



Food and Agriculture  
Organization of the  
United Nations



# Integrating agriculture and nutrition education for improved young child nutrition

## Technical Meeting Report





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Food and Agriculture Organization of the United Nations

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<sup>1</sup> In January 2016, the FAO Nutrition Division (ESN) was renamed Nutrition and Food Systems Division (ESN). In the main body of the report, the old designation ‘Nutrition Division’ has been used as this was the operational term at the time of the technical meeting.

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# Acknowledgements

This report summarizes the proceedings of the Technical Meeting “Integrating agriculture and nutrition education for Improved Young Child Nutrition”, which took place at the Rome headquarters of the Food and Agriculture Organization of the United Nations (FAO) on 6–8 July 2015.

The Technical Meeting was the culmination of a research and advocacy initiative carried out within a project entitled: “Improving the dietary intakes and nutritional status of infants and young children through improved food security and complementary feeding counselling” (IMCF) (2010–2015), implemented jointly by FAO and the Institute of Nutritional Sciences, Justus Liebig University (JLU) Giessen, Germany in partnership with Lilongwe University of Agriculture and Natural Resources (LUANAR), Malawi and Mahidol University, Cambodia. The IMCF project aimed to contribute to the body of evidence on the relationship between agricultural diversification, food security and nutrition education and their nutritional outcomes.

A lot of work has recently been done in this area. In order to inform future programme design, implementation, monitoring and evaluation, FAO and its research partner JLU invited practitioners and researchers from UN agencies, Non-Governmental Organizations (NGOs) and research institutions to discuss programme interventions integrating agriculture with nutrition education .

FAO would like to thank all technical experts for the excellent contributions made at the meeting. We would like to acknowledge especially the researchers from JLU, LUANAR and Mahidol universities and the speakers - representing various agencies - who showcased their research results and good practices from integrated agriculture-nutrition education programmes in Africa and Asia.

We would like to acknowledge the government, NGO and community nutrition staff for their readiness to participate in and support programme activities. Most of all we would like to thank the study families for their patience and their willingness to let us investigate such private aspects of their lives as their food, health and eating behaviours. We trust that the results, good practices and lessons that have emerged from our efforts to improve young child nutrition can make a difference to families and communities in many parts of the world.

We would like to say a special thank you for the smooth organization and running of the meeting to Elizabeth Westaway, Theresa Jeremias, Julia Garz, Esther Evang and Rachel McBride, all formerly FAO consultants. Many thanks go to the note takers: Esther Evang, Yvette Fautsch, Julia Garz, Ashley Geo, Yenory Hernandez-Garbanzo, Theresa Jeremias, Judith Kuchenbecker, Edye Kuyper, Rachel McBride, Stacia Nordin, Anika Reinbott, Elizabeth Westaway and Ramani Wijesinha-Bettoni. IT support was very ably provided by Carlos Palmer. Last but not least, a huge thank you is due to Natascia Alessi, Michele Rude and Rachel McBride for making all meeting arrangements, including logistics and catering.

Edye Kuyper, Ramani Wijesinha-Bettoni, Elizabeth Westaway, Stacia Nordin, Esther Evang and Rachel McBride contributed to the meeting report, which is gratefully acknowledged.

Last but not least, we gratefully acknowledge the generous contribution of the German Federal Ministry of Food and Agriculture (BMEL), which funded the IMCF project and supported this Technical Meeting.

Ellen Muehlhoff was responsible for the overall direction of the meeting.

The Technical Meeting Secretariat was composed of Ellen Muehlhoff, Elizabeth Westaway, Theresa Jeremias and Irmgard Jordan.



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# Acronyms

|       |   |        |   |
|-------|---|--------|---|
| A&T   | Alive & Thrive  | JLU    | Justus Liebig University (Giessen, Germany)   |
| BMEL  | German Federal Ministry of Food and Agriculture   | KAP    | Knowledge, Attitudes and Practices  |
| CBO   | Community-based Organization  | LUANAR | Lilongwe University of Agriculture and Natural Resources  |
| CDDS  | Child Dietary Diversity Score   | MALIS  | Improving food security and market linkages for smallholders in Preah Vihear and Oddar Meanchey |
| CHV   | Community Health Volunteer  | MAD    | Minimum Acceptable Diet   |
| DAG   | Disadvantaged Groups  | MDD    | Minimum Dietary Diversity   |
| ESN   | Nutrition and Food Systems Division, FAO  | MMF    | Minimum Meal Frequency  |
| FAO   | Food and Agriculture Organization of the United Nations   | M&E    | Monitoring and Evaluation   |
| FBS   | Farmer Business School  | MNP    | Micronutrient Powder  |
| FFS   | Farmer Field School   | MoE    | Ministry of Education   |
| HAZ   | Height-for-age Z-score  | MoH    | Ministry of Health  |
| ICN2  | Second International Conference on Nutrition  | NGO    | Non-Governmental Organization   |
| IEC   | Information, Education and Communication  | OMC    | Oddar Meanchey  |
| IFPRI | International Food Policy Research Institute  | PVR    | Preah Vihear  |
| IFSN  | Improving food security and nutrition policies and programme outreach   | RAIN   | Realigning Agriculture to Improve Nutrition   |
| IMCF  | Improving the dietary intakes and nutritional status of infants and young children through improved food security and complementary feeding counselling | SUN    | Scaling Up Nutrition  |
| IYCF  | Infant and Young Child Feeding  | SBCC   | Social and Behaviour Change Communication   |
| JFFLS | Junior Farmer Field and Life School   | TIPs   | Trials of Improved Practices  |
|       |   | ToT    | Training of Trainers  |
|       |   | UNICEF | United Nations Children's Fund  |
|       |   | WASH   | Water, Sanitation and Hygiene   |
|       |   | WHO    | World Health Organization of the United Nations   |



# Executive summary

## FAO/JLU Technical Meeting: Integrating agriculture and nutrition education for Improved Young Child Nutrition

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Over the past five years, the Food and Agriculture Organization of the United Nations (FAO) has been collaborating with Justus Liebig University (JLU) Giessen, Germany on the IMCF research and advocacy project entitled: “Improving the dietary intakes and nutritional status of infants and young children through improved food security and complementary feeding counselling” (IMCF). The project lasted from 2010 to 2015, and was funded by the German Federal Ministry of Food and Agriculture (BMEL).

In July 2015 a Technical Meeting was held to share the findings concerning the effectiveness of programme interventions that combine agriculture with nutrition education for behaviour change in young child nutrition.

Participants included sixty-three representatives from UN agencies, Non-Governmental Organizations (NGOs), research institutions, universities and development partners.

The aim of the meeting was to:

- share data, lessons and good practices based on current integrated agriculture-nutrition education programme interventions in Africa and Asia;
- identify challenges, opportunities and research gaps in order to advance our understanding and enhance future actions;
- distil lessons for future integrated interventions to promote sustainable solutions for improving infant and young child feeding (IYCF) at scale;
- establish a network of interested partners to facilitate knowledge exchange.

The Technical Meeting focused on reviewing the effectiveness of agriculture-nutrition education programme interventions and their impact on children’s diets and nutritional status. Group sessions resulted in a draft document entitled *Programme Lessons: integrating agriculture and nutrition education for improved young child nutrition*, which was further developed and refined following the Technical Meeting. Although previous Technical Meetings have considered the integration of agriculture and nutrition, the nutrition education focus of this meeting was new.

Part I of this report is a summary of the proceedings of the meeting. A companion document contains the Programme Lessons: integrating agriculture and nutrition education for improved young child nutrition.

## Outcomes of the Technical Meeting

An overview was provided of evidence on the impact of “nutrition sensitive agriculture” programmes on nutrition outcomes, particularly with regard to maternal and young child nutrition. Current evidence is weak, partially owing to poor research design; however, there are indications that studies are now being carried out with greater scientific rigor.

Participants looked at a range of recently completed and ongoing large-scale integrated agriculture-nutrition education programme interventions from Africa and Asia that aim to improve family and young child nutrition. These included the following programmes:

- the FAO IFSN<sup>2</sup> (Malawi) and MALIS<sup>3</sup> (Cambodia) projects;
- Action Contre La Faim (ACF) Health Gardens project (Mali);
- Concern RAIN project (Zambia), CARE SHOUHARDO II (Bangladesh);
- Cambodia HARVEST;
- Mama SASHA (Kenya);
- Suaahara (Nepal);
- Alive & Thrive (Bangladesh, Ethiopia and Vietnam).

## Results from research and survey findings

Improved (exclusive) breastfeeding practices were reported by Alive & Thrive, Suaahara and Mama SASHA. Evidence of improved complementary feeding practices could be seen in a number of indicators, including:

- Minimum Dietary Diversity (Alive & Thrive, Cambodia HARVEST, CARE SHOUHARDO, Concern RAIN, IFSN, MALIS, Suaahara);
- Minimum Meal Frequency (CARE SHOUHARDO, MALIS, RAIN);
- Minimum Acceptable Diet (CARE SHOUHARDO, RAIN, IFSN, MALIS, Suaahara);
- Consumption of vitamin A-rich foods (ACF, IMCF, Mama SASHA).

An improvement in mothers'/women's dietary diversity (CARE SHOUHARDO, Cambodia HARVEST, Mama SASHA) and vitamin A intakes (Mama SASHA) could also be detected in some projects. A decrease of household hunger and improved food security were reported by the ACF, CARE SHOUHARDO, MALIS and IFSN projects. Several programmes identified an improvement in hygiene knowledge and /or practices (CARE SHOUHARDO, IFSN, MALIS, Suaahara).

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<sup>2</sup> IFSN: “Improving food security and nutrition policies and programme outreach”.

<sup>3</sup> MALIS: “Improving food security and market linkages for smallholders in Preah Vihear and Oddar Meanchey”.

The CARE SHOUHARDO II Programme in Bangladesh was alone in reporting a substantial reduction in the prevalence of stunting between the baseline and endline surveys. A positive impact on stunting was observed at mid-term in the FAO IFSN Malawi project, but the effect was not sustained at endline. These results confirm that improvements in growth are extremely difficult to achieve, requiring not only optimal diets for mother and child but also improvements in health, hygiene and environmental sanitation. The results also highlight the need to select indicators that are appropriate to the scale, purpose, resources and duration of these interventions. Good evidence is also needed on the socio-economic and cultural factors that help or hinder behaviour change, processes and outcomes. Such information, often of a qualitative nature, can contribute to our understanding of what works, why and in what context and help to improve programme design and implementation.

## Lessons learned

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There is growing evidence to show that combined agriculture and nutrition education programmes can significantly improve children's diets. Participants agreed that it is feasible for families to improve child feeding practices using local food and diets, especially where nutrition education is combined with actions aimed at improving household food security and dietary diversity, which in turn help to preserve local food cultures and biodiversity. Appropriate complementary feeding can lay the foundation for lifelong healthy eating and reduce the risk of obesity and noncommunicable diseases. However, more robust data on the cost-effectiveness, sustainability and scalability of integrated interventions is needed.

### Planning is key

Formative research is essential to identifying locally appropriate solutions. Extensive community engagement is needed in order to involve everyone who has a say in food buying, preparation and distribution, as well as the management of workloads in the family, including parents, grandparents and older children. Practical nutrition education is vital so that families learn to maximize nutritional benefits by applying new skills and knowledge in food acquisition, processing, cooking, basic hygiene and sanitation. However, more evidence is needed on what kind of nutrition education works best, in terms of channel (face-to-face, mass media), duration, intensity and so on.

### Collaboration and partnerships across sectors

Participants acknowledged that while optimal complementary feeding is an essential element in an overall strategy to prevent childhood undernutrition, stunting is difficult to address and there is no single magic bullet. Actions are required on many fronts, including well planned collaboration among the various sectors (agriculture, education, health, sanitation, social protection, etc.) and strengthening of existing structures, such as government health and agricultural extension services. Lamentably, nutrition is often confined to the health sector without active engagement by

agriculture and other sectors, a situation that is further exacerbated by weak capacities in food and nutrition education for behavior change in all sectors. A preventive food-based approach that focuses on improving access to and consumption of good quality diets calls for strong partnerships and intersectoral collaboration.

### **Combined strategies**

To make diverse, nutritious diets readily accessible and available, it is essential to diversify agriculture, and make better use of indigenous foods. These steps should be backed up strategies to raise incomes, reduce poverty, and give women more access to income.

There will be situations in which improvements in diet may not be enough to meet children's nutrient requirements fully, and prevent malnutrition in the short-term. In such cases, a combination of strategies, which can include biofortified or fortified foods, or foods that are especially enriched, such as micronutrient powders (MNPs) and lipid-based nutrient supplements, should be considered.

### **Targeting**

The effective integration of nutrition and agriculture is often hampered by the fact that different sectors focus on different targets. Agricultural programmes typically target male farmers and established female farmers, because these people have the capacities to improve agricultural production. Health and nutrition education programmes, on the other hand, tend to target women and children, and to focus on children during the first 1 000 days of life. Without careful planning, this can lead to low overlap between the two types of intervention. Harmonized targeting is essential to ensure that agricultural interventions have a greater impact on diets.

### **Agricultural diversification vs productivity increases**

Participants agreed that agricultural policies and input subsidy programmes tend to focus on cash crop production, to the detriment of dietary needs. Careful planning is required to ensure a balance between production for the market and for family consumption. Some countries reported low access to agricultural inputs, especially vegetable and legume seeds and small livestock, and poor access to markets for inputs and sales. Possible solutions comprise linking farmers, including young families and female farmers, with markets to generate income and improve their livelihoods, while concurrently increasing the demand for diverse, nutrient-rich foods, and intensifying efforts to expand market access for poor families and women.

### **Women's empowerment**

Several programmes found that women's ability to attend nutrition education sessions and put dietary and health advice into practice was limited by their workload. Especially in busy periods such as the rice transplanting season, time for food preparation and child care may be limited. A gender-

sensitive, participatory approach is essential during the programme planning and design stage, whereby both facilitators and community members are involved in identifying problems and solutions relative to intra-household decision-making, power relations and seasonal workloads.

### **Food safety**

Problems of food safety, especially with regard to aflatoxin in groundnuts and maize, were highlighted in Malawi and Zambia. Improvements in controlling infection (pre- and post-harvest) and in food processing, storage and preservation techniques are essential to prevent infestation with mycotoxins, retain nutritional value and ensure food safety, as well as to reduce seasonal food insecurity and post-harvest losses.

### **Agriculture and health delivery systems**

A low ratio of extension workers in both health and agriculture sectors, together with high staff turnover frequently hamper effective programme delivery and undermine sustainability.

### **Capacity development**

A lack of adequate staff training was highlighted as an obstacle to effective nutrition education activities. Long-term solutions are needed, including the integration of agriculture and nutrition education in existing training and service delivery institutions. This means incorporating food-based nutrition into national education curricula, including higher education in health and agriculture, and into pre-service, in-service and refresher training courses. By including nutrition education activities in the job duties of health, community development and agricultural extension staff, a reliable workforce may be secured. Capacity development efforts should consider the different training needs of the various sectors at all level. Quality training materials containing harmonized messages are required.

