Food and Agriculture Organization of the United Nations

جامعة الإمارات العربية المتحدة
United Arab Emirates University
UAEU College of Food and Agriculture

Stepping up school-based food and nutrition education

Exploring challenges, finding solutions and building partnerships

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International Expert Consultation
Al Ain, United Arab Emirates
28–30 November 2017

Published by
the Food and Agriculture Organization of the United Nations
and
United Arab Emirates University
Rome, 2019

Required citation FAO and United Arab Emirates University. 2019. *Stepping up school-based food and nutrition education: Exploring challenges, finding solutions and building partnerships*. Rome. 128 pp. (http://www.fao.org/3/CA3063EN/CA3063EN.pdf).
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ISBN 978-92-5-131262-9 (FAO)

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Foreword

Modern sustainable development challenges call for a shift in how business is done, particularly how different stakeholders and sectors work together to identify, support and maintain cost-effective models that can address their own priorities while complementing those of others.

Food and nutrition education has long been recognized as a key strategy to empower people to make the best use of their available resources for improving their food and nutrition practices. When integrated into broader programmes that aim to improve people's environments and resources, such as food security and social protection, food and nutrition education has proven to significantly enhance their behavioural nutrition impact.

In this context, school-based food and nutrition education (SFNE) represents an important opportunity to reach children, families and the broader school community in a regular and continuous way to foster lasting healthy food practices and capacities. The importance of SFNE has been recognized by FAO for decades. The organization has been a leader in supporting the efforts of member countries to develop school SFNE policy, curricula and learning materials and in providing professional training in nutrition education.

Currently, more than ever, SFNE has an important role in capitalizing on efforts that are being made globally to improve food environments, as well as in empowering children and adolescents to become future leaders and active participants in shaping the food system to be better able to deliver healthy and sustainable diets for all.

However, much of traditional SFNE is underfunded, not delivering optimal results and is largely disconnected from other key interventions that aim to support the food, nutrition, environment and education nexus. Thus, there is a need to strengthen the impact and scope of SFNE, particularly in low and middle-income countries (LMICs).

The consultation on "Stepping up School-based Food and Nutrition Education: Exploring Challenges, Finding Solutions and Building Partnerships," was the first specialized global meeting of its kind. It provided stakeholders from different fields of expertise working with school-based programmes a platform to discuss challenges and define priorities, competencies and educational innovations with the main focus on SFNE.

It also laid the groundwork for a strategic framework of cooperation to strengthen SFNE in LMICs, employing a dynamic approach and creating a sense of shared responsibility for the resultant technical outputs and recommendations. Most importantly, the consultation launched a renewed vision, going beyond the integration of SFNE as stand-alone, disconnected and fragmented interventions and a largely academic requirement in schools.

The results of the consultation presented in this report call for renewed efforts to position SFNE as a critical component of the 2030 Agenda, emphasizing the empowerment of children, adolescents and the school community to drive change in food, nutrition and sustainability; establishing partnerships and technical networks; and seeking its meaningful integration in countries' education systems.

The participants agreed on specific recommendations for governments and international organizations to measure the impact of ongoing SFNE programmes; enhance investments in effective SFNE models that support and build on food environmental actions; and adapt to modern ways of learning and engaging children and adolescents.

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Acknowledgements

The Joint FAO/United Arab Emirates University (UAEU) International Expert Consultation on "Stepping up School-based Food and Nutrition Education: Exploring Challenges, Finding Solutions and Building Partnerships" was the culmination of a one-year planning process conceptualized by the Nutrition Education and Consumer Awareness Group from the Nutrition and Food Systems Division in FAO, and organised in collaboration with the UAEU.

The Consultation Secretariat -led by Fatima Hachem (FAO) and comprised by Fakhera Al Kaabi (UAEU), Yenory Hernandez (FAO), Ayesha Salem Obaid Al Dhaheri (UAEU) and Melissa Vargas (FAO) - played the critical role of overall planning, organization and implementation of the event.

We would like to acknowledge all the participants, who dedicated their time and effort to this consultation, through various contributions – preparing background documents; presenting, moderating and facilitating sessions; and actively contributing to and reporting on discussions – and for carrying the school-based food and nutrition education work forward.

Special thanks are extended to Jane Sherman and Valeria Menza for their dedication and for supporting the coordination of the technical sessions; and to the overall facilitators – Sanou Dia (FAO), Fatima Hachem (FAO), Ana Islas (FAO), Pamela Koch (Columbia University), Stacia Nordin (USAID Feed the Future), Ayesha Salem Obaid Al Dhaheri (UAEU), Maria Tuazon (FAO), Melissa Vargas (FAO) and Najla Veloso (FAO) – for their valuable service.

In addition, we are grateful to FAO and UAEU staff who supported the event with logistical, graphic design and communication arrangements, specifically to Chiara Deligia and Michele Rude (FAO), and to Rafeea Al Qemzi and Raoudha Zelaya (UAEU).

Finally, we extend our thanks to the hotel staff for making sure that the consultation arrangements were efficient, and to the camera operators for ensuring the optimal recording of the technical sessions.

This report was prepared by Melissa Vargas, under the overall responsibility of Fatima Hachem. Many thanks are extended to Paul Neate for conducting the professional editing of the report and to Maria Guardia for developing the illustrations and the layout of the document.

Abbreviations

DCP3	Disease Control Priorities, Third Edition
ESN	FAO's Nutrition and Food Systems Division
FAO	Food and Agriculture Organization of the United Nations
GCNF	Global Child Nutrition Foundation
ICN2	Second International Conference on Nutrition
LMICs	Low and middle-income countries
NGOs	Non-governmental organizations
PSE	Policy, systems and environmental change
SDGs	Sustainable Development Goals
SFNE	School-based food and nutrition education
UAEU	United Arab Emirates University

Introduction

Schools are an ideal setting for creating synergies to address malnutrition and contribute to sustainable development, in that they are able to impact education, health, food security and nutrition simultaneously through various access points and opportunities. The natural linkages between nutrition and education are widely recognized and supported by evidence. Despite this, nutrition education, one of the most direct linkages and globally recommended strategies to foster better diets and food choices, has historically been underfunded and undermined by most sectors.

Even with the increasing global reference to nutrition education in national school curricula, school health or school feeding policies, the resources allocated to it are often insufficient, the responsibilities are not well defined and the approaches commonly used have been inefficient (information-based and top-down) and largely disconnected from the actual food environment in which children and adolescents shape their food behaviour.

In an effort to tackle these issues, which inherently dent the effectiveness of SFNE, and in line with international frameworks and goals for better nutrition and sustainable development, FAO is leading efforts to improve the methodological quality, scope and impact of SFNE interventions and their fruitful integration within school systems in low and middle-income countries (LMICs).

In this context, and recognizing that SFNE can only be advanced by forming partnerships and by involving global and national organizations, donors, academia and other key actors, FAO, in collaboration with the United Arab Emirates University (UAEU), organised an international expert consultation to develop a shared vision of effective SFNE and its future in LMICs.

The specific objectives of the expert consultation were to:

1. share experiences and lessons learned in integrating SFNE within and beyond school systems;
2. develop a shared vision of effective, quality SFNE and its future in LMICs;
3. develop a framework for international collaboration in SFNE; and
4. define strategies for raising the visibility of and investment in SFNE.

What do we mean by scope?

Traditionally, nutrition education has been linked primarily with health, home economics or personal diet; yet its potential is so much broader. To respond to modern development issues, nutrition education in schools needs to be reshaped and become an integral part of sustainable development. A new vision, where food learning is at the intersect of many areas, including food systems, agriculture, nutrition, the environment, health, social justice and others, is warranted.

Framing the consultation

UNITED NATIONS DECADE OF
ACTION ON NUTRITION
2016-2025

The consultation on 'Stepping up school-based food and nutrition education (SFNE): Exploring challenges, finding solutions and building partnerships' and associated outputs were planned under the umbrella of the United Nations Decade of Action on Nutrition as instruments to support the implementation of better programmes, policies and partnerships under Action Area 3: Social protection and nutrition education.

The consultation is also part of the work agenda that FAO committed to during the Second International Conference on Nutrition (ICN2), and supports the Sustainable Development Goals, in particular the following:

Second International Conference on Nutrition

- **Recommendation 19:** Implement nutrition education and information interventions based on national dietary guidelines and coherent policies related to food and diets, through improved school curricula, nutrition education in the health, agriculture and social protection services, community interventions and point-of-sale information, including labelling.
- **Recommendation 20:** Build nutrition skills and capacity to undertake nutrition education activities, particularly for front-line workers, social workers, agricultural extension personnel, teachers and health professionals.

Sustainable Development Goals

- **Target 2.2:** By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.
- **Target 4.7:** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.
- **Target 12.8:** By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.

More specifically, the SFNE expert consultation was framed under FAO's School Food and Nutrition corporate approach.

FAO's school food and nutrition approach

By the end of 2015, as a direct response to the international call for improved nutrition and food systems, and in the context of the ICN2 and the United Nations Decade of Action on Nutrition, FAO devised an approach for action in school-based interventions and programmes. This focuses on the most effective options and on the synergies between and within sectors that represent multi-win outcomes across education, nutrition, food security and community development.

This approach aims to support countries in ensuring that children consume in the school adequate, nutritious, diverse, safe and enjoyable food for improved learning, but also to foster lasting, healthy food-related practices that extend to their families and, when possible, to favourably impact the local food system and economies in the process.

The School Food and Nutrition approach is focused on four areas: a) promoting a healthy school food environment and adequate and safe meals; b) integrating effective food and nutrition education throughout the whole school system; c) stimulating inclusive procurement and value chains; and d) creating an enabling political, legal, financial and institutional environment. Each of these has explicit linkages, points of entry and areas of technical support.

FAO's main role through this framework is to support governments by:

- identifying and disseminating successful, cost-effective experiences, and drawing best practices and lessons learned;
- identifying entry points and non-exploited linkages between different sectors (especially agriculture, education, social protection, nutrition and health);
- providing technical assistance and advice in the various areas of expertise;
- supporting the creation of enabling regulatory frameworks;
- building or strengthening institutional capacities; and
- facilitating mechanisms for improved sectoral coordination, evaluation and accountability.

All of this aims at making existing programmes more cost-effective and sustainable within a food-systems context, and at supporting the inception of new approaches, where needed.

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Description of the consultation and its outputs

Overview

The international expert consultation "Stepping up School-based Food and Nutrition Education: Exploring Challenges, Finding Solutions and Building Partnerships" was held on 28–30 November 2017 in Al Ain, United Arab Emirates. It was organised by FAO's Nutrition Education and Consumer Awareness Team under the Nutrition and Food Systems Division (ESN), in collaboration with UAEU.

The consultation brought together 63 experts[1] from more than 25 countries, representing various fields in education, communication, food systems and nutrition. Participants included leaders from academia, international development entities and governmental and non-governmental organizations (Appendix 1). Participants delivered keynote speeches, facilitated sessions, provided feedback on the draft technical outputs, participated in discussions, shared experiences and materials, and undertook to communicate the results of the consultation to their own organizations and institutions, and to raise the issues and opportunities in forthcoming conferences and on professional networks.

Process leading up to the consultation

In late 2016, FAO reached an official agreement with the UAEU to hold a global expert consultation to establish the foundation for reshaping and carrying SFNE work forward. The planning stage (Figure 1), which ran from January to October 2017, consisted of a series of technical and logistical activities including:

- developing a draft package of SFNE outputs and global guidance documents as the technical basis for discussion;
- conducting a global stakeholder mapping to identify experts for a working group to develop a white paper on key principles and minimum quality criteria for SFNE, and to participate in the consultation;
- designing the consultation format and methodology;
- coordination and liaison for logistical arrangements of the consultation; and
- developing a communication strategy and related materials.

Figure 1. Timeline of the consultation

1 Participants had a range of relevant expertise, including: international development, education, nutrition education, nutrition policy, child nutrition, childhood obesity prevention, school food and nutrition, food systems and sustainability, food security, agriculture, school gardens, research, evaluation, behaviour-change communication, social marketing, behavioural theory, e-learning, communications, capacity development and curriculum and material development.

Technical outputs

In preparation for the consultation, FAO developed a package of draft SFNE outputs and global guidance documents as the basis for discussion (Table 1).

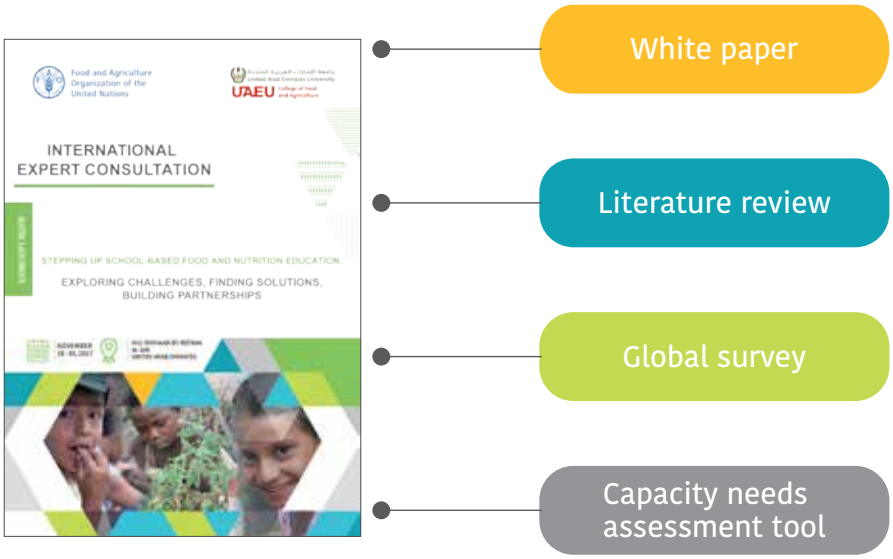

Table 1. Overview of school-based food and nutrition education (SFNE) package of outputs

	The White paper	Literature review	Global survey	Capacity needs assessment tool
Description	A background document with key principles and criteria for effective SFNE interventions.	A scoping literature review on the evidence of effective SFNE interventions in low and middle-income countries (LMICs).	A survey to understand how LMICs integrate SFNE into their school systems, including trends, challenges and opportunities.	A tool to assess capacities at national or regional level for developing and implementing successful SFNE interventions.
Main objective	To identify the principles for enhancing the effectiveness and scope of SFNE in LMICs.	To map SFNE intervention features and outcomes, present the factors associated with effectiveness and identify evidence gaps.	To determine the current role, methodology, scope and linkages of SFNE in a sample of LMICs.	For use by a consultative group to provide: a) an overall picture of the existing capacities, strengths and capacity gaps for developing and implementing successful SFNE; and b) a basis for designing effective, feasible and coordinated SFNE capacity development.
Structure	Consists of 8 thematic areas (provisional titles): Making the case for food and nutrition education in schools in LMICs: rationale, goals and challenges. Creating enabling environments and strengthening policy supports for effective SFNE. Key SFNE competencies for schoolchildren in LMICs. The changing face of SFNE: thematic areas of the curriculum. Mapping pathways: models and methods for SFNE. Successful and innovative SFNE learning strategies and activities. Developing capacities for effective SFNE throughout the system. Promoting SFNE monitoring, evaluation and research.	The structured follows common manuscript sections (Introduction, Methods, Results, and Conclusions).	Consists of 5 sections with a total of 30 questions: Enabling environment and resources allocated to SFNE. Institutional structure of food and nutrition education in schools. Content and methodology. Training and capacity development. Perceptions of challenges and opportunities.	Consists of two parts: Part I details the process to carry out the assessment through a multistakeholder workshop. Part II is a guide on the questions and activities to conduct the assessment, which is organised using the 3 levels of capacity development (enabling environment, organizations and individuals).
Relevance to the expert consultation	The feedback from the consultation will be used for the revision of the white paper.	The preliminary results from the scoping review were presented at the consultation for background and as input for discussions of the white paper.	Preliminary results were presented at the consultation for background and partial validation.	The feedback from the consultation will be used to revise the tool. The consultation also served to promote the pilot and use of the tool at country level.

Format of the consultation

The 3-day consultation was structured into five thematic sections (Appendix 2) that addressed the following areas:

Section 1: Context, the need and opportunity for SFNE

Section 2: Holistic approaches, enabling environment and policy support for SFNE

Section 3: Design for effective SFNE

Section 4: Capacity development for SFNE

Section 5: Next steps and the way forward

The consultation drew on participants' expertise and skills in fields relevant to the new vision for SFNE, and made use of a combination of presentations and facilitation techniques in order to promote active participation. Facilitation techniques employed include:

- An introductory keynote panel discussion: this brought together international leaders to discuss main opportunities and challenges to integrate SFNE within national school food and nutrition programmes.
- Peer assist: advice was sought from experts to: a) improve the technical quality of the white paper; b) reach an agreement on SFNE terminology and goals; c) validate the feasibility, appropriateness and clarity of the SFNE capacity assessment tool; and d) promote collaboration and consensus on ways to carry forward SFNE work. The peer-assisted activities involved brief presentations of the context/issues, interactive working group activities with specific guiding questions and handouts, and a final discussion during which participants presented their feedback, experiences and recommendations for next steps.
- World café: this consisted of a structured conversational process, in which participants "travelled" around five stations showcasing host speakers' experiences relating to holistic SFNE approaches. Participants then discussed how these experiences could be adapted to LMICs (Supplement 1).
- Marketplace: this comprised lively and interactive stands where participants displayed, shared and promoted a range of SFNE-related experiences by using audiovisual aids. This activity provided a chance to maximize opportunities for networking and future collaboration (Supplement 2).
- Formal and informal spaces for networking.

Results expected and achieved

The results expected from the consultation and those achieved included:

- agreement on core SFNE terminology
- input to the draft SFNE White Paper
- input to the FAO SFNE capacity needs assessment tool (feasibility, appropriateness, clarity)
- identification and prioritization of SFNE programmatic and research gaps and opportunities
- identification of advocacy and promotional strategies for raising visibility and investment
- identification of opportunities for partnerships (e.g. for research, country implementation) and networking (e.g. forums, database, website)

> *“…there is a need to rethink about the content and learning strategies used in traditional nutrition education … improving how school educational opportunities are used to connect local food systems, garden-based learning, schools’ meals and food environment with the establishment of healthy food habits in children and their families is key to promote health, diet and prevent all forms of malnutrition”*

Highlights from the Technical sessions

Welcome and opening session

Objectives

- To formally welcome the participants with a high-level panel.
- To facilitate interaction and exchange between participants.
- To present and clarify the aims, expectations and roles of participants during the consultation.

Presenters

- Prof. Bhanu Chowdhary, Associate Professor for Research and Dean, College of Food and Agriculture, UAEU, United Arab Emirates
- Ms Ayesha Salem Obaid S. Al Dhaheri, Vice Dean, Department of Nutrition and Health, UAEU, United Arab Emirates
- Mr Gerold Boedeker, Coordinator and Officer in Charge of the Subregional Office for the Gulf Cooperation Council States and Yemen, FAO
- Ms Fatima Hachem, Team Leader, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO
- Ms Yenory Hernandez, Nutrition Education Consultant, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO
- Ms Melissa Vargas, Nutrition Education Consultant, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO

Description of the session

The opening session commenced with addresses from representatives of the UAEU College of Agriculture, FAO headquarters, and FAO Subregional Office for the Gulf Cooperation Council States and Yemen.

The speeches were followed by an overview of the consultation, and an interactive activity for participants to get familiar with each other's areas of technical expertise and geographical areas of work.

Highlights from the session

- Countries have taken international commitments for sustainable development and nutrition (SDGs, ICN2, United Nations Decade of Action on Nutrition, World Health Assembly targets, etc.).
- FAO and the World Health Organization (WHO) have been mandated to put in place an action programme to help achieve these commitments. In all of these, nutrition education is highlighted as one of the areas in which countries need to step up their efforts and monitor progress.
- There is a lack of agreement and evidence on the criteria to define success of SFNE within and beyond the classroom and the strategies and approaches to determine its success in LMICs.

> *"Food and nutrition education needs to incorporate part of the systemic thinking"*

- The scope of SFNE is very wide, but there is little guidance on how to strengthen synergies of SFNE with school food and nutrition programmes (e.g. school meals, nutrition standards, school gardens, local procurement, etc.) or policies and interventions in the school food environment.
- The consultation presented a good opportunity to explore ways of enhancing the capacities of SFNE change agents and front-line educators, establishing the evidence and increasing the scale and sustainability of SFNE interventions, in line with the SDGs and regional and national development agendas.

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> *"In this consultation we are going to switch our mind-sets, because we will not be talking any more about those programmes which only make healthy food available; we want to go further and be able to raise the capacity of children and adolescents to engage in food practices that are important for both human and environmental health"*

"…looking at the recent reports on obesity and diabetes in the UAE, it really illustrates how income growth, not substantiated by attitude changes in education, can lead into poor health outcomes… If we don't start with nutrition education at a young age it will be too late"

> *"It's hard to teach nutrition education without food, so [there is a need to combine] nutrition education with food and preferably agriculture"*
> *"Child nutrition priorities should dictate agricultural investments rather than the other way around"*

> *"Nutrition during this whole period was a real no-no for school feeding…but the main thing that evolved during this era from 2000 to 2007 was the "First 1 000 Days" initiative, which seemed to absorb the attention of the nutrition community and they were not interested in school meal programmes"*

Keynote panel. Synergizing efforts to build strong school-food and nutrition-education strategies: current challenges and opportunities

Objective

- To set the scene and tone for the consultation by providing an overview of the main challenges and opportunities to build strong SFNE strategies within existing school food and nutrition programmes.

