside of Singapore where the branch's regional office is based. The meeting was attended by ILSI's new President, Dr. Rhona Applebaum, as part of her visit to a number of ILSI's Asian branches.



Mrs. Boon Yee Yeong, Mr. Geoffrey Smith, and Dr. Rhona Applebaum

Opening the Annual Meeting on the morning of April 9th, Mrs. Boon Yee Yeong, Executive Director of ILSI SEA Region thanked the branch's Thailand Country Committee for their enthusiasm and support in hosting the Annual Meeting in Bangkok. Mrs. Yeong also thanked the numerous members, Scientific Advisors and stakeholders attending the event. She then introduced and invited Dr. Applebaum to share her vision and plans for ILSI, as she embarks on her term as President.

Keynote Presentation by ILSI President

Dr. Applebaum's presentation provided an overview of how ILSI leverages the strength of its international network to improve human and environmental health and safety. She noted that **one of ILSI's greatest strengths is its global network of prominent scientists from private and public sectors who work together to provide science that improves public health and well-being.** This global network gives ILSI the ability to

understand and respond to science and health challenges at the local, regional, and international levels. To better harness its synergies, and maximize the collective impact of this global network, ILSI has launched the ONE ILSI initiative. This initiative encourages ILSI's branches around the world to commit additional effort on communication, coordination, cooperation, and collaboration, with the aim of adding value to cross-geography collaboration. Dr. Applebaum emphasized that **through the ONE ILSI approach, ILSI aims to be a preferred scientific partner for its stakeholders, and to make a bigger difference on human and environmental health and safety.**

Updates on ILSI SEA Region Research Projects

Micronutrient Status in Southeast Asia

As part of the Annual Meeting, ILSI SEA Region also organized a brief scientific

session to share updates of several research projects that the branch is undertaking. The first speaker was Mr. Geoffrey Smith, President of ILSI SEA Region, who presented on the topic of **micronutrient status in Cambodia and other countries in Southeast Asia.** Mr. Smith said that while many countries in Southeast Asia have experienced economic progress, micronutrient deficiencies continue to be an area of public health concern. Mr. Smith also noted that Vitamin D and thiamin deficiency is an emerging issue. The impact of micronutrient deficiencies include stunting among children, and anemia. In order to address these problems, more research and intervention programs need to be undertaken. ILSI SEA Region has been contributing to this important area over the years, through programs such as Project IDEA (Iron-deficiency Elimination Action), and the support of scientific research and activities on food fortification. Currently, ILSI SEA Region is participating in a four-country multistage cluster study covering Indonesia, Malaysia, Thailand and Vietnam, in collaboration with leading research institutions in these countries.

Validation of WHO Indicators for Breastfeeding and Complementary Feeding

Next, Prof. Geok Lin Khor, International Medical University, Malaysia, gave a presentation on a joint study between ILSI SEA Region and the university on the validation of WHO indicators of breastfeeding and complimentary feeding. The study was undertaken in 2013 – 2014, with a sample size of 300 Malaysian urban infants and children aged 6 months to 23.9 months. Prof. Khor shared that the results showed that children who achieved the WHO indicators (namely, minimum dietary diversity, minimum meal frequency, minimum acceptable diet, and consumption of iron-rich or iron-fortified



Discussions during the ILSI SEA Region Annual Meeting 2015

foods) were more likely to have intake adequacy for a limited number of key nutrients. Prof. Khor concluded that **the WHO indicators could be used as a rapid screening tool; however, additional dietary assessment tools are needed to complement the information provided by the indicators, especially if quantitative data is required.**

Anemia and Hemoglobinopathies in the Philippines

Dr. Sofia Amarra, ILSI SEA Region, provided an update on the research project jointly undertaken by ILSI SEA Region and the Food and Nutrition Research Institute of the Philippines to **investigate the occurrence of hemoglobinopathies among anemic individuals in the Philippines.** The study was based on data from the Philippines' 2013 National Nutrition Survey. Dr. Amarra said that the preliminary findings from the study were undergoing confirmation from a consultant hematologist, however, the study has highlighted key considerations for iron intervention strategies in the region. These include the need to define optimal cut-offs for hemoglobin that define anemia in diverse populations, especially where hemoglobinopathies are common; as well as the needs to assess risks vs benefits of population-wide and targeted coverage and iron interventions such as fortification and supplementation.

Healthy Aging

ILSI SEA Region is one of the co-leaders of the **ONE ILSI Global Project on Healthy Aging**, and part of the branch's contributions to this global project will be the undertaking of **review studies in selected Southeast Asian countries including Thailand.**

Assoc. Prof. Rossarin Gray, Institute for Population and Social Research, Mahidol University, Thailand, said that the key objectives of the study in

Thailand include a review of existing literature on demographic and cultural definitions of aging; the identification of factors affecting aging; the identification of best practices shown to promote healthy and successful aging; as well as the identification of gaps, research and policy needs.

Sugar and Intense Sweeteners

The final two presentations focused on the topic of sugar and intense sweeteners. With global increase in overweight, obesity and non-communicable diseases, prevention is a priority for many regional governments. The use of sugar substitutes and sweeteners has been recommended to help reduce overall caloric consumption. However, some public health opinion leaders and communicators have expressed concern about the risk of using sweeteners in the food supply chain.

Ms. Pauline Chan, ILSI SEA Region, shared the key preliminary findings of a **survey supported by ILSI SEA Region on the risks and benefits of intense sweeteners among health, food and nutrition professionals in Malaysia.** The preliminary findings showed that respondents were more supportive of natural intense sweeteners such as stevia; they perceived natural intense sweeteners as more beneficial, less

harmful, more suitable for weight management, as well as for children and pregnant women.

Finally, Dr. Atmarita, Indonesia Nutrition Association, gave an **overview of the level and sources of sugar consumption in Indonesia.** Based on data from the Indonesia Total Diet Study conducted in 2014, it can be seen that cereal and tubers are major sources of energy in the Indonesian diet, while prepared food and beverages made up approximately 20% of energy intake. For sugar intake, sugar consumption was about 15.7g / cap / day, and approximately 5% of the total population consumed more than 50g of sugar per day.

Discussions and Program Planning

The 2-day Annual Meeting was a good opportunity for all staff, members, Scientific Advisors and other stakeholders of ILSI SEA Region to meet and exchange latest developments in the fields of nutrition and food safety. There were many fruitful and productive discussions, as well as active participation of all stakeholders in the planning of ILSI SEA Region's scientific programs and activities for the year ahead.



ILSI SEA Region Board of Directors 2015 – 2016

Food Allergens - Science and Challenges for Southeast Asia

Food allergies are increasingly becoming an important public health concern in Southeast Asia, with a growing number of consumers in the region being reported to suffer from the condition. Government authorities and the food industry can play a key role in helping individuals with food allergies avoid exposure to food allergens, such as through the implementation of food allergen labeling, as well as by ensuring that allergens are not unintentionally introduced into food products. Additionally, clinical practitioners are also key sources of information for food allergy patients on how to manage their food allergies.

Recognizing the need for a collective approach in addressing the issue of food allergies, ILSI SEA Region organized a one-day **Seminar on Food Allergens – Science and Challenges for Southeast Asia**, which was held on April 7, 2015 at the Radisson Blu Plaza Hotel in Bangkok, Thailand. The seminar was co-organized by the Food and Drug Administration, Ministry of Public Health, Thailand, together with the support of the ILSI Health & Environmental Sciences Institute (HESI), ILSI Japan and the Allergen Bureau. It brought together over 120 participants from Southeast Asia and other Asian countries, who represented government food safety authorities, the food industry, clinical practitioners, academics researchers, as well as food allergen analytical solution providers.



Organizers and speakers of the Seminar on Food Allergens – Science and Challenges for Southeast Asia

Understanding Food Allergies

Dr. Pantipa Chatchatee, Faculty of Medicine, Chulalongkorn University, Thailand, shared the first presentation on **“Food Allergies – An Introduction”**, which provided a general overview on food allergies. She explained that food allergies are a condition caused by the body’s abnormal immunologic response towards certain foods. It can either be Immunoglobulin E (IgE) mediated, non-IgE mediated, as well as through a combination of both mechanisms. Food allergies are, however, distinct from food intolerances, the latter being caused by non-immunological reactions such as enzyme deficiencies and substances that have pharmacological effects. Currently, food allergies affect up to 2% of the total population in most industrialized countries, with a higher incidence in

children of about 8%. There are eight food types that are commonly known to cause food allergies, including peanuts, tree nuts, shellfish, fish, eggs, cow’s milk, wheat and soy. Four of these – cow’s milk, eggs, wheat and shellfish, are known to be common allergens among Southeast Asian populations. Diagnosis of food allergies can be performed through a number of methodologies, such as by reviewing patient history, skin prick test, laboratory tests, as well as oral food challenge test.

Dr. Lee Bee Wah, Department of Pediatrics, National University of Singapore, Singapore, followed with the second presentation of the session on **“Prevalence of Food Allergies in Southeast Asia”**. She explained that at the global level, public health experts believe that food allergies are the ‘second wave’ of an allergy epidemic (the ‘first wave’ being asthma, allergic rhinitis and inhalant sensitization). Dr. Lee also noted significant differences in the types of food known to cause allergies in Asian populations compared to Western

populations. While peanut allergies are very common in the West, they are relatively rare in Asia. Conversely, shellfish allergies are more common in Asia with a prevalence of about 5% in countries like Singapore and the Philippines, but only 0.7% in the USA. Apart from direct sensitization through ingestion of shellfish, there also appears to be cross-reactivity to shellfish allergen (tropomyosin) caused by sensitization through inhalation of dust mites, particularly in the hot and humid climates present in Southeast Asia. More recently, there have also been reports in several Asian countries of food allergies among young children caused by exposure to galacto-oligosaccharide (GOS) in formula milk, which have resulted in anaphylactic reactions.