### **Synchronizing delivery of integrated actions**

Participants found difficulty in synchronizing the delivery of integrated agriculture/nutrition actions. To harmonize agriculture and nutrition education interventions, a number of factors should be considered, including seasonal labour demands, the timing of harvests, and weather conditions. Access to inputs and training should coincide with the food production season, while participatory cooking sessions must follow the harvest.

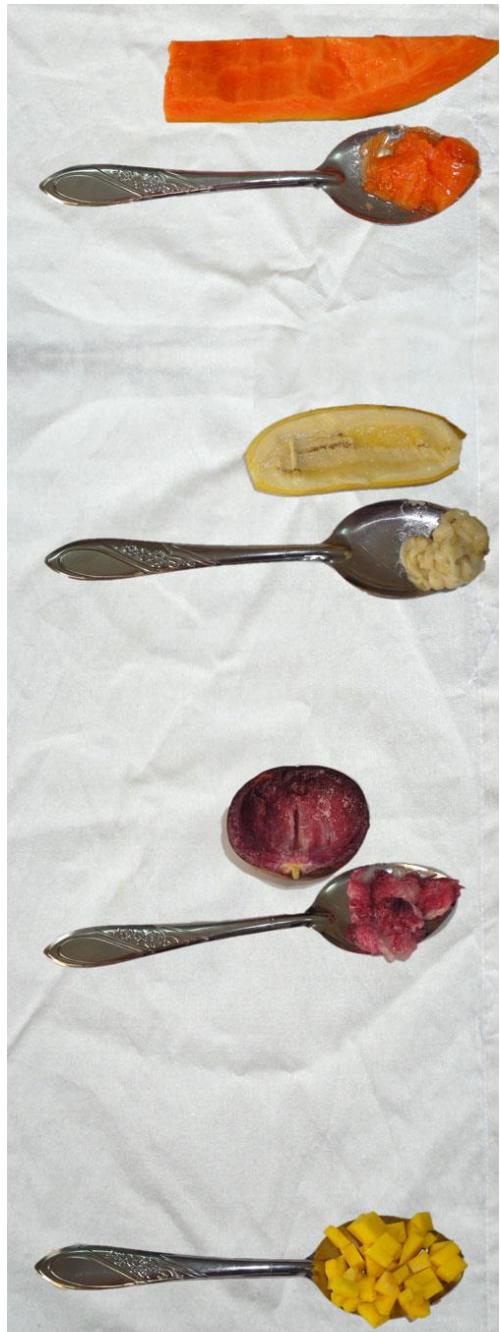
## The way forward

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The meeting highlighted the importance of creating integrated agriculture-nutrition education programme interventions that consider caregivers, especially mothers, in the many roles that they play. Women may act as farmers and market vendors as well as being intervention “beneficiaries”; hence, each of these roles is an entry point for introducing foods, technologies and behaviours that can improve family food and nutrition security. Participants underscored the need for using marketing approaches, psychological strategies and behavioural economics to stimulate behaviour change.

Looking toward the future, there is a need to advocate for well planned integrated agriculture-nutrition education programme interventions that will include genuine collaboration among the sectors to reduce redundancy and improve reach. In order to continue the exchange of ideas after the Technical Meeting, the creation of an electronic forum for food and nutrition education, on the lines of the Spanish language “Red ICEAN” network created by FAO to support information, communication and nutrition education in Latin America and the Caribbean.<sup>4</sup>

It was urged that the outcomes from this Technical Meeting be shared with various potential users, including the Agriculture-Nutrition Community of Practice (ag2nut) network and the Secure Nutrition Platform.<sup>5</sup> It is hoped that future meetings and networks will expand this dialogue among nutrition education/Social Behaviour Change Communication, health and social marketing experts and practitioners from the agriculture, education and social protection sectors, and beyond.



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<sup>4</sup> Red de Información, Comunicación y Educación Alimentaria y Nutricional para América Latina y el Caribe: [www.fao.org/red-icean/es/](http://www.fao.org/red-icean/es/).

<sup>5</sup> Agriculture-Nutrition Community of Practice: [www.knowledge-gateway.org/ag2nut](http://www.knowledge-gateway.org/ag2nut).

In summing up, the FAO/JLU Technical Meeting provided an opportunity for rich discussions, deepening our understanding of the factors that contribute to the effectiveness of integrated agriculture-nutrition education programme interventions with a focus on improved young child nutrition.

Many of the salient points and key lessons raised during the Technical Meeting are captured in the Programme Lessons presented as a companion to this report.



## I. Background

The global food and financial crisis of 2008 had serious implications for food and nutrition security and gave rise to increased commitments to nutrition. Since the publication of the 2008 and 2013 Lancet series on Child Malnutrition, efforts have coalesced around emphasizing the first 1 000 days of a child's life, from conception to the child's second birthday, when better nutrition can have the greatest impact, and break the cycle of poverty and malnutrition. Within the first 1 000 days, the complementary feeding period from 6–23 months of age is fundamental for appropriate child growth. During this time, a young child should continue to be breastfed while the diet is complemented by age-appropriate, diverse and nutritious foods. Suboptimal nutrition during this period can affect physical and cognitive development in ways which may be irreversible, and lead to metabolic disorders that persist throughout life.

Investment in agricultural development has also been increasingly prioritized since the food crisis of 2008. More development investments now recognize that enhanced synergies between agriculture and nutrition could contribute to greater reductions in malnutrition and poverty. Reviews of the nutrition-related outcomes of agricultural development projects consistently note that positive impacts depend on whether nutrition education was included in the intervention (Berti, Krasevec and FitzGerald, 2003; Ruel, 2001; Girard et al., 2012). Recent evidence confirms that nutrition education interventions aimed at improving complementary feeding have a high potential to improve the nutritional status of children in developing countries (Lassi et al., 2013). However, education needs to be combined with improved access to foods that are suitable for young children,

nutritious and affordable. While smaller-scale studies have demonstrated impact on child dietary diversity and stunting reduction, the authors emphasize the need for large-scale, high quality randomized controlled trials (RCTs) to assess the impact of such interventions on the growth and morbidity of children aged 6–23 months. However, there are evidence gaps which need to be addressed concerning the sustainability and cost-effectiveness of implementation at scale.

To address these evidence gaps, FAO embarked on a comprehensive 5-year research project entitled “Improving the dietary intakes and nutritional status of infants and young children through improved food security and complementary feeding counselling” (IMCF (2010–2015), which was funded by the German Federal Ministry of Food and Agriculture (BMEL), with partners in Cambodia, Germany, Malawi and Thailand.

The research took place in the context of FAO food security and nutrition projects in Malawi and Cambodia entitled: “Improving food security and nutrition policies and programme outreach” (IFSN) project (2011–2015), and “Improving food security and market linkages for smallholders in Preah Vihear and Oddar Meanchey” (MALIS) project (2011–2015). The IFSN and MALIS projects were managed by FAO with financial support from the Government of Flanders and the European Union, respectively, and implemented through local partners. In Malawi, the main implementing agency was the Ministry of Agriculture, Irrigation and Water Development in collaboration with the Ministries of Health, Local Government and Rural Development, and Gender, Children, Disability and Social Welfare, with overall nutrition coordination provided by the Office of the President and Cabinet’s Department of Nutrition, HIV and AIDS (DNHA). The MALIS project in Cambodia was implemented through the General Directorate of Agriculture (GDA), Ministry of Agriculture, Forestry and Fisheries (MAFF) in collaboration with the National Nutrition Programme, Ministry of Health and the Ministry of Women’s Affairs. Field-based nutrition education activities were implemented by Non-Governmental Organizations (NGOs): Malteser International (MI) and Farmer Livelihood Development (FLD) in Oddar Meanchey and Preah Vihear provinces, respectively.

The IMCF project was led by the Nutrition Education and Consumer Awareness Group of the FAO Nutrition Division, which also provided technical support to nutrition actions in the IFNS and MALIS projects. The field research in Malawi and Cambodia was carried out under a Letter of Agreement (LOA) with FAO by the Institute of Nutritional Sciences, Justus Liebig University (JLU), Giessen, Germany. JLU partnered with the Agricultural Extension Department of Bunda Campus, Lilongwe University of Agriculture and Natural Resources (LUANAR) in Malawi, and the Institute of Nutrition at Mahidol University in Thailand.

The highlights and conclusions of the IMCF research are reported in the proceedings of this meeting.

## II. Introduction to the report

This report summarizes findings and lessons from programme interventions that link agriculture and nutrition education with the specific aim of improving family and young child nutrition, identified during the Technical Meeting convened by FAO and JLU at the FAO headquarters in Rome on 6–8 July 2015. Although previous meetings have been held to review good practices and formulate an action agenda for social behaviour change communication (SBCC) initiatives to improve nutrition during the first 1 000 days (USAID, SPRING and GAIN, 2014), the focus on integrating nutrition education for behaviour change in agriculture and food security programmes is new.

During this 2.5 day Technical Meeting the objectives were to:

- share data, lessons and good practices based on current integrated agriculture-nutrition education programme interventions in Africa and Asia;
- identify challenges, opportunities and research gaps to advance our understanding and enhance future actions;
- distil lessons for future integrated agriculture-nutrition education programme interventions to improve the diets of young children and their families;
- establish a network of interested partners to facilitate knowledge exchange.

The meeting brought together 63 participants from UN agencies, NGOs, research institutions, universities and development partners programmes from Africa and Asia, including country participants from countries which are part of the Scaling Up Nutrition Movement (SUN) and the USAID Feed the Food Future programme.

The meeting agenda and list of participants can be found in Annexes 1 and 2.

The first day of the Technical Meeting was structured around sharing new evidence and research findings from the FAO IFSN and MALIS projects in Malawi and Cambodia, followed by presentations of other agencies' innovative and successful integrated programme interventions in Africa and Asia. Working groups were convened on the second and third days to identify good practices for Integrating agriculture and nutrition education. Thematic discussions focused on how to improve monitoring, evaluation and operational research, and considered how to ensure and sustain behaviour change on complementary feeding using locally available nutritious foods as well as how to sustainably scale up agriculture/food system nutrition interventions to improve the diets of young children and their families. The third day included short plenary presentations by UN agencies culminating in a final session on the Way forward.

Given the full agenda and diversity of programmes that were presented, it is hard to capture the full richness of the Technical Meeting. The main presentations are summarized in Sections IV to VII, providing noteworthy learning summaries as applicable, while the main arguments and discussion highlights are featured as key points throughout this report. Summaries are also provided of working

group outcomes. The main outputs of the Technical Meeting have been distilled in the companion document to this report, entitled Programme Lessons.

Although the majority of participants were nutrition professionals with a shared background, there was a lack of agreement in relation to the terms “Nutrition Education” and “Social and Behaviour Communication Change (SBCC)” indicating a need for discussion and harmonization (Contento, 2011; McNulty, 2013; The Manoff Group, 2012). Box 1 provides definitions and explains the rationale for the terminology used in this report.

#### Box 1: Terminology

**Nutrition education** is defined as “any combination of educational strategies designed to facilitate voluntary adaption of food choices and other food- and nutrition-related behaviours conducive to health and well-being. Nutrition education is delivered through multiple venues and involves activities at the individual, community and policy levels”. (Contento, 2011, p. 15)

“**Social and Behaviour Change Communication (SBCC)** for health is a research-based, consultative process that uses communication to promote and facilitate behaviour change and support the requisite social change for the purpose of improving health outcomes.” (The Manoff Group, 2012, p. 4)

There is considerable overlap among the objectives and strategies used in nutrition education and Social Behaviour Change Communication. For the purposes of these Programme Lessons, the term “nutrition education” is used because its definition reflects the framework espoused by the FAO team that convened the process to develop and disseminate these lessons.

### III. Opening

Anna Lartey, Director of the Nutrition Division, and Jomo Kwame Sundaram, Coordinator for Economic and Social Development, welcomed participants to FAO headquarters, sharing their commitment to addressing child undernutrition, and underscoring FAO's dedication to promoting healthy diets and strengthening nutrition education in line with the Framework of Action for Nutrition endorsed at the Second International Conference on Nutrition (ICN2) held in November 2014. Jomo Sundaram acknowledged the contributions of implementers, researchers and donor agencies, particularly the continuing support provided by BMEL in funding nutrition at FAO. Irmgard Jordan, Co-Principal Investigator of the IMCF research project, expressed her appreciation on behalf of JLU for the rare opportunity to carry out research in "a real life" food security and nutrition project. She emphasized the independence of the research and care taken by the researchers not to unduly intervene in project activities while observing and evaluating project processes and outcomes.

Ambassador Thomas Wriessnig, Permanent Representative of the Federal Republic of Germany to FAO, stressed that nutrition begins with agriculture. He wished participants a productive meeting and hoped that, through partnerships and networks, added momentum can be created and maintained to improve the nutritional status of young children in Africa and Asia, who continue to shoulder the greatest proportion of global undernourishment.



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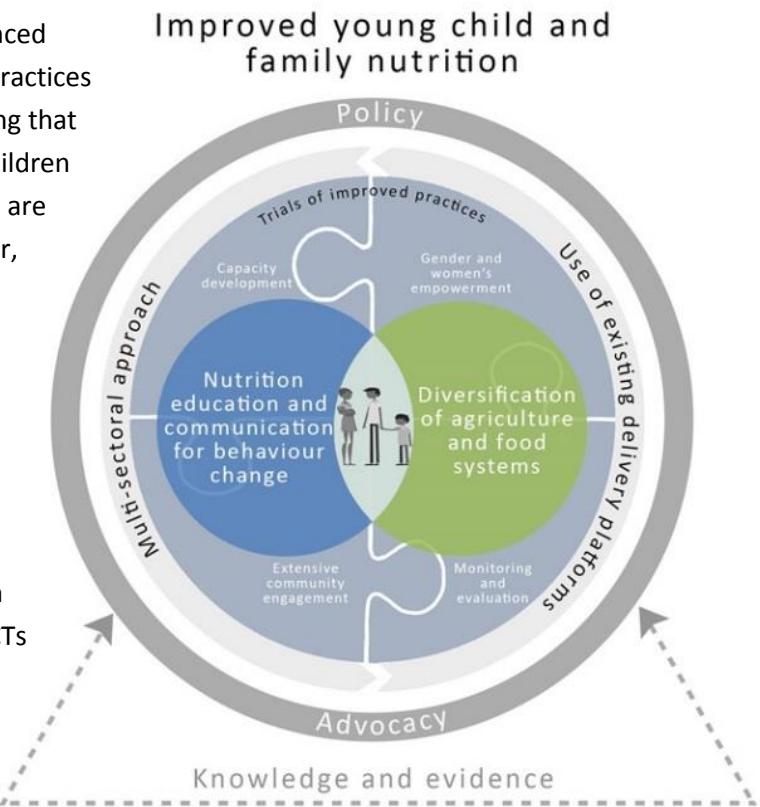


## IV. FAO & JLU activities

### Overview of FAOs approach to integrated agriculture and nutrition education

*Ellen Muehlhoff, FAO Nutrition Division*

The IMCF research and advocacy project commenced in 2010, building on previous Trials of Improved Practices (TIPs) (Dickin, Griffiths and Piwoz, 1997) confirming that families could improve the diets of their young children using locally available and affordable foods which are well accepted by families and caregivers. However, few studies had documented the impact of promoting locally available foods on children's dietary intake, micronutrient status and growth. Even fewer studies had documented the process of combining food security with nutrition education on complementary feeding, and the impact of such interventions. This evidence gap provided the stimulus for the IMCF project, which planned to carry out robust research based on RCTs to assess the effectiveness and impact of agricultural production/diversification in conjunction with nutrition education on children's diets and nutritional status, and to monitor the impact of implementation on knowledge, attitudes and practices (KAP) in order to inform future programming.



