Chapter 3
New advances in understanding school meals: innovations and sustainable programming

A student in class in Malawi.
WFP/Giulio d'Adamo

Chapter 3 highlights emerging and innovative areas of research that the editorial board considers are of potential interest to the wider school meals community. As this report is published biennially and is intended to have a shelf-life of two years, this chapter has a particular focus on work that is novel and early in its publication cycle. To enhance the accessibility of the research, studies are presented as summaries of work already published in detail in scientific and policy literature. The reader is encouraged to access the original publications for reference and more detailed follow-up. The summaries were commissioned by the editorial board and are written by the authors of the original articles, who are solely responsible for the content.

This chapter is organized into three sections: investigating new insights into returns on investment, programming practices and sustainable financing.

The first section, ***New evidence on the multisectoral benefits and returns on investment of school meal programmes***, presents new evidence from expert technical groups around the world in four separate analyses:

- A summary of value-for-money studies undertaken by the Research Consortium's "Analytics and Metrics" Community of Practice. These studies use secondary subnational-level data from countries to show that school meal programmes achieve returns across many sectors, resulting in cumulative positive returns in the range of US$1 to US$30 for each dollar spent, varying with the subregion being targeted.
- A systematic review of available trials on the impact of school meals on education outcomes, undertaken by the "What Works Hub" at the University of Oxford, which shows that the returns in terms of impact and cost–benefits are similar in scale to those found in many of the most popular education interventions.
- A summary of recent analyses of the impact of school meals on social protection outcomes, including the 2024 World Bank Working Paper *School Meals, Social Protection and Human Development: Revisiting Trends, Evidence, and Practices in South Asia and Beyond* (Bundy et al., 2024) which concludes that school meals and cash transfers are among the most ubiquitous safety nets in the world, and that each offers relative advantages in different contexts.
- An update on the results of a new series of randomized controlled trials, led by a consortium including WFP and the World Bank Group, which is confirming old insights and providing new insights into studies of national school meal programmes across multiple countries.

These analyses are enhanced by information in two boxes: the International Labour Organization's insights into school meals and social protection (Box 3.1); and an update on a new trial under way in Cambodia (Box 3.2).

The second section, ***New evidence on programming practice***, explores three aspects of programme implementation at the national level:

- A review by the "Good Examples" Community of Practice of the case studies it has conducted to date in more than 50 countries. The review highlights the emerging evidence of good practices, and describes plans for the future.
- An update from FAO and WFP on their programme, *Setting new holistic nutrition guidelines and standards for school meals*. This programme responds to a well-recognized need to set meaningful and credible nutrition standards for school meals.
- Insights from the Cities Feeding the Future Initiative on programming school meals at the municipality level. This report arises from the newest of the School Meals Coalition's initiatives, and illustrates the importance of recognizing and better understanding the role of municipalities in delivering school meal programmes.

These reports are supported by three boxes: the relevance of the SABER policy tool in programme design (Box 3.3); the continuing development of FAO's School Food Global Hub as a global good (Box 3.4); and the WHO list of Global Action for Measurement of Adolescent health (GAMA) indicators for assessing adolescent health and well-being (Box 3.5).

The third section, ***Financing a breakthrough – the role of innovative finance***, was developed by the School Meals Coalition's Sustainable Financing Initiative and provides an analysis of the multiple options available to countries to finance their national school meal programmes. This final section explores the question: What would it take to finance a breakthrough in the provision of school meals? The School Meals Coalition's goal is to ensure that every child has access to a hot school meal every school day by 2030. But translating this goal into delivery will require a step-increase in finance, both through domestic budgets and Official Development Assistance. This analysis shows how innovative financing could play an important supporting role.

3.1 New evidence on the multisectoral benefits and returns on investment of school meal programmes

This section highlights recent evidence on the returns of investments in school meals across multiple sectors. It starts with an update of results from ongoing "value-for-money studies", one of the most frequently requested areas of support from the Research Consortium, showing how a national school meal programme can provide returns in several sectors simultaneously. The returns in two very important sectors – education and social protection – will then be explored in more detail. Finally, the section provides an update on the insights emerging from new trials conducted by several countries.

In Bangladesh, students champion health checks in school. WFP/Mehedi Rahman

Value for money of national school meal programmes

To fully understand investments in school meal programmes, and the returns on those investments, it is essential to assess comprehensive costs and benefits. Cost–benefit analysis methods can be used, which document in monetary terms both the costs and benefits of rolling out a given policy. Developing cost–benefit analyses to evaluate school meal programmes can inform evidence-based policy decisions related to efficient and cost-effective financial investments; demonstrate how economic returns from national school meal programmes can be estimated across sectors; and, importantly, highlight such programmes' high policy relevance by helping to identify key distributional consequences and major equity implications, especially pro-poor and pro-female aspects (Verguet et al., 2023).

The Research Consortium's "Analytics & Metrics" Community of Practice has developed pioneering economic models to estimate the full costs and benefits of school meals across multiple sectors. A preliminary cost–benefit analysis approach was first tested on a global selection of low and middle-income countries, for which input secondary data were readily available. This high-level, global cost–benefit analysis model estimated that the benefits gained across the four sectors of health and nutrition, education, social protection and the local economy would far exceed the costs, indicating that school meal programmes could be substantially cost-beneficial (Verguet et al., 2020).

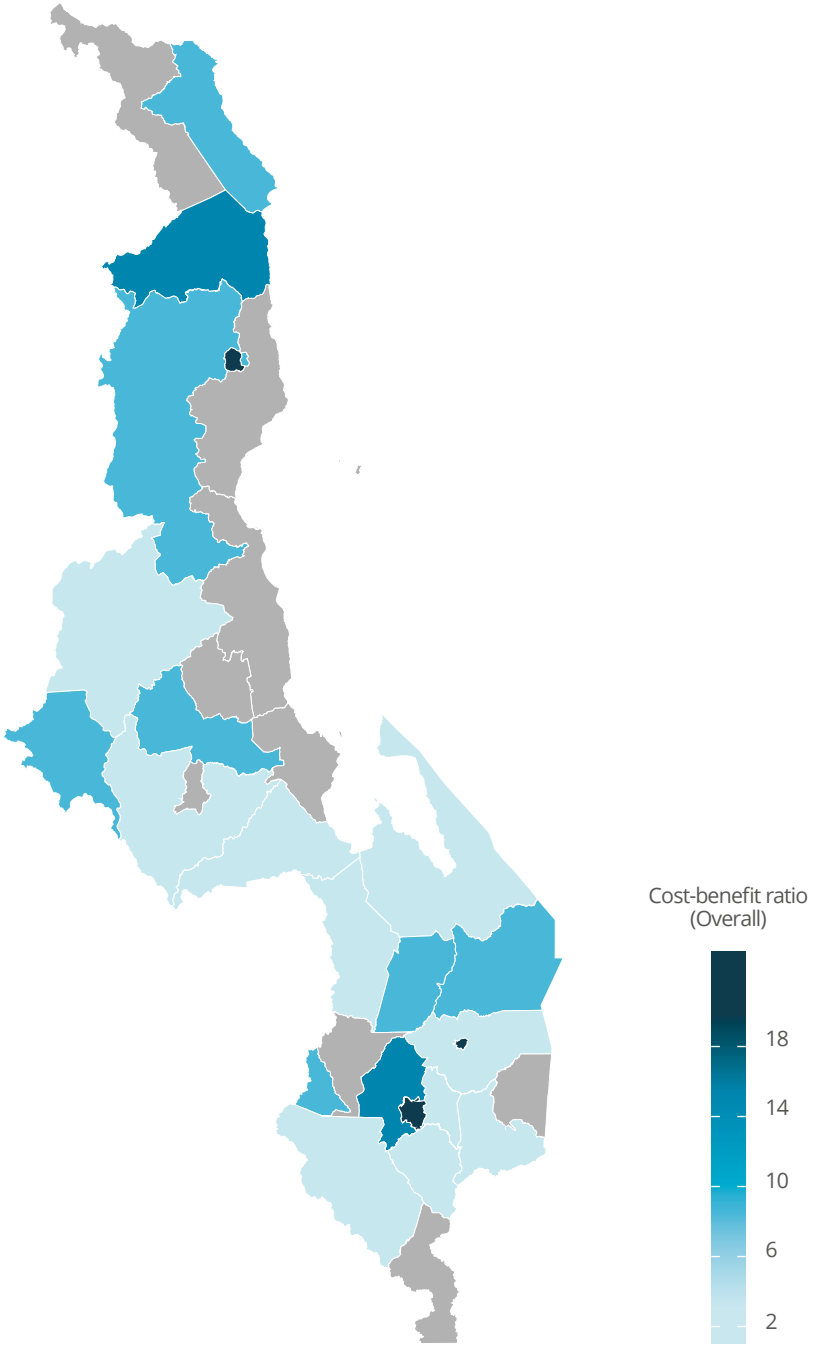
With support from the Norwegian Agency for Development Cooperation, this approach has now been contextualized in seven countries across the African continent, where governments have expressed a strong demand for applying this form of analytics. The economic evaluation of school meals is led by partnerships of interdisciplinary groups of academics, researchers and policymakers from institutions in the countries concerned and combines innovative modelling with empirically grounded and locally validated data. Strong in-country engagement throughout the process enables decision makers to realize the potential of investing in school meals, and therefore encourages them to increase allocations of domestic resources towards school meals. In this respect, such national value-for-money studies have proven to be very powerful tools in making the case for governments to scale up their school meal programmes, in part because they show positive multipliers across sectors, but also because they directly appeal to finance ministries which make intersectoral budgetary allocations.