Food Allergens and Public Health

Dr. Ronald van Ree, Academic Medical Center, University of Amsterdam, Netherlands, provided a presentation on

“Characteristics of Food Allergens and Processing Effects”. He elucidated the concept of classifying a protein-based food allergen. A protein which is able to sensitize independently is considered to be a complete allergen. In contrast, a protein which derives its allergenicity from cross-reactivity is considered to be an incomplete allergen. Cross-reactions occur due to structural homology of an incomplete protein to a complete allergen. In addition, allergenicity of a protein is not usually dependent on just one single factor, but rather on a broad spectrum of intrinsic and extrinsic factors. For example, an allergen can either be resistant to processing (due to its intrinsic factor) or molecularly modifiable (due to its extrinsic factor), depending on the type of allergen and the processing conditions.

Dr. Simon Brooke-Taylor of Brooke-Taylor & Co. Consultants, Australia, highlighted that the use of voluntary precautionary allergen labeling for foods which do not have ingredients that causes allergies, such as the application of terms “may contain”, are increasingly common across the market. This may have a detrimental effect for consumers, as it limits the food choices of affected consumers. Recognizing the need to address this concern, the Australian Food and Grocery Council (AFGC) initiated its Allergen Risk Assessment Project in 2005, with the objective of developing a standardized allergen risk assessment tool which could be used to assist in determining appropriate voluntary allergen labeling statements. This effort has since evolved into the **Voluntary Incidental Trace Allergen Labeling (VITAL®)** program, which is a standardized allergen risk assessment tool for food producers and helps to calculate total cross contact of allergens in the final food product, so as to determine ‘action levels’ that guide the need to apply precautionary labeling. These ‘action levels’ are underpinned by knowledge of allergen threshold reference doses, which are obtained through scientific risk assessment. To ensure that the reference doses used to guide action levels consider new scientific developments, a VITAL® Scientific Expert Panel (VSEP) was set up in 2011 to help review new data that could be used to refine existing and develop new reference doses for different food allergens.

Following this, Dr. Samuel Godefroy, Senior Partnership Coordinator of the Global Food Safety Partnership, World Bank, USA, provided a presentation on **“Prioritization of Food Allergens and International Public Health Measures”**. Food allergies are considered to be significant public health issues as they affect a significant proportion of the population, are life-long and incurable

conditions, and avoidance is the only means to prevent food allergy incidents. The total estimated cost burden of food allergies for affected households in Canada was about CDN\$5.4 billion. Interventions such as labeling of food allergens to ensure that affected consumers are able to avoid the consumption of these ingredients were implemented. The Codex Committee on Food Labeling has also developed the harmonized guidelines for the labeling of food allergens which included a list of priority food allergens. Dr. Godefroy shared that Health Canada adopted similar criteria in developing a national priority list of food allergens for labeling purposes, with the addition of other criteria including consideration of whether a food or food ingredient could become a hidden source of food allergens in pre-packaged foods; as well as other factors that are relevant to risk management, including the potential for cross-reactivity of allergens.

Risk Management of Food Allergens

Ms. Jiraratana Thesasilpa from the Food and Drug Administration, Thailand provided the first presentation of the session on **“Risk Management of Food Allergens in Thailand”**. Ms. Jiraratana explained that food allergies are a new public health concern in Thailand, with less than 10% of children in Thailand being affected. Based on consumer surveys, the majority of affected consumers do look for allergen information on food labels prior to making food purchases. Furthermore, about 60% of food allergy incidents appear to be caused by consumption of food products that were not labelled for food

allergens. As such, allergen labeling is an important tool for informing consumers in order to avoid allergen exposure. Thailand has recently enacted a regulation for mandatory allergen labeling (Minister of Public Health Notification No. 367 B.E. 2543 (2014) on Labeling of Pre-packaged Foods), which requires the declaration of food allergens on processed food products. The list of allergens that are required to be declared follow the priority list established by the Codex Alimentarius. The regulation covers labeling of food ingredients that are intentionally added as well as those that may have been inadvertently introduced.

Dr. Masahiro Shoji, Morinaga Institute of Biological Sciences, Japan, provided the second presentation on **“Management of Food Allergen: Industry Case Study”**. He shared that the 3 main key factors to manage food allergens by food manufacturers include: correct labeling; prevention of cross-contamination; and the establishment of a quantitative and qualitative monitoring system. He shared a case study on how food allergens are managed at all stages of production of a food product, both during the research and development phase (i.e. during product development and formulation), as well as during factory production (i.e. receiving of raw materials; production and packaging; transport and distribution). In addition, one of the challenges in managing food allergens in the factory environment is that production lines are commonly shared for the production of more than one product, which may result in cross-contamination. While cleaning of the production lines is usually done, it is sometimes impractical for full disassembly of the production equipment for thorough cleaning after each use. Hence, suitable monitoring at potential sites for cross-contamination should be put in place to



ensure cross-contamination of allergens can be detected.

Dr. Roger Bektash and Ms. Julie Newlands from the Allergen Bureau, Australia shared a presentation on **“Incidental Trace Allergen Labeling”**, describing its VITAL® program. Its objective is to promote a consistent approach for labeling across the food industry for precautionary allergen labeling, such as for the use of “may be present” statements. The VITAL® program comprises a risk assessment process, decision tree, grid of action levels and calculator and aimed to provide protection of the vast majority of consumers but does not account for exquisitely allergic consumers, who are assumed to not eat processed foods. A core principle for establishing action levels within the program is that it must be scientifically and clinically sound, as well as follow a defensible and transparent procedure. The allergen action levels are also continuously reviewed, as more relevant data is made available. The VITAL® program has recently been updated to Version 2.0, with the planned launch of a VITAL® Calculator in July 2015. To ensure continued success of the VITAL® program, the Allergen Bureau actively encourages global partnerships in supporting its implementation, including through training collaborations to building capacity among the food industry in different parts of the world in using the VITAL® tools.

Dr. Samuel Godefroy, shared a second presentation on **“Food Safety Capacity Building – The Case of Allergen Management”**. He stated that there has been increasing awareness of the public health and economic impacts of food safety incidents. However, different levels of interventions and measures to address food safety concerns at the international level can result in a variety of consequences, including the maintenance of disparity in levels of human and economic development in different countries as well as a disruption to food trade. As such, food safety capacity building has been acknowledged to be an imperative for all concerned stakeholders. A sustainable and coordinated approach, which aligns with international standards, avoids duplication, and is able to consistently address gaps and needs, is the key to successful implementation of capacity building activities. The Global Food Safety Partnership (GFSP), which is being facilitated by the World Bank, aims to serve as the platform to implement such an approach. One issue that is being discussed within the GFSP is food allergen management. This is due to the growing number of food recalls in different countries that are caused by the presence of undeclared food allergens, as a result of

the lack of awareness of allergen labeling requirements by food producers.

Dr. Alice Lee presented the final presentation of the session on **“Management of Food Allergens: Translating Research into Solutions”**. She described the ARC Training Centre’s role in addressing food allergen management through its research activities, such as in developing analytical technologies that support food allergen risk management; developing process technologies that could reduce allergenicity of foods; as well as through development of scientific knowledge on molecular characteristics of food allergens that would allow for the identification of factors causing food allergic reactions. Dr. Lee emphasized that in order for academic research to be translated into useful solutions in the area of food allergen management, there is a strong need to take an inter-disciplinary and cross-disciplinary approach, as well as to establish partnerships with the food industry.

Allergen Testing

Mr. Lucas Frank, Romer Labs, Austria, provided a presentation on **“Food Allergen Testing Solutions – Meeting Regulatory Requirements”**. Mr. Frank introduced different types of food allergen detection kits and their mechanism for detection, including ELISA methods and lateral flow strip methods. He also shared some of the pros and cons of each method, as well as their respective application in different environments (for e.g. laboratory vs. factory level).

Mr. Matthew Turner, 3M Food Safety, Singapore spoke on the topic of **“Factory Cleaning and Environmental Monitoring for Allergens”**. He emphasized that environmental monitoring for potential food contaminants, including food allergens, is becoming an increasingly common practice in food producing environments and is also increasingly recommended by regulatory authorities. This is to validate that appropriate cleaning of equipment and factory areas have been achieved to remove any traces of food allergens that could be introduced into the final product. He then shared several technologies that could be applied for the purpose of environmental monitoring for food allergens, including detection of specific proteins using ELISA; ATP detection via rapid swabs, as well as protein detection via rapid swabs.

Dr. Ronald Niemeijer, R-Biopharm, Germany, shared a presentation on **“Food Allergen Management – To Measure is to Know”**. He mentioned



that the issue of ‘hidden allergens’ is a general concern, giving the examples of the use of milk proteins and eggs as clarifying agents for wine, as well as the incident of nut-based materials being illegally used to substitute for ground spices. He then shared some examples of analytical technologies that could be used to detect for hidden allergens, including lateral flow, ELISA, PCR, as well as LC-MS-MS based methods. The selection of the type of analytical method needs to be fit for the intended purpose, such as to ensure compliance of a food product with food regulations, or for the verification of cleaning protocols to reduce levels of cross-contamination.

Ms. Robin Sherlock, DTS FACTA, Australia, provided the final presentation of the session on **“Analysis as a Tool for the Management of Food Allergens and the Associated Challenges”**. She explained that testing serves a number of roles in allergen management, for example in the monitoring of food ingredients to specify its allergen raw materials profile. In general, some requirements for allergen testing methodologies are that they need to be sensitive, quantitative, specific, widely applicable, rapid, economical, validated and fit-for-purpose. Analysis of food allergens are however complicated by the complex nature of raw materials, the processing impacts on food allergens, as well as the presence of closely-related proteins that may give false positives. Furthermore, for the purpose of implementing risk-based trace allergen labeling, appropriate sampling and consideration of serving size is also an important consideration when conducting allergen testing.

Maternal, Infant and Young Child Nutrition in Cambodia, Lao PDR and Myanmar

Malnutrition among maternal women and children remains a significant health problem in Cambodia, Lao PDR, and Myanmar, because it can lead to early childhood mortality as well as impairments in the cognitive and physical development of the child. To ensure normal development of the child, good nutrition during the first 1,000 days of life, from conception to the child's second birthday, is crucial. It is therefore critical to invest in better nutrition during this 1,000-day window period. However, numerous barriers to achieving better nutrition exist, especially in developing countries.