**Figure 1: The FAO integrated agriculture-nutrition education approach**

The overall aim of the FAO approach is to improve the diet of the whole family, and the theory of change is illustrated above (Figure 1).

## IFSN and MALIS projects<sup>6, 7</sup>

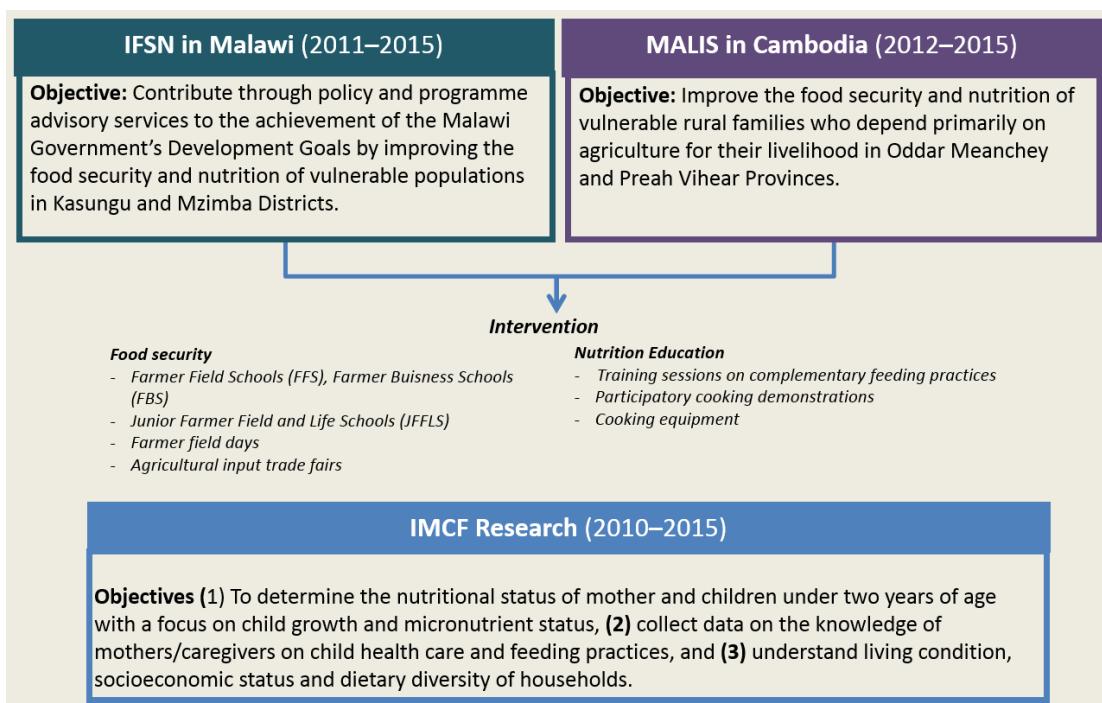
Although the IFSN and MALIS project strategies differed according to local circumstances and needs, both aimed to improve the food security, diet, and nutritional status of vulnerable families and young children aged 6–23 months. Both projects sought to increase agricultural production and diversification though the MALIS project emphasized agribusiness and income-generation. IFSN and MALIS project characteristics are summarised in Annex 3.

The IMCF research, carried out by JLU, aimed to assess the impact of the interventions and gain a better understanding of the contextual factors that influence maternal and young child nutrition outcomes. The structure of the projects is depicted below.

“There were no carrots in Malawi, but there were other vitamin A-rich foods: we keep forgetting local resources. Mice, caterpillars and insects are now on national food cards, making them legitimate food sources.”

*Stacia Nordin, highlighting the importance of developing context-specific nutrition education materials.*

**Figure 2: Schematic representation of the IMCF project**



<sup>6</sup> Summaries of the IFSN and MALIS projects are available at [www.fao.org/nutrition/education/infant-and-young-child-feeding/en/](http://www.fao.org/nutrition/education/infant-and-young-child-feeding/en/)

<sup>7</sup> A comparison of the key elements of the IFSN and MALIS projects is provided in Annex 3.

*Stacia Nordin, formerly FAO Malawi*

**IFSN** The IFSN project (Phase two: 2011–2015) was implemented in Kasungu and Mzimba Districts targeting approximately 42 000 farmers in vulnerable households. In these areas landholdings average 1.2 hectares and maize accounts for 85 percent of agricultural production. Maize plays an outsized role in the diet, contributing 75 percent of the population's dietary energy intake, indicating that both agricultural production and dietary intake lack adequate diversity. Stunting affects 47 percent of the country's under-five population and micronutrient deficiencies are also widespread; simultaneously, rates of excess weight and chronic disease are increasing. Food security activities were implemented through Farmer Field Schools (FFS), Junior Farmer Field and Life Schools (JFFLS) and farmer field days. Participants received inputs including seeds, fertilizer, fruit tree seedlings and livestock.

Participatory nutrition education was initiated through a training cascade process that developed nutrition capacity at several levels: a Training of Trainers (ToT) engaged service providers working in health, agriculture and community service sectors; these trainers then went on to train extension workers and volunteer Community Nutrition Promoters (CNPs) from the agriculture and health sectors. Pairs of CNPs facilitated IYCF nutrition education sessions in their home villages among groups of 15 mothers/caregivers with children aged 6–18 months at enrolment. The trickle-down training and implementation took place each year in different areas of the districts and a total of three rounds of training were held. In the initial stages, many households that received nutrition education did not benefit from agricultural inputs and training support. Project implementation and coordination improved as the project progressed and integration between the agriculture and nutrition education components was enhanced, although participation of households in both components remained lower than expected.

IYCF nutrition education sessions were held weekly or bi-weekly for approximately 2–3 hours over a period of five months. Participatory cooking sessions were carried out five times during the ten sessions featuring improved complementary feeding recipes composed of fresh, nutritious, in-season ingredients. Some IYCF nutrition education sessions specifically targeted grandmothers and men to obtain their support for food diversity, healthier practices and the alleviation of women's workloads. The IFSN project trained 1 100 CNPs and 12 000 caregivers, including mothers, grandmothers, fathers and traditional leaders, who participated in the IYCF nutrition education sessions, reaching 9 700 children.

*Lean Russell, formerly FAO Cambodia*

**MALIS** Cambodia was the location of the MALIS project (2012-2015) targeting 7 500 beneficiary households in Oddar Meancheay (OMC) and Preah Vihear (PVR) Provinces. These provinces are characterized by rapid demographic and economic change, causing increased mobility and household fragmentation that is especially pronounced in OMC. Stronger market linkages further differentiate Cambodia from Malawi. Food security activities were implemented through FFS, Farmer Business Schools (FBS), farmer field days and agricultural input trade fairs, with goals including increased market linkages, strengthening of farmer groups and disaster risk reduction.

The IYCF nutrition education activities in Cambodia followed a cascade training model similar to that used in Malawi, though there were fewer project participants and the duration of the nutrition education was shorter. Mothers/caregivers participated in a course of seven facilitated community-based sessions compared with 10 sessions in Malawi, with four participatory cooking sessions and two separate meetings where motivating and hindering factors to improved IYCF practices were discussed. In the intervention area, 153 CNPs were trained, and these in turn trained 1 400 mothers/caregivers with their children aged 5–18 months at enrolment. Additionally, a 7-day enriched porridge was distributed to 1 080 villagers.

While some IYCF nutrition education session topics varied between countries, fundamental aspects of appropriate complementary feeding were covered in both Malawi and Cambodia (Table 1).



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**Table 1: Comparison of IYCF nutrition education sessions in Malawi and Cambodia\***

| Session | Malawi   | Cambodia   |
|---------|--|--|
| 1       | Continuation of breastfeeding, hand washing and food safety                      | Importance of IYCF, continuation of breastfeeding, food for breastfeeding mothers, food diversity, three food groups |
| 2       | Complementary feeding for different age groups, consistency of porridge *        | Hygienic preparation of foods, washing hands, preparing complementary foods for infants                              |
| 3       | Malawi six food groups, seasonal food availability calendar                      | Snacks, complementary feeding for different age groups, active complementary feeding *                               |
| 4       | Family meals and how they affect child nutrition*                                | *  |
| 5       | Vegetables, fruit and other healthy snacks                                       | *  |
| 6       | Legumes /pulses *  | Feeding the sick child, complementary foods from family foods *  |
| 7       | Animal-source food *   | Review of key messages and graduation  |
| 8       | Feeding the sick child, prevention, danger signs of illness                      |  |
| 9       | Review of key messages and what was learned and adopted by families              |  |
| 10      | Graduation – mothers receive certificates and copy of key messages and recipes * |  |

\* Participatory cooking sessions (five in Malawi; four in Cambodia)

## IMCF research results

*Irmgard Jordan, JLU*

The research design, methods and findings of the IMCF research component were presented underlining the unique nature of the research:

- this was a large-scale RCT which set out to measure the effectiveness of the intervention at community level;
- the research was carried out over a period of three years in Malawi and two years in Cambodia in ongoing integrated agriculture–nutrition education programmes implemented by FAO through existing service delivery systems in agriculture, health and women’s affairs; and
- the research combined quantitative and qualitative data, and collected cross-sectional data at baseline, mid-term (Malawi only) and endline, with a one-year longitudinal cohort study following families with young children in both intervention and control villages. The IMCF study methodology included interviews, observations, blood specimens and anthropometry (Annex 4).

In Malawi, the proportion of the study population benefitting from food security and IYCF nutrition education interventions was 17 percent at mid-term and 7 percent at impact. During the study period, breastfeeding remained at approximately 100 percent and Minimum Meal Frequency

(MMF) remained stable. Minimum Acceptable Diet (MAD) and Minimum Dietary Diversity (MDD) improved in the intervention area only. There were no differences in mean Height-for-age Z-score (HAZ) between intervention and control at baseline while, at mid-term, mean HAZ in the intervention group improved significantly due to the combination of agriculture and IYCF nutrition education interventions, although these changes could not be sustained at endline. Being a beneficiary of an IFSN agriculture intervention (i.e. a participant in FFS) showed an indirect effect on Child Dietary Diversity Score (CDDS) while participation in an IYCF nutrition education intervention had direct effects on CDDS. The study concluded that the combination of food security and IYCF nutrition education improves children's nutritional status and dietary diversity at the community level.

Qualitative research showed that adoption of improved IYCF in Malawi was facilitated through:

- increased knowledge;
- children enjoying the taste of enriched porridges;
- seeing an improvement in child health; and
- having supportive grandmothers, fathers and other non-family members.

Hindering factors included unsupportive communities and food shortages. Analysis of the longitudinal study showed that children of caregivers who participated in all IYCF nutrition education sessions (i.e. nine sessions plus the graduation ceremony) had better growth than those who attended fewer sessions.

In Cambodia, there was evidence of behavioural change and improved health in the intervention areas. There was also increased capacity among the trainers and volunteers working at the village level as well as increased knowledge and skills among mothers and caregivers, resulting in statistically significant improvements in MDD in children in the intervention villages (which combined agriculture and IYCF nutrition education) and not in the control villages (agriculture only). No statistically significant impact on children's mean HAZ could be detected in the intervention villages. Two years after the baseline, 27 percent of IYCF nutrition education intervention households had also participated in agriculture activities.

Qualitative research showed that the knowledge and behaviour of caregivers significantly increased after IYCF nutrition education sessions. The longitudinal study also showed that after the IYCF nutrition education sessions, 25 percent of caregivers prepared enriched porridge (*bobor khap krop kroeung*) in the nutrition education intervention areas compared to 6 percent in the comparison areas. In addition, Focus Group Discussions (FGDs) indicated that obstacles to improving IYCF practices were women's workload, women's attitudes towards child feeding, food availability and access as well as women's ability and motivation to integrate the newly acquired skills into every day practice.

### **Noteworthy learning from the MALIS and IFSN projects and IMCF research**

The overall conclusion is that IYCF nutrition education can be effective in improving the quality of children's diets and IYCF practices, if it is participatory and builds on community support. However, improvements in HAZ are harder to achieve, given the multiple factors that need to be addressed over time.

FAO process reviews carried out during the last year of both projects highlight the importance of understanding the complexity of the socio-cultural contexts when designing and implementing projects. The Malawi formative research identified improved complementary feeding recipes and practices that were do-able, feasible and culturally acceptable and were therefore more likely to be adopted by caregivers. Including recipes for improved family meals in promotional activities would facilitate the transition of young children from enriched porridge to nutritious family food at around one year of age. In Cambodia, owing to male outmigration and the active participation of women in the labour force, which places them under severe time constraints, alternative options in addition to home-based food preparation need to be explored. In both countries, more effective action is needed across sectors to diversify food availability and access, and improve, sustain and scale up the integration of nutrition education into agriculture.

More emphasis is needed on

- harmonised targeting between nutrition and agriculture;
- the timely provision of agricultural support;
- crop and food diversification;
- a comprehensive, continuous training system at all levels of health and agriculture extension systems to deliver quality agricultural training and nutrition education;
- community engagement and the involvement of grandmothers and fathers to create a supportive environment, while concurrently reducing women's workload and
- regular supervision, monitoring and evaluation to encourage effective implementation and ensure a high standards of service delivery is maintained.



### Key points raised in the discussion

- ➡ The recipe design process was conducted with attention to the respective nutrient requirements for children aged 6–8 months, 9–11 months and 12–23 months, with the goal of including diverse food groups to deliver nutrient requirements. Recipes were tested for visual acceptability, palatability and feasibility, and used local measures (i.e. cups, ladles, etc.) for determining volumes instead of measurements (e.g. 100 grams) that were unfamiliar to caregivers. Despite much attention to this process, not all recipes met nutrient requirements for calcium, iron and zinc.
- ➡ **Data analysis** shows that in Malawi, improvements in CDDS were primarily attributable to the IYCF nutrition education intervention, while in Cambodia, improvements in CDDS were attributable to a mix of agriculture and nutrition education activities that included a particularly strong focus on vegetable consumption.
- ➡ **The topic of capacity development** attracted much attention. The quality of nutrition education delivered by extension workers with limited community-level experience was considered and potential avenues were discussed for expanding their knowledge and skills. Participants recognized that knowledge of the factors that contribute to enhancing impact is as yet limited, and a better understanding is needed of the processes involved. There is also need for clarification in nutrition education of the terms frequency, intensity and participation.