Presenters

- Ms Arlene Mitchell, Executive Director, Global Child Nutrition Foundation, USA
- Ms Seung Lee, Senior Director, School Health and Nutrition, Save the Children
- Ms Fatima Hachem, Team Leader, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO

Description of the session

The keynote panel placed the consultation in the broader context of international development and LMICs Keynote presentations were made by Arlene Mitchell and Seung Lee. The structure of the panel involved:

- a broad introduction and placement of the consultation in the context of the SDGs, the move for advancing global nutrition and FAO's mandate;
- a brief presentation of each institution's work and history in relation to SFNE;
- a moderated discussion of three key questions (see box, Keynote panel discussion questions); and
- final comments by panellists and a summary by the moderator.

Keynote panel discussion questions

1. Historically, why has there been little emphasis on including food and nutrition education as an essential component of school food and nutrition programmes?
2. Based on your experience, what practical suggestions can you make for strengthening the linkages between food and nutrition education and other elements that are generally part of the package of school food and nutrition programmes?
3. What are the top three priorities for actions to be taken at different levels for food and nutrition education to be integrated as a core, essential element in school food and nutrition programmes in LMICs?

Highlights from the session

Historical neglect of SFNE

- The panellists recounted the history of school meal programmes and their linkages with SFNE, from 1700 to the present day.

They noted difficulties inherent in school meal programmes, and the long neglect of nutrition and nutrition education in favour of attention to the first 1 000 days, but suggested that the new interest in the life-cycle approach and nutrition of school-age children opens a critical window of opportunity.

- The case was made that health and nutrition are often seen as artificial silos within the school context. The speakers presented the need for an integrated approach, stressing that nutrition education is central to a systematic and long-term solution to malnutrition, with children being the main agents of change. They also emphasized that schools have main mandates (e.g. custody, literacy/ academic, vocational, socialization and selection/accreditation) and competition from other sectors (social protection, health, nutrition, etc.) needs to be explicitly addressed for enhanced impact.

Some of the main reasons explaining why nutrition education has been neglected by school meals programmes included the following:

- The effects of school meal programmes on nutrition itself was largely ignored, in favour of "evidence-proven" effects on attendance and enrolment.
- Schoolchildren were not seen as important decision-makers or even influencers in the household regarding food choices.
- Change in household food choices and behaviours is difficult to measure or evaluate.
- The general impact or success of nutrition education has been difficult to prove.

Recommendations for strengthening SFNE integration

Some suggestions were made for strengthening the linkages between food and nutrition education and other elements of school food and nutrition programmes. These included:

- capitalizing on multi-sector interest for addressing relevant SDGs;
- advising the Ministry of Education on how nutrition education and better nutrition can both support their mandate and long-term benefits in terms of time and resources involved;
- identifying "low-hanging fruit," e.g. advocating learning activities using school meals when nutrition education already has a space in the national curriculum;
- creating practical and meaningful linkages between nutrition education and traditional locally-available and affordable food and meals;
- making nutrition education fun and stimulating, but keeping methodological models easy to understand and implement;
- investing in models based on an understanding of child psychology, behaviour and cultural dynamics around food, because food habits are not changed easily;
- expanding nutrition education to include the most critical influencers of behaviour, including families, community members and farmers;
- using food and nutrition education as a way to influence what is procured for school meals;
- using multimedia channels that are both ethical and effective, and that respond to modern communication preferences, both as means of supporting SFNE in school food and nutrition programmes and to raise visibility of effective approaches;
- creating solutions that are context-specific but that add up to scale and can be easily monitored;
- identifying leadership and role models that can advance the integration of SFNE in school food and nutrition at different levels (school, local, state, national, global).

Priority actions

The participants identified priority actions to be taken for food and nutrition education to be integrated as a core element in school food and nutrition programmes in LMICs, including:

- using global forums and networks to advocate for a meaningful and synergistic integration of SFNE in national school food and nutrition programmes, and to provide straightforward guidance to governments on how to achieve this;
- identifying and promoting food and nutrition education models that reach a good balance between context-specificity (focusing on local food and diets) and potential for scaling up and replication;
- Advocating investment in long-term solutions and adding value to long-term results, rather than focusing only on "quick-fixes" that show short-term results.

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"To treat school nutrition as a competition with the First 1 000 Days is a huge mistake, and we need to get past that. It is not competition; it is complementary and part of the life-cycle approach. There is much that you can do in schools that you can't do outside of schools"

"The long-term solution is actually providing nutrition education and health education...and that goes with services, healthy environment and the policies " about the relevance of nutrition education in schools"

“We have [targets for] children under five, infants under six months, women 15 to 49, adults, adults, adults... and the number of countries at various stages of progress, against these global targets of nutrition. That means there are no global targets on nutrition for schoolchildren”

Session 1. Setting the scene

Objectives

- To provide an overview of the food and nutrition situation of schoolchildren in LMICs
- To share FAO's vision of school food and nutrition and the role of SFNE

Presenter

- Ms Ana Islas, Nutrition Officer, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO

Description of the session

The session was based around an interactive presentation entitled 'Schoolchildren's nutrition and FAO.' This provided a global overview of the food and nutrition situation of schoolchildren, and introduced FAO's holistic approach to school food and nutrition programming. The presentation was followed by a question and answer session and discussion.

Highlights from the session

- Participants highlighted critical information and monitoring gaps on the nutrition situation of schoolchildren in LMICs. The amount and quality of evidence of the nutrition situation of schoolchildren is very scarce in comparison with that for other age groups, such as those in the first 1 000 days category.
- The studies available show a complex malnutrition picture that is very context-specific and that has high in-country variations. Chronic and acute undernutrition and micronutrient deficiencies continue to be a critical issue, especially in the African and Asian regions. Overweight and obesity also are of growing concern in most countries.
- There are no global nutrition targets for schoolchildren and adolescents, which hinders high-level commitment and tracking of progress.
- Very few studies measure individual food consumption exclusively in schoolchildren and adolescents; such studies are urgently needed in LMICs to better understand and address food practices and patterns.
- SFNE needs to be better able to respond to current malnutrition and food-system challenges, not only in directly promoting food capacities and healthy food practices in children, but also in empowering and influencing local actors to spark or enact change in school food environments and beyond.

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"…nutrition education in general and particularly in schools has an extraordinarily low profile. Where it is part of the curriculum, we are not even sure how it is implemented because there is no monitoring, evaluation, evidence, or sharing of information…We need to convince governments, donors and educators, and the entire education system of what nutrition education can do in schools, what is the long-term potential and why they should invest in effective models"

"…it has taken years and years of hard work, pushing and promoting to actually get to the point of recognizing the importance of focusing on schoolchildren and recognizing that nutrition education should be available in all schools and for all children"

Session 2. Why do we need SFNE? Making the case

Objectives

- To provide an overview of theme 1 of the SFNE White Paper
- To obtain technical inputs and recommendations for improving the theme

Presenter

- Ms Valeria Menza, Nutrition Education Consultant, Regional Office for Europe, FAO.

Description of the session

This session was the first of five and provided an overview of each of the thematic sections of the white paper prepared for the consultation.

The aim of this set of sessions was to collect feedback on the white paper, including the accuracy of the content in the context of LMICs, as well as its tone and completeness and the feasibility of its recommendations.

This session focused on theme 1: 'Making the case for SFNE in LMICs: rationale, goals and challenges', which sets out to provide convincing arguments and evidence for investing in SFNE, expanding on the questions: Why is it needed? What can it do? How can or should it be done?

The theme is mainly directed to policy-makers, decision-makers and donors. Refer to Supplement 3 for a complete outline of the theme.

The structure was organised as follows:

- Overview presentation of theme 1
- Group work, discussion and interaction
- Presentation of results and wrap-up

Highlights from the session

- The integration of SFNE in national policies in the past 20 years has been very superficial, often without any mechanisms to track progress, evaluate policy application and determine SFNE impact.
- There is a critical need for smart and opportune advocacy mechanisms that present SFNE as an opportunity for sustainable development in LMICs. These should highlight its comparative advantage in support of nutrition, food security, social protection, health and other related interventions at school level.
- Advocacy for SFNE needs also to address economists and make stronger economic arguments for donors. This is essential to capture the interest of other sectors.
- Countries need to be able to share lessons and cooperate in SFNE programmes and interventions through timely and suitable mechanisms.
- To clearly identify what works, SFNE implementation research needs to be understood and supported by programme planners, researchers and donors.

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Session 3. State of SFNE in LMICs

Objective

- To provide an overview of state of SFNE in LMICs from published evidence, and from regional and global assessments

Presenters

- Mr Sanou Dia, Nutrition Officer, Subregional Office for Eastern Africa, FAO, with remote input from:
  - Mr Israel Rios, Nutrition Officer, Regional Office for Latin America and the Caribbean, FAO
  - Ms Yenory Hernandez, Nutrition Education Consultant, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO
- Ms Suzanne Piscopo, Head, Department of Health, Physical Education and Consumer Studies, Faculty of Education, University of Malta
- Ms Melissa Vargas, Nutrition Education Consultant, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO

Description of the session

The session consisted of three interconnected presentations on FAO's work in analysing SFNE at the regional and global levels. These aimed at identifying the most pressing needs, opportunities and trends.

- The first presentation centred on the evidence and methodology gaps in SFNE interventions in LMICs, which FAO is addressing via a scoping literature review as part of the SFNE output package.
- The second presentation described regional efforts from Africa, Latin America and the Caribbean to understand and document the way in which countries integrate SFNE within their school meal programmes.
- The third presentation delivered the preliminary results from a global survey focusing on how SFNE is usually integrated in school systems at national level.

Highlights from the session

Literature review

The scoping literature review found the following:

- There is far less literature on SFNE in LMICs than in high-income countries (e.g. 4 systematic reviews out of 28 referencing LMICs), with most studies concentrated in North America.
- There is a critical lack of detail about SFNE intervention design and implementation in published literature. Usually more detail is presented for the research component.
- Thematic content of educational curricula is commonly focused on knowledge-based information related to food groups, dietary guidelines, nutrients and food safety, with little reported reference to food-system issues.
- The literature presents little evidence of structures for sustainability of SFNE (e.g. teacher training, school councils, committed funding).
- There are few assessments of long-term results of SFNE interventions.

Regional assessment

The regional assessments highlighted the following:

- SFNE is widespread in the African countries surveyed (70% of 41 countries integrate it as part of the primary school curricula, and 62% include it in a policy or guideline), but actual contact time and exposure of students to SNFE is very limited.
- The implementation of SFNE is not fully supported by policy and regulatory frameworks in the Latin American and the Caribbean countries surveyed, and there are no consistent and clear indicators, methodologies and tools used to assess SFNE impact or pathways to better food behaviours and nutrition.

Global survey

The preliminary results from the global survey indicated the following:

- SFNE is featured superficially in health, education or food-security policies, yet policy recommendations are not or only partially implemented and with an inadequate budget. The main institutional roles usually lie with the Ministry of Education (coordinating), external entities (e.g. NGOs, international organizations, private sector), the Ministry of Health (programmes, learning materials) and school food and nutrition programmes.
- SFNE is mostly integrated in the school system within a specific subject, through extracurricular activities or as part of school food and nutrition programmes.
- The front-line educators in SFNE are mainly teachers, government staff and/or foodservice staff.
- Student exposure and contact time is generally insufficient and varies considerably between grades.
- Progress and results of SFNE are either not assessed at all or not assessed regularly.
- Different SFNE initiatives are not always linked and it is not clear to what extent SFNE is explicitly linked with the school food environment and the meal times.
- Efforts to develop SFNE capacity are often sporadic, not adequate for behaviour change or not available for all influencers.

Recommendations

Overall, recommendations from the presenters centred on:

- promoting the adoption of simple monitoring and evaluation strategies to track SFNE policy implementation and progress and to enhance accountability;
- promoting meaningful and straightforward integration of SFNE in public policies, with political commitment at all levels;
- enhancing the quality of design and delivery of SFNE for greater impact on food practices and behaviours, and tailoring these to the objectives sought;
- improving the direct and synergistic linkages of SFNE with the school food environment and food environment policies and public actions;
- assessing results of particular pedagogies and materials; carrying out formative assessment of teaching/learning tools and strategies; calculating cost-effectiveness in relation to outcomes; and analysing the role of regular and external funding in the progress and sustainability of SFNE; and
- carrying out rigorous studies on the effectiveness of SFNE intervention for publication in high-calibre peer-reviewed journals.


FOOD and NUTRITION
EDUCATION for Healthy Lives
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2 BILLION
161 Million
795 Million

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Session 4. Terminology

Objectives

- To discuss and agree on the core terminology to be used for SFNE
- To agree on the long-term goal of SFNE

Presenters

- Ms Helen Vidgen, Senior Lecturer, School of Exercise and Nutrition Sciences, Queensland University of Technology, Australia
- Ms Jane Sherman, Independent Nutrition Education Specialist

Description of the session

The session consisted of two introductory presentations – ´Food literacy´ and ´The meaning of SFNE´ – followed by a peer-assisted interactive activity to agree on the definitions of both the core terminology and the long-term goal of SFNE.

The presentations built on research into food literacy and the appropriateness of the term as a long-term goal of SFNE, and the definition used to describe the process of SFNE. After the presentations, two groups of participants discussed the definitions provided for food literacy and SFNE, identifying missing elements, ambiguities and misunderstandings, and a third group was tasked to decide if a new term was needed to define SFNE's long-term goal.

Definitions proposed for reflection, feedback and discussion

SFNE (the process)

SFNE consists of coherent and progressive sequences of educational activities, with environmental supports, that will help schoolchildren (and also school staff and parents) to: achieve long-lasting improvements in their diets and other food-related behaviours, perceptions, outlooks and knowledge; build the capacity to change and to adapt to external change; and pass on their learning to others.

Food literacy (the goal)

Food literacy is the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and to strengthen dietary resilience over time.

It is the collection of interrelated knowledge, skills and behaviours required to plan, manage, select, prepare and eat food to meet needs and determine intake.

Highlights from the session

- The definition provided for SFNE is technically correct, but too long, employs too much jargon and is difficult to remember for a non-technical audience. There is a need for a simplified but accurate definition of the process of SFNE for policy-makers, programme planners and other decision-makers.
- The term "education" has been traditionally associated with knowledge transfer and a top-down approach, which has often affected investment in SFNE. A common misconception is that SFNE aims only to enhance nutrition knowledge, rather than to achieve behavioural change towards a healthier diet and better nutrition.

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- Food literacy could present some issues as a defining term for the long-term goal of SFNE:
  - It is difficult to translate into other languages.
  - The association with "illiteracy" carries a negative undertone.
  - It does not explicitly relate to achieving good nutrition.
  - It could be easily misunderstood.

Recommendations

Regarding food literacy as the goal for SFNE:

- Extend the definition to include understanding and action to improve local food systems, i.e. the concept of a proactive "food citizen".
- Include an element of continuing motivation (because a person can have the capacities to select, manage and prepare healthy food but not be motivated to do so).
- Put more focus on nutrition outcomes, rather than just food outcomes.

Regarding SFNE as the term for the educational process:

- There is still apprehension about the mention of 'environmental supports' as inherent to SFNE in the definition of the process.
- The definition needs to be simplified in order to engage non-specialist stakeholders outside the fields of nutrition and health.

After integrating the feedback from the discussions, the following versions of the SFNE definition were proposed:

Long version:

SFNE consists of coherent educational strategies and learning activities, with environmental supports, that help schoolchildren and their communities to: achieve sustainable improvements in their diets and in food- and lifestyle-related behaviours, perceptions, skills and knowledge; and build the capacity to change, to adapt to external change and to act as agents of change.

Short version:

SFNE consists of coherent educational strategies and activities that help schoolchildren and their communities to achieve lifelong improvements in their diets and food behaviours and that build the capacity to change, adapt to change and promote change.

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> *"I would like to see a situation where SFNE is available to all learners, because right now it is a subject only for certain needs"*

> *"The home environment is going to shape the kids' minds at a very early age… so how far can the school link with the home and community environment, as part of innovative interventions?"*

> *"We are aiming at linking the food environment with the school environment in substantial ways"*

Session 5. What is the role of the environment in SFNE?

Objectives

- To provide an overview of theme 2 of the white paper
- To obtain technical inputs and recommendations for improving the theme

Presenter

- Ms Josephine Kiamba, Food and Nutrition Security Specialist and Consultant, FAO

Description of the session

This session included a presentation and a peer-assisted activity focused on theme 2 of the white paper: 'Creating enabling environments and strengthening policy supports for effective SFNE.' The theme explores the education and environmental linkages, particularly those within the school food environment, the home environment and the community environment, and the market and school food system, where schoolchildren interact the most. The policy and legislation environment is also strongly featured as an enabling factor for effective SFNE and for effective education–environment linkages.

Refer to Supplement 3 for a complete outline of the theme.

The session followed the same structure as theme 1 (see page 7).

> *"...looking at what is an enabling environment for school food and nutrition education, it's one that consistently promotes healthy food behaviours"*

Highlights from the session

The discussion highlighted the need to:

- integrate SFNE in public policies to secure funding, but acknowledge situations where existing policies are not implemented or where allocated resources are misused;
- develop clear action plans with clear indicators for monitoring progress and results to ensure that existing policies are implemented;
- promote stronger coherence between school education and policies relating to the school environment (school gardens, restriction of sale of highly processed foods, school meals, etc.);
- promote the extension of SFNE to the home and community environments, which strongly shape children's practices and habits and which can also hinder school progress;
- better feature priorities of schools in crisis situations and difficult environments;
- include classrooms as part of the school food environment in order to support teachers' autonomy and the power they have in shaping what goes on within their classroom;
- acknowledge and address the influence of the food industry in the school and market food environments;
- enhance SFNE linkages to other sectors, including health and infrastructure, and encourage joint commitments which bridge sectors;
- better highlight the cost factor and make recommendations on how to reduce costs by creating synergies between existing interventions and initiatives;
- where feasible, draw on best practices from multisectoral and multicomponent interventions that capitalize on education–environmental linkages, even from high-income countries.

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> *"We do not do school food and nutrition education just because someone thinks it's a good idea. It has to serve national priorities or greater goals: national goals or health goals, it could be medical; it could be ecological; it could be social justice and other prospects"*

> *"A very bold aim would be to have a weekly lesson on the school curriculum or in some kind of setting within the school hours, whether it's during meal time or some other club time; in that food and nutrition education had an established and prominent place"*

Sessions 6 and 7. What does effective SFNE mean in practice?

Objectives

- To present an overview of themes 3–6 of the white paper in preparation for the group work
- To obtain technical input and recommendations for improving the themes
- To agree on the most essential principles of SFNE to reach impact

Presenters

- Ms Pam Koch, Research Associate Professor, Teacher's College, Columbia University, USA
- Ms Isobel Contento, Professor of Nutrition Education and Director of the Nutrition Program, Teacher's College, Columbia University, USA
- Ms Nasrin Omidvar, Professor, Faculty of Nutrition and Food Technology, Shahid Beheshti University of Medical Sciences, the Islamic Republic of Iran; presentation delivered by Ms Melissa Vargas
- Ms Jane Sherman, Independent Nutrition Education Specialist
- Ms Maria Theresa Talavera, Professor, Institute of Human Nutrition and Food, College of Human Ecology, University of the Philippines
- Ms Maria Tuazon, Nutrition Consultant, FAO Regional Office for Asia and the Pacific
- Ms Natasha Rogoff, Executive Producer and Founder, KickinNutrition.TV, USA

Description of the session

This session featured overview presentations and peer-assisted activities focused on the white paper themes 3–6. The participants then voted on the most essential principles for effective SFNE models (Table 2), distilled from the themes and the discussions.

The themes discussed were as follows:

Theme 3: 'Key SFNE competencies for schoolchildren in LMICs' presents a process for developing food and nutrition competencies for LMICs to be used by stakeholders to guide the basic design of SFNE initiatives. These competencies go beyond healthy eating to include aspects of the food system and sustainability. The process comprises analysing the issues of concern at local, regional or national level; identifying behaviours that are contributing to the identified issue; and analysing the determinants of change for these key behaviours (What influences students' and families' food-related decisions, actions and practices?).

> *"Modelling is an enormous part of the whole process of nutrition education. Any kind of change modelling. See what you can do. Show what you can do and other people can imitate it"*

Theme 4: 'The changing face of SFNE: Thematic areas of the curriculum' focuses on the principles for an effective SFNE curriculum, the core themes to be addressed and the competencies needed, including those that go beyond personal

diet, and acknowledges several types of learning beyond knowledge gains. The proposed curriculum process is guided by defined competencies; follows developmental and learning needs; and is based on an action-and-understanding programme that provides plenty of opportunities for practice in real-life settings.