In light of these concerns, a 1-day seminar on **Maternal, Infant and Young Child Nutrition (MIYCN) in Cambodia, Lao PDR and Myanmar** was organized by ILSI SEA Region and co-organized by the Ministry of Health, Myanmar, on July 15, 2015. Maternal and child nutrition specialists from the various government health ministries, academia and relevant institutes examined and reviewed the current nutrition and health status of pregnant and lactating mothers, infants and young children in Cambodia, Lao PDR and Myanmar; and provided better understanding of breastfeeding and complementary feeding practices in these three countries. The seminar also discussed current programs and recommended potential strategies to help improve maternal nutrition and to reduce malnutrition and stunting in young children; identified gaps in existing knowledge and programs in these areas; and discussed potential solutions to address these gaps.

Dr. Kyaw Zin Thant, Director General of the Department of Medical Research, Ministry of Health, Myanmar, in his welcome speech, provided an overview of the existing nutrition problems among maternal women and children. He encouraged speakers and participants alike to actively share their own experiences and to learn from the experiences of other countries. Next, Mrs. Boon Yee Yeong, Executive Director, ILSI SEA Region, welcomed speakers and delegates, and provided a brief overview of ILSI SEA Region's aims and activities, including those of its Technical Committee of Maternal, Infant and Young Child Nutrition in Southeast Asia.

Nutrition, Health Status, Programs and Policies

Prof. Pattanee Winichagoon, Institute of Nutrition, Mahidol University, Thailand, opened the first session with a keynote address on the **importance and implications of maternal and child nutrition on public health in Asia**. She highlighted that maternal and child nutrition has long been a neglected agenda that requires urgent attention. She then provided an overview of the current nutritional status of women and children under five, focusing on trends in obesity, stunting, and wasting in selected ASEAN countries. While stunting and wasting remain highly prevalent in some countries, obesity is rapidly increasing among children and women in transitioning economies because of sedentary lifestyles and high caloric intake amongst other factors. These trends raised concerns on the double burden of over- and under-nutrition which should be addressed as early as during the conception period for better prevention of the problem. While micronutrient deficiencies of public health importance such as vitamin A and iodine persist, determining such deficiencies is an emerging challenge because of debatable cut-off points and lack of data. Prof. Pattanee noted that advocacy and innovative communication and counseling in delivering 'effective nutrition package' are recommended to address the first 1,000 days window of opportunity.

The **trends in early childhood mortality rate and maternal mortality ratio in Cambodia** was described by Dr. Prak

Sophonney, National Maternal and Child Health Center, Ministry of Health, Cambodia. She further reported on the declining rates in breastfeeding, likely due to the high availability of breast milk substitutes. Data on the prevalence of stunting, wasting, underweight, and anemia among children, and anemia among women instigated Cambodia to draft the document on "Fast Track Road Map for Improving Nutrition 2014-2020" to outline a comprehensive nutrition strategy to address these needs. Finally, she provided an overview of the existing policies and guidelines as well as nutrition interventions carried out in the communities. These interventions include IYCF programs, scaling up of inpatient and outpatient management of severe acute malnutrition in hospitals and health centers, and increasing the fortification of staple foods with various micronutrients.

Dr. Bounthom Phengdy, National Nutrition Center, Ministry of Health, Lao PDR, highlighted Lao PDR as having the highest **children-under-5 mortality rate** in the region despite significant improvements since 1993. Specifically, Lao PDR urgently needs to address low breastfeeding rates, insufficient complementary feeding, vitamin A deficiency, high prevalence of anemia among young children and the double burden of malnutrition in women. In response to these challenges, the National Nutrition Strategy and Plan of Action 2010-2015 and a multi-sectoral approach and convergent action plan were developed. Dr. Phengdy outlined the details of the plans, which focus on improving water supply, agriculture,

and education. She also highlighted the new challenges they faced since the introduction of the multi-sectoral approach, including limited resources, lack of experience, and weak capacity for planning.

An overview of population statistics, infant and under-five mortality rates, causes of infant, young child and maternal deaths in Myanmar was provided by Dr. May Khin Than, National Nutrition Center, Ministry of Health, Myanmar. She then elaborated on the National Nutrition Program of Myanmar since 1954 as well as the existing national nutrition programs, such as the vitamin A deficiency elimination program and the anemia control program, to tackle these issues. She brought attention to five key nutrient deficiencies prevalent in Myanmar: protein, iodine, vitamin A, iron, and thiamine. To address high prevalence of anemia and stunting, as well as poor nutrition knowledge among the community and inadequate human resources, the Ministry of Health will be revising their National Nutrition Policy. In addition, Dr. Than noted other strategies that could be taken include the strengthening of community-based nutrition promotion, social marketing of home fortification via micronutrient sprinkles, infrastructure development and capacity building of ground staff, as well as updating the food composition table of the country.

Nutrition and Health of Pregnant and Lactating Women

Dr. Chamnan Chhoun, Department of Fisheries Post-Harvest Technologies and Quality Control, Fisheries

Administration, Cambodia, presented on the **micronutrient status in women of reproductive age (WRA)** based on the materials prepared by Dr. Frank Wieringa, IRD Centre de Montpellier, Cambodia. Dr. Chamnan stressed the importance of good nutrition among WRA, in addition to the current focus on pregnant women, infants, and children under five years. He presented recent evidence for micronutrient deficiencies among WRA in Southeast Asia based on the results from SMILING project and highlighted that many women in Southeast Asia have only marginally adequate status for many micronutrients, such as folic acid, zinc, iron, and vitamin D, which poses a high risk for such deficiencies during pregnancy. Low diversity in diets, nutrient absorption inhibitors, food taboos, and cultural practices are possible reasons for the low micronutrient intake. Finally, Dr. Chamnan stressed the need for national micronutrient survey data in order to guide national policies to improve micronutrient status. He also concluded that high prevalence of anemia in Cambodia may not necessarily be linked to iron deficiency.

Vietnam's success in improving the nutritional status of children and women via community-based intervention programs was shared by Prof. Le Thi Hop, Vietnam Nutrition Association, Vietnam. She noted that the nutritional status of children and women from 1995-2010 improved because nutrition goals were integrated into local socio-economic development plans and the government budget for nutrition activities was increased yearly. The main intervention strategies they employed during this period included community-based and multi-sectoral approach in the implementation

of nutrition activities, as well as building up their capacity for nutrition. Despite achieving numerous goals before 2010, stunting and micronutrient deficiencies were still high. The National Nutrition Strategy for 2011 to 2020 was developed to address these issues. The strategy includes the Plan of Action for Nutrition (NPAN), National Malnutrition Control Program, micronutrient supplementation, and the establishment of Vietnam Food-Based Dietary Guidelines among others. Finally, Prof. Hop highlighted emerging challenges in Vietnam, such as rising obesity due to the double burden of malnutrition, increasing risk of non-communicable diseases (NCDs) and strengthening of capacity building in nutrition.

Nutrition and Health of Infants and Young Children

Dr. Moe Moe Hlaing, Nutrition Research Division under the Department of Medical Research, Ministry of Health, Myanmar, presented findings of a **cross-sectional descriptive study on the complementary feeding practices** in selected rural areas of Yangon in 2007. Dr. Hlaing also noted the timely introduction of complementary food by some mothers but the foods introduced are unsuitable and not nutritious enough. An example highlighted was the late introduction of meat, fish, and vegetables to the children. Further nutrition education targeted towards mothers and caregivers is necessary to dispel taboos and to improve feeding practices. Dr. Mya Ohnmar, Nutrition Research Division under the Department of Medical Research, Ministry of Health, Myanmar, then shared the **results of a study on the dietary diversity and nutritional**



Speakers and Organizers of the Seminar on Maternal, Infant and Young Child Nutrition held in Myanmar



status of children aged 2 to 5 years in Yangon. Children from urban areas consumed more diverse diets, while children from rural areas consumed from less food groups resulting in a higher prevalence of underweight. In light of the low consumption of milk and related products in children of all the study groups, calcium intake is likely to be inadequate, and therefore promotion of milk consumption is recommended. Dr. Ohnmar also suggested for a continued assessment of nutritional status and growth monitoring of children.

Dr. Mary Chea, National Nutrition Program, Ministry of Health, Cambodia, presented an **overview of the IYCF program implemented in Cambodia** which aims to improve the survival and well-being of infants and children by improving their nutritional status, growth, and development through optimal feeding. Appropriate feeding practices, especially breastfeeding and complementary feeding, play an important role in achieving optimal health outcomes. Notably, the percentage of exclusively-fed infants younger than 6 months decreased from 2010 to 2014, which Dr. Chea attributed it to the recent increase in migration of mothers to cities for work, which reduces their opportunities to breastfeed their children. She stated the concern on implementing IYCF interventions at only limited parts of the country due to budget constraints and the lack of evidence on the interventions' effectiveness.

While there was an improvement in both **exclusive and early initiation of breastfeeding practices** in Lao PDR from 2006 to 2011, the use of infant formula

has tripled during the same period. Dr. Sengchanh Kuonnang, Health Research Division, National Institute of Public Health, Ministry of Health, Lao PDR, elaborated that the poorest and the wealthiest quintile groups of mothers demonstrated the highest rates of exclusive breastfeeding with 70% of the mothers from rural villages to continue breastfeeding their children at 2 years of age, whereas only 41.4% of mothers in the urban areas follow with this practice. Dr. Kuonnang highlighted the recommendations to cope with these issues and shared on the Exclusive Breastfeeding Campaign and Grandmother Project which they have implemented.

Dr. Lwin Mar Hlaing from the National Nutrition Center, Ministry of Health, Myanmar, gave an **overview of the IYCF core and optional indicators** before sharing the **results of their nation-wide surveys on IYCF practices in Myanmar**. She noted that about 93.4% of the 1,100 mothers surveyed in 2004 practised breastfeeding. Dr. Hlaing also reported the results of a Food and Nutrition Survey in 2008 on IYCF in Cyclone Nargis-affected areas, in light of the high prevalence of acute malnutrition that typically occurs after disasters, as well as the small scale studies on IYCF that are carried out across the country.

