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STRENGTHENING SECTOR POLICIES FOR BETTER FOOD SECURITY AND NUTRITION RESULTS

Education

POLICY GUIDANCE NOTE | 13

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STRENGTHENING SECTOR POLICIES FOR BETTER FOOD SECURITY AND NUTRITION RESULTS

This policy guidance note is part of a series that the Food and Agriculture Organization of the United Nations (FAO), the Directorate for International Cooperation and Development (DEVCO) of the European Commission and partners are producing to support policy makers address the food security and nutrition situation in their country. Each note provides guidance on how to sharpen the focus of sector policies in order to achieve sustainable food security and nutrition outcomes.

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Introduction

Food insecurity and malnutrition have unacceptably high human and economic costs and impair sustainable development in most countries. According to the 2019 edition of the State of Food Security and Nutrition in the World, after decades of decline in the prevalence of undernourishment, the trend reverted in 2015 and remains almost unchanged for the past three years, while the number of people who suffer from hunger has slowly increased (FAO *et al.,* 2019).

The consequences of undernutrition are particularly harmful for infants, children and adolescents; with well-documented, devastating effects on their health, school performance and ability to learn, thus damaging their future productivity and earning potential (Walker *et al.,* 2007; Victora *et al.,* 2008; Black *et al.,* 2013).

Overweight and obesity trends continue to worsen worldwide, with 2 billion adults, 207 million adolescents, over 130 million five to 9 year olds, and 40 million children under five who are overweight or obese. Currently no country has made progress in reducing the obesity epidemic in its population (FAO *et al.,* 2019; Swinburn *et al.,* 2019; NCD Risk Factor Collaboration, 2017).

At the same time, anaemia currently affects about 33 percent of women of reproductive age, which has significant health and development consequences for both women and their children (FAO *et al.,* 2019).

Poor diets are now a leading risk factor for the global burden of disease. More specifically, unhealthy dietary practices, such as high intake of sodium and low consumption of fruits and whole grains, are major contributors to non-communicable disease (NCDs), morbidity and mortality in most countries (GBD Collaborators, 2019).

Key messages

- Food choices and practices are influenced by a myriad of evolving interacting factors, from individual preferences and attitudes to sociocultural and political norms.
- Education systems such as pre-schools, schools and post-secondary institutions, are key settings to promote food security and good nutrition in children, youth and their communities in a coherent and sustainable manner.
- It is important that the development of any approach to improve food security and nutrition through education systems explores first how food and nutrition concerns and objectives relate to the overall legal frameworks, mandates and priorities, core policies and routines, curriculum models, and staffing patterns of these systems.
- The approach to improve food security and nutrition through education systems proposed in this note is based on creating synergies between strategies to develop people's food and nutrition capacities and those to promote healthy food environments, while stimulating the local economy.
- Education systems and institutions cannot solely accept responsibility for sustaining holistic food and nutrition approaches. This responsibility must be shared with other sectors (e.g. agriculture, health, social protection), with each one of them making investments, receiving benefits and managing risks.

A focus on children and youth

The United Nations Standing Committee on Nutrition (UNSCN) has summarized the global situation for children, underlining that malnutrition in its different forms is widespread: "Many children around the world, especially those from low-income populations, start school already stunted, underweight and/or suffering from multiple micronutrient deficiencies. At the same time, nutrition and diet-related problems are also highly prevalent in middle- and high-income countries. Indeed, all countries suffer from at least one form of malnutrition... Increasingly, children are suffering from several forms of malnutrition, ranging from undernourishment to excessive weight or obesity, with both extremes often occurring in combination with micronutrient deficiencies." (UNSCN, 2017)

Only a few countries conduct regular and systematic data collection on the nutritional status and individual food consumption of schoolchildren and adolescents, when compared with infants and young children (Best *et al.,* 2010; Akseer *et al.,* 2017; Development Initiatives, 2018). This lack of regular and disaggregated data makes it difficult to tailor adequate responses as in-country variation can be very high among urban and rural areas, socio-economic differences, sex and age.

The drivers of malnutrition and food insecurity are complex in these population groups (see an example in Box 1), ranging from biological factors, inequalities of food access/utilization based on gender, care practices and dietary and health behaviours, to wider institutional, environmental and political conditions.

Inadequate availability of and limited accessibility to nutritious foods, resulting in low dietary diversity, are common in schoolchildren and adolescents in low-income countries and resource-poor settings, with particular detriment to girls in some cases.

Other widespread dietary issues include the inadequate consumption of fruits and vegetables and the increasing consumption of highly processed foods rich in sugar, fat and sodium, as well as the prevalence of monotonous meals (Ochola and Masibo, 2014; Akseer *et al.,* 2017; FAO *et al,* 2019).

Box 1 The particular influences on adolescents' food security and nutrition

Adolescence is a dynamic period of rapid growth and development, and therefore of high nutrition requirements.

- According to a recent mixed-methods study in Cambodia, Guatemala, Kenya and Uganda, "adolescents' diets are driven by immediate needs. Food choices are influenced by the need for energy and to satisfy hunger, and by limited resources and convenience" (WFP and Anthrologica, 2018).
- Adolescents have greater control, choice and responsibilities than younger children in their own and their household diet.
- In many contexts, gender norms, roles and risks are detrimental to the diet quality and nutrition of adolescent girls.
- Early marriage, teenage pregnancy, labour, social pressure (e.g. peer, family, market) and mental health are particularly detrimental to adolescents' nutrition.

The influences on food choice and behaviours

Figure 1 below illustrates the various factors that interact at multiple levels to influence people's food choices and behaviours. These interactions are not straightforward or predictable and therefore highlight the need for well-conducted formative research to understand the main influences in different cases. For example, sensory-affective factors such as parents' own food behaviours and the regular use of food as rewards can be very strong

determinants of young children's preferences, but less so in older children[1], who may be more influenced by social networks, media and broader social determinants, such as norms about what is acceptable and desirable. In fact, there is well established evidence on the detrimental effects of marketing and promotion of food products high in salt, fat and sugar on children's preferences and choices (Sadeghirad *et al.,* 2016; Cairns *et al.,* 2009). However, in many cases the ever-evolving influences of food marketing on food choice continue to be underestimated. Price and convenience are also important influences on food choices and behaviours in adolescents and adults.

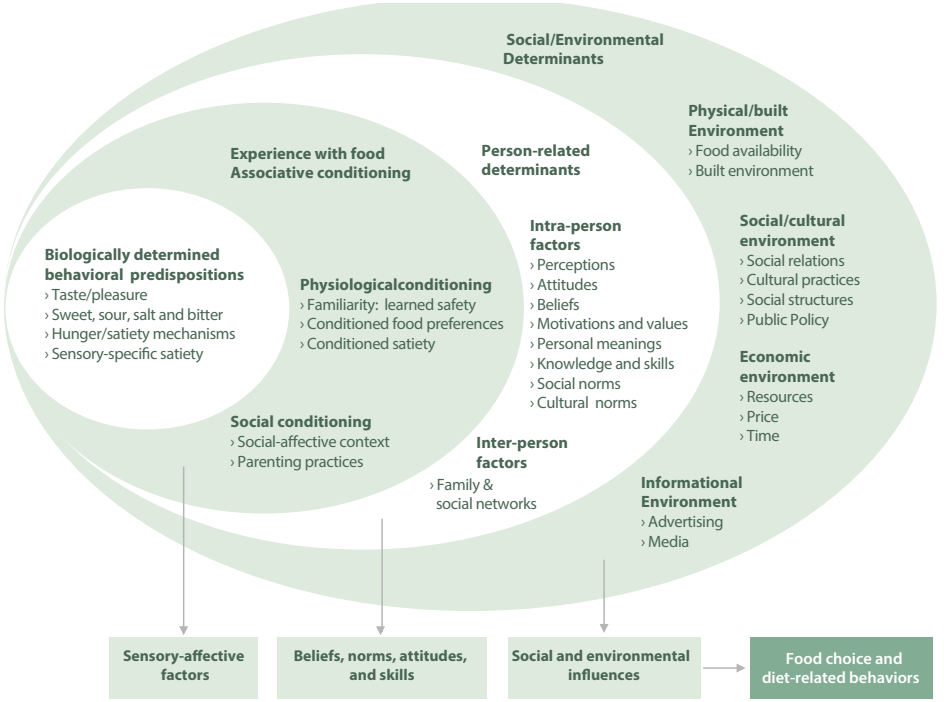
Knowledge about health and the benefits/consequences of healthy diets is just one of the many influences that drive food choice, yet knowledge transmission is overly targeted and commonly singled out with nutrition interventions, often with little impact on behaviour[2] (Contento, 1992).

More broadly, when considering collective food practices and behaviours, the sociocultural influences become very strong, including religion, cultural beliefs and traditions.

Exploring food and nutrition determinants in education settings

As the majority of children and future adults in the world spend a considerable amount of time in formal education systems (including pre-schools and day care centres, primary and secondary schools and post-secondary institutions), these have become important settings for exploring and addressing food and nutrition influences and determinants.

FIGURE 1: **Factors that influence food choice and behaviours (Contento, 2011)**



Firstly, most education settings deal with food in some form or another (even in very resource- constrained contexts), from the sale of foods within the physical boundaries or the perimeters (e.g. canteens, food stalls, street vendors, vending machines, etc.), to the meals and snacks brought from home, and the provision of subsidized or free foods and meals.

This means that children and adolescents (and young adults in the case of post-secondary education) not only observe, interact and socialize with, emulate, and talk about food with their peers, parents, education staff and authorities, but also do so with food service staff, vendors, community volunteers and, in some cases, producers.

[1] "Informal food learning," which is usually not planned or structured, can be a strong influence of food choice and behaviours (both healthy and unhealthy), as it is often the result of continuous and regular observation, imitation, action and direct experiences in familiar settings (FAO, forthcoming (b)). This is particularly evident in younger children, who construct their ideas around food based on repeated processes of informal learning in their households and other settings (e.g. markets, relatives' homes, community settings).

[2] The knowledge transmission paradigm refers to the assumption that the transmission of information leads to increased knowledge and that enhanced knowledge is sufficient to change behaviour.

This also means that these age groups can be exposed to various commercial interests of food system actors, which are not often guided by health and sustainability goals.

Secondly, these settings are often required to deliver classroom lessons, structured learning opportunities or vocational training in fields related to food and nutrition, such as food and nutrition education, health education or agricultural training, among others. Some settings have access to land and use gardens as platforms for hands-on learning and food production.

Thirdly, formal education settings usually have their own social norms, values, priorities and routines that relate to food and nutrition, such as hygiene and sanitation rules, meal times and etiquette, regulations and policies on the type of food available and promoted, education paradigms, celebration days, association agenda, and many others.

Finally, education settings have a wider reach than their primary targets, often spanning to families, staff and communities. The interactions between education and family or community settings and their actors enrich or affect food experiences reciprocally (i.e. in both directions). For instance, adolescents can implement a new practice promoted at school at home, such as starting a home garden, and thus potentially enhance household food practices. On the other hand, families can advocate for better foods sold at school. The same holds true for resistance from actors in each one of such settings.