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## V. Partners' experiences

### **Learning from innovative and successful integrated agriculture-nutrition education programme interventions**

*The afternoon of the first day was devoted to learning from partners sharing their substantive hands-on experience in the integration of agriculture and nutrition. The aims of this session were to learn about the strategies they employed in diverse global settings, challenges faced, successes achieved and good practices identified. The following descriptions summarize their presentations.*

#### **What can we achieve and how?**

##### **Nutrition-sensitive agriculture and child nutrition: expanding the evidence base on pathways to impact**

*Amy Webb Girard, Rollins School of Public Health, Emory University*

*"If you want to see an impact on nutrition then you MUST have nutrition education"*

*Amy Webb Girard, highlighting the importance of nutrition education*

"Nutrition-sensitive agriculture" is a relatively new term, describing food system interventions that address the determinants of food and nutrition security, including environmental health and caregiving capacity. Pathways connecting agriculture and nutrition are multiple, and women's empowerment and nutrition education both underpin the ability of nutrition-sensitive agriculture interventions to achieve impact on nutrition outcomes.

Findings were shared from Girard et al. (2012), which built on previous and current reviews of the available evidence. The research shows that the evidence linking nutrition-sensitive agriculture to improved nutrition outcomes for women and young children is weak, largely owing to poorly designed evaluations. Studies have predominantly focused on vitamin A-rich foods and dietary diversity, with little attention to IYCF practices, with inadequate assessment of impact pathways. Ongoing research and results released since then indicate improvements in the scientific rigor of nutrition-sensitive agriculture interventions.

#### **Noteworthy learning**

Considerable evidence gaps continue to preclude claims that agricultural interventions improve nutrition. Thoughtful project design that includes collection and assessment of data along impact pathways is essential. Also, the potential for harm to nutrition needs to be monitored; being particularly likely when women take on new activities that may be time-consuming and reduce their decision-making and caregiving capacity.

## **Maternal and infant outcomes in an integrated agriculture, health and nutrition programme in western Kenya – the Mama SASHA programme**

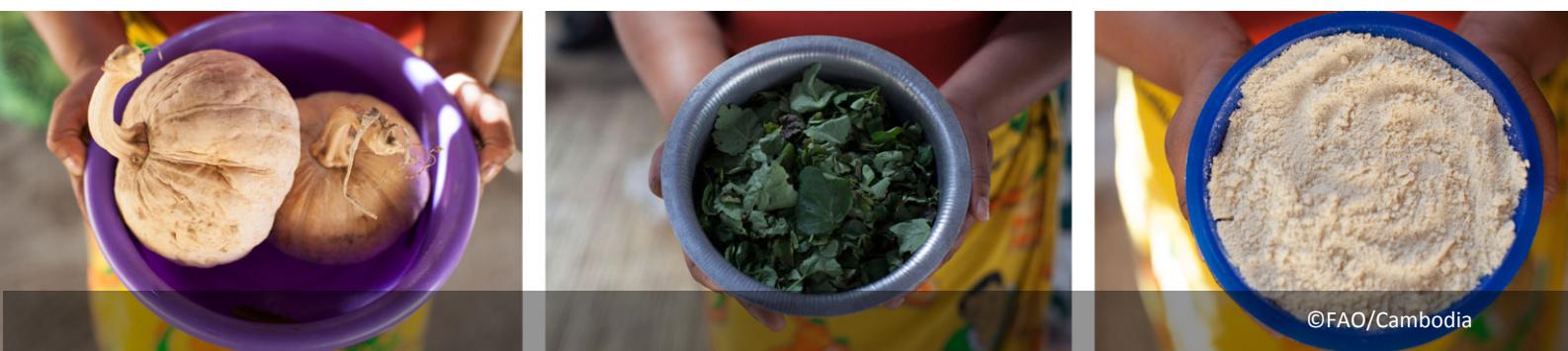
*Amy Webb Girard, Rollins School of Public Health, Emory University*

This cluster-randomized nutrition, agriculture and health study (2009–2014) set out to assess the cost-effectiveness of integrating orange-fleshed sweet potato (OFSP) into an existing health service delivery programme to improve the health status of pregnant women and the nutritional status of children under two years of age. The study was conducted in selected districts of western Kenya. Partners included Emory University, the International Potato Centre (CIP), PATH, University of Toronto, Ministry of Agriculture (MoA), Ministry of Health (MoH), and the local NGOs, Community Research in Environment and Development Initiatives (CREADIS) and Appropriate Rural Development Agriculture Programme (ARDAP). The study randomly allocated eight health facilities and their community catchment areas to either control or intervention groups. In intervention communities, pregnant women received enhanced nutrition counselling and vouchers for OFSP planting material at antenatal care (ANC) visits and were linked with community-based nutrition clubs, agriculture extension workers and farmers to redeem vouchers for sweet potato vines. Among a cohort of 505 pregnant women followed from first ANC visit to nine months postpartum, production of OFSP and knowledge of the contribution of vitamin A to health and nutrition increased significantly among intervention mothers compared to controls. At 8–10 months postpartum, vitamin A intakes in intervention mothers and their infants were nearly double those of controls.

### **Noteworthy learning**

Mother's vitamin A status improved, but vitamin A status was not significantly better among infants in the intervention compared with those in the control group. Although the study was well-designed, it was still difficult to achieve impact on all the outcomes of interest, such as improved breastfeeding practices, in a relatively short period of time.

From the ensuing discussion, the following point emerged. Merging agriculture and nutrition education lessons, so that both involve the same participants, may result in greater participation than if conducted separately. However, this degree of integration requires better linking of activities. For children routinely seen at a health centre, a combined approach may more effectively enable caregivers to meet their needs.



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## Health gardens: a multisectoral approach to enhance nutrition security in West Africa

*Julien Morel, Action Contre La Faim (ACF) France*

ACF engaged caregivers in Kita District, Mali in a multisectoral intervention combining food security, education, health, water and sanitation. The “Health Gardens Approach” reached approximately 1 400 caregivers from 36 villages to develop vegetable gardens for both home consumption and income-generation, and included dissemination of the Essential Nutrition Actions (World Health Organization (WHO), 2013) as well as cooking demonstrations of improved recipes. Production was supported through demonstrations of improved technologies as well as improved access to inputs, including credit. Impact study results included improvements in CDDS in the intervention group (4.1 food groups at baseline to 5.1 at endline), and consumption of vitamin A-rich foods among children under five years of age (59 percent at baseline compared to 99 percent at endline). Improvements in household food security, income-generated as a result of the garden project and knowledge of the causes of undernutrition were also observed in the intervention group compared with the control. Child care and IYCF practices improved only minimally, however, and the nutritional status and prevalence of undernutrition were not measured.

### Noteworthy learning

This integrated project facilitated improvements in indicators related to dietary intake, but not to IYCF and care practices, indicating that in this context increased consumption of specific foods was easier to achieve than changes to feeding and care practices. The limited impact on IYCF and care practices suggests that the effect on undernutrition may have been small, especially for the youngest children.

## **Improving young child feeding through behaviour change in the Realigning Agriculture to Improve Nutrition (RAIN) project in Mumbwa District, Zambia**

*Gudrun Stallkamp, Concern Worldwide*

The RAIN project is being implemented by a consortium of partners, including Concern Worldwide, the International Food Policy Research Institute (IFPRI), the Government of Zambia and the Mumbwa Child Development Agency, and has engaged approximately 5 500 households with pregnant and lactating women and/or children under two years of age in the Mumbwa district of Zambia. RAIN is a five year project that aims to demonstrate the effectiveness of a sustainable, scalable model integrating agriculture, nutrition and health interventions to prevent child and maternal undernutrition among rural Zambian communities. Concern Worldwide together with IFPRI designed the project in which research activities cover three intervention arms: agriculture-only, agriculture and nutrition, and a control group receiving no intervention.

*"You tell us about these vegetables but we don't have them."*

*(RAIN project participants in Zambia reflecting on the need to ensure access and production of diverse foods in combination with dissemination of nutrition education)*

Multiple technologies have been introduced by the project, which include: homestead gardening for increased crop diversity (household and demonstration plots); improved livestock production, including chicken and goat rearing; and at a smaller-scale, solar drying and fuel-efficient stoves.

### **Noteworthy learning**

The project is operational and midterm survey results based on a subset of participants indicated improvements in complementary feeding practices among participants in both intervention arms. Challenges encountered include: inadequate access to diverse vegetable and legume seeds; poor water availability, particularly in the dry season; low ratio of extension workers to project participants; and inadequate sensitivity to nutrition and gender among extension workers who primarily focused on maize, cash crops and male farmers. Access to markets for purchasing inputs and produce sales, and aflatoxin in groundnuts and maize have also posed challenges.

## A successful integration model from Bangladesh – the CARE SHOUHARDO II programme

*Judiann McNulty, Maternal and Child Health and Nutrition Specialist*

CARE Bangladesh, with USAID funding, implemented the “Strengthening household ability to respond to development opportunities II” (SHOUHARDO II) programme (2010–2015), reaching over 370 000 households in 11 of the most marginalized districts of Bangladesh. Its objectives were to enhance availability and access to nutritious food for extremely poor households, and to improve the health, hygiene and nutritional status of children under two years of age. Community health volunteers (CHVs) used social mobilization strategies to engage caregivers in two-monthly group sessions plus growth monitoring and promotion, and conducted home visits.

Child stunting in participating communities was reduced from 55.8 percent at baseline to 42.9 percent at endline among children under two years of age. The percentage of children aged 6–23 months with a MAD increased from 8.7 percent at baseline to 47.9 percent at endline. In addition, there was a reduction in household hunger and increased adoption of new agricultural technologies (Technical Assistance to NGOs International, 2015).

### Noteworthy learning

Final evaluation results suggest a synergistic impact from integrating agriculture with health and nutrition promotion, and the positive effect of frequent contacts on changing behaviours.

## Nutrition-agriculture linkages – lessons learned from Cambodia HARVEST

*Susan Novak, Cambodia HARVEST*

The Helping Address Rural Vulnerabilities and Ecosystem Stability – HARVEST - project is a five year intervention (2011–2015) to improve food security and increase incomes for 100 000 smallholders in the Tonle Sap Lake Region of Cambodia. Technical support strengthens horticulture, rice and aquaculture value chains, which are linked to a nutrition programme that addresses food utilization. Dietary diversity among women of reproductive age increased from 4.6 food groups/day at baseline to 5.7 at a recent midterm survey.

Innovative approaches to improving nutrition practices have included microfinance and microenterprise development, and mobile kitchens, which combine the ubiquitous food cart with community theatre. Participatory cooking sessions reached approximately 1 200 rural villages, engaging community members in conversations about nutrition, food safety and hygiene. Mobile kitchens also promote growth monitoring of young children and thereby enhance the capacity of CHVs.

### **Noteworthy learning**

The income-generation potential from home gardens appears to be limited in Cambodia. Higher wage opportunities are available in urban areas, so that the viability of agricultural activities depends on their economic potential. Seasonal water constraints also limit small-scale vegetable production. Hence, in this context, commercially-oriented vegetable production combined with community-based nutrition activities may be more promising than home production.

### **Reaching disadvantaged groups with nutrition agriculture interventions – the Suaahara project**

*Pooja Pandey Rana, Helen Keller International (HKI) Nepal*

Suaahara (Nepali for “Good Nutrition”) is an integrated community-focused programme dedicated to improving the health and nutritional status of pregnant and lactating women, and children under two years of age. It applies the latest evidence-based interventions in nutrition, health, family planning, water, sanitation and hygiene (WASH), backyard poultry and homestead food production at scale. Suaahara also promotes behaviour change around gender norms and power dynamics to achieve gains in nutrition for women from excluded groups. There is an explicit effort to train women from disadvantaged groups (DAGs) as nutrition and agriculture extension workers to enable them to serve as sources of information and technical support in their communities. Suaahara works with the Local Governance Community Development Programme under the Ministry of Local Development (MoLD) to map the location of DAGs in each Village Development Committee for all districts, particularly those with family members within the critical first 1 000 days period.

Process evaluation data on programme participation and impact suggests that Suaahara is closing the gap between DAG and non-DAG households. In Suaahara areas, exclusive breastfeeding among DAG communities is nearly universal, whereas in comparison areas it is less than 50 percent. No difference in consumption of dairy and eggs between DAG and non-DAG women and children is observed in Suaahara districts, whereas in comparison areas, consumption among DAG households is considerably lower.

### **Noteworthy learning**

With concerted efforts and nonconventional partnerships, this project has been able to engage socially excluded populations most at risk of poverty and poor nutrition. Working through local development structures in DAG communities can help ensure that local resources and support services are focused on their needs. Health providers are reaching DAG and non-DAG women equally with key Suaahara messages, while in comparison areas there remains a large gap in access to health information.

## Alive & Thrive: Can we scale up nutrition?<sup>8</sup>

*Edye Kuyper, University of California, Davis*

Alive & Thrive was developed to answer whether an at-scale approach to improving IYCF could significantly improve optimal breastfeeding and complementary feeding practices. Findings from Phase one (2009–2014) answer that question with an emphatic “yes.” Work was conducted in three unique focus countries: Bangladesh, Ethiopia and Vietnam. The framework for scaling up included mass media campaigns, social mobilization and interpersonal communication. These efforts are complemented with strategic use of data collected by IFPRI as part of measurement, learning and evaluation activities as well as advocacy. Intensity, measured as the number of contacts caregivers and their support networks, primarily grandmothers and fathers, had with message content, was significantly associated with improved IYCF practices. Behavioural determinants were also an area of focus.

Can we scale up?

“The definitive answer is a resounding YES.”