Preliminary findings from the seven African countries (Burundi, Côte d'Ivoire, Ethiopia, Malawi, Mozambique, Namibia, Niger) suggest that school meal programmes are cost-beneficial in every subregion of every country in terms of the gains obtained in the education, health and nutrition sectors. Depending on the subregion targeted in the seven countries, for every US$1 invested in school meals, there is a positive benefit of up to US$30, with most in the range of US$3 – US$9. This was determined by the specific features of the school meal programmes and the local socioeconomic, educational and epidemiologic characteristics of the subregion targeted (as an example, see Figure 3.1 on Malawi). In some locations, these gains can be higher for female students, compared to male students (Research Consortium for School Health and Nutrition, 2024). Lastly, school meals can also bring large equity benefits within countries among those most in need: the value transfer (per school meal beneficiary) to households can be up to 10–20 percent of annual household food expenditure among the poorest households.

Figure 3.1 shows the estimated cost–benefit ratios of the school meal programme on education, health and nutrition for most districts in Malawi. In each district for which there is data, the level of benefits in schools which served school meals was compared with schools that did not. The results across the country varied considerably. No district had less than a US$2 return for every US$1 invested, and some returns were as high as US$18 per US$1. Further analysis is helping the government to identify why some districts had higher returns than others and to apply the lessons learned. Analysis of this kind can help "level the playing field" across the country and provides good examples for other countries when designing new programmes or seeking to improve their existing programmes.

Figure 3.1

Estimated cost-benefit ratios of the school meal programme on education, health and nutrition combined, by subregions (districts) in Malawi



Source: Malawi Value for Money Study Team. (2024). Value for Money of School Feeding Programs in Malawi. London School of Hygiene and Tropical Medicine, London, UK.

School meals and education outcomes

Understanding the effects of school meals on education can provide governments with insight into a comprehensive array of the social returns from investing in school meals. If a child is hungry, they might not attend school or could struggle to focus in class if they do attend. Providing meals in school can both incentivize school attendance and enable students in school to stay engaged and more easily absorb educational content. These plausible pathways from a school health intervention to education outcomes highlight the potential of evaluating the impacts of school meals on educational attainment and learning.

The section compares the results of many studies conducted in different countries to gain a better understanding of how school meal programmes have improved education outcomes.

This is the most comprehensive review to date. It shows a positive effect from the provision of school meals on three important measures: educational attainment, cognitive skills and learning outcomes. These effects were substantial. For example, they showed a large, statistically significant improvement (up to 0.15–0.20 standard deviation) on real education skills such as maths and literacy.

A meta-analysis was conducted across 40 unique study treatment arms and 19 countries, providing one of the most comprehensive reviews of school meals on education outcomes to date. It reviews the evidence on school meal programmes and evaluates the impact on education outcomes, particularly schooling, learning and cognitive outcomes, and focuses on children in low and middle-income countries.

The study builds on and harmonizes prior systematic reviews and expands the set of studies considered by adding several new studies. The review analysed evaluations from randomized controlled trials and quasi-experimental studies. Quasi-experimental studies add particular value as they enable the evaluation of school meal programmes at scale, and when delivered by government systems. Heterogeneity analysis was included, e.g. by kilocalories and protein intake. Finally, a detailed cost-effectiveness analysis was added, including cost-effectiveness comparisons with other educational interventions to inform government investment and prioritization. A random-effects meta-analysis was also conducted.[1]

The analysis for this review was conducted using the Learning-Adjusted Years of Schooling (LAYS) education measure, which is increasingly used by organizations such as the World Bank (Angrist et al., 2021). This measure combines schooling and learning into a single composite measure. LAYS are the education analogy to Disability-Adjusted Life Years in the health sector (as estimated in the annual Global Burden of Disease study), enabling value-for-money comparisons across a range of outcomes.

LAYS can be interpreted as a high-quality year of schooling – that is, schooling which results in substantial learning – according to global benchmarks. The measure has gained prominence in education and is the education pillar of the World Bank Human Capital Index. LAYS is also used by the Global Education Evidence Advisory Panel to make recommendations on cost-effective education interventions, a body co-convened by the United States Agency for International Development, the World Bank, UNICEF and the UK Foreign, Commonwealth & Development Office.

Based on this analysis, there was a positive effect on educational attainment, cognitive skills and learning outcomes, with up to 0.15–0.20 standard deviation gains in maths and literacy skills. While school meals can be expensive, cost-effectiveness analysis was conducted across intervention types and the findings revealed high cost-effectiveness relative to several traditional education interventions. Results show that school meals can deliver up to half of a high-quality year of schooling per child per US$100 spent.

[1] Methods include calculating standard effect sizes, such as Cohen's d-statistics, 95 percent confidence intervals, as well as I^2 statistics which quantify heterogeneity and provide a measure of likely generalizability of results across settings. The results were examined by each type of outcome and stratified by several key dimensions. For schooling outcomes, an analysis was conducted with outcomes expressed in terms of years of schooling gained. For maths and literacy learning outcomes, as well as cognitive skills, the study conducted an analysis with outcomes expressed in terms of standard deviations. When outcomes were not originally reported as standard deviations, units were normalized and calculated as standard deviations.

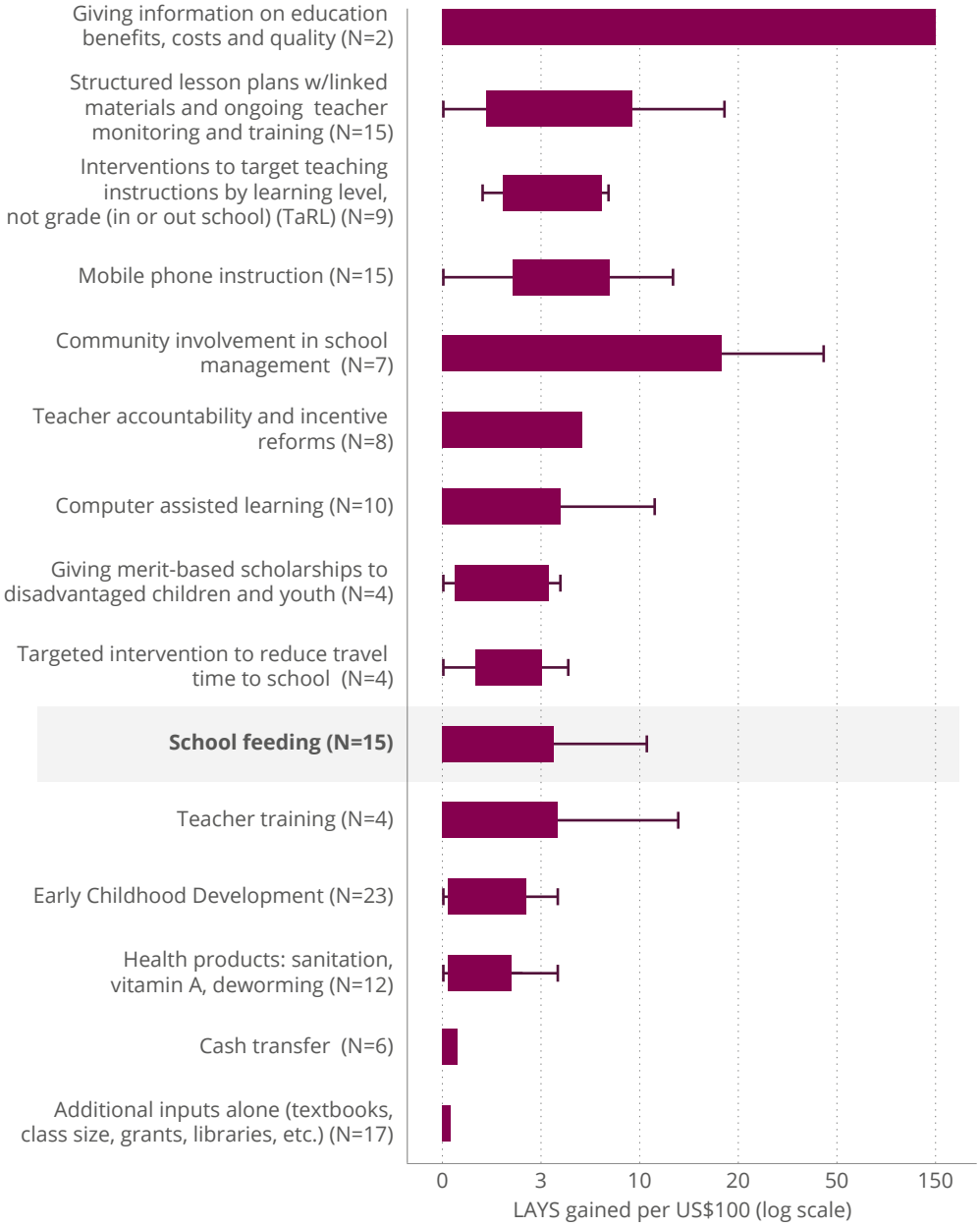
As a subset of the study, included cost data were examined to conduct a cost-effectiveness analysis and comparison. The cost per child identified by the evaluations examined ranged from an average of US$83 to a median of US$50 per child. In terms of annual costs, school meals per child per year cost approximately US$36 on average, with the median cost of US$22. Given effect sizes of up to 0.20 standard deviations on learning for maths outcomes, this equates to 0.25 high-quality (learning-adjusted) years of schooling using the methodology proposed by Angrist (Angrist N, 2025; Angrist et al., 2020). Using the average cost per intervention, it is estimated that 0.30 high-quality years of schooling are gained per US$100. If the median cost per intervention is used, 0.50 high-quality years of schooling per US$100 are obtained.

