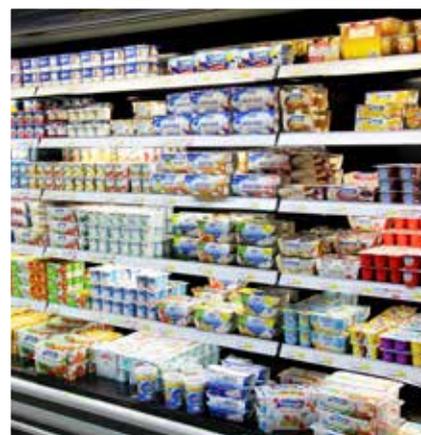


ScienceInSight

News and Updates on Nutrition, Food Safety and Health



Food Product Innovations to Meet Consumer Demand for Healthier Choices

Scientific Substantiation of Claims A pre-CCNFSDU seminar provides an update [Vitamin D in Nutrition and Health Status](#) and recent research in Vietnam [Genetically Engineered Crops Containing Stacked Traits](#) Addressing scientific considerations and approaches to safety assessment [Allergies, Intolerance and Hypersensitivity](#) Latest research in the Philippines on adverse food reactions [Australian Health Survey](#) Latest Updates

From the Executive Director



It has been a busy and productive few months for ILSI SEA Region and in this issue of Science InSight, we are happy to share with you highlights of our activities and programs completed from October 2014 to March 2015.

Each year in January, ILSI holds its Annual Meeting which is attended by scientists, member representatives and staff from all its worldwide branches and entities. The 2015 ILSI Annual Meeting saw the inaugural presentation of the Malaspina International Scholar Travel Award. It was a momentous occasion as Dr. Alex Malaspina, ILSI's founding President, attended the Annual Meeting and presented the awards to the recipients. We share with you a brief message from Dr. Siti Muslimatun, the award recipient representing Southeast Asia, as well as a report on the scientific sessions organized as part of the ILSI Annual Meeting.

Closer to home, ILSI SEA Region's Malaysia Country Committee organized a well-attended seminar on Food Innovation/Renovation for Healthier Food Choices, in recognition of consumer demand for healthier food options as well as government and industry efforts to encourage changes in dietary habits as a means to tackle the increasing prevalence of non-communicable diseases such as obesity. Food consumption patterns were also the focus of a seminar organized by our Australasia Country Office, which shared findings from the latest Australian Health Survey.

As part of our programs to build capacity in the region, a series of discussions was organized to address questions and concerns around genetically engineered crops containing stacked traits. These meetings were held in Indonesia and Malaysia, where scientists and experts invited by ILSI SEA Region shared their knowledge and expertise with local officials and stakeholders. In the Philippines, a seminar shared research findings that could help in understanding and managing adverse food reactions due to allergies, intolerance and hypersensitivity.

We hope you will enjoy reading our reports on these and other activities, and look forward to your support and participation in our many activities slated for the upcoming months in 2015.

Boon Yee Yeong
Executive Director
ILSI SEA Region

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Product Innovations for Healthier Food Choices

Recognizing that unhealthy diets and physical inactivity are among the leading causes of the major non-communicable diseases (NCDs), the WHO Global Strategy on Diet, Physical Activity and Health (DPAH) called for public health actions that will bring about changes in dietary habits and patterns of physical activity that will require the combined efforts of many stakeholders, both public and private. The private sector has been urged to be a significant player in promoting healthy diets and physical activity. Initiatives identified include efforts by the food industry to innovate and renovate to make available healthier food choices. This includes reducing fat, sugar and salt content, and portion sizes of processed foods, as well as increasing the introduction of innovative, healthy, and nutritious choices.

In Malaysia, various national action plans have highlighted the importance of food innovation/renovations to make healthier food choices available to the consumer. Much emphasis has been given to ensuring that the public has access to nutrition information. The National Plan of Action for Nutrition of Malaysia and the National Strategic Plan for Non-Communicable Diseases have outlined various key programs and activities to achieve these two objectives.

This seminar on **"Food Innovation/Renovation for Healthier Food Choices"** organized by ILSI SEA Region's Malaysia Country Committee focused on the role that food innovation and renovation can play in providing healthier processed food choices to consumers. Papers presented were related to industry efforts to innovate/renovate processed foods, as well as consumer perception and acceptance of healthier food choices. Held on November 4, 2015 in Kuala Lumpur, Malaysia, the seminar was attended by 140 participants from various organisations including research institutions, academia, government agencies and several food companies. Participants included nutritionists, dietitians, food scientists and technologists.

Government and Industry Perspectives

To set the stage for the seminar, the first presentation was on **Promoting healthy diets – role of food innovation and consumer education** by Dr. E-Siong Tee, ILSI SEA Region. In cognizance of

the rapid increase in the burden of non-communicable diseases (NCDs), the WHO Global Strategy on Diet, Physical Activity and Health was adopted in 2004 and also endorsed by the United Nations General Assembly. The 2nd International Conference on Nutrition (ICN2) in November 2014 also addressed the prevention of NCDs. The National Plan of Action for Nutrition and other strategies in Malaysia have also highlighted the severity of NCDs and outlined strategies to tackle the problem.

Two common areas of focus have been highlighted by the international and national strategies for arresting the increase in NCDs. Firstly, the focus is on making healthier food choices available to consumers. Secondly, there is a need to strengthen programs to promote healthy eating among consumers, including consumer education to increase acceptance and demand for healthier diets. The food industry has been encouraged to provide healthier alternatives of pre-packaged foods, e.g. reducing the "negative" nutrients in pre-packaged foods, enrichment with micronutrients, and functional foods with addition of bioactive components (with health claims). Consumer education has been conducted in the country for decades by government agencies, professional bodies and food industry. Various educational materials based on the dietary guidelines have been published.

Dr. Tee emphasized that more needed to be done. After four decades of various activities, he pointed out that NCDs remain a serious threat to the wellbeing of the population. Firstly, he felt that



Dr. E-Siong Tee, ILSI SEA Region Malaysia Country Committee, Malaysia

greater focus needs to be given to foods and beverages consumed in various eateries, e.g. restaurants, cafes, coffee shops. These meals can be high in fat, sugar and salt, and come in large serving sizes. Secondly, he called for more effective nutrition communications to consumers. This can only be done if we have greater understanding of consumer needs and choices.

Ms. Rokiah Don, Nutrition Division, Ministry of Health Malaysia followed up with a presentation highlighting **government perspective and expectations of food innovation and renovation**. She provided a summary of the disease and food consumption trends in Malaysia, and pointed out that the main cause of premature deaths among Malaysian adults today can be attributed to the alarming increase in non-communicable diseases (NCDs) and associated risk factors. The prevalence of obesity amongst adults above 18 years has increased from 4.4% (1996) to 15.1% (2011). Unhealthy eating and physical inactivity contributed to this



From Left to Right: Mr. Ch'ng Oon Teong, Prof. Norimah A Karim, Prof. Aminah Abdullah, Ms. Rokiah Don, Dr. E-Siong Tee, Prof Geok Lin Khor, Ms. Pei Fern Koo, Assoc. Prof. May O. Lwin

undesirable development, as evidenced from the Malaysian Adult Nutrition Survey (MANS) 2003 and the National Health and Morbidity Survey (NHMS) 2011.

Various interventions and initiatives have been adopted to promote healthy eating among vulnerable groups as well as the general public. These initiatives include Healthy Kitchens, Healthy Catering, Healthy Cafeterias and Healthy Shopping through Supermarket Tours, as well as through information and communication technology. Ms. Rokiah emphasised that the role of food and beverage industries to shape the eating practices of consumers must be recognised. Healthier food choices should be made more available at affordable prices. The Ministry of Health Malaysia, through its public-private partnership, will continue to engage and communicate to the food and beverage industries to seriously make efforts to innovate and renovate processed foods to provide healthier alternatives to the community.

Prof. Aminah Abdullah, representing the Malaysian Institute of Food Technology (MIFT), said that growing populations, rising incomes and changing lifestyles have altered where and how food products are grown, processed and distributed. Social and environmental concerns are also bringing pressure for more changes. Farmers, produce traders, processors and other stakeholders are challenged to improve the efficiency of their operations and to be more responsive to consumer demands as well as regulatory frameworks. In her talk entitled Food Innovation: the Lifeblood of a Food Technologist, Prof Aminah emphasised that innovation is the key driver to address changes in demand for food and accentuate economic growth.

She discussed the **5 key phases in product reformulation**: justification, mitigation, characterisation, realisation and qualification. She highlighted various technological considerations in these phases. For example, alterations in ingredients may affect the product's sensory characteristics, as well as product stability and shelf-life. Other important considerations include cost of the reformulated product and consumer acceptance. The new product needs to be made known to consumers through

promotion and advertisements. Finally, any reformulated product must fulfil the regulatory requirements.

Ms. Pei Fern Koo, representing the Malaysian Food Manufacturing Group of the Federation of Malaysian Manufacturers (FMMMAFMAG) shared with participants the **food innovation and renovation activities of the food industry, success stories and key challenges**. Ms. Koo noted that the problem of NCDs is multidimensional, and the solution will require an interdisciplinary approach involving the cooperation of food companies with other stakeholders. The Health & Nutrition Technical Working Group was thus set up to lead FMM in this initiative. To this end, food industries have made some contributions in offering healthier choices of food and beverage products with reduced sugars, sodium and fat. Meanwhile, FMM MAFMAG has had some success in producing products added with functional ingredients which were backed up with scientific substantiation of the beneficial effects for human health. However, the food industry also faces challenges in food innovation/renovation, such as consumer acceptance, innovation and technological limitations, and some local food regulation standards that could restrict industries from advancing innovation. In response to these challenges, FMM MAFMAG believes that Public-Private-Partnership is a proven effective model in educating and raising health awareness among consumers and to combat NCDs as the ultimate goal.

Promoting Consumer Acceptance of Healthier Food Choices

Two presentations highlighted activities carried out to promote healthy eating among consumers. Prof. Norimah A Karim, of Nutrition Society of Malaysia (NSM) highlighted the activities undertaken by a professional society in **promoting healthy eating among consumers**. Since its formation 29 years ago, the NSM has worked relentlessly to contribute towards promoting healthy eating among all Malaysians.

To date, NSM has published numerous educational resources to empower the public with appropriate, unbiased information. These include leaflets, booklets and articles to promote healthy eating practices and active living. Recognising the interest of consumers for recipes in the preparation of meals the healthier way, NSM has also carried out a number of intervention programs for specific target groups. Particular attention has been given to infants and children. The Mother's Smart Choice program is a recent program focused on promoting breastfeeding, appropriate complementary feeding, and healthy meals for toddlers. The Healthy Kids Program includes a nutrition awareness component as well as a research component, to reach out to primary school children. A comprehensive program, MyNutriChild aims to disseminate the messages of the new Malaysian Dietary Guidelines for children and adolescents. Focus has also been given to pregnant and lactating women, under the MI-Care program initiated in 2011.

In addition, NSM has also regularly carried out community nutrition outreach programs for consumers. The largest of such programs has been the nation-wide Nutrition Month Malaysia (NMM), initiate in 2002. It is a collaborative program amongst three professional bodies, namely NSM, the Malaysian Dietitian's Association (MDA) and the Malaysian Association for the Study of Obesity (MASO) to increase awareness of Malaysians towards importance of healthy nutrition and active living.