All these interactions and factors influence not only the immediate food environment[3] and food available in these settings, but also the behaviours, practices and habits of children, adolescents, young adults and surrounding communities.

[3] According to the High Level Panel of Experts (HLPE) of the Committee on World Food Security, the food environment refers to the physical, economic, political and sociocultural context in which consumers engage with the food system to make their decisions about acquiring, preparing and consuming food (HLPE, 2017). It consists of: (i) "food entry points" or the physical spaces where food is purchased or obtained; (ii) features and infrastructures of the built environment that allow consumers to access these spaces; (iii) personal determinants of consumer food choices (e.g. income, education, values, skills); and (iv) surrounding political, social and cultural norms that underlie these interactions.

Against this background, **education systems and their settings can provide a favourable opportunity and various entry points to prevent and address multiple factors and conditions that contribute to food insecurity and malnutrition in children, youth and their communities.**

Purpose of this policy guidance note

This guidance note describes an approach aimed at improving food security and nutrition through education systems, with a specific focus on schools. Furthermore, the note intends to support policy-makers, advisors and other relevant stakeholders in promoting greater coherence between education, agriculture, nutrition and other policies and programmes; particularly, on how the policy agenda for the education sector can be leveraged for better nutrition and food security without compromising its own priorities.

This policy note provides guidance on how to answer the following questions:

- What is the current food and nutrition situation of children, adolescents and the wider community related to education settings?
- What are the main education and other cross-sector policies and programmes that affect/influence food security and nutrition?
- What policy changes are needed to enhance the potential of education systems to achieve shared food security and nutrition objectives?

The guidance note also recommends that an organizational development and systems-focused mind-set (See Annex 1) be retained as the backdrop to the several practical steps discussed below.

Background

Relevant global frameworks

Food security and nutrition are at the heart of development. In the era of the Sustainable Development Goals and the 2030 Agenda, education systems and other settings where education takes place have assumed a higher international focus for the implementation of food security and nutrition interventions, policies and programmes.

Prior to and in parallel with the SDG discussions, several frameworks, strategies and reports have recommend specific actions for improving food security and nutrition through education settings. Some examples are shown below:

- **Second International Conference on Nutrition Framework (2014) for action: recommendations 14, 16, 19, 20 and 23.**
- **United Nations Decade of Action on Nutrition work programme (2016-2025): Action Area 3 "Social protection and nutrition education" and Action Area 5 "Safe and supportive environments for nutrition at all ages".**
- **World Health Organization (WHO) Global Strategy on Diet, Physical Activity and Health (2004): recommendation for member states 43.**
- **Global Panel on Agriculture and Food Systems for Nutrition Foresight report (2016): recommendation 9.**

These types of recommendations are often used by countries to guide their own policy frameworks and by stakeholders to design and recommend strategies to concurrently address multiple and interrelated determinants of food security and nutrition.

In the last decade, leading international agencies and experts have also been engaged in developing approaches and recommending criteria and indicators for effective programmes in this arena. Some key examples include: School Health & Nutrition (UNSCN, 2017; Save the Children, nd; Bundy *et al.,* 2017); the Essential Package of Interventions (Bundy *et al.,* 2017; WFP and UNICEF, 2005); the Nutrition Friendly Schools Initiative (WHO, nd); and the Home-Grown School Feeding Resource Framework (FAO and WFP, 2018). Others have also identified and promoted best practices and principles of effectiveness on school feeding and home-grown school feeding (HGSF) programmes, food and nutrition education, and other broader behaviour change strategies (UNSCN, 2017; WFP, 2017a; Drake *et al.,* 2016; Murimi *et al.,* 2016; Lamstein *et al.,* 2014).

The role of education and education systems in improving food security and nutrition

Schools and other formal education systems have often acted as hubs for various sectors to advance development (e.g. health, sanitation, social protection).

In the past decades, the emphasis in terms of food security and nutrition has mainly been on primary and secondary schools, where most of the evidence has been produced. Yet, emerging research shows that pre-schools and day care centres are also an effective platform for implementing food and nutrition policies and programmes (Gelli *et al.,* 2018). Post-secondary institutions are also showing increased interest in promoting good nutrition and health (Global Working Group on Health Promoting Universities and Colleges, 2015), but their experience in adopting campus-wide strategies on these issues in a systematic manner is relatively new (Reis *et al.,* 2018). Considering these experiences and the differences in governance and funding of the various settings (explored below), **this guidance note therefore focuses primarily on school systems.**

The role of schools

There is evidence that school-based and school-linked multi-component programmes can be effective in improving behaviours and practices associated with overweight and obesity and nutrition outcomes in high-income countries

Box 2

Multiple potential benefits and beneficiaries of home-grown school feeding (HGSF) programmes

Various country experiences have demonstrated that, in addition to the well-known educational and food security benefits for schoolchildren, HGSF programmes (linking school meals to local and smallholder agriculture production*) can improve the livelihoods of smallholder farmers and local communities and strengthen the nexus among nutrition, agriculture and social protection.

Considering the weight of public sector contracts, HGSF can support local smallholder farmers, as schools' regular and predictable demand can promote an increase and diversification of the farmer's agricultural production and reduce the investment risks involved. This may contribute to increasing farmers' incomes and their access to formal markets.

In addition, production diversification by these actors can lead – according to the context – to an increase in their own consumption of diversified and nutritious food. Production diversification can also support an increase in the availability of diversified products on local markets.

HGSF has also the potential to generate benefits for a range of actors along the value chain and constitute a market opportunity for small processors and micro, small and medium food enterprises, which can supply schools with nutritious food products. As women and/or young people often own these enterprises, this can contribute to increased youth empowerment and gender equity. The benefits to communities may also include local job creation in support of food delivery and preparation of school meals.

In addition, HGSF can use its purchasing power to support and promote forms of agricultural production that ensure environmental sustainability.

Considering the multiple benefits of HGSF, these programmes can contribute directly to the implementation of various government policy goals, linked not only to the education sector but also to agriculture, health, labour and social affairs (Tartanac *et al*., 2019).

* It is rarely possible to procure food exclusively from smallholders. Even if only a percentage of food is purchased from local smallholder farmers and other local stakeholders along the value chain, a school feeding programme can be considered as "home grown" if the local purchases are designed to support and boost the local agriculture market (FAO and WFP, 2018).

(Langford *et al.,* 2014; Wang and Stewart, 2013; Meiklejohn *et al.,* 2016; Salam *et al.,* 2016). Most of the approaches studied integrate school food environment policies with behavioural interventions (e.g. food and nutrition education, physical education, social marketing, counselling). Studies have identified several elements of such programmes contributing to their effectiveness, such as parental involvement, high intervention dose and duration, and integration within the curriculum.

The research from low and middle-income countries (LMICs) has been less focused, with a wide range of short- and long-term outcomes studied, including dietary diversity, changes in diet and in dietary practices, weight and height gain, and changes in micronutrient status and in body mass index.

School feeding programmes in particular have been the focus of many of these studies. According to the Global Panel on Agriculture and Food Systems for Nutrition (GLOPAN), school meals and snacks have the potential to influence both food consumption and production patterns (GLOPAN, 2015). There is a growing body of evidence supporting the multiple benefits of school feeding programmes, particularly when these are purposely linked to local smallholder agriculture production (UNSCN, 2017; FAO and WFP, 2018; Tartanac

et al., 2019). Box 2 provides an overview of the beneficiaries and benefits that have been attributed to these programmes.

In lower-income countries, the effects of school feeding on average weight gain have been generally positive (Kristjansson *et al.,* 2007; Bhutta *et al.,* 2013). However, there is still mixed evidence regarding the impact on height gain. Several reasons have been proposed for this lack of conclusive results, including the quality of available studies, inherent status and baseline conditions of the beneficiaries, and programmatic considerations.

On the other hand, other studies in LMICs have focused on looking at the impact on food security and nutrition of other strategies including food and nutrition education programmes (Meiklejohn *et al.,* 2016; Silveira *et al.,* 2013), youth engagement (Yip *et al.*, 2016) and food environment policies (Micha *et al.,* 2018).

The role of parental education

The education level of parents has been consistently associated with nutrition and health outcomes in their offspring (Ruel *et al.,* 2013). More specifically, women's education level has been related to household's food security levels (SUN, 2016).

Nevertheless, the evidence is inconsistent regarding the actual nutrition returns from parent schooling. It has been proposed that parental education might have a higher impact on children's nutrition if formal basic school curricula were directly focused on raising learners' capacities for practising healthy food-related behaviours for themselves as well as for future offspring (Alderman and Headey, 2017).

The role of education strategies delivered through other settings

Other settings and contexts where education takes place have also shown potential to improve food security and nutrition outcomes. For example, health and community centres are often used to implement education strategies to foster a range of improved food practices[4] for various target groups, including mothers of young children, people with NCDs, caregivers, among others (Nikiema *et al.*, 2017; Roche *et al.*, 2017; Singh *et al.*, 2017).

Specifically, food and nutrition education has demonstrated its essential role in enhancing the impact of social protection and food security community-based interventions on nutrition-related behaviours, more commonly when targeting infants and young children (Bhutta *et al.,* 2013; Lamstein *et al.,* 2014; Kuchenbecker *et al.,* 2017; Muehlhoff *et al.,* 2017). Such evidence has even supported the international recommendation of implementing food and nutrition education as part of the essential package for reducing stunting in the first five years of life (Bhutta *et al.,* 2013; Lamstein *et al.,* 2014).

Other settings such as worship centres and workplaces are more and more used as platforms for learning about food and nutrition and for behaviour change (Geaney *et al.*, 2013; Thomson et al, 2015).

Farmer field schools, as well as home and community gardens have also been used as platforms and settings for promoting dietary diversity and improved diet quality through nutrition education (Osei *et al.*, 2017; FAO, nd).

A holistic food-systems approach to school food and nutrition

The complexity of food security issues and the multiple burdens of malnutrition described in the introduction of this note, especially the increasing childhood obesity pandemic, require going beyond isolated strategies or supporting single benefits for vulnerable individuals. In essence, one of the main challenges being addressed here is how to build policy-driven, multi-component and evidence-based approaches hosted in education settings that not only support child and adolescent food security, nutrition and education attainment, but also contribute

[4] For example: healthy complementary feeding, safe handling of food, nutrition care during sickness, homestead growing of nutritious foods, healthy food processing, budgeting and planning for nutritious meals and reducing food waste.

