

Science InSight

News and Updates on Nutrition, Food Safety and Health



Infant and Young Child Nutrition The First 1000 Days **Micronutrient Fortification of Foods** Importance for Public Health in Asia **Mycotoxins** Challenge for Food and Feed Safety in Southeast Asia **Managing Allergens in the Food Chain** Emerging Concern in Southeast Asia **Sweeteners** Safety Assessment and Use in Health and Diet

From the Executive Director



2013 marks our branch's 20th year of establishment in Southeast Asia and 30th year in Australasia. As the saying goes, we have come of age! We are proud to achieve these milestones by building strength through our scientific programs and embracing partnerships and collaborative efforts in an expanded geographical region throughout Asia Pacific.

Over the past year, we have revisited some of the key initiatives that we have pioneered – micronutrient fortification of food; and maternal, infant and young child nutrition. At a conference organized in the Philippines in 1996, the utilization of food-based strategies to improve the nutritional profile of our food supply, through research and implementation of fortification programs of condiments, staples and processed food, was first mooted at. This led to the formation of Project IDEA (Iron deficiency Elimination Action) by the ILSI Center for Health Promotion to address iron deficiency anaemia. We continue to support several national food fortification programs in Southeast Asia. In 1998, we spearheaded regional and multi-stakeholders discussion and studies on nutritional requirement during the critical period of the first 1,000 days for child development, and this led to the formation of the ILSI SEA Region Infant and Young Child Nutrition Expert Group that seeks to establish status and address relevant scientific gaps in child nutrition and health within the region.

Recognizing that food supplies are increasingly moving across multiple borders, in 2000 we initiated the first of a series of tripartite platforms for ASEAN members to discuss science and regulatory issues related to the scientific substantiation of claims and consumer education through food labels, as well as the harmonization of food safety standards for food additives that impact food producers, government agencies and consumers alike.

Our monthly NewsFlash and bi-yearly newsletter Science InSight offer a glimpse of our various programs and activities at regional and country levels. As new science develops and sheds light on health and diseases, we stand ready to broaden our coalition with new partners across Asia Pacific to harness new methodologies and research findings. These include advances areas such as genomic and metabolomic sciences, risk assessment knowledge and application, and biotechnology for the improvement of food supply. ILSI SEA Region has, in 2013, kick-started several research initiatives, for which we look forward to sharing the outcomes in the next one to two years. We are also ready to embark on new directions at the completion of our 2nd Strategic Plan currently being finalized. We look forward to taking on new emerging issues and challenges, and reaching new heights as a scientific organization in the coming decade.



Boon Yee Yeong
Executive Director
ILSI Southeast Asia Region

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ILSI SEA Region Celebrates 20 Years of Science and Partnerships for Public Health

In 2013, ILSI Southeast Asia Region celebrates its 20th Anniversary. Since it was established in 1993, ILSI SEA Region has been at the forefront of addressing the most pressing public health issues relevant to the Southeast Asia and Australasia regions. These include micronutrient deficiencies, maternal and infant health, childhood obesity and physical activity, as well as food safety and food security for all. Over the past two decades, ILSI SEA Region has enhanced scientific cooperation and understanding by building strong partnerships and collaborations with government, industry and academia. This tripartite framework has allowed us to achieve our mission to provide top level science to improve public health and wellbeing.

Marking this important milestone, the ILSI SEA Region Annual Meeting was held in Singapore in April 2013 and attended by ILSI Members, Scientific Advisors, Country Coordinators and Branch Staff. After the President's Address by Mr. Geoffrey Smith, Mrs. Boon Yee Yeong, ILSI SEA Region Executive Director gave a special 20th Anniversary presentation highlighting 20 years of scientific partnerships including the milestones and achievements throughout this time. Heartfelt speeches were given by past president Mr. Howard Delaney, Co-Vice President Ms. Sushila Chang, Scientific Director Dr. Corazon Barba and ILSI Japan Centre for Health Promotion Director Mr. Takashi Togami.

In acknowledgement of the outstanding service and invaluable contributions made by ILSI SEA Region's Executive Director since the branch's inception, the Recognition Award for 2013 was presented to Mrs. Boon Yee Yeong. Mrs. Yeong has earned the distinction of the longest-serving Executive Director within the global ILSI organization and has steered the branch through its many milestones, including the branch's regionalization in the year 2000 to embrace an expanded geographical presence that includes the 10 ASEAN countries and Australasia. Always keeping herself at the forefront of scientific advancements in nutrition and food safety, Boon Yee has worked



Mr. Geoffrey Smith, President, ILSI SEA Region and Mrs. Boon Yee Yeong, Executive Director, ILSI SEA Region, cutting the 20th Anniversary cake

closely with ILSI SEA Region's members, scientific advisors and partners to shape and define the branch's scientific agenda and programs. With a clear vision of ILSI's important role in contributing towards the improvement of public health in the region, she has initiated many pioneering programs and activities on issues for which ILSI SEA Region has been recognized, such as functional foods, maternal and child health, childhood obesity, nutrigenomics, food safety and risk assessment. Dr. Jerry Hjelle, President of ILSI, sent a congratulatory message to mark ILSI SEA Region's 20th Anniversary: "Boon Yee deserves special recognition for her 20 years of service to ILSI Southeast

Asia Region. She is the longest serving branch executive director, a record that will be very difficult to beat. She is the epitome of an ILSI staff leader – a builder, a person with whom others want to work, a competent decision-maker with excellent interpersonal skills and personal integrity, and a wonderful human being."

Looking forward, ILSI SEA Region will continue to strengthen our scientific capability, expand our scientific network, and remain responsive to challenges and opportunities, in order to benefit our stakeholders and communities at large.



1993 - 2013
ILSI SEA Region

ILSI SEA Region Celebrates!



ILSI SEA Region's 20th Anniversary Scientific Symposium

As part of its 20th Anniversary celebrations and in conjunction with its Annual Meeting held in April 2013, ILSI SEA Region organized a 20th Anniversary Scientific Symposium with the theme **"Perspectives and New Horizons – Food and Nutrition Sciences for the 21st Century"**.

Over the past 20 years, the science of food and nutrition has advanced rapidly. Research in nutrigenomics is helping us to understand the basis for individual responses to dietary factors. Studies have increasingly shown that nutrients and foods, together with the gut microbiota, can interact with the genome causing marked changes in gene expression, as well as the development of and response to diseases. This new knowledge is expected to impact the development and implementation of dietary guidelines. Their design would, in the future, need to reflect the best diets and available foods that optimize personal health. Novel foods will likely be developed to meet the new demand for personalized diets, and this in turn requires new technologies and measures to ensure the sustainability and safety of our food supply.

Turning the spotlight on these interesting issues, ILSI SEA Region invited a panel of eminent scientists and experts to present their latest research and share their knowledge.

The first speaker, Dr. Jim Kaput, Nestle Institute of Health Sciences, Switzerland, presented on the **Gene-Nutrient Interaction – Challenges and Opportunities for Personalized Nutrition**. Dr. Kaput emphasized that individuals are genetically and biochemically distinct and that gene – environment interactions caused by unique dietary and lifestyle factors contribute to heterogeneity in physiologies observed in human studies. He contended that the risk factors determined for populations cannot be applied to the individual. Developing individual risk or benefit factors in light of the genetic diversity of human populations, the complexity of foods, culture and lifestyle, and the variety of metabolic processes that lead to health or disease are significant challenges for personalizing dietary advice for health or medical treatments for individuals with chronic disease. Following Dr. Kaput's presentation, Professor Barry Halliwell, National University of Singapore, Singapore, presented on **The Wanderings of a Free Radical – Assessing Antioxidants and Their Impact on Health and Disease**.

Prof. Halliwell noted that oxygen free radicals and related 'reactive oxygen species' are fundamental to healthy life; they help drive evolution, and the damage that they can do ('oxidative damage') is involved in most, if not all, human diseases and in the aging process. He highlighted their role in atherosclerosis and neurodegeneration and noted that reactive oxygen species can cause harm whilst playing important pathophysiological roles. Prof. Halliwell discussed reasons for the lack of effectiveness of antioxidant supplements in decreasing risk of disease in some intervention studies, and strategies on how to minimize oxidative damage in the human body.