Next, Dr. Sengchanh Kuonnang elaborated on **the effectiveness of home fortification of complementary foods using Sprinkles**, containing multiple micronutrient powder, in reducing the prevalence of anemia and micronutrient deficiencies among children. She then highlighted the plans to distribute

Sprinkles to various districts in Lao PDR and shared about the barriers to scaling up the project, including the challenge of tailoring communication materials to address an ethnically diverse audience, and the limited training and follow-up capacity of village-level volunteers. Dr. Kuonnang outlined their intervention strategy to provide supplementation based on target group, including young women and pregnant women, and geographical coverage. She concluded that health education aiming to modify food habits will be a necessary action as long-term strategy to improve child growth rates.

Dr. Chhoun Chamnan introduced the **WinFood project** which aims to develop nutritionally improved complementary foods for infants and young children based on improved utilization of locally available food sources as a plan to prevent and alleviate childhood malnutrition. An intervention trial was carried out on 400 children from 2009 to 2012. After identifying locally available foods such as water spinach, crickets, spiders, river shrimps and fish, these foods were screened based on nutrient density as well as zinc and iron bioavailability. Based on the variety of indicators and analysis, the final WinFood product developed was a fortified rice-fish based product, which was as effective as imported fortified corn-soya-milk in supporting child growth.

Finally, Mr. Geoffry Smith, President, ILSI SEA Region, Singapore, delivered the closing remark, emphasizing the need for technical assistance and capacity building in the region, as well as data collection on a regular basis in order to capture the effectiveness of interventions.

9th Seminar on Nutrition Labeling, Claims and Communication Strategies

Nutrition labels, as well as nutrition and health claims, are important tools to communicate the nutritional quality and health benefits of a food product to consumers. They provide point-of-sale information to help consumers make informed choices. In Southeast Asia, there is wide disparity between label formats and permitted claims among countries, causing confusion among consumers and resulting in trade barriers for food manufacturers and distributors.



Ms. Helena Alcaraz, Dr. E-Siong Tee, Dr. Rodolfo Florentino, and Ms. Cecille de la Paz

The 9th **Seminar on Nutrition Labeling, Claims and Communication Strategies**, organized by ILSI SEA Region and the ILSI SEA Region Philippine Country Committee, provided an update on developments and regulatory changes in nutrition labeling, nutrition and health claims, and related issues in Southeast Asia and other regions. The seminar also discussed the use of nutrition information panel (NIP), front-of-pack (FOP) and claims as communication tools and how they could help make a change in the consumer behavior. Additionally, the seminar addressed scientific substantiation of claims, and challenges and efforts on harmonization of nutrition labeling in the ASEAN region.

The 1½-day seminar, held in Manila, Philippines on August 4-5, 2015, was co-organized by the Food and Nutrition Research Institute (FNRI) in collaboration with the Food and Drug Administration

(FDA), Philippines. It was attended by more than 200 regulatory, food, and nutrition specialists from the industry, government, and academia. Dr. Maria Victoria D. Pinion, Director of the Center for Food Regulation and Research, FDA, Philippines, and Dr. Mario Capanzana, Director of FNRI, Philippines, gave the welcome address while Mrs. Boon Yee Yeong, Executive Director, ILSI SEA Region, Singapore, provided an overview of ILSI SEA Region's long involvement in the area of nutrition labeling and claims in Southeast Asia.

Nutrition Labeling and Claims: Regulatory Updates

The first session provided an update on **developments in nutrition labeling, nutrition and health claims in the region**. Dr. E-Siong Tee, ILSI SEA Region, Malaysia, and Mr. Hiroaki Hamano, ILSI Japan co-chaired the session.

Ms. Siti Maemunah, National Agency of Drug and Food Control (BPOM), Indonesia, presented the updates on **nutrient and health claims, as well as the glycemic index claims allowed in Indonesia**. Nutrition labeling in Indonesia is mandatory for fortified food, or food with nutrition and/or health claims, but voluntary for other foods. New claims may be proposed to BPOM, which will be reviewed by a group of experts consisting of representatives from relevant agencies.

Dr. Khamseng Philavong, Ministry of Health, Lao PDR, shared the relevant laws, regulations, and standards related to nutrition labeling in Lao PDR, including the National Nutrition Policy and Food Safety Policy among others. She highlighted that nutrition claims are not yet common and there are **no laws, regulations, and standards related to nutrition claims in Lao PDR**.



Dr. Rodolfo Florentino, Mr. Kim Keat Ng, Ms. Pauline Chan, Dr. E-Siong Tee, and Mr. Richard Dandan

An overview of the **law governing nutrition labeling and claims in Malaysia based on Codex guidelines** was provided by Ms. Norrani binti Eksan, Ministry of Health, Malaysia. The law was gazetted in 2003 and enforced in 2005. Malaysia adopts a “positive list” approach in regulating nutrient function and other function claims. Currently, the permitted list includes 23 classical nutrients such as protein, vitamins and minerals, and 29 other food components such as lutein, plant sterol, and DHA. There are a few proposed amendments currently waiting to be officially improved, such as requiring Nutrient Reference Values (NRV), expressed as a percentage per serving, to be declared on the label, and expanding the NRV list to be in line with Codex guidelines, among others.

Dr. Hnin Nandar Kyaw, FDA, Myanmar, highlighted their National Food Law (1997), which contains provisions for food labeling but not specific to nutrition labeling. She noted that there are plans to modernize the current food law in line with international practices. In fact, a stakeholder workshop was held in February 2015, where experts from related ministries and government organizations participated to help draft the new food law. **Myanmar plans to include nutrition labeling as part of food labeling in the future.**

Ms. Helena Alcaraz, FDA, Philippines, shared that **nutrition labeling has been mandatory in the Philippines since October 2014.** The nutrition facts must be presented in a table and must now include calories, total fat, saturated fat, trans fat, cholesterol, sodium, total carbohydrates, dietary fiber, sugar, and protein. Local research has shown the effectiveness of FOP labeling in catching the attention of consumers compared to the regular nutrition facts displayed at the back of the package. Currently, only the amount of product per serving, the energy expressed in kcal, and the corresponding % recommended energy and nutrient intakes (RENI), are displayed in the FOP label. **The Department of Health is proposing for FOP labeling for sodium and sugar to be implemented because of increasing non-communicable disease (NCD) among the population.**

Ms. Mui Lee Neo, Agri-Food and Veterinary Authority (AVA), Singapore provided an overview of the **types of claims allowed in Singapore and the recent developments in claims regulations.** Two guidance materials to help stakeholders make appropriate use of claims are now available in AVA’s website: the “Vitamins and Nutrients Calculator” and a guide for the application of new health claims. AVA has initiated a proactive review of nutrient function

claims since 2014, where 95 claims for nutrients that have a long history of their physiological role in growth, development and normal functions of the body have been reviewed. The final list of approved new claims is expected to be published on AVA’s website by the end of 2015. Recent amendments in the Singapore Food Regulations in 2014 include the use of plant sterol claims on more types of food and updates in the labeling requirements.

Regulations in Thailand aim to address NCDs and are therefore focused on reducing consumption of sugar, salt, fat, and calories, explained Dr. Tipvon Parinyasiri, FDA, Thailand. Guideline Daily Amounts (GDA) labeling has been mandatory for five groups of snack foods since 2011, and surveys indicate increasing compliance and adoption of mandatory and voluntary GDA labeling, respectively. The Thai FDA hopes to extend mandatory GDA labeling to more types of food. Further, they are setting the criteria for the “Healthier Logo”, adopted on a voluntary basis. On top of GDA and healthier logo initiatives, surveys have been conducted to assess public opinion on incorporating traffic light labeling. Though initial response has been positive, further assessment is required to evaluate consumer understanding and utilization of the scheme. Finally, nutrition and health claims are to be expanded as there

are currently only 29 approved claims. Standards for serving size references, especially for solid foods, as well as adding trans-fat in the nutrition label need to be re-considered.

Mrs. Truong Thuy Ngoc, Vietnam Food Administration (VFA), Vietnam, shared that **nutrition labeling is currently mandatory only for milk products for infants and children in Vietnam**. There are additional provisions that certain foods have to comply with, such as making comparisons with the Recommended Nutrient Intakes of the specified micronutrient that has been used to fortify the food. Mrs. Ngoc explained the challenges they face in implementing nutrition labeling in Vietnam, including the difficulty in calculating the nutrient content of products due to technical limitations; difficulty in monitoring products in the market; and low consumer understanding of nutrition labels. Finally, she expressed VFA's interest in harmonizing with Codex and ASEAN guidelines in the future.

Dr. Toshitaka Masuda, Consumer Affairs Agency (CAA), Japan, shared the **recent introduction of mandatory nutrition labeling in Japan**, according to the newly promulgated Food Labeling Act of 2013. The Food Labeling Standard under this act came into effect on April 1, 2015, which specifies the mandatory declaration of energy, protein, fat, carbohydrates, and sodium (expressed as salt equivalent) and voluntary declaration of vitamins, minerals, and others for pre-packaged food and food with food additives added, while fresh food are exempted from the mandatory declaration of nutrients. He then discussed the CAA's considerations in setting a nutrition declaration format, as well as revisions in nutrient comparative claims and non-addition claims according to Codex guidelines.

Use of Labeling for Communication of Nutrition and Public Health Messages

The second session, chaired by Dr. Mario Capanzana, FNRI, Philippines, aimed to discuss whether nutrition claims are well-understood and used by consumers, how nutrition labels influence consumers in their purchase decisions, and what information consumers look at in a nutrition label.

Ms. Hazel Fowler, Food Standards Australia New Zealand (FSANZ), Australia, discussed the **impacts of nutrition and fortification claims on consumer behavior** based on the findings of two studies conducted by FSANZ. The first study examined whether the presence of nutrient content claims on low nutritional quality food (e.g. potato chips) affect

consumers' purchase intentions and nutrition attitudes. The results of the study showed that presence of the claim did not affect purchase intention, nutrition attitude, perceived overall benefit to people, and perceived overall health benefits. The second study examined consumer knowledge of and attitude towards voluntary fortification. The results showed that consumers are aware of voluntary fortification in foods and that some consumers seek out some foods for their added vitamins and minerals, though the reasons vary by food type.