Theme 5: 'Mapping pathways: Models and methods for SFNE' aims to map the models and methods that are most effective in encouraging or fostering healthy food practices. The theme puts the schoolchildren at the centre and explores their own learning pathways towards SFNE goals – exploring their own situation; getting motivated; trying out different ways; practice in real-life contexts; and discussing, sharing, self- monitoring and self-evaluation.

Theme 6: 'Successful and innovative SFNE learning strategies and activities' encompasses recommended learning strategies, activities and channels to operationalize the models presented in theme 5. The theme identifies some of the main principles behind effective learning strategies in SFNE, including:

- building on existing knowledge and experience
- contextualized hands-on experiential learning
- social interaction and engagement with peers, home and community
- action, practice and maintenance
- memorable and portable learning experiences
- cultural and age appropriateness

Refer to Supplement 3 for a complete outline of all themes.

Highlights from the session

The discussion on theme 3 (developing competencies) centred on:

- how the development of SFNE competencies inherently supports multiple SDGs;
- the importance in the process of developing competencies of paying attention to:
  - the educational structure and philosophy embedded in every country's school system to make sure competencies are well fitted and have a better chance to be taken up;
  - building on what children already do, for example, contexts where older girls take on caring practices;
  - different consumption patterns;
  - cultural awareness.
- constructing competencies as stepping stones for children as they advance through the education system;
- using competencies as a badge system by the students and families themselves; and
- constantly updating and referencing competencies (should not be static).

The discussion on theme 4 (the SFNE curriculum) underscored the need for:

- systematically identifying the policy entry points that can support the adequate integration of SFNE in the curriculum;
- planning for and capitalizing on periods/cycles of revision of the national curriculum;
- assessing the values and priorities that the various stakeholders (policy-makers, school directors, parents, pupils) assign to different school subjects, and exploring the most appropriate routes for SFNE (status? role in the curriculum? e.g. having SFNE as a graded subject or as life-skill development);
- involving the parents, other stakeholders and even the pupils in the process of developing the curriculum, with opportunity for feedback on implementation;
- addressing the common problem that SFNE is offered as an elective or for certain age groups only;

- identifying the main actors responsible for monitoring the implementation of the SFNE curriculum at the school level;
- developing context-specific materials designed to support the curriculum (learning materials are often imported from other countries or otherwise not suited to the local context); and
- emphasizing teachers' own competencies to achieve the SFNE curriculum.

The discussions on theme 5 (models and methods) resulted in:

- a debate on whether the learning process should aim to achieve actual behaviour change as well as other forms of learning (e.g. knowledge, understanding, perception, practical skills);
- emphasis on the strong influence of social norms and other difficult-to-change factors that shape children's and adolescents' food practices and behaviours; and
- acknowledgement that behaviour-change theories are necessary to guide SFNE, but no one theory is enough to support effective SFNE models and methodologies.

The group discussing theme 6 (learning strategies and activities) agreed that:

- innovation in terms of learning strategies goes beyond the use of technology (e.g. using traditional strategies in new ways, borrowing strategies that have worked in from other areas, and moving from talk to chalk to more hands-on strategies);
- learning strategies need to be scalable and affordable as a precondition for effectiveness;
- adoption can be particularly challenging for innovative techniques and inertia is needed to achieve change;
- there is a need to include educators when selecting and/or developing strategies; one recommendation might be to offer a basket of strategies from which educators can choose to match their own contexts;
- effective collaboration and communication at all levels (global, national, local) is key to sharing experiences on which learning strategies can work in different situations;
- there are many learning strategies that work to support behaviour change, such as modelling, dialogue and discussion, but these tend to be undervalued.

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Table 2. Results from the voting activity on the most essential principles for effective school-based food and nutrition education (SFNE)

Principles SFNE should...	Votes (#)
Be based on the situation on the ground in terms of nutrition issues; diet and food practices; children's knowledge, attitudes, practices and perceptions; motivations and influences, resources and obstacles	13
Involve all those who directly influence children's food practices and outlooks, in particular the family, the school as a whole, teachers and the community	11
Extend into a whole-school food policy through e.g. educational links with school activities, announcements in assembly, displays in classrooms, open days, sports events and food available on the premises	11
Call on processes of learning and behaviour change, skills learning, experiential learning and life skills	10
Ensure that children develop targeted competencies by acting, reacting and interacting in real-life settings	8
Be low cost, easy to run and easily replicated	8
Set improvements in motion to enable children's food environments	4
Build ownership by children (and parents) by promoting initiatives and choices	4
Be adapted to age, cognitive and social development and local culture	4
Relate to school food and nutrition and health programmes (e.g. water and sanitation for health, school meals, deworming, school gardens, malaria prevention) in line with the curriculum	3
Involve parents, families and communities in various roles: as interlocutors or models; "home teachers" and collaborators in the learning agenda; sources of information, experience and expertise; objects of enquiry and observation (e.g. vendors, markets); and sources of feedback on educational impact	3
Establish what is needed in professional competencies and capacities and set targets for these	2
Start from children's (and families') own experience, knowledge, practices and outlooks	2
Ensure that children, families, teachers, schools and community see and value achievement and progress	2
Socialize learning through collaboration, discussion, showing, sharing and passing on	1
Be regular through the school year and recycled from week to week and year to year	1
Call on natural motivations as well as extrinsic motivations	0
Model and embody information, experience, target practices in stories, pictures, demonstrations, acting out	0
Allow scope for practice, skill-building and maintenance, mostly outside the classroom	0

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Session 8. SFNE capacity assessment tool

Objectives

- To collect input on the feasibility of use and adequacy of the capacity needs assessment tool
- To promote the use/pilot of the tool in different contexts

Presenter

Ms Melissa Vargas, Nutrition Education Consultant, Nutrition Education and Consumer Awareness Group, Nutrition and Food Systems Division, FAO

Description of the session

This session featured:

- a brief presentation of the background, objectives and recommended process for using a capacity needs assessment tool developed by FAO;
- a peer-assisted activity to collect input on the feasibility and adequacy of the tool, using the technique of unfinished sentences; and
- a final discussion.

The capacity needs assessment tool is for use by national- or subregional-level consultative groups to provide: a) an overall picture of existing capacities, strengths and capacity gaps for developing and implementing successful SFNE strategies and b) a good basis for designing effective, coordinated and feasible SFNE capacity-development strategies.

The tool builds on FAO´s experience and expertise in capacity development and adopts a broad approach that not only assesses individual capacities, but also expands to organizations and the enabling environment.

It employs a multisectoral participatory process to define and prioritize strengths and gaps in SFNE capacity and to suggest possible solutions, based on information available and what is feasible and cost-effective.

The results from the assessment are not meant to suggest a complete or immediate systemic transformation, but rather to identify gradual improvements that can be implemented within the context of available resources and other enabling factors. Additionally, the results are meant to be used to advocate for more and regular investment in capacity development for SFNE.

> *"...we are working on a SFNE capacity development model, which goes beyond training individuals, because if we train individuals and don't look at their enabling environments or the organizations they working in, they are not going to be able to put in place the strengthened skills and capacities"*

Guiding questions / unfinished sentences

- Do you think this tool is suitable for use in LMICs? What would you recommend to increase its feasibility? / The SFNE capacity needs assessment tool would have a better chance of being used in LMICs if...
- Is there anything missing in the tool that is necessary to provide a good assessment of SFNE capacities? / To provide a complete picture of capacity needs for SFNE, the tool needs...
- How can we make sure that the results from the tool are used for capacity development? Make some concrete recommendations. / To ensure that the results from the assessment are used for better design of capacity development strategies, we need to...

Highlights from the session

The following are some of the responses to the unfinished sentences used to gather feedback on the feasibility and adequacy of the capacity needs assessment tool.

The capacity needs assessment tool will have a better chance of being used in LMICs if...

- it included a preface with information for advocacy on SFNE.
- there is a pre-existing strong political commitment to SFNE.
- the process is initiated by the sectors that have a genuine interest in SFNE, and engages other sectors by identifying what is in it for them.
- it is linked to existing intersectorial efforts (e.g. Ministry of Education with Ministry of Health).
- it allows for provincial or state focus, as well as national, and permits comparisons.
- champions carry forward the process.
- it has support from academia.
- it includes an ongoing estimation of costs.

To provide a complete picture of capacity needs for SFNE, the process needs....

- transparency from all sectors involved.
- multiple feedbacks at different levels.
- access to the background information.
- regional or subregional meetings and discussions to validate and build upon the results from the workshop.
- to assess both formal and informal leadership on SFNE.
- to validate all suggestions to address capacity gaps to ensure that they are needed, wanted and appropriate.

To ensure that the results of the assessment are used for better design of SFNE capacity-development strategies we need to...

- be clear about short-, medium- and long-term goals.
- show how to implement the capacity-development process effectively, both vertically and horizontally, e.g. with a flow chart.
- ensure that the results are translated into all local languages.
- promote their use as an educational opportunity at different levels.

- link the results to existing capacity-development projects.
- disseminate the results widely and smartly (start with quick and easy stories to get stakeholders motivated).
- "adapt" the results for use in the different sectors.
- develop advocacy strategies, a sustainability plan and roadmap of next steps.
- create press releases and social media strategies.

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> *"One of the important points we would like to make is that capacity building is not just for teachers, which is what people tend to focus on, but it is for the whole system and we need an informed and effective leadership in the education, health and agriculture sectors"*

> *"…there are important differences in how researchers and practitioners approach interventions. Researchers tend to understand the need for rigour in building interventions, while practitioners tend to be better at understanding the actual needs of the target audience and what it takes to actually deliver an intervention"*

Session 9. Developing capacities and promoting monitoring, evaluation and research for effective SFNE

Objectives

- To provide an overview of themes 7 and 8 of the white paper
- To obtain technical inputs and recommendations for improving the themes
- To prioritize SFNE research areas for advocacy in LMICs

Presenters

- Ms Louise Davies, Founder, Food Teachers Centre, UK
- Ms Margaret Miller, Senior Research Manager, School of Medical and Health Sciences, Edith Cowan University, Australia
- Ms Anupama Joshi, Executive Director & Co-Founder, National Farm to School Network, USA
- Ms Wendy Wolfe, Research Associate, Division of Nutritional Sciences, Cornell University, USA

Description of the session

This session started with overview presentations of white paper themes 7 and 8, and a presentation of evidence gaps in direct nutrition education and policy, systems and environmental change (PSE) approaches. The presentations were followed by peer-assisted activities (see page 7). The participants then voted on the most critical areas for SFNE research (Table 3), distilled from the presentations and the discussions.

Theme 7: 'Developing capacities for effective SFNE throughout the system' provides a framework and essential elements of capacity development for effective SFNE, focusing on gradual progress for a systemic change. The framework provides direction on minimum competency standards, recommended mechanisms and support systems to enhance sustainability and application of capacity-development efforts.

Theme 8: 'Promoting SFNE monitoring, evaluation and research' presents an outline of the recommended process and main principles for conducting SFNE monitoring and evaluation, and highlights the need for advocating and investing in evaluation and research. The theme uses the logic model and theory of change for designing and implementing monitoring and evaluation plans, and proposes a dissemination plan for the various stakeholders involved in SFNE.

A call for SFNE research: the last presentation touched on the use of collaborative research to address research gaps relating to direct nutrition education (NE) linked with PSE interventions, such as the additive effects of NE and PSE approaches and translating research-tested interventions into practice. The presenter focused on a specific experience in the United States, which aimed to strengthen the evidence base through research collaborations and synergies between

> *"...we must look forward and think of how different channels might support the momentum and sustain training ... Because it's not just coming to workshops and having a bit of training and leaving people to go back into their schools. They need a community, a mechanism to exchange experiences and to discuss moving forward, or ways to overcome obstacles..."*

researchers and practitioners working in a nutrition assistance programme. The research aimed to determine the additional impact on behaviour change where direct education is added on to PSE approaches.

Refer to Supplement 3 for a complete outline of the themes.

Highlights from the session

The discussion on theme 7 (capacity development) highlighted the need for:

- developing a flow chart for the SFNE capacity-development process so that countries can identify their own status and generate practical recommendations;
- linking capacity development of front-line educators with defined SFNE competencies for schoolchildren and adolescents;
- publishing and disseminating experiences in SFNE capacity development from LMICs, even if small scale;
- involving professional associations (nutritionists, teachers, etc.), where they exist, in the development of SFNE capacities;
- training for educators other than schoolteachers, such as community volunteers, health workers, nurses, parent–teacher associations, foodservice staff, school meal planners, etc.;
- promoting behaviour change not only in educators, but also in policy-makers and all other stakeholders who affect the quality of SFNE;
- more emphasis on assessment capacities, so that demonstrated outcomes of SFNE are seen as meaningful and go beyond changes in test scores;
- more attention to developing leadership capacities within the capacity-development package for SFNE; and
- recognizing that capacity development is a gradual, ongoing process that depends on existing context and conditions, and starts with achievable first steps.

The discussion on theme 8 (monitoring, evaluation and research) highlighted the following points:

- Outcomes of SFNE need to be classified clearly (e.g. based on time – short, medium or long term – and whether formative or summative).
- Indicators and tools specific for SFNE should be developed and validated in different contexts.
- Where capacities for adequate monitoring and evaluation are lacking, it becomes necessary to adapt resources, materials and tools to different levels of capacity, as well as investing in the development of evaluation capacities.
- Support systems should be created that make it possible to use the results of SFNE evaluation.
- Including the state of SFNE in country profiles along with other indicators (such as KAPP) would both raise visibility and help to make evaluation a priority.
- Leveraging university partnerships can be a cost-effective way to support a quality SFNE evaluation and/or research processes.

Table 3. Most critical areas for school-based food and nutrition education (SNFE) research in the priority order defined collectively through a voting activity

Research gap	Votes (#)
Cost-effectiveness/cost benefit of SFNE interventions	23
General SFNE implementation research	23
Impact of SFNE at different levels of outcomes (short term: theory based determinants; medium term: food choice and dietary practices; long term: health, nutrition, etc.)	20
Long-term educational impact of SFNE (academic achievement, employability)	15
Feasibility trials of SFNE in LMICs	15
Effects of specific SFNE components on behavioural outcomes (e.g. training of school leaders, featuring children as agents of change)	12
Additive and/or differential effects of multicomponent approaches that feature SFNE (including policy systems and environment change approaches)	6

Session 10. Roadmap for future work: advocacy, partnerships and resource mobilization

Objectives

- To identify and prioritize ways to carry SFNE work forward
- To derive a preliminary action plan

Description of the session

The final technical session focused on gathering ideas on ways that participants can jointly carry the international SFNE agenda forward.

The session included:

- brainstorming on feasible actions (advocacy, partnerships and resource mobilization) that the participants or their institutions can carry out and
- a brief presentation on the achievement of the consultation objectives

Highlights from the discussion

Recommendations on advocacy

At global level

- Promote the new vision for SFNE in high-level meetings, international fora, technical conferences and seminars (e.g. Global Child Nutrition Forum).
- Identify and recruit a global ambassador to make the case for SFNE and spark an international grassroots-type challenge.
- Write press releases to promote international coverage of the importance of SFNE.
- Use the media to promote SFNE in exciting ways (documentaries, stories).
- Conduct a multi-country capacity assessment and present results in high-level events.
- Create a global hub for successful innovative examples of SFNE.

At country level

- Write policy briefs to advocate for investments in effective SFNE.
- Develop a common SFNE voice at country level.
- Conduct stakeholder consultations to advocate for and commit to specific SFNE steps within school programmes.
- Share success stories (strategies) of established programmes with high legislative authorities.
- Pilot FAO's capacity needs assessment tool and use the results for advocacy.
- Use local media to show positive examples of SFNE actions.

On content for advocacy resources

- Capitalize on the 2030 development agenda, working simultaneously for the education, nutrition, health and sustainability goals.
- Share successful SFNE models and achievable first steps.
- Include messages on the cost of not doing SFNE.

- Share the results of the new Disease Control Priorities (DCP3) resource (to think and invest beyond the child's first 1000 days).
- Emphasize the need for research on the association between SFNE and education indicators.

Recommendations on partnerships

- Create SFNE partnerships under the "One United Nations" umbrella (World Food Programme, Youth and United Nations Global Alliance, the United Nations Children's Fund (UNICEF), WHO, the United Nations Educational, Scientific and Cultural Organization (UNESCO)).
- Develop collaboration between government and academia to review curricula and formulate SFNE competencies at national level.
- Partner with NGOs already implementing SFNE to provide opportunities for model improvements or scaling up.
- Map organizations that have an influence on pre-service and in-service professional development for teachers and establish meaningful collaborations.
- Create an international SFNE community of practice online.

Recommendations for resource mobilization

- Generate evidence on cost-effectiveness of SNFE that can be used for resource mobilization.
- Attend donor forums to present SFNE as an investment priority.
- Tap into corporate social responsibility funds for financing SFNE in government school food and nutrition programmes, while being mindful of conflict of interest.
- Write policy briefs to the Ministry of Finance for adequate funding of SFNE when it is present in legislation and policy but not implemented.
- Promote models of blended funding (e.g. funds from different entities).
- Engage advanced university students for research to both fill resource gaps and develop a cadre of informed SFNE promoters.
- Mobilize resources from universities to undertake research, test tools and methodologies.
- Develop project proposals to pilot SFNE in priority areas to demonstrate results.
- Capitalize on the United Nations Decade for Action on Nutrition, ICN2 follow-up, the Every Woman Every Child movement and SDGs to help fund SFNE programmes at regional and country level.

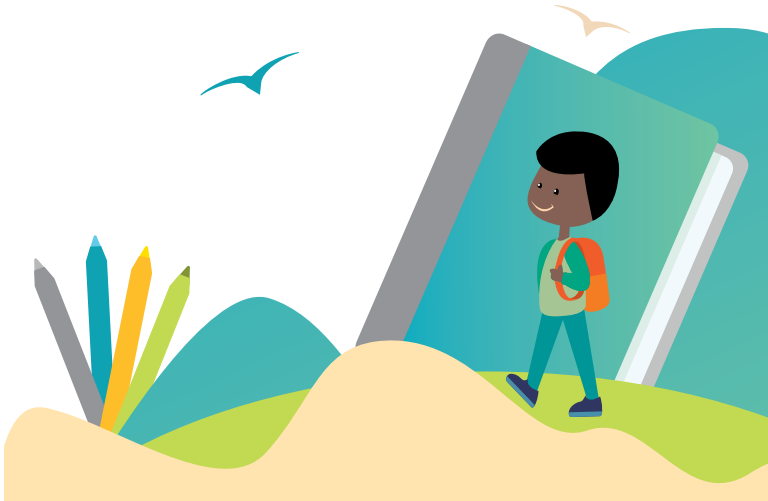
Main recommendations

During the 3 days of consultation the participants agreed that there is rapidly growing interest in SFNE as an important component of school systems, including school food and nutrition programmes, but that it is not given the priority it warrants if it is to significantly contribute to sustainable development. Successful efforts made during the past decade need to be scaled up and models evaluated and revisited for optimized effectiveness.

The main recommendations are directed at two main targets: a) governments and b) FAO and other international organizations.

Recommendations for governments

1. Improve the collection and availability of quality data on schoolchildren and adolescents (particularly individual food consumption and anthropometry); this is needed to design and implement effective SFNE policies and programmes.
2. Promote the coherent integration of SFNE into national curriculum, school health, education, agriculture and other relevant policies. This goes beyond superficial mention of SFNE to developing specific or integrated action plans with allocated budgets and relevant indicators for monitoring progress and results.
3. Build upon existing school-based programmes (school meals programmes, home-grown school feeding, school health programmes, etc.) and integrate SFNE to support their outcomes.
4. Improve policy and educational synergies between SFNE and actions to improve community, school and home food environments.
5. Enhance coordination between the various levels and sectors that aim to improve schoolchildren's health, nutrition and well-being, focusing on what SFNE can bring to the different sectors.
6. Promote coherence between the objectives and approaches of SFNE interventions led by different sectors and organizations (Ministry of Education, Ministry of Health, NGOs, private sectors, etc.).
7. Conduct strategic assessments of SFNE capacity needs to identify priorities and implement practical recommendations for gradual capacity development of all those involved in the planning, delivery and evaluation of school-based interventions.
8. Evaluate the process, results and impact of ongoing SFNE programmes or programmes with an SFNE component to better understand what works and what changes are needed.
9. Seek collaboration and partnerships between government and academia to review curricula and formulate SFNE competencies at national level.



Recommendations for FAO and other international organizations

1. Conduct evidence-based advocacy on the need for making effective and context-based SFNE a priority in school systems and for making SFNE available to all schoolchildren and adolescents, independent of age and grade.
2. Seek strategic partnerships and collaborations to raise global visibility of the importance of SFNE for sustainable development and to promote investment in effective and multicomponent approaches featuring SFNE.
3. Develop and disseminate guidance documents to improve the quality and scope of traditional SFNE (both in terms of methodological approach and media used, and in terms of subject matter) to deliver real and lasting changes in food practices and outlooks.
4. Develop and maintain an SFNE global online platform and repository (Including samples and models of policies, curricula, training courses, learning materials, formative research protocols, evaluation instruments, etc.) that can include ongoing SFNE programmes and events, as well as associations and organizations that work in SFNE.
5. Publish SFNE good practices and lessons learned and disseminate them to the international community through all appropriate channels and media.
6. Promote generation of evidence on the cost-effectiveness and sustainability of SFNE programmes and policies.
7. Promote the integration of a food systems lens to SFNE, beyond personal diet, according to country and local contexts.