The second presentation on this topic was by Ms. Pei Fern Koo representing FMM MAFMAG. She shared with participants **industries' contributions and key considerations in nutrition promotion**. Members of the Group have made significant contributions in promoting nutrition. These contributions include front-of-pack labeling initiative, consumer education on healthy eating and lifestyle as well as understanding food labeling. In addition, the Group has adopted an active role in the multi-sectorial partnerships whereby it has collaborated and worked synergistically with different stakeholders towards the common goals. This includes sharing expertise with Ministry of Health in nutrition and regulatory development and contributions to school programs. The Group has also partnered with professional bodies in organizing scientific events, community health campaigns, development of educational tool and materials as well as research collaborations with higher learning institutions. Importantly, FMM MAFMAG has engaged other stakeholders such as media agencies and SMEs (small and medium enterprises) to gain the wider industry participation.

Consumer Perception and Attitude towards Food Choices

Assoc. Prof. May O. Lwin, Nanyang Technological University (NTU), Singapore spoke on Consuming Health: Drivers of Attitudes towards Healthy Eating and Packaged Foods. Attitudes towards food have been shown by health researchers to be a key determinant of an individual's food consumption. The presentation covered **the major facets influencing attitudes towards food as identified by researchers in multidisciplinary fields ranging from psychology to public health.** In particular, the discussion featured factors relating to the environment that consumers navigate within both the retail and the media contexts, recent marketing approaches globally and perspectives relating to Asian food consumption.

There is growing scientific evidence that what people eat, and their likelihood of being obese, is influenced by the food environment in which they live. Ready access to healthy foods is thus critical in battling the obesity crisis. The potential influences of advertisements and various types of claims on food purchases were discussed. Assoc. Prof. Lwin also discussed major drivers of consumption among children. These include food product branding, advertisements based on entertainment, pop culture and toys. She emphasized that children and attitude formation is a unique and important sub-set of public health policy concern. Overall, she felt that we do not fully understand what drives food consumption although we do have more information. She called on health authorities to continue to educate consumers to enable them to make healthier food choices.

Mr. Ch'ng Oon Teong of TESCO Malaysia provided insights of **consumer understanding and acceptance of healthier food choices** from the perspectives of a retail chain. He shared with participants data from focus group discussions conducted in different parts of the country. Findings obtained showed that Malaysian consumers are aware of the many health problems in the country, especially diet-related chronic diseases. They are aware that these diseases are caused by unhealthy lifestyle. However, it remains a challenge to sustain a healthy lifestyle due to lack of sense of urgency and motivation. Taste preference is still the biggest driver of Malaysians' food choice.

Many leading brands by food companies in the country including Tesco have incorporated FOP (Front of pack) labelling on food packaging that ease consumer use as a guide to calorie intake. It is, however, noted that there is less participation from

SME companies. Mr. Ch'ng highlighted several Tesco initiatives aimed at promoting healthy living to consumers and colleagues to help them approach healthy lifestyle journey together.

Panel Discussion and Recommendations

The Seminar ended with a panel discussion to provide an opportunity to speakers and participants to further deliberate on **collaborative approaches that can be undertaken to enable effective food innovation/renovation and consumer education.**



Panel members and participants pointed out various concerns regarding consumer attitude and practices, many of which are potential impediments to the promotion of healthy diets. Environmental factors were mentioned as major impediments to consumers making healthy food choices. These include cultural practices, such as festivals and celebrations where food is a highlight, as well as Malaysia's renown as a food haven. Besides pre-packaged food, it is therefore important to also promote the preparation and consumption of healthier meals.

One important issue discussed was the finding that consumer awareness of inappropriate dietary pattern and the resultant ill effects is high, but consumers do not find any urgency to practise healthy eating. Consumers perceive that being obese is related to appearance instead of illness, and therefore does not require urgent action.

Studies have shown that taste is paramount when consumers make food choices. This underscores the importance of making sure that tastes are not adversely affected when renovating or improving food products. Consumers generally think that healthy foods are not tasty. The possibility of "training" children from a young age to accept or prefer foods with less salt, less sugar and less fat was discussed. This should be possible if such tastes are acquired

rather than in-born. Recognizing this, the importance of promoting healthy eating among young children was emphasised.

Recognising the prevailing consumer attitude and practices, discussion also centred on steps to be taken to enable effective food renovations and consumer education to be carried out. It was clear that to effectively reach out to consumers, more data on consumer perception of food choices and their attitude towards healthy eating need to be urgently obtained. The drivers of food choices for various community groups need to be identified to enable effective interventions to be carried out.

Participants discussed policy options towards promoting healthy eating. A proposal was for hard policies to be undertaken, eg taxation

on foods high in fat, salt and sugar and removal of subsidy for such commodities. The question to be asked is if measures such as taxation have been shown to be effective in other countries. There was also a proposal that instead of punitive measures, incentives could be provided to companies producing healthier alternative products.

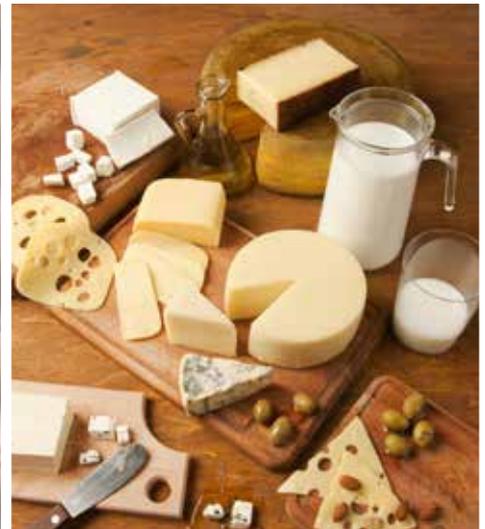
The food industry was urged to continue to make healthier food choices available to consumers. It was remarked that there are not many improved products produced by SMEs. Assistance and incentives may be needed for these companies. The industry was also urged to practice responsible marketing of foods. The pledge to practise voluntary control of marketing of foods to children must be properly monitored and that companies do comply.

There was general agreement that there is a need for multi-stakeholder approach towards promoting healthy diets for the prevention of NCDs. This should include government ministries and agencies, academia, private sector, consumer groups. Non-health sectors should also collaborate in these efforts. The various stakeholders can work through existing infrastructure, e.g. the Obesity Task Force and the National Plan of Action Malaysia working groups.

This article was contributed by Dr. E-Siong Tee, ILSI SEA Region Malaysia Country Committee.

Vitamin D in Nutrition and Health: Updates from Vietnam

Vitamin D is an essential nutrient, well-known for its role in skeletal health. Recent studies in Southeast Asia have shown that deficiency of this vitamin is highly prevalent, particularly among children. At the same time, the growing body of research examining the broader role of vitamin D in health beyond skeletal health has been gaining interest among the health and nutrition community. Currently, there is scientific debate about the optimal requirement for vitamin D, with some nations revising recommended intake. More research in this area, including on appropriate cut-offs for assessment of vitamin D status, is clearly required. More importantly, awareness of vitamin D deficiency, its health implications and corrective actions need to be raised and addressed in the Southeast Asian region.



ILSI SEA Region, together with the National Institute of Nutrition, Vietnam and in collaboration with the Nutrition Association of Vietnam (VINUTAS) held a one-day seminar 'Vitamin D in Nutrition and Health' in Hanoi, Vietnam on November 11, 2014. The objectives of the seminar were to provide an update on the multiple potential health benefits of vitamin D; update on the status and optimal levels of vitamin D among populations in Southeast Asia; provide an overview of current understanding of the physiological role of vitamin D in human nutrition across the life span; examine the role and importance of sources of vitamin D (sunlight, food, fortification, supplementation); and update on issues related to assessment of vitamin D status and discuss the development of recommended intakes for vitamin D in Southeast Asia. The seminar was attended by delegates from the academic, industry

and government sectors as well as healthcare professionals.

Recent Research and Status

The seminar was officially opened by Mr. Tran Dac Phu, Director, General Department of Preventive Medicine, Ministry of Health, Vietnam followed by a welcome address from ILSI SEA Region Executive Director Mrs. Boon Yee Yeong. The first speaker, Prof. Robin Daly, Deakin University, Australia, presented a comprehensive **research update on vitamin D and health**. Prof. Daly noted that vitamin D plays a key role in calcium metabolism and bone health via its positive effects on intestinal calcium absorption and bone mineralization. Beyond its

classic roles, vitamin D also exerts an effect on muscle, with numerous studies linking low serum 25-hydroxyvitamin D [2(OH)D] concentrations with muscle weakness, impaired muscle function and an increased risk of falls. Current data indicates that vitamin D treatment at doses of at least 800 IU/d together with a serum 25(OH)D level > 60 nmol/L, when combined with adequate dietary calcium (at least 1000 mg/d), can significantly reduce the risk of non-vertebral fractures, particularly in the elderly. Beyond muscle and bone, serum 25(OH)D concentrations have also been associated with a range of non-skeletal diseases, including cardiovascular disease and related disorders, type 2 diabetes, certain types of cancer, autoimmune diseases, infectious diseases, some neurological and mental health conditions as well as all-cause and cardiovascular mortality. However a limitation with many of these studies

is that they are confounded by multiple factors and the findings cannot be used to support a causal association. Prof. Daly concluded that there remains a need for large scale randomised controlled trials and dose-response data to evaluate the effects of vitamin D on chronic disease outcomes.

A/Prof. Dr. Le Bach Mai, Deputy Director of the National Institute of Nutrition, Vietnam presented findings on the **vitamin D status in young children and women of reproductive age in Vietnam**. In many developing countries including Vietnam, data are lacking on vitamin D and calcium deficiencies. Dr. Mai's group completed a cross-sectional study collecting data on daily diet, socioeconomic group, anthropometric status and plasma concentrations of calcium and vitamin D from 595 women of reproductive age and 532 children <5 years from 19 provinces of Vietnam to determine the overall prevalence of vitamin D and calcium deficiencies and their nutritional related risk factors in this population. The prevalence of vitamin D deficiency (25(OH)D <30 nmol/L) and insufficiency (25(OH)D between 30–49.9 nmol/L) was high, at 17% and 40% in women and 21% and 37% in children, respectively. Overweight/obese women had a 2 times lower risk for vitamin D deficiency than non-overweight and non-obese women. Women and children consumed about 1% of the Institute of Medicine (IOM) recommended nutrient intake (RNI) for vitamin D. Dr. Mai's research suggested that vitamin D deficiency represents a major public health concern in Vietnam, and concluded that actions to improve the vitamin D and calcium status of the Vietnamese population should be considered.

Vitamin D status and intakes in Southeast Asia were examined by Prof. Geok Lin Khor, International Medical University, Malaysia. She noted that due to their ready access to sunlight, tropical countries were not expected to have a vitamin D deficiency problem. However, recent studies have shown widespread low blood status and dietary intake of vitamin D, especially in young children, women and older persons in countries within the tropics. In Southeast Asia, prevalence of insufficient levels of vitamin D among primary school children aged 6–12 years ranged from 30% to nearly 70% in Malaysia, Thailand, Vietnam and Indonesia, depending on urban-rural locations and gender, and based on a cut-off point of <50 nmol/L 25OH(D). While some studies reported positive correlations between overweight/obesity and blood vitamin D status, (Malaysia, Thailand), others did not (Indonesia, Vietnam).