Professor Yuan Kun Lee, National University of Singapore, Singapore, next presented **Beyond Gut Feelings – Findings from the 10-City 'Asian Gut Microbiome' Project on School Children**. Prof. Lee noted that gastrointestinal microbes play important roles in the health and disease of the host, with evidence demonstrating that disturbance of intestinal microbiota is linked to the risk of developing infectious, inflammatory and allergic diseases. He noted that while it is of great interest to characterize both composition and succession of the intestinal microbiota, most studies to date have been conducted in the West and Africa, with very different dietary and cultural habits from those of Asia. Prof. Lee contended that since diet is a major factor in determining intestinal microbiota population, it is expected that basal microbiota profile among Asians is different from that of Western and African populations, and that may partly explain the differences in susceptibility to different diseases. He then presented findings from the **Asian Microbiome Project**, which was initiated to examine the microbiota profile among 360 healthy children aged 8-9 years in 10 Asian cities (across 6 countries) as a pilot study to provide background for further prospective studies of disease populations and age groups. Results from the project suggested that intestinal microbiota in Asian children can be differentiated into two major cluster types and three sub-clusters, typical of the Japanese, Chinese and Indonesian-Thai populations, showing an association with dietary habit.

The following two speakers presented on the science and strategies involved in developing dietary guidelines.



Dr. Jim Kaput, Nestle Institute of Health Sciences, Switzerland

The first speaker, Dr. David Roberts, Roberts Consulting, Australia, gave a presentation on **Dietary Guidelines – Scientific Process and Lessons Learnt in the Past Decade: Australia and US Perspectives**. Dr. Roberts noted that dietary guidelines are for populations and need to be based on the best available evidence of the time for the population for which guidance is provided. However, he noted, dietary guidance is provided for foods, although the evidence base for diet-related disease often refers to nutrients that offer benefit/risk for the population under study. Dietary guidance needs to take into account what is available in the country's food supply, while striving to improve health outcomes, and should also be practical in order to ensure the population is willing to move towards that guidance. Lastly, he noted that effectively communicating guidelines in clear and simple terms has often failed in past attempts, with few in the Australian and US population following their country's dietary guidance. The 2013 revisions to the Australian Dietary Guidelines used evidence-based reviews to inform the revisions, consulted key stakeholders on the draft version released in 2011, and included a communication plan for the final release. Future revisions will need to build on this base and include advice from the behavioral sciences on how to best have this guidance adopted by a majority of the population.

Following on from Dr. Roberts' presentation, Professor Geok Lin Khor, International Medical University, Malaysia, presented **'Dietary Guidelines – How Effective and What Strategies for Southeast Asian Populations in Nutrition and Lifestyle Transitions?'**. Prof. Khor discussed the development and implementation of food-based dietary guidelines (FBDGs), which were initiated by the World Declaration and Plan of Action for Nutrition, and adopted at the International Conference on Nutrition in

1992. This call for the establishment of national FBDGs was a shift in nutritional advocacy from an emphasis in dietary recommendations based on nutrients to foods. As people understand and eat foods and not nutrients per se, it was believed that FBDGs could better influence the general public to comply with the contents for health improvement. Prof. Khor gave some examples of FBDGs and noted that the significance of the FBDGs contents has been boosted over the years given the escalation of diet-related non-communicable diseases globally. However, the effectiveness of the FBDGs in bringing about health benefits of populations has been questioned in various platforms, and remains challenging to persuade an entire population to fit into a 'one-size fits all' FBDG. Countries in the Southeast Asian region are at different stages of nutrition and lifestyle transitions, and hence, their FBDGs need to be appropriately tailored to encompass nutritional priorities of the country. Toward this end, FBDGs for different groups, including young children and adolescents, have been developed in some countries. Prof. Khor maintained that the FBDGs should reach wider targets including small/medium businesses and street food vendors, and that communication of FBDG messages could be rendered more effectively with contributions by behavioral scientists and celebrities. Globalization and consumer preferences impose demands on FBDG stakeholders to be more responsive and innovative.



Professor Geok Lin Khor, International Medical University, Malaysia

Finally, Professor Purwiyatno Hariyadi, Bogor Agricultural University, Indonesia, presented '**Beyond 2015: Harnessing New Technologies for Sustainable and Safe Food Supply for the ASEAN Community**'. Prof. Hariyadi noted that the year 2015 is a critical year for ASEAN, set as the start of ASEAN economic integration. The ASEAN Economic Community was designed to have integrated industries, including food industries, significantly changing the way international food trade operates in the ASEAN region. From sustainability and food safety perspectives, these changes require ASEAN to respond appropriately, especially with the emergence of new food processing,

handling, and marketing technologies. Scientific approaches and parameters for establishing the equivalence of many alternative technologies in terms of their sustainability and safety are critical. Prof. Hariyadi reviewed several new alternative processing technologies and how their impact on food sustainability and safety can be assessed. He remarked that the ASEAN community not only needs to harness new technologies for better sustainability and safer food supply; but to recognize the importance of balancing food safety/sustainability and food security; especially in the ASEAN context.

ILSI Celebrates 30 Years in Australasia

ILSI began in Australasia in 1983 and this year it is celebrating its 30th anniversary. Over the last 30 years, the branch has covered a broad range of topics, from the small to the large – nanotechnology to obesity – and looking at caffeine, iodine, salt, fats and polyphenols among others. A number of issues, such as allergens, legislation, carbohydrates and health claims, have been revisited over this period to update industry and the community on the latest current evidence. It is recognised that ILSI helps provide the science to support and provide a forum for consensus on dietary recommendations, often in the areas where there are no government dietary guidelines, such as for omega 3's, whole grains.

In the year 2000, ILSI Australasia joined the Southeast Asian branch of ILSI to form ILSI SEA Region, now one of ILSI's larger branches that cover the 10 ASEAN countries as well as the Australasia region that includes Australia, New Zealand and the Pacific Islands.

ILSI SEAR Australasia's members have always worked enthusiastically towards the goal of having good evidence-based information upon which to make recommendations to take back into their organizations. The impact on policy may have been minor but consistent in that government representatives have always been willing to attend and on occasions present at ILSI events as well. The ILSI program ensures that ILSI members stay abreast of emerging areas of interest, such as polyphenols or gain knowledge and tools to create change, as for example in best practice in reducing salt content of foods.

In recent years, a number of events have included a call to action in considering optimum health & nutrition for Australian and New Zealand populations – i.e. iodine, vitamin D or the role of carbohydrates.

ILSI SEAR Australasia would like to thank its members, academic trustees and administrative staff over the last 30 years for their dedication and assistance in developing ILSI in the region.



Infant and Young Child Nutrition – The First 1000 Days

It is now known that good nutrition during the 1000-day period between the start of a woman's pregnancy through to her child's second birthday lays the foundation for a healthy and productive future, both for the individual child as well as the entire country. Malnutrition during this critical period results in irreversible physical and cognitive impairments that prevent children from achieving their full potential.

The *'Seminar on Infant and Young Children – The First 1000 Days'* held in Manila, Philippines on September 3, 2013, organized by ILSI Southeast Asia Region together with the Food and Nutrition Research Institute (FNRI) Philippines, examined the current nutrition and health status of and programs for adolescent females, pregnant and lactating women and their implications on the health of infants and young children from birth up to age 2 years. The seminar, attended by over 100 public health and nutrition professionals, also identified gaps in existing knowledge and programs in this area using a continuum of care perspective.

The seminar commenced with an **overview of the significance of the first 1000 days of life**, presented by Dr. Jossie Rogacion, University of the Philippines (UP) College of Medicine. Maternal undernutrition affects the status of the fetus and newborn, who grow into undernourished children, who in turn grow into undernourished mothers, thus perpetuating the intergenerational cycle of malnutrition. Dr. Rogacion reiterated the now well-known link between growth retardation in the early days of life and adult lifestyle diseases such as cardiovascular disease, hypertension, stroke and Type 2 diabetes, with their dire consequences not only for the individual but to society at large. She underscored the use of stunting as an important parameter to assess the impact of early nutrition on child health, morbidity and mortality, or linked to long-term effects on intelligence and productivity in later life. Dr. Rogacion concluded by summarizing global recommendations to improve nutrition during the first 1000 days, starting with breastfeeding and adequate complementary feeding.

