Global Panel
on Agriculture
and Food Systems
for Nutrition

HEALTHY MEALS IN SCHOOLS: POLICY INNOVATIONS LINKING AGRICULTURE, FOOD SYSTEMS AND NUTRITION

This policy brief explains why a greater policy emphasis is needed on the multiple-win agenda that couples meals in schools with benefits to agriculture, education and nutrition. Evidence-based successes from diverse contexts are highlighted to illustrate what is technically feasible and economically viable.

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ABOUT THE GLOBAL PANEL ON AGRICULTURE AND FOOD SYSTEMS FOR NUTRITION:

The Global Panel is an independent group of influential experts with a commitment to tackling global challenges in food and nutrition security. The Global Panel is working to ensure that agriculture and food systems support access to nutritious foods at every stage of life.

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Executive Summary

Evidence from around the world on locally-sourced school meals reveals a multiple-win opportunity for policymakers with important benefits for school achievement, employment and national economic growth. Providing nutritionally balanced school meals with complementary nutrition education and health measures can deliver improved school performance, nutrition literacy as well as employment and income in later life. The procurement of food for schools from local farming communities supports farming households and livelihoods, and promotes sustainable local markets for diverse, nutritious foods. Combined interventions can also unleash a chain of beneficial impacts that break the cycle of poverty: better child nutrition supports better education, which supports improved dietary and health choices by mothers, which in turn leads to better birth outcomes and enhanced educational success for the next generation.

Many local and national governments are today implementing components of this strategy. Few, however, are integrating the different components to create multiple benefits.

Achieving a multiple-win outcome requires:

- School meals that are consistent with current national dietary guidelines and formulated to increase emphasis on nutritious ingredients, including vegetables, fruits, pulses and animal products, such as milk. The meals should meet a significant portion of the nutritional requirements of school-aged children.
- Policies that facilitate local and regional procurement of foods for schools.
- Predictable national budget allocations to support integrated activities.
- An effective, inter-sectoral mechanism for managing such food programmes, which includes careful measurement and monitoring of their efficiency and of their expected educational, nutritional and agricultural outcomes.
- Capacity to promote change in the actual consumption of healthy school meals and to encourage children's lifelong healthy eating habits. This involves multisector actions that link school meals with nutrition education, family and school community involvement, school gardening, and training and technical support to help schools achieve an overall healthier environment.

Photo: Young Lives / Sarika Gulati

Introduction

Meals provided in schools offer direct benefits to the health and cognitive development of pupils and, with associated educational and health interventions, can prepare children for a lifetime of healthy nutrition. They may also encourage school enrolment for girls at critical nutritional stages, deliver broader nutritional benefits to households, and support other health-related interventions in schools. Furthermore, they can enhance local agricultural production, contributing to food and nutrition security.

This policy brief examines these potential contributions and evaluates the evidence for their effectiveness. Evidence-based successes from diverse contexts are highlighted to illustrate what is technically feasible and economically viable. Particular emphasis is placed on win-win opportunities that can arise from linking school meals with local agriculture and food systems.

While feeding children in school is not a new idea, recent policy innovations have expanded to focus on the delivery of *healthy* meals to children while at the same time stimulating agriculture through the procurement of food from local producers. Some countries have already made significant progress in this area. These include countries where national governments are consciously encouraging agriculture-education-nutrition synergies as part of a creative legislative agenda.

In the United States, for example, the Agricultural Act passed in 2014 included provisions to improve meals in schools by increasing the use of local and regionally produced foods, coupled with hands-on learning activities such as school gardening, farm visits, culinary classes, and the integration of nutrition-related education into classroom curricula.[1] In India, almost 100 million children across 265,000 schools currently have free access to a balanced and nutritious midday meal. An Indian Supreme Court Order of 2001 required the government to provide meals in all primary schools "with a minimum content of 300 calories and 8-12 grams of protein"[2], and many of them are procuring local produce.[3] Similarly, in Ghana, the government started supporting food procurement for schools from local farmers in 2005. That initiative now involves 4,000 schools serving over 1.6 million children. Former President John Kufuor described the farm-school relationship as a win-win policy choice which "has had a great impact on the economy of Ghana."[4]

> "There are many win-win situations in combining actions, from social protection to production."
>
> **Graziano da Silva**
> *Director-General, Food and Agricultural Organization and Global Panel Member*

These examples from around the world illustrate the growing recognition of a potential for schools to provide and promote the consumption of healthy nutritionally balanced meals while increasing demand for local farm outputs, and supporting more efficient local food procurement and delivery systems. Most countries in the world are already providing school meals of various kinds: at least 368 million children are fed daily in schools, which represents an annual investment of roughly US$75 billion with most funding from government budgets.[5, 6] However, relatively few governments have yet adopted the kind of cross-sectorial design that allows for gains in several domains across the food system simultaneously.