A consistent finding throughout the region was low dietary intake of vitamin D in all age groups, principally due to low consumption of animal food products, fish and dairy products generally. Prof. Khor discussed factors associated with current low vitamin D status in Southeast Asia, including insufficient sun exposure due to an increase in indoor activities, cultural preference for fair skin resulting in direct avoidance of the sun, and the religious practice of covering up the entire body thus reducing sun penetration to the skin. She called for concerted public health education and policy measures to ameliorate the low vitamin D status in the region, suggesting that schools of all levels be actively engaged on the importance of the children carrying out physical activity in the sun. Prof. Khor added that the fortification of selected low-cost commonly consumed foods with vitamin D could contribute somewhat toward the amount of vitamin D consumed by vulnerable population groups.

Vitamin D throughout the Life Span

Professor Shi-an Yin, Chinese Center for Disease Control and Prevention, discussed the **influence of maternal vitamin D on birth outcomes**, noting that vitamin D deficiency is highly prevalent worldwide in pregnant women, with deficiency during pregnancy continuing throughout lactation. Data on vitamin D status in pregnant women in Asia have shown rates of vitamin D insufficiency and deficiency (defined as serum 25OHD concentration of <50 nmol/L and <25 nmol/L respectively) of more than 80%, closely dependent on the season, level of sunlight exposure and race/ethnicity. Vitamin D deficiency during pregnancy has been shown to be linked with a number of foetal, neonatal and maternal health problems. The maternal consequences of vitamin D deficiency during pregnancy may include higher prevalence of infertility, preeclampsia, insulin resistance and gestational diabetes, an increased rate of caesarean section and osteomalacia. However, based on currently available data causality still needs to be determined. Low maternal vitamin D concentration during pregnancy has been associated with a state of hypovitaminosis D in the foetus with long-term detrimental effects on neonates and infants. Other outcomes include small size, neonatal hypocalcaemia and seizures, impaired growth, and skeletal problems including rickets and low BMD.

Prof. Yin went on to outline strategies for prevention of vitamin D deficiency

in pregnant women, noting that vitamin D requirement cannot be adequately met through daily food consumption. He recommended routine vitamin D supplementation for pregnant women from the second and/or third trimester. However, he noted that important questions such as how much vitamin D is required to achieve the desired normal range (75 nmol/L or 50 nmol/L) in pregnant women, the frequency of supplementation (every day, once a month or one large dose) and what level of supplementation on vitamin D is likely to lead to toxicity, remain difficult to answer.

Vitamin D deficiency in children is associated with impaired muscle function and strength with adverse consequences on growth, development, physical activity, and bone health noted Dr. Umaporn Suthutvoravut, Ramathibodi Hospital, Mahidol University, Thailand, in her presentation on the importance of **vitamin D in child health**. Adequate maternal vitamin D status during pregnancy promotes foetal bone development and vitamin D accretion, with research indicating that maternal vitamin D supplementation during lactation can increase breast milk vitamin D concentration. However further studies are needed regarding safety and appropriate dosage in this area. Numerous scientific studies support the importance of vitamin D in the immune response including barrier function, innate immunity, antigen presentation, and adaptive immunity. Evidence from randomized controlled trials in children is limited, although observational studies reveal an inverse relationship between vitamin D status and development of infectious and autoimmune diseases. Adequate vitamin D intakes from foods and vitamin D-fortified foods and appropriate sunlight exposure are recommended for children. The re-emergence of rickets and the importance of vitamin D functions have prompted some countries to develop recommendations for vitamin D supplementation in infants, children, and adolescents. However, Dr. Suthutvoravut cautioned that well-designed studies are needed to generate convincing scientific evidence for translation into clinical practice and public policy for the promotion of improved vitamin D status in children.

Mr. Peter Liu, DSM Nutritional Products Asia Pacific, Singapore, presented an overview on the **importance of Vitamin D in healthy aging**. He noted that the elderly, particularly those living in aged-care facilities, are perhaps the most vulnerable to low vitamin D status. Several factors may contribute to poor vitamin D status in the aged, including the decline of the skin's ability to effectively produce



vitamin D that occurs with age, lack of adequate exposure to sunlight for home-bound or institutionalised residents, and insufficient dietary vitamin D intake due to loss of appetite with aging. Vitamin D supplementation has been shown to reduce falls in the elderly, a major risk factor for osteoporotic fracture. Mr. Liu suggested that increased vitamin D intake in the elderly, through supplementation or fortified foods could help to reduce substantial healthcare cost and add more healthy years for the aging population.

Vitamin D Intakes, Sources and Measurement

The relationship between **vitamin D and UV exposure including its benefits vs risks, barriers to exposure and how much is needed** was presented by Prof. Robyn Lucas, Telethon Kids Institute/ Australian National University, Australia. In many locations, exposure of the skin to ultraviolet (UV) radiation is the main source of vitamin D, with only small amounts coming from dietary sources. However, exposure of the skin to UV radiation is also the main cause of melanoma and non-melanoma skin cancers. Vitamin D deficiency appears to be common in Southeast Asian populations living in Australia, whilst in Vietnam one study has reported that 30% of women and 16% of men living in the northern regions of Vietnam had low vitamin D status. Prof. Lucas noted the importance of acknowledging that widespread measurement issues with vitamin D assays could lead to both under- and over-estimation of the prevalence of deficiency, with the optimal level still highly debated. She discussed the cultural, biological and behavioural barriers to sun exposure, but also noted the increasing recognition that some sun exposure is required, both to maintain vitamin D status and also for non-vitamin D related benefits. Prof. Lucas noted that it was not possible to define exactly how much time should be spent outdoors, as it varies according

to location, time of year, time of day, in addition to a range of personal factors such as skin pigmentation and skin sun sensitivity. She concluded that frequent short periods of sun exposure with maximum skin exposed are most efficient for vitamin D production and should also minimise UV-induced DNA damage.

Mr. Geoffry Smith, Essential Micronutrients Foundation, Singapore, examined **food sources of vitamin D, including fortified food, and supplementation in Southeast Asia**. He began by noting that it is becoming increasingly recognized that vitamin D status of large segments of the populations in Southeast Asia have low vitamin D status, despite relatively high and regular levels of UVB rays from sunshine in the region. Although moderate sun exposure can provide complete requirements of vitamin D, due to a range of religious, cultural and lifestyle factors, this may be difficult to achieve in Southeast Asian populations. Natural food sources such as some plant species can provide vitamin D in the form of ergocalciferol or vitamin D₂, and vitamin D₃ (cholecalciferol) can be found in some species of fish. However, the level of vitamin D in these foods varies significantly, and these foods are not widely consumed in Southeast Asia. Fortification of foods with vitamin D has been used since the 1920's, predominantly in high latitude countries where vitamin D deficiency was more widely recognized. Many of the foods traditionally fortified with vitamin D, such as dairy products, are also not widely consumed in Southeast Asia, although there has been a reported increase in milk consumption in some countries. Mr. Smith noted that other foods had now been fortified with vitamin D including edible oil, which is more widely consumed in Asia, and could be a potential vehicle. Estimated intakes of vitamin D from fortified edible oil have now been modelled for Vietnam and compared to estimated requirements.

Methodologies and cut-offs for measuring/evaluating vitamin D status was discussed by Dr. Mei Chung, Tufts University School of Medicine, USA. The measurement of serum

total 25-hydroxyvitamin D [25(OH)D] concentration is widely used to assess an individual's vitamin D status, with a variety of methods to determine 25(OH)D level, including commercial 25(OH)D assay kits, automated clinical chemistry platform, and automated equipment featuring either UV or mass spectrometric detection. It has been recognized that there is substantial within-assay variation in 25(OH)D measurement and even greater between-assay variability, hindering attempts to define the diagnosis of hypovitaminosis D.

As part of efforts to advance scientific understanding of the importance of vitamin D to health, the US Office of Dietary Supplements (ODS) of the National Institutes of Health (NIH) established the Vitamin D Standardization Program (VDSP) in November 2010, with the primary goal to promote standardization of all 25(OH)D laboratory procedures worldwide, both commercial and laboratory-developed, in order to improve clinical and public health. The VDSP defines standardization, in the vitamin D context, as a standardized laboratory measurement of total 25(OH)D that is accurate and comparable over time, location, and laboratory procedure to the values obtained using reference measurement procedures developed at the US National Institute of Standards and Technology (NIST) and Ghent University, Belgium. Lack of standardization of 25(OH)D assays has made synthesis of 25(OH)D results from different studies in systematic reviews for the specific purpose of determining dose-response and/or clinical cut-points problematic. Dr. Chung discussed the clinical and public health implications of non-standardized or poor vitamin D status measurements, noting that although substantial progress is being made to standardize 25(OH)D measurements, large assay variation remains a critical barrier to developing clinical and public health guidelines or recommendations on optimal vitamin D status or intake level.

Panel Discussion

The seminar concluded with a brief Panel Discussion, where the panellists and participants further discussed the current gaps in research data on Vitamin D intakes and status in Southeast Asia. It was recognized that there is a need to gather quality data on the prevalence of the key determinants of vitamin D deficiency, to better understand the public health problem concerning vitamin D, i.e. chronic disease vs deficiency. To this end, priority areas for further research are to be identified.

Scientific Substantiation of Claims

Health claims are important tools used to communicate the health benefits of a food product to consumers, providing point-of-sale information to assist them in making informed choices. Globally, there is wide disparity between permitted claims across countries, and the process and requirements used to substantiate these claims. This presents a number of challenges for key stakeholders including regulatory bodies, industry and researchers.



The half-day seminar '**Scientific Substantiation of Claims**', held in Bali, Indonesia on November 22, 2014 prior to the 36th Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU), reviewed the current status and substantiation process for nutrition and health claims as well as challenges faced in Australia, Europe, Japan and Southeast Asia. It also provided an update on new biomarkers and parameters for evaluating health benefits, such as weight control. Attended by regional and international participants including government and food industry regulatory personnel, the seminar commenced with a welcome address from ILSI SEA Region Executive Director Mrs. Boon Yee Yeong.