The results of the National Nutrition Surveys conducted in 2008 and 2013 in the Philippines were presented by Dr. Cecilia Cristina Santos-Acuin, FNRI, Philippines. She noted that females, younger age groups, urban, increasing wealth and education levels were **demographic characteristics of consumers who were more likely to read food and nutrition labels**. While there is an increase in food label readership from 46% in 2008 to 57% in 2013, information read are usually the expiration dates, brands and the ingredients. There was a decrease in the number of people who look out for nutrition facts in the label. Nonetheless, among consumers who do read nutrition labels, they first look for the nutrient content, followed by the amount per serving. The survey also showed that nutrition labels influence the label reader's decision to buy the product, regardless of demographic factors. Dr. Acuin shared that participants of focus group discussions still refer to the "Go, Grow, and Glow" model as their basis for nutrition knowledge and have difficulty incorporating the "Pinggang Pinoy" (similar to the US MyPlate) concept. Hence, food labels might

have to employ basic concepts such as "Go, Grow, and Glow" for people to understand them better.

Atty. Anselmo B. Adriano, Department of Trade and Industry (DTI), Philippines, discussed the **communication strategies of the Philippine government on nutrition labeling**. The DTI communicates key messages to the consumers, such as to be informed by always reading the labels; that nutrition labels indicate approved health claims they can trust; and proper nutrition labels can help them choose healthier diets. These messages are communicated through the development of Information, Education and Communication (IEC) materials. The DTI partners with leading TV and radio networks to air infomercials and gather feedback through social media channels, and is also working on strengthening the capacity and presence of consumer organizations. Finally, Atty. Adriano shared about the awards program "DTI Bagwis Program" which gives recognition to retail establishments that fully comply with Fair Trade Laws, which includes provisions on fair labeling and packaging.

Ms. Pamela Forshage, Philippine Chamber of Food Manufacturers, Philippines, provided an **industry perspective on nutrition labeling**. She emphasized that food businesses are keen to comply with regulation, but frequent updates in nutrition labeling laws pose challenges to the industry's ability to meet their speed to market deadlines as well as cost considerations in packaging reprints. She then expressed the industry's desire for harmonized regional labeling standards to facilitate trade among ASEAN countries. She also expressed the need for clarity in the guidelines for health claims, because while the industry wants to comply with





the regulations, they also want to attract consumers with good marketing.

The second session ended with a discussion about the **use of online platforms such as Google and YouTube to target the younger generation**, in order to address the challenge of getting consumers to know more about the nutrition of pre-packaged foods. However, there is difficulty in regulating claims on online platforms such as Facebook, Twitter, and emails. The FDA Philippines shared that modern forms of advertising, including online platforms, are regulated by the Advertising Standards Council (ASC) in the Philippines.

Use of NIPs, FOPs and Claims

The third session, chaired by Dr. Ruby Apilado, FNRI, Philippines, discussed the use of NIPs, FOPs, and claims in the region, as well as its effects.

Prof. Jian Zhang, Chinese Center for Diseases Control and Prevention, China, introduced the **nutrition labeling laws in China**, the “General Rule of Prepackaged Food Nutrition Labeling (GB28050-2011)”, executed since 2013. Since the implementation of the labeling law, more than 90% of food samples collected in a survey expressed the nutrient content in the correct format. However, only about 20% of consumers surveyed claimed to understand the meaning of the labels. Most did not know the meaning of NRV% and could not differentiate between per 100g (or mL) and per serving. He then explained the potential of FOPs in providing nutrition information in a simple way. However, there are numerous challenges to implementing FOP since it is voluntary, not standardized, and can take many forms and logos.

A brief overview of the importance of NIPs and the different FOP systems — fact-based, criteria-based, and evaluative —

was given by Ms. Pauline Chan, ILSI SEA Region, Singapore. She also provided **updates on the status of FOPs in the Southeast Asian region**. Singapore and Brunei employ Healthier Choice symbols or logos while Indonesia, Malaysia, Philippines and Thailand use a GDA-type FOP label. In addition, Thailand is developing a “Better Nutrition” symbol, to be displayed together with the GDA-type FOP labels. All FOP labeling is implemented voluntarily in Southeast Asia except for mandatory GDA labeling for 5 categories of snack foods in Thailand. Ms. Chan ended by discussing the factors to consider when developing an effective FOP format that will be acceptable to most stakeholders in Southeast Asia.

The third session concluded with a discussion about the **difficulty in interpreting FOP labeling** such as traffic light. The importance of educating consumers about NIPs and FOPs to increase the effectiveness of health promotion via these methods was raised. ASEAN countries were also encouraged to adopt Codex NRVs as the reference standard for labeling.

Scientific Substantiation and Harmonization in ASEAN

The fourth session, chaired by Dr. Rodolfo Florentino, ILSI SEA Region, Philippines, discussed the scientific substantiation and harmonization efforts of nutrition labeling in ASEAN.

Dr. E-Siong Tee, ILSI SEA Region, Malaysia, discussed the **process of scientific substantiation of health claims in Southeast Asia**. First, he summarized the regulatory status of health claims (other function and disease risk-reduction claims) in Southeast Asian countries and noted the significant differences among these countries. He then compared the regulatory framework for reviewing health claims between Indonesia, Malaysia, and Singapore. Dr. Tee also

gave actual examples of errors and weaknesses in applications for new health claims, including insufficient descriptions and scientific data as well as irrelevant supporting publications. Finally, he highlighted some challenges regarding providing scientific substantiation of new health claims and the role of ILSI SEA Region in facilitating the sharing of knowledge and progress in the area of nutrition labeling and claims.

Mr. Kim Keat Ng, Coca-Cola Far East Limited, Malaysia, shared that there is a **need for proper laws and regulations to guide nutrition marketing activities**, as well as an urgent **need for harmonization efforts to eliminate technical barriers between countries**. Though there have been improvements in harmonization efforts since 2002, there are many different terminologies used for reference values (e.g. NRV, RENI and GDA) despite guidelines set by Codex and ASEAN. He further shared that industry will always strive to comply with the regulations, but harmonization will reduce inefficiencies, uncertainty, and cost of the food supply chain. He stressed the need for ASEAN to have common labeling standards, starting with the revision of the 2006 ASEAN Common Principles and Requirements for the Labeling of Prepackaged Food by including step-by-step implementation guidelines that can be followed by the industry and monitored by regulators more easily. Mr. Ng emphasized on the need to have a Mutual Recognition Agreement for all ASEAN countries to move forward together. Finally, he proposed the establishment of an “ASEAN Expert Group on Nutrition and Dietetics” to draft the claim substantiation guidelines.

The seminar concluded with a panel discussion comprising Ms. Alcaraz, Dr. Tee, Dr. Florentino and Ms. Cecille de la Paz from Promesso Business Solutions, Philippines, to discuss the **key learnings and challenges in harmonization**. A key step to harmonization is to agree on the items to be harmonized, followed by a step-by-step plan for the regulators, scientists, and the industry. One key issue that has been discussed was the use of existing provisions by Codex as guidance for the harmonization process of nutrition labeling including the format, NRV, expression of values, and mandatory nutrients in the ASEAN region. Challenges faced include the use of the country’s own dietary reference values instead of adopting the Codex NRV values for use in the nutrition labels. In the closing of the panel discussion, one suggestion given by the panel was for ILSI SEA Region to draft a recommendation to assist regulators in areas to be harmonized.

Understanding Consumer Behavior and Food Choices in Indonesia

Food consumption patterns are rapidly changing all over the world, including Indonesia. Urbanization, rising incomes, and changing lifestyles have reduced the consumption of traditional meals, and these changes have affected consumer food choices and behavior. Nutrition labeling has been identified as a potential tool that can be used to influence consumer food choices.

In order to enhance the understanding of consumer food choices in Indonesia, ILSI SEA Region and its Indonesia Country Committee organized a one-day **Seminar on Understanding Consumer Science and Behavior** on May 11, 2015, in Jakarta, Indonesia. The seminar was co-organized by the National Agency of Drug and Food Control (BPOM), and the Department of Family and Consumer Sciences, Faculty of Human Ecology, Bogor Agricultural University, Indonesia. In addition to discussing consumer food choices, the seminar explored risk communication and consumer education strategies, as well as the latest findings on the role of nutrition labeling and claims in changing consumer behavior.

The seminar commenced with an opening remark by Prof. Aman Wirakartakusumah, ILSI SEA Region, Indonesia, and a welcome speech by Dr. Roy Sparringa, BPOM, Indonesia.

Understanding Consumer Food Behavior

The opening presentation of the seminar was made by Prof. Lynn Frewer, Newcastle University, UK, who gave an overview of consumer science and consumer food behavior. Prof. Frewer emphasized that **understanding why consumers make particular food choices is important** in order to promote healthy food choices, to ensure the safety of the food supply, to design new food products that people will want to buy, as well as to improve sustainable consumption. She discussed emerging issues in the agri-food sector as points to consider when evaluating consumer choices. For example, insects are an emerging potential source of protein that are easier and more

energy-efficient to farm than livestock. However, insect consumption might face considerable resistance from consumers, especially in some markets where insects have not traditionally been consumed. Prof. Frewer recommended segmenting consumers according to their culture, food environment, sensory preferences, habits, and values to understand their food choices more easily. As not all consumers will want to buy innovative new products or make healthy food choices, it is important to **consider consumer values when developing interventions that can effectively improve public health.**

Following Prof. Frewer's overview was a presentation on **Indonesian perspectives on consumer food behavior and food choices** by Prof. Ujang Sumarwan, Bogor Agricultural University, Indonesia. Predicted to be the 7th-largest economy in the world by 2030 with an expected 135 million consumers, Indonesia stands to contribute \$1.8 trillion of market opportunity in consumer services, agriculture and fisheries, resources, and education. Prof. Sumarwan emphasized that understanding food consumption behavior is very important because of the significant contribution of household food consumption to the Indonesian Gross Domestic Product. He presented various models to illustrate the relationships between various factors and food preference. These factors include socio-economic, personal, education, biological, cultural, religious, and environmental factors. Finally, Prof. Sumarwan shared about the National Socio-Economic Survey (SUSENAS) conducted in 2011 to understand the food consumption environment in Indonesia.