(The Alive & Thrive experience)

### Noteworthy learning

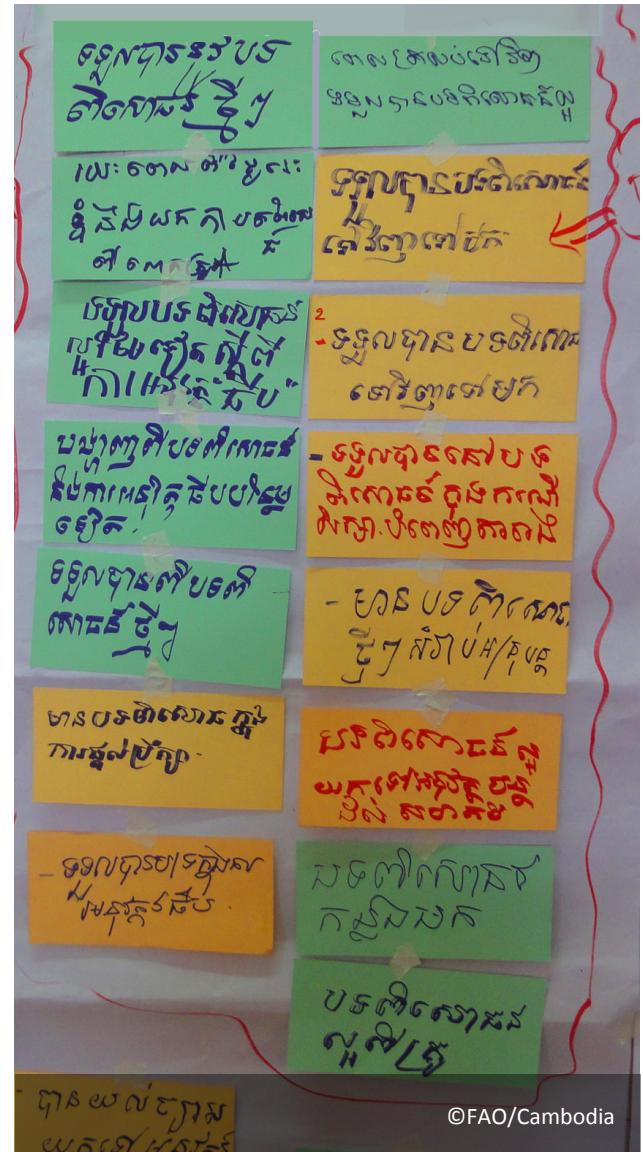
The large-scale A&T model led to substantial comparative increases in IYCF practices, providing evidence for investments in such models to improve IYCF at scale. The combination of interpersonal counselling complemented by mass media messages was particularly effective.

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<sup>8</sup> Presentation developed by Ann Jimerson, FHI360 and Silvia Alayon, Save the Children.

## Points raised in the discussion

- ➡ **Funders often request explanations of how projects will be sustained** beyond the funding period. In the case of nutrition education, however, the sustainability of specific activities is less important than whether people adopt and continue to practice healthy behaviours; the model for achieving this may change, but the practices must be sustained.
  - ➡ **Local context and project scope** is vitally important in determining feasible and appropriate interventions and evaluations.
  - ➡ “**Sometimes I think we don’t spend enough time looking at success stories...**” commented one participant. Instead of concentrating solely on challenges, practitioners also need to document what was done well, where and how. This will move the field from describing problems to identifying and suggesting solutions that others can adopt.
  - ➡ **The value of providing holistic programmes** needs to be balanced with a need to ensure that multiple messages do not overwhelm caregivers. It is important to ensure that “beneficiaries” actually benefit.



## VI. Nutrient requirements



### To what extent can we optimize the diets of young children and their families?

*The period of complementary feeding is critical for children's development. It is challenging because the nutrient requirements are high relative to a child's small stomach capacity. Food-based strategies are considered a sustainable approach for addressing undernutrition in the long-term, yet concerns have been raised that home-based diets alone may not ensure nutrient adequacy for young children. Three presenters shared research results related to these challenges.*

### The role of food composition data for nutrition and complementary feeding

*Ruth Charrondiere, FAO, Nutrition Division*

Careful selection of nutrient-dense foods for complementary feeding may help cover nutrient requirements while taking biodiversity into account. Data show that intra-species differences in nutrient content are often as significant as inter-species differences, with differences as great as 1 000-fold, e.g. a single banana can provide 1 percent or 200 percent of the recommended daily intake (RDI) for vitamin A, depending on the cultivar selected. FAO is developing a practical guide on *Selecting nutrient-rich foods for preparing complementary foods in sub-Saharan Africa (SSA)* to assist programme staff in choosing nutrient-rich locally available foods for complementary feeding. It will provide a list of the top 30 foods with highest content for 25 nutrients; and nutrient composition data of approximately 300 foods that are suitable for complementary feeding.

There is some doubt on whether recommended nutrient intakes (RNIs) for infants and young children are too high for the "problem" nutrients, as they are difficult to achieve with local foods alone. Hence, revisiting the requirements may be called for. Compositional data is inadequate or missing for many SSA foods and needs to be generated and disseminated to improve capacities to promote nutrient-rich locally available foods and estimate true nutrient intakes.

#### Noteworthy learning

Providing practical guidance to field staff and caregivers may help them to select nutrient-rich foods for recipe development and contribute to improving the quality of children's and family diets.

## Meeting nutrient requirements in complementary feeding with local foods including wild foods in Kenya<sup>9</sup>

*Gudrun Keding, Bioversity International*

Lack of dietary diversity is a major contributor to poor nutrient intakes during the complementary feeding period in many rural areas of developing countries. Even though many wild foods are available and are customarily eaten, their actual and potential contribution to the diets of young children has rarely been studied.

“[This is] not magic stuff. This is what you already have...”

*(Referring to participatory cooking sessions where participants bring along food and utensils)*

The “Improving nutritional health of women and children through increased utilisation of local agro-biodiversity in Kenya” (INULA) study (2012–2014) implemented by Bioversity International and partners, assessed the impact of an educational intervention on CDDS and nutrition knowledge of caregivers in western Kenya. The intervention comprised of four participatory nutrition education sessions over a five month period. CDDS and caregivers’ nutrition knowledge scores improved significantly in the intervention group at endline.

In eastern Kenya, Bioversity International and Save the Children UK studied the role of wild food biodiversity in reducing the cost of a nutritionally adequate diet for women and young children. Diets were modelled using the Cost of the Diet (CoD) linear programming tool (Chastre et al., 2009), both with and without wild foods. The modelled diets without wild species were deficient in several nutrients, for different child age groups and seasons, such as iron for all age groups during the dry season, and iron and zinc for infants aged 6–8 months over the whole year. The nutrition education intervention had a direct significant effect on CDDS ( $p=0.001$ ) and nutrition knowledge score of caregivers ( $p<0.001$ ); however, caregivers’ increased nutrition knowledge did not have a significant effect on CDDS ( $p=0.731$ ). Nutrition education sessions encouraged caregivers to use local food resources to improve the diversity and quality of complementary foods.

### Noteworthy learning

Nutrition education on its own may have limited impact on behaviour change and needs to be combined with increased availability of and access to nutritious foods. Adding wild foods to the modelled diets enabled recommended iron intakes for women and children aged 12–23 months to be met. However, micronutrient requirements of infants aged 6–11 months could not be satisfied and need more targeted actions.

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<sup>9</sup> Co-authors: Celine Termote, Bioversity International and Lydia Waswa, JLU.

## Food-based recommendations using Optifood in five Southeast Asian countries – the SMILING project

*Pattanee Winichagoon, Mahidol University*

The objectives of the “Sustainable micronutrient intervention to control deficiencies and improve nutritional status and general health in Asia” (SMILING) project were to identify “problem” nutrients most often found to be deficient and provide food-based recommendations (FBRs) for women and young children in five Southeast Asian countries (Cambodia, Indonesia, Laos, Thailand and Vietnam); and evaluate the use of multiple micronutrient powders (MNPs) or commercially fortified food products, depending on the country, when FBRs alone are insufficient to ensure dietary adequacy for young children.

The research team used dietary intake data for young children aged 6–23 months from the five countries and women of reproductive age only for Cambodia, Laos and Vietnam. Food frequency and 24-hour recall data were used to derive serving size and frequency of intakes per week. World Health Organization (WHO) RNIs for energy and 11 micronutrients were used as nutrient intake goals and all analyses were conducted using the Optifood programme.

For children aged 6–11 months, iron and zinc were common “problem” nutrients for all countries. Calcium was a problem for all except Vietnam, and folate only in Cambodia. For children aged 12–23 months, iron, zinc, calcium and folate were a problem in Cambodia, with folate being a problem in Thailand. FBRs alone could ensure dietary adequacy of four to nine nutrients for children aged 6–11 months, six to nine nutrients for children aged 12–23 months and four to nine nutrients for women, depending on the country. By including fortified food products (in Thailand) or three to four sachets per week of MNP (in Indonesia and Laos) with a set of FBRs, dietary adequacy could be ensured for all nutrients except calcium in most of these countries.

### Noteworthy learning

Optifood can provide information for decision-making related to “problem” nutrients from current feeding/eating practices of young children and women, which includes FBRs of locally available foods and for complementary feeding interventions, such as use of commercially fortified food products or MNPs.

## Points raised in the discussion

- ➡ **Food names used in food composition** are detailed and not easily understood, and laypersons tend to prefer generic names. However, there is value in educating people about the importance of distinguishing these foods from each other, as the details can be extremely important in ensuring accurate measurement of diets, e.g. porridge made from white maize vs yellow maize.
- ➡ **Differences in opinion** were expressed related to whether it was important to distinguish between the level of detail needed by different users, e.g. by lay audiences vs those creating improved complementary feeding recipes. Health workers require enough background information in order to be able to respond to caregivers' questions, such as why OFSP are better than white-fleshed ones.
- ➡ **Nutrient recommendations vary**, complicating exercises like the SMILING project: inadequate intake depends on the requirements used and may or may not be indicative of deficiency. A common-sense approach would suggest that if an individual eats the highest quality diet and is still not able to meet the requirement, then either the requirement or food composition table must be inaccurate.
- ➡ **Simple, engaging messages** can spread throughout a community. One presenter shared the story of a marketplace vendor who was overheard telling a mother, "I'll give you more liver, so you can give your baby," — the message had spread!
- ➡ **Even fast-growing papaya trees and small livestock** take time to grow and produce enough to improve family diets. Until local foods are available that can meet young children's micronutrient requirements, home fortificants including small-quantity lipid-based nutrient supplements and MNPs can play a role, although they may be a less sustainable solution to addressing micronutrient deficiency in the long term.



## VII. UN partner updates



*Several UN agencies are engaged in efforts to improve young child feeding, and a session on the third day of the FAO/JLU Technical Meeting showcased the diverse and synergistic efforts of some of these UN partners. The presentations are reported below with the dual purpose of consolidating development partner experiences and to keep them separate from the reporting of the working groups.*

### **Overview of UNICEFs approach to improve complementary feeding**

*Maina Muthee, UNICEF*

UNICEF works for a world in which every child has a fair chance in life. Nutrition is a major contributor to children's wellbeing and ability to fulfil their potential. UNICEFs approach to nutrition programming is based on a six step process for addressing undernutrition:

- situational analysis and programme design
- enabling environment
- scale up evidence-based interventions
- capacity development
- community involvement and empowerment
- monitoring and evaluation

Upcoming UNICEF activities related to complementary feeding include a soon-to-be released global IYCF report, a global complementary feeding meeting to be held in Mumbai, India and an evaluation of the Cornell University/UNICEF e-learning course “Programming for infant and young child feeding”,<sup>10</sup> which has achieved enormous reach. A review of the course experience in Nigeria will also be conducted in the near future.

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<sup>10</sup> The Cornell University/UNICEF e-learning course “Programming for infant and young child feeding: A training course” (available at [www.nutritionworks.cornell.edu/UNICEF/about/](http://www.nutritionworks.cornell.edu/UNICEF/about/)).

## **Development of a complementary feeding manual for Bangladesh**

*Lalita Bhattacharjee, FAO Bangladesh*

Challenges to optimal IYCF in Bangladesh and the development of a complementary feeding manual were described. Rigorous formative research identified caregivers' knowledge gaps and engaged them in the development of improved recipes for children aged 6–23 months. The resulting 35 improved recipes include foods from at least four of the seven recommended food groups, and emphasize local foods and traditional processing practices. The manual and recipes are now being used in nutrition education interventions at subnational and community levels by both agriculture and health sectors. Effectiveness and efficacy of the approach on young children's dietary intake and growth are currently being evaluated in partnership with the Bangladesh Institute of Child and Mother Health.

## **Recommendations on promotion of foods for infants and young children**

*Laurence Grummer-Strawn, WHO*

One of the many ways that WHO supports optimal young child nutrition is by providing guidance related to policy that promotes or impedes child nutrition. In 2010, the World Health Assembly (WHA) resolved to "end inappropriate promotion of foods for infants and young children". A Scientific and Technical Advisory Group (STAG) was convened to clarify that promotion is inappropriate if:

- it undermines recommended breastfeeding practices
- it contributes to childhood obesity and noncommunicable diseases
- the product does not make an appropriate contribution to infant and young child nutrition in the country
- it undermines the use of suitable home-prepared and/or local foods
- it is misleading, confusing or could lead to inappropriate use

Public comment has been elicited on these recommendations by 18 August 2015 and the STAG intends to provide final recommendations to the WHA Executive Board in January 2016.

## Leveraging REACH to promote agriculture and nutrition linkages for improved young child feeding

*Holly Dente Seduto, UN REACH*

REACH endeavours to better coordinate country-level nutrition activities of UN agencies, including FAO, International Fund for Agricultural Development (IFAD), UNICEF, World Food Programme (WFP) and WHO as well as non-UN partners in order to support SUN efforts at country level. The REACH Secretariat is housed at WFP in Rome. REACH includes in its work nutrition-sensitive agriculture and other aspects of the enabling environment not directly addressed by SUN. REACH stakeholder and nutrition action mapping exercises identify UN agency coverage and investment in SUN priority actions as well as discrepancies between stated priorities and levels of investment. In addition, policy overview tools allow a broad review of the extent to which a given policy supports optimal nutrition outcomes and underscores opportunities for synergy and further alignment among UN agencies.

## Social and behaviour change communication: an integrated part of the SUN roll-out in rural Malawi

*Nancy Aburto, World Food Programme (WFP)*

WFP has also been involved in the roll-out and implementation of SUN in Malawi. The process of translating formative research into a comprehensive nutrition education programme that impacts the mind sets of government and NGO partners as well as other stakeholders has required extensive time, capacity and resources. Several lessons have been learned along the way, including the importance of staying focused on an overarching objective, engaging entire communities and demonstrating economic benefits.