In a comparative cost-effectiveness analysis, and by comparing the effects of school meal programmes with traditional education interventions, the study found that school meals rank higher than some other popular education programmes and policies. These effects are noteworthy in a literature review which reveals over half of education interventions do not deliver any positive educational outcomes. For example, some popular educational interventions, such as general skills teacher training or providing more inputs such as laptops and school grants, have a small to null effect on educational outcomes. To this end, school meals represent a promising intervention to improve educational outcomes and, in some cases, more than conventional education interventions.

Figure 3.2

Comparison of Learning-Adjusted Years of Schooling (LAYS) gained per US$100 invested across different school-based health interventions

Compared with traditional education interventions, in terms of cost-effectiveness school meals rank higher than some popular education programmes and policies.



Source: Angrist, N., Evans, D. K., Filmer, D., Glennerster, R., Rogers, H., & Sabarwal, S. (2025). How to improve education outcomes most efficiently? A review of the evidence using a unified metric. Journal of Development Economics, 172, 103382. https://doi.org/10.1016/j.jdeveco.2024.103382.

School meal programmes are often delivered at scale by government systems. The study to understand how effectiveness might be maintained at a larger scale found that effectiveness remains strikingly similar even when school meals are delivered to a larger number of students. There was no negative, statistically significant relationship between larger sample sizes and effect size. This is surprising given most social programmes typically experience "voltage drops" and often stop working as they are implemented at scale (List, 2022).

Overall, school meal programmes delivered positive, moderate effectiveness on education outcomes. The results suggest that multiple pathways are plausibly leading to increases in learning outcomes – both in terms of school meals being an incentive to enrol in school and as a mechanism to improve cognition and learning outcomes.

School meals and social protection outcomes

School meals have long played an important role as a social safety net, with roots tracing back to the 19th century, when private charities and religious organizations in Europe offered food to vulnerable children (Bryant, 1912). Over time, school meals have evolved into a formalized policy instrument in many countries. A 2021 survey of 185 school meal programmes revealed that 73 percent had the provision of a social safety net as one of their core objectives (GCNF, 2022a). Today, particularly in low and lower-middle-income countries, school meals are often targeted geographically, prioritizing regions where vulnerable populations are concentrated and where educational attainment is low.

At its core, the concept of school meals as a social safety net is grounded in programmes' ability to alleviate hunger caused by various shocks, whether idiosyncratic or systemic, and structural vulnerabilities. India's midday meal scheme serves as a powerful example. Research shows that the scheme successfully offset the negative nutritional impacts of drought on children (Singh et al., 2014). This illustrates the capacity of school meals to act as a buffer against food insecurity in times of crisis, helping to ensure that children maintain access to essential nutrition.

School meals are often adopted not only for their social safety net functions but because they address multiple needs across various domains – education, child nutrition and social protection. They provide an integrated approach to improving outcomes in all three areas, even if they are not necessarily the most efficient tool for any single domain on its own. By serving multiple purposes, school meals become an attractive policy choice, especially in resource-constrained environments where governments seek to maximize the impact of public programmes.

One alternative social protection tool that is frequently considered alongside school meals is cash transfers. Both cash transfers and school meals aim to promote school attendance while providing a safety net, but they do so in different ways. Cash transfers offer families direct financial support, which they can use as they see fit, while school meals provide in-kind assistance, ensuring that children receive at least one nutritious meal per day at school. The choice between these two approaches reflects the broader debate on "cash versus food," which has been the subject of much analysis.

Recent reviews of the "cash versus food" debate show that neither approach is universally superior (Gentilini, 2016). The relative effectiveness of cash transfers and food-based interventions such as school meals is highly context-specific. In some cases, cash may offer greater flexibility and empowerment for families; while in others, food provision may be more effective in directly addressing hunger and nutritional deficiencies, particularly where markets are unstable or families lack access to nutritious food. Ultimately, the decision on whether to prioritize school meals or cash transfers as a social safety net tool depends on the specific needs and circumstances of the population being served.

Box 3.1

The role of school meal programmes in social protection and facilitating a just transition[2]

School meal programmes make a critical contribution to ensuring children's development, including nutrition, health and education (Sanfilippo et al., 2012) and foster long-term social and economic development. By providing a consistent supply of essential nutrients to children, school meal programmes enhance human capabilities and generate savings equivalent to 10 percent of the income for economically disadvantaged households and even more for take-home rations (Bundy et al., 2018).

The International Labour Organization's (ILO) most recent *World Social Protection Report 2024–26* focuses on the essential role of universal social protection in enabling climate action and a just transition. In this context, school meal programmes have an important role to play (see Section 4.1.2 in *World Social Protection Report 2024–26* (ILO, 2024)).

When reviewing the adverse impacts of increasingly extreme weather events on living conditions (which affect families and children), the report identifies, among other things, malnutrition, temporary loss of income or reduced income, reduced school attendance, rising food prices and the risk of displacement. In each case, these issues can be mitigated by food supply policies or exacerbated by changes to food supply chains.

When reflecting on the impact of climate policies, the report identifies the need for reskilling, as well as the risk of higher unemployment that may occur from the closure of unsustainable sectors. Again, school meal policies have a role to play. Evidence on the employment effects of delivering school meals at a universal level is clear and, as such, school meals have an added value as a potential component of a social protection system, beyond the direct transfer effect.

[2] Parts of this text draw directly from ILO. 2024. World Social Protection Report 2024-26: Universal Social Protection for Climate Action and a Just Transition. Geneva.

Climate policies can result in lower incomes for people working in sectors that are harmful to the environment, as policies seek to reduce productivity in those sectors. Climate policies can also result in additional costs being added (e.g. through carbon taxes) on practices that are themselves potentially harmful to the environment, including energy production and transportation. Such increases in supply chain costs can affect food prices, increasing the risk that families with children access less and/or lower-quality food. Climate policies that affect agricultural practices can result in changes to food supply chains and food costs, with implications for children's access to adequate and nutritious food.

School meal policies have a clear role in addressing some of the risks incurred from shocks and stressors. Whatever the just transition leads to, demand for food will remain unchanged (and for many children worldwide, will still need to be advanced). Therefore, the implications of a just transition – the focus of the *World Social Protection Report* – will require systems of social protection to ensure that demand is met at least equally and then proportionally to need, particularly for children.

By providing a sustained and free-at-the-point-of-use social protection floor for all children, each national social system has the potential to deliver at least one regulated food supply chain for children as the just transition occurs, ideally coupled with access to a child benefit as a principal component of any social protection system for children. These systems can be managed in such a way that food purchases are protected from price gouging and indeed benefit from economies of scale at a time when food price inflation is likely to be a concern. They can also contribute to strengthening the social workforce and help reduce challenges related to workforce reskilling, unemployment and increased income poverty at the household level, benefiting a portion of the workforce across all regions within a country.