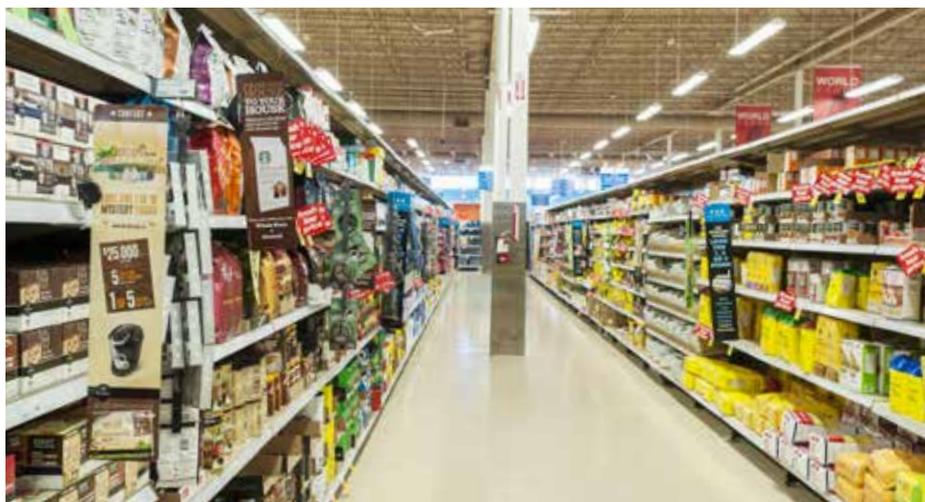
Mr. Basil Mathioudakis, Head of the Nutrition, Food Composition and Information Unit of the European Commission outlined the **current state of affairs with regards to authorised claims in the EU**. He noted that nutrition and health claims are regulated in the EU by Regulation (EC) No 1924/2006, gazetted on 20 December 2006, which sets the definitions, general principles and conditions as well as the procedures

for the adoption of the implementing measures that authorize or reject claims. Only authorized claims can be used in the labelling, advertising and presentation of foods in the EU. One of the most important criteria for their authorisation is that they should be substantiated by generally accepted scientific evidence. Over 2,200 claims have been evaluated thus far by the European Food Safety Authority (EFSA), with 259 authorized and just over 2,000 rejected. About 2,000 claims, mainly concerning botanical substances, are still under consideration and they can remain on the market until a final decision is reached, provided the other provisions of the Regulation are fulfilled.

Key learnings and considerations in the scientific substantiation of claims in the EU was then presented by Dr. Ariane Titz from the Nutrition Unit, EFSA. She reviewed the scientific assessment of health claims performed by the Panel on Dietetic Products, Nutrition and Allergies (NDA) of EFSA, explaining the principles of assessment. All relevant studies with sufficient quality are weighed with respect to their strength, consistency and specificity, and additional consideration is given to dose-response and biological plausibility. She noted

that selecting relevant human studies for scientific substantiation of the claim, studies should be carried out with the food/constituent for claim, and using the appropriate outcome measure(s) for the claimed effect. Conditions for the studies should be comparable to conditions of use for the claim (e.g. dose tested vs. dose proposed) and study groups should be representative of the target group or able to be extrapolated to the target population. She went on to cite examples of the most common pitfalls encountered by the Panel in the evaluation of health claims, concluding by encouraging industry to use the EFSA website applications 'help desk' to assist in the preparation of claims applications.

Dr. E-Siong Tee, ILSI SEA Region, Malaysia described the **process and key learnings in scientific substantiation of health claims in Southeast Asia**. Dr. Tee began by noting that health claims are currently permitted in some countries in Southeast Asia, mostly arising from applications from food industry for other function claims and disease risk-reduction claims. Dr. Tee presented a summary of the permitted claims in the region, noting that regulatory systems related to claims approval varied from country to country in the region.



He reviewed the claims application process, with each claim submitted in a prescribed format, and accompanied by scientific substantiation to be reviewed by a panel of experts appointed by the relevant regulatory agency. Two critical components of the application are the minimum level that the nutrient must be present for the claim, and sound scientific evidence for the claim, based on randomized, placebo-controlled double blind clinical trials and other appropriate scientific data. Dr. Tee highlighted examples of some errors or inappropriate submissions for health claim applications in Malaysia. Some applications were rejected due to inadequately prepared dossiers, with sections of the application poorly explained, particularly the section on scientific substantiation. Other examples include wording of the proposed claim not matching the findings of the studies or extrapolated beyond the findings; the compound used in the study not matching the compound that is the subject of the claim; the food vehicle for the compound not matching the intended claim; studies were carried out using the 'pure' compound, rather than in food vehicles; or the study findings were not appropriate for the general population.

The **nutrition labelling system in Japan** was then discussed by Dr. Toshitaka Masuda, Food Labelling Division, Consumer Affairs Agency (CAA), Government of Japan. In order to ensure consumers' safety and their ability to choose foods offered for sale independently and rationally, the Food Labelling Bill was passed in Japan on 21 June 2013, followed by the Food Labelling Act, gazetted on 28 June 2013, moving the existing voluntary Nutrition Labelling System to a mandatory framework. Dr. Masuda noted that considerable time was spent investigating the issue of mandatory nutrition labelling, with the CAA firmly believing that such labels are necessary for the improvement of consumers' health, enabling them to manage their

nutritional status and dietary habits. The CAA encourages food manufacturers to use nutrition labelling on a wide range of food products, and educates consumers on how to put healthy dietary habits into practice by helping them understand nutrition labelling and how to make practical use of its information. In Japan, function claims are only permitted for two food categories under the Food Sanitation Act and the Health Promotion Act: Food for Specified Health Uses and Food with Nutrient Function Claims. The government of Japan is developing a new system enabling manufacturers to make function claims on processed and fresh food using scientific evidence-based substantiation, using the U.S. dietary supplements regulatory system as a reference.

Dr. Pichet Itkor, Food Industry Club, Federation of Thai Industries, then outlined the **industry challenges in the preparation of scientific dossiers for claims**. He noted that food industries are now implementing nutrition labelling and displaying nutrition/health claims not only to provide information about the product to enable consumers to make an informed choice of purchase, but also to increase their competitiveness in the market place. *'Recommendations on the Scientific Substantiation of Health Claims'*, an Annex to *'Codex Guidelines for Use of Nutrition and Health Claims (CAC/GL 23-1997)'*, have been established to assist regulatory authorities in their evaluation of health claims in order to determine their acceptability for use by industry. These recommendations state that health claims shall be supported by a sound and sufficient body of scientific evidence to substantiate the claim, and provide truthful and non-misleading information to assist consumers in choosing a healthful diet. In most of the ASEAN countries, there are positive lists of approved nutrient function claims, other function claims and disease risk-reduction claims. To substantiate any new health claim, industry is obliged to

submit well-designed human intervention studies clearly demonstrating the consistent association between the food or food constituents and the health effect. The totality of evidence, including evidence that supports or contradicts the claim effect and evidence that is ambiguous or unclear are also required. Dr. Itkor noted that the differences in regulatory requirements for health claims among ASEAN countries remains the most critical trade barrier to the commercial distribution of food products in Southeast Asia. He emphasized the need for a platform for harmonization of regional regulation on the use of nutrition and health claims, noting that ILSI SEA Region has been working in this area, including developing 'Guidelines for Scientific Substantiation of Nutrition and Health Claims for Food/Functional Foods', along with a regulatory framework for harmonization of nutrition labelling and claims.

New biomarkers and parameters for evaluating health benefits were then presented by Dr. Judy Cunningham, Food Standards Australia New Zealand (FSANZ). A standard for the use of health claims on food labels has been in operation in Australia and New Zealand since January 2013. Standard 1.2.7 of the Australia New Zealand Food Standards Code sets out the requirements for health claims and identifies two types of health claims – general and high level. High level claims refer to serious diseases or biomarkers of serious disease, such as serum cholesterol. There are over 200 pre-approved food health relationships in Standard 1.2.7 that companies can use to formulate the wording of health claims that accurately reflect the relationship and any established conditions for the claim. In Australia and New Zealand, new health claims require a systematic review of all available evidence to establish whether a relationship exists between the food and the health outcome. Dr. Cunningham noted that biomarker evidence used to substantiate a health claim must be assessed for quality in the same way that studies of other health outcomes would be assessed. Biomarkers used should be well established, relevant to the claimed health outcome, measurable and responsive to dietary intervention. Although there is a lot of current research into a range of biomarkers, there appear to be few 'new' biomarkers suitable for use in regulatory systems that require a high degree of certainty in the evidence supporting new health claims. Dr. Cunningham recommended that food companies who wish to use biomarker evidence to substantiate a new health claim should understand the requirements in each country where they wish to use the claim.

ILSI Annual Meeting 2015: A Report

The ILSI Annual Meeting is an important, once-a-year gathering for Members, Board Directors, Scientific Advisors and Staff of all ILSI branches and entities to meet and exchange updates. It is also a good opportunity for ILSI's valuable stakeholders to build closer ties and foster strong relationships. The 2015 ILSI Annual Meeting was held in Arizona, U.S. from January 16 – 17, and was well-attended by representatives from all ILSI branches.



Meeting with ILSI colleagues in Phoenix, Arizona

ILSI SEA Region participated actively in this year's Annual Meeting, with a team led by Executive Director Mrs. Boon Yee Yeong, and comprising Ms. Pauline Chan, Director of Scientific Programs, Dr. Sofia Amarra, Deputy Director of Scientific Programs and Mr. Keng Ngee Teoh, Manager of Scientific Programs. Meetings attended by the ILSI SEA Region team included the ILSI Branch Staff Meeting, ILSI Asian Branches Meeting, ILSI Assembly of Members, ILSI Branch Leadership Meeting, as well as Scientific Sessions organized by ILSI, ILSI Europe and ILSI North America.

Fostering Closer Collaboration among ILSI's Asian Branches

ILSI SEA Region continues in its role of coordinating and fostering greater collaboration among ILSI's Asian branches, which include ILSI Focal Point in China, ILSI India, ILSI Japan, ILSI Korea, ILSI SEA Region and ILSI Taiwan. A key objective of the ILSI Asian Branches Meeting held yearly as part of the ILSI

Annual Meeting is for the Asian branches to explore and discuss areas of common interest and collaboration.

At this year's meeting, each of the ILSI Asian branches provided a brief update of their respective activities and outputs achieved in 2014. Collaborative activities jointly organized by a number of the Asian branches over the past year were also highlighted, including the on-going project on "Investigation of Food Regulations" led by ILSI Japan /MAFF (Japan Ministry of Agriculture, Forestry and Fisheries); the series of annual BeSeTo Meetings on food and nutrition safety jointly organized by ILSI Focal Point in China, ILSI Japan and ILSI Korea; as well as the ILSI scientific sessions organized as part of the 2014 Asian Congress of Dietetics (ACD) held in Taiwan.

Focusing next on activities for 2015, the Asian Branches discussed upcoming and proposed collaborations such as the 7th BeSeTo Meeting that will be held in Korea; the 12th Asian Congress of Nutrition (ACN) and the 7th International Conference on Nutrition and Aging to be held in Japan; as well as a potential project on Nutrition Labeling and Claims. At the 12th ACN, ILSI's Asian Branches will support two scientific

sessions, with first session focusing on micronutrient fortification programs, and second session focusing on food safety programs and issues in the region.

The Asian Branches also shared updates on emerging issues in Asia. Common areas of concern across the various Asian countries and regions include food and nutrition security, food safety, biotechnology, sustainable agriculture, as well as maternal / young child nutrition and early life development.

ILSI North America Scientific Sessions

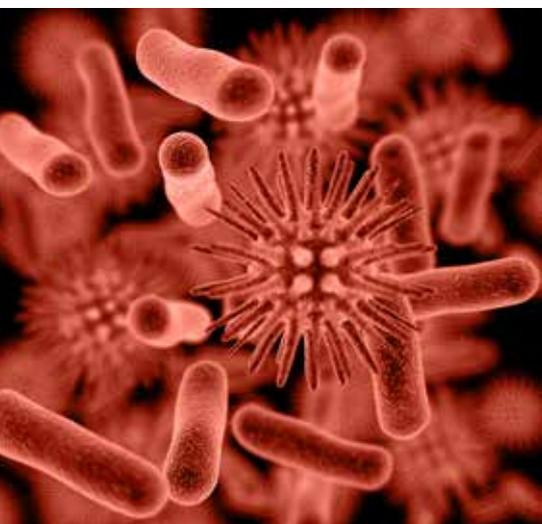
ILSI North America (ILSI NA) organized three scientific sessions during the Annual Meeting, covering diverse topic areas with presentations by noted speakers who are leading scientists and researchers in their fields.