Box 3

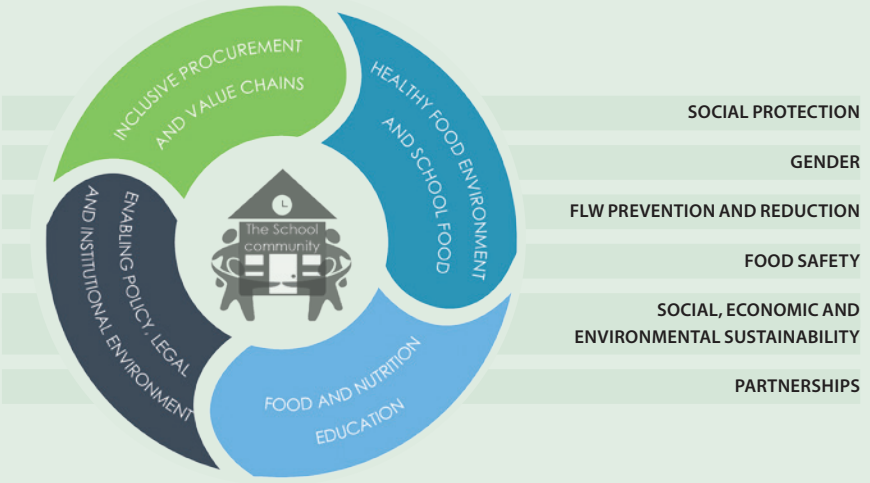
The School Food and Nutrition Approach of the Food and Agriculture Organization (FAO)

As a direct response to the international call for improved nutrition and food systems, and in the context of Second International Conference on Nutrition and the UN Decade of Action on Nutrition, FAO devised a holistic approach for action in schools. This approach focuses on the most effective options and on the synergies between and within sectors that represent multi-win outcomes in nutrition, food security and community development.

This approach leverages on and purposely creates synergies between four main areas of work that are at the heart of the Organization's mandate and capacity: (i) promoting a healthy school food environment and adequate and safe school food; (ii) integrating effective food and nutrition education throughout the whole school system; (iii) stimulating inclusive procurement and value chains for school food; and (iv) creating an enabling political, legal, financial, and institutional environment.

The approach also integrates key cross-cutting themes that are critical for its success and further build on FAO's comparative advantages. Consideration of these themes will address critical issues that may impair expected positive outcomes in nutrition, community development and local food systems (such as gender issues, poverty and foodborne diseases); and/or are critical to advance sustainable development (environmental, social and economic sustainability), depending on the context.

Promoting synergies among the four areas of the approach responds to the needs and outlooks of various countries and different contexts. The intention is to find the most effective and synergistic strategies (including enhanced multi-stakeholder collaboration) that can support various interrelated outcomes with the minimum possible resources.



Source: FAO, 2019a

to the capacity of local food systems to deliver healthy diets. The premise is that through the development, transformation or strengthening of programmes and by coherently linking and synergizing with relevant sector policies and initiatives, the benefits can be broader, more sustainable and extended. Another premise is that intersectoral partnerships need to be built for a broader, deeper and better-coordinated approach.

Box 3 showcases a food and nutrition approach for schools that has been developed by the Food and Agriculture Organization of the United Nations (FAO, 2019). The approach aims to be policy-driven, realistic (based on real-world constraints and considerations) and synergistic (building on strengths and opportunities). Policies, programmes and services delivered by various sectors and entities in this approach aim to improve the school food environment and

local food systems, promote adequate practices and behaviours of students, parents, community and staff, and develop the capacities of all those involved.

It is not to be perceived as the only or most adequate approach to improve food security and nutrition through schools or as a rigid model as it is built particularly on the interactions between schools and the surrounding local food systems. Evidently, many other factors that contribute to malnutrition, such as disease and sanitation, are also critical and should be addressed by linking interventions and other relevant policies. Therefore, the focus and implementation depend on the context, main issues and priorities. **The approach described in Box 3 will be used throughout the note to illustrate main points.**

Ecological considerations when working with education settings

Despite common knowledge about the multiple, interacting influences within the school and other education settings, in reality much of the research, practice and policies continue to be focused on the delivery of single interventions to reach (provide, inform, educate or regulate) individuals (e.g. children, teachers, staff) within the setting rather than on the setting overall.

One of the important lessons learned about promoting health and social development through schools is that while individual schools are open, responsive and adaptive to small-scale demands from their communities, education systems are large, bureaucratic, loosely coupled, complex systems that are resistant to changes in their core functions. Building a holistic approach to improve food and nutrition in each school, one at a time, is obviously a significant and time-consuming undertaking. On the other hand, a top-down approach that assumes that a policy statement from the education ministry or authority will have an impact without a sustainable, layered, capacity-building, organizational change strategy is a false hope.

The UNSCN recognizes schools as systems to deliver multiple interventions for nutrition.

"Schools offer a unique opportunity to improve nutrition using a systemic, multisectoral approach. Social, health, economic and ethic arguments coalesce in and around schools. Looking at schools as a (food system) to improve nutrition offers insights into what interventions to implement and combine to ensure the best possible nutrition outcomes for children in schools, their families and their communities, both now and in the future. All nutrition interventions should be designed to be sustainable in the longer term. Stakeholders at all levels should be kept well informed and encouraged to participate, creating a system of support and interdependence, from the school and local levels, to the intermediate levels of government and the private sector, to government ministries, national organizations, and international partners.
Bringing the benefits of school-based interventions to scale requires leadership and ownership by national and regional governments, and while this should ultimately be the aim, donor involvement and support may be necessary at various stages." (UNSCN, 2017)

This understanding about ecological perspectives in settings-based work has further evolved into systems thinking that is borrowing from established disciplines such as systems science (Carey *et al.,* 2015; Atkins *et al.,* 2016), organizational development and continuous improvement/quality management strategies.

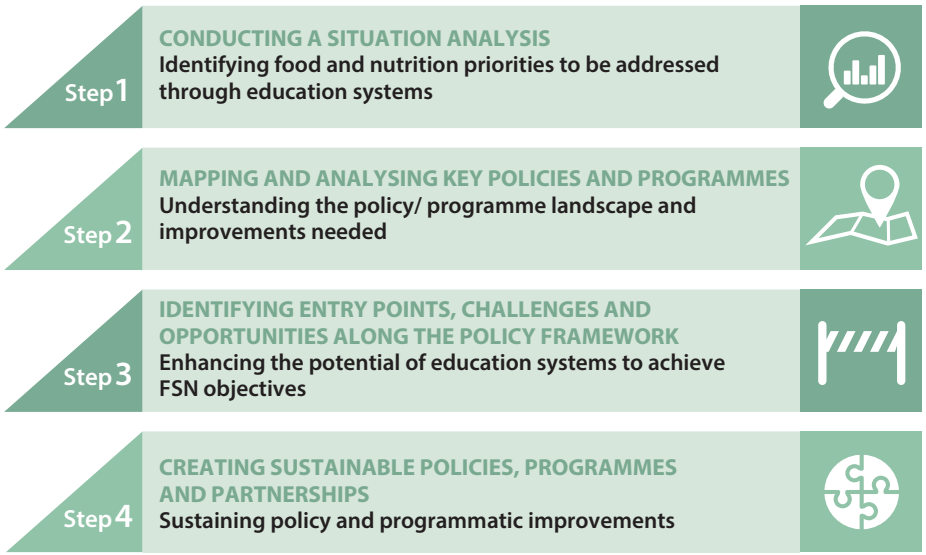
The concepts derived from these disciplines can help to understand the complexities, contradictions and ever-changing yet stable nature of complex organizations.

Rather than writing policies that are not enforced, implementing small-scale pilot projects that are not brought to scale or sustained, establishing partnerships that often fall apart, or defining/redefining comprehensive frameworks that remain aspirational (Deschenesnes *et al.,* 2003; Fathi *et al.,* 2014; Adamowitsch *et al.,* 2014), **it is crucial to delve more deeply into the systemic and organizational factors that will ultimately determine success or failure.**

Stepwise approach: Promoting food security and nutrition through education systems

Guidance in this note is focused on promoting holistic policy-driven approaches to improve food security and nutrition through education settings to systems. Overarching considerations include positioning these types of approaches within ecological thinking and addressing complexities of working in large organizations, emphasising country/local context and organizational capacities, and supporting integration within education systems.

FIGURE 2: **Four steps for promoting holistic approaches to improve food security and nutrition through education systems**



This systems-focused paradigm should be considered by all sectors that work with and within education settings. However, this note is focused more on the partnership between the education and food and nutrition sectors.

A stepwise approach is used to organize the guidance. The four steps are presented in sequential order. However, it is recognized that change is not always linear, or orderly. Therefore the steps outlined are meant to guide analysis and planning for addressing the overarching questions of this note. Indeed, the analogy most appropriate to working with large, multiple organizations on complex approaches such as food and nutrition might be a compass, where practical and strategic steps are taken incrementally in the right direction without having a road map.

Furthermore, the note identifies some of the entry points, opportunities and challenges that will be encountered as holistic approaches are built or strengthened. It is emphasized here that these can determine progress or retreats in long-term approaches, as these are always fluid. By recognizing this complexity, the efforts can be focused on policy coherence and on specific programmes in a more strategic, synergistic and sustainable manner.

Step 1 CONDUCTING A SITUATION ANALYSIS

A sound analysis and understanding of the multiple causes of food insecurity and malnutrition of children, adolescents and their families, as well as (if relevant) of those that are linked to education settings (including actors who depend on the education sector for their livelihoods, such as local food suppliers) is an essential step in developing, implementing and adjusting a holistic food and nutrition approach. In other words, conducting a good situation analysis can result in having a strong basis for action, to prioritize the main issues, and tailor programmatic and policy responses.

The main question to answer is:

i) What is the current food and nutrition situation of children, adolescents and the wider community related to education settings?

The following dimensions can be considered for the process of conducting a situation analysis (examples in brackets for the school setting have been used for clarification purposes):

- Demographics and core interests of main target groups that are related to education settings (e.g. children, adolescents, families, community volunteers, school staff, local food suppliers and smallholder farmers).
- Food security and nutrition situation of the groups that are related to education settings (including measurement of food insecurity, nutritional status, diet and consumption patterns, food practices and behaviours, disaggregated by age and sex).
  - Most vulnerable groups (in terms of gender, age and socioeconomic conditions).
  - Data and surveillance gaps.
  - Trends over time.
  - Main causes and determinants.
- Descriptions/analyses of local food systems
  - Assessment of food environments (including existing policies and legislation, quantity, type and quality of food available [provided and sold], prices, surrounding food services, information, marketing and promotion, infrastructure, local gardens).
- Education situation of key groups (schoolchildren, adolescents, parents), including attendance, enrolment and achievement.
  - Description of school system (length of schooling, schedules, class sizes, routines, infrastructure).
- Health situation and main health issues of key groups.
- Main socio-economic issues of all groups, including inequalities based on gender and disparities between boys and girls which can reverberate in education settings.

There are important lessons learned about conducting a food and nutrition situation analysis that come from governmental and international organizations working with and within education settings. One is that a situation analysis should use an inclusive process. The process of data collection can include studies and primary data collection (individual food consumption surveys, formative research, knowledge, attitudes and practices studies), reviews of secondary data (e.g. reports, records, health, food and nutrition data sets), rapid assessments, specific and general consultations with stakeholders (interviews, surveys, focus groups, workshops) and the use of independent facilitators. A mixed-methods approach can support a balance among researchers, practitioners and officials at various levels and across different sectors (e.g. food and agriculture, education, health and social protection).

It should be noted from the outset that there may be various gaps in the data available for national planning which can hamper this process. Consequently, local planners will need to identify proxies and consult with administrators and practitioners to develop an accurate understanding of the situation. Particularly important are the implications and relevance of national surveys to local planning processes, noting specifically that there will be critical variations within the country or region being considered.