Emerging evidence from new randomized control trials

In 2021, in partnership with the World Bank, WFP launched the School-Based Programmes Impact Evaluation Window to generate a body of generalizable evidence on school meals by completing multiple, rigorous impact evaluations that address similar questions. These evaluations used experimental designs[3] to assess the extent to which school meals contribute to children's outcomes; support households and actors in the school meals value chain; and how different programme implementation modalities and complementary interventions influence these outcomes. Since the window's inception, six experimental impact evaluations have begun in The Gambia, Jordan, Burundi, Guatemala, Malawi and Madagascar.

Three years after the launch of the School-Based Programmes Impact Evaluation Window, several findings have emerged from the ongoing impact evaluations.

I. **School meals have a significant positive impact on children's food security, dietary diversity and mental well-being, particularly for girls.** In The Gambia, a randomized controlled trial compared over 2,000 children in 92 schools who were randomly assigned either to receive a school meal or no intervention.[4] The trial showed that providing a warm meal at school has a statistically significant positive impact on a child's food security, dietary diversity and well-being indicators such as stress and depression. The share of children reporting acceptable levels of food security increased by 12 percent[5] and the share of children reporting an above median dietary diversity score increased by 22 percent,[6] driven by their increased intake of various food groups. The proportion of children who reported moderate, moderately severe, or severe depression decreased by 13 percent, with similar patterns observed for reported stress levels. Evidence shows that girls, in particular, experienced the largest impacts as a result of receiving a warm meal.

[3] Such as randomized controlled trials and A/B testing.

[4] With schools in the comparison group prioritized for phase-in upon completion of the evaluation and scale-up of the programme.

[5] Food security was captured through the Food Insecurity Experience Scale, including a set of eight questions capturing a range of food insecurity levels over the previous week. A child was considered food-secure if s/he scored at least five of eight.

[6] Dietary diversity score was captured through a 24-hour recall and included eight food groups. The proportion of children with a dietary diversity score above five food groups increased by nine percentage points from 37 percent in the comparison group to 45 percent in the group of children receiving school meals, an increase equivalent to 0.34 food groups with a comparison mean of 5.01 food groups.

Children receive daily nutritious lunches in Sri Lanka.
World Vision/Melissa Sprake

II. Home-grown school meal programmes that buy locally can result in more school meals being distributed.

Many governments are increasingly sourcing food for school meals from smallholder farmers with the aim of boosting local agriculture. However, empirical evidence on how to best design decentralized school meal procurement programmes remains limited. Findings from ongoing impact evaluations show that service delivery in decentralized school meal programmes is high. For example, a lean impact evaluation[7] in Burundi compared the performance of the school meal programme (e.g. quantity, diversity and quality of meals) in 50 randomly selected schools that had transitioned to a new decentralized commodity voucher model where commodities were procured from local farmers, against 45 randomly selected schools which continued to use the old procurement model where WFP procured mainly from international markets. Evidence shows that the new commodity voucher model was successful in increasing overall school meal days by an average of 75 percent.

[7] Lean impact evaluations are conducted using an experimental design to test alternative implementation modalities. Rather than focusing on outcomes, lean impact evaluations focus on comparing output-level data and mainly rely on already existing monitoring systems for data collection. This has the advantage of minimizing data collection costs, while providing reliable evidence on implementation.

III. School meals represent a significant economic opportunity for workers and local farmers.

Evidence from a randomized controlled trial in Jordan shows that the individual income of women workers more than tripled when offered work in the production of healthy meals in the National School Meal Programme. Household income increased by a third and significant improvements in women's life satisfaction and men's attitudes towards gender norms were also identified. Evidence from the evaluation in Burundi shows that a significant proportion of cooperatives' revenues came from sales to schools, showing the potential of school meals to generate income for local farmers and cooperatives. Two randomized controlled trials in Malawi and Burundi, which are expected to be completed by 2026, are explicitly assessing the impact of home-grown school meal programmes on local farmers and the local economy.

As the first wave of impact evaluations concludes in Jordan, Guatemala and The Gambia, WFP is exploring the feasibility of new programmes and countries joining the School-Based Programmes Impact Evaluation Window. New countries will be accepted into the window for as long as there is demand and a rigorous impact evaluation is feasible. Impact evaluations will be conducted in collaboration with WFP's technical partners, including (among others) the World Bank's Development Impact Evaluation department and the Research Consortium for School Health and Nutrition. While specific evaluation questions for each impact evaluation largely depend on country office priorities, impact evaluations conducted as part of the window are expected to contribute rigorous evidence in the following three thematic areas:

- The impact of school meal interventions and complementary activities on children's nutritional, health and learning outcomes; their relative cost-effectiveness; and the extent to which the benefits of school meal programmes vary by age, gender and throughout the year, depending on seasonal fluctuations, shocks and stressors.
- The impact of home-grown school meal programmes on the local economy, including farmers' incomes, cooperatives' revenues and market prices; and the extent to which different procurement models combined with crop and livelihood interventions can support farmers and communities in increasing their resilience and adaptation to climate shocks.
- Which procurement and delivery models are most suitable and cost-effective in supporting the transition of school meal programmes to national governments and local authorities.

Box 3.2

Testing for nutritionally optimal school meals in Cambodia

A cluster randomized trial was carried out in Cambodia, involving 40 schools across three regions in the country. Twenty children per school were selected at baseline according to predetermined eligibility criteria. The schools were allocated 1:1 to control and intervention arms.

For three months, children taking part in the intervention received school meals which complied with new nutrition guidelines and standards instead of their regular school meals, while control schools continued serving their regular meals without any modification. Children in the intervention schools also participated in regular food education lessons and activities, designed to add value to the school meals and support consumption of the improved meals.

Dietary intake among schoolchildren was assessed at baseline and endline using quantitative 24-hour recalls, with a second non-consecutive recall among a subsample of 240 children. Weighed food records of the school meals were also calculated to measure intake and waste. Baseline data were collected from March to June 2023 and endline data were collected in August–September 2024.

Primary outcomes of the trial will be the effect on children's usual intake of fruit, vegetables, animal-source foods and snack foods rich in salt, sugar and fat. Secondary outcomes include the differences in children's usual energy, protein and micronutrient intakes and of key food groups from the home diet across trial arms. Meal acceptability and implementation fidelity were also assessed.

The results of the trial will be available in 2025 and disseminated first to the Cambodian Ministry of Education, Youth and Sports; followed by the communities that participated in the trial through outreach activities; and the international research and school meal practitioner communities, through presentations at scientific conferences, technical webinars and peer-reviewed publications.

3.2 New evidence on programming practice

The world feeds approximately 466 million children every day through national school meal programmes that governments implement and support. Understanding what works and what doesn't is key to designing new and more efficient programmes, and to strengthening the programmes already in place. This section explores the insights from case studies of actual programmes operating at scale; then examines the progress made in setting standards for programmes; and finally looks at the work of the School Meals Coalition's Cities Feeding the Future Initiative, which is exploring the important role of municipalities in delivering school meal programmes.

Emerging examples of good practice in national programmes

The "Good Examples" Community of Practice of the Research Consortium for School Health and Nutrition supports national teams in drafting case studies on national school meal programmes across all School Meals Coalition member states. The case studies are written by national teams of academics, practitioners and stakeholders, and the format provides a simple and effective way to summarize and share experiences in school meal programming. In documenting the innovations implemented by farmers, communities, governments, the private sector and civil society, these case studies serve as a source of inspiration for countries seeking to expand their programmes. More than 50 country case studies are currently under way and 21 studies have been published to date, spanning four continents. Based on this collection of case studies, several research tools have been used to identify common good practices. Solution sciences, semantic analysis tools and artificial intelligence have made it possible to highlight the first "smart ideas" that appear across multiple case studies, such as:

Nutritional standards: Using nutritional standards to improve the quality and diversity of school meals is crucial. Greater variety in menus contributes to healthier and more balanced meals.

Cultural valuation and local sourcing: Incorporating cultural elements into menus allows for the promotion of local products and culinary traditions (e.g. indigenous foods, recipes). By sourcing traditional ingredients, school meal programmes support local procurement; strengthen food systems through small-scale producers and supply chains; and contribute to national food sovereignty.

Community engagement: Involving students, parents, communities and local authorities in the design and implementation of school meal programmes enhances national ownership.

Whole-school approach: Adopting a holistic approach that goes beyond quality meals by integrating complementary nutrition and health education fosters sustainable, health-promoting behaviours. Teachers play a crucial role in encouraging practices that support well-being.

Geographic and budgetary targeting for vulnerable children: Some countries direct budgets towards vulnerable children, contributing to poverty reduction (e.g. Ethiopia and Benin). Geographical targeting is sometimes employed to protect children from radicalization or recruitment by militant groups. While other countries, such as Finland, have introduced free meals for all children, positioning school meal programmes as a lever for national equity. Beneficiary households report significant improvements in living conditions and reduced food expenses due to school meal programmes (e.g. Burundi).

