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To our readers

Sunny greetings from Vienna!

Time for our next section's update! This year, we don't feel the supposedly quieter summer period – the symposium organization keeps us very busy! Read on page 7 about our preparatory activities so far and stay tuned on social media for further updates!

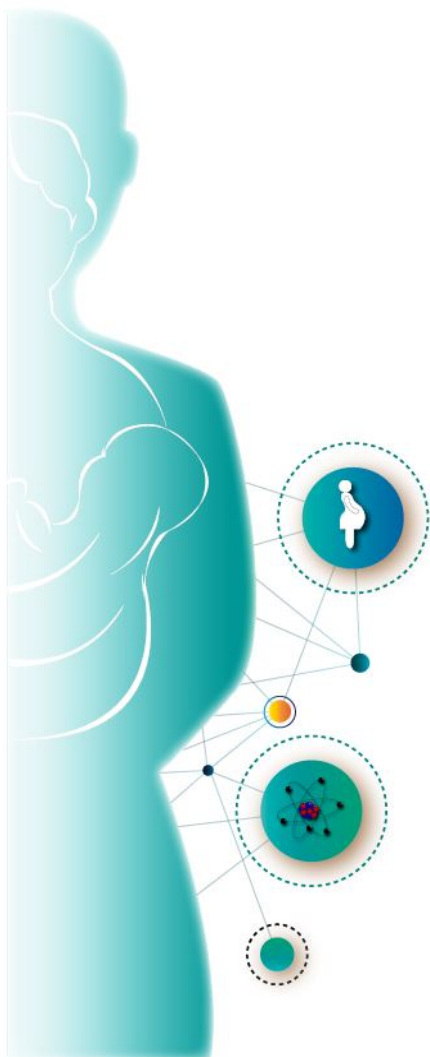
We have also continued our other activities and have been busy with meetings to support regional projects. In addition, you can find short reports of our attendance at conferences and international meetings. Don't miss the encouraging project news from Morocco and Thailand, and the results of a research project on breastfeeding. And have a look at the special contribution from the UNSCN Secretariat about the indivisible nature of the SDGs and the role for nutrition!

We wish to welcome Theodora and Vera who joined the team at the beginning of the year to support the symposium preparation. Welcome back to Inka and unfortunately we soon have to say goodbye to Umair.

I look forward to seeing many of you in December at the symposium!

Best wishes,

Cornelia



Meetings

New Technical Cooperation Projects to Improve Infant and Young Child Nutrition in Latin America and the Caribbean and Asia and the Pacific Region Kick Off

It is understood that adequate growth during the first thousand days of life is crucial to decrease the risk of ill-health in later life. Despite increasing recognition of the importance of early body composition for life-long health, there is surprisingly little information on the body composition of infants and young children from low and middle-income countries.

Two new IAEA supported regional projects have started this year to help 17 Latin American and the Caribbean (RLA/6/079); and 13 Asia and the Pacific (RAS/6/092) countries to use stable isotopes for understanding the growth and body composition of infants and young children aged 6 to 24 months.

According to the latest figures from UNICEF, WHO and the World Bank Group, the Asia Pacific region has the most alarming malnutrition rates for children under 5 years of age, with 56% of the world's stunted children, 46% of the world's overweight children and 69% of the world's wasted children. While stunting and wasting has improved in Latin America and the Caribbean, almost 4 million children under the age of 5 are overweight and the prevalence of overweight in under 5s has increased.

The first coordination meeting for the new RLA project was held in Cuba from 5-9 March and the first meeting for the RAS project was held in Vienna from 14-17 May ([Check related web-article!](#)).

The outcomes of the projects will be an understanding of how the body composition of the regions compares to international references, how the data varies between countries, and what the variables are that influence early life body composition in the regions. This information will prove valuable in designing and evaluating interventions to combat childhood malnutrition to improve health across the life course.