There are several evidence-based and experience-tested situation analysis tools available for practitioners and planners. Some address particular areas of food and nutrition (FAO, forthcoming (a); FAO, 2016), some address other forms of school-based and school-linked work (FRESH, 2014; Vince-Whitman *et al.,* 2003)*, and others have developed theories and models from various sectors.*

Box 4 Country examples of relevant food and nutrition situation analyses

Albania: In 2017-2018, several government institutions in collaboration with FAO, WHO and UNICEF conducted a survey to assess the nutritional status and the nutrition-related knowledge, attitudes and practices of school-age children in transitional Albania. A baseline of information on the knowledge, attitudes and practices of Albanian schoolchildren, their teachers, and their families, as well as a picture of their school and surrounding environment, was obtained, with the aim of contributing to the planning of interventions and programmes at local and national levels to improve the diets, eating habits and nutritional status of Albanian schoolchildren.

Costa Rica: In 2016, the Ministry of Health in collaboration with the Ministry of Education conducted the first national census on weight and height of schoolchildren, in order to generate a baseline for strengthening the country's nutrition information systems, and to support the development or strengthening of multisectoral strategies to prevent and address malnutrition and overweight increase.

San Tome and Principe: In 2015-2017, several government institutions in collaboration with FAO, non-governmental organizations (NGOs) and farmer associations developed an agriculture mapping (of food availability) to inform a value-adding strategy for local foods in school feeding initiatives. As Sao Tome imports around 90 percent of the food consumed, the assessment was crucial for making the school feeding initiatives more sustainable.

Whichever tool and methodology is selected, it is very clear that the situation analysis (and subsequent steps towards devising and implementing a strategy) should lead to the identification of specific issues and explicit priorities for coherent action (World Bank, 2012; Public Health Ontario, 2011) and needs to be done within a real-world context (World Bank, 2012; Pfadenhauer *et al.,* 2017).

Countries in similar situations can learn from each other's experiences about their respective assessments (Drake *et al.,* 2016; *Bundy et al.,* 2017) and at the same time build pride in taking steps to understand and improve the situation. This can be supported by knowledge exchange mechanisms among countries or localities with similar contexts. Box 4 showcases some country examples of food and nutrition situation analyses with various focuses.

Examples and guidance on how to conduct a situation analysis can be found in FAO's Nutrition-sensitive agriculture and food systems e-learning modules (FAO, 2019c) and in the FAO & WFP Home-grown school feeding resource framework (FAO and WFP, 2018).

Step 2 MAPPING AND ANALYSING KEY POLICIES AND PROGRAMMES

This step includes two areas of discussion. The first presents an overview of how education systems work and how food security and nutrition concerns can fit in these systems. The second highlights the need to identify and assess the policies and programmes that have been put in place as a response to main food security and nutrition issues.

The main question to answer in this step is:

ii) **What are the main education and other sector policies and programmes that affect/influence food security and nutrition?**

Considerations regarding the structures and frameworks of education systems

A starting point for developing an effective approach to improve food security and nutrition through education systems is to determine how food and nutrition concerns and objectives relate to the overall legal frameworks, mandates and priorities, core policies and routines, curriculum models, and staffing patterns of these systems.

The governance structures for pre-schools and day care centres, primary and secondary schools and post-secondary education and training institutions are often separated into different ministries within the government. Each of these systems has unique characteristics, structures and processes that need to be understood. Persuading these different ministries and diversified institutions, local authorities and centres to deliver their required programmes as well as host or participate in holistic food and nutrition approaches requires parallel but separate strategies.[5]

In an overarching manner, when education programmes invest in nutrition, there can be important returns in academic achievement – with the potential for substantial gains in the cost, efficiency and effectiveness of programmes. A few of the essential considerations of education systems and entry points in terms of food security and nutrition are noted here.

Pre-schools and day care centres can teach young children, and in some cases (indirectly) their parents, about food and nutrition, maintain a healthy food environment and provide meals if funding is provided. These early childhood facilities are often governed by ministries responsible for child and family services. However, these are increasingly being integrated within the ministries responsible for primary-secondary schools. This will likely create a shift towards a national or state curriculum and the potential for establishing standardized regulations regarding the food environment. Currently, such curricula and educational policies are determined by a mix of community-based and private organizations or even volunteers in many countries. The emphasis in most programmes is on socialization and safe custody of children, so food and nutrition concerns will likely be addressed willingly if resources permit. The preparation of early childhood educators is also becoming more organized at the university level, thereby offering opportunities for including food and nutrition issues.

Universities, colleges and training centres provide the professional training of teachers, the health care workforce, nutritionists, agricultural workers, food service staff and others who will work in food and nutrition programmes and approaches. Building long-term workforce development strategies and influencing the initial education and training programmes of the professionals employed in food and nutrition approaches is often time-consuming and complex. It can require individualized approaches for engaging different faculties, working with associations representing the relevant faculties, and creating consensus statements and knowledge development/exchange initiatives to influence overall programme change. Aside from the technical curriculum, the campuses of these institutions offer another social and physical environment for promoting healthy diets and sustainable development. Most of these institutions will have a significant degree of autonomy from government post-secondary/training ministries regarding their training programmes, research and community service but are dependent on government for most of their funding.

The core policies and structures of national **primary-secondary education systems** revolve around the custodial, educational, vocational, socialization and accreditation functions of schooling. The balance established among these five functions in any system is very difficult to change. Consequently, positioning food and nutrition issues within each of these functions is

[5] As in all in the policy guidance notes of this series, the underlying premise is that nutrition is a multisectoral and multi-stakeholder issue with multisectoral solutions. In fact, one of the main considerations of this note is that even if the education sector is the host of food and nutrition approaches, these will only be sustainable when the risks and responsibilities are shared within the relevant sectors and stakeholders.

important. The safe custody of students is among the most fundamental concern of schools. This explains why educators support school meals and why such programmes offer a good incentive to engage educators.

Similarly, the vocational function of schooling is a high priority. Many secondary schools offer exploratory or basic vocational training in careers relevant to their students or communities. Courses in food services, agriculture and nutrition can be included in many of these vocational/technical programmes.

Many education ministries provide additional funds or staffing to disadvantaged schools or regions. Embedding school food and nutrition strategies within these education programmes aimed at alleviating disadvantage will promote their use and sustainability.

Many countries have adopted "school-based management" policies that delegate as much decision-making as possible to the school level. Working closely with associations and groups of school principals within local education authorities can persuade these key gatekeepers of the value of measures to improve food security and nutrition, as well as address the practical constraints that will be their primary concern.

Most education ministries will have a curriculum division (usually focused on core subjects) and a student services or basic education division (which often manages student safety, health and development). Proponents of approaches to improve food and nutrition will need to work with both divisions in education ministries, and at both the programme staff and senior manager levels.

In some countries education ministry policies are "tight" (usually relating to student safety and highly valued subjects such as math, language arts and science). Many policies are "loose", reflecting the loose coupling in many education systems (see Annex 1). Health, life skills, home economics and other curricula that can deliver food and nutrition education are within the loosely coupled type, which are often optional and student learning is not regularly monitored.

As a result of intense competition for classroom teaching and the stretched resources in many jurisdictions, many countries use extended education opportunities outside of the classroom. These include co-curricular and extra-curricular activities in the school day, the use of school routines to reinforce healthy behaviours, school-linked activities in the community, parent-child activities at home, and "flipped learning" strategies which can include online projects that are discussed at school. Some examples of such extended education opportunities are school gardens, home gardens, health clubs and others. However, it is not known if learning that occurs within these programmes is linked to stated curriculum objectives for classroom instruction, as there is very little systematic assessment.

Landscaping and analysing the key policies and programmes

Considering the findings from the situation analysis (and the considerations of how education systems work), it is then necessary to understand the specific policies and programmes that have been put in place as a response to main food security and nutrition issues, and to assess if these are responding to verified needs, adequate, being implemented and/or effective.

Specific questions that can guide this process include:

- What are the main education policies and programmes that have been put in place to improve the food security and nutrition situation (e.g. regarding food environment, school organization, curriculum, school routines, staff training, infrastructure)?
  - What is the history, evidence and principles behind these policies? What are the objectives and intended results (theory of change)? Who is targeted? Are they aligned with international policy frameworks and agreements?
  - What are the capacities needed for implementation?
  - To what extent are these policy measures implemented? What is supporting/hindering implementation?[6] What is the level of stakeholder engagement?

[6] See also FAO policy guidance note on political economy analysis.

  - What are the monitoring and evaluation systems in place? What are the measured outcomes (positive and negative) of the different policy measures on food security and nutrition?
  - Are these policies adequately resourced (enough budget to fund the identified need and allocation according to priorities)?
- What are other sectors' (e.g. food and agriculture, gender, social protection, health, procurement, sanitation) policies and programmes that are implemented through education settings and affect their potential to promote food security and nutrition?
- Are these policies and programmes aligned and coherent? Are there conflicting objectives? Are there multisectoral committees that are already set up?
- What are the main gaps, lessons learned and failures of these policies and programmes?

There are various methods and tools that can be used to support policy mappings and assessments, including surveys, key informant interviews, stocktaking, stakeholder mappings, capacity assessments, budget analyses, government structure analyses, among others.

Box 5 showcases an example of a global nutrition policy review that focused on the school as a setting, while Box 6 presents a summary of an assessment of nutrition guidelines and standards for school meals in LMICs.

Box 5 A global review of school nutrition policies and programmes

A recent report from WHO (2019) describes the status of school nutrition policies within the context of national policies. The survey found that out of 160 respondent countries, 142 reported having school health and nutrition programmes.

Of these countries, the most common health and nutrition policy action was the integration of nutrition education in the school curriculum, followed by provision of school meals and standards on types of foods and beverages available in schools. Other actions reported were school gardens, monitoring of children's growth in schools, school fruit and vegetable schemes, school milk schemes and distribution of take-home rations.

Ninety-four countries reported in detail on their school health and nutrition programmes. Fostering healthy diets, improving nutrition knowledge and lifestyle habits, and preventing overweight were the most common reported objectives of such programmes.

The report notes that the health sector was the most involved in the implementation of nutrition policies, followed by agriculture and education.

Box 6 Nutrition guidelines and standards for school meals in Low and Middle-Income Countries (LMICs)

A recent FAO (2019b) survey report from 33 LMICs found that the majority of countries have some general recommendations available to guide the composition of the meals and/or snacks provided by school meal programmes, yet only 13 reported having official nutrition guidelines and standards, and eight were in the process of developing them at the time of the survey.

The main identified challenges to the successful implementation of nutrition guidelines and standards related to issues inherent in the school meal programmes: equipment, infrastructure and processes at the school level; lack of capacities at different levels; issues in operationalization of nutrition guidelines and standards; attitudes and perceptions; and monitoring and evaluation.

Among the recommendations from the report, it is stated that "Nutrition guidelines and standards should be a central part of school meal programmes, as these have critical linkages to processes of the whole school, including food procurement, meal planning and food preparation, capacity development of food service staff, the food environment, community involvement and food and nutrition education. There are opportunities in these linkages that, if strategically exploited, can aid the enforcement of nutrition guidelines and standards and expand their positive effects."