The cost to nations of low education levels and their link to poor nutrition

There are enormous human and economic costs associated with malnutrition. According to the most recent Global Nutrition Report, 2.5 billion – or one in three persons on the planet – suffer from at least one form of malnutrition. Recent estimates suggest that countries in Asia and Africa lose as much as 11% of Gross National Product (GNP) due to undernutrition, ranging from around 6% in Uganda to over 16% in Ethiopia.[7, 8] At the same time, large economies, such as China, already lose up to 4% of GNP to obesity.[9] Up to 2.5% of India's lost economic output is ascribed to micronutrient deficiencies, such as iron deficiency anaemia.[10]

A large share of the costs associated with these manifestations of malnutrition derives from the effects of poor child nutrition on their education. That is, impaired physical and intellectual development of individuals at a young age can hinder a child's ability to enrol in school at the appropriate time, cause absenteeism or early drop-out due to ill-health, and prevent optimal educational attainment because of impaired long-term physical and mental development.[11] This all-too-common train of events results in lower intellectual and labour productivity during adulthood, and imposes a drain on national economies.[12]

However, just as the effects of sub-par school attendance and performance are long-lasting, the benefits of good nutrition and effective schooling also persist. For example, reduced stunting among one year-olds is linked to big improvements in language ability and cognitive achievements once they reach the age of five, and those benefits carry over into subsequent school achievements.[13, 14] A reduced rate of stunting (impaired growth) in children under two years of age is associated with higher levels of later schooling thanks to more grades completed.[15] There is also huge value of education to adolescent girls, who benefit physically from not having a child at such a young age, which (coupled with greater literacy and numeracy) has advantages for nutrition through the knowledge, income and empowerment advantages accorded to more educated mothers.[16] In other words, child nutrition supports better education, which supports improved dietary and health choices by mothers, which in turn leads to better birth outcomes and enhanced education for the next generation.[17]

How Schools can Support Improved Child Nutrition

Photo: Erly Tatontos / World Bank

The feedback loop between education and nutrition has long been recognised. Roughly 170 countries have instituted the feeding of pupils in schools during the past century, but the use of schools as a primary vehicle for policy action on nutrition has not always been widely accepted.[6] While the United Nations' Millennium Development Goal Hunger Task Force argued that governments should provide "balanced school meals with locally produced foods", the cost-effectiveness of using schools as an entry point for achieving nutrition goals remained a point of debate.[18]

School feeding programmes have been widely used in developing countries where food aid was used in regions of food insecurity, to incentivise parents to send their children to school. Although the potential for school meals to improve nutrition was promoted during the 1980s by numerous United Nations agencies and non-governmental groups, that proposition was questioned because numerous studies were unable to demonstrate impacts of school meals on the physical growth of school-aged children.[19] For example, although a Cochrane review of 18 school feeding studies found a significant improvement in weight gain,[20] a different review of 16 studies in eight countries found the evidence to be mixed. This highlighted the difficulty of establishing causal links between food-based interventions, primarily based on food-provision, and nutrition outcomes for children over the age of five.[21] Indeed, the 2013 Lancet series on maternal and child nutrition concluded that since data are "inconclusive for height gain", school meals cannot be universally promoted as an evidence-based intervention for tackling undernutrition.[22]

The apparent lack of impact on child growth (stunting) has been explained in several ways. Firstly, the target population (school-aged children) is already too old; since most stunting occurs in the first 1,000 days from conception to a child's second birthday, interventions in school come too late to reverse prior damage done.[23] Secondly, the provision of meals in schools is complex, and the endeavour may draw resources away from schools' primary objective (which is to teach children) and also result in poor quality meals being offered. Thirdly, there is potential substitution of food within poor families; since children are known to receive a meal in school their parents can sometimes reduce the food available to them when at home, or else food supplied without linked nutrition education does not generate student demand for healthier meals (either in school or at home).