RLA/6/079 Project Team. (Photo courtesy of B.G.Rodríguez)

Acute malnutrition and medium-term disease risk: Participants in IAEA regional project in Africa gather in Vienna to assess progress

The IAEA regional project (RAF/6/052) titled “Nuclear techniques to assess body composition in children previously treated for moderate (MAM) and severe acute malnutrition (SAM) and its medium-term benefits and risk in 8 African countries” commenced in 2016. Participants from Burkina Faso, Democratic Republic of Congo, Ethiopia, Malawi, United Republic of Tanzania, Uganda and Zambia were joined by Côte d'Ivoire as an observer during the second coordination meeting held in Vienna from 30 May–1 June 2018.

Participants discussed progress and challenges encountered. A REDCap system for data collection using the mobile app was demonstrated and centralized data collection forms reviewed and discussed by the group. Participants also tried out a portable Fourier transform infrared spectrometer (FTIR) for measurement of deuterium enrichment in saliva samples for body composition assessment.



RAS/6/092 Project Team. (Photo courtesy of IAEA)

Meetings

The key lessons learnt were that leveraging local funding for the implementation of data collection depended heavily on networking with key in-country stakeholders. Secondly, proper training of field staff, clear communication of project objectives and potential benefits to both, participants and nationally, are required to avoid problems with ethics review committees and community stakeholders. Participants agreed on a harmonized timeline and worked on a joint fundraising proposal.

For more information, [check related web-article!](#)



IAEA Director of Technical Cooperation for Africa, Mr Shaukat Abdulrazak with meeting participants. (Photo courtesy of IAEA)

Deuterium dilution technique applied to assess body composition in school children in South and Eastern Europe

The counterparts of the first regional IAEA project on nutrition in Europe (RER/6/034) met for the second coordination meeting in February in Lisbon. The following countries from Southern and Eastern Europe participate in the project: Albania, Bosnia and Herzegovina, Greece, Hungary, Latvia, Montenegro, Portugal, Republic of Moldova, The Former Yugoslav Republic of Macedonia, and Ukraine.

The project assesses body composition using the deuterium dilution technique in school-age children to supplement the information obtained in the ongoing European Childhood Obesity Surveillance Initiative (COSI) by WHO. The COSI surveillance uses BMI-for-age as an indicator of childhood obesity. Adding body composition will provide a more detailed understanding of adiposity and risk of chronic diseases.

Since stable isotope techniques have not been widely applied in the participating countries, the counterparts have been facing challenges with ethical approval. This has now been solved and field data collection started or is about to start. The project will enable the countries to use the deuterium dilution technique to assess the impact of nutrition interventions targeting prevention and treatment of childhood obesity.



The RER/6/034 project team. (Photo courtesy of A. Rito)

International Symposium on In Vivo Body Composition Studies

The 11th International Symposium on In Vivo Body Composition Studies was hosted by Columbia University, USA, from 25-27 June 2018. Ms Alexia Alford, Nutrition Specialist in NAHRES, made a presentation on 'Understanding Body Composition Using Stable Isotopes in Low-Middle Income Countries: The Work of the IAEA'. It was great to see IAEA associated research presented from South Africa, Mexico, Haiti and Myanmar.

Meetings

Caribbean Public Health Association (CARPHA) Research Conference

The IAEA has welcomed many new Member States from the Caribbean in the last few years. The 63rd Annual CARPHA Health Research Conference took place in St. Kitts and Nevis from 14-16 June 2018, and was a perfect opportunity to introduce the new Member States to the work of the IAEA in Human Health and Nutrition.

The IAEA had a session focusing on the support of the Technical Cooperation (TC) Programme for enhancing Prevention, Treatment and Control of Diseases. Ms Alexia Alford, Nutrition Specialist in NAHRES, made a presentation on the use of nuclear nutrition techniques in the fight against the rise of Non-Communicable Diseases in the Caribbean.

The counterpart from the Jamaican national TC project, Ms Asha Badaloo, spoke about the IAEA support to Jamaica for strengthening national capacities on nutrition.

Anyone from the Caribbean Member States who are interested in being involved in the new nutrition projects should contact nahres@iaea.org.