Focus on Adolescent Girls

This Panel Discussion, moderated by Dr. Iris Dando, UP-Philippines General Hospital (PGH), focused particularly on **adolescent pregnancy**. Dr. Rosa-Maria Nancho, UP-PGH, began by citing the high prevalence of teenage pregnancy in the Philippines compared to neighboring countries and went on to emphasize the increased nutritional needs of the non-pregnant adolescent as it parallels her continuing growth. However, she noted, there remains some controversy as to whether adolescent mothers continue to grow during pregnancy, but at any rate, growth slows down, and the greater the amount of uncompleted growth at conception, the greater is her nutritional need during this period.

Dr. Nancho highlighted important concerns for the pregnant adolescent, including incorrect perceptions of food and nutrition and poor eating behaviors; high prevalence of malnutrition, and increasing prevalence of overweight and obesity; adapting to physical changes due to the developing fetus: the 'dual developmental crisis', and dealing with the psychological issues of being pregnant at such a young age, with a tendency to hide pregnancy. Dr. Nancho identified gaps in knowledge and interventions for this group which included the ability to understand the adolescent frame of mind and evaluate adolescents' responses and ideas. She outlined two local initiatives for teenage pregnancy, namely the Friendly Adolescent Pregnancy Network and the UP-PGH Teen Pregnancy Prevention Program. The latter program includes

abstinence promotion, contraceptive education, sexuality education, school completion strategy, medical and psychosocial counseling and health education. Finally, Dr. Nancho offered some recommendations including the establishment of more adolescent-friendly health centers and to improve the knowledge and skills of adolescents. She also identified some areas where further research is required, such as the nutritional status, psychosocial factors and relational context of the adolescent and addressing psychological factors.

The **rapid rise in teenage pregnancy in the Philippines** in the last decade was highlighted by Dr. Virginia Abalos, Chong Hua Hospital, who labeled it the "Big problem; Small solution". Dr. Abalos stated that teenage pregnancy is faced with higher maternal and perinatal mortality, high relative risk in maternal outcome, including anemia and Low Birth Weight (LBW), and their long-term consequences. She then described the demographic and clinical profile of teenage mothers in Cebu City, where there is a high rate of high school drop-out and 80% of adolescents living below the poverty line. Adolescents currently receive no formal sex education and have a high rate of unplanned/unwanted pregnancy, often leading to abortion, and low-skilled birth attendance and poor antenatal care. Dr. Abalos recommended that early pregnancy be prevented through the school education system including providing sex education and contraceptive counseling, and the increased use and improvement of prenatal, postnatal and child care for adolescents.

Dr. Emily Flores, UP-Manila, discussed the **importance of proper nutrition**



Faculty and Organizers – Seminar on Infant and Young Child Nutrition: The First 1000 Days, Manila, Philippines

in adolescent girls to prepare them for pregnancy. Long term exposure of the adolescent to unhealthy diet from childhood could program their offspring to cope with an energy-poor and micronutrient-deficient environment, which could lead to chronic disease later in life, not to mention psychosocial problems and poor dietary habits, as influenced by social norms. She summarized the nutritional and food needs before, during and beyond teenage pregnancy in terms of macro- and micronutrients, fatty acids, sodium and sugar, as well as highlighting an increased requirement for energy, protein, iron and calcium. In addition to dietary guidance for all adolescents who are at risk of pregnancy, she recommended individualized and comprehensive dietary counseling for the pregnant adolescent for optimal birth outcome, through access to teen-friendly clinics, and a teenage pregnancy wellness program.

Focus on Pregnant and Lactating Women

The **nutritional status of pregnant women in the Philippines** was summarized by Dr. Ditas Decena, University of Santo-Tomas. She noted that apart from undernutrition, there is also a high prevalence of overweight among mothers and lactating mothers, resulting in increased risk of delivery

problems. She observed an improving trend in some nutritional elements of pregnant women, but some problems still remain, such as anemia and iodine deficiency. She pointed out that while the Millennium Development Goal (MDG) 5 target is 52 maternal deaths per 100,000 live births, the official country estimate is 162 maternal deaths per 100,000 live births, or 7 women dying every 24 hours. It is obvious that much has yet to be done, and Dr. Decena recommended pursuing micronutrient supplementation, nutrition education and immunization for pregnant and nursing women, and raising the quality and coverage of anti-natal, pre-natal and post-natal services, emphasizing the important role of health care professionals, including obstetricians and pediatricians, working in collaboration with other health care professionals. Dr. Decena concluded that addressing the nutritional status of pregnant women is the best approach to break the cycle of malnutrition in the Filipino population.

Dr. Juanita Basilio, Family Health Office, Department of Health (DOH), Philippines, summarized the **nutrition and health situation of Filipino pregnant women**, noting that there has been no significant change in the past 15 years, and emphasizing that the previous decline in maternal mortality was in fact reversed from 2006 to 2011. She summarized the strategy issued by the DOH for rapidly reducing maternal and neonatal deaths

through the provision of a package of maternal, newborn, child health and nutrition (MNCHN) services. With this population-wide strategy, it is hoped that every pregnancy is planned, wanted and adequately supported, and that every delivery is properly attended to, with every mother and newborn receiving proper post-partum and newborn care. Dr. Basilio noted that a major challenge remained, namely lack of human resources, tools and materials for assessment of nutritionally at-risk pregnant women. She recommended that maternal nutrition be put on the agenda of local and national government and that more research be conducted on maternal malnutrition, including a search for interventions with evidence of impact, and the effectiveness of strategies for collaboration with private sector.

The **need for a strong Maternal and Child Health (MCH) program** was emphasized by Dr. Grace Agrasada, UP College of Medicine, underscoring the demanding task of mothers in taking care of their children. She noted however, that up to this time, both the MCH program and child nutrition programs do not adequately provide the full support for the mother to address this task. She then went on to highlight ways in which these support programs could be strengthened to address the gaps in research and interventions. Dr. Agrasada highlighted areas where more needs to be known, including

effective services in preconception; effectiveness of interventions leading to universal policy changes (stunting) and long term benefits of breastfeeding on nutrition and health outcomes.

Focus on Infants and Young Children

Dr. Mario Capanzana, FNRI, summarized the **results of the National Nutrition Surveys of 2008 and 2011 pertaining to infants and young children**. Undernutrition remained the major concern, although overweight and obesity was noted to be increasing, albeit at a low level. LBW, underweight and wasting remained high, but what stood out was the significant increase in stunting. However, there was some improvement in the incidence of anemia, vitamin A deficiency and iodine deficiency. Some provinces in Luzon showed high prevalence of malnutrition, with the highest prevalence occurring in Visayas and Mindanao. Dr. Capanzana discussed factors that were found to be associated with the malnutrition problem, particularly socio-economic factors such as income, and highlighted important challenges in meeting the MDG goals, along with some possible solutions and interventions to combat this problem such as investigating interventions that could be scaled up to a national level.

The mechanism behind Barker's hypothesis on fetal programming now called the **'Developmental Origins of Health and Disease' (DOHaD)** was examined by Dr. Judith Borja, University of San Carlos, Cebu. Research indicates that fetal undernutrition increases the risk of poor adult health outcomes, as systemic changes in the fetus from poor maternal nutrition affects the capacity to handle excess weight or over-nutrition in later life. Dr. Borja reviewed a number of studies that illustrated the mechanism behind Barker's hypothesis including how maternal and fetal nutrition influence the risk of cardiovascular disease, and the effect of maternal nutrition on LBW, leading to increased risk of hypertension and Type 2 diabetes. Another mechanism being proposed is the so-called phenotype change: physiological changes in the fetus from undernourished mothers are attributed to developmental plasticity. Dr. Borja discussed the initial stages of the Cebu Longitudinal Health and Nutrition Survey, starting in 1983 and the subsequent findings gathered up to this time when the newborn subjects from 1983-84 are now young adults, particularly the close association of fetal programming to hypertension and Type 2 diabetes. She also described the 5-country COHORTS study which demonstrated



Dr. Mario Capanzana, Director, Food and Nutrition Research Institute, Philippines

the association between birth weight and blood pressure. She summarized her discussion with key take-home messages arising from these studies, including the significance of lowering the prevalence of LBW, promoting effective programs before and during pregnancy, the need to continue the monitoring of LBW infants through adulthood, and the role of proper infant feeding in the developmental origins of health and disease.