Evaluation of the consultation

Below are the main results from the technical evaluation of the consultation by the participants.

Figure 1. Overall assessment of the consultation

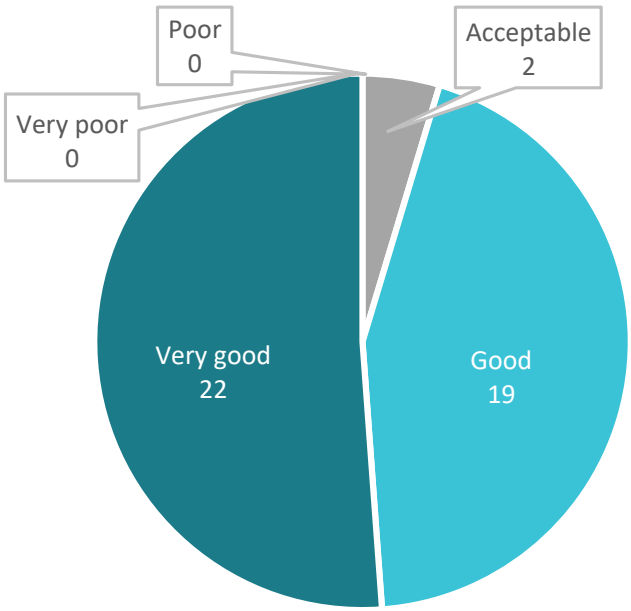


Figure 2. Assessment of specific aspects of the consultation programme

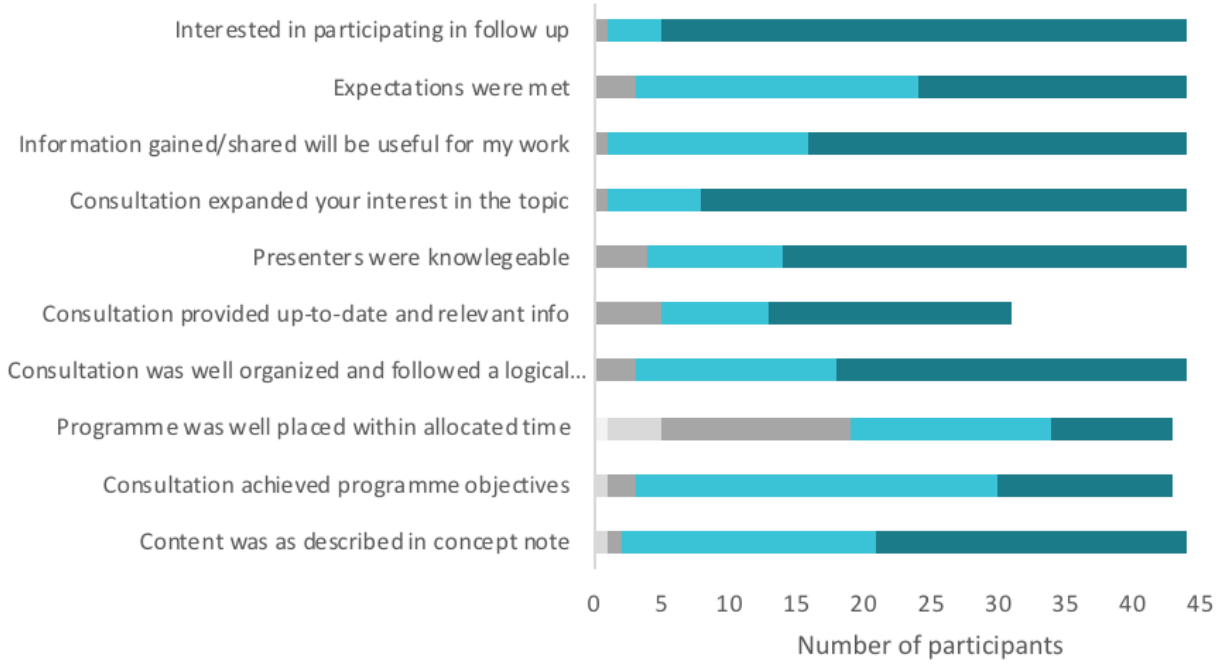
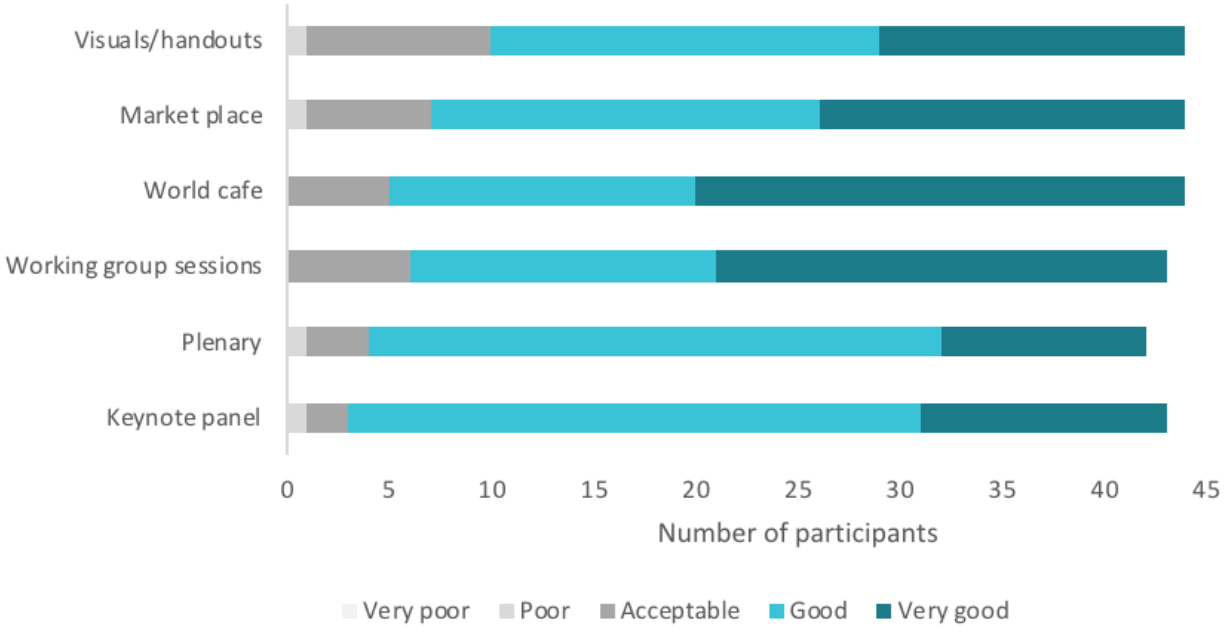


Figure 3. Quality of technical sessions, materials and activities



Issues perceived differently as a result of the consultation

Participants reported perceiving a number of issues differently following the consultation.

- Scope and diversity of SFNE initiatives/different work done globally in SFNE
- Terminology issues (concept/definition of food literacy/SFNE/use of the word "food"/relationship between NE and food literacy)
- SFNE is context dependent
- Greater clarity about what SFNE is; reinforcement of what SFNE is; perceptions
- Importance of partnerships; scope for partnerships and collaboration relevance of advocacy
- Role of/involvement of NGO´s, government, international agencies; intercountry collaboration mechanisms
- Diverse challenges associated with SFNE actions across the world; opportunities and challenges for LMICs
- Research gaps, literature
- Better insight into LMICs issues; SFNE status in LMICs; recognizing scale of problems
- The role of FAO/how FAO works
- SFNE is not simple
- How working together in groups can help to generate ideas; learning from different experiences
- Wealth of experience and talent; amazing work and expert insights from so many parts of the world

Examples of actions that participants intend to do as a result of the consultation

Advocacy and awareness

- "Conduct advocacy for integrating SFNE in my organization"
- "Advocate for better investments in SFNE at national level"
- "Advocate for the piloting of the capacity needs assessment tool in my country"
- "Raise awareness and support for SFNE in the education department in my country"
- "Advocate for the creation of SFNE group in SNEB (professional association of nutrition education)"

Information sharing

- "Report back to my organization and colleagues to share the experience"
- "Inform others about the consultation"
- "Write a blog"
- "Include SFNE as a topic in an upcoming conference I am attending"
- "Deepen my understanding of some of the experiences presented and learn from other country experiences"

Networking, community of practice & partnerships

- "See the possibility of pursuing a partnership with another institution to advance SFNE in the country"
- "Start a group of SFNE with my colleagues"
- "Explore the possibility of creating an international community of practice on SFNE"
- "Continue communication with participants about future partnerships"

Research and academic actions

- "Review my projects in line with the consultation insights"
- "Embed SFNE concepts in my course"
- "Review the NE content of our academic programme"
- "Develop a research protocol for SFNE evaluation"
- "Conduct a literature search on cost-effectiveness of SFNE"

Appendices
List of participants
Consultation programme

Appendix 1.
List of participants

Amita Attlee
UAEU

Amjad Jarrar
UAEU

Ana Islas
FAO

Aisha Alsiri
Ministry of Education UAE

Anabelle Bonvecchio
Mexican Institute of Public Health

Anupama Joshi
USA Farm to School Network

Arlene Mitchell
Global Child Nutrition Foundation

Arwa Al Modwahi
Department of Health, UAE

Ayesha Al Dhaheri
UAEU

Carine Platat
UAEU

Carmen Pérez
University of País Vasco

Chris Smith
Center for Ecoliteracy

Clare Hanbury
Children for Health

Daniel Hatfield
Tufts University

Dia Sanou
FAO

Entesar Al-Shami
Ministry of Health, Kuwait

Fatima Hachem
FAO

Gabriela Fretes
Tufts University

Guéladio Cissé
Swiss Tropical and Public Health Institute

Habiba I. Ali
UAEU

Haleama Al Sabbah
Zayed University

Helen Vidgen
Queensland University of Technology

Isobel Contento
Columbia University

Jane Sherman
Independent expert

Jehaina Hassan Al Ali
Food Safety Department of Dubai Municipality

Johaina Tawfiq
UAEU

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FAO

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Ministry of Health, UAE

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University of Sharjah

Leila Itani
Beirut Arab University

Louise Davis
Food Teachers Centre

Maria Theresa Talavera
University of the Philippines

Margaret Miller
Refresh. ED

Maria Tuazon
FAO

Marjaana Manninen
Finnish National Agency for Education

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National Institute of Public Health, Japan

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Mojisola Kupolati
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UAEU

Salma Alhebshi
UAEU

Seema Puri
University of Delhi

Seung Lee
Save the Children

Shubhada Kanani
Department of Health,
India

Sidiga Abdelrahim
Washi
Ahfad University for
Women-Sudan

Stacia Nordin
USAID Feed the Future
project

Suzanne Piscopo
University of Malta

Traci Jackson
UAEU

Valeria Menza
FAO

Wafa Ayesh
Department for Dubai
Health Authority

Wendy Wolfe
Cornell University

Will Valley
University of British
Columbia

Xinia Fernandez
University of Costa Rica

Yenory Hernandez (via
Skype) FAO

Appendix 2.
Consultation programme

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PROGRAMME TUESDAY 28 NOVEMBER 2017

AIMS OF THE DAY

1. Outline the objectives and expectations for the consultation
2. Set the scene for the need, challenges and opportunity to improve and scale up SFNE in low and middle-income countries (LMICs)

Opening

9:30-10:00 WELCOME AND OPENING

- Inauguration - **Mr. Gerald Boedeker,** SNG Subregional Coordinator and OiC, FAO and **H.E. Professor Mohamed Albaili**, Vice Chancellor, UAEU (20 min)
- Welcome remarks - **Ms. Fatima Hachem**, Team Leader, Nutrition Education and Consumer Awareness Group, FAO HQ (5 min)
- Welcome remarks - **Ms. Ayesha Salem Obaid S. Al Dhaheri**, Vice Dean, Department of Nutrition and Health, UAEU (5 min)

10:00-10:35 INTRODUCTIONS AND EXPECTATIONS – OUTLINE OF THE CONSULTATION

- SFNE requests to FAO and practical overview of the consultation – **Ms. Yenory Hernandez**, Nutrition Education Consultant, FAO HQ (15 min)
- Interactive activity: world map introductions and mini bios - **Ms. Melissa Vargas,** Nutrition Education Consultant, FAO HQ (15 min)
- Q&A on programme and logistics (5 min)

10:35-10:50 COFFEE BREAK AND INFORMAL INTRODUCTIONS

10:50-12:00 KEYNOTE PANEL. SYNERGIZING EFFORTS TO BUILD STRONG SFNE STRATEGIES: CURRENT CHALLENGES AND OPPORTUNI

- Overview of the panel - **Ms. Fatima Hachem**, Team Leader, Nutrition Education and Consumer Awareness Group, FAO HQ (5 min)
- Initial remarks from panelists - **Ms. Arlene Mitchel**, Executive Director, Global Child Nutrition Foundation; **Ms. Lesley Drake**, Executive Director, Partnership for Child Development; and **Ms. Seung Lee**, School Health and Nutrition Director, Save the Children (15 min)
- Roundtable discussion (45 min)
- Wrap-up (5 min)

12:00-13:10 LUNCH (PRAYER TIME)

DAY 1

Section 1: Context, the need and the opportunity

13:10-13:30 SESSION 1. SETTING THE SCENE

- Interactive presentation: Food and nutrition situation of schoolchildren in LMICs and FAO's approach to School Food and Nutrition - **Ms. Ana Islas**, Nutrition Officer, FAO Headquarters (15 min)
- Q&A (5 min)

13:30-14:40 SESSION 2. WHY DO WE NEED SFNE? MAKING THE CASE

- Overview of white paper theme 1: Making the case for SFNE in LMICs: rationale, goals and challenges - **Ms. Valeria Menza**, Nutrition Education Consultant, FAO Regional Office for Europe (10 min)
- Group discussion and interaction (50 min)
- Results from discussion (10 min)

14:40-15:20 MARKET PLACE AND COFFEE BREAK

- See market place details below

15:20-16:00 SESSION 3. STATE OF SFNE IN LMICS

- The story (set of presentations):
  - Black holes in the literature - **Ms. Suzanne Piscopo**, Head, Health, Physical Education and Consumer Studies, University of Malta (10-12 min)
  - Results from SFNE regional surveys - **Mr. Dia Sanou**, Nutrition Officer, FAO Sub regional Office for Eastern Africa, with inputs from **Mr. Israel Rios**, Nutrition Officer, FAO Regional Office for Latin America and the Caribbean (10-12 min)
  - Preliminary results from SFNE global survey - **Ms. Melissa Vargas**, Nutrition Education Consultant, FAO HQ (10-12 min)
- Q&A (5-10 min)

16:00-17:00 SESSION 4. WHAT DO THE TERMS MEAN? CORE SFNE TERMINOLOGY

- Presentation: Food literacy and food competence – **Ms. Helen Vidgen**, Senior Lecturer, School of Exercise and Nutrition Sciences, Faculty of Health, Queensland University of Technology (10 min)
- Presentation: The meaning of SFNE - **Ms. Jane Sherman**, Nutrition Education Consultant, Independent (10 min)
- Interactive activity (20 min)
- Final discussion (20 min)

17:00-17:10 CLOSING OF DAY 1

DAY 1

PROGRAMME WEDNESDAY 29 NOVEMBER 2017

AIMS OF THE DAY

1. Identify critical linkages between SFNE and the wider school environment
2. Define the criteria and recommendations for quality SFNE
3. Showcase SFNE experiences and success stories, which can serve as inspiration for LMIC

8:20-8:30 RECAP OF DAY 1

DAY 2

Section 2: Holistic approaches, enabling environments and policy support for SFNE

8:30-9:30 WORLD CAFE: EXAMPLES OF HOLISTIC SFNE APPROACHES

- World cafe dynamics, see details below (60 min)

9:30-10:40 SESSION 5. WHAT IS THE ROLE OF THE ENVIRONMENT IN SFNE?

- Overview of white paper theme 2: Creating enabling environments and strengthening policy supports for effective SFNE - **Ms. Josephine Kiamba**, Nutrition Consultant (10 min)
- Group discussion and interaction (50 min)
- Results from discussion (10 min)

10:40-10:55 COFFEE BREAK

Section 3: Design for quality school-based food and nutrition education

10:55-11:55 SESSION 6. WHAT DOES QUALITY SFNE MEAN IN PRACTICE? OVERVIEW OF THEMES

- Overview of white paper themes 3-6
  - Theme 3. Key SFNE competencies for schoolchildren in LMICs - **Ms. Pamela Koch**, Research Associate Professor, and **Ms. Isobel Contento**, Professor, Teachers College, Columbia University (10 min)
  - Theme 4. Mapping the SFNE curriculum – Speaker on behalf of **Ms. Nasrin Omidvar**, Professor, Faculty of Nutrition and Food Technology, Shahid Beheshti University of Medical Sciences (10 min)

- Theme 5. Mapping pathways for SFNE: Models and approaches - **Ms. Jane Sherman**, Nutrition Education Consultant, Independent (10 min)
- Theme 6. SFNE learning strategies and activities - **Ms. Maria Theresa Talavera**, Professor, University of the Philippines; **Ms. Maria Tuazon**, Nutrition Consultant, FAO Regional Office for Asia and the Pacific; and **Ms. Natasha Lance**, Executive Producer and Founder, KickinNutritionTV (10 min)

- Clarifications, Q&A (20 min)

11:55-13:00 SESSION 7. WHAT DOES QUALITY SFNE MEAN IN PRACTICE? REACHING CONSENSUS

- Group work, including the integration of participant's own experiences and challenges (65 min)

13:00-14:00 LUNCH (PRAYER TIME)

14:00-14:50 SESSION 7 CONTD. WHAT DOES QUALITY SFNE MEAN IN PRACTICE? REACHING CONSENSUS

- Plenary presentations of group work (40 min)
- Final discussion (10 min)

14:50-15:30 MARKET PLACE AND COFFEE BREAK

- See market place details below

15:30-16:00 PARTICIPANTS' IMPRESSIONS AND TERMINOLOGY

- Facilitated discussion on impressions of the first two days (15 min)
- Revisiting terminology (15 min)

16:00-19:00 TOUR: GREEN MUBAZZARAH - JEBEL HAFEET - AL AIN

19:00 GROUP DINNER

DAY 2

PROGRAMME THURSDAY 30 NOVEMBER 2017

AIMS OF THE DAY

1. Define the criteria and recommendations for SFNE capacity development, M&E and research
2. Agree on the next steps and joint responsibilities for bringing SFNE higher up in the development agenda

8:20-8:30 RECAP OF DAY 1

Section 4: SFNE capacity development

8:30-9:30 SESSION 8. SFNE CAPACITY NEEDS ASSESSMENT TOOL

- Presentation of the tool - **Ms. Melissa Vargas**, Nutrition Education Consultant, FAO Headquarters (10 min)
- Validation activity and group work: 3 questions (40 min)
- Final discussion (10 min)

9:30-10:40 SESSION 9. DEVELOPING CAPACITIES FOR EFFECTIVE SFNE

- Overview of white paper theme 7: Developing capacities for effective SFNE - **Ms. Louise Davies**, Founder, Food Teachers Centre UK; and **Ms. Margaret Miller**, Senior Research Manager, School of Medical and Health Sciences, Edith Cowan University (10 min)
- Facilitated discussion (50 min)
- Results from discussion (10 min)

10:40-11:20 MARKET PLACE AND COFFEE BREAK

- See market place details below

11:20-12:40 SESSION 10. PROMOTING MONITORING, EVALUATION AND RESEARCH IN SFNE

- Overview of white paper theme 8: Capturing the Impact of SFNE: Role of Monitoring, Evaluation and Research – **Ms. Anupama Joshi**, Executive Director & Co-Founder, National Farm to School Network (10 min)
- Presentation: Gaps in the evidence and call for research – TBD (10 min)
- Group work (50 min)
- Results from group work (10 min)

DAY 3

Section 5: Next steps and the way forward

12:40-13:10 SESSION 11. WHAT ARE FAO'S NEXT STEPS?