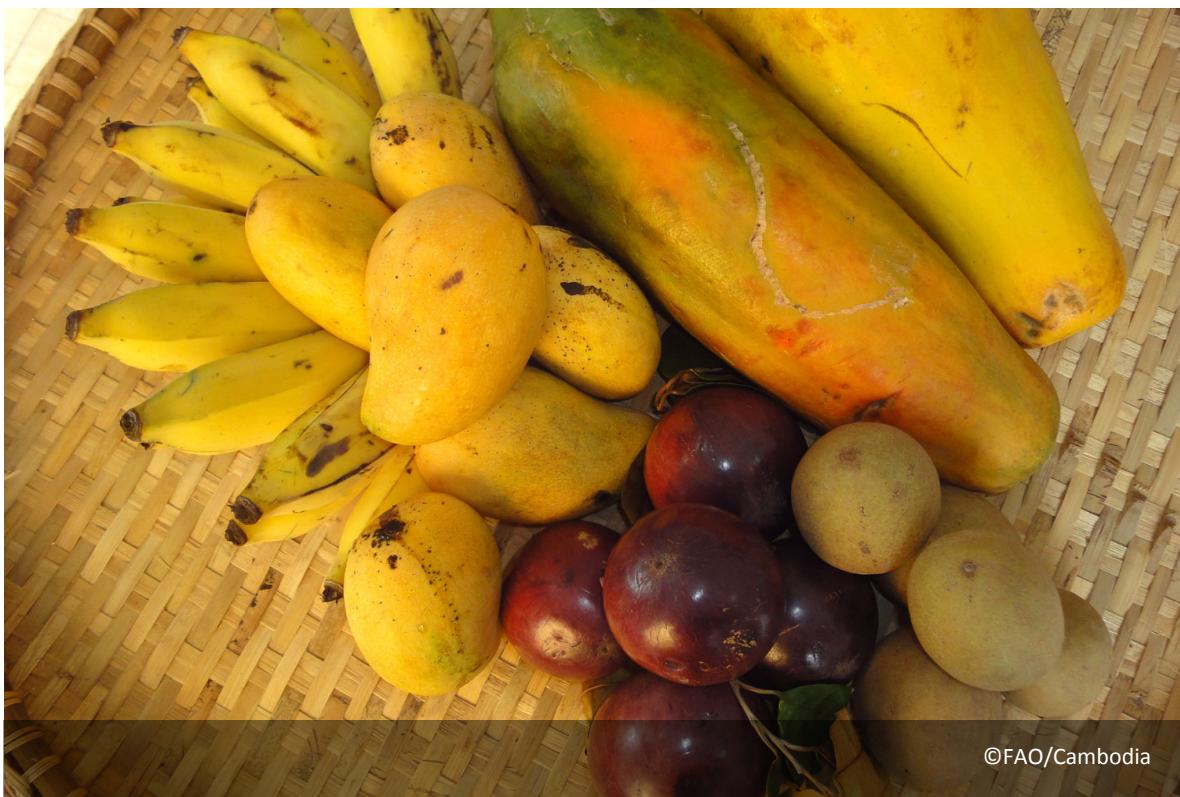
Through its school feeding programmes, WFP possesses a unique ability to stimulate demand for local agricultural products that can improve young child feeding. In Ecuador, WFP implemented a project to diversify and increase economic opportunity, support women's empowerment and reduce tension between a host community and refugee population. This was accomplished using a value chain approach worked upstream to link extension services to producers, improve linkages to school feeding programmes and support retail promotion activities; training emphasized dietary diversification throughout. After six months of project implementation, household dietary diversity increased from an average of four to seven food groups consumed daily, and meat consumption quadrupled.

## Nutrition mainstreaming in IFAD-funded programmes: Malawi and Zambia

*Marian Amaka Odenigbo, International Fund for Agricultural Development (IFAD)*

As an international financial institution, IFAD has augmented its long-standing goal of improving food security and livelihoods of rural poor populations by mainstreaming nutrition into the programmes it finances, with the result that IFAD's investments accelerate the consumption of safe, nutritious food. Newly designed programmes in Malawi<sup>11</sup> and Zambia<sup>12</sup> include explicit nutrition objectives and integration of nutrition education activities from the very start of the project cycle.

Programme activities are harmonized with government and other development partners; nutrition-sensitive agriculture with a gender lens; and climate-smart initiatives for nutrition. The operationalization of these initiatives with integration of nutrition education and BCC activities aims to facilitate positive nutrition outcomes. For example, the integration of nutrition education into an intervention that provides improved cooking stoves ensures that the time and energy saved by a reduction in firewood collection duties would positively influence capacity for caregiving of young children and meal preparation.



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<sup>11</sup> The IFAD programme in Malawi is being implemented by “Promotion of rural initiatives and development enterprises” (PRIDE).

<sup>12</sup> The IFAD programme in Zambia is being implemented by “Enhanced smallholder livestock investment programme” (E-SLIP).

## VIII. Working groups

### Discussions and lessons learned

*Participants worked in breakout groups for the larger part of the second day and during the morning of the third day. Proceedings of both days' working groups are reported below.*

*Based on their technical expertise, participants were allocated to smaller working groups (Annex 2) in order to optimize their contribution of ideas and experience to the topics under discussion, and the working group tasks for day two are summarized below (Table 4). Working group facilitators were provided beforehand with background information and instructions, and supported by note takers and co-facilitators responsible for recording discussion content and presenting major findings during plenary sessions.*

**Table 2. Working groups and questions: day two**

| DAY TWO – TUESDAY, 7 JULY 2015 |  |   |   |
|--------------------------------|--|---|---|
| WORKING GROUP                  | Working group 1  | Working group 2   | Working group 3   |
| Task                           | Identify good practices for designing an integrated agriculture-nutrition education programme intervention   | Identify good practices for M&E/operational research  | Identify good practices for ensuring and sustaining behaviour change            |
| Primary question               | What are the key factors that need to be taken into consideration when designing an effective integrated agriculture-nutrition programme intervention with the aim of improving young child feeding? | How do we effectively assess the impact of interventions that aim to improve young child feeding?<br><br>Issue: the complementary feeding age period is short (6–23 months) | What makes a nutrition education intervention on young child feeding effective? |

The most salient points and outcomes of the working groups have been incorporated into the Programme Lessons (a companion to the FAO/JLU Technical Meeting report). Summaries of the working group discussions are presented in the following sections.

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### **Working group 1: Good practices for designing an integrated agriculture-nutrition education programme interventions**

Working group 1 stressed the need to design programmes based on specific agreed principles, including those set out in the *Key recommendations for improving nutrition through agriculture programmes* (FAO, 2015a).

From the outset, multi-stakeholder planning should be done with a focus on sustainability and working at scale. Cross-sectoral training, where nutrition is included in agriculture training and vice versa, will enhance mutual understanding among the sectors and build multisectoral teams.

Nutrition education needs to be integrated from the start of the planning process and should address priority food and nutrition problems that exist in the community. In-line with good practice, nutrition education information, tools and messages should use simple language and concepts, be practical, oriented towards problem-solving, and easy for the nutrition educator to use. Accessible nutrition materials for the agriculture sector are currently lacking; hence, simple and appropriate nutrition education tools need to be developed.

In the ensuing discussion, additional points raised were:

- a. the need to cover the “how” as well as the “why” (i.e. both pathways and boxes in a graphic representation) when establishing a theory of change;
- b. the possibility of making use of health care workers and agriculture extension workers to collaboratively identify the population most in need of an intervention, given their complementary relationships within a community; and
- c. the need to consider the possibility of using unconventional partners and different delivery mechanisms.



## Working group 2: Good practices for M&E/ operational research

Working group 2 provided recommendations regarding M&E of integrated agriculture-nutrition programme interventions, and shared a framework of M&E methods and research designs that can be adapted depending on the programme scale, i.e. small, large, flagship and research (Annex 5). The group acknowledged the difficulty of combining programmes with research. It was stressed that the local context and programme scale are extremely important in determining appropriate M&E, e.g. RCTs are not always needed or appropriate. Hence, the evidence base on the impact of integrated agriculture-nutrition programme interventions on nutrition outcomes (i.e. stunting, anaemia) needs to be improved.

It was noted that the methodology for measuring the cost-effectiveness of integrated agriculture-nutrition education programme interventions needs to be addressed. A standard methodology for such analyses is currently not available and there is a gap in data on cost-effectiveness. Larger projects and those intended to increase production should measure economic and production indicators (e.g. household income, changes in household food production, etc.). The working group suggested going beyond health measures, such as disability-adjusted life years (DALYs) and to even include ecosystem benefits derived from agricultural interventions. Use of the Child Health and Nutrition Research Initiative (CHNRI)<sup>13</sup> was recommended to establish research priorities, particularly for small-scale studies. The need to allow sufficient time for an agriculture intervention to mature, until one might expect change to have occurred, was stressed before conducting outcome evaluations. In addition, two FAO e-learning resources on impact assessment (quantitative and qualitative)<sup>14</sup> were mentioned as well as the FAO KAP module, which also supports strong nutrition-related M&E (FAO, 2014).

An interesting discussion followed the presentation and most of the points raised have been incorporated into the Programme Lessons. The important role of growth monitoring was discussed; particularly, with regard to identifying at-risk children requiring treatment or preventative action. Although it can also be useful to monitor if a particular intervention has had an effect on child growth, by the time the indicator is measured, stunting may already be occurring, and it may be too late to try and address this condition for a specific child. Hence, it is important to target women of reproductive age in general rather than only mothers.

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<sup>13</sup> CHNRI is helping to set research priorities in child health, development and nutrition, and trying to resolve related methodological issues (<http://www.who.int/pmnch/about/members/database/chnri/en/>).

<sup>14</sup> FAO e-learning centre. “E-learning to meet the needs of agriculture and food security professionals. Monitoring, evaluation and impact assessment” (available at [www.fao.org/elearning/#/elc/en/courses/MEIA](http://www.fao.org/elearning/#/elc/en/courses/MEIA)).

### Working group 3: Good practices for ensuring and sustaining behaviour change

Working group 3 emphasized the need to clarify the definition of effective nutrition education. In response to the question, “Is there a dose-response<sup>15</sup> relationship in nutrition education?”, group members found that current evidence shows there is wide variation in dose-response, suggesting a need for more research to determine the optimal time, practice and duration required by individuals to acquire the necessary information and skills to incorporate new behaviours into their lives. Another topic for further research is the number and type of channels of communication and their relative influence. In most situations, the timeliness and relevance of the intervention/information provided may be an issue, e.g. how useful is information on complementary feeding to a newly pregnant mother? Or, would it be more appropriate to provide this advice when her infant is reaching the complementary feeding age?

The group felt that context-appropriate delivery channels should be used to raise awareness and enhance the impact of nutrition education, e.g. nutrition education radio shows are effective in some countries where the number of stations is limited, but where there are multiple station options, nutrition education radio programmes and information may not attract many listeners. The working group identified preconditions to achieving behaviour change and best practices, which have been included in the Programme Lessons.

The ensuing discussion considered in some depth the terminology and definition of nutrition education. A number of emergent ideas related to nutrition education being about experiential learning, which supports habit formation and ownership in addition to discourse change in the household. The emphasis on sustaining practices and sharing them throughout the community builds confidence as one puts into practice the new knowledge and skills. The terminology used is important, as it should focus on the person, who needs to implement the behaviour, and how they must own their agenda. This person needs to recognize their own problems, see the dangers associated with them, be convinced to change, find information to make that change and take a step forward with the help of a support system. Knowledge is key, but it plays a small role compared with the practical action that people must take to incorporate new habits into their everyday lives. Regarding whether the definition of nutrition education would need to change to keep up with contextual changes and evolving modes of delivery, the general opinion was that although the definition would not change, nutrition education methods may have to become more responsive to specific barriers and needs.

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<sup>15</sup> Not all working group members agreed with this terminology on the grounds that one could not talk about dose and response unless having first discussed the medicine, e.g. the process, approach and content of nutrition education.

Much work is now being conducted in capacity building for nutrition in agriculture. The Consultative Workshop on Capacity Development Modules on Nutrition and Food Systems<sup>16</sup> (see Annex 6) held at FAO headquarters demonstrated the importance of carrying out a systematic exercise to identify the various audiences and their learning needs. Another point that emerged from Working Group 3 discussion was the need to recognize that nutrition education is one of the necessary elements of successful interventions to enhance agriculture's impact on nutrition. However, the need to consider the food environment and food systems as well as regulatory measures was emphasized to make sure that the healthy choice is the easy choice.

### **Entry points for nutrition education and scaling up**

*On the third and final day of the meeting, participants were assigned to four working groups, with the tasks summarized below (Table 3). Working groups 1, two and three again addressed specific questions, while working group 4 was tasked with revising the programme recommendations that had been drafted by FAO based on experiences from diverse integrated agriculture-nutrition education programme interventions prior to the Technical Meeting. Working group participants were the same as per the previous day, with the exception of those participants who had been assigned to working group 4 (Annex 2). The discussions were limited to one hour, followed by 30 minutes for the plenary presentation of outcomes and recommendations by the working groups, and a further 30 minutes for a plenary discussion on the next steps.*

*In the following section, only additional points presented by the working groups are presented, which were covered in the final discussion, as relevant points have been incorporated into the Programme Lessons.*



<sup>16</sup> The Consultative Workshop on Capacity Development Modules on Nutrition and Food Systems was held at FAO headquarters, Rome on 16–17 April 2015 (FAO, 2015b).

**Table 3. Working groups and questions: day three**

| DAY THREE – WEDNESDAY, 8 JULY 2015 |   |  |   |  |
|------------------------------------|---|--|---|--|
| WORKING GROUP                      | Working group 1   | Working group 2  | Working group 3   | Working group 4  |
| QUESTIONS                          | <p>1. What are the entry points for nutrition education in different food systems?</p> <p>2. What are the different needs for capacity development?</p> | <p><b>In low-income rural areas:</b> (people source food primarily from own production)</p> <p>1. How can integrated agriculture-nutrition education interventions aimed at improving complementary feeding be sustainably scaled up?</p> <p>2. What are the innovative technologies for scaling up?</p> <p>3. What partnerships are needed?</p> | <p><b>In market-based economies:</b> (people source food primarily from markets)</p> <p>1. How can integrated agriculture-nutrition education interventions aimed at improving complementary feeding be sustainably scaled up?</p> <p>2. What are the innovative technologies for scaling up?</p> <p>3. What partnerships are needed?</p> | Refining recommendations for programmes that integrate agriculture and nutrition education programme interventions |

## Working group 1: Entry points for nutrition education in different food systems, and capacity development needs

The working group identified key entry points, such as commercially-oriented agriculture production/producer marketing groups, subsistence-level farming etc., and appropriate capacity building activities for each group, as follows. Commercially-oriented agricultural production and producer marketing groups present opportunities for bringing together individuals for collective action, thereby improving the nutritional profile of agricultural production, and building connections to markets and consumers. Subsistence-level farming can be improved by introducing integrated homestead food production. Actors across the value chain can support opportunities to link local farmers, markets and consumers to cover the “farm to fork” continuum, as supported by the NOURISHING framework.<sup>17</sup> Community institutions also present entry points, and include: literacy groups, particularly those targeting women; health groups; faith-based organizations and places of worship; volunteers; traditional birth attendants; traditional healers; and ceremonies, including weddings.

The working group briefly considered how capacity development needs to occur at different levels, with the roles and responsibilities defined at each level, and noted that a systematic review is required to identify these. A schematic framework created following The Consultative Workshop on Capacity Development Modules on Nutrition and Food Systems (Annex 6) provides a coherent approach to capacity development on nutrition and food systems. Pluralistic extension services, which can be delivered by government programmes, the private sector or NGOs, can incorporate staff training and capacity development at different levels. These trainings should include various nutrition and gender-related topics, such as nutritional requirements, programme management and the process of behaviour change. Trainees would be able to identify locally available, nutrient-dense foods, acquire know-how to prepare these foods, learn innovative methods to promote their production and become familiar with food safety issues.

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<sup>17</sup> The NOURISHING framework is a policy framework and interactive tool to promote healthy diets and reduce obesity, from the World Cancer Research Fund International (WCRF) (available at [www.wcrf.org/int/policy/nourishing-framework](http://www.wcrf.org/int/policy/nourishing-framework)).