The first ILSI NA Scientific Seminar explored **Global Challenges and Solutions for Food and Nutrition Sustainability**. Mr. Jack Bobo, Senior Advisor for Biotechnology at the U.S. Department of State, U.S.A, noted that agriculture, while critical to our survival, poses one of the biggest challenges in terms of impact on our environment. While scientists advance in developing technological solutions to this challenge, consumers are using



information technology and social media to urge limits on the application of such technological solutions. Mr. Bobo concluded that scientists need to become better communicators of science and technology, and that how we manage agricultural activities over the next 40 years will be critical.

Dr. Anne Roulin from Nestle, Switzerland, described the integrated concept of “sustainable nutrition”, encompassing three pillars of sustainability – social (i.e. nutrient security), environmental (i.e. production and consumption), and economic (i.e. public health economics). To apply these principles in practice, Dr. Roulin shared that Nestle has developed tools to evaluate the environmental impact of foods, meals and diets, and linking this to the overall nutritional value. Discussing the future of food and nutrition sustainability, Mr. Riachard Waite from the World Resources Institute, U.S.A, pointed out that efforts to meet ever-increasing demand for more food due to growing populations would need to also consider ways of increasing food production on existing agricultural land, reducing growth in food consumption without comprising human well-being, as well as reducing the environmental impact of food production.



The next ILSI NA Scientific Session focused on the **Human Microbiome**, opening with an overview of past, present and future research on the human microbiome as presented by Dr. Cindy Davis from the National Institutes of Health, U.S.A. Dr. Davis described the human microbiome as the full complement of microbial genes, gene products and genomes of the microbiota that call the human body home and that interact with the human host. The **human microbiota play fundamental roles in human health and disease**, and this mutualistic relationship is influenced, in part, by diet. Delving further into the discussion of the human microbiome as

the interface of health and disease was Dr. Rodney Dietert of Cornell University, U.S.A. With non-communicable diseases rising in prevalence over the past few decades, Dr. Dietert called for a more sustainable approach to disease prevention, health maintenance and medical care. One such approach could focus on the human-microbial superorganism, whereby maintaining a healthy microbiome paired with microbiome-directed treatment strategies could drive system biology-based healthcare and even personalized medicine in the future. In the next presentation by Dr. Barbara Schneeman, University of California – Davies, U.S.A, Dr. Schneeman noted that emerging research on the microbiome, as well as its linkages with the gastro-intestinal tract, health, disease-risk reduction and disease management, have resulted in greater interest to translate such research into products that can help consumers to manage their gastro-intestinal health. She added that health claims need to be based on scientific evidence, while issues and challenges regarding the current regulatory frameworks for health claims need to be considered when discussing how the regulations may be applied to such products.

The third ILSI NA Scientific Session provided updates on **caffeine and its effects on health**. Dr. Harris Lieberman from the U.S. Army Research Institute of Environmental Medicine, U.S.A. gave an overview of caffeine and its consumption in the United States, while Dr. Andrew Smith of Cardiff University, U.K. shared recent research on the behavioral effects of caffeine. Dr. Smith noted that recent research shows caffeine can improve working memory and semantic memory. The effects of caffeine on reproductive health was discussed by Dr. Jennifer Peck of the University of Oklahoma, U.S.A. Dr. Peck shared that although numerous epidemiological studies have been conducted, the results have been inconsistent. This could be due to the inability to rule out plausible alternative explanations for observed associations, such as pregnancy symptoms and exposure measurement error. Finally, Dr. Ahmed El-Soheby of the University of Toronto, Canada, explored the cardiovascular effects of caffeine. Dr. El-Soheby said that previous studies on coffee and cardiovascular disease (CVD) have discrepancies in their results, and one explanation for such discrepancy is the genetic variability among the populations examined. His research program uses a genomics approach to study how individual genetic differences affect physiological response to caffeine, and how this may in turn influence risk of CVD.

ILSI Europe Scientific Sessions

At this year’s Annual Meeting, ILSI Europe organized and presented two scientific sessions. These scientific sessions were also collaborative efforts with a number of other ILSI branches, who supported speakers to share the latest knowledge and updates from different parts of the world. Branches that supported these sessions included ILSI SEA Region, ILSI Focal Point in China, ILSI Brazil, ILSI South Andean and ILSI India.

The first session focused on **Hazards and Risk: the Exposure Revolution**. Dr. Diana Banati, Executive Director of ILSI Europe, opened the session by highlighting that the presentations will assess different perspectives on hazard-and-risk-based approaches, taking into consideration methodological approaches, practical case studies and regulatory implications. Dr. Alan Boobis, Imperial College London, U.K., provided an overview of the hazard-and-risk-based approaches to safety assessment of foods. He emphasized the difference between “hazard” and “risk”, and the implications of such differences on food safety legislation and regulations. Dr. Boobis also noted that while most current regulatory approaches may be hazard-based, there is likely to be a paradigm shift to an exposure driven and risk-based approach. Subsequent speakers presented case studies and shared updates on issues and regulations related to the application of risk assessment to address food safety concerns in countries and regions including China, India, Korea and Southeast Asia.

Dr. Junshi Chen, Executive Director of ILSI Focal Point in China, shared that the China National Centre for Food Safety Risk Assessment has conducted a dietary exposure assessment of aluminum in the general population, due to concern over the over-intake of aluminum in China from aluminum-containing food additives. The risk assessment results found that 32.5% of the total Chinese population, and 42.5% of 4-6 year old children exceeded the JECFA PTWI. Based on these results, the Chinese regulatory agency revised the food additive standards and it is estimated that such changes would reduce the intake of aluminum among the general population by 67%.

Mr. Keng Ngee Teoh, ILSI SEA Region, shared that in Southeast Asia, countries are aiming to establish the ASEAN Economic Community (AEC) by 2015. As an important food producing and exporting region, the agro-food sector has been identified as a priority integration sector within the

AEC. However, food safety systems within ASEAN are very diverse, and hazard-based approaches are often observed due partly to the lack of capacity to implement risk-based approaches. To move towards the common goal of regional harmonization, ASEAN countries are gradually building up their capacities to apply risk-based approaches for standards setting as well as establishing regional mechanisms that can facilitate the harmonization of food safety standards.

The second scientific session explored the latest science and research related to the **Aging Brain**. Rapidly aging populations in many parts of the world will result in profound social and economic impacts, and there is an important need to understand the factors that influence cognitive health and the decline that occurs with age. The session also aimed to review the available evidence in order to better understand the effects of diet, or specific sets of nutrients or dietary factors on cognitive aging.

Dr. Johanna Dwyer, Tufts University, U.S.A, provided an overview of the biology of brain aging and the impact on health. Dr. Dwyer said that research on the biology of aging has made unprecedented progress in the last few years, and there is much research on identifying mechanisms that may affect aging or modulate its progression. As people live longer, they are more susceptible to multiple diseases. The ultimate goal is therefore to provide better care for older persons through the development of interventions that can slow down aging and prevent or delay the decline in health and physical function. Presentations on the effect of nutrients and dietary patterns, as well as the effect of minerals (in particular selenium), on cognitive function and decline were shared by subsequent speakers.

Dr. Sofia Amarra, ILSI SEA Region, gave a presentation that highlighted the challenges in assessing cognitive function among populations in the countries in Southeast Asia, due to cultural diversity. Dr. Amarra said that recent findings in brain science indicate that some assessment tools constructed based on neurocognitive models for Western cultures may not be suitable for people in other cultures, implying the need for culturally-appropriate measures to assess cognitive function. There is therefore, a need to develop guidelines for translating and adapting tests for cross-cultural use, and to develop local instruments using indigenous measures to assess cognitive function.

Presentations made by speakers at the Scientific Sessions can be found on www.ilsli.org

Malaspina International Scholar Travel Award

ILSI has established the Malaspina International Scholar Travel Award and the first batch of recipients received their awards at the 2015 ILSI Annual Meeting. The award was named after Dr. Alex Malaspina, the founder and first President of ILSI. The award is designed to enable academic scientists who are at an early stage in their careers to participate in the scientific discussions during the ILSI Annual Meeting.

Candidates from the various regions in which ILSI has a presence have been selected to receive the Malaspina International Scholar Travel Award.

From Asia, Dr. Siti Muslimatun, a faculty member and researcher at the SEAMEO Regional Centre for Food and Nutrition, Indonesia, was nominated by ILSI SEA Region. Dr. Muslimatun was successfully selected by the Malaspina International Scholar Travel Awardees & Selection Committee to receive the award in 2015.



Recipients of the Malaspina International Scholars Travel Award with Dr. Alex Malaspina
Back row, left to right: C. Allred; S. Muslimutan; K. Varady; A. de Souza Sant'Ana; Z. Šatalic.
Front row, left to right: B. Aeri; A. Malaspina; Yukiko Nakanishi

Words from Dr. Siti Muslimatun

I am honored to be one of the 10 recipients of the 2015 ILSI Malaspina International Scholars Travel Awards. The award is to recognize the contributions of Dr. Alex Malaspina, who founded ILSI as a non-profit organization to advance scientific understanding of nutrition, food safety, toxicology, risk assessment, and the environment.

The award ceremony took place on the occasion of the 2015 ILSI Annual Meeting in Arizona, U.S.A, in January 2015. The plaque was presented by Dr. Rhona Applebaum during the plenary opening session of the 2015 ILSI Annual Meeting.

Recipients of the award had the opportunity to present their research work to the ILSI Board of Trustees and all ILSI Branches. I shared my research work in the areas of stunting and micronutrient deficiencies, intervention study with tempe (fermented soybean) for improving iron status and nutritional practices among pregnant women, as well as the SMILING (Sustainable Micronutrient Interventions to Control Deficiencies and Improve Nutritional Status and General Health in Asia) project in Indonesia.

A dinner for the awardees was also hosted by the Coca-Cola Company, allowing for an informal interaction among scientists from academe, government and industry. Dr. Alex Malaspina was the guest of honor at the dinner, and he presented the award to each of the awardees. Dr. Malaspina also shared his wisdom and rich experiences personally.

"I hope the recipients of 2015 ILSI Malaspina International will continue their innovative and excellent scientific works and contribute to the benefits of the society at their home country" - Dr. Alex Malaspina

As a recipient of the Malaspina International Scholar Travel Award, I had the opportunity to actively participate in the 2015 ILSI Annual Meeting and had interacted with top leaders and scientists from around the world. The 2015 ILSI Annual Meeting was a world-class forum for scientific discussion on current issues in nutrition, food safety, food security and public health. The award has pushed me to continue to expand my work in research and education. I deeply appreciate ILSI for organizing the event in such a way that all awardees were exposed to various levels of scientific discussion and networking; to ILSI SEA Region for my nomination, to The Coca-Cola Company for hosting the award dinner, and to Prof. Sushila Chang as my mentor throughout the process.