Coordinated governance: In countries where numerous actors (including NGOs) are involved, establishing a national agency enables coordinated efforts and ensures compliance with public policies on nutritional standards and local sourcing. For example, school meal agencies were created in Burundi and Togo, with adherence requirements for those working in the sector.

Emergency measures for resilience: Establishing emergency measures ensures the continuity and resilience of school meal programmes, as seen in Ukraine.

Planet-friendly school meals: Local procurement models, clean cooking technologies and vegetarian meals help reduce the carbon footprint of school meals (e.g. Kenya and France).

Investment in canteen infrastructure and access to clean water: Investment in school meals infrastructure and access to clean water guarantee canteen functionality and improve compliance with food safety and hygiene standards. A lack of potable water in schools can lead to canteen closures (e.g. Benin).

The "Good Examples" Community of Practice, alongside the Research Consortium, organizes various events that allow members to exchange experiences with international experts. Through multi-country discussions, members gain valuable insights, share knowledge and access tested solutions. This knowledge exchange accelerates the spread of smart solutions and innovative ideas, and promotes the scaling-up of quality school meal programmes worldwide.

A Guatemalan farmer plants onions to be sold to schools. WFP/Giulio d'Adamo

Setting new holistic nutrition guidelines and standards for school meals: the starting point for achieving better nutrition outcomes

Several systematic reviews, and the analysis of good programming practice described above, have demonstrated that enforcing strong nutrition standards for school meals and other types of school food can enhance diet quality and nutrition outcomes among schoolchildren across various socioeconomic backgrounds (Cohen et al., 2021; Durão et al., 2024; Micha et al., 2018). Developing and implementing nutrition guidelines and standards has therefore been recommended by multiple organizations to ensure that school meal programmes meet their intended diet and nutrition goals (FAO, 2019a; Global Panel, 2015).

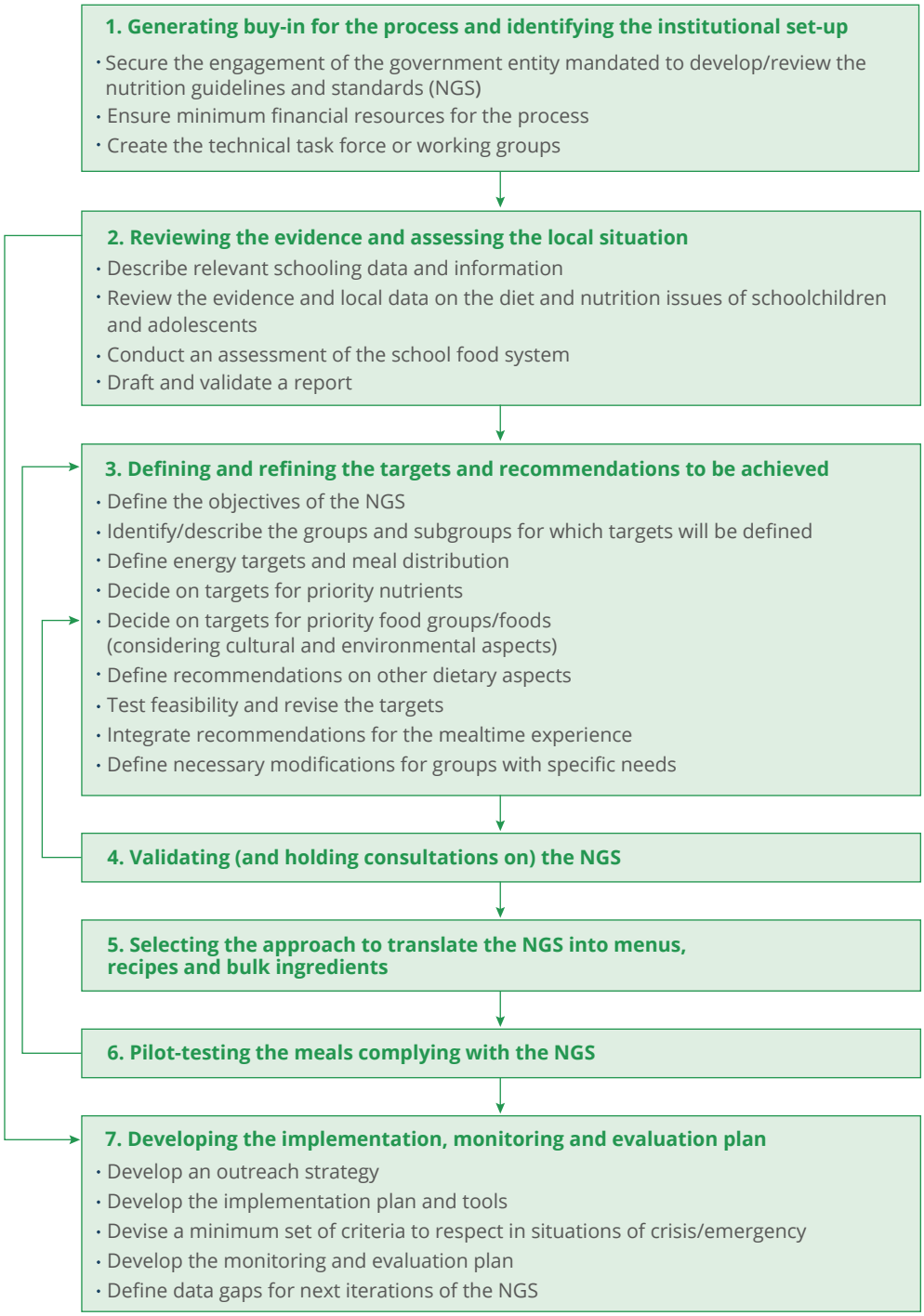
In response to a clear demand from countries for guidance on how to develop such nutrition guidelines and standards for their national school meal programmes, FAO (in partnership with WFP through a project supported by the German Federal Ministry of Food and Agriculture) has recently developed a detailed methodology that can be adopted by countries worldwide.

This methodology has been tested in Cambodia and Ghana, drawing on data from multiple baseline assessments conducted within the project. These assessments included food consumption surveys, school food environment assessments and qualitative studies of children and school staff's perceptions and practices around school food, as well as legal and capacity needs assessments. In combination with other relevant studies, these data were used to derive contextualized energy, nutrient and food targets for school meals. The process also resulted in recommendations to improve the meal experience and to strengthen connections between school meals and food education.

Now near completion, the methodology incorporates lessons learned from the testing phase and is expected to be launched in 2025. It applies a human rights lens and is structured into seven phases, each with iterative steps (see Figure 3.3). The methodology not only considers dietary and nutrition status data to set targets, but also factors in environmental sustainability objectives, possibilities of the school food system, sociocultural aspects and potential unintended consequences of adopting the standards.

Figure 3.3

Overview of the phases and steps to develop national school meal nutrition guidelines and standards

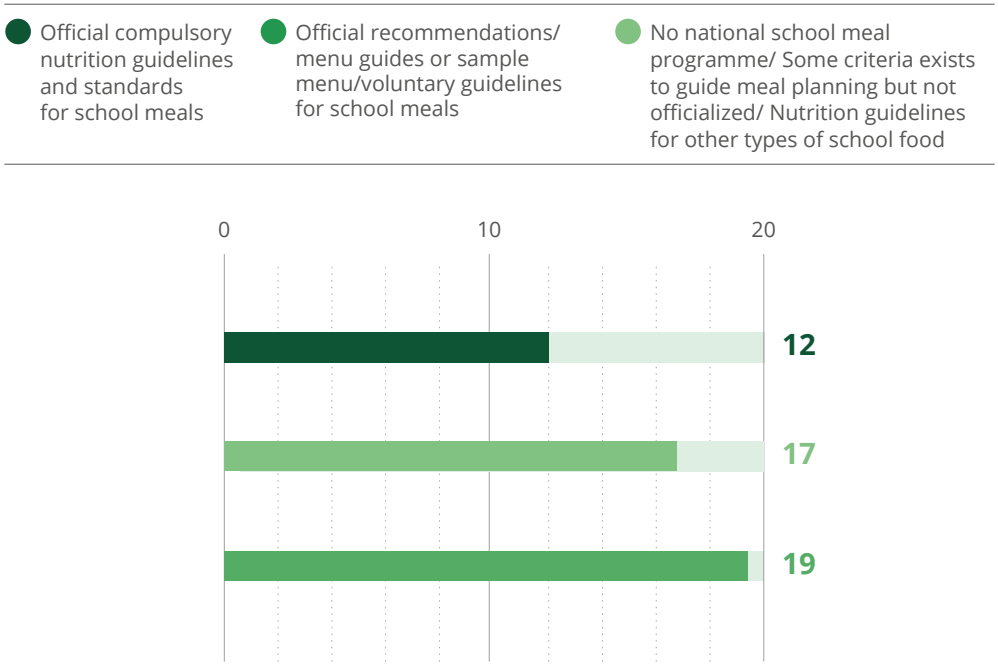


Source: Contribution from FAO's Technical team on Nutrition Guidelines and Standards.