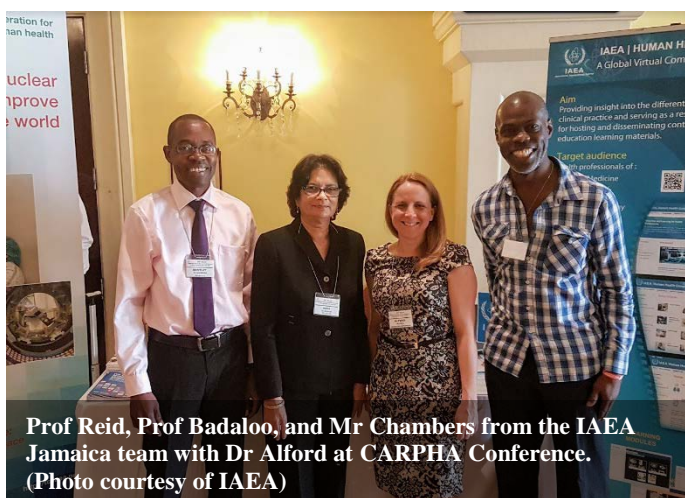
NAHRES participates at the European Congress on Obesity 2018

The European Congress on Obesity (ECO2018) took place in the IAEA backyard at the Austria Centre from 23-26 May 2018. NAHRES organized a symposium titled 'Assessing body composition for better understanding of risks related to childhood obesity and designing effective interventions'.

This symposium was a collaboration between the IAEA and the WHO-European Regional Office (WHO-Europe), the European Association for the Study of Obesity (EASO) and N8 AgriFood, a multi-disciplinary research programme across eight universities in the North of England.

During the symposium, IAEA experts discussed how body composition measured using stable isotope techniques can be used as a tool to accurately monitor obesity to help with policymaking. An IAEA regional project which is currently supporting nutrition and health professionals in 10 countries in Europe to assess body composition using stable isotope techniques was also highlighted. Case studies from Latvia and Bosnia and Herzegovina, two of the countries participating in the regional project were presented. The WHO-Europe Office representative underscored the need for more accurate methods to assess obesity. Results of an intervention to help mothers better diagnose obesity in their children was presented by a researcher from Newcastle University and N8 AgriFood.

More details on the IAEA Symposium at ECO2018 can be found [here](#).



Prof Reid, Prof Badaloo, and Mr Chambers from the IAEA Jamaica team with Dr Alford at CARPHA Conference. (Photo courtesy of IAEA)



IAEA's Victor Owino at the European Congress on Obesity on 25 May 2018. (Photo courtesy of IAEA)

News

Isotopes used to assess breastfeeding patterns in eSwatini

Celebrating 50 years of independence, in April 2018, His Majesty King Mswati III of Swaziland announced that the country with a population of around 1.2 million would change its official name to Kingdom of eSwatini. The country, bordering with South Africa and Mozambique is a new Member State of the IAEA, and a national TC project (SWA/6/001) on nutrition was initiated in 2018. With a growing economy, the country is facing a double burden of malnutrition with childhood stunting rates of around 30%, adult female obesity rates of 37% and one of the world's highest adult HIV prevalence of 26%.

A dedicated team from the National Nutrition Council and the University of Swaziland is set out to improve the situation. They will focus on improving the infant feeding practices, knowing that exclusive breastfeeding for 6 months followed by continued breastfeeding up to 2 years is important to prevent infections and stunting, and is also associated with lower risk of adult obesity. Recent increase in availability and accessibility of antiretroviral treatment has virtually eliminated the risk of mother-to-child transmission of HIV under the assumption that adherence to treatment is high.

The team is determined to assess the rates of exclusive breastfeeding by applying the objective deuterium oxide dose-to-mother technique. They will also identify underlying factors for non-exclusive breastfeeding when the infants are 2-4 months old.



Fear of HIV transmission and short maternity leave for working mothers are among the expected barriers for exclusive breastfeeding. Verification of practices and identification of barriers may help in providing adequate and relevant support to mothers and positively influence breastfeeding practices in eSwatini.