## **Working groups 2 and 3: Sustainable scaling up, innovative technologies and partnerships needed in low-income rural areas and market-based economies**

The term, “scaling up” means different things to different individuals, so working group 2 adopted the following understanding: scaling up means using evidence and learning from a pilot or small-scale project for implementing at a larger-scale; increased scale requires inclusion of government from the outset, as well as NGOs and civil society. Sometimes scale up happens through direct spread or diffusion at the community level. However, it should normally be assumed that bringing in governments from the beginning of a project, rather than only at the end is a prerequisite of scaling up. In all cases, scale up would result in an observable impact at population level.

The challenges involved in scaling up include staff turnover, provision of inputs (“Who will provide over the longer-term? How to make this in the government’s best interest?”), equity (“Are we reaching the most vulnerable people?”), and maintaining quality when shifting from a pilot project to using government systems for implementation. Conducting a stepped-wedge roll-out<sup>18</sup> (Hill et al., 2014) is an option for generating evidence during initial scale up that can be applied to later phases.

Technical organizations should play a facilitating role in multisectoral coordination and support efforts to promote institutionalization of approach, potentially with influential government actors.

Instead of identifying what it would take to sustainably scale up projects, working group 3 envisioned what a scaled up programme might look like. Capacity development would occur in many different areas; there would be support for smallholder farmer associations; both retailers and vendors would be targeted with nutrition sensitization to ensure that they would all be part of a nutritious food chain; and institutional procurement of foods that were not only local but also nutritious would be commonplace, among other things.

The need for monitoring was exemplified in a case where the local community realized the food they produced was being shipped elsewhere and was no longer available to them. However, “ShopRite”, a chain of full-service grocery stores in Africa that is committed to stocking some locally produced foods, thus supporting local farmers and improving shoppers’ access to these foods, was cited as a positive example. Other facilitators of scaling up in market-based economies include the development and enforcement of policies that support robust food systems, such as food safety regulations.

Innovative technologies that can transform food to increase shelf life, improve handling processes etc., need to become more accessible to farmers and value chain actors. Post-harvest food safety

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<sup>18</sup> In the stepped-wedge design, there is a staggered roll-out of the intervention, where the time and hence the sequence of units (clusters) that will start the intervention at each period is determined by random allocation.

requires access to cold chain technologies and is essential for animal source foods and horticultural products; promotion of low-technology methods of food preservation (e.g. drying, fermentation) could also greatly reduce post-harvest losses.

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#### **Working group 4: Refining recommendations for programmes that integrate agriculture and nutrition education programme interventions**

Working group 4 reviewed a document drafted by FAO, containing a set of draft programme recommendations developed prior to this meeting from inputs and lessons of diverse integrated agriculture-nutrition education programmes interventions. The working group was requested to review the recommendations, and revise and strengthen them based on participant experience and the good practices, lessons and experiences presented by the working groups on day two.

The programme recommendations were targeted at programme managers and harmonized with the programme cycle. However, separate documents may be useful in reaching additional target groups, such as policy makers and advocates.

After further discussion, it was decided to rename the “Recommendations” as “Programme Lessons”, which would form the basis for future consultations with participants. Subsequently, the Programme Lessons were further developed to include all salient points arising from working group presentations and discussions. The draft document was refined through an iterative process that involved FAO staff and consultants, with input elicited from Technical Meeting participants. The “Programme Lessons” constitute a companion to the Technical Meeting report.

## IX. Plenary discussion



### Final plenary discussion and way forward

The final plenary discussion identified areas for future work, such as the potential for using marketing approaches, psychological strategies and behavioural economics to stimulate behaviour change. There is a need to strengthen the subdistrict or community level in countries where a top-down approach is still common; and always to consider first possible overlaps with and duplication of existing material and tools (e.g. the M&E indicator guide developed by FAO) before expending efforts on new products.

Many participants underlined the importance of creating integrated agriculture-nutrition education programme interventions that consider caregivers, especially mothers, in the many roles that they play. Women may be farmers and market vendors in addition to being intervention “beneficiaries”; hence, each of these roles is an entry point for introducing foods, technologies and behaviours that can improve their family’s food and nutrition security.

Looking toward the future, there is a need to advocate for well integrated agriculture-nutrition education programme interventions that will include genuine collaboration among the sectors to reduce redundancy and improve reach.

In order to continue the knowledge sharing and exchange of ideas that occurred in the context of the Technical Meeting, it was recommended that an electronic forum for food and nutrition education be created, much like the Spanish language “Red ICEAN”, which can be translated as “Network for information, communication and nutrition education for Latin America and the Caribbean”.<sup>19</sup>

It was urged that the outcomes from this Technical Meeting be shared with various potential users, e.g. Agriculture-Nutrition Community of Practice (ag2nut) network.<sup>20</sup> The need to consider

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<sup>19</sup> Red de Información, Comunicación y Educación Alimentaria y Nutricional para América Latina y el Caribe: [www.fao.org/red-icean/es/](http://www.fao.org/red-icean/es/).

<sup>20</sup> Agriculture-Nutrition Community of Practice: [www.knowledge-gateway.org/ag2nut](http://www.knowledge-gateway.org/ag2nut).

terminology was stressed, as the Technical Meeting had used a broad definition of nutrition education, considered by some participants as tantamount to the definition of SBCC. Hence, it may be necessary to think of the Programme Lessons in broader terms, in keeping with the definition of nutrition education as defined by Contento (2011).

In summing up, the FAO/JLU Technical Meeting provided an opportunity for rich discussions, deepening our understanding of the factors that contribute to the effectiveness of integrated agriculture-nutrition education programme interventions with a focus on improved young child nutrition. Although it is often said that nutrition education can make a key contribution, it is often omitted or not done well. For this reason nutrition education was the focus of this Technical Meeting.

At the start of this report, it was mentioned that inadequate evidence was available to determine whether nutrition education contributes to improved nutrition outcomes. An additional explanation for the availability of limited evidence was suggested by participants at the Technical Meeting: in order to achieve sustained behaviour change, nutrition education must be of a high quality and conducted in a participatory manner that engages both educators and caregivers. Too many nutrition education interventions employ didactic, ineffectual methods for sharing information; however, by engaging learners in identifying and solving the challenges confronting them, impact will be achieved and sustained.

Many of the salient points raised during the Technical Meeting are captured in the Programme Lessons. It is hoped that future meetings and networks will expand this dialogue among nutrition education/SBCC, health and social marketing experts as well as practitioners from agriculture, education and social protection sectors, and beyond.



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## X. Closing

In her closing address, Anna Lartey thanked participants for contributing valuable knowledge that is helping to close some of the evidence gaps. She urged participants to design programmes using the knowledge that has been gained and stated that “We know it works, but we still keep on being asked to prove that it works.” In the 1990s, Freedom from Hunger (MkNelly, B. and Dunford, 1998) implemented well-designed programmatic research that produced striking evidence on the impact that microfinance combined with education had made on nutrition outcomes. She urged participants to accelerate efforts to show that integrated agriculture-nutrition education programme interventions can positively impact nutrition outcomes. She also stressed the need for policy action to ensure that diverse, nutritious foods are available to all people.

“Together we can bring down malnutrition: we can in our lifetime.”

*(Anna Lartey, referring to the role those present must play)*

For UN agency staff present, Anna Lartey had a special message. She said, “The common person does not care which organization we are from, for them, we are collectively ‘the UN’. Some of us work at policy level, others at district level or village level. If we fail, we have all failed. The UN has failed. So especially at country level ... until we collaborate, we will not make headway. Very often, we see each other as UNICEF, WHO, WFP, FAO, but as far as ordinary people are concerned these are simply UN organisations. [Some] organizations may be better resourced to work at the village and district level; some at the policy level; that is great, let’s work together! The public should see us all as one UN. If they don’t, we have failed.”

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# Annex 1: Agenda

## DAY ONE: MONDAY, 6 JULY 2015

08.30–09.00 Registration of participants

### Opening session

*Chair: Anna Lartey*

09.00–09.40 Opening session  
*Plenary*

### Session one: IMCF project

“Improving the dietary intakes and nutritional status of infants and young children through improved food security and complementary feeding counselling”

*Chairs: Alexander Kalimbira, Pattanee Winichagoon*

09.40–09.50 Overview of IMCF concept  
*Ellen Muehlhoff, FAO*

09.50–10.10 Overview of FAO agriculture and nutrition education project in Malawi (IFSN)  
*Stacia Nordin, formerly FAO*

10.10–10.30 Overview of FAO agriculture and nutrition education project in Cambodia (MALIS)  
*Iean Russell, formerly FAO*

10.30–10.50 Coffee

10.50–11.35 Presentation of research design, results and conclusions for Malawi and Cambodia;  
Interpretation of research results  
*Irmgard Jordan, JLU*

11.35–11.45 Summing up  
*Ellen Muehlhoff, FAO*

11.45–12.30 Discussion

12.30–13.30 Lunch

## Session two: Presentations on different projects/programmes

"What can we achieve and how?"

*Chairs: Ruth Charrondiere, Boitshepo Giyose*

- .....
- 13.30–14.00 Nutrition-sensitive agriculture and child nutrition: expanding the evidence base on pathways to impact  
Maternal and infant outcomes in an integrated agriculture, health and nutrition programme in western Kenya  
*Amy Webb Girard, Emory University*
  - 14.00–14.15 Health gardens - a multisectoral approach to enhance nutrition security in West Africa  
*Julien Morel, ACF France*
  - 14.15–14.30 Improving young child feeding through behaviour change in the Realigning Agriculture to Improve Nutrition (RAIN) project in Mumbwa District, Zambia  
*Gudrun Stallkamp, Concern Worldwide*
  - 14.30–14.50 Discussion
  - 14.50–15.00 Coffee
  - 15.00–15.15 A successful integration model from Bangladesh – the CARE SHOUHARDO II programme  
*Judianne McNulty, Maternal and Child Health and Nutrition Specialist*
  - 15.15–15.30 Nutrition-agriculture linkages – lessons learned from Cambodia HARVEST  
*Susan Novak, Cambodia HARVEST*
  - 15.30–15.45 Reaching disadvantaged groups with nutrition and agriculture interventions – the Suaahara project  
*Pooja Pandey Rana, HKI Nepal*
  - 15.45–16.00 Alive & Thrive: Can we scale up nutrition?  
*Edye Kuyper, University of California, Davis*
  - 16.00–17.00 Discussion
  - 17.30–19.00 Reception
- .....

## DAY TWO: TUESDAY, 7 JULY 2015

- 08.45–08.55 Recall of day one  
*Edye Kuyper, University of California, Davis*  
*Ramani Wijesinha-Bettoni, FAO*
  - 08.55–09.00 Introduction to day two  
*Stacia Nordin, formerly FAO*
- .....

### Session three: Nutrient requirements

“To what extent can we optimize the diets for young children and their families?”

*Chairs: Gina Kennedy, Carl Lachat*

|             |   |
|-------------|---|
| 09.00–09.15 | The role of food composition data for nutrition and complementary feeding<br><i>Ruth Charrondière, FAO</i>  |
| 09.15–09.30 | Meeting nutrient requirements in complementary feeding with local foods including wild foods in Kenya<br><i>Gudrun Keding, Bioversity International</i> |
| 09.30–09.45 | Food-based recommendations using Optifood in five Southeast Asian countries – the SMILING project<br><i>Pattanee Winichagoon, Mahidol University</i>    |
| 09.45–10.30 | Discussion  |
| 10.30–10.45 | Coffee  |

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### Session four: Good practices for Integrating agriculture and nutrition education

*Chairs: Charlotte Dufour, Gudrun Keding*

|             |  |
|-------------|--|
| 10.45–11.05 | Explanation of tasks for three working groups on identifying good practices for: <ul style="list-style-type: none"> <li>• “Designing an effective integrated agriculture-nutrition education programme intervention”</li> <li>• “M&amp;E/operational research”</li> <li>• “Ensuring and sustaining behaviour change”</li> </ul> <i>Theresa Jeremias, FAO</i> |
| 11.05–13.00 | Working groups   |
| 13.00–14.00 | Lunch  |
| 14.00–15.00 | Working groups   |
| 15.00–15.30 | Presentation of outcomes and recommendations<br><i>Working groups 1 and 2 in plenary</i>   |
| 15.30–15.45 | Coffee   |
| 15.45–16.00 | Presentation of outcomes and recommendations<br><i>Working group 3 in plenary</i>  |
| 16.00–17.15 | Discussion of working group outcomes and recommendations   |
| 20.00–22.00 | Evening dinner   |

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### **Day three: Wednesday, 8 July 2015**

- 08.45–08.55      Recall of day two  
*Edye Kuyper, University of California, Davis*  
*Ramani Wijesinha-Bettoni, FAO*
- 08.55–09.00      Introduction to day three  
*Stacia Nordin, formerly FAO*
- .....

### **Session five: The way forward**

*Chairs: Michael Krawinkel, Ellen Muehlhoff*

- 09.00–09.10      Overview of UNICEFs approach to improve complementary feeding  
*Maina Muthee, UNICEF*
- 09.10–09.20      Recommendations on promotion of foods for infants and young children  
*Laurence Grummer-Strawn, WHO*
- 09.20–09.30      Development of a complementary feeding manual for Bangladesh  
*Lalita Bhattacharjee, FAO*
- 09.30–09.40      Leveraging REACH to promote agriculture and nutrition linkages for improved young child feeding  
*Holly Dente Sedutto, UN REACH*
- 09.40–09.50      Social and behaviour change communication: an integral part of the SUN roll-out in rural Malawi  
*Nancy Aburto, WFP*
- 09.50–10.00      Nutrition mainstreaming in IFAD-funded programmes: Malawi and Zambia  
*Marian Amaka Odenigbo, IFAD*
- 10.00–10.15      Coffee
- 10.15–10.25      Explanation of tasks for:
- one working group on “Entry point for nutrition education and capacity development needs”-
  - two working groups on “Scaling up and sustainability”
  - one working group on the “Review of recommendations”
- 10.25–11.25      Working groups
- 11.25–12.10      Presentation of outcomes and recommendations of working groups in plenary
- 12.10–12.30      Discussion
- 12.30–12.45      Next steps  
*Ellen Muehlhoff, FAO*
- 12.45–13.00      Closing  
*Anna Lartey, FAO*
- .....