In Cambodia, a study was conducted to evaluate the impact of the school meal nutrition guidelines and standards, developed through applying the methodology, on children's diet quality. Endline data has been collected, and the results are expected to bolster advocacy efforts for optimizing the programme's nutrition budget (see Box 3.2).

In parallel to the pilot in Cambodia and Ghana, a stocktaking exercise is under way to assess the status of school meal nutrition guidelines and standards worldwide. The goal of which is to identify the most common challenges technicians and stakeholders face in developing, implementing and evaluating their school meal nutrition guidelines and standards, ensuring that the methodology is well-suited for its purpose. At the time of publication, 48 countries have been interviewed and only 12 reported that they had official, compulsory school meal nutrition standards (see Figure 3.4).

Figure 3.4
Status of school meal nutrition guidelines and standards in countries that have participated in the stocktaking exercise
Of the 48 countries interviewed as part of the stocktaking exercise, only 12 have mandatory school meal nutrition guidelines and standards.



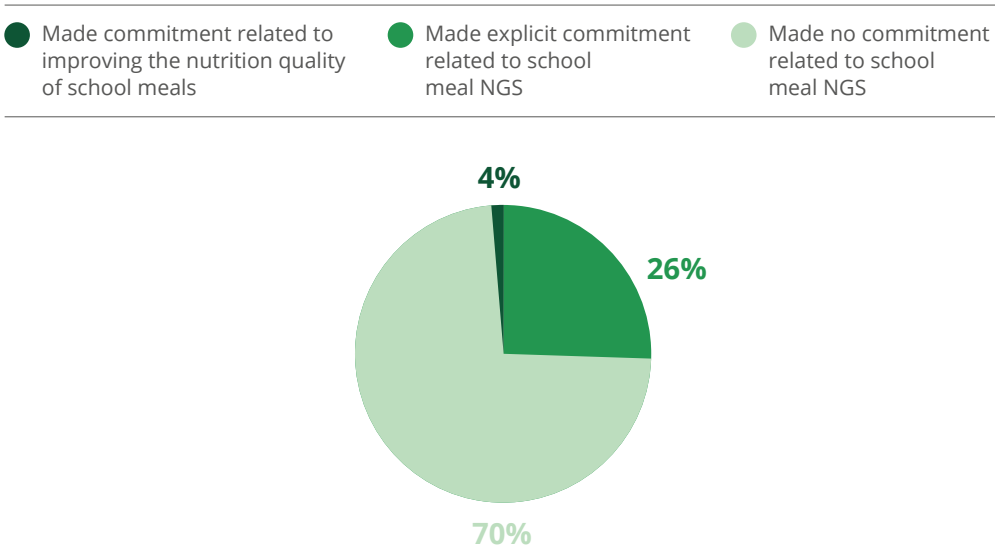
Source: Contribution from FAO's Technical team on Nutrition Guidelines and Standards.

Interest is growing among members of the School Meals Coalition to develop or update their standards as part of national efforts to improve the quality of school meal programmes. As of October 2024, 12 of the 46 countries that have made commitments have specifically pledged to develop or review their national school meal nutrition guidelines and standards (see Figure 3.5).

Figure 3.5

Number of School Meals Coalition member countries with commitments relevant to school meal nutrition guidelines and standards

About 30 percent of countries with commitments to the School Meals Coalition have made commitments relevant to school meal nutrition guidelines and standards.



Source: Contribution from FAO's Technical team on Nutrition Guidelines and Standards.

Programming practice at the municipal level: new evidence emerging from the Cities Feeding the Future Initiative

The School Meals Coalition's Cities Feeding the Future Initiative has delivered insightful findings and is committed to serving as a platform for both leading new evidence on the current status of school meal programmes and setting the agenda on school meals at an international level.

First, the *School Meals: the transformative potential of urban food policies* report (MUFPP, 2024) was published, defining a common taxonomy on the infrastructure of the school meals service; the diverse models of existing school meal programmes; and the responsibilities in place within school food environments in cities. Such a taxonomy represents a key advancement in creating a shared vocabulary among cities, facilitating the sharing of best practices and improving the potential for learning exchanges. The report also offers a library of good examples belonging to the Milan Urban Food Policy Pact community which can be used as inspiration for cities from different areas of the world, eager to strengthen their school meal programmes.

Second, within the initiative, the *first ever database of urban food systems* worldwide was developed. The database aims to map the urban food system of signatory cities to the Milan Urban Food Policy Pact and better understand specific learning needs, via a structured survey. The survey design went through multiple participatory reviews with the Milan Pact's Steering Committee to guarantee that relevant aspects from different areas of the world were appropriately covered. The School Meals Coalition's Research Consortium and Data and Monitoring Initiative also comprehensively supported development of the survey. The final survey included 61 written questions articulated in the six Milan Pact categories. Areas of investigation included the governance structure of the urban food system; aspects related to sustainable diets and nutrition; actions on social and economic equity; and practices involving food production, food supply and distribution, and food waste. The primary focus was devoted to school meal programmes, with a total of 20 questions prepared. The survey was submitted online to 290 signatory cities and was complemented by interviews with responsible city officers to further investigate a subset of aspects related to school meal programmes. Sixty cities completed the survey. The emerging database is the first of its kind to synthetically describe the efforts of cities in governing the food system, and specifically school meal programmes, within urban boundaries.

It will serve as a novel basis for future research; practical actions targeting experiences and lessons learned; and to facilitate the identification of champion mayors.

Lastly, a *comprehensive inventory of school meal programme practices from ASEAN countries* was designed. As part of the project – Spreading Experiences and Knowledge on School Meals Programmes in ASEAN Cities – participating city officers from eight ASEAN member states have developed a work proposal with the objective of designing a project to be executed in their home cities for developing school meal programmes. For each project work proposal (co-created with the food policy tools developed within the Horizon 2020 Food Trails research project), the inventory includes details on the current status of the school meal programme in the city and the specific needs that the proposal aims to address. It then describes the project's ambition; the specific objectives; the scale and the expected duration of the project to be implemented; the concrete impact towards the set objectives; and the monitoring to be used for measuring such impact. Finally, the inventory includes a detailed workplan for implementing the project work proposal together with the potential barriers that might challenge implementation, and the financial and human resources required. The objective of the inventory is threefold: in the short term to inform implementation of the project and provide adequate support to cities; while in the long term, to systematize the status of school meals in cities and assess whether the provision of school meals is increasing or decreasing; and to support advocacy processes in the Asia Pacific region in line with ASEAN objectives to place school meals as a central priority for investments.

Box 3.3

Research Consortium for School Health and Nutrition – Country experience of using the SABER policy tool to self-assess and benchmark national school meal programmes

In 2011, the World Bank developed the Systems Approach for Better Education Results (SABER) initiative to guide low and lower-middle-income countries in designing, strengthening and tracking their national education system policies. This initiative was focused primarily on the education sector with the goal of supporting the development of sound policy frameworks to improve learning outcomes. In 2012, Donald Bundy then with the Human Development Vice-Presidency of the World Bank Group, worked with a multi-agency team (including the authors of the 2009 policy guidance entitled *Rethinking School Feeding (Bundy* et al., 2009)) to create two additional SABER frameworks that sought to link child well-being with education outcomes: through school-based health interventions (SABER School Health) and the provision of school meals (SABER School Feeding) (World Bank Group Education Global Practice, 2016).

The inclusion of multisectoral frameworks coincided with two milestones: first, the education sector's recognition of the important role of school health and nutrition interventions for the health, development and education of schoolchildren at the World Education Forum in Dakar, Senegal in 2000 (UNESCO, 2014); and second, country-led demands to expand national school meal programmes as a social safety net during the 2008 food, fuel and financial crises (Bundy et al., 2009).

The World Bank SABER policy tool helps countries systematically collect information about the quality of their school meals policies and identify actionable priorities using a framework to benchmark current policies against good practice (World Bank, 2012). SABER is unusual in that it is a government-led, government-completed process, and engages stakeholders from all relevant sectors, including health, education and agriculture, which helps to achieve a consensus view on the ambitious but realistic national commitments to strengthen current school meal programming. This approach helps ensure that policies are sustained even when there are changes in political leadership.