Box 7 Policy analysis in Mozambique

In Mozambique a study developed under the Purchase from Africans for Africa programme focused on assessing the linkages of various sectoral policies and their impact on the implementation of a decentralized Home-grown School Feeding (HGSF) programme (i.e. the Mozambique National School Feeding Programmes). Key policies assessed included: poverty reduction; food and nutrition security; agricultural development; and social security and education plans, programmes and strategies.

Although the group of policies assessed could have represented a favourable enabling environment for the implementation of the programme, the reality on the ground was more complex. Political incoherencies and challenges related to the translation of these policies into action emerged and had a direct impact on the execution of the programme and its objectives. A key example included the incoherencies between food fortification and local purchase policies. The study highlighted the importance of analysing implementation on the ground. Fortifying locally purchased products was extremely complex and costly, especially at the start of the food fortification programme, in which the number of facilities was still low, and practically inexistent in many localities (Swensson and Klug, 2017).

At national/subnational level, the analysis of these policies can produce a variety of findings and insights that can set the basis for supporting a multi-component and effective approach to improving food and nutrition, built on the core frameworks and overarching policy of education systems.

Most commonly, critical gaps in terms of scope, implementation, coverage and scale-up, coordination, linkages and coherence will result from a policy analysis. The results of such analyses can also highlight the need for further assessments and/or research – for instance, to determine whether the assumptions behind a programme are adequate to the context and situation. Box 7 showcases an example of a policy analysis for school feeding made at country level.

Step 3 IDENTIFYING ENTRY POINTS, CHALLENGES AND OPPORTUNITIES ALONG THE POLICY FRAMEWORK

Considering the insights and results from the previous steps, step 3 highlights potential entry points, challenges and opportunities for the needed policy and programmatic changes to support a coherent and comprehensive approach for improved food security and nutrition, which is better aligned with education system priorities. The main question to address in this step is:

iii) **What policy changes are needed to enhance the potential of education systems to achieve shared food security and nutrition objectives?**

Entry points and policy options

As reflected in step 2, the education sector and its settings provide various entry points to prevent and address multiple factors and conditions that contribute to food insecurity and malnutrition in various target groups (i.e. children, adolescents and their communities).

In parallel, policy assessments may yield several scenarios. For instance: some policies may not be showing effectiveness; some policies and programmes may be based on incorrect assumptions or evidence; some may not be adequate in scope; some are not being implemented or not being implemented as planned; some new policies/approaches may be needed to respond to particular issues; and/or critical synergies are not being exploited in practice.

The response and adjustments need to be prioritized based on available resources, political feasibility, existing multisectoral structures, capacities and degree of potential impact.

Using FAO's School Food and Nutrition approach as a model, the following policy and programmatic options leverage several entry points to support "shared" food security and nutrition objectives (i.e. that do not compromise education goals):

- **Promoting healthy food environments**

  Historically, the focus of many school food programmes and policies in LMICs was on reducing food insecurity and undernutrition. However, recent evidence has associated poor diets and obesity not only with health issues and psychosocial well-being but also with absenteeism, stigmatization and specific neurocognitive functions (Liang *et al.,* 2014; *Martin et al.,* 2017).

  In this context, many countries have been transforming their programmes and integrating new policies to address increasing overweight and obesity levels and the double burden of malnutrition and their effects on education (see Box 8 for an example). Some of the policy options to improve food environments include:

  - Direct provision of nutritious foods (mainly fruits and vegetables)
  - Mandatory nutrition standards (including restrictions) for food available and sold inside public/private institutions and settings
  - Voluntary nutrition guidelines for food available and sold in in public/private institutions and settings

Box 8 **A broader scope for education services?**

A report from Latin America noted that the goals and scope of school food and nutrition policies and programmes has broadened: "As the context changes, the problems schoolchildren and adolescents face today are not the same as a few decades ago. In a region where universal access to primary education is nearly achieved, key priorities for governments are the expansion of education services to pre-primary and secondary school-age children and enhancing the quality of education for all children, ensuring that no one is left behind. In the face of the double burden of malnutrition, priorities for school-age children appear to be promoting good nutrition and healthy eating habits, addressing and preventing micronutrient deficiencies and tackling the specific needs of adolescent girls and other vulnerable groups. (…) Governments prioritize school meals programmes more than ever before because, in addition to their contribution to education, school meals provide critical support to vulnerable and deprived families. Nutritionally balanced school meals, along with complementary nutrition education and health measures, can support child development and hunger reduction, with short- and long-term benefits. When linked to local food production, school meals programmes also have the potential to benefit local producers and economies while promoting long-term food security." (WFP, 2017b).

- Nutrition standards and guidelines for institutional programmes (e.g. school feeding programmes)
- Regulation of food marketing and promotion of poor nutritional value food products in public/private institutions and settings
- Fruit and vegetable promotion schemes and subsidies
- Nudges in canteens and cafeterias

These policies have various proposed mechanisms through which they are expected to work. Mostly, they aim to modify the obesogenic environments in which people interact. Hawkes *et al.* (2015) proposed that most of these policies can potentially work by providing an enabling environment for healthy preference learning and/or to overcome barriers to meeting healthy preferences.

When tailored to the needs and context, evidence-based and well implemented, these policies have been shown to improve and influence diet quality and specific dietary targets (Micha *et al.,* 2018; Rosettie *et al.*, 2018). However, some studies have indicated that the benefits are difficult to sustain if the policies are cancelled, and thus complementary and mutually reinforcing interventions, such as food and nutrition education, have been proposed as necessary (Hawkes *et al.,* 2015).

Key for the sustainability of these efforts, besides political will, is their adequate integration into and coherence with school policies and the inclusion of participatory monitoring mechanisms at local level.

- **Integrating effective food and nutrition education across the whole system**

Childhood and adolescence are not only periods of vulnerability in terms of nutrition needs, they are critical phases to develop and consolidate food and nutrition habits, and to establish a healthy basis for future consumers, producers, policy-makers and other food system actors. Therefore, children and adolescents have the right not only to have

access to healthy food and food environments, but also the right to develop basic food skills and capacities.

Often countries integrate some form of nutrition education into their formal education systems, most commonly through the national curriculum, extra-curricular projects and/or school garden programmes, through training programmes for school staff (including food service staff and volunteers) or through professional development in food and nutrition education.

School-based food and nutrition education (SFNE) aims to achieve long-lasting improvements in children's diets and other food-related behaviours, perceptions, outlooks and knowledge; as well as build their capacity to change and to adapt to external change.

The impact of SFNE on food practices and nutrition outcomes has been associated with several programmatic elements and best practices. These include the prioritization of needs-based learning with practical aims (i.e. aiming at practices and behaviours, instead of only knowledge), family and community support and involvement, plenty of action and practice in real-life settings, interactions with physical and social food environments in all learning activities, building on existing experience and meaningful interaction with enabling environments (FAO, forthcoming (b)).

SFNE can also interact productively with other interventions, such as school meals, food environment policies and direct nutrition interventions. In particular, when meaningfully integrated in school feeding programmes, SFNE can:

- promote the actual consumption of meals provided, through developing expectations, acceptance and increased value assigned
- enable and support healthy diet objectives, mediated through dietary practices and demand for healthier/model meals at home and in school
- enable the use of meals and meal times as learning opportunities (planned and informally)
- promote coherence between the meals provided and what is taught/learned in the classroom
- support planning of meals according to nutrition needs and sociocultural context
- promote active involvement of students, families and food service staff
- promote social justice and emphasize the (often ignored) sociocultural roles of food

However more is needed to ensure that SFNE responds to modern food, nutrition and environmental challenges. For instance, to enhance effectiveness, SFNE should involve learning models aiming at improvements not only in food and nutrition knowledge, but also in attitudes, skills and practices that can be maintained over time.

Strategies are also needed to build stronger synergies between informal and formal learning, as the former is not often recognized by those who invest in and develop nutrition interventions, nor are its effects studied. Janhonen, Torkkeli and Mäkelä (2018) state that the absence of real-life food learning perspectives and limited research in this area, have "created a gulf between how food and eating are addressed by schools and other educational institutions and how people interact with and around food in their daily lives". However, this is not limited to schools. On many occasions, the informal learning processes and experiences that adults have accumulated through their lives often fail to be acknowledged in formal learning or education interventions, especially when it comes to food and nutrition. **The result of formal and informal learning can support the development of skills and capacities that facilitate or work against healthy diets and lifestyles.**

Furthermore, SFNE should directly involve all the key influencers of food practices in children's and adolescents' learning process. These are mainly, but not limited to, parents, families, food service staff and community actors. It should also make use of various education strategies and media to aid the process.

FAO in collaboration with international experts is currently developing a white paper to improve the scope, effectiveness and visibility of SFNE in LMICs. The white paper aims to set out the principles of effective and innovative school-based food and nutrition education, identify the main challenges in LMICs that impair its application and effectiveness, and propose policy and practical recommendations for overcoming these challenges (FAO, forthcoming (b)).

- **Institutional food linked to local agricultural production and the community**

  School feeding policies have become an important instrument for bringing together nutrition, education, agriculture and rural development objectives. Linking school meals to the local agricultural production and the community can increase the benefits of these programmes, including among its beneficiaries not only those who receive and consume the food, but also those who produce it and the community in general (Box 3 summarizes the potential benefits and beneficiaries).

  One important characteristic of home-grown initiatives of this kind is that by creating a demand for nutritious, locally and sustainably produced food, governments set a positive trend. This sends a signal about government future directions of local food systems, potentially incentivizing those involved in the supply chain to align their values accordingly, and hence accelerating a transition towards sustainable food consumption and production (UNSCN, 2017, Tartanac *et al.,* 2019). When complemented with food and nutrition education, these interventions can also influence healthy food demand in the school setting. Moreover, the development of capacities of all the actors involved in HGSF (from producers to processors, cooks, and caterers among others) is crucial to support positive outcomes of such programmes. The leadership and coordination in capacity development strategies

Box 9

Nigeria's Home-Grown School Feeding Strategic Plan 2016–2020

In Nigeria, the Home-Grown School Feeding Strategic Plan identifies four main objectives of the programme:

1. **School enrolment and completion**
   The programme aims to improve the enrolment of primary school children across the country and reduce the current primary school dropout rate**,** which is estimated at 30 percent.
2. **Child nutrition and health**
   The programme aims to address poor nutrition and health status of many children, thereby also contributing to improved learning outcomes.
3. **Local agricultural production**
   The programme aims to stimulate local agricultural production and boost the income of farmers by creating a viable and ready market.
4. **Creating jobs and improving family and state economy**
   The programme aims to create jobs along the value chain and to provide a multiplier effect for economic growth and development.

(Nigeria's Home-Grown School Feeding Strategic Plan 2016–2020).

between the agriculture (particularly extension services), health and education sectors, among others, become essential.

An increasing number of countries, including Brazil, Bolivia, Ethiopia, Ghana, Guatemala, Kenya, Nigeria and Paraguay, have been prioritizing local smallholder procurement in their school feeding legislation, policies and strategies, thereby consolidating the shared objectives mentioned above. Box 9 presents the example of Nigeria.