However, there are several important reasons why past failures to demonstrate a link between school meals and stunting should not deter policymakers from considering the potential for schools to promote both nutrition and agriculture. Recent evidence suggests that although stunting starts before the age of two, stunting reduction can still be achieved among children older than two,[24] and children who subsequently recover their growth trajectory perform better in vocabulary and mathematics tests than children who remain stunted during their school years.[25, 26] Indeed, a study in India showed that children whose families were affected by a severe drought suffered a decline in growth that left them stunted but where children during that time were participating in India's Midday Meals scheme their height was not compromised.[27] In other words, the food in school can offset a loss of food at home.

Such evidence suggests that nutritionally-balanced school meals, coupled with complementary nutrition education and health measures has the potential to contribute to either the prevention of malnutrition during periods of stress or to a resolution of pre-existing forms of malnutrition.[28]

Meals in Schools – A Long History

The idea that governments can provide food in the context of a national education agenda dates back over 200 years. At the end of the 18th Century, informal school feeding programmes were established in Germany, and that model quickly spread to other European states. The first formal national programme was initiated around 1900 in the United Kingdom. It was set up by a government which had realised that recruitment of adult males into the military (in the context of the Boer war) was being compromised by poor nutrition across the working class population. It was decided that since schools had a country-wide institutional presence, they could be used to promote better health and growth of children by serving a nutritious meal each day.[29] By the 1940s, most European countries were providing meals in schools as part of a broad social welfare programme. In some instances, such as in Italy and Germany, these were supported by resources supplied through the post-war Marshall Plan.[30]

Today, most high-income countries are committed to providing meals through schools. Indeed, many are now turning to educational institutions as entry points to promote population-wide behaviour change relating to dietary choices in the context of the rising epidemic of obesity. The societal returns to investing in healthy meals in schools are rarely questioned these days. There is growing evidence that partnerships between schools and local farmers can have economic benefits as well.[31] Many dozens of low-income countries are now adapting this model for their own contexts.

Improvements in child growth and educational performance among previously stunted pre-schoolers may be related in part to the provision of macro and micronutrients often missing from the diets of children in low-income settings. For example, studies in the 1980s demonstrated the link between cognitive development and animal protein in countries like Kenya and Egypt, where school meals rich in meat and dairy were shown to improve the mental functions of students.[32] Today, it is widely acknowledged that the provision in schools of animal source foods, such as milk, meat or yoghurt, and other foods that are lacking in the diets of poor households, can help resolve key nutrient gaps in the diet.[33, 34] For example, an evaluation of US programmes pointed to evidence that participation in school-based meals was linked to improved dietary habits, a rise in the Healthy Eating Index for those children, and a reduced likelihood of deficiencies in vitamins C and E, as well as folate.[35]

Healthy meals in schools also offer nutritional benefits beyond the potential reversal of stunting effects. There is evidence that school meals integrated with complementary initiatives can have positive impacts on micronutrient status, adolescent girls' dietary adequacy, and even obesity prevention.[38] For example, hookworm and roundworm infect more than 800 million people around the world.[39] While in most cases the infection is asymptomatic, heavy infections can lead to iron-deficiency anaemia, which can impair learning in schools.[40, 41] Some studies, including randomised control trials, have shown that deworming can be cost-effective in improving school participation rates by reducing incidence of sickness.[42,43] A systematic review of 41 trials found that deworming programmes can improve haemoglobin values among individuals who were anaemic, but mainly where deworming was linked to the provision of more iron in the diets.[22, 44]