- Overview of FAO's future work plan – **Ms. Fatima Hachem**, Team Leader, Nutrition Education and Consumer Awareness Group, FAO Headquarters (10 min)
- Discussion (20 min)

13:10-14:10 LUNCH (PRAYER TIME)

14:10-15:40 SESSION 12. ROADMAP FOR FUTURE WORK: ADVOCACY, PARTNERSHIPS AND RESOURCE MOBILIZATION

- Brainstorming activity: a joint work plan (60 min)
- Prioritization: 2-4-6 work (15 min)
- Results from activities (15 min)

15:40-17:00 CLOSURE

- Evaluation of the consultation (20 min)
- Final discussion and take away experiences (40 min)
- Closing remarks - **Ms. Fatima Hachem,** Team Leader, Nutrition Education and Consumer Awareness Group, FAO Headquarters (20 min)

DAY 3

PRESENTATIONS

1. Center for Ecoliteracy Approach - **Mr. Chris Smith** - Center for Ecoliteracy, United States
2. Póngale Vida - **Ms. Xinia Fernández**, Universidad de Costa Rica, Costa Rica
3. Vegetables Go to School Program - **Mr. Guéladio Cissé**, Swiss Tropical and Public Health Institute, Bhutan, Burkina Faso, Indonesia, Nepal, Phillipines
4. Children's Participation in Learning and Action for Nutrition - **Ms. Clare Hanbury**, Children for Health, Mozambique
5. Eating and Learning Toghether - **Ms. Marjaana Manninen**, Finnish Nationa Nutrition Council, Finland

DAY 1 (14:40-15:20)

1. Center for Ecoliteracy: Education for Sustainable Living - **Mr. Chris Smith**, Center for Ecoliteracy, California, USA.
2. Development of a recipe book to enhance food and nutrition education with secondary schools in Uganda - **Ms. Grace Nandutu**, National Curriculum Development Centre, Uganda.
3. Food literacy: Key concepts for health and education - **Ms. Helen Vidgen**, School of Exercise and Nutrition Sciences Queensland University of Technology's, Brisbane Australia.
4. What Works Well: The School Food Plan & The School Food Champions Program- **Ms. Louise Davis**, Food Teachers Centre, UK.
5. SNF@Schools in India - **Ms. Seema Puri**, Department of Nutrition, Institute of Home Economics, University of Delhi, India.
6. Getting Digital-Age Kids to Eat Vegetables: Using Innovative Multimedia and Interactive Approaches to Promote Evidence-Based Nutrition Education Learning in U.S. Schools for children (ages 6-12)- **Ms. Natasha L. Rogoff**, Ingredients for Education, USA.

DAY 2 (14:50-15:30)

1. Promoting Behavioral Change at School Level for Obesity Prevention in Mexico - **Ms. Anabelle Bonvecchio**, National Institute of Public Health, Mexico.
2. Strategic Resources to Teach Effective Food and Nutrition - **Ms. Isobel Contento & Ms. Pamela Koch**, Teachers College Columbia University, New York, USA.
3. School Gardens for Better Nutrition in Asia - **Ms. Maria Tuazon**, FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.
4. Refresh.ED online K-10 Food and Nutrition Curriculum Support Project - Ms. Margaret Miller, Refresh ED, Edith Cowan University, Perth, Australia.
5. "Shokuiku": Promotion of Food and Nutrition Education in Japan - **Ms. Midori Ishikawa**, National Institute of Public Health, Japan.
6. Contextual Nutrition Education Materials for Grade 5 and 6 Teachers in Bronkhorstpruit, South Africa - **Ms. Mojisola Kupolati**, Beulah Wide Group/Human Nutrition Department, University of Pretoria, South Africa.
7. Cornell's Choose Health: Food, Fun, and Fitness interactive curriculum for 8-12 year olds - **Ms. Wendy Wolfe**, Cornell University, New York, USA.

MARKET PLACE

DAY 3 (10:40-11:20)

1. Evaluation for Transformation: A Cross-Sectoral Evaluation Framework for Farm to School - **Ms. Anupama Joshi**, National Farm to School Network, USA.
2. The GREEN Project Lunch Box Study and ChildhoodObesity 180 - **Mr. Daniel Hatfield**, Tufts University, Boston, USA.
3. Brazil-FAO Technical Cooperation Project: Strengthening School Feeding Programs in Latin America and the Caribbean - **Ms. Najla Veloso**, FAO, Brasilia, Brazil.
4. The School Health and Nutrition-Save the Children - **Ms. Seung Lee**, Save the Children, USA.
5. Application of participatory-qualitative research (PQR) tools for SFNE Program Design and Process Evaluation - **Ms. Shubhada Kanani**, Baroda High Schools and Vadodara Municipal Corporation-Department of Health, India.
6. Pilot Study: Childhood Obesity Prevention among Schoolchildren in Alain, UAE - **Ms. Sidiga Rahim Washi**, Ahfad University for Women, Omdurman, Sudan.
7. Maximizing Indigenous Resources for School Nutrition - **Ms. Stacia Nordin**, Feed the Future Malawi Strengthening Agricultural and Nutrition Extension (SANE), University of Illinois, Malawi.

MARKET PLACE

Supplements

Marketplace

World cafe

Outlines of white paper themes

Supplement 1
the Marketplace

During three days, the expert consultation featured structured spaces and interactive stands for participants to display, share and promote successful school-based food and nutrition education experiences from a range of countries and sectors.

Objective

- To promote direct exchange among participants and maximize opportunities for networking and future collaboration in the field of SFNE.

Below are the summaries of their interventions.

Mr. Chris Smith, Center for Ecoliteracy, California, USA.

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Center for Ecoliteracy: Education for Sustainable Living

"Understanding Where Food Comes From and How It Reaches the Table: Linking Classrooms, School Gardens, and Cafeterias"

Description of the organization: The Center for Ecoliteracy is a US-based non-profit organization dedicated to cultivating education for sustainable living. The center recognizes that students need to experience and understand how nature sustains life and how to live accordingly, and encourages schools to teach and model sustainable practices.

The center facilitates conferences and professional development, and has produced a variety of resources for educators linking classrooms, gardens, and cafeterias, such as 'BIG IDEAS: Linking Food, Culture, Health, and the Environment'. It is also responsible for developing a range of online lessons including 'The World's Flavor Profiles', 'Food Traditions Interview', 'The Migration of Food', and 'A Comparative Tasting of Fruits and Vegetables'. The most recent resource, a digital interactive guide called 'Understanding Food and Climate Change', uses food, which is universally and viscerally understood, to introduce educators, students, and advocates to the fundamental relationships between climate change and the food systems that sustain human life. The suite also underscores the potential for promising food systems-oriented climate change mitigation and adaptation.

The Center supports leaders in cultivating conditions for social impact and sustainable systemic change. Major projects include California Thursdays, an implementation strategy for healthy, freshly prepared school meals from California-grown food, advanced through their statewide network of school districts serving more than 250 million meals a year.

Implications for SFNE in LMICs: The Center's 'Education for Sustainable Living' seminars have attracted participants from five continents, and their materials and principles have been adapted and used by practitioners in LMICs, mainly in Latin America.

More information at:

www.ecoliteracy.org

Development of a recipe book to enhance food and nutrition education within secondary schools in Uganda

Project description: A good diet is paramount to every human being and food preparation plays an important role in ensuring variety, acceptability and avoiding nutrient loss. Cooking is a science as well as an art. To produce dishes which are nutritious and acceptable, attention must be given to the appearance, flavour, texture and temperature at which it is served, among other factors. One of the challenges faced in nutrition education in Uganda is the lack of recipe books to guide and enhance the teaching of practical skills. There are very few recipe books and even with those available, the recipes feature foreign foods and other ingredients which are not available in local markets. The idea of developing a recipe book was to support the learning process of preparation and cooking skills and to encourage the use of locally available foods. The book provides a variety of recipes utilizing locally available foods together with guidelines for planning healthy diets.

Main results: The book was designed to support enhanced knowledge and the development of practical cooking skills in learners, which have been used for creative and nutritious meal preparation and to aid nutrition education processes.

Implications for SFNE in LMICs: This experience can go a long way in enhancing the teaching and learning of cooking skills in LMICs. It is an example of how learning materials need to be adapted and contextualized according to local needs and food availability.

Ms. Louise Davis, Food Teachers Centre, UK.

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What Works Well: The School Food Plan & The School Food Champions Programme

Programme description: The School Food Plan is an agreed plan that has the support of the Secretary of State for Education and of the diverse organizations who support headteachers to improve food in their schools in the UK. Published by the Department for Education in July 2013, it sets out 17 actions to transform what children eat in schools and how they learn about food. The plan is about good food and happiness. It is about the pleasures of growing, cooking and eating proper food. It is also about improving the academic performance of children.

'What works well' is a collection of the best examples and ideas for delivering good food and food education in schools, from growing fruit and vegetables to cooking skills to learning about food sourcing and production.

Implications for LMICs: The initiative can serve as an example for LMICs, particularly as different schools can take on and adapt actions that work for their own context and available resources. The platform for a SFNE plan can support the exchange of experiences and facilitate support between schools. Important to consider would be inter-country differences and access to the platform.

More information at:

www.schoolfoodplan.com/actions

http://whatworkswell.schoolfoodplan.com

Ms. Seema Puri, Department of Nutrition, Institute of Home Economics, University of Delhi, India.

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SNF@Schools Initiative and Promotion of Healthy Eating and Physical Fitness among Elementary School Children

SNF@Schools Initiative by Food Safety and Standards Authority of India

Programme description: The Safe and Nutritious Food (SNF) nationwide programme was launched by the Food Safety and Standards Authority of India (FSSAI) to promote healthy eating among schoolchildren. Children are powerful change agents. Actionable messages delivered to, and through children, have the potential to usher in behavior change and a culture of safe and wholesome food. This is the underlying philosophy behind the SNF@SCHOOL initiative. The programme is based on a three-pronged approach, at the school, state and national level. This is being done through curricular or co-curricular activities. At school level, the culture of food safety and nutrition is promoted through Health and Wellness Coordinators and Health Teams. An enabling legislative and regulatory framework is being developed to promulgate this message. The success rides on every individual as a stakeholder because safe and nutritious food is not only a necessity, but a shared responsibility.

A yellow book which works as a guide for schools to promote the consumption of safe and nutritious foods was developed and disseminated. The development process followed extensive discussions with various education boards, State Boards, and nutrition and education experts. The book features age appropriate content and covers topics of good food safety practices, personal hygiene and cleanliness habits, eating a balanced diet, packing a wholesome lunchbox, preventing nutritional deficiencies, and making healthy food choices. The book also contains useful tips and interesting activities for school children. It works as a guide book, as well as an activity book, that can be used in conjunction with the school curriculum.

Representatives from central and state government, academia, school boards, voluntary organizations and corporates have joined efforts to help build the capacities of schools across the country to help children adopt SNF habits. FSSAI also launched a portal called the 'School Engagement Platform', which provides online resource materials. The Institute of Home Economics, University of Delhi is involved in dissemination of the SNF programme in Delhi schools through college students and also trains and facilitates the SNF fellows.

Main results: Results of the programme have not yet been evaluated. Schools that wish to be part of the programme receive training and have a suggested roll out plan, including the resources mentioned. Post training, the school is encouraged to adopt the principles and incorporate the elements into the school curriculum as they deem fit. Schools are encouraged to upload efforts and evidence on the website.

Implications for LMICs: Elements like the engagement of academia and other stakeholders to support capacity development and promotion of such programmes; using an online platform to support monitoring; and creating an implementation strategy that can be adapted according to local or school-level needs, can be well replicated in other countries with limited financial resources.

Promotion of Healthy Eating and Physical Fitness among Elementary School Children

Project description: This pilot project was undertaken by the Institute of Home Economics wherein it aimed to improve physical fitness in primary school children (5-11 years). Short activity and fun based modules for improving physical fitness as well as nutrition awareness were developed and implemented in the schools. The modules were accompanied by short evaluations and supported by SMS messaging. The physical activity modules were based on a programme of the British Council. The intervention group constituted of 375 subjects respectively while the control group had 349 subjects. Subjects were matched for their age and gender from the two schools.

Main results: The anthropometric profile, physical fitness levels, dietary intakes as well as nutrition knowledge was assessed pre and post the intervention. The intervention helped in improving the anthropometric profile and physical fitness levels and nutrition knowledge of primary school children.

Implications for LMICs: Implementing pilot projects with SFNE components that are proven effective, can support advocacy efforts to roll out SFNE at scale.

More information at:

http://snfportal.in/snf/jsp/school.jsp

www.ihe-du.com

Ms. Natasha L. Rogoff, Ingredients for Education, USA.

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Getting Digital-Age Kids to Eat Vegetables: Using Innovative Multimedia and Interactive Approaches to Promote Evidence-Based Nutrition Education in U.S. Schools for children (ages 6-12)

Programme description: KickinNutrition.TV is an evidence-based, digital programme that is designed to educate, entertain and empower kids (6-13 years) to make healthier food and lifestyle choices. The programme is anchored in technology – featuring engaging videos and interactive learning tools designed for urban, inner-city youth and their families. The programme utilizes comedy, music and engaging, evidence-based, peer-to-peer nutrition instruction and cooking demonstrations; combined with interactive technologies that support exploration. The programme hosts an online social media campaign to keep students and families engaged, and builds health awareness in the communities it reaches.

It is aligned with the common core by grade and was developed by former Executive Producer of Sesame Street International, in collaboration with an advisory board of experts from Boston University, Harvard School of Public Health and Tufts Friedman School of Nutrition Science & Policy.

Main results: Research (with university partners) has demonstrated the programme's measurable impact on students' motivations and skills to enact change, nutrition knowledge, behavioral choices (in school, outside of school and online), and impact on the family and the home food environment. Online metrics integrated into the platform measure on-going engagement and quantitative impact.

Implications for SFNE in LMICS: Context-specific, digital-based programmes can be explored in regions where children and families have good access to ICT.

More information at:

http://ingredientsforeducation.org

Ms. Anabelle Bonvecchio, National Institute of Public Health, Mexico.

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Promoting Behavioral Change for Obesity Prevention in Mexico

Programme description: The Health Strategy Plan (Michme / PES) is a community-based health promotion initiative designed to mitigate the conditions of obesity, diabetes and hypertension (ODH) in Xoxocotla, Mexico. It was designed by a Community Work Group of Xoxocotla[2] and a research team from the National Institute of Public Health in Mexico. It is based on health as a right, appreciation of local resources and assets, social participation and the strengthening of community capacity[3].

Main results: Among other key components the program involved food gardening workshops and activities for indigenous food revitalization. **Food gardening workshops** proved to be a health promotion space in itself beyond promoting healthy eating. They fostered self-esteem, gender equity, physical activity, mental health, solidarity, organization capacity, family dynamics and communication, environmental care, and improvement of economic resources.

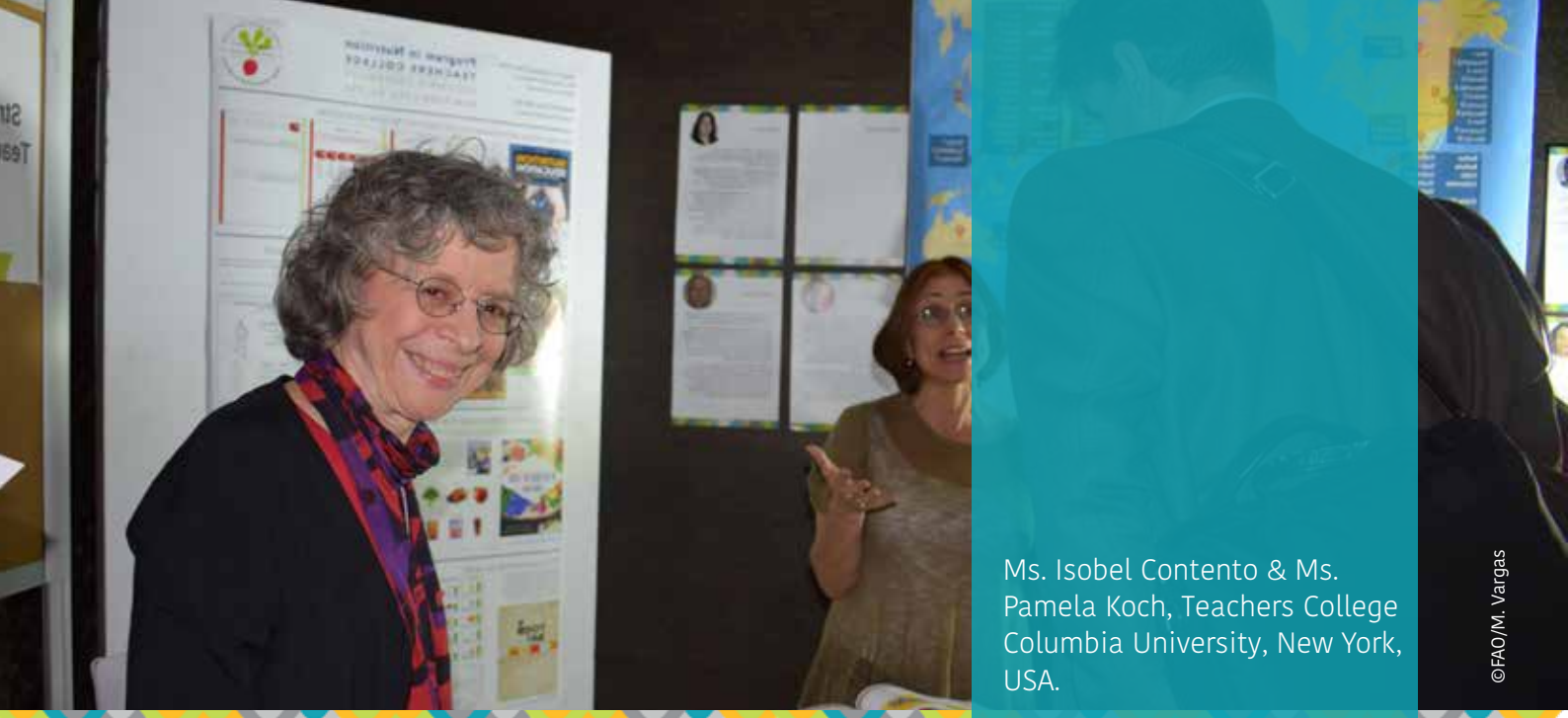
Participants were sensitized and conscious of the health benefits of consuming fresh, healthy and organic food; they experienced eating new vegetables and developed new ways of preparation. Of particular importance is that youth revalued agricultural work. Participants perceived the garden as an alternative to maintain their health and their economy; they recognized that having a garden in the household is a healthy resource, not just for the food, but as a place for physical activity, entertainment and socialization that improves their wellbeing. At schools, gardens were recognized as a pedagogical tool.

The **Indigenous food revitalization** component allowed to comprehend the reasons for which the value given to and use of the traditional cuisine of Xoxocotla has been diminished, as well as to generate strategies to recover them. Research and recipe registration allowed to recover part of historical memory that contributes to the cultural identity of recent generations and the safeguard of culinary traditions.

The workshop generated critical reflection regarding the implications of selecting local/traditional foods vs industrialized foods. Participants: a) recognized some traditional foods and discovered others unknown for them; b) increased their knowledge and appraisal regarding their community's traditional food; c) were motivated and interested on inquiring about foods and cooking recipes with their elders; d) became aware of the positioning of some industrialized beverages in their daily diets; and e) acknowledged the role of traditional food in their identity's construction.

2 Xoxocotla is a town of Nahua origin with a great cultural wealth.
3 The World Diabetes Foundation (WDF) funded six actions of Michme/PES: Food gardening workshops; Indigenous food revitalization; Diabetes Dialogue Groups; "Living with diabetes" lifelike sensitization workshop; Health and Culture Festival; and a Diabetes sensitization video.

Implications for SFNE in LMICs: It is relevant to take into account needs, culture and active participation of the population to develop targeted initiatives. The techniques used in the programme can be explored for teacher-training (adult learning) with active involvement of the school community in LMICs.



Ms. Isobel Contento & Ms. Pamela Koch, Teachers College Columbia University, New York, USA.

Strategic Resources to Teach Effective Food and Nutrition

Materials description:

Theory-Based Behaviorally Focused Nutrition Education

Linking Research, Theory, and Practice (3rd edition, author Isobel Contento) provides a simple, straightforward model for designing effective nutrition education programmes that address the personal and environmental influences affecting individuals' food choices and assists them in adopting healthy behaviors throughout their lifetime. This model, called the Nutrition Education DESIGN Procedure integrates research, theory, and practice and provides advice and direction on designing, implementing, and evaluating theory-based nutrition education.

Inquiry-based Science and Nutrition Curriculum for 8–12 year olds

Linking Food and the Environment (LiFE) is an inquiry-based science and nutrition curriculum that integrates the study of personal health and food, food systems, and the environment. Students explore key questions in each of these books:

- Growing Food: How does nature provide us with food?
- Farm to Table & Beyond: What is the system that gets food from farm to table, and how does this system affect the environment?
- Choice, Control & Change: How can we use scientific evidence to help us maintain energy balance?

After school Curriculum for based on "real food" for 11–14 year olds

The IDOF Curriculum is designed to translate the messages of Michael Pollan's book 'In Defense of Food' to make them exciting, meaningful and relevant to adolescents. Incorporating two- to five- minute film clips from 'In Defense of Food' in each lesson generates curiosity, stimulates thinking, and synthesizes what students learn through the lesson activities.

Five Lessons for all ages

The **Food Day School Curriculum** has five lessons: Eat Real, Mostly Plants, Not Too Much, Navigate the Environment, and Be an Advocate. Students participate in engaging motivational activities and then create action plans for change. The curriculum is written for 8–12 year olds, with appendices for adapting it to 5–7 year old and 13–18 year olds.