New Publication by NAHRES staff: Isotope techniques may help in understanding how endocrine-disrupting chemicals contribute to the double burden of malnutrition



nutrients



Perspective

Elucidating Adverse Nutritional Implications of Exposure to Endocrine-Disrupting Chemicals and Mycotoxins through Stable Isotope Techniques

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The article argues that endocrine disrupting chemicals (EDC) and microbial toxins sit at the cross road of undernutrition and overweight and obesity since the exposure cuts across the critical window of opportunity (the first 1000 days). These hazards, the article explains, affect individual nutritional status and risk for non-communicable diseases in ways that are still not fully understood.

The mechanisms could include increased body mass index and adiposity, higher fasting insulin levels and impaired cognitive and neuro-development. Accurate methods are needed to characterize exposure to EDC and mycotoxins from the food chain and environment and how this exposure relates to growth and disease risk. The authors propose nuclear techniques as some of the methods that can be employed to achieve this. An example is the use of deuterium oxide to determine exposure from breast milk and to also measure body composition as an indicator of the metabolic changes associated with exposure. The article can be found [here](#).

News

A very useful free resource: The 'Diet, Anthropometry and Physical Activity (DAPA) Measurement Toolkit'

The DAPA Measurement Toolkit from the National Institute for Health Research (NHS) and the Medical Research Council (MRC) in the United Kingdom of Great Britain is a free web-based resource to assist researchers and public health or public end-users to identify methods for the assessment of diet, anthropometry and physical activity.

The toolkit does not recommend or promote any specific method or instrument, but rather provides information for end users to be better equipped at using and interpreting existing data or reaching an appropriate decision on choosing methods that are fit-for-purpose when planning new studies in different populations on physical activity, anthropometry/body composition and diet.



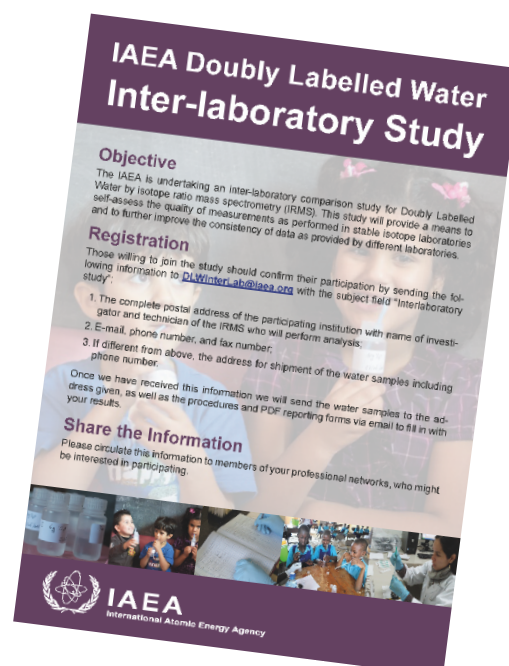
Quality Control for Stable Isotope measurements

As part of its ongoing efforts to assure the quality of data produced in IAEA-supported projects, NAHRES conducts interlaboratory studies on analysis of deuterium enrichment by Fourier transform infrared spectrometry (FTIR) and analysis of doubly labelled water by isotope ratio mass spectrometry (IRMS). Samples will be distributed to countries involved in current Technical Cooperation projects but anyone else wishing to participate in these studies should email nahres@iaea.org.

Human Health Campus

Check our informative resource website for health professionals - Just click on the photo below

Nuclear Techniques in Nutrition



News

International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions

As announced before, the NAHRES team is very busy with the organization of the symposium to strengthen the understanding of how to tackle the double burden of malnutrition (DBM). The symposium is a tri-agency initiative of the IAEA, WHO and UNICEF to take place from 10-13 December 2018 at the Vienna International Centre.

We are happy to share some updates with our readers and to report what we have been working on and planning for the last 6 months! We have formed a programme advisory committee consisting of 23 individuals from different scientific and technical backgrounds coming from academia, UN agencies (IAEA, WHO, UNICEF, FAO, WFP, UNSCN), national authorities and a non-governmental organization (CARE).

Together with the advisory committee, we have also worked on the scientific programme which will be posted on the [website](#) soon. The programme is packed with interesting events including multiple thematic plenary sessions, and oral and poster presentations of abstracts. Sufficient time will be provided for Q&A and interaction with colleagues. There will be opportunities for young scientists/investigators to enhance their professional skills related to measurement methods through 'learning labs' in which new technologies and assessment methodologies will be demonstrated.