Challenges and opportunities for policy coherence

Coherence across the various sectoral policies that are implemented through education systems is very significant for enhanced food security and nutrition outcomes. Policy coherence can be supported by: identifying and addressing contradictions, duplication and fragmentation between sectoral policies and policy instruments; sectors working towards a joint vision; and promoting objectives and approaches that address both sectoral priorities and food security and nutrition ones. Vertical coherence is necessary to ensure that regional and local government approaches are harmonized with national (and international) policy aims. The involvement of non-state actors (e.g. NGOs, civil society, parent and teacher associations, youth representations), the creation of institutional coordination mechanisms, and the development of strong capacities at the local level are all important to increase vertical policy coherence.

Box 10 presents an example of country efforts to support better policy coherence in the context of school feeding.

The table in pages 22-25 illustrates some specific considerations and opportunities to promote policy coherence in support of holistic approaches for improved food security and nutrition in education systems. Some examples are provided for schools. The table is not meant to present an exhaustive compilation of all possibilities for policy coherence or for all relevant policy areas for that matter, as this goes beyond the purpose of this note.

Box 10 Addressing coherence with public procurement policy and regulatory frameworks

In Ethiopia the mid-term evaluation of the HGSF programme showed that the standard public procurement rules represent one of the main challenges faced by the Ministry of Education in providing school meals on time (HGSF emergency programme). In some regions, although the funds had already been transferred for more than three months, the Bureau of Education was not able to provide the meals due to issues related to the procurement process. Such a delay has been leading to high rates of children dropping out of school (reported as high as 50 percent in the Southern Nations, Nationalities and Peoples' region), which is of great concern to the ministry.

Recognizing the challenges faced by the lack of coherences among these policies, the Government created a multisectoral committee to support the development of a conducive and appropriate regulatory framework for HGSF. Participating institutions include the Ministry of Education, the Ministry of Agriculture, the Procurement Authority, as well as FAO and WFP.

Although a federal regulation has not been issued yet, at the end of 2018 a Special Directive was issued by the Southern Nations, Nationalities and Peoples' region. "The Directive recognizes the challenges that the standard public procurement rules have been posing to the implementation of HGSF initiatives in the region. It provides a set of new rules to facilitate the implementation of the linkage between school feeding programmes and local and smallholder agricultural production, while ensuring transparency, accountability and the legality of the procurement process." (Swensson, 2019).

TABLE 1: **Examples of challenges and opportunities for promoting policy coherence in support of holistic approaches to improve food security and nutrition through education systems**

Relevant sectors and domains	Rationale	Challenges	Opportunities	Stakeholders and sectors to engage
Health and nutrition policies	Education settings are a common target for promoting public health and nutrition. For instance, they are opportune platforms for learning about food and nutrition and for implementing food-based dietary guidelines (FBDGs). The institutional food offer in such settings can be regulated to follow healthy guidelines and/or be subject to normative nutrition standards.	• The development of nutrition guidelines for institutional food can be under the sole responsibility of one ministry and have an exclusive focus on health (and may not be feasible in all regions). This can create tensions and incoherencies with policies that aim to boost local agriculture. • Schools and other education settings may be using parameters to define and educate about food and diets that are not aligned with national policies. • Various health and nutrition programmes may be implemented in the same institution in a disjointed manner, resulting in competition and duplication of efforts. • In some cases, policies and programmes originally created to alleviate undernutrition have not been adapted to address the double burden of malnutrition.	• Developing/revising nutrition guidelines through a multistakeholder process and considering production systems data, agricultural seasons, agro-ecological zones, local cultures, food habits and preferences; and criteria compatible with smallholder production. • Using the guidelines to promote policies to encourage diversification, and support linkages between institutional food, local agriculture and the community. • Capitalizing on Food-Based Dietary Guidelines (FBDGs) development/revision to guide nutrition and health policies in schools and other education settings. • Disseminating regulations of sale and marketing of foods high in sugar, fat and salt to education settings. • Identifying and promoting linkages with health and education policies/programmes that target the same groups outside of education systems. • Monitoring and assessing institutional food and other programmes to highlight any incompatibilities with the evolving nutrition situation and show pathways for corrective action.	Ministries of health, agriculture, education, gender and social protection; local governments; procurement authorities; research institutions; parent and student organizations

Relevant sectors and domains	Rationale	Challenges	Opportunities	Stakeholders and sectors to engage
Education and curriculum policies	Basic food and nutrition capacities, knowledge and skills are needed to lead a healthy life. Education settings can have a mandate to support the development of life skills and citizenship. The curriculum is one of the most important pedagogic instruments in education and a fundamental opportunity for integrating effective food and nutrition education.	• Education paradigms and policies may prioritize academic outcomes and core subjects more than life skills such as food and nutrition education. • Wider sociocultural, economic and environmental dimensions of food may be left untapped in formal curricula. • When integrated in the curriculum, food and nutrition education may be largely disconnected from the realities of learners' food and community environments.	• Advocating to integrate food and nutrition education and other types of action-based learning (e.g. school gardens) when primary/secondary curricula are being revised/updated. • Involving a range of stakeholders in technical discussions about food and nutrition education and its integration in formal curricula, supported by extra-curricular activities, co-curricular activities, school routines, community-based education and e-learning. • Exploring learning opportunities in the curriculum to link local producers and students/consumers through education settings. • Reducing competition with other health/social topics by identifying joint objectives/advocacy and learning synergies.	Ministries of education, health, agriculture, gender; civil society; teacher training institutions; parent and student organizations
Agriculture and rural develop-ment policies	Coherence with agricultural and rural development policies is key when countries aim to link institutional procurement with local smallholder production. This is needed not only to organize the institutional food demand, but also to deal with the different types of constraints that smallholders may face to respond to this demand.	• Agriculture food supply may be governed by economic goals that do not prioritize support to small rural actors and their organizations, promote a diversified production or market linkages with education institutions. • Smallholders may not be able to respond to institutional demand in terms of volume and regularity of supplies, as well as in terms of higher quality and safety standards.	• Seeking opportunities to align institutional procurement policies with agriculture development initiatives to strengthen farmers' capacity to produce and commercialize their products and meet required standards. • Identifying products already supported by production interventions or benefiting from broader rural development initiatives, as they can be more successfully incorporated into institutional procurement in the short and medium terms. • Assessing how best to link to complementary interventions to foster mutually reinforcing elements of demand and supply-side support.	Ministries of agriculture, education, finance, gender; agricultural research institutes

Relevant sectors and domains	Rationale	Challenges	Opportunities	Stakeholders and sectors to engage
Public procurement policies	Institutional food procurement is operationalized and regulated by specific rules that shape the choices available to governments and local authorities regarding what and how to purchase food, as well as from whom.	In many countries, the lack of alignment between public procurement rules and institutional food procurement policies is an important bottleneck for the implementation of the programmes and, in particular, for the achievement of the policy objectives around home-grown approaches.	• Assessing the public procurement regulatory framework and identifying legal instruments that can be used/adapted to support school food procurement from local smallholder farmers. • Involving procuring authority as a strategic partner. • Developing adapted public procurement rules and mechanisms when needed.	Ministries of agriculture, education, finance; public procurement authorities
Sanitation and food safety policies	Food safety and quality are non-negotiable features for any institutional food programme. Adequate hygiene and sanitation are important in addressing malnutrition and should be a priority in education settings.	The provision of nutritious and fresh foods in education settings can increase the need for attention to food hygiene, and for food safety measures along the food chain, starting at the primary production level and continuing all the way to the final consumer.	• Prioritizing nutrition-sensitive integrated water and hygiene programmes in education settings, and finding entry points in the curricula that meaningfully integrate hygiene, water and sanitation objectives. • Assessing and addressing food safety risks thoroughly along the school food chain. • Aligning food safety standards with nutrition standards for institutional food procurement and food/meal preparation.	Ministries of education, agriculture, health, water and sanitation, environment; health authorities
Social protection policies	Linking social protection programmes to education settings* can support attendance and enrolment of vulnerable children. A stronger coherence between agriculture, education, nutrition, health and social protection interventions can help the most vulnerable families to gradually move out of poverty and hunger.	• Mismatched targeting mechanisms of different programmes can result in a missed opportunity to create linkages and enhance benefits. For instance, children eligible for school feeding may not be the same as those whose families are participating in cash transfer schemes. The same holds true where farmers included in local procurement programmes are not necessarily targeted in programmes to support agriculture development. • Too tight conditionality of social protection programmes or issues with reaching the most vulnerable may impair access to education and complementary interventions in education settings.	• Adjusting social protection policies to have clear linkages with the education sector and enhancing access to food and nutrition education, for the benefit of the students and their families. • Combining accessible institutional market opportunities with predictable and timely cash transfers, which may enable vulnerable farmers to enter a virtuous cycle of economic development, emphasizing on joint targeting mechanisms. • Relaxing conditionality in social protection programmes, which may increase participation of some groups and enhance their ability to access complementary programmes.	Ministries of education, social protection, agriculture, health, gender

* Most commonly, through school feeding programmes or through cash transfers conditioned on school attendance.

Relevant sectors and domains	Rationale	Challenges	Opportunities	Stakeholders and sectors to engage
Environmental sustainability policies	Education settings can integrate environmental sustainability aims - through the broader institutional practices and policies that they follow (food procurement, food waste management, environmental policies) and through learning experiences.	Many government officials will not see the integration of sustainability considerations as a priority among the list of cumulative issues surrounding education systems.	• Transforming/revising food and nutrition education curricula/programmes to meaningfully integrate sustainability considerations. • Integrating environmental sustainability criteria in nutrition standards, institutional food procurement processes and food environment policies, where and when feasible. • Adopting food waste reduction policies and strategies (e.g. assessing acceptability of meals provided, food waste awareness and education, food recovery, donations, composting)	Ministries of education, environment, health, agriculture

Source: Reeve *et al.*, 2018; Hawkes *et al.*, 2015; FAO, 2017; FAO, 2019; Water Aid *et al.*, 2017; WHO, 2019; Thow *et al.*, 2018; Harris *et al.*, 2017; FAO and WFP, 2018; Tartanac *et al.*, 2019.

Step 4 CREATING SUSTAINABLE POLICIES, PROGRAMMES AND PARTNERSHIPS

This step includes three important areas to consider for creating sustainable policies, programmes and partnerships within a holistic food and nutrition approach. The first includes considerations for implementing, scaling up, maintaining and sustaining multi-component approaches; the second describes capacity development needs and priorities; and the third delves into several elements needed to construct meaningful and sustainable partnerships with the education sectors.

Creating consensus on priorities and actions, negotiating roles and strategic partnerships that share risks, benefits and investments, and other tasks are vital in this step.

The running example of a school-based food and nutrition approach is used to showcase particular points.

Relevant policy processes need to be analysed in terms of the strength of the demand for policy change, the incentives for change and the best windows of opportunity to attempt policy change.

This step also involves identifying institutional and logistical arrangements for how to operationalize the proposed changes.