Next, Drs. Halim Nababan, BPOM, Indonesia, presented on **consumer awareness of food labeling information in Indonesia.** He presented the current situation of food safety, where the lack

of consumer awareness has been leading to the lack of consumer participation in food safety. Food labeling presents an opportunity to inform consumers about their food choices. The Indonesian Food Act mandates that labels for certain processed foods must include information about the designation, method of use, and/or other information that needs to be known about the impact on human health. In order to assess the effectiveness of food labels in communicating proper usage of food, a study was conducted on infant formula milk powder preparation practices, feeding, and storage. The study showed that although more than 90% of respondents already know that there are instructions on preparation and storage on the label, respondents do not always follow the instructions. These results suggested that **not all consumers appreciate the importance of labels**, and as such, promotion on labeling awareness should be strengthened.

Risk Communication and Consumer Education

In her second presentation, Prof. Frewer emphasized the **importance of considering emotional responses of consumers to food safety risks when developing effective food safety risk communication with consumers.** Whereas experts rely on technical risk assessments and scientific arguments to evaluate food safety, consumers often rely on their emotive responses and risk perceptions to make judgments. Hence, risk communication needs to take into account their concerns as well as technical risk estimates. A systematic review of the food risk communication literature has identified 54 relevant papers where best practices in risk communication were

identified. In particular, information must be targeted to the needs of consumers, not communicators; and information must be coordinated, reflecting messages on risk management activities, regulatory priorities, preventive measures, enforcement actions, expertise of risk managers, and actions to improve future preparedness. Finally, communication has to be proactively pursued for all potentially contentious issues such as food additives and controversial food technologies, for all issues where groups of people are at risk, as well as when new measures are being put into place.

In Indonesia, risk communication is managed by the **Indonesian National Food Safety Network**, as explained by Drs. Halim Nababan. Reinstated in 2011, the Network oversees three main aspects of food safety: risk assessment, risk management, and risk communication. Risk communication is managed by the Ministry of Communication and Information, while risk assessment and risk management are handled by BPOM. The Indonesia Risk Assessment Center (INARAC), launched by the Ministry of Health in November 20, 2014, facilitates an **integrated pool of experts carrying out risk assessments, to support the management and communication of risk**. In addition, the Indonesia Rapid Alert for Food and Feed (INRASFF) has been established as a **communication network in the event of emergencies**. Various contact points have been mapped for effective dissemination of information.

To facilitate consumer education on food safety, a Food Safety Survey was conducted in 2013 to determine consumer attitudes toward food safety. Another pilot survey on Food Safe Families was conducted in the same year to determine Indonesians' awareness of BPOM's role in food safety. However,

while BPOM has many communication-related partnering arrangements in place, there remains room for creative progress to take advantage of new information and communication technologies.

The Role of Nutrition Labeling and Claims in Changing Consumer Behavior

Ms. Hazel Fowler, Food Standards Australia New Zealand (FSANZ), presented the findings of two FSANZ studies that investigated the **impact of nutrition claims and fortification on consumer behavior**. The first study examined whether the presence of nutrient content claims on low nutritional quality food (e.g. potato chips) affect consumers' purchase intentions and nutrition attitudes. The results of the study showed that presence of the claim did not affect purchase intention, nutrition attitude, perceived overall benefit to people, and perceived overall health benefits. The second study examined consumer knowledge of and attitude towards voluntary fortification. The results showed that consumers are aware about voluntary fortification in foods and that some consumers seek out some foods for their added vitamins and minerals, though the reasons vary by food type. Ms. Fowler highlighted that consumers choosing fruit juice do so for its vitamins and minerals, though apart from the occasional mention of vitamin C, consumers do not specify which vitamins and minerals they expect from the fruit juice.

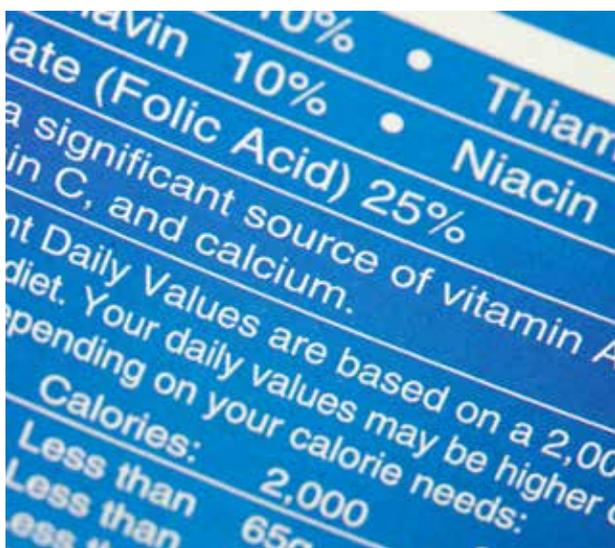
Ms. Karin Tan, Newcastle University, Singapore, presented her findings on the **perceptions, attitudes and understanding of health claims on milk for children among Indonesian mothers**.

Two focus group discussions investigated urban Indonesian mothers' understanding of health claims as well as their knowledge and trust of the regulatory process and framework. The study showed that Indonesian mothers read product labels, especially claims on product benefits, before purchasing the product. Calcium, iron, DHA/AHA/Omega 3, and prebiotics were some common nutrients whose health claims mothers could recall; those of zinc and vitamins A and B12 were less familiar. Generally, the mothers



trust health claims from reputable brands, and they perceive BPOM to be actively working with manufacturers to ensure accurate and truthful information. Ms. Tan emphasized the need for continued and improved public-private partnerships to effectively educate the public about health claims.

Finally, Dr. Megawati Simanjuntak, Bogor Agricultural University, Indonesia, gave a presentation on **the role of nutrition labeling in influencing consumer behavior**. A study conducted on the nutrition label-reading behavior of Indonesian consumers showed that nutrition-related labels tended to be ignored by consumers. Similarly low rates of nutrition label readership have been observed among consumers in Asia Pacific, Europe, North America, and Latin America. Dr. Simanjuntak highlighted some consumer needs for food businesses to consider when developing labels: the language must be understandable, information presented can be selected in order to prevent information overload, and relevance to consumers' everyday diet must be communicated. Dr. Simanjuntak recommended businesses to work together with governments to implement public education campaigns, to provide clear, honest information, as well as set a pattern to help build long-term relationships between the products and consumers.



Sustainability, Genetics, and New Technologies

ILSI SEAR Australasia, in cooperation with the AACC International (formerly American Association of Cereal Chemists) (AACCI), and supported by CropLife Australia, held a one day symposium on July 28, 2015 in Melbourne, Australia to discuss Sustainability, Genetics, and New Technologies as they pertain to the production and handling of cereals in Australia. Participants included representatives from the research, industry and regulatory sectors who met and listened to speakers discussing a range of topics, before a group panel discussed some of the future challenges in the area of cereal development.

Plenary Session

Professor Geoffrey Fincher, the director of the ARC Centre of Excellence in Plant Cell Walls, and Dr. Kim Plummer, the President Elect of the Australasian Plant Pathology Society and Head of the molecular plant pathology group at AgriBio, La Trobe University, talked about **new technologies and their impact on plant breeding, plant protection and biosecurity**. Prof. Fincher began by explaining some of the recent advances in his research on the regulation of plant cell wall synthesis. These advances, made possible by high throughput sequencing technologies like RNAseq, are symptomatic of advances being seen in other plant research fields.

Dr. Plummer also highlighted the advances in the field of "omics" sciences: genomics, transcriptomics, proteomics, and metabolomics. These fields of research rely on collecting vast amounts of data which allow for the identification and study of large groups of genes and proteins. Prof. Fincher stated that despite these advances, traditional cytological and molecular techniques like transgenic analyses still had a strong role to play in molecular plant research, giving the example of his own work studying the regulation of the development of the barley endosperm.

Both speakers also talked about the **challenges facing the industry in regards to plant pathogens**. Dr. Plummer noted that over \$900 million is lost every year in Australia due to crop losses relating



to pathogens like stripe rust and yellow spot. However, these losses would be far greater, exceeding \$3 billion annually, current control measures were not available. Dr. Plummer used the cautionary tale of Ug99, a particularly virulent lineage of wheat stem rust discovered in Uganda in 1999. Since then, Ug99 has spread through large parts of Africa and the Middle East and threatens to spread elsewhere. It has shown itself to be virulent to a range of previously resistant wheat varieties. Fortunately for the crop industry, the various omics-based technologies are giving researchers access to much more data than was previously available. This allows researchers to scan for differences between genetic resistance factors to pathogens to identify what exactly is giving pathogens like Ug99 their virulence.

The symposium next focused on some of the **technological advancements being made in the agricultural biotechnology**

sector, and included presentations from Mr. Tony May, the Technology Development Lead at Monsanto, and Ms. Sue Cross, the Head of the Crop Protection Development Department for Bayer CropScience in Australia. Both speakers gave an overview of the research currently being undertaken by their organizations in developing new crop varieties and agri-chemicals to reduce the effect of pathogens on crops, and also touched on efficiencies being made in agronomic practices. Mr. May and Ms. Cross both pointed to the need for global food production to increase, with estimates saying production will have to double by 2050 to feed a growing global population. Despite this, only 3% of the Earth's surface is suitable for farming. Ms. Cross suggested that reduction in losses in yield due to pests, weeds, and diseases could account for a large amount of these estimated increases.

Mr. May pointed to Monsanto's development of new pest resistant crop varieties like Bollgard® 3 cotton and Xtend™ soybeans as a way to decrease crop losses. He also showcased some of the company's technological improvements such as their seed chipper, which enables non-destructive genetic testing of individual seeds. Mr. May said Monsanto was investing heavily in other important research areas too, such as bee health and climate science.

Ms. Cross said advances in agri-chemicals were becoming harder to achieve. In the decade from 2000, Bayer found one successful compound that conformed to safety and regulatory standards for every 150,000 compounds they tested. Bayer's response has been to invest in automation and other processes to speed up the discovery rate of useful compounds. Another Bayer investment includes their new Weed Resistance Competence Centre in Frankfurt, Germany, aimed at understanding resistance mechanisms of pesticide resistant weeds.