Food Corps Evaluation

The **FoodCorps4 Progress Report** measures the extent to which schools are conducting activities in FoodCorps' three areas of service: hands-on learning, healthy school food, and a culture of health. This allows schools to track how programming changes and it is a great tool to guide them on making goals for change and creating plans to meet these goals.

The Laurie M. Tisch Center for Food, Education and Policy recently completed a two-year research and evaluation partnership with FoodCorps. Among the results from the evaluation, it was found that students in schools with more hands-on learning activities are eating triple the amount of fruits and vegetables than students who receive less of that hands-on learning.

Implications for SFNE in LMICs: The principles and methodologies presented in the first book mentioned have been successfully used to design nutrition education projects and programmes in LMICs. The book provides a theory-based framework and stepwise approach to programme design that can be tailored to available resources.

4 FoodCorps connects kids to healthy food by placing service members in over 400 schools across United States to foster the creation of holistically healthy school food environments.

Ms. Maria Tuazon, FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.

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Gulayan sa Paaralan (Vegetables go to School Programme) of the Philippines

Programme description

This school garden project aimed to contribute to food security and nutritional needs of schoolchildren; strengthen their appreciation and skills in agriculture and the environment; upgrade their parent's knowledge in nutrition and agriculture, help conserve agro biodiversity of nutritional importance and eventually enhance transgenerational learning about the role of vegetables in family nutrition and health.

Programme design included development and promotion of climate smart and bio-intensive gardening technologies which emphasized the use of indigenous and drought-tolerant vegetables to ensure all-year round supply and strengthening the link with the school's feeding programme. Programme ownership was built with various stakeholders and relevant sectors through community mobilization. Capacity building which included trainings, cross school/village visits and study visits were an integral component of the approach targeting the agriculture and home economics teachers. Provision of modest material inputs and crop museums to serve as a propagation area for large quantities of a diverse range of seeds and seedlings were established. Information, education and communication materials were also developed to promote the school gardens as learning centers which helped increase awareness among schoolchildren and parents on concepts and practices as well as to reintroduce the indigenous vegetables and highlight their nutritional importance. Food production and nutrition education were also incorporated in the school curriculum particularly in subjects Home and Livelihood for primary education. A built-in monitoring and rigorous evaluation system which helped understand better the hindering as well as facilitating factors in the adoption of the nutrition-sensitive school gardens and in enhancing the school feeding programme was also put in place.

Main results: Within a period of 12-18 months the following could be observed: increase in nutrition knowledge among students and parents; improvement in year round availability of diverse vegetables with lesser inputs; easier garden maintenance thereby reducing labor requirements; improvement in yield and crop performance; improvement of soil quality due to adoption of soil enhancing practices; introduction and popularization of 17 types of indigenous vegetables; increase diversity of school recipes. Food production has also been incorporated in the school curriculum as a topic in Education for Home and Livelihood for elementary education.

In 2016, half of the 42,000 public schools in the Philippines have adopted the nutrition-sensitive school-based garden approach. The national and local community support for this approach came not only not only because of its proven impact but also because the approach is sustainable, practical and cheap.

Implications for SFNE in LMICs: Well-designed school garden programmes can explicitly support the educational linkages between nutrition and agriculture. The programme framework can be adapted to similar contexts and can serve as an example of how various school-based components can be mutually reinforcing.

Ms. Margaret Miller, Refresh ED, Edith Cowan University, Perth, Australia.

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Refresh.ED online K-10 Food and Nutrition Curriculum Support Project

Programme description: Refresh.ED is a government funded online resource for teachers, providing downloadable lesson plans, worksheets and professional supports for teaching food and nutrition in an Australian context. The materials were designed at Edith Cowan University based on development of food and nutrition literacy across four concept areas (Source, Choice, Experience and Health) and scaffolded by a Scope and Sequence across year levels from kindergarten to year 10. Lesson plans are designed to increase students' knowledge, attitudes, skills and self-efficacy about food, nutrition and healthy eating. Learning activities emphasise engaging hands-on activities whilst also providing opportunities for integration with information and communication technologies. Videos and Teacher Information Sheets provide quick and easy professional support. The resources are free and downloadable from the website.

Main results: Website traffic and resource downloads are monitored using website metrics and surveys of registered users. Most website traffic is from Australia, where the resource is actively promoted to teachers. However approximately 25% of website visitors are located in other countries including LMICs. Lesson plans and Teacher Information Sheets are the most frequently downloaded resources. The surveys of teachers who use the site show that they have a range in experience and confidence in teaching food and nutrition but all report high motivation to teach children about healthy eating. Most teachers (>75%) who use the resources report a change in the content of food and nutrition lessons taught in their classrooms, particularly an increase in activities related to food choice and the impact of food on health.

Implications for SFNE in LMICs: The resource provides an age appropriate, structured program designed to build food and nutrition literacy. Whilst only available in English, materials can be accessed online at no cost and its underlying principles can be used to design SFNE material support that meet local needs and local curricula.

More information at:

www.refreshedschools.health.wa.gov.au

Ms. Midori Ishikawa, National Institute of Public Health, Japan.

"Shokuiku": Promotion of Food and Nutrition Education in Japan

Programme description: In Japan "the Basic Law on Shokuiku", enacted in July 2005, is the first law that regulates diets and eating habits of the population. Shokuiku is a term referring to the promotion of not just healthy eating, but all aspects of a sensible diet, from selecting the food through enjoying taste. The purpose of the law is to promote consideration of essentials for life, to provide a basis for intellectual, moral and physical education, and to help people learn about diet and be able to choose a healthy diet for their lifestyle.

Community-based Shokuiku actions are developed based on the law and are aimed at reinforcing knowledge of the linkages across the food chain. This allows people to consider the food chain "from field to table", including production, processing, preparation, eating and disposal. They are carried out by several bodies, including local government, schools, facilities, volunteer groups, residents' associations, and commercial companies, to establish sustainable food systems promoting healthy diets. Local governments are responsible for identifying important food and nutritional problems, and devising effective actions using locally-available foods.

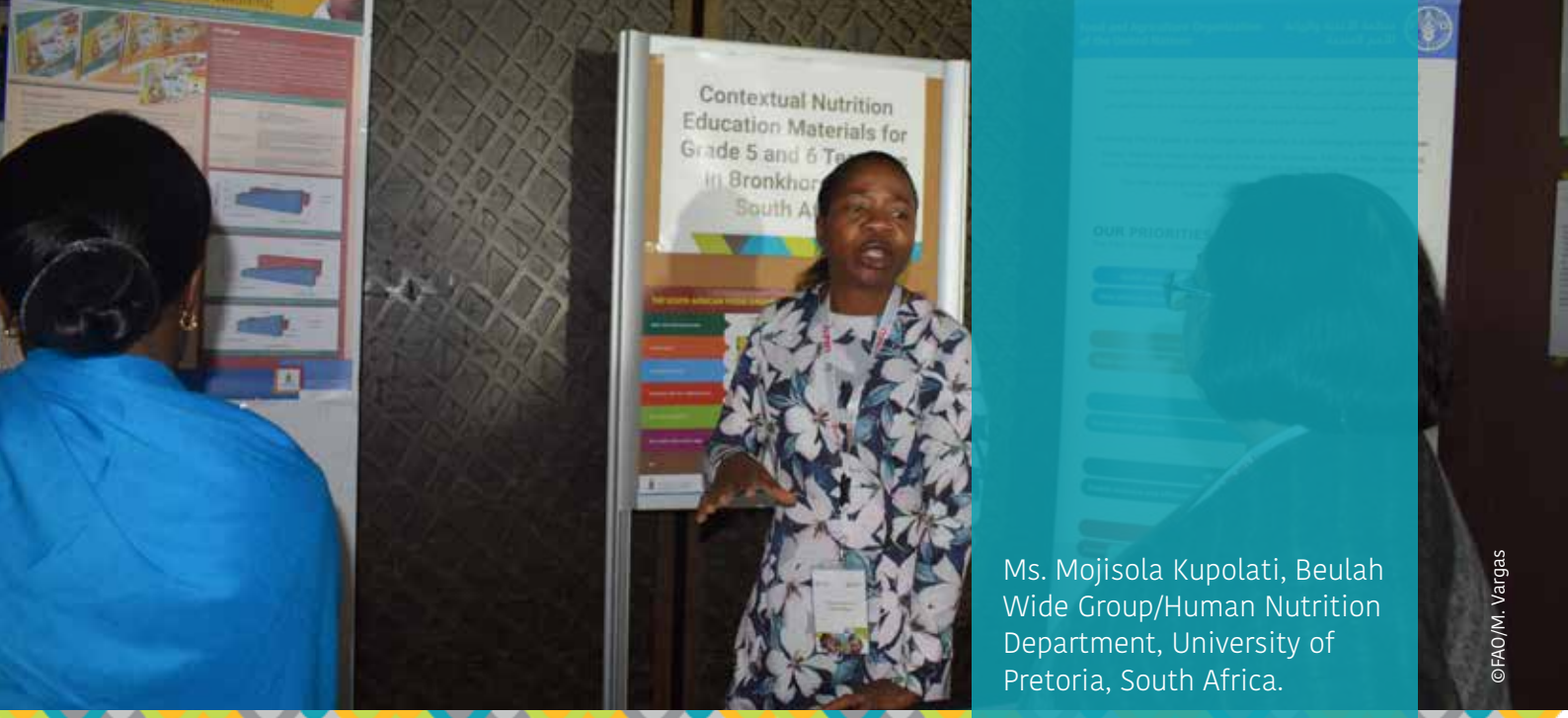
The "Japanese Food Guide Spinning Top," which uses easily understood illustrations to show desirable combinations of food groups and their ideal approximate quantities, was formulated in 2005 by the Ministry of Health, Labour and Welfare and the Ministry of Agriculture, Forestry and Fisheries. It is used as a teaching tool in health promotion projects undertaken by public health centers to promote awareness and use of the guide. Further, the publication "A Guide to Shokuiku" encourages people to take the first step in making concrete efforts to undertake food and nutrition education. Information is also provided at Shokuiku-related events organised by regional Agricultural Administration offices and the like by using those materials.

Nutritionists provide support for model Shokuiku activities in partnership with relevant stakeholders. These activities promote the practice of the "Japanese dietary pattern" and offer a menu of Shokuiku options tailored to the various attributes and needs of consumers.

Implications for SFNE in LMICs: In recent years, Japanese nutritionists are expected to share information about Shokuiku activities internationally. Over the last 50 years, more than 200 dietitians have been sent to LMICs as volunteers or project advisors. Many of the professionals involved were concerned about maternal and child health, non-communicable diseases, or the double burden of malnutrition. It has been considered how Japan's experience can be used to support international cooperation.

More information at:

www.maff.go.jp/e/data/publish/attach/pdf/index-53.pdf



Ms. Mojisola Kupolati, Beulah Wide Group/Human Nutrition Department, University of Pretoria, South Africa.

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Contextual Nutrition Education Materials for Grade 5 and 6 Teachers in South Africa

Project description: A nutrition education (NE) needs assessment was conducted among the primary schools in Bronkhorstspruit district (a resources limited setting) in South Africa, as an initial step in developing a pilot NE intervention for teachers. The assessment revealed ineffective methods of teaching nutrition, teachers' limited knowledge on certain nutrition topics, unhealthy eating behaviors among learners and lack of up to date instructional materials, among others. The information obtained from the needs assessment was integrated with constructs of the Social cognitive theory (SCT) and the Meaningful learning model (MLM) and incorporated into the existing curriculum of the Department of Basic Education in South Africa, to develop a set of contextual nutrition education materials. Teachers were trained on how to use the materials in teaching nutrition education and the same used the developed materials to teach nutrition for one academic session (2015). The intervention was evaluated in a pre-post implementation, quasi-experimental design.

Main results: The developed materials met the teachers' need for adequate instructional materials and the intervention led to improved skills in teaching nutrition education as was expressed by the teachers. The intervention led to improvement in the teachers' and the learners' nutrition education knowledge and attitudes.

Implications for SFNE in LMICs: Theory-based nutrition education projects that are designed using results from needs assessments, and that are in line with existing school curriculum implemented by teachers, have high potential for sustainability. The use of theories can enhance the understanding of the concepts of nutrition education in perspective of individual experiences among the learners and the teachers.

Ms. Wendy Wolfe, Cornell University, New York, USA.

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Cornell's Choose Health: Food, Fun, and Fitness interactive curriculum for 8-12 year olds

Programme description: 'Choose Health: Food, Fun, and Fitness (CHFFF)' is a 6-lesson nutrition curriculum for 8-12-year-olds developed by Cornell University's Division of Nutritional Sciences. CHFFF uses hands-on, skills-based experiential learning to teach healthy eating and active play, targeting behaviors most important for preventing obesity and chronic disease: replacing sweetened drinks with low-fat milk and water, eating more vegetables, fruits, and whole grains, eating fewer high-fat and high-sugar foods, and playing actively 60 minutes a day. Lessons are scripted to ensure short and accurate messages and structured using the "4-A dialogue approach" based on educational theory and research to ensure youth engagement and skills-based learning rather than didactic teaching. CHFFF was developed collaboratively by Cornell researchers using an iterative approach, with extensive input and field testing from local nutrition and youth development educators to ensure it met their needs. It was evaluated using pre-post surveys developed by a multi-state researcher-practitioner group based on literature review, expert review, and cognitive testing with youth. This is in contrast to the traditional "translational" or "implementation research" approach in which researchers develop interventions and design efficacy trials to test them, with practitioners not involved until delivery and effectiveness trials.

Main Results: Practice-based evidence suggests that CHFFF promotes positive behavior change, with significant improvements from pre- to post-education in vegetable and fruit consumption, sweetened drinks, reading nutrition labels, and other food and activity-related behaviors. A more in-depth evaluation is underway. For CHFFF, the Cornell expertise made sure the curriculum was behavior- and theory-based, and focused on the most important behaviors for preventing obesity and chronic disease. The practitioners ensured that it was useful and appropriate for both educators and youth, by helping to develop, field test, and revise the lessons and activities. This process takes time, but is critical, and we recommend that it be replicated in other settings.

Implications for SFNE in LMICs: CHFFF is an example of bringing together researchers and practitioners from the beginning to design and test an intervention and thus make it more likely to meet local needs and be accepted and feasible.

More information at:

https://fnec.cornell.edu/for-partners/curricula/chfff

Ms. Anupama Joshi, National Farm to School Network, USA.

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Evaluation for Transformation: A Cross-Sectoral Evaluation Framework for Farm to School

Framework description: Evaluation for Transformation is an evaluation framework for farm to school programmes (consisting of 3 core elements: nutrition education, gardening and local and regional food procurement). The framework offers common language, guidelines and metrics to understand potential outcomes organised around four key sectors: public health, community economic development, education and environmental quality. Beyond the four sectors, the framework is also structured around three levels of action: program, research and policy. Representatives from multiple stakeholders can use this framework as a guide to develop, describe, implement and conduct farm to school and farm to preschool activities and evaluations. The primary aim of the farm to school evaluation framework is to guide future farm to school research and evaluation efforts, while maintaining a view of the full farm to school picture.

Implications for SFNE in LMICs: The evaluation framework can be adapted in LMICs to provide guidance on how to consistently track and monitor multi-component programmes that integrate SFNE considering local and national policies that influence farm to school.

More information at:

www.farmtoschool.org/resources-main/evaluation-framework

Mr. Daniel Hatfield, Tufts University, Boston, USA.

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The GREEN Project Lunch Box Study and ChildhoodObesity180

Great Taste, Less Waste (from the GREEN Lunch Box Study)

Programme description: Great Taste, Less Waste is a theory-based, multi-component school-based nutrition education curriculum targeting elementary schoolchildren, which is part of a broader research project (The GREEN (Growing Right: Eating Eco-Friendly & Nutritious) Project Lunch Box Study). The program's 22-lesson curriculum aims to motivate children by linking nutrition and healthy eating to eco-friendly behaviors and, in turn, to improve the nutritional quality of foods that children bring to school from home, particularly in terms of increasing fruits and vegetables and decreasing sugary drinks.

Main results: Researchers evaluated the campaign's impact using digital photography to document changes in lunches and snacks brought from home to school. The campaign was well-received by children, their families, and the schools. The GREEN study both documented the need for improvement in foods brought from home to school and created an innovative approach to addressing this challenge.

Implications for SFNE: Nutrition education programs that blend nutrition and eco-based messaging show promise in the school setting.

ChildObesity180

Programme description: Housed at Tufts University, ChildObesity180 is an organization that blends scientific evidence with innovation from the private sector to develop, implement, evaluate, and scale high-impact initiatives to reverse the childhood obesity trend in the US. To inform its approach and amplify its impact, ChildObesity180 engaged dozens of national leaders from the public, private, academic, and nonprofit sectors. We fostered innovative partnerships and engaged diverse funders to develop and implement a portfolio of four initiatives: Active Schools Acceleration Project (ASAP) is increasing quality physical activity in schools; Healthy Kids Out of School promotes healthy eating and physical activity in out-of-school-time programs; The Restaurant Initiative aims to reduce children's excess calorie consumption when they eat in restaurants; and The Breakfast Initiative, which closed in 2014, promotes healthy school breakfast and evaluated its impact on several measures.

Main results: As of June 2017, ChildObesity180 has reached more than 11 million children across all 50 states; engaged 27 national CEO-level Charter Members from a variety of sectors; established 81 partnerships with public and private

entities for implementation, funding, research and related activities; raised over $30 million in funding; and disseminated knowledge through diverse mechanisms, including 32 peer-reviewed publications, 179 presentations, and 33 videos and multimedia communications.

Implications for SFNE: Combining scientific evidence with private-sector innovation is a promising approach for scaling evidence-based nutrition, physical activity, and obesity-prevention programming in schools and other settings.

Ms. Najla Veloso, FAO, Brasilia, Brazil.

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Brazil-FAO Technical Cooperation Project: Strengthening School Feeding Programmes in Latin America and the Caribbean

Programme description: Since 2009, within the framework of the Brazil-FAO Cooperation Programme, the Brazilian Cooperation Agency, the National Fund of Education Development (FNDE) and FAO have been implementing the project "Strengthening School Feeding Programmes (SFP) in the Framework of the Hunger Free Latin America and the Caribbean 2025 Initiative".

In 2018, 13 countries[5] werre direct participants of the project, which took as a reference the Brazilian experience[6] of school feeding programmes. To overcome an assistance-based focus, the project seeks to build a new vision for SPFs, considering the right to adequate food and quality education for improving food security and nutrition, healthy eating habits, and sustainable social and cognitive child development in the countries.

Main results: Taking as reference the principles of the SFP in Brazil, there was effective participation of the countries in the construction of a new paradigm. The new generation of SFPs is based on guaranteeing social rights and public investment in social development, in consolidated legal frameworks or in the process of consolidation. Currently, SFPs are part of the Community of Latin American and Caribbean States (CELAC), as a pillar of nutrition and health wellbeing. In addition, they are recognized as an intersectoral strategy for social policies and for the achievement of many of the Sustainable Development Goals.

Within the project, practical implementation laboratories of sustainable school feeding programmes, called "sustainable schools", were developed with technicians and managers for the debate and development of public policies. One of the main components of these sustainable schools has been the development of systematic actions for food and nutrition education and their integration into national policies, through multisectoral discussions and engagement.

Throughout the project, the integration of SFNE has been seen as a condition for sustainable SFPs. Conceptually, providing nutritious meals to children is not automatically translated into healthier practices and habits without education, and programmatically, linking SFNE to the SFPs represents a possibility for regular resource allocation to guarantee actions and permanence in the education systems. Commonly, the two spheres were developed and implemented separately, which represented an important opportunity lost. SFNE practices are often discontinued and do not represent an essential demand for managers.

5 Belize, Costa Rica, El Salvador, Grenada, Guatemala, Guyana, Honduras, Jamaica, Paraguay, Peru, Dominican Republic, Saint Lucia and Saint Vincent and the Grenadines

6 In Brazil, the national programme is universal for almost 43 million students and offers quality meals one or more times a day, during 200 school days per year

School gardens were particularly used as a learning platform to involve the school community, including parents and family farmers (when possible). SFNE was approached as a strategy to promote the discussion of various aspects and dimensions of food, addressing topics related to anthropology, economy, culture, nutrition, environment and gastronomy.

Implications for SFNE in LMICs: Based on the results and country experiences, the project has developed the following policy-level recommendations:

- Integrate SFNE explicitly as an essential component of school feeding programmes. This supports sustainability, including adequate allocation of financial resources.
- Promote more dialogue with the education sector, not only as the implementer of activities in the school, but as a partner during the design phase for the definition of multi-win strategies and ideas.
- Focus on the social dimension of education, seeking to avoid school evasion and drop-out, address learning difficulties and reduce the gap between students' age in the same class. These issues are often more urgent to schools and managers than obesity, non-communicable diseases, and other health-related issues.
- Promote better and continuous interaction between teachers and nutritionists. Teachers need to learn about nutrition with nutritionists. Nutritionists need to learn about education methodologies and pedagogical tools with teachers. They are complementary.
- Promote interaction between the various ministries in the debate of key health and education indicators. The dialogue that these themes are fundamentally important for the social development of LMICs, should be strengthened.