We are also happy to say that around 400 participants from close to 100 countries have registered to date to attend the symposium. We have received a large number of abstracts (close to 300) and many requests for travel grants! The outcome of the abstract review process was communicated to participants at the end of June 2018 and the outcome of the grant selection will be communicated in early September 2018.

To our readers who cannot attend the symposium, we are happy to announce that it will be live streamed and recorded to enable more people from around the world to follow the presentations and discussions. We will also be sharing updates via social media, i.e., on Twitter (#dbmal) and Facebook!



NAHRES Special - UNSCN

Transformation towards sustainable, resilient and healthy societies

With special thanks to C. Campeau and S. Oenema, UNSCN Secretariat



The Sustainable Development Goals (SDGs) are profoundly transformative, cutting across technical sectors and providing a united vision for all nations. The 2018 theme of the [High-Level Political Forum \(HLPF\)](#) ‘*transformation towards sustainable and resilient societies*’ provides an opportunity to look at the underlying conditions necessary to meet the SDGs. Good nutrition is one such building block and lies at the heart of human health and wellbeing.

An outcome of the [SDG2 Expert Group Meeting \(EGM\)](#) held in June 2017 was that sustainable and healthy diets support not only the achievement of SDG2 but of all the SDGs. At the [UNSCN convened EGM Linking Nutrition with the SDGs under Review](#) in June 2018, the objective was to reach a similar level of understanding about the interconnected and indivisible nature of the SDGs and the role for nutrition.

The following is a summary of the main key messages:

SDG 11 - Cities and settlements: Solutions for cities and urban settings must link the full spectre from rural to urban settings and consider the heterogeneity of conditions and populations found in both. This requires local leadership and governance, as well as convergence and coherence among the efforts in the different sectors and levels of policies, encouraging interdepartmental and cross-sectoral coordination. Applying a nutrition lens should ensure planning for appropriate nutrition-related provision of accessible infrastructure and services and the creation of inclusive, just, and sustainable nutritious food systems that avoid waste and environmental harm.

Cross-cutting messages: A comprehensive review of policies and an inclusive effort spanning both the public and private sectors are necessary for ensuring the mainstreaming of nutrition goals.

SDG 12 - Sustainable consumption and production: The transformation of food systems, policies and practices, should guarantee sustainable and nutritious diets by encouraging public procurement schemes that promote locally-sourced foods and regulate the availability of ultra-processed foods, promote the rights of small-scale farmers and support, and pro-actively consider indigenous and local knowledge as instrumental to achieving the goal.

SDG 7 - Energy: Considering the importance of the food, water and energy nexus and its impact on the environment and health, there is a need to encourage the transition towards food systems that promote sustainable use of resources and safeguard the environment.

SDG6 - Water: Decisions around water infrastructure use should be driven with a goal to achieve sustainable, equitable, and nutritious food systems.

SDG 15 - Territorial ecosystems: Agricultural biodiversity is a critical element in response to global malnutrition and underpins healthy, nutritious and sustainable diets, contributing to general ecosystem balance, functioning and service increasing our ability to adapt to climate change.

These messages were delivered to the Member State Briefing on 20 June by Stineke Oenema, UNSCN Coordinator, as well as during several events during the 2018 HLPF. Preparations are underway for the related plenary discussion at the 45th session of the [Committee on World Food Security](#) in October 2018.

Success Stories

Thai Scientists Use Stable Isotopes to Improve Food Labelling and Nutrition

The IAEA has worked with the Institute of Nutrition at Mahidol University since 1996. Its scientists are using stable isotope techniques and other methods to carry out a range of nutrition-related studies that constitute the basis for the revision of Thailand's Dietary Reference Intakes (DRIs). The new DRIs are expected to be rolled out starting from the end of 2018. DRIs influence everything related to nutrition in a country, from nutrient labels on food, food-based dietary guidelines and health programmes to food research and development. Thailand's revised DRIs will help reshape food intake throughout the country.

“We now have tools such as stable isotope techniques, which means we can be far more precise when guiding people's diets.”