Dr. Siti Muslimatun
 March 2015

Understanding and Managing Adverse Food Reactions

There has been a great deal of progress in recent years in our understanding of food allergies, intolerances and hypersensitivities, and how they affect our diet and ultimately the nutrition and health of the individual. Adverse Food Reactions (AFR), the collective term for the physiologic reactions of the body to certain foods to which the individual is sensitive to, are now the subject of much discussion and even controversies with respect to their mechanisms and even on their management. At the same time, misconceptions abound in the general public and as well as among health professionals.



In collaboration with the Philippine Society of Allergy, Asthma and Immunology (PSAAI), the Philippine Country Committee of ILSI SEA Region organized a seminar to address new knowledge about AFR, discuss common foods and ingredients commonly consumed in the Philippines causing adverse reactions, particularly their nutritional, clinical and other consequences, and to arrive at recommendations for consumers and industry. The seminar was held on November 27, 2014, at the Legend Villas, Mandaluyong City, and was attended by representatives from nutrition and dietetics, the academe, health professionals, and food industry.

The seminar was opened by Ms. Angie Miles, Chair of the Philippine Country Committee, who welcomed the participants to the seminar. The first speaker, Dr. Ruby N. Foronda of PSAAI, first **reviewed the current classification of AFR into either immune-mediated (eg. food allergy and Celiac disease) or non-immune-mediated**

(eg. food intolerance). Among the latter, intolerance to cow's milk due to lactase deficiency is quite common especially among adults in the Philippines. Intolerance to caffeine, theobromine and tyramine are examples of a pharmacologic AFR. Dr. Foronda cited Scombroid fish poisoning arising from the conversion of histidine to histamine by contaminating bacteria in the fish, as an example of toxic AFR. Other idiopathic or undefined AFR such as sulfite sensitivity and other additives including food colorants, monosodium glutamate, benzoate, nitrites/nitrates, and even food phobia, were cited as other examples of non-immunologic AFRs.

Dr. Foronda then discussed the **mechanism of IgE-mediated AFR through the allergy cascade involving mast cells, resulting in early phase and late phase reactions**. IgE-mediated food allergy may involve the skin and mucous membranes, and GI, respiratory and cardiovascular systems. On the other hand, non-IgE-mediated

food allergy may be manifested as food-protein-induced entero- or proctocolitis in breastfed infants from cow's milk or soy in the mother's diet. There may also be mixed IgE- and non-IgE or cell-mediated AFR such as atopic dermatitis and eosinophilic esophagitis. Finally, there is cell-mediated AFR such as contact dermatitis, another class of immune-mediated food allergy. Dr. Foronda concluded that **recognition of the many types of food reactions as caused by different mechanisms is important for proper management**.

The next speaker was Dr. Johanna T. Santos Ocampo, also from PSAAI, who first cited the prevalence of AFR among adults in the Philippines as 12.9%, and of food allergy as 4.1%, as gathered from the 2008 National Nutrition and Health Survey. The most common causes of food allergy shown in the survey were shellfish/crustaceans (2.3%), fish (1.4%) and egg (0.7%). The prevalence of allergy to peanuts was only .01%. After going through the classification

of AFR by the NIAID-sponsored Expert Panel reviewed by Dr. Foronda earlier, Dr. Santos Ocampo described the **clinical manifestations and pathophysiological causes of common AFRs**. Lactose intolerance and lactose overload in infants which could mimic lactose intolerance, are examples of non-immune-mediated AFR. Vasoactive amines such as histamine and tyramine from tuna, pickled herring, sardines, bananas and cheese may cause toxic AFR. MSG, although considered safe by FAO and WHO, may cause the so-called Chinese Restaurant syndrome in susceptible individuals. Non-celiac gluten sensitivity and other gluten-related disorders have been recently recognized, although their pathophysiology, clinical spectrum and treatment remain unclear.



Dr. Santos Ocampo next discussed **immune-mediated food allergies**. She pointed out that parent and patient perception of food allergy is highly unreliable (50% to 90% are not allergies), thus requiring detailed history taking and physical examination. Elimination trial and oral food challenge (OFC) may be useful for both allergic and non-allergic disorders. She emphasized, however, that **elimination diet may miss hidden antigens, citing many common allergens "hidden" in many food sources and ingredients**. Elimination diet may be unable to identify cross-reacting allergens such as peanuts with tree nuts, and she cautioned against incomplete labeling of food products and deficient or imbalanced nutrient supply in ill-managed elimination diet. The diagnosis of IgE mediated food allergies consists of skin prick test, serum specific IgE test and Oral Food Challenge (considered the gold standard). Dr. Santos Ocampo also cited many other alternative tests, many of which require confirmation, such as atopy patch test, Vega testing, basophil histamine release, and others. The diagnosis of non-IgE-mediated food allergies such as celiac disease due to intolerance to gluten, and atopic dermatitis, is mainly based on clinical features as testing methods are largely non-pathognomonic. Upcoming diagnostic tools include Cork Southampton algorithm, microarray immunoassay, and Doppler ultrasound. Dr. Santos Ocampo discussed the elements of properly managed elimination diet, emphasizing health risks including malnutrition and unbalanced nutrient supply. She ended with updates on new treatment modalities such as oral or sublingual immunotherapy, use of Chinese herbal medicines, PUFA, and hypoallergenic peanuts.

Next, Ms. Jenee C. Virtudazon, from UP-Philippine General Hospital, discussed **eating well with AFR through proper dietary management**. She first cited the most common sources of food protein

allergies, including peanuts, tree nuts, cow's milk, eggs, fish and shellfish, soy and wheat. Moreover, there are additional factors involved in symptoms of food allergy, including increased permeability of the GI tract as in autoimmune processes and infant immaturity, physical exertion, stress, and level of inflammatory mediators released in response to several foods concomitantly. She explained an algorithm for the clinical diagnosis of AFR using elimination diet by restricting the suspected food. If symptoms disappear, the restricted food is reintroduced (preferably double blind) to confirm the diagnosis. If symptoms persist, other foods are restricted sequentially to discover the offending food.

Ms. Virtudazo emphasized the provision of equivalent nutrients from alternative sources when certain foods are eliminated from the diet with the use of the Food Exchange List. She discussed guidelines to help prevent food allergies, such as exclusive breast feeding for the first 6 months, delay in feeding infants with other milk or milk products, and keeping diets free from of peanuts, tree nuts and shellfish until children are at least 3 yrs of age. Probiotics have been shown to assist in reducing the symptoms of lactose intolerance. During pregnancy, reduction in frequent intake of fish reduces the risk of food sensitization in infants by over a third. Ms. Virtudazo observed that tolerance to allergenic foods usually increases with age. For example, 25% of infants lose food allergy symptoms after 1 year of age. However, allergy to some foods such as peanuts, tree nuts and shellfish, more often than others persist into adulthood. She concluded that the final diet must provide complete nutrition while avoiding all the food and food components that elicit symptoms of AFR.

Finally, Engr. Cecille de la Paz of the Philippine Chamber of Food Manufacturers

and Promesserve Corporation, discussed the **impact of AFR on the food industry, and consumer education**. She observed that seven years after the Food Allergen Labeling and Consumer Protection Act (FALCPA) went into effect in the U.S, unlabeled allergens continue to be the leading cause of food recalls. Food recalls represent an economic burden for industry. However, it is the **responsibility of the food industry to provide consumers with food labels that are complete, clear and accurate whenever pre-packaged food contain commonly allergenic contents**, so that they can avoid exposure to foods or ingredients, including flavorings, colorants and additives, that can provoke potentially life-threatening reactions.

Additional food labelling information including instruction for use is required. Thus, the food industry needs to be aware of food allergens of greatest public health concern in the country. Moreover, AFRs have a large impact to the food industry as it requires training of staff on food allergens; religiously following packaging, cleaning and packaging procedures, as well as production protocols when using allergenic ingredients to avoid cross-contamination. Together with this is the responsibility of the food industry to contribute to consumer education through provision of complete and clear information in pre-packaged food advertisements through tri-media.

During the Open Forum at the end of the seminar, discussions centred on the current and upcoming food labelling regulations from the Philippine FDA. Clarifications were sought on the format of nutrition information, the new Daily Recommended Intake (DRI) for Filipinos, the Daily Value to be used, Front-of-Pack labelling, and the ways by which the food industry, government and professional organizations could help in consumer understanding of food labels.

Finally, Mr. Luis Lim of Ajinomoto Philippines, in his synthesis of the seminar, emphasized on the need to inform the public about misconceptions on food allergies and other forms of AFRs that are often mistaken for immune-mediated reactions. The public should be made aware of the health risks of elimination diet including nutritional deficiencies, and the precautions on self-imposed elimination of foods thought to be the cause of untoward reactions. Mr. Lim concluded by **emphasizing the role of government, professional organizations and the food industry on consumer education with respect to AFRs and food labels, aided by modern communication technologies**.

Updates on Safety of Genetically Engineered Crops Containing Stacked Traits

The stacking of two or more transgenic traits is becoming increasingly common among newer genetically engineered (GE) crops that are being commercialized on the market. As a result, this has raised some scientific questions among regulatory authorities worldwide regarding the need for additional or separate safety assessments for stacked GE crops before they are being allowed to be sold as food or feed on the market. These scientific questions have also been raised among regulatory authorities in charge of agricultural biotechnology in Southeast Asian countries.

Responding to these scientific concerns, ILSI Southeast Asia Region organized a series of discussions on the **Food and Feed Safety of Genetically Engineered Crops Containing Stacked Traits** in Jakarta, Indonesia, and Kuala Lumpur, Malaysia, on February 3 and 5, 2015 respectively. The meeting in Indonesia was organized in collaboration with the National Agency for Drug and Food Control (BADAN POM RI) while the Malaysia meeting was organized together with the Department of Biosafety, Ministry of Natural Resources and Environment, Malaysia. Participants who attended meetings included stakeholders from government authorities, academic scientists and industry representatives. Additionally, half-day closed-door workshop and roundtable discussion were held following both seminars, which provided an opportunity for national experts and invited international experts to further continue in-depth discussions regarding specific scientific concerns relating to risk-based approaches for the safety assessment of stacked GE crops.

The seminar in Jakarta commenced with a welcome address by Mrs. Boon Yee Yeong, Executive Director of ILSI SEA Region, Singapore and opening remarks by Dr. Ir. Agus Pakpahan, Chairman of Biosafety Commission, Indonesia. Whereas Mr. Geoffrey Smith, President of ILSI SEA Region, provided the welcome address in Kuala Lumpur and the meeting was chaired by Dr. Ahmad Parveez Ghulam Kadir, Principal Research Officer



of Advance Biotechnology and Breeding Centre, Malaysia Palm Oil Board.

Dr. Philip Larkin, Chief Research Scientist and Research Group Leader at the Commonwealth Scientific and Industrial Research Organization (CSIRO) Agriculture Flagship, Australia, provided an overview on the 'Applications of Conventional and Genetic Engineering Techniques in Plant Breeding – Recent Advances and Issues', sharing **emerging trends in plant breeding and how these may be relevant to regulatory consideration**. In particular, he highlighted that many new techniques appear to fall within an overlapping area between what is considered as traditional and transgenic breeding methods. On the subject of gene stacking techniques, Dr. Larkin explained that this has been a long-established and common method applied by plant breeders for intended purposes.