Ms. Loida Sevilla, PLAN Philippines, outlined the **objectives and projects of PLAN Philippines**, a subsidiary of PLAN International. PLAN Philippines is avidly pursuing the major strategies of the Philippine Nutrition Plan – in partnership with local government and community partners. Dr. Sevilla described their efforts to bring proper nutrition knowledge to mothers, to increase the practice of breast feeding, and to improve feeding practices of children in villages where PLAN operates. For example, PLAN Philippines supports the implementation of community-based nutrition-specific interventions through the Healthy Start program, including a breastfeeding campaign with the participation of mothers and their husbands, nutrition education in the form of 'Pabasa sa Barangay', 'Pabasa sa Nutrisyon' and 'Pabasa sa Buntis', small scale food production, and Garantisadong Pambata, all part of their 'CCDDA' – Child Centered Community Development Approach. Finally, she pointed to the need for more community support groups, milk code education, and group counseling in infant and young child nutrition.

The issue of **health equity** in its many facets was addressed by Dr. Anthony Calibo, National Center for Disease Control and Prevention, DOH. Health equity is concerned with differences in health services and outcomes in a population. This requires data disaggregated into social, demographic, economic, and geographical factors to identify targets for equity-based intervention, and to track down outputs. Health equity is also

concerned with how equal the treatment is in various groups of the population. This requires data that are disaggregated into levels of need of various population groups in the same circumstances. Dr. Calibo showed data depicting the disparities in many aspects of maternal health care, neonatal mortality, etc. He emphasized that understanding the wide variations and gaps in coverage and the quality of care among these population groups will enable planners and policy makers to "re-calibrate" their strategies for optimum effectiveness. Finally, Dr. Calibo summarized several gaps in knowledge and interventions to attain the health related MDGs. He pointed out some steps that are required: identifying target areas, operationalizing a Maternal Nutrition and Child Health Network at local government level, and building a high level of good governance.

The seminar concluded with a **synthesis** presented by Dr. Cecilia Acuin, Public Health and Nutrition Consultant. She outlined a 'Problem Tree' developed using key learnings from the seminar, starting with 'Maternal Nutrition' at the center, and building up to the consequences of poor maternal nutrition, from LBW to high rate of childhood mortality, and at the same time depicting the root causes of maternal undernutrition, from risky behavior and teenage pregnancy, to lack of priority and political will. She then described a 'Solution Tree', building on from the 'Problem Tree', and starting from reducing LBW, all the way to increasing resources and advocating for an increase in priority and increased political will for maternal, infant and young child health and nutrition. Finally, she provided recommendations for intervention areas and approaches, most importantly, an integrated comprehensive health care delivery system and access to services and resources, together with 6 health care system components, from governance and leadership to interagency collaboration.

Micronutrient Fortification of Foods: Importance for Public Health in Asia

Micronutrient deficiencies continue to present a significant challenge to public health throughout Asia, particularly in vulnerable groups such as pregnant women and young children. The fortification of common foodstuffs with micronutrients is an on-going strategy adopted by governments in collaboration with NGOs and the food industry to address this issue. Micronutrient fortification initiatives in Southeast Asia are evolving as regulations and technologies surrounding fortification evolve, and there remains a wide diversity in fortification levels, food vehicles, and level of regulatory control, with the actual status of micronutrient deficiencies in some countries in Asia not well established.



Keynote Speaker Dr. Emorn Wasantwisut, Institute of Nutrition, Mahidol University, Thailand

ILSI SEA Region recently held two scientific meetings that examined the issues surrounding micronutrient fortification. The **Regional Conference on Micronutrient Fortification of Foods** was held on October 10-11 in Bangkok, Thailand and was organized together with the Food Science and Technology Association of Thailand (FoSTAT). The conference, attended by over 100 participants from around the region, representing academia, industry and NGOs, brought together a panel of leading experts in the field of micronutrient fortification. The objectives of the 1 ½ day conference were to provide an update

on micronutrient status in Southeast Asia; address issues related to the micronutrient fortification of foods, including benefits, challenges and regulatory considerations; and provide an update on the status of and discuss future strategies for micronutrient fortification programs in Asia.

The conference commenced with a welcome address from Mr. Geoffrey Smith, President, ILSI SEA Region and Mrs. Darunee Edwards, President, FoSTAT, and was followed by two keynote presentations. Dr. Emorn Wasantwisut, Institute of Nutrition Mahidol University (INMU), Thailand, quantified the impact of malnutrition worldwide and outlined several global and regional advocacy efforts now in place to combat micronutrient malnutrition. One such program, the Scaling up Nutrition (SUN) Movement, involves a global network of stakeholders in support of the alignment of specific nutrition actions, including food fortification, to achieve public health targets.

The overall framework of micronutrient fortification and its importance in Asia was presented by Dr. Regina Moench-Pfanner, Global Alliance for Improved Nutrition (GAIN), Singapore. Dr. Moench-Pfanner highlighted the nutrient gap experienced by the lowest socioeconomic groups in Asia due to unaffordability of a diversified diet, noting that fortification of staple foods and condiments provided a cost effective solution to this issue. She emphasized that food fortification programs require an established framework with a specific public health objective, and that public/

private/civil society partnerships should be engaged with shared responsibilities.

The micronutrient status of vulnerable groups in Southeast Asia, including young children and women of reproductive age, was presented by Dr. Pattanee Winichagoon, INMU, Thailand. Dr. Winichagoon noted that although severe deficiencies have subsided, a mild to moderate level of deficiency remains, in particular iron deficiency. Recent evidence suggests possible deficiencies of folate, Vitamin D and zinc, however data is insufficient or the deficiency is difficult to define. Deficiency is now occurring concurrently with overweight and obesity, particularly in young children, due to rapid social and economic development in many countries. There is some evidence to show a negative correlation between BMI and iron metabolism in women and poorer response to iron supplementation in children.

Definition, Benefits and Challenges

There are a number of critical steps in any large-scale food fortification strategy. Dr. Arnaud Lailou, UNICEF, Cambodia, outlined these steps, including defining micronutrient gaps in the target country, obtaining industry and government support, choosing the right food vehicle and selecting the right micronutrients and appropriate dosage, as the quantity of food consumed should be sufficient to allow a critical level of nutrient intake.



Speakers and Organizers, Regional Conference on Micronutrient Fortification of Foods 2013

Additional considerations include cost, quality and safety. Finally, he noted the need for commitment by stakeholders to monitoring and compliance of food fortification programs.

Dr. Corazon Barba, University of Philippines, Los Banos, Philippines, presented the history and challenges faced in the Philippines in the development of food fortification. Major progress occurred in the 1990's when government agencies, NGOs and industry came together to address micronutrient deficiency, launching the national salt iodization program in 1995, later becoming a National Act. The Sangkap Pinoy Seal (SPS) was then developed as a seal of recognition appearing on the packaging of fortified foods. After reviewing the National Nutrition Survey of 1998, the Philippines government launched the Food Fortification Strategic Plan which encouraged public-private partnerships and resulted in the mandatory fortification a number of staple foods.

The special case of complementary foods was presented by Dr. Frank Wieringa, Institut de Recherche pour la Développement (IRD), Cambodia. Dr. Wieringa highlighted

the impact of stunting in children, which is associated with 15-17% of all child deaths in low to middle income countries. He presented research indicating that whilst micronutrient powders are effective at improving micronutrient status, they have little effect on overall growth. In Cambodia, research has shown that a 'complete' fortified complementary food with an animal protein component can improve both micronutrient status and reduce the prevalence of stunting by providing energy, protein and micronutrients.