Considerations for implementing, scaling up and maintaining holistic food and nutrition approaches

Implementation science has been evolving quickly in recent years, especially in high-resource countries (Pearson *et al.,* 2015; McIsaac *et al.,* 2016; Mazzucca *et al.,* 2018; Darlington *et al.*, 2018). One important development is that now it is recognized that "implementing" a programme is different than maintaining it and scaling it up. In other words, the process is never finished and is always ongoing, with ebbs and flows that need to be addressed.

Box 11 Critical transition points

There are common critical transition points that mark progress in developing a holistic, multi-component food and nutrition approach in schools and other education systems (Figueiro et al., 2017; de Araujo et al., 2017). Often these can become bottlenecks, barriers or breaking points. A common example occurs when a country shifts from external funding sources to nationally/locally financed school feeding programmes. Ministries and agencies can welcome external funds, so the dynamics are likely to be centred around who controls them. However, when the funding is to come from local budgets, the dynamic changes as they become part of the education sector management processes. Having a long-term plan and agreement between the government and the external funder about funding duration is important, as well as progressive institutionalization, with national policies and financial and management capacity being progressively developed.

It is also recognized that maintaining or scaling up a single intervention is different than doing it with a multi-component approach as recommended in this note. Developing and testing a food and nutrition policy and then disseminating it without ongoing support or with only a bit of front-loaded information to front-line staff is not adequate (Wolfenden *et al.,* 2017; Farmer *et al.,* 2008).

Clarity about the intended outputs expected from different dissemination or institutionalization plans is recommended (McCall *et al.,* 2009). The institutionalization of an approach is a multi-stage process whereby the policy or programme becomes part of the core business of the organization, with a budget line in place in the organization staffing chart, with personnel (and job descriptions), facilities and equipment assigned to that function, and with a developing institutional memory for important agreements and procedures.

In addition, strategies for the implementation, maintenance, scaling up, evolution and sustainability of a holistic food and nutrition approach should consider these essential elements to enhance possibilities for effectiveness:

- Using evidence-based and experience-tested implementation frameworks (Brown *et al.*, 2017; Birken *et al.*, 2017; McGoey *et al.,* 2015).
- Identifying local barriers to and drivers of change (ISHN, 2009) such as organizational relationships, recent events and incidents, relationships among key individuals, the history and evolution of the problem and related programmes in the country and more (see Box 11).
- Working through some of the ambiguities associated with "scaling up" approaches, policies and programmes (Mangham and Hanson, 2009; Yamey, 2012) such as complexity of the interventions, lack of technical consensus, limited resources, low engagement of local implementers, and poor use of diffusion techniques. Lessons learned from successful scaling-up activities (WHO, 2008) include using local evidence and experience, building institutional capacity, and providing ongoing technical support when scaling-up. This involves complex interventions, integrating considerations of gender and equity issues into the process, and ensuring ongoing feedback and formative assessments.
- Thinking clearly and realistically about the sustainability of a holistic approach (Fleiszer *et al.,* 2015; Pluye *et al.,* 2004) is the first stage of a process that must engage all relevant stakeholders from the outset, not in the middle or at the end of a pilot project. Sustainability must be achieved at multiple levels (e.g. professionals, school board/health authority/agency and ministries) within several systems to be stable. Routinization or institutionalization of an innovation is critical to sustainability and includes instilling the programme or change in the corporate or organizational memory (explicit part of the annual budget, assigning positions in the annual staffing plan, providing office space and equipment and allocating staff time to complete the tasks).

Going higher is harder!

FAO representatives from two Pacific countries noted that they have strong, ongoing relationships with programme-level staff in their respective education ministries. Both noted that the barriers were at the higher levels, especially when individual school nutrition interventions were part of comprehensive, multi-intervention programmes on nutrition or on health overall. The multisectoral cooperation needed for these comprehensive approaches required multiple minister sign-off, and sometimes even cabinet sign-off.

However, some issues prevail. The first relates to the political will of the key stakeholders, which is partly related with how they envisage their role in food security and nutrition issues (e.g. nutrition is still understood as "health business" by many partners). The second relates to the lack of experience and procedures for joint cross-sectoral implementation. A "silo" approach prevails even between the different divisions within the same ministry, with some serious concerns in terms of communication mechanisms and exchange of information and clear difficulties when it comes to shared implementation of actions. Working across ministries will certainly be a major challenge.

- Sustainable change has defined roles, formal descriptions of tasks and jobs and manuals of procedures or policies. Factors that promote sustainability include:
  - The perceived advantages (social, economic, political) of the innovation or reform
  - The involvement of middle managers as champions
  - Linking the long-term goals of the programme or policy to short-term educational benefits such as fewer class disruptions, formation of peer networks, and making the content of the innovation interesting to students and educators
  - Achieving a critical mass of support (and conversely, ensuring a minimum level of ongoing support) by starting with early adopters and listening to the concerns of adopters and resistors in the early stages
  - Capacity development of all relevant staff (not just educators) and new staff; and updated for existing staff.

Box 12 The Education for Effective Nutrition in Action (ENACT) experience

FAO has been at the forefront of developing nutrition education professional capacities in the African context.

In 2011, a seven-country study in Africa was conducted. The study found that professional training in nutrition education for behaviour change is largely absent or not accessible; when it is present it has a low methodological quality and is usually not backed by policy.

In this context, FAO in partnership with African academic institutions developed, piloted and revised a comprehensive module based on nutrition education best practices, targeted at undergraduate professionals in health, agriculture and rural development, as well as community workers, NGO staff and others.

The module was received as a very high quality product and was institutionalized by several universities in the region.

Capacity development

Much of the discussion around capacity is narrowly focused on developing the competencies of various professionals to select or use evidence-informed policies or programmes. However, it takes other kinds of capacities within organizations, systems and communities to be able to implement, maintain and sustain these policies (see Box 12).

Box 13 Capacity needs assessments

FAO has several resources to guide stakeholders in assessing capacity needs and developing adequate and feasible capacity development strategies. Specific tools have been developed for food and nutrition education (FAO, forthcoming(a)).

In 2017, a scoping review and capacity needs assessment of school nutrition education programmes were conducted in 14 Pacific Island countries to inform the strengthening of these programmes across the region.

The study found that although there is high motivation and recognition of the benefits of nutrition education programmes in the region, there are important capacity challenges related to the integration of programmes in national curricula, policy formulation, implementation and effectiveness, development and adaptation of learning resources and programme management among others (FAO, 2019d).

System or organizational capacities first define the minimum staffing, financial and other requirements. They then describe several operational capacities that promote effectiveness. If these organizational capacities are not built and maintained over time, it is far less likely that a synergistic, sustainable and systemic food and nutrition approach can be achieved in education systems. Capacity development takes time and continuous effort, but if increased capacity is not included as an outcome in all activities, the risk is of fragmented, overlapping and competing efforts.

Consultations with partners and stakeholders should be undertaken to assess and monitor organizational capacities throughout the process of building and maintaining a holistic approach (see an example in Box 13).

The finite limits of organizations to absorb change suggests that the systems change process should be considered as a pipeline with a defined amount of volume. Pushing too much, too quickly can only result in a breakdown and possibly render that pipeline unusable in the future.

The complexity of large organizations makes it difficult to sustain a large-scale change from the top down. There are too many variables at the different levels across multiple systems. A continuous improvement strategy (used often in the education and private sectors) can be used to build holistic food and nutrition approaches in education systems. This strategy enables employees and units at all levels to identify specific improvement objectives that are opportune or that they consider most important or urgent within the overall approach, rather than using a linear process. It differs from a generic bottom-up approach because the improvement objectives are tied to a joint vision and plan and the employees/units report regularly on whether they have achieved them.

Shared responsibility and partnerships

Despite the agreement among practitioners and researchers about the value of multi-component approaches that address food and nutrition in schools and other education settings, much of the anecdotal evidence and reports (Lloyd-Williams *et al.,* 2014) suggest that interventions are often delivered in a disjointed manner and therefore merit effective coordination frameworks (WFP, 2013).

Urgent need for synergy and shared responsibility

The education system is often the hub of many development programmes and is constantly asked to take on other issues, yet they cannot accept sole or even primary responsibility for their coordination. This responsibility must be shared with other sectors, with each sector making investments, receiving benefits and managing risks.

Even at the local level, fragmented responses and competition for educator attention and resources occur on a wide variety of social, health and equity issues. Other sectors often seek to push additional tasks onto schools

and other education institutions in a sporadic, disjointed manner that is often competitive rather than coherent. For example, they often approach individual schools with a single project rather than the education system with a coordinated set of interventions. This results in piecemeal, sporadic, individual interventions that are adopted (but not maintained or sustained) by some but not all units in the system. These policies and programmes are often disconnected from each other and short-lived.

It is this ever-changing environment with competing priorities in which holistic food and nutrition approaches need to be built or existing efforts strengthened.

Individual teachers and individual schools do have some degree of professional autonomy, especially on loosely coupled issues such as food and nutrition. They will teach about food and nutrition as much as they can. They will follow rules about healthy foods. However, these actions will always be short-lived or isolated unless they are part of a multi-systems commitment to a multi-component approach to school food and nutrition that is supported by local agencies and other ministries.

Reciprocal and strategic partnerships are stronger partnerships

This guidance note suggests that strategic analysis – of who historically "owns the problem" of food insecurity and malnutrition in all its forms, how they perceive "the problem", and who should formulate and promote solutions to address the problem – is a very necessary part of developing a holistic food and nutrition approach in education systems. It is critical to recognize that there may be competition among organizations and individuals for resources and coordination. The primary concerns and interests of each sector will need to be negotiated and the responsibility of multiple interventions shared.

Fortunately, food and nutrition are usually included in national priority-setting. However, there will still be differing perceptions about the clusters of issues. For example, the health sector may want to link nutrition with health (e.g. deworming, supplementation) or lifestyle interventions; the agriculture sector may link it more closely with production and social objectives such as empowerment and development; and the education sector may care most about the impact on student learning and behaviours.

The partnerships built must be reciprocal, offering goals that are important to all participating sectors. They must also be strategic, proposing benefits such as enhanced visibility of the organization, increased funding or staffing, and greater influence with policy-makers.

Such partnerships should openly address and negotiate the organizational interests of the partners, recognizing that many variables need to be shared and negotiated so that long-term investments from each system/agency can be assured – variables such as: the profiles, reputations and expertise of the organizations; funding, staffing and cost-reductions; the engagement of front-line workers or the constituencies of each sector; the administrative concerns of middle managers, and other benefits and risks should be considered.

- **Reciprocity**

  All too often, a partnership is created in response to an urgent problem, or to take advantage of some immediately available project funding or opportunity. However, if the long-term goals of each system or agency are not recognized and addressed as soon as possible in a reciprocal manner, various partners will gradually fade out of the partnership. A school food and nutrition partnership, for example, must include educational as well as food and nutrition roles.

Castles or silos?

"In reality, government departments often work more like castles and keeps than silos, being actively defended to resist distraction from 'core business' and sectoral interests. How do you develop a common goal given the current institutional arrangements where each sector is striving to achieve its own goals and competing for resources? Without shared goals, at some level Health in All Policies will fail" (Kickbusch and Buckett, 2010).