In a refugee camp in Chad, school meals bring children to class. World Vision/Amy Van Drunen

A review by Schultz et al. (2024) documented the uptake of relevant SABER policy tools over the last decade, and found SABER has been adopted worldwide, particularly in low and lower-middle-income countries and in Africa. The tool has been used at least 81 times in 59 countries across all income classifications, with two thirds of all applications conducted in sub-Saharan Africa. This broad uptake shows that SABER has become an institutionalized mechanism for governments to self-assess and strengthen their national school meal programmes.

Figure 3.6
Cumulative number of SABER School Health and School Feeding exercises completed since 2012 globally and in sub-Saharan Africa, by year

Analysing 51 comparable SABER School Feeding surveys completed between 2012 and 2021 suggests that countries with longer established national school meals frameworks tend also to be more advanced in other policy areas, and vice versa. Several countries found the tool useful enough to complete it multiple times, revealing a potential secondary role of tracking policy progress over time if administered routinely.

Given the complementarities between school meals and other school-based health interventions, the World Bank, WFP and the Research Consortium for School Health and Nutrition, have combined key elements of the SABER School Feeding and SABER School Health framework into a single, comprehensive policy tool. "Healthy-SABER" is envisaged to further engage multisectoral actors in the design of effective and holistic school health policies and clarify key areas for further investment.

It is currently being rolled out by governments across Africa. SABER is likely to become an increasingly important tool for member countries of the School Meals Coalition. SABER can be used by the Coalition's member states as a tool to develop ambitious but realistic national commitments to improve and scale current national programming.

Conducting repeat exercises would also show progress towards the presence of a costed policy and budget line; national standards for school food; local procurement for school meal menus; and whether school meals are part of a complementary package of school health services.

Box 3.4
The School Food Global Hub

Launched in 2022, the School Food Global Hub is a knowledge exchange platform and one-stop shop for resources and country profiles on school food and nutrition from around the world.

The hub serves two main audiences: professionals, technicians and policymakers; and schoolchildren, adolescents, school staff, families and all those interested in school meals, child nutrition, school food environments, food education and everything in between!

The hub was developed by FAO in collaboration with WFP, supported by the German Federal Ministry of Food and Agriculture. Its design and scope were further enriched through consultations with technical experts from UNICEF, UNESCO, WHO, IFAD, GCNF, CGIAR, LSHTM, UN Nutrition, GIZ and the School Meals Coalition.

At the time of publication, the hub includes more than 40 country profiles, showcasing various aspects that are usually not documented and published elsewhere, such as how nutrition criteria for school meal planning are determined; the policies and instruments in place to regulate the school food environment; and whether food education is integrated into school systems and how it is implemented.

Each profile is linked to other platforms such as the Global Child Nutrition Foundation, which gather and present quantitative data on school meal programmes, and to the FAOLEX and Right to Food databases which house school nutrition policies and legislation and provide details on the level of recognition the Right to Food receives in national constitutions. The profiles also reference relevant studies and reports conducted within the country, such as case studies,[8] impact evaluations and more.

By browsing the profiles, users can discover details of the food groups that should be part of the meals provided to children, in which frequencies and what these recommendations are based on. They can also compare how these nutrition criteria are translated into menus and recipes; whether they are voluntary or obligatory; and if compliance is monitored at school level and how. Users can explore how food and nutrition education is integrated into national curricula; what students are expected to learn; which grades it covers and even access learning materials that are used by the students.

A key feature of the School Food Global Hub is the "youth corner", where schoolchildren and adolescents can share key messages about the importance of nutritious school food on their social media. They can also submit videos, pictures and stories reflecting what matters to them and what their vision is for their school food environments. In late 2024, nine students were chosen from over 60 global submissions made through the hub, to become FAO-WFP-SMC school food advocates. The selected students[9] will use their voices to champion children's rights to nutritious and more sustainable school meals; participate in global events and share their experiences through various media.

The hub serves as a repository for technical resources developed by UN agencies and other organizations, offering guidance and best practices on various design aspects of school food and nutrition programmes and policies. The hub also houses the latest systematic reviews on the evidence of school meal programmes; multicomponent school food and nutrition interventions; food education programmes on diet, nutrition and education and other outcomes. Find out more here: *https://www.fao.org/platforms/school-food/en*

[8] Several of these case studies were developed under the supervision of the "Good Examples" Community of Practice of the Research Consortium for School Health and Nutrition. *https://www.fao.org/platforms/school-food/countries-corner/good-practices-and-case-studies/en*

[9] Find out more about the young advocates here: *https://www.fao.org/platforms/school-food/news-and-events/news/news/check-out-the-winners-of-the-school-food-youth-advocate-winner-contest!/en*

School meals support continued education for displaced students in Niger.
WFP/Adamou Sani Dan Salaou

Box 3.5

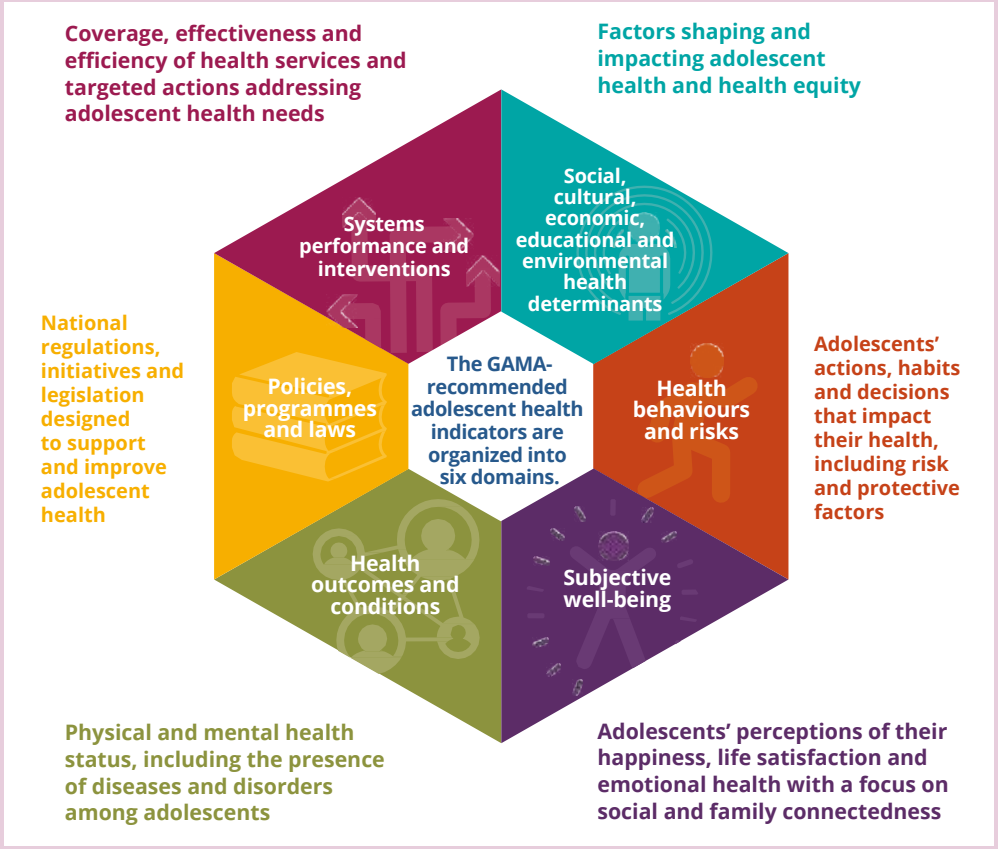
The World Health Organization's Global Action for Measurement of Adolescent health (GAMA) recommended indicators

Adolescent health measurement has historically been inconsistent and incomplete, with various measurement initiatives promoting the use of different indicators. This has led to duplication of work in some areas relevant to adolescent health, and to persistent measurement gaps in others.
To improve and harmonize adolescent health measurement and focus efforts on the most important issues, in 2018, WHO established the Global Action for Measurement of Adolescent health (GAMA) Advisory Group with the support of seven other UN agencies: the Joint United Nations Programme on HIV/AIDS, UNESCO, UNFPA, UNICEF, UN Women, the World Bank Group and WFP.

GAMA has undertaken a five-year structured and participatory process to select a set of 47 indicators recommended for global, regional and national adolescent health measurement. The indicators help illustrate a comprehensive picture of adolescent health and provide a foundation for identifying priorities for action; allocating adequate resources; monitoring and evaluating programmes; and advocating for this critical population.

The indicators are organized into six domains reflecting the multisectoral approach needed to address and monitor progress in adolescent health: policies, programmes and laws; systems performance and interventions; social, cultural, economic, educational and environmental health determinants; health behaviours and risks; subjective well-being; and health outcomes and conditions (see Figure 3.7).