The important role of the food industry in micronutrient fortification was emphasized by Dr. Jorg Spieldenner, Nestle Research Center, Switzerland. Dr. Spieldenner contended that market-driven food fortification provided several benefits, with the food industry being able to assist with consumer acceptance (taste, food habits), quality control and food safety, and provide a sustainable business model.

Regulatory and Ethical Considerations

Regulatory status of micronutrient fortification of foods in Southeast Asia was outlined by Dr E-Siong Tee, TES NutriHealth Strategic Consultancy, Malaysia. Dr. Tee noted that voluntary fortification with vitamins and minerals is permitted in most countries in Southeast Asia, with considerable differences in approach in regulating, such as the food vehicle, micronutrient form, minimum and maximum levels and claims permitted. Mandatory fortification of salt with iodine is present in all 10 ASEAN countries, and in addition mandatory flour fortification with iron is in place in Indonesia, Philippines and Vietnam, and sugar and cooking oil with Vitamin A in the Philippines.

Dr. Mark Lawrence, Deakin University, Australia, next discussed mandatory fortification and its ethical considerations. He proposed four priority policy suggestions, namely conceptualizing the cause of the policy problem; strengthen the evidence and ethical base for all policy options; use nutrition education as a complementary strategy to food fortification and establish an effective monitoring and evaluation system.

Case Studies from Asia

The large-scale fortification of palm oil with vitamin A in Indonesia was presented by Dr. Drajat Martianto, Indonesian Nutrition Foundation for Food Fortification (KFI), Indonesia. The key success factors in taking this project from pilot to large-scale were political will from all stakeholders, a strong evidence base, sufficient regulation to support mandatory fortification, economic feasibility and a demonstrated benefit for industry, and continued support from government, NGOs and donors.

Dr. Junsheng Huo, China Center for Disease Control, China, then presented a case study on the development of YingYangBao (YYB) in China – a soybean powder-based nutrient dense complementary food used in a 1.5 year intervention program targeting infants aged 6-23 months. Consumption of YYB significantly decreased rates of anemia and stunting prevalence and significantly reduced morbidity due to diarrhoea. Dr. Huo emphasized the strength of the social marketing campaign implemented as part of the YYB project and the significant commitment by government, which allowed scaling up of the project.

The development of national nutrition guidelines in Vietnam was outlined by Dr. Le Thi Hop, National Institute of Nutrition (NIN), Vietnam. Deficiencies of vitamin A, iron, zinc and iodine remain in Vietnam, and although many programs target these deficiencies, they were not well integrated or regulated. The Vietnamese government subsequently developed the 'National Nutrition Strategies for 2010-2020', with a focus on reduction of stunting and the prevention and control of micronutrient deficiencies. The 'National Guidelines for Micronutrient Deficiencies Control' developed as part of these national strategies, aims to increase coverage of programs to improve micronutrient status; develops standards for national programs and provides reference materials that aid health care professionals.

Ms. Theary Chan, Reproductive and Child Health Alliance (RACHA), Cambodia,



Keynote Speaker Dr. Regina Moench-Pfanner, Global Alliance for Improved Nutrition, Singapore



presented an update on the iron fortification with fish sauce, soy sauce and Vitamin A fortification of oil project in Cambodia, undertaken by RACHA in collaboration with the National Subcommittee for Food Fortification. A comprehensive social marketing and advocacy campaign was implemented at the grass-roots and national levels, with political commitment from government and development partners as well as participation from the private sector, local authorities and communities.

Emerging Issues in Food Fortification

A number of micronutrients, beyond those commonly referred to as the 'Big 5' – Vitamin A, Folic Acid, Iodine, Iron and Zinc, are of emerging interest for public health. Mr. Geoff Smith, Essential Micronutrients Foundation, Singapore, presented research indicating that public health measures including fortification may be appropriate for Vitamin D in Southeast Asia, with two countries reporting nationally representative data indicating significant levels of Vitamin D deficiency. Mr. Smith also presented research showing the importance of Vitamin K, in particular Vitamin K2, in bone health, vascular integrity, energy metabolism and brain function.

Mr. Pablo Perversi, Unilever, Singapore, gave an industry perspective on how to communicate the benefits of fortified foods to ensure they reach the target population. He emphasized the importance of complementary nutrition education on the benefits of micronutrients, the correct positioning of the products with consumers, and building awareness through multiple communications channels, including social media. Mr. Perversi presented some

examples of how fortified products were currently being promoted in Vietnam.

The Optifood tool was then introduced by Dr. Elaine Ferguson, London School of Hygiene and Tropical Medicine, UK. Optifood is a user-friendly tool based on linear programming analysis that can be used to inform nutrition intervention program planning and government policy decisions by theoretically exploring alternate nutrition interventions. Dr. Ferguson demonstrated its current application in Southeast Asia.

The conference was concluded with a panel discussion with panelists sharing their views on future strategies for addressing micronutrient deficiency in Southeast Asia. The accompanying 'Workshop on Micronutrient Fortification of Foods' brought together key stakeholders including food industry, NGOs and academia, to identify key challenges/gaps in and potential opportunities for micronutrient fortification of foods in Southeast Asia. The workshop discussed the importance of public-private-civil society partnerships in micronutrient fortification of foods, micronutrient fortification regulations and the monitoring and evaluation of micronutrient status and fortification programs.

Micronutrient Fortification: Science and Strategies for Public Health Improvement in Asia

At the 20th International Union of Nutrition Societies (IUNS) International Congress on Nutrition held in Granada, Spain in September 2013, ILSI Southeast Asia Region in collaboration with ILSI Focal Point in China, ILSI Japan Centre for Health Promotion (CHP) and GAIN organized a parallel symposium session on 'Micronutrient Fortification: Science and Strategies for Public Health Improvement in Asia'.

ILSI and ILSI Japan CHP, together with colleagues from ILSI branches in Asia and partner institutions have in the past decade been conducting studies to establish the scientific underpinnings for national food fortification initiatives and programs in several Asian countries, and this session symposium provided an excellent opportunity to share scientific outcomes, lessons learnt on administrative policy, and business strategy adopted by the stakeholders to achieve the common goal of public health improvement.

The session commenced with an introduction by Mr. Takashi

Togami, ILSI Japan CHP, outlining the steps involved from development to implementation of a food fortification strategy. This was followed by Mr. Geoffrey Smith, ILSI Southeast Asia Region, who discussed the strategic and practical issues surrounding micronutrient fortification of foods. Dr. Regina Moench-Pfanner, GAIN, Singapore, then outlined GAIN's global strategy on food fortification to improve public health, highlighting their programs in Asia. The case study of iron-fortified soy sauce in China was presented by Dr. Junsheng Huo, China CDC. Dr. Le Thi Hop, NIN Vietnam, discussed the evaluation and adoption of a successful model for fortification of fish

sauce with iron in Vietnam. This was followed by Ms. Theary Chan, RACHA, Cambodia, who gave an update on the development and progress of iron-fortified fish sauce in Cambodia and finally, Dr. Mario Capanzana, Food and Nutrition Research Institute, Philippines, discussed lessons learnt, opportunities and challenges in fortification of rice with iron in the Philippines.

For more information, please visit the ILSI SEA Region website: www.ilsi.org/sea_region



Interview with...

Dr. Sofia Amarra is currently Deputy Director of Scientific Programs at ILSI SEA Region. She obtained her Ph.D in Nutrition from University of the Philippines, Diliman and Certificate in Biochemistry from the Postgraduate Institute of Medicine, University of the Philippines, Manila. Her current responsibilities include developing ILSI SEA Region's research agenda, facilitating regional research collaborations, and assisting in the publication of ILSI SEA Region's activities and projects. She was previously affiliated with the Philippine Food and Nutrition Research Institute. Her research work has been in the area of child nutrition, focusing on iodine deficiency and cognitive function among Filipino schoolchildren and the effect of maternal child-rearing and nutrition attitudes on pre-schoolers' nutrient intakes and nutritional status.