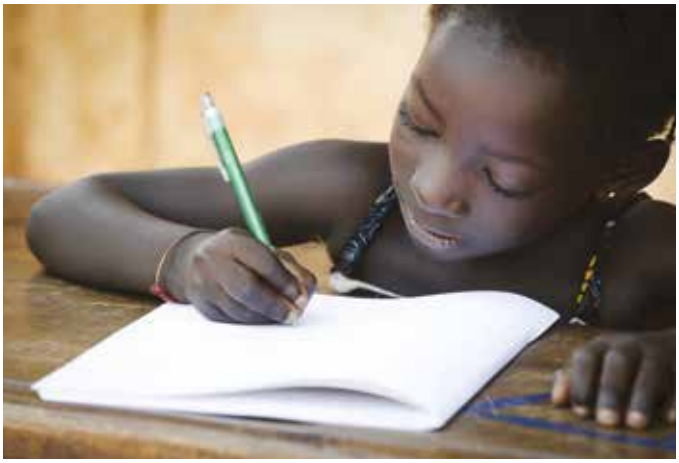

Photo: WFP/Skullerud

In other words, while the body of evidence still needs to grow and generate consensus on the significance of findings, deworming can in some contexts contribute to the effectiveness of school feeding by removing one of the constraints to iron absorption in the form of parasites. In addition to preventing iron loss in the body, and to enhancing its absorption, supplemental iron is widely provided to school children, along with other key vitamins and minerals, in the form of micronutrient fortified foods or micronutrient powders added to meals in schools.[45-48] Evidence suggests a positive impact of fortified food in school meals in mitigating various micronutrient deficiencies.[45-48] Micronutrients such as iron, zinc, and iodine are critical components for the development of a child's brain.[49-54]

These combinations of actions highlight the importance of an integrated strategy that combines food-based approaches with other sectors of activity – education, health, trade.[55] The idea of combining approaches is supported by the Framework for Action that emerged from the 2014 International Conference on Nutrition (ICN2).[56]

The global epidemic of childhood overweight and obesity is a new factor that brings governments to focus on the quality and composition of school meals.[57] There is growing attention to the potential for schools to serve as a platform for enhancing students' knowledge, attitudes and behaviours related to improved food choices, while at the same time promoting nutrition education, school gardening and regular physical activity.[58] A review of nine studies on the impact of school meals on weight in low-income countries found that children eating at school gained an average of 0.7kg over a year, compared with control groups.[20] This is a good outcome if the school population served is generally underweight and if such children come from chronically food insecure households.

That said, where a population is not underweight, there is potential for unhealthy meals to contribute to a rising prevalence of overweight among children. The key in such contexts is to ensure that any weight gain is not contributing to fat accumulation and supporting further obesity. Evidence from high-income countries suggests that the provision of healthy meals in schools does have the potential to mitigate rising rates of overweight among children where attention to meal quality is effectively integrated with nutrition education and physical activity.[38, 58] Recent data from a low-income country setting suggests that meals in school may actually improve the lean muscle mass growth of pupils.[59]

Partnerships between schools and the food system stakeholders surrounding those schools may be a way to increase coverage in marginalised locations where services remain scarce and of low quality. In many countries, large numbers of school-aged children are not and have never been enrolled in school. For example, in Mali only 40% of primary school-age children are enrolled because access to school in remote food insecure areas is still challenging.[60] In such contexts, the provision of food represents an effective incentive for parents to send their children (especially girls) to school when they could otherwise be doing economically-valued tasks at home. Studies across 32 African countries showed absolute enrolment by girls increased by 28% during the year after meals were made available, which highlights the importance of gender-sensitive nutrition education.[61] Similarly, public investments in local agriculture (to improve food supply and reduce poverty) can be supported through increased and sustained demand generated by local school systems – a win-win opportunity.

Food in School Settings – Many Options

There are three main approaches to providing food through schools:

1. In-school meals, in the form of breakfast or lunch;
2. Snacks eaten in school, such as high-energy vitamin and mineral fortified biscuits, fruits, milk or juice;
3. Take-home rations provided to families of school children.

Strong evidence supports the impact of take-home rations in Burkina Faso on younger siblings of beneficiaries given through intra-household food reallocation.[36] Similarly, the mothers of young girls enrolled in a take-home rations programme in Uganda had significantly lower anaemia rates than a control group.[37] In both cases, food provision was conditional on a child's attendance in school.

Healthy meals in schools should be designed to meet a significant portion of the nutritional requirements of school-aged children, ensuring appropriate micronutrient and protein content. At the same time, attention must be paid to limiting the level of meal ingredients that are associated with poor health and nutrition outcomes, including sugar, ultra-processed grains, trans-fats and salt. It is also important that meals are served in a clean environment with clean water and necessary facilities for sanitation and hygiene.