Emorn Udomkesmalee

Senior researcher and former director, Institute of Nutrition, Mahidol University

Thanks to scientific data partly collected using stable isotope techniques, Thai consumers will soon have access to more precise nutrition labelling on food products. This is part of the government's efforts to revise the recommended daily nutrient intake and which foods can fulfil that – to help ensure people are given the right advice. It will ensure that the country's nutrition policies and programmes are based on up-to-date data. Check out the full article on our [IAEA website](#)!



Thai consumers. (Photo courtesy of N. Jawerth/IAEA)

Supporting Government Policy in Morocco to Address Micronutrient Deficiencies

A study carried out from 2006 to 2008 showed that iron deficiency in Morocco has not reduced despite the fortification of flour with elemental iron. In 2016, the Government changed the type of iron fortificant, from elemental iron, which is highly affected by dietary iron inhibitors, to NaFeEDTA, a water-soluble iron compound, which is more bioavailable and less affected by dietary iron inhibitors. The same year, to support this change in strategy, the Moroccan Government requested IAEA support to help confirm the bioavailability of NaFeEDTA from wheat flour.

An iron bioavailability study was conducted under a TC project (MOR/6/022) by the Joint Research Unit for Nutrition and Food Research 'Ibn Tofail University-CNESTEN' together with the Ministries of Health and Agriculture, Ibn Tofail University, and the National Reference Centre of Neonatology and Nutrition in collaboration with the Human Nutrition Laboratory of ETH Zurich. The findings demonstrated that NaFeEDTA is highly absorbed. The Government Council will approve a decree and its application texts to change the type of iron fortificant from elemental iron to NaFeEDTA. This will be effective at the end of 2018.

The study results also showed that tea consumed together with wheat products reduces the absorption of NaFeEDTA. This will require a strong communication strategy that recommends consumption of tea either one hour before or one hour after a meal. Check out the full [web-article](#)!



A study participant consuming the test meal with tea. (Photo courtesy of H. Aguenau)

Success Stories

IAEA Coordinated Research Project contributes to initial evidence on how breastfeeding in the context of HIV affects infant growth and body composition

The World Health Organization (WHO) recommends that infants should be breastfed exclusively for the first six months of life, even when the mother is HIV-positive. The results of the coordinated research project showed that if HIV-infected mothers adhere to the recommendation, their children consume adequate amounts of human milk and those who are exclusively breastfed for six months gain more fat-free mass at one year of age, indicating healthy growth. The results align well with the Sustainable Development Goal 2 target of achieving at least a 50% rate of exclusive breastfeeding by 2025.

The research project used deuterium oxide, a stable isotope of hydrogen, which occurs naturally in the human body and in drinking water in small amounts. The mother is given a dose of deuterium, which shows up in her body water. As she breastfeeds the infant, that deuterium is passed to the infant. Analysis, using mass or infrared spectroscopy, of deuterium concentration in saliva or urine samples collected from both mother and infant over a two-week period indicates the level of deuterium transfer from the mother to the infant, thus revealing whether the infant was breastfed exclusively and how much milk was consumed. More information can be found [here](#). This web article was highlighted as a breaking news item by Breastfeeding Medicine, a news feed for the prestigious Breastfeeding Medicine Journal.

BREAKING NEWS

International research confirms WHO HIV **breastfeeding** recommendations

The International Atomic Energy Agency reported on a coordinated research project that confirmed World Health Organization **breastfeeding** recommendations for exclusive **breastfeeding** for the first 6 months of life, including by HIV-positive mothers. The researchers used isotopic techniques to assess the safety of HIV-positive women **breastfeeding** their babies. Researchers from Burkina Faso, India, Jamaica, Kenya, South Africa, Sri Lanka, and Thailand participated in the study with support from experts in Australia, the United Kingdom, and the United States.

[For More Info](#)

Mary Ann Lober, Inc. is publisher

FROM THE JOURNAL

[Learn More about the Journal](#)



Video-teaching no better
than routine for latching

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Feedback

The NAHRES Team appreciates your feedback! If you have any questions or comments, please send them to:

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Impressum

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