Science InSight (SI): As Deputy Director of Scientific Programs, you oversee many of ILSI SEA Region's scientific programs and research projects. What would you consider as the scientific research priority for ILSI SEA Region?

Dr. Sofia Amarra (SA): I would say that the scientific priority for ILSI SEA Region is to increase the amount of information specific to Southeast Asia, particularly in those areas of food and nutrition where the knowledge for western Caucasian populations may be quite established but which may not necessarily be applicable to Southeast Asians given differences in our genetics, culture and environment. An example is in the field of micronutrient requirements where genes can make a lot of difference. One specific case is the sequence differences in vitamin D-binding protein genes among Asians which affect their vitamin D requirements. The interaction of genes, culture, and environment (including diet) should always be kept in mind when doing research among Asians.

SI: Could you share some of the research projects that the branch is currently working on, and hopes to work on in the future?

SA: Current projects that ILSI SEA Region is working on are the review on sodium and sugar consumption in Southeast Asia and analysis of their consumption among different age and sex groups in the Philippines, using nationwide food consumption survey data. The objectives of these projects are to identify levels and major sources of sodium and added

sugar in the diets of populations in different countries, when similar analysis could be undertaken in some other Southeast Asian countries where such data are available.

One research project that ILSI SEA Region hopes to work on in the near future is the identification of thalassemia among anemic individuals in the Philippines. Thalassemia is a genetic disorder characterized by iron deficiency, but whose treatment necessitates removal of dietary sources of iron, as opposed to iron deficiency anemia, which requires more dietary iron. Knowledge about thalassemia will help to improve the targeting of micronutrient supplements and use of fortified foods in the Southeast Asian setting, particularly in the Philippines where the problem seems to be increasing. Across Southeast Asia, it has been estimated that about 30% of the population may be carriers of the thalassemic gene, especially in areas where malaria used to be rampant

SI: Southeast Asia is a dynamic region where the economic, social, demographic and health landscapes are changing rapidly. What do you see as emerging opportunities and challenges for scientific researchers in the region working in the areas of nutrition, food safety and health?

SA: Opportunities include the enormous knowledge gaps that exist between Southeast Asia and the West in the areas of nutrition, food safety and health. In the field of maternal and child

nutrition alone, ILSI SEA Region has identified several aspects that need more research including the need for validation of recently released WHO indicators for assessing infant and young child feeding practices, effects of employment on breastfeeding among Southeast Asian mothers, communication needs for behaviour change, curriculum needs of health workers and caregivers. All of these aspects require a country- and culture-specific approach in order to produce valid results.

As far as challenges are concerned, the main problem is lack of financial resource and support and this is where public-private partnerships and cross-country collaborations may help.

SI: There is a growing number of scientists in Southeast Asia working on research areas that are important to improving public health in the region. Are there opportunities for these scientists to collaborate with ILSI SEA Region?

SA: Yes, ILSI SEA Region is interested to work with young scientists and future leaders in the region, and welcomes collaborative projects. We encourage these scientists to inform us of their research projects and ILSI SEA Region can tap into our network of members, scientific advisors and partner institutions to help advance regional research initiatives and generate much needed scientific information for Southeast Asia.

Mycotoxins: Challenge for Food and Feed Safety in Southeast Asia

The presence of mycotoxins in food and feed remains an ongoing food safety concern for Southeast Asian countries due to climatic conditions in the region that are very conducive for their presence. Recognizing this collective food safety challenge, the Center of Excellence on Mycotoxin Studies (CEMycoS) and Faculty of Agricultural Technology at Gadjah Mada University, Indonesia, in collaboration with ILSI SEA Region, organized the **International Conference on Mycological Aspects of Food and Feed Safety** in Yogyakarta, Indonesia, from June 27-28, 2013.

The primary objective of the conference was to review, discuss and address critical issues concerning mycology and mycotoxins in relation to food and feed safety aspects. The Conference was attended by close to two hundred international participants coming from academia, government and industry.

ILSI SEA Region supported the **Plenary Session on "Health and Policy"**, which covered public health aspects, risk assessment, as well as application of technologies in addressing mycotoxins in the food chain. Dr. Nai-Tran Dinh from CSIRO Australia began the session by providing an overview on **"Public Health and Economic Impacts of Aflatoxins in Developing Countries"**. He highlighted that aflatoxins remain a pressing concern in developing countries due to the greater exposure of populations there to foods contaminated by mycotoxins and the consequential adverse effects on human health, including acute toxicity, hepatocarcinogenicity, immunosuppressive effects and association with stunting in children. Additionally, mycotoxins also contribute to significant economic losses in both developing and developed countries due to post-harvest losses and trade rejections.

Following this, Dr. Peter Abbott from Biosearch Consulting, Australia, provided a **"Review of International Mycotoxin Risk Assessments by JECFA"**, including for aflatoxins, ochratoxin, fumonisins, trichothecenes, patulin and zearalenone. While it is possible for JECFA to determine Provisional Maximum Tolerable Daily Intakes (PMTDI) or Provisional Tolerable Weekly Intakes (PTWI) for most of these mycotoxins, it is not possible for aflatoxins due to its genotoxic and carcinogenic nature. Instead, JECFA used

epidemiological data and dose-response modelling to estimate the cancer potency of aflatoxins for normal and susceptible hepatitis B1-positive populations, who are more vulnerable.

In order to characterize potential health risks from mycotoxins in the food chain, it is also necessary to determine exposure levels in the population, especially among vulnerable subgroups. In relation to this, Dr. Sokneang In from the Institute of Technology, Cambodia shared the **"Consideration for Dietary Exposure Assessment for Mycotoxins"**. She explained the needs and challenges in obtaining accurate estimates of dietary exposure to mycotoxins, which include representative food consumption data and mycotoxin occurrence data. Dr. Bui Thi Mai Huong from the National Institute of Nutrition, Vietnam, further illustrated some of these challenges by sharing a case study on **"Dietary Exposure Assessment of Aflatoxins and Fumonisins in rice and Maize in Vietnam"**, which focused on minority ethnic populations in Northern Vietnam.

Strategies and techniques to eliminate mycotoxins from the food chain were also shared by several speakers. Prof. Winiati Rahayu from Bogor Agricultural University, Indonesia, presented on **"Prevention and Reduction on Mycotoxin by Biological Agent"**. She explained that the introduction of non-toxigenic strains of *Apergillus flavus* could be used to inhibit the production of aflatoxins through competitive inhibition of mycotoxin-producing strains of *A. flavus*. Prof. Jinap Selamat from University of Putra Malaysia further shared on some of the food processing technologies that could be used to reduce the levels of mycotoxins in food products in her presentation on **"Application of Technologies for**

the Reduction of Mycotoxins". These include the use of chemicals, application of gamma irradiation and roasting grains to reduce mycotoxin levels, as well as other processes including cleaning, sorting, washing, dehulling and milling.

Over the past decade, there has been scientific evidence collected that demonstrates that food crops genetically engineered to contain the *Bacillus thuringiensis* insecticidal proteins can prevent the formation of mycotoxins such as aflatoxins and fumonisins. Ms. Lyn Esteves from the Philippine Center for Postharvest Development and Mechanization shared a case study in relation to **"Managing Field Mycotoxin Levels with Bt Maize"** and presented results from Bt and non-Bt corn field trials conducted in two major producing regions in the Philippines. It was found from the experiments that aflatoxin levels were generally lower in Bt-corn compared to non-Bt corn, although no significant differences in the levels of fumonisins were observed. Lower levels in Bt maize is mainly due to prevention of crop damage by insects (corn borers), ear rot and infection by *A. flavus*, which are significant factors that contribute to mycotoxin production on the field.

Finally, Dr. Nai Tran-Dinh from CSIRO presented a second plenary paper to illustrate the **"Application of the Food Safety Objective (FSO) Concept for Risk Management of Mycotoxins Along the Food Chain"**. The use of the FSO concept provides risk managers with a novel way to visualize mycotoxin formation and reduction steps along the food chain, which can serve as a guide for intervention strategies and management procedures to control mycotoxins at specific points.