He gave the example of high amylose wheat and gluten-free barley, which have been developed by his research group through the stacking of specific genes. These products could potentially provide benefits for diabetics and persons suffering from coeliac disease by allowing them to manage their diet and to provide options for gluten-free products.

In addition, Dr. Larkin's research group has also applied transgene stacking to develop canola seeds that contain higher levels of omega-3 fatty acids, as well as genetically engineered cotton seed with high insect and herbicide tolerance. Based on his experience, crops containing stacked transgene have been found to act just as predictably as crops containing stacked genes that are not transgenic. This is however expected, as standard plant breeding practices rigorously impose strict benchmarks for utility, stability



Organizers, Faculty and Participants: ILSI SEA Region Seminar on Food and Feed Safety of Genetically Engineered Crops Containing Stacked Traits, Kuala Lumpur, Malaysia



Organizers, Faculty and Participants: ILSI SEA Region Seminar and Workshop on Food and Feed Safety of Genetically Engineered Crops Containing Stacked Traits, Jakarta, Indonesia

and performance. Dr. Larkin pointed out that due to the advances in overlapping breeding techniques, regulatory systems that focus on the qualities and performance of traits, rather than the technology used to create the trait, will prove to be more consistent and resilient to future developments in these areas and promote greater scientific integrity.

At the seminar in Jakarta, Prof. Dr. Muhammad Herman, a scientist from the Indonesian Center for Agricultural Biotechnology and Genetic Resource Research and Development (ICABIOGRAD), Ministry of Agriculture, Indonesia, and member of the Indonesia Biosafety Committee Working Group on Food Safety, presented on the **'New Developments in Genetic Engineered Crops in Indonesia'**. He explained that Indonesia is well known as a mega biodiversity country with rich plant genetic resources (PGR). The main constraint encountered in the utilization of PGR in agriculture are biotic stresses such as insect pests, plant diseases, plant parasitic nematodes and abiotic stresses such as drought. Thus, application of genetic engineering techniques can offer a great opportunity for crops improvements particularly in insect and plant diseases resistance, as well as drought tolerance. There have been many ongoing research and developments on genetically

engineered crops conducted locally by Indonesian universities, government and private research institutes since 1995. Some examples shared by Prof. Herman include the delayed ripening GE papaya, insect resistant golden rice, multi-resistant GE tomato and late blight resistant potato.

Prof. Herman pointed out that biosafety bodies and regulation should be established in the country to facilitate the commercialization of GE crops. However, factors such as religious, ethical, socio-cultural and esthetical norms have to be taken into consideration when regulating these crops. In Indonesia, the need for biosafety regulation of GE products has been well-recognized since 1997. Prof. Herman gave an overview of the **current biosafety regulatory framework in Indonesia, which cover aspects for food, feed and environmental safety**. He emphasized that the safe use of genetic engineering methods can serve as a useful tool for crops improvement that could provide economic and social benefits to farmers and society, and bring greater food security to the country.

Finally, Prof. Andrew Bartholomaeus, adjunct professor at the University of Canberra and University of Queensland, Australia discussed the **'Scientific Considerations and International Approaches for the Safety Assessment**

of GE Crops Containing Stacked Traits' at both seminars. He introduced the three categories of stacked GE products, including transformation stacks, molecular stacks and breeding stacks. The current discussion focuses on breeding stacks, where there is some ambiguity among regulators with regards to whether additional approval would be required. To provide the overall context, Prof. Bartholomaeus explained that the food and feed safety assessment of GE crops, including those containing stacked traits, generally followed the principles of substantial equivalence established at the Joint FAO/WHO Expert Consultation on Biotechnology and Food Safety in 1996. In relation to GE crops containing stacked traits developed through conventional breeding of existing single-trait GE plants, Prof. Bartholomaeus highlighted that many countries, including Australia, do not currently require additional safety assessments for stacked products as long as the parental GE crops lines have already been evaluated to be safe.

In relation to concerns raised regarding the production of novel toxins as a consequence of stacking transgenic events, Prof. Bartholomaeus noted that there is an inherent widespread genetic variability among plants in nature and that no novel toxins have ever been created by any plant breeding procedure to date. Hence, the need for further risk assessment of GE crops containing stacked transgenic traits should be considered within the wider context of plant breeding. Prof. Bartholomaeus concluded that **cross breeding of GE crop lines are not substantially different from a food risk perspective with the conventional cross breeding of non-GE crops lines**.

The discussions at the meetings helped to answer some of the basic scientific questions raised and provided stakeholders in both countries with a balanced perspective on the issue of safety assessment of GE crops containing stacked transgenic traits.

Latest Updates from the Australian Health Survey

What are Australians eating and how does this measure up with what they should be eating for good health? Can industry address the gap between the realities of what the population is eating, with the target of eating for optimal health? To address these questions, and to take a detailed look at the consumption patterns from the latest Australian Health Survey, ILSI SEA Region's Australasia country office organized a seminar on "Mind the Gap – Nutrition under the Microscope". The meeting was held on March 13, 2015 in Sydney, Australia.

Food and Nutrient Intake in Australia

Ms. Kim Tikellis, President, ILSI Australasia, opened the meeting and welcomed the participants. The first speakers were Ms Janis Baines, Manager, Food Data Analysis Section at Food Standards Australia and New Zealand (FSANZ) and Mr. Paul Atyeo, Assistant Director, Health Section, Australia Bureau of Statistics (ABS). Mr. Atyeo described the **2011-13 Australian Health Survey (AHS), which is designed to collect a range of information about health, socioeconomic, nutrition, physical activity and biomedical information.**



The results showed that the Aboriginal and Torres Strait Islander people were more likely to have chronic diet-related diseases such as diabetes and chronic kidney disease. Vitamin D deficiency rates were much higher in winter and spring for all populations. Ms. Baines explained that FSANZ used the Vitamin D intake data to estimate incremental increase in serum Vitamin D from intake of fortified cereals using a dose-response relationship. They predicted that adding Vitamin D to breakfast cereals would decrease prevalence of low Vitamin D status. Mr. Atyeo presented food consumption data from the top 12 food groups. In comparison to the 1995 National Nutrition Survey, there was an increase in under-reporting. Ms Baines explained that use of usual intakes of nutrients gives a better estimate of consumption. Females had higher prevalence of inadequate consumption of calcium, iron, folate, thiamin and iodine compared to males. However, she noted that supplements and discretionary salt were not included in survey data which may influence rates of nutrient inadequacy.

Professor Linda Tapsell, Professor Nutrition and Dietetics, Wollongong University presented the implications for Dietary Guidelines. She described how nutrition surveys, nutrient reference values (NRVs) and the national dietary guidelines serve as interdependent tools for use in practice by academics, health professionals, and as a point of reference by the community. The underlying concept is a synergistic relationship between food, nutrients and dietary patterns. Prof. Tapsell highlighted that **Australians can have an 'unhealthy' dietary pattern resulting from over-consumption of foods described as 'discretionary' in the Dietary Guidelines.** Categorizing 'discretionary' foods has been a challenge. In the current

Dietary Guidelines, 'discretionary' foods are described via nutrients; for example, recommendations to limit intake of foods high in saturated fat. This is further complicated by varied patterns in discretionary food consumption, plus varied compositions of these foods. Prof. Tapsell noted that discretionary foods are not necessary in foundation diets; it impedes populations from meeting NRVs needed for optimal health and protection against chronic disease. She suggested that **if Australians continue to have poor diet quality, micronutrient deficiencies are likely to manifest over time as a consequence.** While this alludes to opportunities in improving nutrient densities of discretionary foods, the diet disparity must be addressed to steer Australians towards consuming more nutrient dense foods, and reducing intake of discretionary items.

Professor Samir Samman, Professor Human Nutrition, Otago University, New Zealand discussed the **review of the 2006 Nutrient Reference Values (NRV).** A scoping study to review the NRVs was undertaken in 2011, which determined a **need for a review due to the release of new recommendations by the Institute of Medicine, new research findings, a need for greater methodological rigour and increasing fortification practices.** In 2013, the NRV Advisory Committee was convened to provide advice on the development of a Methodological Framework, and to test the framework with pilot nutrients. The study identified 14 nutrients for review of which 5 were considered a high priority. Expert Working Groups were convened to apply the framework to Sodium, Iodine and Fluoride. The selection of these nutrients was due to the link between sodium intake and increased blood pressure, the introduction of mandatory fortification for iodine, and prevention of dental caries for fluoride. He noted



Speakers at the Seminar: (from left to right) Mr. P. Atyeo, Prof. L. Tapsell, Ms. C. Code, Ms. J. Baines, Prof. S. Samman, Dr. I. Appleqvist, Ms. Holly Jones, and Ms. K. Tikellis

that there is no new evidence to change the recommendations for iodine and the need to consider the upper limit for fluoride due to its link to dental caries and dental fluorosis. He concluded that next steps will include review of the pilot nutrient NRVs by content and process experts, submission to the office of NH&MRC, and then release for public consultation.

Strategies to Reduce Diet-related Chronic Diseases

Ms. Holly Jones, Acting Director Food and Nutrition Policy, Commonwealth Department of Health (DOH), discussed DOH implementation of food and nutrition policies. Data gathered via review of the NRVs and Australian Health Survey (AHS), aligned with the Dietary Guidelines, is used to support the development of consumer-based resources. Such resources include the updated 2013 Australian Dietary Guidelines, infant feeding guidelines and Australia's healthy weight guide. Food supply data also informs the national strategic frameworks for chronic conditions, such as the National Diabetes Strategy, due for public release in 2015. Ms. Jones also discussed **the development and implementation of the food labeling Health Star Rating (HSR) system, aimed at empowering consumers to**

make informed healthy food choices. Currently, over 200 food labels include the HSR system; an evaluation report of the HSR system is due in June 2016. Ms. Jones also discussed the Government voluntary food reformulation program, where progress to-date includes sodium reduction across nine key food categories.

Professor Cliona Ni Mhurchu, National Institute for Health Innovation, Auckland University, New Zealand, discussed **dietary behaviour change and effective ways to promote healthy eating.** She explained that many behaviour change models are simplistic as they often fail to recognize the critical role of the food environment in determining consumer preferences. Prof. Cliona noted that food environment influences food choices and can be challenging for consumers to navigate. The issue is often framed as a dichotomy of individual responsibility versus government action. The evidence for effectiveness of individual approaches to changing dietary behaviour shows that there is a gap between dietary guidelines and consumer behaviour. Evidence on food environment actions, nutrition labeling and economic instruments show that nutrition labeling can be applied across whole populations. Food taxes have potential to reduce purchases of targeted food / drinks and the impact of subsidies on overall diet is unclear. She concluded that **improving a population's diet requires recognition of the reciprocal nature of the interaction between the environment and the individual**

and ultimately requires collaborative action from all responsible parties such as governments, industry and civil society.