## Annex 2. List of participants

| No.  | Title   | Name                  | Affiliation  | WG<br>day 2 | WG<br>day 3 | email   |
|--|---------|-----------------------|--|-------------|-------------|---|
| Permanent Representation of the Federal Republic of Germany to FAO |         |                       |  |             |             |   |
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| Donor  |         |                       |  |             |             |   |
| 3  | Ms      | Angelina Balz         | Advisor, German Trust Fund (BMEL), Germany                       | 1           | 1           | angelina.balz@bmel.bund.de                    |
| 4  | Ms      | Sunilda Terre-Fornies | Project Assistant, Federal Office for Agriculture and Food (BLE) | N/A         | N/A         | sunilda.terre-fornies@ble.de                  |
| JLU  |         |                       |  |             |             |   |
| 5  | Ms      | Gabriella Chiutsi     | PhD Student, LUANAR, Malawi                                      | 3           | 2           | gabriella.chiutsi@gmail.com                   |
| 6  | Dr      | Alexander Kalimbira   | Associate Professor, LUANAR, Malawi                              | 3           | 3           | akalimbira@bunda.luanar.mw                    |
| 7  | Prof Dr | Michael Krawinkel     | Professor, JLU, Germany  | 1           | N/A         | krawinkel@fb09.uni-giessen.de                 |
| 8  | Ms      | Judith Kuchenbecker   | PhD Student, JLU, Germany  | 2           | 2           | judith.kuchenbecker@ernaehrung.uni-giessen.de |
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| 10   | Dr      | Pattanee Winichagoon  | Associate Professor, Mahidol University, Thailand                | 1           | 1           | pattaneew@gmail.com                           |
| Development partners   |         |                       |  |             |             |   |
| 11   | Ms      | Tanja Cohrs           | Advisor, GIZ, Rural Development and Agriculture Division         | 1           | 1           | tanja.cohrs@giz.de                            |
| 12   | Dr      | Lidan Du              | Research Advisor, USAID - SPRING Nutrition                       | 2           | 2           | lidan_du@jsi.com                              |
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| 22                 | Ms    | Pooja Pandey Rana  | Deputy Chief of Party, HKI Nepal                                     | 1        | 2        | ppandey@hki.org                   |
| 23                 | Dr    | Iean Russell       | Formerly Nutrition Officer, FAO Cambodia                             | 1        | 1        | iean.russell@gmail.com            |
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| 39                 | Ms      | Boitshepo Giyose        | Senior Nutrition Officer, ESN, FAO HQ                           | 1        | 1        | boitshepo.giyose@fao.org     |
| 40                 | Dr      | Laurence Grummer-Strawn | Technical officer, Nutrition for Health and Development, WHO HQ | 2        | 4        | grummerstrawnl@who.int       |
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| 42                 | Ms    | Solange Heise             | Food Security and<br>Nutrition Officer,<br>FAO Niger                              | 3        | 3        | solange.heise@fao.org            |
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| 48                 | Mr    | Maina Muthee              | Nutrition Adviser,<br>UNICEF HQ   | 3        | N/A      | hmmuthee@unicef.org              |
| 49                 | Dr    | Marian Amaka Odenigbo     | Nutrition<br>Specialist, IFAD HQ  | 1        | 1        | m.odenigbo@ifad.org              |
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| 52                 | Dr    | Jomo Kwame Sundaram       | Coordinator for<br>Economic and<br>Social<br>Development, ES,<br>FAO HQ           | N/A      | N/A      | jomo.sundaram@fao.org            |
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| No.                 | Title | Name               | Affiliation                          | WG<br>day 2 | WG<br>day 3 | email                                    |
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| Meeting secretariat |       |                    |                                      |             |             |  |
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| 58                  | Ms    | Ashley Geo         | Intern, ESN, FAO HQ                  | 1           | 3           | ashely.geo@fao.org                       |
| 59                  | Ms    | Theresa Jeremias   | Nutrition Consultant, ESN, FAO HQ    | 3           | 4           | theresa.jeremias@fao.org                 |
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| 61                  | Ms    | Rachel McBride     | Intern, ESN, FAO HQ                  | 2           | 3           | rachel.mcbride@fao.org                   |
| 62                  | Ms    | Ellen Muehlhoff    | Senior Officer, ESN, FAO HQ          | 2           | 4           | ellen.muehlhoff@fao.org                  |
| 63                  | Dr    | Elizabeth Westaway | Nutrition Consultant, ESN, FAO HQ    | 2           | 4           | elizabeth.westaway@fao.org               |

## Annex 3: Comparison of projects

**Table 4. Comparison of FAO integrated agriculture-nutrition education projects in Malawi and Cambodia**

*The Table describes specific aspects of the Malawi (IFSN) and Cambodia (MALIS) projects, displaying similarities and differences in their scope and content.*

|   | Malawi: IFSN   | Cambodia: MALIS  |
|---|--|--|
| <b>Location, target group and reach:</b>                            | <ul style="list-style-type: none"> <li>Two Districts: Kasungu and Mzimba</li> <li>42 000 households</li> </ul>   | <ul style="list-style-type: none"> <li>Two Provinces: OMC and PVR</li> <li>7 500 households</li> </ul>   |
| <b>Project period:</b>  | <ul style="list-style-type: none"> <li>2011–2015 (48 months, Phase two areas)</li> </ul>   | <ul style="list-style-type: none"> <li>2011–2015 (42 months)</li> </ul>  |
| <b>Implementing partners, food security component:</b>              | <ul style="list-style-type: none"> <li>MoA, MoH</li> <li>Linkages to Ministry of Education (MoE) and other sectors</li> </ul>  | <ul style="list-style-type: none"> <li>NGOs FLD and MI, trained by government staff</li> </ul>   |
| <b>Implementing platform(s) and focus, food security component:</b> | <ul style="list-style-type: none"> <li>FFS, JFFLS</li> <li>Irrigation schemes</li> <li>Staples (maize, sweet potato, cassava) fruit, vegetables, legumes, livestock, fats</li> </ul>   | <ul style="list-style-type: none"> <li>FFS, FBS, Agricultural Cooperatives and farmer groups</li> <li>Food processing, marketing cassava, chickens, rice and vegetables</li> <li>Provision of cooking equipment</li> </ul>                 |
| <b>Outcomes of agriculture and food security interventions:</b>     | <ul style="list-style-type: none"> <li>Increased availability and diversity of foods</li> <li>Improved agricultural practices: soil and water management/ irrigation, increased tree planting</li> </ul>   | <ul style="list-style-type: none"> <li>Increased household food stocks</li> <li>Increased diversity of crop production, particularly rice</li> <li>Improved post-harvest systems and access to markets</li> </ul>                          |
| <b>Nutrition education component:</b>                               | <ul style="list-style-type: none"> <li>TIPs conducted in the first year to test feasibility and acceptability of enriched complementary feeding porridge</li> <li>Training conducted with staff and community volunteers responsible for IYCF</li> </ul> | <ul style="list-style-type: none"> <li>TIPs was included in the predecessor EU Food Facility project</li> <li>Training conducted with NGO staff and community volunteers responsible for IYCF</li> <li>IEC materials developed:</li> </ul> |

|  | Malawi: IFSN   | Cambodia: MALIS  |
|--|--|--|
|  | <ul style="list-style-type: none"> <li>• The final package of IEC materials developed:</li> <li>• SUN community training manual</li> <li>• IYCF care group guide in local language<sup>21</sup></li> <li>• One set of four nationally harmonised counselling cards<sup>22</sup></li> <li>• One set of local food photographs (65 small A6 cards)</li> <li>• One set of photographs (15 A4 cards) of watery porridge, enriched porridges, and balanced meals and snacks</li> <li>• One food group poster flip chart (seven A2 posters: one food group circle and one for each of the six food groups)</li> <li>• IYCF recipe book in local language</li> <li>• Seasonal food availability calendar (blank on one side and completed example on the other)</li> <li>• Nutrition-messaged cloth carrier bag for the IEC materials</li> <li>• Nutrition-messaged cloth for use as a wrap, decoration or for tailored clothing</li> <li>• Hard cover record book, ruler and pen for keeping track of IYCF care group participants and session participations, and for notetaking</li> </ul> | <ul style="list-style-type: none"> <li>• Video</li> <li>• Flipchart</li> <li>• Four posters</li> <li>• Agricultural input trade fairs distributed cooking equipment and ran nutrition booths where mothers/caregivers and children could taste enriched porridge and watch a video of key nutrition messages</li> <li>• One-day complementary feeding campaign</li> <li>• Farmer field days included promotion of basic hygiene and IYCF key messages; participatory cooking sessions/tasting of improved porridge often took place</li> </ul> |

<sup>21</sup> These first two items were previously one project document entitled: "IYCF Facilitation guide for Nutrition ToTs"

<sup>22</sup> This was previously one set of caregiver IYCF key message cards and one set of CNP IYCF facilitation cards, both bound sets of A3 laminated cards. The four modules are: hygiene and sanitation; pregnancy; breastfeeding; and complementary feeding.

|  | Malawi: IFSN  | Cambodia: MALIS  |   |
|--|---|--|---|
| Nutrition education outputs:   | <ul style="list-style-type: none"> <li>FFS: 4 6000 famers were trained</li> <li>JFFLS: 3 300 students were trained</li> <li>1 100 CNPs from both agriculture and health were trained</li> <li>12 000 mothers, grandmothers, fathers and traditional leaders trained (reaching 9 700 children aged 6–18 months at enrollment)</li> </ul>   | <ul style="list-style-type: none"> <li>FFS: 2 900 smallholder farmers were trained (reaching 3 700 households)</li> <li>FBS: 20 agricultural cooperatives and farmer groups were trained with a total of 320 participants (reaching 2 500 households)</li> <li>Agriculture fairs: 3 800 smallholder farmers participated</li> <li>153 CNPs from both agriculture and health were trained</li> <li>1 400 mothers, grandmothers, fathers and traditional leaders trained (reaching 1 400 children aged 5–18 months at enrollment)</li> </ul> |   |
| Defining aspects of the nutrition education interventions that contributed to success: | <p>Existing in both projects:</p> <ul style="list-style-type: none"> <li>Good cooperation with government for ToT</li> <li>Strengthened community sensitization and mobilization</li> <li>Input targeting criteria included households with young children and pregnant women</li> <li>Community-based facilitated groups of caregivers with young children in weaning period</li> <li>Practical learning environment</li> <li>IEC materials</li> <li>Inclusion of grandmothers and fathers in some IYCF nutrition education sessions</li> <li>Behaviour change at household level</li> </ul> | <ul style="list-style-type: none"> <li>Strong partnership with government</li> <li>Nutrition integrated in FFS and to some extent in JFFLS</li> </ul>  | <ul style="list-style-type: none"> <li>7-day free enriched porridge distribution</li> <li>Nutrition modules integrated into FFS, an nutrition integrated into agricultural input trade fairs and farmer field days</li> </ul> |

## Annex 4: Design and results

**Table 5. Research design and results – Malawi and Cambodia**

*IMCF research design, methods for IFSN and MALIS integrated agriculture-nutrition education programme interventions*

|                              | Malawi: IFSN   | Cambodia: MALIS   |
|------------------------------|--|---|
| Research design and methods: | <p>Cluster RCT design employed to identify intervention and control villages</p> <ul style="list-style-type: none"> <li>• Baseline survey conducted at project inception in 2011 (N=1 041)</li> <li>• Randomization of both intervention and control groups (6 clusters each)</li> <li>• TIPs and IYCF nutrition education intervention carried out in intervention villages only</li> <li>• Mid-term survey (Malawi only) – (N=872) (two years after baseline)</li> <li>• Longitudinal study of child cohorts, 12 month duration (N=149)</li> <li>• Final impact survey conducted in 2014 (N=1 221)</li> <li>• Qualitative data collected throughout, including FGDs, in-depth interviews, observations, and pre- and post-training tests</li> <li>• Anthropometric data and blood samples collected from families of eligible children regardless of whether they participated in IYCF nutrition education sessions</li> </ul> | <p>Cluster RCT design employed to identify intervention and control villages</p> <ul style="list-style-type: none"> <li>• Baseline survey conducted at project inception in 2012 (N=1 028)</li> <li>• Randomization of both intervention and control groups (10 intervention clusters; 5 comparison clusters)</li> <li>• IYCF nutrition education carried out in intervention villages only</li> <li>• Longitudinal study of child cohorts, 12 month duration (N=96)</li> <li>• Final impact survey conducted in 2014 (N=1 176)</li> <li>• Qualitative data collected throughout, including FGDs, in-depth interviews, observations, and pre- and post-training tests</li> <li>• Anthropometric data and blood samples collected from families of eligible children regardless of whether they participated in IYCF nutrition education sessions</li> </ul> |

|                  | <b>Malawi: IFSN</b>   | <b>Cambodia: MALIS</b>   |
|------------------|---|--|
| <b>Outcomes:</b> | <ul style="list-style-type: none"> <li>• At mid-term, 17 percent of IYCF nutrition education intervention households participated in food security activities; at endline 7 percent</li> <li>• Statistically significant improvement in CDDS (<math>\uparrow 0.4</math> food groups)</li> <li>• HAZ improved at mid-term (.21), but effect was not sustained at endline</li> <li>• Assumed a spill-over effect within villages</li> </ul> | <ul style="list-style-type: none"> <li>• At endline, 27 percent of IYCF nutrition education intervention households participated in food security activities</li> <li>• Statistically significant improvement in CDDS (<math>\uparrow 0.4</math> food groups)</li> <li>• No significant impact on HAZ</li> </ul> |

## Annex 5: M&E and research designs

**Table 6. Framework of M&E methods and research designs according to project scale**

| Type of project (scale)  | Small-scale *   | Large programme **  | Flagship programme plus research***  |
|--|---|---|--|
| Program maturation: agriculture intervention matures (monitor) |   |   |  |
| Impact/ outcome indicators                                     | Intermediate impact<br>MAD, MDD, MMF<br>IYCF nutrition education indicators                           | Health status (HAZ)<br>MAD, MDD, MMF, plus diversity within food groups<br>IYCF nutrition education indicators  | Health status (HAZ, anaemia)<br>MAD, MDD, MMF, plus diversity within food groups<br>Quantitative food intake     |
| Pathway indicators   | KAP survey  | Income expenditure patterns<br>KAP survey<br>Change in household food production  | Income expenditure patterns<br>KAP survey<br>Change in household food production                                 |
| Design of study  | Formative research<br>Quantitative<br>Qualitative: Pre/post-tests (to measure why there was a change) | Formative research<br>Intervention/comparison (issue: spill-over effect wanted)<br>Qualitative: Pre/post-tests (to measure why there was a change)    | Formative research<br>RCT<br>Qualitative: KAP survey<br>At least two cross-sectional studies (baseline, endline) |
| Monitoring for project management                              | Attendance/participation (IYCF nutrition education intervention)<br>Agriculture indicators            | Attendance/participation (IYCF nutrition education intervention)<br>Time calendar (one day, 15–30 minute intervals)<br>Intrahousehold decision-making | Attendance/participation (IYCF nutrition education intervention)<br>Proper quantitative time allocation          |
| Conclusions which can be drawn                                 | Acceptability<br>Feasibility<br>Potential   | Plausibility  | Causality  |

\* Small scale projects: little money for research (1 million over 3 years)

\*\* Large scale projects: without research (1 million for a year, over 3 year without research)

\*\*\* Proof of concept

## Annex 6: Framework

### A potential framework for a coherent approach to capacity development on nutrition and food systems

This framework summarizes the major areas in which policy makers and program planners need support:

- the groups of functions they need to perform (green)
- the basic nutrition-related knowledge they need (yellow)
- the variety of subsectors/themes (crops, livestock, social protection...) that would need to be covered (pink)

Source: (FAO, 2015b, p. 8)

**Figure 3.**