More information at:

www.fao.org/in-action/program-brazil-fao/projects/school-feeding

www.youtube.com/watch?v=X8BH-7Z8UjU

Ms. Seung Lee, Save the Children, USA.

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The School Health and Nutrition-Save the Children

Description of the organization: Save the Children has been implementing School Health and Nutrition (SHN) programming since 1998 and has reached over 4 million children in 44 LMICs countries in 2016.

SHN describes interventions that aim to improve the health and nutrition of school-age children, their related behaviors and skills and, consequently, their participation in school and education outcomes. While schools are the venue to reach this captive audience, SHN activities also extend to children out of school, including those most vulnerable and deprived. As the definition of "basic education" is increasingly going beyond primary schooling, dipping "down" to early childhood education and "up" to secondary, so too is Save the Children's target age group for SHN. Now, apart from 6-12 year olds, SHN interventions also include preschoolers (3-5 years) as well as older adolescents (15-18+ years). Very Young Adolescents (VYA) ages 10-14 years have always been part of SHN, but there is now a new emphasis on this age group too. What is more, Save the Children's definition of what comprises a "school" for SHN interventions is shifting. Besides a primary school, it may be a preschool or Early Childhood Care and Development (ECCD) center, a community learning and resource center, or a secondary school or institution as well.

"Comprehensive SHN" refers to a core set of activities that, when implemented together, can help ensure children are healthy enough to learn and that they learn to be healthy. These core activities fall under four pillars:

- equitable school health policies
- a safe learning environment
- skills-based health education and
- access to health and nutrition services

In addition to achieving the four pillars above, the success of interventions and sustainability of achievements hinges on supporting strategies or foundations, which are: community ownership, child participation, and partnerships between education, health and other sectors.

Nutrition education and related activities such as micronutrient supplementation are critical elements of SHN programming. The comprehensive nature of SHN also ensures that nutrition interventions are enhanced through related activities such as deworming, water and sanitation and school feeding.

More information at:

https://resourcecentre.savethechildren.net/keyword/school-health-and-nutrition-shn

Ms. Shubhada Kanani, Baroda High Schools and Vadodara Municipal Corporation-Department of Health, India.

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Application of participatory-qualitative research (PQR) tools for SFNE Programme Design and Process Evaluation

Description: To be effective school-based nutrition education and communication interventions (S-NEC) should include the following elements: a) be based on children's understanding of the problem being addressed; b) ensure that the action focused messages are culturally relevant and doable; c) communication channels are interactive-activity based; d) the intervention is comprehensive, with inclusion of primary and secondary audiences (children as well as parents, teachers, school management, peers); e) feasible in the school timetable.

For all the above, formative research is an essential initial step, for which open ended information gathering tools give rich insights and relevant data: participatory, qualitative research (PQR) approaches. Presented here is a snapshot of the experiences and useful learning from 5 methods employed out of the toolbox of PQR, used by the author in school settings: A. Free listing and pile sorting; B. Drawing and dialogue; C. Matrix ranking; D. Preference ranking; E. Observation Method.

Free listing and pile sorting (FL-PS)

FL-PS is an interactive activity based method in which participants first identify specific items which, according to them, fall in the domain of interest (free listing) and then sort these items into categories (pile sorting). Prior to a school canteen improvement program in 5 schools, FL-PS was used with the following objectives 1) to understand which are the common snacks (meals excluded) and beverages liked and consumed by children (free listing); and 2) which of these, according to them, lead to a school child being a) normal weight; b) overweight; and why (pile sorting).

Main results: The FL-PS method, in a lively and interactive manner, gave data regarding the snacks and beverages popular among children; where they consumed them and which of these are likely to cause overweight. Even as children placed a large number of the items (cards) in the 'cause overweight' category, they added that by limiting the intake of these items they relish, and by exercising /playing outdoors, they can maintain normal weight and health.

Drawing and dialogue (D-A-D)

The D-A-D method helps participants to express their views and feelings through the visual medium of pictures, which at times may be a better communication tool rather than verbal expression. After the drawings are made, participants explain their drawings and their views on the topic. In a school-based anemia control intervention which focused on increasing anemia awareness (through classroom sessions) along with iron-folate supplementation, this method aimed

to determine perceptions of adolescent girls and boys – through drawings- regarding various factors are responsible for anemia prevention ('draw pictures showing What makes my blood red and healthy?') and anemia causation ('draw pictures showing What makes my blood pale and weak (anaemic).

Main results: The D-A-D exercises were valuable both as a formative research tool and also successful in testing knowledge gain post intervention. Anemia related perceptions from D-A-D enriched the quantitative survey and helped design the nutrition communication program in the school. The illustrations (2 and 3) show a pre and post intervention drawing.

C. Matrix ranking (M.R)

M.R. is a method in which the several factors (variables) which influence the practice of interest are elicited from the participants; for example, food choice influencers. Each influencer is then given a rank (or score: say 5 to 1) which indicates the extent of influence on the food choices, from most to least. In a school intervention study based on the Social Cognitive Theory, the various determinants of children's food choices were explored using the M.R. as one method in a mixed-method approach.

Main results: With groups of children, M.R. gave valuable data regarding- a) the various events /occasions when meals – snacks were taken during a typical school day; b) the various influencers (determinants) affecting the child's food choices- as perceived by the children themselves (such as parents, friends, TV-other media, teachers and child himself / herself); c) the relative extent of influence of each influencer, on the food choices (most to least).

D. Preference ranking (P.R)

P.R. is a tool which facilitates participants to give their relative preference (or utilization) of different items in the domain of interest, in terms of giving them a rank from the most liked or used (rank 1) to the least liked or used (last rank). It is similar to M.R., but in my research, M.R. has been used to simultaneously consider several variables in the process, while here, P.R. was used only for one variable of interest – ranking of school meals in order of acceptance or popularity. In a national Mid Day Meal Program (MDMP) evaluation study, we used the P.R. with the aim to assess which menu items (in the cyclic weekly menu) were liked relatively more/ liked less by the children (cards depicting pictures of the items served were ranked).

Main results indicated that rice based items were preferred over coarse wheat items; salty and sweet items were preferred if offered alternately. Recommendations were made to the government authorities to consider replacing less popular items with others; and improve the MDM program.

E. Direct Observation method (OBS)

In descriptive or evaluation research, reported interview data may not give the true picture of beliefs-practices or implementation realities in the field. There is often discrepancy between what people say and what people do. The OBS method facilitates researchers to silently observe (from the background) and record all information relating to the topic of interest, without disturbing what is going on. OBS data helps triangulate data from other methods. Measures are used to minimize 'observer bias.' This method was used (as one among many tools) with the aim of assessing the quality of implementation of the teacher supervised, national weekly iron-folate (IFA) supplementation (WIFS) program in government schools.

Main results: This method revealed the plus points and the drawbacks of WIFS implementation in terms of IFA supplies, distribution, relevant counseling to children, compliance, record keeping and other relevant aspects. Done in partnership with implementing authorities, the assessment helped to initiate steps to plug the gaps seen.

Implications for SFNE in LMICs: The tool box of PQR methods is extremely valuable not only in formative research but in evaluation research as well. In particular, process evaluation to find out explanatory variables influencing, and reasons underlying effectiveness or poor implementation. Being visual, usually group based and interactive, these methods are also fun-to-do and give rich insights regarding what schoolchildren believe and why; what they practice and why; and what are their suggestions to plug the gap between desired and actual practices. Further, PQR methods, though open ended and descriptive and usually on smaller samples (compared to surveys), do lend themselves to meaningful quantitative analysis and can be presented as graphs, flow charts, tables and matrices.

Ms. Sidiga Rahim Washi, Ahfad University for Women, Omdurman, Sudan.

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Pilot Study: Childhood Obesity Prevention among Schoolchildren in Alain, UAE

Project description: Childhood obesity has been attributed partly to unhealthy lifestyles and behaviors. A cluster-randomized intervention study to address childhood obesity and its related risk factors was conducted, through behavior modification approach and implementing public health nutrition strategies.

Eight public primary schools were randomly selected in Al Ain city, UAE. Using validated questionnaires, base line anthropometric, dietary and physical activity behavior data was collected from 1054 children (male and female 6-9 years) prior to the intervention. Trained teachers among 503 children in four schools applied the school-based nutrition and physical education intervention. The outcome measure was a change in dietary and physical activity knowledge, attitudes and practices after a 4-month intervention.

Main results: Baseline anthropometric data showed normal BMI for age among the majority of the sample in both intervention and control schools (82.8% male, 79.6% female). However, 10.9, 10.7 % of the girls, 6.5%, and 9.6% of the boys in all schools studied were overweight and obese respectively. After 14 weeks intervention no significant change in BMI occurred among both intervention and control children. However, a significant positive change occurred in knowledge, attitude and practice of the intervention schoolchildren (95% CI - 00.02).

Ms. Stacia Nordin, Feed the Future Malawi Strengthening Agricultural and Nutrition Extension (SANE), University of Illinois, Malawi.

Maximizing Indigenous Resources for School Nutrition

Programme description: The University of Illinois is implementing the US Feed the Future Malawi- Strengthening Agricultural and Nutrition Extension (SANE) project, with the Malawi Government, and supported by Catholic Relief Services and Michigan State University. It is a 5-year project running from 2015-2020. The primary aim is to strengthen the District Agricultural Extension Services Systems (DAESS[7]) to mobilize and work with service providers to deliver agricultural and nutrition extension and advisory services more effectively. This includes agriculture and nutrition activities within the school system.

The SANE project has made progress during its first year both operationally and programmatically. SANE is working to improve agricultural and nutrition coordination in Malawi, and to help coordination platforms to create agreed-to standards, with programmes, activities, messages and monitoring tools in line with these minimum standards. The project is working to improve access to and use of available high quality extension materials and learning tools, which were evaluated for gaps and being monitored for their use.

Implications for SFNE in LMICs: SFNE projects that aim to support nutrition-agriculture linkages, should assess ongoing local agriculture education programmes, in order to find clear connections and potential trade-offs. SANE encourages all projects to start with thorough assessments and use of local resources before bringing in anything from the outside.

More information and resources at:

https://agreach.illinois.edu/sane

http://bit.do/SANEAgNutrition

7 DAESS is a decentralised extension framework for enabling all agricultural stakeholders to engage in a participatory process of identifying and addressing issues for collective action.

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Supplement 2
world cafe

The World Cafe featured 5 host speakers who presented holistic SFNE programmes or experiences from different regions organized in stations. The participants of the consultation were invited to "travel" to the different stations to get an overview of the programmes and to have a discussion on how these experiences could be adapted to LMICs or to other contexts in terms of programming and/or research.

Objectives

- To share experiences of holistic SFNE approaches which capitalized on education-environment linkages
- To provide examples of effective SFNE programming and research in specific contexts

Below are the summaries of each presentation.

Mr. Chris Smith, Center for Ecoliteracy, California, USA.

Center for Ecoliteracy Approach

"'Rethinking School Lunch' Applied: The California Food for California Kids® Initiative and California Thursdays® Program, a Proven Implementation and Marketing Strategy as an Achievable First Step to School Food Systems Change"

The California Food for California Kids is an initiative for comprehensive school food systems change, which has its foundational framework, in the Rethinking School Lunch Planning Guide, and its highly successful implementation and marketing program, California Thursdays. The initiative seeks to increase the amount of freshly-prepared school meals made with locally-sourced ingredients (defined as California-grown) and is designed to achieve multiple wins: improved student health and academic achievement, increased investment in local economies, benefits for the environment, and an understanding of where food comes from and how it reaches the table.

As evidence of the potential impact of the initiative, the scale of public school feeding programs in California is nearly 1 Billion meals served annually with more than $2.5B in public funding in the state. The scale of the California Food for California Kids Network of participating school districts is 71 districts in 28 counties with more than 2,900 schools and 1.85 million students – 66% of whom are eligible for Free and Reduced-Price Meals, a common national indicator for poverty – that collectively serve over 311 million meals annually.

The California Thursdays strategy offers an achievable and inspiring first step to school food systems change: simply serve one fresh, locally-sourced school meal once, then try serving one once a month, and ultimately try serving one once a week. It was successfully piloted in a large urban district and rapidly scaled to establish the network of 71 districts. The repercussions on the food chain and for industry and policy-makers was highlighted: because of the magnitude of the school food market and the rapid scaling of the California Thursdays program, executives at Sysco called it a "top three market mover" and new product lines were created to meet the demand that also revealed the provenance of the ingredients.

The Center for Ecoliteracy facilitates this large-scale initiative using the "collective impact model," activating the Network to advance shared goals for social change. With collective impact efforts, a backbone organization like the Center plays six key roles: guiding vision and strategy, supporting aligned activity, establishing shared measurement practices, building public will, advancing policy, and mobilizing funding.

Some examples of turnkey resources created by the Center and provided to school districts, categorized according to the ten pathways for school food systems change outlined in the Rethinking School Lunch Planning Guide, included

the Model Wellness Policy Guide, collections of recipes at institutional scale, marketing and communications resources, and sample lessons.

Further reading

California Thursdays: www.californiathursdays.org

California Food for California Kids: www.californiafoodforcaliforniakids.org

Rethinking School Lunch Planning Guide: www.ecoliteracy.org/download/rethinking-school-lunch-guide

Model Wellness Policy Guide: www.ecoliteracy.org/download/wellness-policy-guide

Resources for educators: www.ecoliteracy.org/resources

Ms. Xinia Fernández, Universidad de Costa Rica, Costa Rica.

Póngale Vida

The national prevalence of overweight and obesity in schoolchildren in Costa Rica is 34%, escalating to 50% in some regions. Undernutrition and stunting are not greater than 2% at the national level, yet this figure increases to 20% in areas with highest levels of poverty. This double burden imposes a great challenge for preventive strategies and actions.

In this context, the faculty of Nutrition of the University of Costa Rica developed a programme named Póngale Vida TM. The programme is based on the socioecological model and the stages of change theory. It developed a package of strategies aimed at promoting healthy eating and physical activity for preschoolers, 1st to 6th graders and adolescents from public schools around the country.

The programme designed activities and learning materials for use in the classroom, school premises, household and community. In the classroom, nutrition education is integrated within the curriculum and 15 minutes of daily physical activity are promoted. In the school active recess is promoted and the quality of the school menu is monitored. Families and communities are reached through strategies such as the Healthy Families, School for Parents and Family Sundays.

The programme runs interventions in public schools in rural and urban areas during a school year. Teacher training, and the development of capacities of women and community leaders who implement the programme at local level is key to its success and sustainability.

Monitoring is done at the beginning and end of the school year in order to evaluate changes in nutritional status, food practices and physical activity.

Learning and teaching materials developed by the Pongale Vida programme:

Teacher Manual for Preschool / Weekly Worksheets

Teacher Manual for 1st to 3d grade/ Weekly Worksheets

Teacher Manual for 4th to 6th grade / Weekly Worksheets

Physical Activity (classroom, school and community) Manual for teachers

Educational Material for the Cafeteria (menu board, talkers, posters, stickers)

Active Pause for teenagers

Mr. Guéladio Cissé, Swiss Tropical and Public Health Institute, Bhutan, Burkina Faso, Indonesia, Nepal, Philippines.

Vegetables Go to School

The Vegetables Go to School: Improving Nutrition by Agricultural Diversification project is implemented in Bhutan, Burkina Faso, Indonesia, Nepal and the Philippines, and funded by Swiss Agency for Development and Cooperation (SDC).

The overall goal of the project is to contribute to improved nutritional security, particularly for children in the target countries, through comprehensive school vegetable garden programs linked to other school-based health, nutrition and environmental initiatives, with a close participation of local communities.

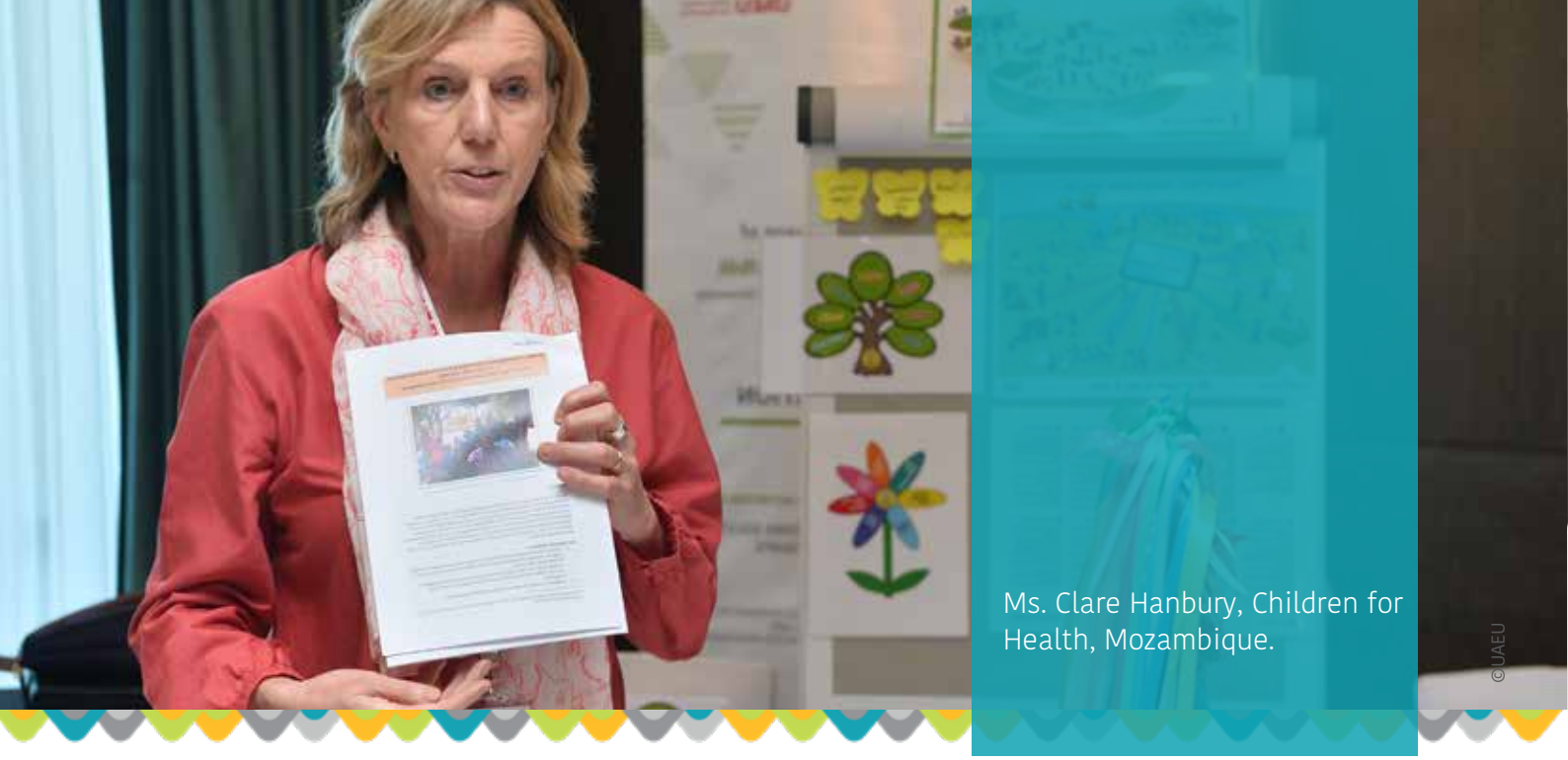
The knowledge and skills development process started with several training of trainers delivered on gardening, nutrition, water, sanitation and hygiene (WASH) and health. Around 200 focal teachers and technical staff in the schools have been trained. The focal teachers reached out to more than 8000 students (targeting girls and boys equally) in different institutional, cultural and political contexts. This included hands on activities in the school garden as well as academic classes on food, nutrition, sustainable and organic agriculture, water, sanitation, hygiene and health. The school garden activities were linked to community gardens and home gardens, to increase the interactions with communities.

The project made it possible to reinforce in the countries the necessary multi-sectorial collaboration for nutrition-sensitive interventions, between at least central ministerial departments in charge of education, agriculture, water, sanitation, hygiene and health.

Further reading

Vegetables go to school project website: http://vgts.avrdc.org

Evidence and project publications: http://vgts.avrdc.org/research/research-publications



Ms. Clare Hanbury, Children for Health, Mozambique.

Children's Participation in Learning and Action for Nutrition

In Mozambique the dreadful facts are that 44% of all children under 5 suffer from chronic malnutrition. This limits the potential of these children and makes them more prone to disease.

Children for Health understands that school-going children and young adolescents are often carers of these young children and can be mobilised to learn about and address nutrition problems and influence family nutrition practices. Therefore, the organization is working to embed a participatory approach to nutrition education in 15 primary schools in Provincial Government of Tete using their system of school clubs, called 'Interest Circles'.

Since 2011 and in partnership with the Danish International Development Agency (DANIDA), Children for Health has worked with educators at all levels to adapt their content and methods that fit into the government system and thereby create a participatory, sustainable and effective school-based nutrition education programme.