Dr. Elizabeth Dunford, Global Database Manager and Research Fellow, The George Institute for Global Health discussed how working with food industry to reduce sodium levels in foods can improve the food supply. Dr. Dunford described how **offering consumers healthier food alternatives effectively steers consumers away from unhealthy foods.** She outlined the role of the Global Food Monitoring Group (FMG) in collating nutrient information for processed foods, aiming to drive national and international food supply improvements. Currently, 31 countries are involved with FMG with 250,000+ branded food items collated in the database. Dr. Dunford discussed the role of advocacy in improving the food environment, to drive changes to policy agenda. She presented an example of salt reduction in fast food chain pizzas following the release of a study highlighting dangerously high salt content in these foods. Advocacy has been important in establishing the Australian Food and Health Dialogue. She introduced the FoodSwitch smartphone application developed to empower consumers to make healthier food choices. FoodSwitch collects nutrition data via crowd sourcing into a central data management system. A new feature of FoodSwitch suggests healthier food alternatives, supported by the Health Star Rating system. Currently, the

FoodSwitch database contains 80,000+ products with plans to release variations of the app, and internationally.

Addressing the Gaps – Actions in Progress

Dr. Geoffrey Anison, Deputy Chief Executive, Australian Food & Grocery Council, discussed how regulatory drag impedes food industry growth and profitability. He highlighted how the **food industry can invest more research and development into creating a healthier food supply**. Dr. Anison emphasized the need for a more streamlined approval process within the regulatory framework, to increase opportunities for product innovation. This would help overcome the current back-log of several food-health relationship claims currently submitted for review under FSANZ claims standard 1.2.7. Dr. Anison also highlighted the discussions surrounding Vitamin D fortification of breakfast cereal as a nutrient content claim.

The next speakers each shared on case studies of food innovations by scientists and the food industry.

Ms. Cindy Code, Scientific and Regulatory Affairs Manager, Mars Food Australia presented a product reformulation program for sodium reduction across the MasterFoods® brand. This involved developing flavour spider charts with CSIRO to ensure product safety, stability and flavour impact were retained while sodium,

sugar, colours and artificial flavours were reduced. A main learning from the salt reduction program was the importance of striking a balance between nutrition and taste for consumers, to avoid poor product sales.

Ms. Leisa Ridges, Scientific Affairs Manager, and Ms. Susan Kevork, Market Nutritionist Manager, Nestlé presented case studies exemplifying the company’s commitment to ongoing research and product development via 13 global nutrition commitments and the Nestlé nutrition profiling system. Recent achievements include the adoption of the Health Star Rating System and improving consumer nutrition intake through increasing the quantity of vegetables recommended on back-of-pack recipes. Nestlé also aims to provide portion guidance on confectionery packs in 2015.

Dr. Ingrid Appleqvist, Senior Scientist and Group Leader for Food Structure, CSIRO Food & Nutrition Flagship, presented CSIRO’s food research to support food reformulation efforts by the food industry to deliver a healthy food supply. CSIRO’s research capability includes a customised Simultaneous Gustometer-Olfactometer which helps build predictive flavour models; taste control technologies; and Smoothed Particle Hydrodynamics to determine food texture integrity. Dr Appleqvist presented CSIRO partnership with Goodman Fielder to design a microbial stability decision support system for better prediction of shelf stability in acidified sauces and dressings as a case study.

After the plenary sessions, the speakers participated in a constructive panel

discussion. On the topic of food rating systems, Prof. Tapsell was careful to emphasize that while rating systems can be tools that empower communities to make healthier food choices, the food environment is an evolving spectrum. Simple, community-centered food-based messages, together with flexibility for these messages to change over time are therefore needed. To alleviate the risk of oversimplifying healthy eating messages and overshadowing naturally healthy foods in favour of processed ones, Dr. Dunford clarified that a wider spectrum of nutrients and defined food categories will eventually be incorporated into the FoodSwitch system.

With regards to product reformulation, there is debate over whether the best strategy for population health, moving forward, was continued investment in product reformulation of processed foods or to drive consumers towards choosing core food groups. Dr. Anison reinforced that product reformulation can be a means of placing healthier product choices within consumers’ reach, and suggested that such foods can continue to be included if consumed in moderation.

The panel of speakers also discussed the methodology of nutrition surveys, and noted that alternative methods of capturing food intake, e.g. via video, may be needed to overcome the increasing trend of under-reporting of food intake. It was suggested that future nutrition surveys should account for the high intake of supplements by Australians, particularly with dose frequency, as a factor impacting nutrition profiles.



Upcoming Activity Highlights

Meetings

Seminar on Maternal, Infant and Young Child Nutrition *July 2015, Myanmar*

The Maternal, Infant and Young Child Nutrition program will be continued with a seminar held in Myanmar this year. The seminar will examine and review the current nutrition and health status of pregnant and lactating mothers, infants and young children as well as current programs and relevant practices in Myanmar, Lao PDR and Cambodia. It will also aim to identify gaps in existing knowledge and programs in these areas, and discuss potential solutions to address these gaps.

9th Seminar and Workshop on Nutrition Labelling, Claims and Communication Strategies *August 2015, Philippines*

As part of its series of seminars on nutrition labelling and claims, the 9th Seminar on Nutrition Labelling, Claims and Communication Strategies will be held in Philippines. The seminar will continue to provide an update on international and regional developments and regulatory changes in nutrition labelling, nutrition and health claims, and related issues in Southeast Asia and other regions. It will also discuss the scientific substantiation of claims, and opportunities and efforts on harmonization of nutrition labelling, such as the nutrition information panels.

Workshop on Food Composition Database *October 2015, TBC*

Food composition data are essential in the assessment of the nutritional value of the food consumed by individuals and populations. They are widely used in the health, agricultural and trade sectors for various purposes such as product research and development, formulation of product recipe, diet therapy and management, quantitative assessment of diets and in the preparation of nutrition labelling. Efforts have been made at the international and regional levels to improve the quality, availability, reliability and use of food composition data. In ASEAN, the International Network of Food Data System (INFOODS) has set up a regional database centre, ASEANFOOD, managed by the Institute of Nutrition, Mahidol University, Thailand to conduct systematic compilation of available food composition analytical data from various sources in ASEAN. Recognizing the importance of having a comprehensive food composition database in the region, the workshop will aim to review the current status of food composition data in ASEAN, identify and address gaps to improve the food composition database.

On-going Research and Collaborative Projects

Validation of WHO Complementary Feeding Indicators against Dietary Intakes of Malaysian Children Aged 6-23 Months

In collaboration with International Medical University (IMU), Malaysia

The research project, which aims to assess the validity of the WHO complementary feeding indicators for use, is currently ongoing in Malaysia. These data have been obtained by collecting the food intakes of 3 days of weighed food records among children aged 6-23 months. The preliminary analysis of the data will be presented during the ILSI SEA Region Annual Meeting on April 9-10, 2015 in Bangkok, Thailand.

Risks and Benefits of Intense Sweeteners: A Survey for Food Experts and Opinion Leaders

In collaboration with Newcastle University (UK) and Universiti Kebangsaan Malaysia

This study, is conducted to investigate the attitudes and perceptions of food, nutrition and public health communicators in Malaysia towards the risks and benefits of intense sweeteners, will allow us to better understand these and other concerns from different sectors of the health and regulatory professionals. Currently, data collected has been completed through survey questionnaires and preliminary findings will be presented during the ILSI SEA Region Annual Meeting on April 9-10, 2015 in Bangkok, Thailand.

ILSI SEA Region Calendar of Activities 2015

| Meetings | | Publications | |
|--|---|---|---|
| Workshop on Total Diet Studies in Indonesia | March 30-31, 2015 Jakarta, Indonesia | Research and Policy to Achieve Healthy Aging in Asia: Recommendations from an Expert Workshop | Published in <i>Open Longevity Science</i> |
| Seminar and Workshop on Food Allergens – Science and Challenges for Southeast Asia | April 7-8, 2015 Bangkok, Thailand | Micronutrient Fortification of Food in Southeast Asia: Recommendations from an Expert Workshop | Published in <i>Nutrients</i> |
| ILSI Southeast Asia Region Annual Meeting | April 9-10, 2015 Bangkok, Thailand | Seminar Proceedings: Adolescent Pregnancy and the First 1000 Days (the Philippine Situation) | <i>Asia Pacific Journal of Clinical Nutrition</i> – In press |
| Training Workshop on Food Fortification, Nutrition Labelling and Claims Regulations | April 23, 2015 Hanoi, Vietnam | Intake of Added Sugar in Malaysia: A Review | Submitted to <i>Asia Pacific Journal of Clinical Nutrition</i> – Undergoing peer review |
| Seminar on Consumer Behaviours | May / June, 2015 Jakarta, Indonesia | Proceedings of the 4 th Expert Consultation and Planning Meeting on Maternal, Infant, and Young Child Nutrition: Nutrition of Pregnant Adolescents in Southeast Asia | Submitted to <i>Malaysian Journal of Nutrition</i> – Undergoing peer review |
| Seminar on Maternal, Infant and Young Child Nutrition | July, 2015 Myanmar | Sodium Consumption in Southeast Asia: an Updated Review of Intake Levels and Dietary Sources in Six Countries | Book Chapter in <i>Preventive Nutrition (5th Ed)</i> – In review |
| 5 th Expert Consultation on Maternal, Infant and Young Child Nutrition | July, 2015 Myanmar | ASEAN Risk Profile on Aflatoxins in Peanuts | On-going |
| 9 th Seminar and Workshop on Nutrition Labelling, Claims and Communication Strategies | August, 2015 Manila, Philippines | Functional Food Monograph | On-going |
| Seminar on Sugar and Sweeteners | Sept, 2015 (TBC) Australia & Singapore | | |
| Seminar on Food Innovation / Renovation | Sept, 2015 (TBC) Thailand | | |
| Workshop on Food Composition Database | October, 2015 TBC | | |
| Conference on Microbial Food Safety and Emerging Pathogens | 2015 TBC | | |

Research & Collaborative Projects

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|--|----------|
| 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 | On-going |
| Systematic Review on Salt Sensitivity: Is there a Genetic Pre-disposition that Predicts Cardiovascular Disease Risk? <i>In collaboration with CSIRO, Australia</i> | On-going |
| Estimation of Sodium Intake among Filipinos and their Sources in the Diet <i>In collaboration with Food and Nutrition Research Institute (FNRI), Philippines</i> | On-going |
| 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> | On-going |
| 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 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 Food and Nutrition Research Institute (FNRI), Philippines</i> | On-going |
| 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> | On-going |
| Nationally-representative Survey of Thiamine Deficiency in Cambodia for Infants and Pregnant Women <i>In collaboration with UNICEF Cambodia and MAFF, Cambodia</i> | On-going |
| Vitamin D Status and its Correlates among Pregnant Thai Adolescents <i>In collaboration with Mahidol University, Thailand</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 |
| Food Composition Tables: Review of Status in ASEAN Region | On-going |
| 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 US National Institute of Aging, University of North Carolina, Northwestern University, University of Maryland, University of San Carlos</i> | Planned |
| Scoping Review: Status of Published Data on Maternal Nutritional Status and Micronutrient Deficiencies in 10 ASEAN Countries | Proposed |
| Review on Mycotoxins Status and Stunting | Proposed |
| Food Consumption Data: Sources and Methodologies in the SEA Region | Proposed |



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