Managing Allergens in the Food Chain: Emerging Concern in Southeast Asia

Food allergies are increasingly being recognized as an important public health concern in countries and regions including Canada, the United States, Europe, Japan and Australia. As a result, government authorities and the food industry there have started to implement measures to mitigate potential health risks to consumers arising from the presence of allergens in the food chain, whether because of addition of potentially allergenic ingredients or incidentally as a result of cross-contamination.



Nevertheless, awareness and understanding of food allergies, as well as knowledge on managing potential allergens in the food chain is still generally lacking in the Southeast Asia region. In response to the need to address this issue, ILSI SEA Region supported a session on **"Managing Allergens in the Food Chain"** at the 13th ASEAN Food Conference, which was held in Singapore from September 9-11, 2013.

Dr. Lee Bee Wah from the Department of Paediatrics, National University of Singapore, provided an introductory overview on the **"Prevalence of Food Allergies in Southeast Asia"** to set the stage for the session. Dr. Lee described that worldwide peanut allergy prevalence data showed that peanut allergies are common in many Western populations but are rarely found among Asians. However, evidence indicates that individuals of Asian ethnicity born in Western countries do develop higher incidences of peanut allergies, demonstrating a possible environmental component. In contrast, shellfish allergies are more common in Asian populations

than Western populations. Particularly in hot and humid climates such as in Southeast Asia, it has also been found cross-sensitization through inhalation of dust mites allergens (tropomyosin) can also result in shellfish allergies.

While some data is available on the occurrence of certain food allergies among Asian populations, there is however limited data on the frequency of undeclared allergens contained in foods sold on the market in Asia countries. Mrs. Vipa Surojanametakul

from the Institute of Food Research and Product Development, Kasetsart University, Thailand, thus posed the question on whether **"Undeclared Food Allergens is An Emerging Concern in Southeast Asia?"** Currently, China, Hong Kong SAR, Japan, Korea, Malaysia and Singapore are the only countries in the Asia that require mandatory allergen labelling, most of which are based on Codex Alimentarius guidelines. Japan is the only country to provide guidance on allergen labelling thresholds (at 10 ppm) as well as official analytical methods for allergen testing. Mrs. Surojanametakul shared a recent case study undertaken in Thailand to investigate the frequency of food products containing undeclared allergens. The results of the case study showed that 55 out of 142 products surveyed contained undeclared allergens, indicating that undeclared allergens in food products could indeed be a significant problem.

Ms. Kirsten Grinter from the Food Allergen Bureau in Australia, subsequently provided an overview and update on the ongoing

Australian food industry initiative to develop a decision making tool for allergen labelling through **"VITAL – an Initiative of the Food Allergen Bureau"**. VITAL stands for "Voluntary Incidental Trace Allergen Labelling" and is intended as a risk-based precautionary labelling system that uses action levels underpinned by available scientific evidence as a guidance for when it is appropriate to include trace allergen labelling. The need for such guidance arose from the prior situation whereby inconsistent approaches to cross-contact allergen labelling were being applied, which resulted in confusing messages to consumers that also greatly reduced consumer choice.

Finally, Mrs. Robin Sherlock from the DTS Food Laboratories, Australia, shared the **"Challenges of Allergen Analysis in a Global Market"**. Mrs. Sherlock explained that the development of allergen detection methods and allergen labelling requirements are often driven by the types of food allergies commonly occurring in each country. However, since there are significant geographical differences and population variability for food allergies, this poses some challenges for allergen analysis, especially with increasing international food trade. Harmonization of allergen labelling regulations and analytical methods between countries are thus an important issue. In relation to direct analytical challenges, the ability to detect and quantify allergens present at low levels in foods is difficult due to matrix interference, while robust sampling plans and procedures are also necessary to do so. Ultimately, allergen analysis should only be done for appropriate applications, such as for validation purposes.

Sweeteners: Safety Assessment and Use in Health and Diet

On May 30, 2013, ILSI SEA Region and the Indonesia Country Committee, together with the Southeast Asian Food and Agricultural Science and Technology (SEAFST) Center, Bogor Agricultural University, organized a half-day Seminar on 'Uses and Safety of Sweeteners' at the Hotel Borobudur in Jakarta, Indonesia. The meeting was attended by more than 130 local and international participants from both the public and private sectors.

In his presentation on *"Use of Sweeteners in Food and Beverages"*, Prof. Dedi Fardiaz from Bogor Agricultural University provided an overview on the science of sweet taste and considerations relating to the use of sweeteners in food and beverage products. Prof. Fardiaz explained the science behind the perception of sweet taste, as well as some of the technical considerations for using sweeteners to replace sugar in food and beverages. To achieve a balanced flavor profile, sweetener blends are commonly used.

Following this, Dr. Fiastuti Witjaksono from the University of Indonesia then presented on the *"Relevance of Sweeteners to Health and Diet"*. Dr. Witjaksono shared that international and national dietary guidelines usually recommend moderate consumption of sugar to prevent excessive caloric intake. The Indonesian General Guides for Balanced Nutrition in particular recommends not more than 5% of total energy to be derived from sugar. In relation to this, non-nutritive sweeteners have the potential to play a supporting role in achieving these desired public health objectives. In the case of diabetics, substitution of sugar in food and beverage products with non-nutritive sweeteners can

also provide such consumers with a wider range of food choices.

While there are potential benefits for the use of sweeteners in foods and beverages, it is nonetheless important to ascertain that sweeteners sold on the market are safe for human consumption. Dr. Berna Magnuson from the University of Toronto, Canada, shared how the safety of sweeteners are established in her presentation on *"International Safety Assessment of Sweeteners"*. She explained that at the international level, the safety of sweeteners is assessed by the Joint FAO/WHO Expert Committee on Food Additives (JECFA). Comprehensive toxicological studies, conducted using standardized toxicological protocols, are usually referred to for evaluating safety of non-nutritive sweeteners. After reviewing toxicology data for the most sensitive critical health effects for the most sensitive populations, JECFA will establish an Acceptable Daily Intake (ADI), which is the amount that can be ingested daily over a lifetime without appreciable health risk, based on the No Observed Adverse Effect Level (NOAEL) after applying the appropriate safety factors.

After an ADI has been established, the next step in the risk assessment process involves estimating exposure of a population to a sweetener. The process, methods and considerations for conducting dietary exposure assessments for sweeteners were elaborated in the presentation on *"Estimating Exposure to Sweeteners in the Diet"* by Mr. John Howlett, independent food scientific and regulatory affairs consultant from the United Kingdom. To calculate dietary exposure, data on the levels and patterns of use of the sweetener in foods and beverages (occurrence data) are combined with information about the quantities of those foods and beverages containing the sweetener that are consumed by a general

or specific population (food consumption data). Mr. Howlett provided examples for data sources that could be used and further explained that availability and quality of the data would ultimately affect the accuracy of the final exposure estimates.

After the comprehensive review of the risk assessment procedures for sweeteners, Ir. Gasilan from the National Agency for Drug and Food Control (NADFC), Indonesia, shared the Indonesian experience on risk assessment and regulation of sweeteners in his presentation on *"Safety Risk Assessment of Food Additives"*. In addition to the Health Minister Regulation No. 033, 2012, on Food Additives, the National Agency for Drug and Food Control has also issued regulations specifying the maximum limits for the use of all functional classes of food additives except for sweeteners, which is still being finalized. Currently, 8 natural sweeteners and 6 artificial sweeteners are permitted for use in Indonesia. As the NADFC is currently still finalizing the maximum permitted levels for sweeteners, the permitted levels contained in previous regulations issued by the Ministry of Health (Regulation No. 722/Menkes/Per/IX/88) and NADFC (Decision No. 00.05.5.1.4547 of Year 2004) are still in force.