Schools Supporting Agriculture

The role of schools in supporting and understanding agricultural practices has long been promoted through school gardening activities.[62] These can contribute to an understanding of farming and nutrition principles among students, supplement fresh produce to school canteens in key seasons, and encourage the development of home gardens.[63] However, the potential for food procurement by schools reaches far beyond the garden. For example, a study of school food procurement activities in the United Kingdom estimated a three-fold return on investment, in the form of positive social, economic and environmental gains.[64]

Therefore, there is enormous scope for programmes in low-income countries to purchase and use locally produced food. Local farmers and producers can benefit by a stable demand for their products throughout most of the agricultural season. Communities benefit from a steady demand of products throughout seasons supporting the future farmers' investment decisions and productivity. The benefits tend to be greater for smallholders who do not have access to international markets and rely on local demand.[65, 66] Such programmes have been implemented in various sub-Saharan countries (Ghana, Kenya, Malawi, Nigeria, Cote d'Ivoire, and Mali), South America (Brazil and Chile), and in many developed countries. This is because there is a growing amount of information relevant to assessing

the cost-effectiveness of the range of modalities for providing food in schools.[67] For example, a recent review of programmes in 22 low-income countries found the annual cost of regular school meals (200 days per year) averaged US$54 per child,[68] while another review of three randomised control trials found an average cost to achieve a gain of 1cm in height per year among children in schools stood at roughly US$195.[69]

While the potential benefits for the pupils and for farmers are clear, the institutionalisation of such programmes requires a strong and sustained emphasis on a) ensuring a clear understanding on the part of schools, parents and farmers of each other's responsibilities, codified in binding contracts, b) setting and maintaining minimum nutritional standards, c) maintaining a dependable supply of food to schools (which requires productivity gains and a minimisation of post-harvest losses), d) ensuring food safety through effective monitoring of produce quality, e) preventing undue price volatility, and f) ensuring clean water and sanitation to all schools whether they use kitchens or only provide snacks.[70]

Given the potential complexity and scale of local food procurement activities, policymakers are still assessing the possible value of the spill-overs and trade-offs that such programmes can provide along the food chain[71] and how policies and legal frameworks can support them.[72] Existing evidence suggests that the type of procurement model used and the scale of local purchases will largely determine the magnitude of benefits to both producers and consumers, and how economic benefits are distributed among producers and other supply chain actors.[73] One simulation analysis from Kenya suggests that the annual income of farmers would see a net increase of around US$50 per year if schools were to purchase maize from them, rather than relying on national stocks or food aid.[10]

Schools Supporting Food Value Chains

While farmers gain the principal economic benefits of local procurement for schools, the benefits to local communities may also include job creation in support of food delivery and preparation of schools meals, as well as at points in the value chain where value-added is generated. In Chile and Brazil, for example, national policy allows for different mechanisms for decentralisation of school meals procurement and delivery involving the private sector.[72] In many cases school directors purchase directly from farmer's associations and the municipalities provide logistical support for food delivery. Similarly, India's state of Rajasthan has put small and medium enterprises in charge of procurement of food for school meals.[70]

Additional food system activity that can be promoted includes the establishment and maintenance of local storage facilities (which most schools do not have a priori) and the procurement of domestically-produced micronutrient fortified products. In India, for example, fortified processed foods, such as factory-produced Indiamix (a micronutrient fortified maize-soy mix used to make porridge) or fortified rice-lentil mixes made by local women's groups, have been procured by state and local governments for use in primary school systems for many years.[74-76] In Malawi, about 35% of school-going children benefit from a school meal program, and over 95% of such programmes are based on the direct supply of this fortified blended flour to the schools.[77] Indeed, the potential for schools to procure locally-processed and packaged nutrient value-added foods continues to grow. For instance, it has been noted that rural middle-income consumers in East and Southern Africa already purchase between 60-80% of their food, of which processed foods, mainly produced locally, account for 70-80% of total food expenditure.[78] The already large and growing volume of in-country food processing represents an opportunity for schools to procure easily handled and prepared products as part of their food provision activity.

An Investment with High Returns

Since schools represent country-wide institutional presences they tend to be accessible to people who obtain few other public services. This advantage accords schools an unparalleled potential for reaching underserved populations with inputs and knowledge that together support human capital in the form of well-nourished, educated children. One recommendation of the Framework for Action was that school feeding programmes should be used "to improve diets", nutrition knowledge and practices of vulnerable populations through "better access to food [...] which is nutritionally adequate."[56] That recommendation embeds schools in a social protection agenda, and the stipulation that school meals should be supportive of "healthy diets" links them to food system strategies. In other words, governments have come to recognise that "schools provide an opportunity, so far untapped [...] for prevention and treatment of under-nutrition or obesity."[67]