- **Strategic partnerships**

Strategic thinking, planning and partnerships are essentially different than regular, operational planning. Strategic partnerships focus on the real-world benefits, risks and investments being made by the partners that have an impact on their organizational or sectoral interests and concerns. These strategic benefits-risks-investment calculations should be understood to be both idealistic and self-interested. They include:

- protecting or promoting the reputation or profile of an organization including the management of political risks, professional or public views;
- knowing exactly why being involved in the selected issue is important or urgent to the core business and interests of the organization;
- ensuring that a pilot project or innovative programme will not create unrealistic expectations or ongoing demands on the organization, including ongoing funding, staffing or use of time of the organization staff;
- providing public or professional opportunities so that the leaders or experts in the organization can be recognized as such;
- bringing in new funding for the organization or reducing operating costs;
- identifying and working with other professionals and agencies;
- getting front-line participants (e.g. students, parents, teachers, farmers) involved as volunteers or as leaders, thereby increasing the size of the talent pool for other initiatives;
- ensuring that middle managers in the organization can continue to protect the boundaries of work within the organization as well as administer the practical aspects of the issue.

Using the strategic benefits-risk-investment lens described above, it is possible to draft, negotiate and confirm the roles that the different ministries and local agencies will play in a holistic food and nutrition approach. The following questions can be used to openly negotiate the roles and responsibilities of each sector involved, and to make sure that the benefits, risks and investments are as explicit as possible, so that a partnership plan be truly established jointly. The questions below have been applied to the school example:

- What are the main priorities of the sector (e.g. education, food and agriculture, social protection, health, sanitation, gender)?
- What has been done by the sector to contribute to the food security and nutrition of different groups (e.g. school children, families, school staff, local food suppliers, vulnerable populations)?
- How will this history of involvement (ownership? incidents, failures, successes) affect the development of a holistic school food and nutrition approach?
- What are the potential risks to the system/sector in making a commitment to jointly address food and nutrition through schools?
- What are the potential benefits that the system/sector would need or want in jointly addressing food and nutrition through schools?
- What is or could be the role of the system/sector in addressing food and nutrition through schools? What investments of staff time, budget, information or contacts could be contributed?
- What are the main constraints faced by the system/sector in contributing?
- What are the main facilitators or opportunities available to the system/sector to make a better contribution to food security and nutrition through schools?

Working on these essential strategic partnerships should be undertaken with a "no-blame", shared- responsibility attitude and process where progress is reported jointly within all sectors, always noting the shared roles on the items being assessed.

Furthermore, shared interests of all sectors in promoting equity, educational success and sustainable development and in improving the status of girls and women can be infused across all sectors as food and nutrition programmes are embedded within.

Box **14**

A new paradigm for school-based and school-linked work: systems-focused action

A 2018 international consensus statement has pulled together ten dimensions within a systems-focused action framework for working with and within education systems. Many of the dimensions in this paradigm have already been well developed. Capacity development, implementation science, selecting evidence-based programmes, building multi-component programmes and the other strategies are all well accepted on their own. However, this is the first attempt to view and act upon them together.

This guidance note suggests that these dimensions need to be considered if advocates of a holistic food and nutrition approach are ever to get past the never-ending stage of disparate, competing programmes being pushed into individual schools without lasting effect. If these dimensions are not being addressed while specific policies and interventions are developed, it is much less likely that the result will be synergistic and sustainable. The ten dimensions of this new paradigm are as follows:

- Start with the contextualization of approaches and programmes and truly understand the local situation and needs.
- Devote more and regular attention to better data, monitoring and analysis that lead to re-allocation of resources and targeted improvement planning.
- Position the choices regarding priority development (nutrition, health, social and economic) issues within the needs of the whole child over the life course. Specifically address social and economic determinants and alleviate disadvantages whenever possible.
- Choose evidence-based and experience-tested interventions (specific policies, programmes, services, practices) that are suited to the local context and capacities and then combine several into a multi-intervention programme.
- Combine selected multi-intervention programmes into a multi-component approach.
- Build and maintain the core components or infrastructure to be used by all multi-intervention programmes, including overarching inter-ministry policy, core instruction/education, defined services, social support from parents/community and healthy physical environment/practical resources.
- Improve the quality of implementation of programmes and approaches and ensure from the outset that they can be maintained, scaled up and sustained.
- Build organizational and system capacities including defined start-up and ongoing financial and human resources as well as operational capacities such as coordinating policy and leadership, assigning inter-sectoral and intra-sector coordinators at all levels, establishing informal and formal mechanisms for cooperation, ongoing knowledge development and exchange, long-term workforce development strategies in several sectors, regular monitoring and reporting linked with systematic improvement, joint strategic issue management processes, and explicit planning for sustainability of programmes and approaches.
- Integrate within the core mandates, constraints and concerns of education systems.
- Begin the paradigm shift towards an ecological approach and systems-focused actions through the better use of systems science and organizational development tools and strategies.

Follow advice from educators on integrating a holistic food and nutrition approach within education systems

The nature of the partnership between the education and other sectors will affect the quality and impact of holistic food and nutrition approaches (Langford *et al.,* 2015). Key global organizations representing the education sector together with other stakeholders have developed a new approach to integrate health, social and other development programmes within the core mandates, concerns and constraints of education systems. This global dialogue has included a consensus statement (see Box 14) (ISHN, 2018; ASCD, Education International & International School Health Network, 2013) and other resources that include examples of how countries are following the advice from educators.

This note recommends that advocates for improved food security and nutrition and policy-makers consider the importance of sustaining educator interest (see Box 15) and apply five integration strategies from the educator statement/framework that are summarized below:

- Other sectors should establish and maintain new partnership models with the education sector based on integration within education systems rather than add-on strategies for the education system.
- Other sectors should understand and anticipate the challenges associated with working within and with the core mandates, values, norms, constraints, concerns, priorities and current trends of educational systems.
- Other sectors should join the education sector to include a concern for the development of the whole child, rather than directing attention and resources only toward specific diseases, behaviours or conditions as separate or siloed entities.
- The realignment of food and nutrition and other sector efforts should be founded on an ecological approach that ensures the best fit within the education systems.

Box 15 Sustaining educator interest

Since enhancing children's educational attainment is usually the primary interest of educators, it is critical that in planning comprehensive approaches for promoting food security and nutrition, the potential benefits of these kind be well promoted. Some examples on how to sustain educator interest include:

- Not overburdening school staff and ensuring that new tasks are coupled with available human resources and capacity
- Surveying teachers and school principals on their experiences, beliefs, norms, concerns and self-efficacy in teaching food and nutrition and then responding with long-term workforce development and educational resource strategies to respond to the findings
- Demonstrating that activities such as school gardens can be interesting and fun for students while providing interdisciplinary project-based learning that links nutrition, sustainability, health and community development
- Demonstrating that linking school feeding to local and smallholder production can be a valuable contribution that schools make to educators' communities, while providing culturally appropriate, fresher and healthier food to schoolchildren.

- Other sectors should commit to using and maintaining long-term, multi-component approaches and to providing ongoing human and financial resources to work within education systems at the national/state, local agency and unit levels.

Concluding remarks

Education, both as a system for intervention and as a strategy, can play a key role in improving food security and nutrition outcomes for many vulnerable groups. On the one hand, both formal and informal food learning can support the development of healthy food practices and behaviours. On the other, due to their characteristics and multiple entry points (in terms of food access, experiential learning opportunities and as a point of long-term and regular convergence), pre-schools, schools and post-secondary institutions can act as hubs of food and nutrition policies and programmes.

This policy note has presented a holistic approach to improving food and nutrition through education systems, with a particular focus on schools. It builds on creating synergies to: promote a healthy institutional food environment and adequate and safe food offer; integrate effective food and nutrition education throughout the whole system; stimulate inclusive procurement and value chains for institutional food; and create an enabling political, legal, financial and institutional environment.

Key considerations have been outlined and guidance has been provided in identifying policy options and proposals for greater coherence that can enhance the potential of education systems to achieve shared food security and nutrition objectives. The objectives are described as "shared" since: (i) they are aligned with the education sector's priorities and/or help to boost main sectoral goals; and (ii) the responsibility for their achievement must be joint and negotiated with other sectors involved, including agriculture, health and social protection, among others.

The note has also identified the need to work within the structures and mandates of education systems to enhance the success, scale-up and maintenance of holistic food and nutrition approaches, particularly in terms of creating capacities at the organizational level and sustaining front-line staff and middle-managers' interest without creating excessive additional burdens.

Annex

Systems Science and Organizational Development: Concepts and Tools

Systems science and organizational development strategies offer powerful insights for managing change and achieving multisectoral policy coherence. Systems science concepts and organizational development tools may seem theoretical because the factors and processes being examined are often implicit and underlie most day-to-day operations. However, the impact and application of these tools are powerful and real, especially in the long run.

The use of these concepts is increasingly being documented in school health promotion and social development (Atkins *et al*., 2016; Carey *et al*., 2015). Below are a few examples of the application of systems science and organizational development to building a holistic food and nutrition approach in schools:

- One of the important roles played by middle managers (Saito *et al.*, 2015) is to protect organizational boundaries. If they have had the opportunity to consider and experiment with how an innovation or reform impacts their scare resources (time, funding, staffing), they may resist the adoption of such an approach. Therefore, to support a sustainable approach and its implementation, sessions will need to be planned with these managers to work through or present real-life solutions to their administrative concerns.
- Modifying organizational routines (Pluye *et al.,* 2004; Becker *et al.,* 2005) is critical if a school food and nutrition approach is to be sustained. For example, budget-making is often competitive among ministries. If the budget-making and planning routines related to food security and nutrition in different ministries can be joined together on an annual basis, the likelihood of sustained cooperation will be enhanced.
- Expert knowledge is an important source of influence and job security within large organizations. If such expertise is focused on health or other specific aspects of a single issue, it will be difficult to move towards more holistic views of student and community development.

Systems Science/Organizational Development concepts

Openness: Education systems are open to emerging changes and new demands in their environments. Specific related characteristics include system stability, openness to external demands, delineating boundaries, and responding to changes in the external environment or new technologies.

Adaptiveness: Schools are responsive to small-scale demands (innovations), while education systems are resistant to large-scale change (reforms). Related factors include responsiveness of front-line personnel, the size, complexity and risks associated of the proposed change, and different time frames for system change compared to other sectors.

Loosely coupled systems: Such systems make decisions based on professional and social consensus rather than hierarchical command and control mechanisms. Consequently, it is important to realistically understand, consider and address adopter concerns, policy levers, senior leader attitudes and priorities, attitudes/experience of middle managers and the readiness of the organization and its culture to accept change.

Professional bureaucracies: Education, agriculture, health, social protection and other government systems are operated by "professional bureaucracies" that have features such as multi-level decision-making and negotiating, structures and job descriptions, organizational routines, informal and formal internal communications, social networks, non-rational decision-making styles, professional norms and ideologies, social backgrounds and daily work constraints of employees, and career patterns of personnel.

Working across multiple systems at multiple levels is even more complex and will vary according to the degree/depth of cooperation being proposed and the cooperation among the different levels within each system.

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