The final presentation of the seminar was provided again by Dr. Berna Magnuson, who spoke on the topic of *"Approaches to Evaluating Safety of 'Natural' versus 'Artificial' Sweeteners – Is There a Difference?"* Dr. Magnuson explained that there are in principle no differences in the safety assessment for 'artificial' versus 'natural' sweeteners, as they are both required to meet the same standards of safety regardless of their source or origin. However, specific considerations relating to each category are sometimes taken into account during evaluations. Nevertheless, the amount consumed is usually one of the most important factors, as it is "the dose that makes the poison".



Upcoming Activity Highlights

Meetings

2nd ASEAN Food Consumption Data & Exposure Assessment Workshop *November 19-21, 2013, Kuala Lumpur, Malaysia*

The 2nd ASEAN Food Consumption Data & Exposure Assessment Workshop follows on from the outcomes from the 1st ASEAN Food Consumption Data & Exposure Assessment Workshop, held in October 2011, to develop a common ASEAN Food Consumption Database that could be used for dietary exposure assessment purposes at the regional level. This workshop will aim to finalize the list of common food categories to be used as the basis for the ASEAN Food Consumption Database, as well as to undertake case studies on dietary exposure assessment of different chemicals in food using the compiled food consumption data from participating ASEAN member countries.

Gut Feelings – What Can We Learn From Recent Research on Gut Microbiota? *December 3, 2013, Brisbane, Australia*

This symposium, organized by ILSI SEAR Australasia in collaboration with the Nutrition Society of Australia, is being held a satellite symposium to the Nutrition Society of Australia's annual meeting. The seminar will present an update on the rapidly developing field of the gut microbiome, and provide an understanding on the relevance of the field to nutritionists, health professionals and the food industry; give relevant examples of the clinical importance of the gut microbiome to health in infants, school children and adults; discuss the role of probiotics on the immune system, importance of food structure on the fermentation by the gut microbiota and optimizing diet for gut health; and to consider the relevance of the gut microbiome on obesity and diabetes.

Please visit the ILSI Southeast Asia Region website for further details: www.ilsi.org/sea_region

On-going Research and Collaborative Projects

Sodium

Universal reduction in sodium intake is currently recommended by the World Health Organisation (WHO) as a cost-effective policy intervention for reducing risk factors for non-communicable diseases (NCDs). **A review commissioned by ILSI SEA Region** found that dietary sodium intakes of adults in Southeast Asian countries exceeded the WHO cut-off of 2 g Na/day. Foods that contributed significantly to sodium intakes were condiments and sauces, processed foods, and commercially prepared restaurant/vendor foods and snacks. These results have implications for research and policy development in Southeast Asia. The study, entitled **'Salt intakes and salt reduction initiatives in Southeast Asia: a review'** will be published in the Asia Pacific Journal of Clinical Nutrition (2013, 22(4)). ILSI Southeast Asia Region was invited to present the results of this study at the **ASEAN Regional Forum on NCDs** in October 2013, attended by health ministry officials from ASEAN countries.

Infant Nutrition

ILSI SEA Region were recognized for their contribution to the science in the improvement of public health by being invited to present a summary of their Infant and Young Child Nutrition Program at the **ASEAN Task Force on Maternal and Child Health Meeting** in August 2013, attended by health ministry officials from ASEAN countries.

Further research into infant and young child feeding practices is underway, with the project **'Validation of WHO Indicators for Assessing Infant and Young Child Feeding Practices (2010) Among Malaysian Children aged 6-23 Months'** commissioned by ILSI SEA Region commencing in late 2013. The study will assess intake of energy, key macro- and micronutrients of breastfed and non-breastfed infants and children using the WHO questionnaire and using 3 days weighed food records; and correlate adequacy of dietary intakes based on the WHO questionnaire and that obtained from weighed food records.

ILSI SEA Region Calendar of Activities 2013-2014

Meetings	
ASEAN Food Consumption and Exposure Assessment Workshop <i>Kuala Lumpur, Malaysia</i>	November 19-21, 2013
8th Seminar and Workshop on Nutrition Labelling, Claims and Communications Strategies <i>Jakarta, Indonesia</i>	November 26-28, 2013
ILSI SEAR Australasia 'Gut Microbiota and Health' – Satellite Symposium to the Nutrition Society of Australia Annual Scientific Meeting <i>Brisbane, Australia</i>	December 3, 2013
ILSI Annual Meeting 2014	January 17-22, 2014
Physical Activity and Exercise Across the Lifespan – Implications for Obesity Satellite Symposium to the 12th International Congress on Obesity 2014 <i>Kuala Lumpur, Malaysia</i>	March 16, 2014
ILSI Southeast Asia Region Annual Meeting <i>Singapore</i>	April, 2014
Seminar on Maternal, Infant and Young Child Nutrition <i>Jakarta, Indonesia</i>	2nd Quarter, 2014
4th Expert Consultation on Maternal, Infant and Young Child Nutrition <i>Jakarta, Indonesia</i>	2nd Quarter, 2014
11th ASEAN Food Safety Standards Harmonization Seminar and Workshop <i>Lao PDR</i>	2nd Quarter, 2014
Regional Conference on the Gut Microbiome <i>Singapore</i>	September, 2014
11th ASEAN Food Safety Standards Harmonization Seminar and Workshop <i>In collaboration with CSIRO, Australia</i> TBC	November, 2014

Research & Collaborative Projects	
Investigation of Commodity Food Standards and Methods of Analysis in East Asia <i>In collaboration with ILSI Japan, ILSI Focal Point China, ILSI Korea, ILSI India and ILSI Taiwan</i>	On-going
Risk Profile Documents for Chemical and Microbiological Contaminants and Concerns in ASEAN: Mycotoxins	On-going
Case Studies Reviewing Food Descriptors Used in National Food Contaminant Standards in ASEAN	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	On-going
Database on Requirements for Scientific Substantiation of Functional Foods and Ingredients in Southeast Asia	On-going
Validation of WHO Complementary Feeding Indicators against Dietary Intakes of Malaysian Children Aged 6-23 months	Initiated
Review on Sugar Intake in Southeast Asia: Levels of Consumption and Major Sources in the Diet	Initiated
Systematic Review of Infant and Young Child Feeding Practices in Southeast Asia	Upcoming
Food Consumption Data: Review of Status in the ASEAN Region	Upcoming
Attitudes and Perceptions of Experts in Selected Southeast Asian Countries on Sweeteners	Upcoming
Publications	
Salt Intakes and Salt Reduction Initiatives in Southeast Asia: A Review <i>Asia Pacific Journal of Clinical Nutrition</i>	4th Quarter, 2013
Review: The Prevalence of Childhood Obesity in Thailand and Associated Factors <i>Journal of the Medical Association of Thailand</i>	TBC

8th Seminar on Nutrition Labeling, Claims and Communication Strategies

November 26-27, 2013
Hotel Borobudur, Jakarta, Indonesia

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

As part of the series of seminars on nutrition labeling and claims organized by the International Life Sciences Institute Southeast Asia Region (ILSI SEA Region), this upcoming 1½-day seminar will provide up-to-date information and highlight emerging trends in the region. Recent developments in Front-of-pack (FOP) signposting, as well as the use of nutrition labeling and claims as educational tools, and consumer understanding of these labels, will be addressed by regional and international experts. Country-specific updates on nutrition labeling and claims regulations will also be shared.

Who Should Attend

Food industry personnel;
Food scientists, nutritionists, dietitians and health professionals;
Regulatory officers from government departments and agencies;
Researchers and academia



Seminar Objectives

The Seminar aims to:

- Provide an update on international and regional developments in nutrition labeling, nutrition and health claims and related issues in SEA and other regions
- Explore opportunities for harmonization of nutrition labeling and claims in SEA
- Discuss the use of Front-of-Pack signposting schemes in the region
- Identify opportunities and challenges related to the use of nutrition labeling and claims in communicating nutrition and health related messages

Program Topics

- Nutrition Labeling and Claims: Regulatory Updates and Future Directions
- Front-of-Pack Labeling: Recent Developments
- Use of Labeling for Communication of Nutrition and Public Health Messages
- Harmonization Opportunities in ASEAN

Registration Fee

Industry	USD 480
Government & Academia	USD 350

Registration Details

For inquiries, registration and payment details, please contact:

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