The provision of healthy meals goes beyond educational goals. Healthier meals support the enrolment of children (including girls), improved attention span, enhanced performance, and appropriate behaviours relating to food choices and physical exercise that can last beyond the classroom.[79] The resulting increases in human capital can boost both individual and national productivity, which is the engine of social and economic growth. Studies in the US have demonstrated that changed food choices and behaviours in schools have positive spill-overs into the community that include economic gains.[38, 80] A recent report from the Union of Concerned Scientists found that requirements for healthier meals in US schools can have lasting economic benefits, both through local production procurement and through reduced cost of dealing with diet-related chronic diseases.[31] There is, in addition, growing evidence on the cost-effectiveness of meal provision from developing countries.

However, more than 80% of such programmes in low-income countries are currently funded by external donors.[81] In other words, few developing country governments have yet assumed responsibility for the budgets needed to fund conventional school meals, and fewer still have committed to providing healthy meals based on local procurement of food. The evidence reported here suggests that many more national authorities should consider this policy option.

As for any policy intervention, targeting beneficiaries is critical for the success of the programme, both in the implementation and impact delivered. Synergies among different domains could either be strongly enhanced or diminished depending on the effectiveness of targeting. Targeted areas must be selected by hard evidence and needs, rather than political interests. Moreover, while multiple-win strategies can be optimal in some settings, it may not be for others – for example in areas which are drought-prone or otherwise very challenging with regards to food-security. In some cases where more reliable supply of food for school meals would be provided by non-local sources, these may be preferred compared to local procurement and would still yield the benefits to children and their families. The additional benefits of local supply should not be considered necessary to motivate school-feeding in itself, as it may be that in some cases the most disadvantaged areas are the ones in which these synergies are more difficult to achieve.

Photo: Jamie Martin/World Bank

RECOMMENDATIONS TO POLICYMAKERS

The Global Panel therefore recommends that policymakers:

1. **Define a national policy goal to revise and update the nutritional standards for school meals, which should be consistent with national dietary guidelines:** Policymakers should make 'healthy meals' a minimum requirement for all food programmes in schools, and use this requirement to promote ancillary nutrition education, physical activity and behaviour change activities.

2. **Link the provision of healthy school meals with clear nutrition promotion and education objectives and activities in order to promote healthy eating habits while avoiding the double burden of malnutrition:** Policymakers should review Education Curricula to incorporate nutrition education principles, while adopting practical teaching tools such as school gardens and cooking lessons, and providing technical support to help schools implement the changes.

3. **Establish a policy regimen that would promote local and regional procurement of foods for meals in schools:** Policymakers should establish the legislative or regulatory framework that would permit effective food procurement systems, giving priority to local procurement from smallholder farmers when possible. The framework should be streamlined with the needs of the Ministry of Education and existing interventions to support agricultural output.

4. **Promote cost-effective operations that link local procurement with healthy meal provision in schools:** This includes that capital budgets should be established, appropriate contractual arrangements should be defined, price bands should be established for all food categories, training plans should be elaborated for Education Ministry staff relating to budget management, logistics, establishing appropriate storage and canteen facilities, etc.

5. **Review supply of locally-available processed foods that could be incorporated within procurement systems for meals in schools:** This involves that nutritional standards should be defined, price bands should be established and appropriate waste disposal (of packaging) should be organised.

6. **Target beneficiaries, specify goals, and measure progress:** Data are needed to target areas where malnutrition is most acute and school feeding can be implemented. In cases where multi-domain synergies are possible, the linking of healthy meals in schools with promotion of local agriculture and value-chain development also requires multi-sector data collection systems that can track the cost-effective use of resources.[67] This requires the integrated monitoring of food prices, school enrolment and retention by gender, educational attainment, student and teachers' nutrition knowledge, jobs created along the value-chain, food firms contributing to the healthy meals agenda, and numbers of farmers engaged in supplying food.[68, 81, 82]

7. **Make food and nutrition education part of school staff training:** Where schools are used as an institutional platform for delivering healthy meals and knowledge surrounding agriculture, healthy food choices and nutrition, food and nutrition pre-service training should be included in core staff and teacher training in order to facilitate the inclusion of these subjects as part of the educational agenda.

8. **Ensure a supportive nutrition and health school environment:** Integrated policies are needed to support healthy eating by students. These should include avoiding the provision of food and beverages in school grounds that are high in sugar, trans-fats and salt. Appropriate hand washing, personal hygiene and sanitation facilities are an essential component of this agenda.