The third part of the symposium invited Mr. Pat Wilson from GrainCorp Ltd, Dr. Roger Bektash from Mars Asia-Pacific and Dr. Janet Gorst from Food Standards Australia and New Zealand to speak. Between them, they explained the **processes and the challenges of moving cereals from the farm to the consumers**. They discussed the logistical, safety and regulatory difficulties that the industry faces. Mr. Wilson explained the scope of the issue: GrainCorp alone services over 14,000 growers across the country and ships up to 280,000 trucks of grain every year. This creates an incredibly complex supply chain which must be managed and documented. After harvesting, grain is stored and tested in a range of ways to determine its quality and suitability for the market. The grain might be transported and stored several more times before being shipped to its final destination, which can be overseas. The ability to trace back this shipment at any stage to its origin is crucial in ensuring a safe final food product.

Another major challenge of the transportation process is the multitude of regulations that must be followed. There are significant regulations covering the transport, quarantine and export of the grain as well as regulations covering any Genetically Modified (GM) grain that is collected. Other certifications, like Halal and European Sustainable, are often sought to improve marketing and to facilitate shipment to other regions of the world.

Dr. Bektash stated that globally in 2013, Mars used 6.8 million tons of raw materials, a large portion of which was

grains. One of the most important focus areas for Mars, he explained, was the consumer experience. Product quality and high food safety standards are therefore paramount. Like Mr. Wilson, Dr. Bektash highlighted **the importance of 'farm to fork', the ability to trace a crop from initial production to its end use**. He then discussed Mars's approach to dealing with mycotoxins in food. Understanding the risks and potential hazards at each step of the food production chain, from the field and harvesting, through to storage and manufacturing of the final product, is key to ensuring the safety of Mars products. Dr. Bektash was questioned about his industry's approach to GM. While companies like Mars see great benefits in GM crops ultimately, he said, the customers have the final say.

The final speaker, Dr. Janet Gorst, who presented the immense **challenges facing the regulatory body Food Standards Australia and New Zealand (FSANZ), specifically when regulating the range of New Breeding Technologies**. In 1999, FSANZ developed a broad regulatory code for GM. Subsequently new GM technologies have been developed, ranging from targeted mutagenesis processes like CRISPR, to transient expression techniques. There is uncertainty as to whether the current code adequately covers these new breeding techniques.

Panel Discussion

Lastly, a panel comprised of Dr. Geoffrey Annison from the Australian Food and Grocery Council, Dr. Heidi Mitchell from the Office of the Gene Technology Regulator, and Dr. Phil Reeves from the Australian Pesticides and Veterinary Medicines Authority, engaged the group in a robust conversation on a variety of issues relating to GM crops. The panel was chaired by Professor Les Copeland from the University of Sydney.

Several questions focused on the issue of the risk, or perceived risk, of GM

foods amongst consumers. It was noted that GM is viewed by some consumers quite negatively. Poor communication of the safety of GMOs by scientists and industry was given as one possible reason why this is so, while others argued that marketing of products as 'organic' or 'non-GM' has created a negative impression of GM. If marketers use 'non-GM' as a positive selling point, it is reasonable that consumers may view GM products as inherently negative. A similar point was raised in relation to the use of 'spray-free' or 'hormone-free' claims in marketing. Labeling products as containing or possibly containing GM products was argued as one way to show the widespread use and consumption of GM products, in an attempt to alleviate fear of GM. The point was raised that science and industry groups have been debating the best way to explain the safety of GM food to the wider community for decades, with little or no change in public perceptions.

The panel also discussed the issue of regulation of GM foods. The OGTR is preparing for a review of the Act covering the regulation of GM plants released into the Australian environment and are hoping to use it as an opportunity to update and future-proof the Act. Dr. Mitchell said it would be a potential chance to harmonise the regulatory standards of the OGTR and FSANZ, and bring Australia's regulations into harmony with the global community. Other regulatory issues discussed included regulating the marketing of food products as either 'GM' or 'non-GM'. Dr. Annison said that research showed that the public does not view GM as an important community issue relative to other issues like job security or education. Despite this, supermarkets and other retailers were constantly trying to offer a perceived benefit in order to ensure customer loyalty. This included marketing food items as 'non-GM' or 'pesticide free'.



Prof Geoffrey B. Fincher, Dr. Phil Reeves, Mr. Pat Wilson, Ms. Sue Cross, Dr. Heidi Mitchell, Ms. Anne Bridges, Prof. Les Copeland, Dr. Kim Plummer, Ms. Kim Tikellis, Dr. Janet Gorst, and Mr. Tony May

Advances in Analytical Technologies for Food Safety

Analytical methods for food safety testing are constantly being improved to expand their usefulness in supporting the management of chemical and microbiological hazards in food. In view of recent developments in analytical methods, ILSI Southeast Asia Region together with Nanyang Polytechnic, Singapore, recently organized the Seminar on Advances in Analytical Technologies for Food Safety, held in Singapore on September 8, 2015. The seminar was attended by more than 70 participants from the government, industry and academia.



Prof. Jorgen Schlundt giving the opening presentation

Dr. Joel Lee, Director of School of Chemical and Life Sciences, Nanyang Polytechnic, Singapore, gave the welcome address while Ms. Pauline Chan, Director of Scientific Programs, ILSI SEA Region, Singapore, opened the seminar by giving an introduction to ILSI Southeast Asia Region's activities in the domain of food safety.

Prof. Jorgen Schlundt, Nanyang Technological University, Singapore, gave the first presentation of the day on the **Application of Next Generation Sequencing for Food Safety and Public Health**. He highlighted that Next Generation Sequencing (NGS) technologies for DNA sequencing has been developing at a very rapid pace over the last few decades, which has also resulted in its decreasing cost. This has consequently allowed for its broader use for food safety and public health purposes, such as by helping to speed up the diagnosis, investigation and source attribution of foodborne diseases. However, there is an urgent need to build a coherent system for data collection to improve efficiency and

ensure interchangeability of research results around the world. Prof. Schlundt introduced the Global Microbial Identifier (GMI), which is an independent framework that provides a harmonized approach and serves as a key reference genomic database for the global identification of all foodborne microorganisms. In this regard, Prof. Schlundt emphasized that it is very important to ensure effective communication and information sharing between the various stakeholders using NGS technology for food safety purposes, including microbiologists and epidemiologists.

Prof. Mitsuaki Nishibuchi, Kyoto University, Japan, subsequently shared a presentation on the **Detection of *Vibrio parahaemolyticus* and enterohaemorrhagic *E. coli* using Loop-Mediated Isothermal Amplification (LAMP) and Immunomagnetic Separation (IMS)**. He stated one of the causes of the rise in incidences of foodborne diseases across borders is due to the increase in global trade in food. There is thus a need to boost the improvement in the detection and characterization of such food-borne pathogens that contribute to public health issues around the world, such as *V. parahaemolyticus* and enterohaemorrhagic *E. coli*. One such technique is the LAMP technique, which amplifies bacterial DNA very rapidly and easily with good sensitivity. LAMP can be integrated with IMS for the specific detection of *V. parahaemolyticus* and enterohaemorrhagic *E. coli* in seafood and other products. Prof. Nishibuchi shared that his research in combining LAMP and PickPen-assisted IMS has resulted in very sensitive and specific detection methods for these pathogens.

After the morning tea break, Dr. Daniel Hammer, Nestlé Quality Assurance Centre, Singapore, discussed **Recent Advances in the Detection of Heavy**

Metals in Foods. He explained that in recent years, Inductively-Coupled Plasma Mass Spectrometry (ICP-MS) has gradually replaced the older Graphite Furnace Atomic Absorption Spectroscopy (GF-AAS) due to the capability of ICP-MS of being able to simultaneously detect several heavy metal elements in a food sample. He then introduced an example of a method of combining High Performance Liquid Chromatography (HPLC) with ICP-MS for the analysis of different types of arsenic in food. Such a method is important as inorganic arsenic is known to be more toxic than organic arsenic, and as such it is important that testing laboratories are able to quantify the proportion of inorganic arsenic relative to total arsenic.

Finally, Ms. Catherine Seah, Nanyang Polytechnic, Singapore, shared the **recent development of the use of Matrix Assisted Laser Desorption Ionisation – Time of Flight Mass Spectrometry (MALDI-ToF MS) in the identification of food borne bacteria**. She explained that due to the decreasing cost of consumables for Mass Spectrometry-based methods, the use of MALDI-ToF MS in the identification of foodborne pathogens would provide a more cost-effective method than conventional microbiological methods in the long run. The MALDI-ToF MS method works by identifying bacteria through its specific mass spectroscopy profile. The data generated by the method first go through Principle Component Analysis (PCA) to reduce the data size of the preliminary results, before it is further analyzed by the Self-Organizing Mapping (SOM) that helps to cluster types of bacteria based on the degree of similarity in the properties of the bacterial mass spectra. This results in a two-dimensional map, offering easy comprehension of the analytical outcomes.

Upcoming Activity Highlights

Meetings

Symposium on Sugar and Sweeteners: Science, Innovation, and Consumer Guidance October 27-28, 2015, Singapore

Sugar serves an important role in imparting sweetness in food. In the form of glucose, it further serves important functional and physiological roles in the body. However, in light of increasing caloric intake and declining energy expenditure, sugar is increasingly seen as one of the main contributors to rising obesity rates in Asia. Concerned international agencies and regional health authorities are therefore recommending measures to substantially lower sugar intake, albeit recognizing the lack of adequate intake data in Southeast Asia. Low-calorie and non-caloric sweeteners are alternatives to sugar that have the potential to reduce the caloric content of foods. Nevertheless, despite numerous scientific studies and safety evidence, controversies on the use of certain sweeteners remain. This 1.5-day symposium will discuss the scientific evidence on the health effects of sugar and sweeteners, consumption trends, as well as opportunities and challenges in product innovation for sugar reductions.

Seminar on Food Innovation/Renovation for Promoting Healthy Diets October 30, 2015, Bangkok, Thailand

Due to the rising risks of non-communicable diseases in Thailand, the government and the food industry have been actively sourcing for ways to promote healthier diets to consumers. The food industry in particular are working hard to innovate and renovate food products to reduce fat, sugar, and salt content to make healthier food choices available. This 1-day seminar, organized by the ILSI SEA Region Thailand Country Committee, will discuss food innovation and renovation strategies and technologies to promote healthy diets, including the science behind these technologies, and the challenges faced in promoting healthier products to consumers.