An evaluation of the programme in 2016 concluded that the programme is having a powerful impact on the lives and the health of children under five and friends and family describe the children and young adolescents involved as "heroes". In particular, the approach was already having a positive impact on food choices, breastfeeding and hygiene practices.

Further reading

Children for Health website: www.childrenforhealth.org

Children's Participation in Learning and Action for Nutrition (PCAAN) case study: www.childrenforhealth.org/wp-content/uploads/2017/05/PCAAN-Case-Study-FINAL.pdf

Videos

Children's participation in learning and action for nutrition (3 min): www.youtube.com/watch?v=RgRn9ZvYkEA&feature=youtu.be

Children's participation in learning and action for nutrition (3 min): www.youtube.com/embed/5tHnlUyALTU

Learning materials

The Rainbow garden (book): www.childrenforhealth.org/product/rainbow-garden

Everyone counts (book): www.childrenforhealth.org/product/everyone-counts-free-download

How to be good at football (book): www.childrenforhealth.org/product/how-to-be-good-at-football

Children's action for nutrition (poster): www.childrenforhealth.org/product/childrens-action-for-nutrition-poster

Ms. Marjaana Manninen, Finnish National Nutrition Council, Finland.

Eating and Learning Together

Finland is a model country when it comes to school catering, and supervised school meals have long educational traditions.

'Eating and Learning Together- recommendations for school meals' provides guidelines for the implementation of school catering and nutrition education at school. The recommendations are designed for educators, schools, persons in charge of school food services and pupil welfare, as well as for parents and caregivers, and the schoolchildren themselves.

The recommendations cover guidelines for school meals as well as snacks provided in before and after school activities and extracurricular clubs at the school. The provision of school meals supports learning as well as the health and well-being of the pupils and the whole school community.

School meals are part of the curriculum as an activity that supports the goals of education. Adequate resources as well as competent personnel ensure that school catering is implemented in accordance with regulations and recommendations. The monitoring and assessment of school catering is part of the larger measurement of health conditions at school and the health and well-being of the pupils, as well as the promotion of learning.

Further reading

Eating and Learning Together – recommendations for school meals: https://www.julkari.fi/bitstream/handle/10024/134867/URN_ISBN_978-952-302-844-9.pdf?sequence=1

Supplement 3
the white paper

Outlines of SFNE white paper themes

Note: Original drafts have been subject to substantial changes from the results of the consultation.

Theme 1. Making the case for food and nutrition education in schools in low and middle-income countries: rationale, goals and challenges

Background

There is no doubt that good nutrition, diets and healthy lifestyles in childhood are essential to growth and development, learning, health, long life and national prosperity. But in achieving these, does SFNE add value? Compared with direct nutrition interventions that supply only food or nutrients, SFNE adds long-term value and real capacity in helping children form good food habits and life skills at an early age.

What are we aiming at?

The goals are that schoolchildren are able and motivated to (a) improve their health, nutrition and diet by making healthier food choices and developing lifelong healthy eating habits; (b) recognize the links between food, health and the environment and the causes and consequences of hunger, malnutrition and food insecurity; (c) feed and educate their future families well; (d) promote environmentally responsible and sustainable diets.

Challenges on the ground

SFNE is still insufficiently present in national and school policies, in programs for school health, school feeding and school gardens, and is thinly covered in the standard curriculum. Where it is offered, it is often inadequately and inconsistently funded, supported and delivered.

Recommendations/strategies for action

Recommendations are therefore: to develop an integrated, intersectoral approach and capitalize on the synergies between and among various food, health, tech, agriculture and education interventions.

Theme 2. Creating enabling environments and strengthening policy supports for effective SFNE

Background

In food and nutrition, there is a strong reciprocal relationship between education and the food environment. An "enabling environment" smooths the path for good food practices in material, economic, and social ways and through policy. Conversely, food and nutrition education can magnify the impact of nutrition-sensitive "environmental" interventions by ensuring that people recognize their value, learn to profit fully from them and become capable of changing them.

The strongest immediate environmental influences on schoolchildren are the home, the community, the natural environment, the market (in all its forms), accessible media and social media among peers, the overall food system and the school food micro-system (including school gardens, school food and nutrition programs and other food on school premises): in all these environments children and their families observe, learn, act and interact about food.

What are we aiming at?

School food and nutrition education must link to these settings through a holistic curriculum framework and through policies in order to tap into these influences and have a real impact on children's food practices and perceptions.

Challenges on the ground

In most countries it is rare to find these links fully exploited in SFNE programs.

Challenges for action for the school environment are costs (e.g. school infrastructure, school meals), departmental coordination, ministry policies, governance issues, teacher time and capacity and level of access to internet; in the curriculum, issues are the status of SFNE as a subject, including time in the curriculum, family support, teachers' motivations and capacity in food/nutrition and in action-oriented, "outreach" approaches. For the links between the two, what is lacking is the perception that these links matter and the intention to establish them.

Recommendations/strategies for action

Some strategies are to call on existing international initiatives and frameworks, build overall capacity, integrate SFNE into other subjects, use extra-curricular activities, introduce and test micro-changes, link to SFN programs, and use media and ICT to good effect, build on existing strengths (e.g. flourishing school gardens, environmental policies), set aside regular quarter-hour slots in existing lessons.

Theme 3. Key SFNE competencies for schoolchildren in LMICs

Background

In schools learning initiatives are sometimes implemented without clear direction. It is prudent for countries to develop competencies specific to SFNE for the promotion of healthy diets, as well as to create model health-promoting and ecologically sustainable school food environments.

Developing SFNE competencies is challenging work, especially when addressing their unique educational considerations, and that they also need to be effectively integrated into schools. This theme aims to provide a framework that can be used to develop competencies where SFNE is integrated into general educational competencies.

What are we aiming at?

SFNE has increased potential to aid in developing sustained, healthful eating habits when it is recognized that providing knowledge is not enough and that SFNE needs to focus on actionable behaviours, enhancing motivation and facilitating the development of relevant skills, and environmental supports. This requires some systematic exploration of needs, practices and outlooks.

The initial planning step is to identify an issue of concern. Next is to decide the behaviour(s) to address. Then determine how to address the three components of nutrition education: a) explore what could enhance motivation of the audience toward the behaviour; b) determine how to facilitate action through thinking about how to increase confidence in doing the behaviour, and what practical knowledge and skills students and families need to do the behaviour; c) create supports for the behaviour by changing the environment or teaching how to navigate through the environment to make healthful, sustainable, socially just choices, despite the barriers.

Challenges on the ground

Unfamiliarity with the process, stakeholders from different backgrounds, need for extensive formative research, stakeholders' push toward a knowledge paradigm.

Recommendations

Create an amicable, respectful process. Open discussions, acknowledgement of differences, and taking time to understand one another can ease and even overcome these challenges.

Recommendations are: create a list of issues of concern that SFNE can address; review the food-based dietary guidelines, or any general guidance on a healthy diet including food system considerations, to create a list of behavioural outcomes for the SFNE competencies; develop enhancing motivation and facilitating action for change competency for each behavioural outcome.

Theme 4. The changing face of SFNE: Thematic areas of the curriculum

Background

How has SFNE changed? The subject of "Home Economics" used to be well established in many school systems but had a limited learning agenda. The SFNE curriculum or learning framework has therefore been going through an extensive evolution.

What are we aiming at?

Apart from the general principles of curriculum development, SFNE has its own principles. It has to be based on priority nutrition needs and learning needs in the national and local contexts; it is an action-and-understanding program rather than purely knowledge-based; it aims at capable handling of everyday food practices in real life (for which the classroom is the springboard); and it also aims at understanding and action in the wider food, health and natural environments. Thematic areas need to be mapped out under some umbrella topics, for example: food and diets, food needs through the life cycle, the household food cycle, food culture and local food history, the school food scene, and food systems; and cross-cutting dimensions such as local foods, gender, self /friends/family. In each area learning objectives/ outcomes are developed for relevant target practices, perceptions, skills, knowledge, understanding and outlooks.

Challenges on the ground

Although under-resourced, nutrition needs are now recognized, but SFNE needs are less well recognized, especially the strategies required for developing sustainable actions and outlooks. Curriculum and material development and teacher education are slow processes and expensive in time and money. At the same time, the curriculum is constantly under pressure and very competitive.

Recommendations/strategies for action

Effective strategies may be: building in advocacy activities at all levels; long-term planning; piecemeal curriculum development; trying out extra-curricular programs and pilot materials; and spreading expertise by example.

Theme 5. Mapping pathways: Models and methods for SFNE

Background

How can children leave school with good understanding, appreciation and food practices for life? Nutrition information alone is not enough to form, maintain and share food habits and preferences. More effective approaches take account of the sensory, practical, emotional, sociocultural and environmental nature of food education, and in particular focus on the "action end" of the process (imitation, practice, experimenting, feedback, getting the habit) as well as the "motivation end".

What are we aiming at?

The broader paradigm takes account of a range of models of behaviour change, educational theories and best practices. It has (a) a strong design framework which sees food and nutrition learning as a process requiring practice; (b) a wide theatre of action, reaction and interaction in many environments and settings (food, school, home, natural, social, institutional and political, media); and (c) full engagement and ownership by participants.

Challenges on the ground

This is a tall order. Effective SFNE requires strong perception of the bond between food and health/prosperity, and corresponding time, status and attention in the national curriculum, teacher development and school food and nutrition schemes. Children, schools and families need scope for practical action, an enabling environment, support from families, communities and institutions, and visible results.

Recommendations/strategies for action

How to move forward? Programs need to harness SFNE's enormous motivational potential, and to trial rewarding learning and training formats, economical in time and cost, within standard frameworks. Establish a checklist of minimum criteria for intervention quality.

Theme 6. Successful and innovative SFNE learning strategies and activities

Background

A food-and nutrition-literate citizen has a great range of capacities. Effective learning strategies and activities help to build these capacities for life.

What are we aiming at?

(Process) Children develop these capacities by actively and purposefully going through the process of perception, change and maintenance (see Theme 5), mainly in real-life settings in the home, school and community. Activities should contribute to coherent strategies; appropriate to age, culture and scholastic levels; they should start from where children are, and build on existing knowledge, experience, outlooks and skills. This requires dialogue and discussion.

(Principles) This action-in-context framework embodies some recognized principles of effective SFNE, such as building on existing knowledge and experience, hands-on experiential learning, practice and repetition, social interaction, group work, "outside" activities in the food environment and family support. These are not seen simply as good in themselves, but as directly relevant to achieving outcomes - e.g. hands-on practice is essential to developing skills. Other essential general principles for changing practices and outlooks enhance the process by driving the action; making experiences and processes visible/ audible/ interactive; making action easy, attractive and friendly; making new learning memorable and "portable" for passing on; tackling barriers; and reinforcing learning. Families and communities must be involved and engaged in interesting, rewarding and undemanding ways. Professionally produced learning/teaching materials are not essential to the learning process, but can be a great support.

Challenges on the ground

The main challenges are to reduce dependence on "chalk and talk", instigate action both in the school and beyond it, engage all concerned in the active process of cultivating lifelong good food/cooking/nutrition practices, and to do all this with few resources. There are also challenges in producing effective and adaptable learning materials and making them available, and in building long-term capacity and recognition at all levels.

Recommendations/strategies for action

To support these, teaching notes explain the importance of the food issues, highlight learning challenges, and provide step by step instructions. A large proportion of the digital age generation learns now from watching videos and online, even in LMICs. ICT and media can, if accessible, enhance activities, extend reach, build ownership and sometimes compensate for lack of professional expertise. These are not stand-alone panaceas and are often most effective as part of a package.

Theme 7. Developing capacities for effective SFNE throughout the system

Background

In terms of SFNE, capacity development means not only developing expertise in nutrition education at individual level, but also developing the overall motivations and organizational capacity of schools and the system as a whole to gain political legitimacy and be recognized as an important national and regional system. Capacity development is a long-term process that builds gradually and incrementally across dimensions, and requires continued policy support and monitoring.

What are we aiming at?

Capacity development for effective SFNE must work towards declared goals and be based on an overall capacity assessment at all relevant SEM levels. It requires clear objectives, supportive policies, standards, programs, curriculum, teaching resources and a trained and motivated workforce.

Standards of knowledge and skills for SFNE workforce are needed to guide review, planning, delivery and measurement of capacity requirements. A self-assessment toolkit could help ministries / districts/ schools assess needs, identify barriers and supports, select priorities, implement guided solutions, and measure and report outcomes.

Teacher education should focus on core food and nutrition knowledge and skills as well as evidence-based and action-oriented learning/teaching approaches for successful SFNE. Standard, centrally generated/ measurable training resources (on-line and practical) should be available. These can be used flexibly pre-service and in-service according to needs along with workplace support strategies such as champions/ambassadors, cascade training, mentoring, on-line support, social media and interactive internet experiences where possible, grassroots initiatives by teachers.

Challenges on the ground

Lack of leadership or interest in school food and nutrition education; scale of the training needed and cost of resources may be discouraging (particularly if the education system focuses on theoretical rather than practical understanding of food and nutrition and/or, on the food supply side, on the provision of food services without practical education about it); the confidence and competence required to provide SFNE may take some time to develop, little communication and engagement with parents.

Recommendations/strategies for action

The aim is to focus on essentials - don't try to do too much and provide sustainable, self-supporting and low-cost solutions.

Theme 8. Promoting SFNE monitoring, evaluation and research

Background

Evaluation for SFNE is the path for articulating an evidence-based rationale for SFNE's role in improving nutrition, professionalizing the field, and securing necessary resources and funding for implementation. Evaluation can also support the value of SFNE as compared to or in integration with other interventions. Unfortunately, SFNE is seldom evaluated, except in large research studies and even then mostly as part of a package of interventions, and rarely in a controlled study design.

What are we aiming at?

Valid, effective M&E whose findings are put to use (need to start with clear program articulation and agreement on outcomes and indicators of success).

Challenges on the ground

Evaluation, in general, is not seen as a priority, it is not planned and budgeted for; there are inconsistencies in program articulation and disagreements about causal pathways, inadequate project duration to observe long-term outcomes, and validity of measures; food practices and outlooks are the only valid measures of SFNE impact, but sometimes they do not reflect changes in nutrition status

Recommendations/strategies for action

Since SFNE strategies will differ across sites even in the same country or region, a guiding evaluation framework with guidance on choosing/formulating objectives, dosage and interventions to match desired outcomes, and recommended tools / templates / checklists can simplify or reduce the evaluation burden on sites.

Different types of research designs can be chosen and implemented based on scope and resources available. If evaluation efforts are expected to be conducted by sites, keep it simple without the need for external evaluation services. A best practice is to identify who has interest and ability to collect data as part of their regular scope of work, include program participants. Partner with universities and research organizations to conduct more complex research.

Research and evaluation results (successes and failures) should be disseminated to program participants and stakeholders, general public and policy makers (media, blogs) in bite-sized nuggets, infographics, and connecting with stories to support data.

Summary of feedback received

General content

- Need for "colour": case studies, illustrations, quotations, especially from LMICs
- More emphasis on the triple burden of malnutrition. Present data exclusively on schoolchildren
- Achieve coherence in use of terminology within and between themes
- Add an executive summary which will sum up all the themes including the challenges and recommendations, or only the recommendations
- Add on some specific practical "opportunities" at the end of each theme
- Add on some questions for program planners at the end of each theme
- Start each theme with the questions it will aim to respond
- Include new themes on (a) Advocacy, (b) Intervention types/formats and their rationales
- Turn the first theme into a policy document with a summary of key recommendations
- More on the minimum criteria for effectiveness rather than an entire restructuring of the system
- Include more linkages to international frameworks and other initiatives in schools
- More emphasis on formative research on all theme recommendations

General structure

- Differentiate aims from recommendations
- Start each theme with the aims
- Make the background flow into the aims
- Match/Align the challenges and the recommendations for each theme
- Prioritize the recommendations for each theme
- Restructure the papers to background, aims, recommendations
- Turn the challenges into opportunities, or turn the challenges into a checklist (What is in place? what needs strengthening?)
- Include questions to consider for each theme

Challenges and recommendations

Challenges	Recommendations
Policy	
Lack of political will. SFNE not perceived as important. SFNE policy is lacking or only briefly mentioned and not elaborated. Policy exists but is inadequately /ineffectively implemented.	Invest in implementation research to see what works. Call for increased investment in effective models. Involved other policy sectors in curriculum revisions.
Partnerships, agreements and linkages	
Competing priorities at all levels. Lack of effective collaboration at all levels.	Explore strategic partnerships and agreements according to the context. What is the biggest movement? A health-based or food-based approach? More explicit linkages with nutrition-sensitive and lifestyle interventions. Set up systems for joint commitment.
Awareness and advocacy	
Capacity for advocacy lacking in nutritionists. Advocacy needed at all levels.	Advocacy on how SFNE supports the outcomes of other sectors. Frame the outcomes of SFNE in economic terms, more on cost-effectiveness and future employment. Provide talking points and data for advocacy (e.g. re population health & employment). Motivate political leaders with success stories from other countries.
Concept of SFNE	
Some aspects of SFNE concept are neglected. Cross-sectoral whole-school approach, including health, school feeding, school gardens, school events and rules etc. ++ enabling environment. SFNE's interaction with all environments (school, home, community, market) within and beyond the school. Basis of action in real-life settings.	Promote cross-sectoral collaboration. Make enabling environment the first priority. Emphasize active role of students and families at all levels.
Capacity	
Needed at all levels. Resistant and overburdened teachers. Lack of models at all levels. Lack of good teacher trainers. Not covered in teacher education curriculum. Lack of nutrition expertise throughout the system.	Plan for capacity development for all, including head teachers. Review existing learning needs. Integrate into teacher education curriculum. Integrate community-based organizations in examples of methods for capacity development. Extend interested groups beyond teachers.
Curriculum	
SFNE has low value compared to core subjects. SFNE is lacking or thinly covered in curriculum, or offered as an elective. There is intense pressure and competition on curriculum space (not only from core subjects, but also from other development priorities). Philosophical underpinning of the education system may not be compatible with effective SFNE.	Make SFNE examinable to increase its status. Embed SFNE in mainstream curriculum - Give it 1 hour per week - Make it cross-curricular - Make it extra-curricular, e.g. health clubs Involve all stakeholders in curriculum development. Tap into institutionalized extracurricular and project-based activities. Understand if meal time can be tapped into. Be prepared when curriculum revision time comes.

Challenges	Recommendations
Curriculum content: cross-cutting issues	
Content does not cover: gender sensitivity, ethics, ecology. Nutrition interests not often aligned with environmental interests.	Explicitly integrate leadership or activism.
Design, M&E	
Not adapted to context (e.g. resources, climate, seasonality, prevalence of junk food, prevalence of obesity, food insecurity, lack of resources). Environmental action not integrated with SFNE. Parents not involved. M&E and human capacity for M&E is lacking. Stakeholders don't question intervention models. Multicomponent programs are regarded as best practice, but there are great difficulties in measuring. Many existing evaluation tools have their own limitations, especially when adapted to new settings (i.e. the fidelity of a validated tool is adaptability for local authenticity).	Develop guidelines for adapting to context. Formative research should include feasibility Involve parents and educators in design and implementation. Draw on programmatic best practices for multilevel interventions. Identify clear SFNE indicators. Ensure ownership of evaluation data by the community. Develop evaluation tools for SFNE that are realistic, validated and relevant.
Learning materials & IT	
Materials not relevant to the context, or imported/copied. Barriers to technical innovation. Materials provided by private sector. Language-relevance and indigenous adaptation.	Develop locally relevant materials. Promote messages that can be adapted. Prepare for the digital revolution. Promote innovation beyond IT, borrow from other fields.
Research and evidence	
Very little impact evaluation.	Do implementation research to establish optimal approaches. Leverage university partnerships and involve them from the beginning of the process.
Scale of change	
Very large, forbidding. A lot of small-scale, uncoordinated initiatives.	Aim for more realistic change.
Environmental factors	
Private sector and food industry sponsoring nutrition education in schools. Environments are not activated to serve as learning areas. Contexts with high food insecurity are extremely difficult for SFNE. Extreme environments.	
Other	
School meals not linked to the classroom.	Explore other non-traditional financial sources. Publicize SFNE competencies at all levels. Acknowledge donor influences.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School-based food and nutrition education (SFNE) reaches children, families and the broader school community in a regular and continuous way to foster lasting healthy food practices and capacities.

The consultation "Stepping up School-based Food and Nutrition Education: Exploring Challenges, Finding Solutions and Building Partnerships," organised by FAO in collaboration with the United Arab Emirates University was the first specialized global meeting of this kind. It provided stakeholders from different fields of expertise a platform to discuss challenges and define priorities, competencies and educational innovations with the main focus on SFNE.

Most importantly, the consultation launched a renewed vision, going beyond the integration of SFNE as stand-alone, disconnected and fragmented interventions and a largely academic requirement in schools.

This report provides a description of the consultation, the results achieved and the recommendations agreed on by the experts.

ISBN 978-92-5-131262-9

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CA3069EN/1/01.19