9. **Establish effective indicators to measure the implementation and nutritional impact of healthy school meals:** These Indicators must be appropriate to evaluate the adoption of healthier choices made by children, including water intake.

In seeking ways to address the global epidemic of unhealthy diets, a recent Lancet Commission on Women and Health for Sustainable Development defined the promotion of "healthy eating in schools" as one of a core set of "best buys that are highly cost effective, inexpensive and feasible".[83] Policymakers around the world should actively consider how to capture the potential benefits offered by schools as platforms for promoting healthy diets among their children.

Photo: Partnership for Child Development, Imperial College London

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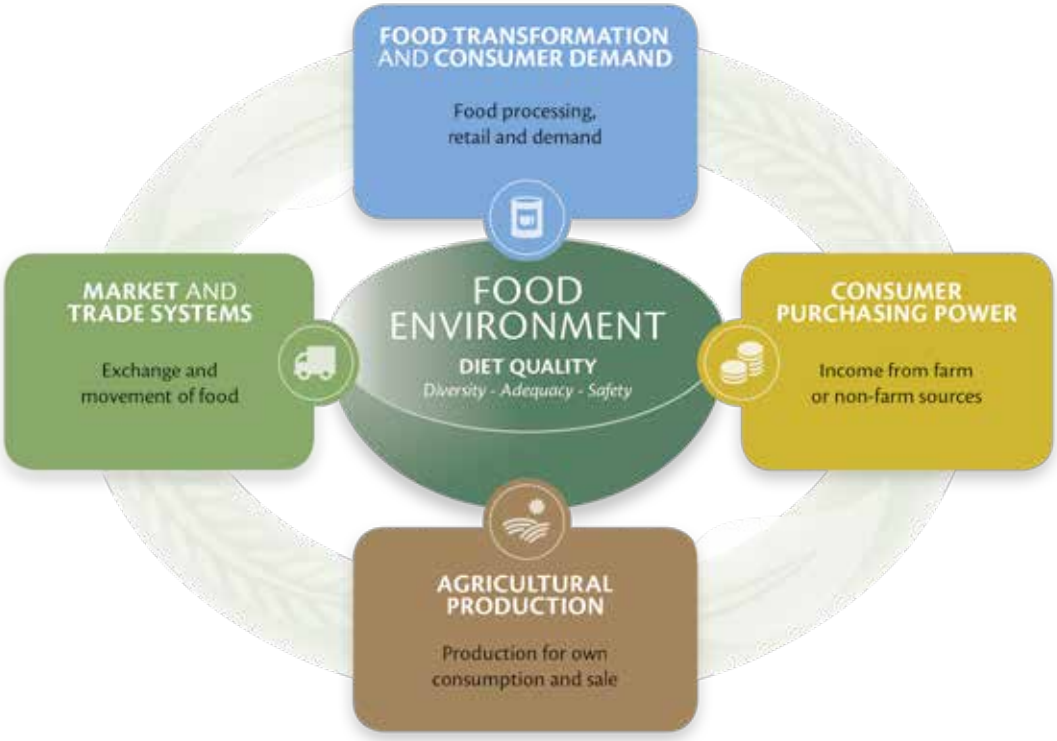
How can Agriculture and Food System Policies improve Nutrition?

The multiple burdens on health created today for low- and middle-income countries by food-related nutrition problems include not only persistent undernutrition and stunting, but also widespread vitamin and mineral deficiencies and growing prevalence of overweight, obesity and non-communicable diseases. These different forms of malnutrition limit people's opportunity to live healthy and productive lives, and impede the growth of economies and whole societies.

The food environment from which consumers should be able to create healthy diets is influenced by four domains of economic activity:



In each of these domains, there is a range of policies that can have enormous influence on nutritional outcomes. In the Global Panel's Technical Brief, we explain how these policies can influence nutrition, both positively and negatively. We make an argument for an integrated approach, drawing on policies from across these domains, and the need for more empirical evidence to identify successful approaches.

Find out more here: www.glopan.org/healthy-meals

Healthy meals in schools is an example of a policy in the **CONSUMER PURCHASING POWER** domain that can have a positive influence on nutritional outcomes.

Download *Policy Brief No. 3* here: **www.glopan.org/healthy-meals**

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