Symposium on Sugar in the Diet: Is There a Sweet Spot October 30, 2015, Sydney, Australia

There is currently significant public health concern about the consumption of sugar. Professionals in the field of nutrition and public health will need to provide sound advice to consumers on appropriate intake of sugars. This 1-day symposium, organized by the ILSI SEA Region Australasia Country Committee, will review the role of sugars in the diet, current consumption trends in Australia and New Zealand, as well as the perceptions, attitudes, and behavior of consumers about sugar.

Seminar on Crop Improvement for Food and Nutrition Security in Southeast Asia: Opportunities and Challenges for Gene Stacking and Other Plant Breeding Techniques November 20, 2015, Singapore & November 23, 2015, Bangkok, Thailand

With increasing urbanization and the impact of global climate change, Southeast Asia faces increasing challenges to provide sufficient safe and nutritious food to its population in the coming decades. One of the possible strategies to address such concerns include the improvement of productivity and nutritional value of staple food crops. Technological innovation needs to be applied to improve these food crops and plant breeders are able to work with a wide variety of techniques to do so, such as gene stacking, as well as a host of other conventional methods and biotechnology. However, different techniques offer its share of challenges, including both technical and regulatory barriers. This series of seminars will thus discuss the role of plant improvement technologies in crop improvement to address food and nutrition security, highlighting some of the available opportunities and challenges facing the region.

On-going Research and Collaborative Projects

Status Review and Quality Evaluation of Existing Food Composition Database in ASEAN & Review of the Status of Food Consumption Data Among Southeast Asian Countries

These studies review the status of food composition data as well as food consumption data conducted by individual countries in the ASEAN Region. Some data collected from the reviews are the types of nutrients that were analysed and the methods of analysis for food composition data as well as the types of dietary assessment methods used in collecting individual and household data and sampling tools used for food consumption data. These studies envision the development of a process towards the creation of a possible online repository comprising of a reliable and good quality database of the ASEAN food composition data. Gaps will also be identified among the reviews for discussion with experts in the ASEAN region.

Understanding Consumer Perception and Attitudes towards Sweeteners

This consumer focus group study was conducted in Singapore to understand the consumer science in knowledge and perceptions of sweeteners, and the barriers and drivers of the use of products with sweeteners. It also accessed the effectiveness of education on changing/correcting consumer understanding and attitudes. The findings of this research will be presented at the Symposium on Sugar and Sweeteners: Science, Innovation and Consumer Guidance on October 27-28, 2015 in Singapore.

ILSI SEA Region Calendar of Activities 2015/2016

Meetings	
Seminar on Advances in Analytical Technologies for Food Safety	September 8, 2015 Singapore
Symposium on Sugar and Sweeteners: Science, Innovation, and Consumer Guidance	October 27-28, 2015 Singapore
Seminar on Food Innovation/ Renovation for Promoting Healthy Diets	October 30, 2015 Bangkok, Thailand
Seminar on Sugar in the Diet: Is There a Sweet Spot	October 30, 2015 Sydney, Australia
Seminar on Crop Improvement for Food and Nutrition Security in Southeast Asia: Opportunities and Challenges for Gene Stacking and Other Plant Breeding Techniques	November 20, 2015 Singapore
	November 23, 2015 Bangkok, Thailand
Seminar on Sweeteners: Uses and Safety	December 14, 2015 Hanoi, Vietnam
ILSI Annual Meeting 2016	January 22-27, 2016 St. Petersburg, Florida, USA
ASEAN Workshop on Risk Profiling (By Invitation)	March 2016 Jakarta, Indonesia
Workshop on ASEAN Food Composition Database Development (By Invitation)	March 2016 Bangkok, Thailand (TBC)
ILSI Southeast Asia Region Annual Meeting 2016	April 2016 Singapore (TBC)
Seminar and Workshop on Food Consumption Data and Dietary Assessment Methods	2 nd Quarter 2016 TBC
Seminar and 5 th Expert Consultation on Maternal, Infant and Young Child Nutrition	July 2016 Cambodia (TBC)
Workshop on the Development of ASEAN Technical Guidance on Principles for Use and Safety Assessment of Food Additives and Flavourings	July 2016 Kuala Lumpur, Malaysia
Seminar on Sustainable Food Production & Systems in Southeast Asia	3 rd Quarter 2016 TBC
4 th Asia-Pacific International Conference on Food Safety & 7 th Asian Conference on Food and Nutrition Safety	September 12-14, 2016 Penang, Malaysia
2 nd Workshop on ASEAN Food Composition Database	3 rd - 4 th Quarter 2016 TBC

Publications	
Intake of Added Sugar in Malaysia: A Review	Published in <i>Asia Pacific Journal of Clinical Nutrition</i> , 2016, 25(2). doi: 10.6133/apjcn.2016.25.2.13
Sodium Consumption in Southeast Asia: an Updated Review of Intake Levels and Dietary Sources in Six Countries	Published Book Chapter in <i>Preventive Nutrition (5th Ed)</i> , 2016.
Seminar Proceedings: Adolescent Pregnancy and the First 1000 Days (the Philippine Situation)	Published in <i>Asia Pacific Journal of Clinical Nutrition</i> , 2015, 24. doi: 10.6133/apjcn.2015.24.4.07
Proceedings of the 4 th Expert Consultation and Planning Meeting on Maternal, Infant, and Young Child Nutrition: Nutrition of Pregnant Adolescents in Southeast Asia	Published in <i>Malaysian Journal of Nutrition</i> , 2015, 21(2): 127-138.
Micronutrient Fortification of Food in Southeast Asia: Recommendations from an Expert Workshop	Published in <i>Nutrients</i> , 2015, 7: 646-658. doi: 10.3390/nu7010646
Functional Food Monograph	On-going
Review Paper on Status of Food Consumption in Southeast Asia	On-going
ASEAN Risk Profile on Aflatoxins in Peanuts	On-going

Research & Collaborative Projects

Investigation of Commodity Food Standards and Methods of Analysis in East Asia <i>In collaboration with ILSI Japan, ILSI Focal Point China, ILSI Korea, ILSI India and ILSI Taiwan</i>	On-going
ASEAN Risk Profile for Aflatoxins in Peanuts	Planned for 2016
Systematic Review on Salt Sensitivity: Is there a Genetic Pre-disposition that Predicts Cardiovascular Disease Risk? <i>In collaboration with CSIRO, Australia</i>	Preliminary review completed, further analysis to be undertaken
Estimation of Sodium Intake among Filipinos and their Sources in the Diet <i>In collaboration with the Food and Nutrition Research Institute (FNRI), Philippines</i>	On-going data analysis
Validation of WHO Complementary Feeding Indicators against Dietary Intakes of Malaysian Children Aged 6-23 months <i>In collaboration with International Medical University (IMU), Malaysia</i>	Data analysis completed, report drafting
Scoping Review on Sugar Intake in Southeast Asia: Levels of Consumption and Major Sources in the Diet	On-going
Data Analysis: Levels and Sources of Sugar Intake in the Philippines <i>In collaboration with the Food and Nutrition Research Institute (FNRI), Philippines</i>	On-going
Investigation of the Occurrence of Hemoglobinopathies among Anemic Individuals in the Philippines: Data from the National Nutrition Survey <i>In collaboration with the Food and Nutrition Research Institute (FNRI), Philippines</i>	On-going; Phase 1 completed
Risks and Benefits of Intense Sweeteners: A Survey for Food Experts and Opinion Leaders <i>In collaboration with Newcastle University (UK) and Universiti Kebangsaan Malaysia</i>	Completed, report drafting
Nationally-representative Survey of Thiamine Deficiency in Cambodia for Infants and Pregnant Women <i>In collaboration with UNICEF Cambodia and MAFF, Cambodia</i>	Completing data collection and analysis
Vitamin D status and its correlates among pregnant Thai adolescents <i>In collaboration with Mahidol University</i>	On-going
Study on Dietary Exposure of Sweeteners in Thai Consumers <i>In collaboration with Institute of Nutrition, Mahidol University, Thailand</i>	On-going
Status Review and Quality Evaluation of Existing Food Composition Database in ASEAN	On-going
Review of the Status of Food Consumption Data Among Southeast Asian Countries	Completed
Understanding Consumer Perception and Attitudes Towards Sweeteners	Completed, report drafting
ILSI SEA Region Contribution to the Multi-Country Review on Ageing and the Elderly <i>Thailand: in collaboration with Mahidol University</i> <i>Philippines: in collaboration with University of San Carlos</i> <i>Malaysia: in collaboration with Universiti Kebangsaan Malaysia</i>	On-going
Scoping Review: Status of Published Data on Maternal Nutritional Status and Micronutrient Deficiencies in 10 ASEAN Countries	Planned for 2016-2017

2016

4th Asia-Pacific International Food Safety Conference

7th Asian Conference on Food and Nutrition Safety

Penang, Malaysia
September 12 - 14, 2016

Organizers:



Southeast Asia Association for
Food Protection



ILSI
Southeast
Asia Region

Co-Organizers:



Food Safety & Quality Division
Ministry of Health, Malaysia



International Association for
Food Protection®

The Asia-Pacific International Food Safety Conference is a regional conference series of the International Association for Food Protection (IAFP). It is held every two years, first in Korea (2009), followed by Australia (2011) and most recently in Taiwan (2013). The conference aims to serve as a platform to discuss the latest trends and issues in food safety across the Asia Pacific region, bringing together food safety professionals from all sectors including government, industry and academia.

The Asian Conference on Food and Nutrition Safety organized by the Southeast Asia Region branch of the International Life Sciences Institute (ILSI) is a well-recognized regional conference series first inaugurated in 1991 in Kuala Lumpur, Malaysia. It was the first major conference to discuss food safety in the Asian region. The conference is held once every 4 years in an Asian country, including Thailand (1994), China (2000), Indonesia (2004), Philippines (2008) and Singapore (2012). The conferences and concurrent training workshops bring together experts and stakeholders from industry, academia and government to address relevant scientific and technical issues impacting the safety of the food supply chain.

ILSI and IAFP have a long collaborative history and on the occasion of the inauguration of the newly-formed Southeast Asia Association of Food Protection (SEAAFP), the 2 organizations will jointly present their signature conference series in Penang, Malaysia in 2016.



We welcome your participation. Please look out for further details at www.tinyurl.com/SEAAFP-ILSI for more information.



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