Figure 3.7
GAMA indicator domains



Most of the 47 indicators recommended for adolescent health measurement derive from existing initiatives such as the SDG framework. Therefore, almost all countries have existing data for many of the indicators.

The Global Accelerated Action for the Health of Adolescents (AA-HA!) provides an evidence-based foundation for using the indicators at national level to systematically plan and implement adolescent health and well-being programmes. The starting point for implementation is understanding what data are already available and where gaps exist. This can be completed with support from WHO and its partners to:

1. Identify all relevant data sources and their coverage of adolescents by sex, age and subpopulation.
2. Populate the available data for the corresponding adolescent health indicators.
3. Use the available data to prioritize actions to improve adolescent health.
4. Determine data gaps and take steps to fill them.

This process enables countries to systematically address the most important adolescent health issues and collect additional critical information for action. Global stakeholders also benefit from consistent and harmonized data to guide global actions towards improving adolescent health and tracking progress across the globe.

3.3 Financing a breakthrough – the role of innovative finance

What would it take to finance a breakthrough in the provision of school meals?

The School Meals Coalition's goal is to ensure that every child has access to a hot school meal every school day by 2030. But translating this goal into delivery will require a step-increase in finance, both through domestic budgets and Official Development Assistance. Innovative financing could play an important supporting role.

Research by the Sustainable Financing Initiative for School Health and Nutrition has provided some indicative cost estimates for a global "big push" on school meals financing (Watkins et al., 2024). There is a surprising dearth of data in this area. The primary source of evidence remains a study using cost data from over a decade ago (Gelli & Daryanani, 2013). Adjusting that data for United States inflation, the Sustainable Financing Initiative's research derives from a 2023 benchmark cost of US$64 annually per pupil to provide decent quality school meals in low and lower-middle-income countries.

This figure is significantly higher than the budget allocations reported in the *State of School Feeding Worldwide* (WFP, 2022), implying that any scale-up in the provision of school meals will have to include supplementary financing provisions for current programmes.

The Sustainable Financing Initiative has emphasized the tentative nature of the adjusted cost estimates. Since 2018, many developing countries have been hit hard by food price inflation, which is likely to have eroded the real value of school meals budgets. However, the emergence of large-scale national programmes may have led to cost reductions. These uncertainties underscore the need for detailed national cost estimates to guide financial planning.

Two stark findings emerge from the cost data and the Sustainable Financing Initiative's analysis. The first is that, measured against the benchmark of national income, an ambitious scale-up of school meal programmes looks eminently affordable. For illustrative purposes, it would take around US$2.7 billion annually over five years to finance an expansion in school meals to reach an additional 162 million children by 2030. This represents under 0.1 percent of GDP for low-income countries, and even less for lower-middle-income countries. These are relatively small investments with very high human development returns in terms of child nutrition, education and food security. The benefit-to-cost ratio is estimated to be between US$7 and US$35 (Verguet et al., 2020).

Measured against the benchmark of budget capacity, the affordability picture looks very different. The second finding is that most low and lower-middle-income countries would struggle to finance a rapid scale-up of school meals solely from domestic budgets. Most of these countries emerged from the COVID-19 pandemic on a lower growth trajectory, which has depressed government revenues at a time of rising inflation. Meanwhile, unsustainable debt is crowding out vital social investments. Scheduled debt servicing for countries eligible for World Bank concessional lending was US$88 billion in 2023/2024 – more than these countries spend on health or basic education. While fiscal circumstances vary enormously, many low and lower-middle-income countries are struggling to maintain real social sector spending. In the case of sub-Saharan Africa, a combination of rising debt, low levels of revenue collection, restricted access to affordable international finance and falling aid has left governments facing what the International Monetary Fund describes as "a great funding squeeze".

Innovative finance could help relieve the pressure. While there is no fixed definition of innovative finance, it essentially describes resource mobilization practices that look beyond standard government budget and international aid practices. School meals are conspicuous by their absence from current innovative finance practices, but new opportunities are emerging. In a forthcoming report prepared for the Rockefeller Foundation, the Sustainable Financing Initiative explored the emerging innovative finance landscape to identify promising pathways to new and additional funding for school meals.

"Sin taxes" could play an enhanced role. Almost every government in the world already taxes alcohol and tobacco and a growing number tax sugar-sweetened beverages, partly to curtail demand for products harmful to public health and partly to generate revenue. Modelling estimates based on a report prepared by the Task Force on Fiscal Policy for Health suggest that another 0.6 percent of GDP could be raised through sin taxes (Lane et al., 2021). These taxes are easy to collect, generate public health benefits and can be designed to produce progressive outcomes, with the poor securing more of the benefits and carrying less of the cost.

Taxes on sugar-based sweeteners have a special relevance for school meals. Many governments are now using school meal programmes to support wider efforts aimed at combating obesity and overweight. Advertising sugar-heavy drinks to children can have unintended or negative effects. Using the revenue from sugar-based sweetener levies to finance school meals is an example of a tax on a "public bad" being used to promote investments in a "public good". Taxes on ultra-processed foods, such as those introduced in Colombia, have a similar effect.

Hydrocarbon revenue could also be mobilized. Many countries in sub-Saharan Africa and other regions are set to secure significant revenues from natural resource wealth, including hydrocarbons. All too often natural resource wealth has been associated with weak governance, slow economic growth and the skewing of benefits towards wealthier social groups – the so-called "resource curse". Investing the hydrocarbon revenues that will come on stream over the next few years in school meals would convert a (temporary) economic asset into (permanent) human development benefits. Countries such as Senegal, Mozambique and Tanzania, all of which are likely to secure substantial hydrocarbon revenues, could follow the example of Bolivia, which finances a universal school meal programme almost entirely from a hydrocarbon tax (Sustainable Financing Initiative for School Health and Nutrition, 2024b).

Earmarking revenues for school meals could serve the twin purpose of building support for taxation and raising investment levels. Many public finance economists raise justified concerns about the practice of assigning revenues to specific budget lines, pointing to the rigidity, volatility in financial flows and weak accountability that often follows. Yet most countries – rich as well as poor – earmark revenues. Establishing a direct link between the source of revenues and the benefits that could arise can help make the case for specific taxes; provide a predictable stream of finance; and build social contracts between governments and their citizens. One striking example comes from the Philippines, which earmarked the revenues from "sin taxes" for spending on national health insurance. There may be a similarly compelling case for earmarking part of new tax revenues from sugar-based sweeteners, ultra-processed foods and natural resource wealth for school meals.

International cooperation has a role to play in supporting governments transition to full financing of their school meal programmes. Currently, the international aid effort for school meals is chronically under-financed – amounting to just US$287 million in 2021, or 0.1 percent of development assistance – and poorly coordinated. An estimated US$1.2 billion of international finance is needed for a big scale-up of school meal programmes. Innovative finance could change this picture (Watkins et al., 2024).

Global health funds illustrate what is possible. The Global Fund to Fight AIDS, Tuberculosis and Malaria has drawn on an extensive range of debt swaps, co-financing arrangements and revenue from corporate brand deals to finance its work. Around one quarter of the revenue channelled through Gavi, the global vaccines initiative, is drawn from innovative finance, including bonds underwritten by donor governments. While health funds have their own distinctive features, they demonstrate that the consolidation and coordination of government, donor, philanthropic and civil society efforts around well-defined goals can create platforms for innovative finance at scale.

Not all innovative finance options offer ready-made solutions to the school meal financing gap. The clearest case is debt swaps (Hurley; & Martin, 2024). In principle, creditors can waive claims of future debt service payments, allowing governments to direct the savings towards social-sector investments, including school meals. In practice, only a small group of official "Paris Club" creditors provide debt swap arrangements, and current rules limit the scope for swapping non-concessional debt. This means that most debt swap arrangements provide limited finance and leave unsustainable debts intact. Debt owed to private creditors and emerging market providers, which counts for the bulk of repayments for low and lower-middle-income countries, is not usually covered by debt swaps. While there are some recent exceptions to this rule, involving marine conservation financing, current options remain limited. This could change if more Paris Club members and emerging market creditors provide debt swap arrangements, and the rules were amended to allow swaps of non-concessional debt. However, a sustainable financing solution will require more comprehensive debt relief spanning all groups of creditors.

Climate finance is another potential source of innovative funding for school meals. As highlighted in the Research Consortium's white paper on school meals and food systems, well-designed and properly financed school meal programmes can make an important contribution to a just green transition (Pastorino et al., 2023). Procurement for these programmes provides governments with a vehicle for supporting low-carbon, sustainable and regenerative agriculture, while at the same time supporting livelihoods of the rural poor through home-grown school meals – a vital component of climate change adaptation. The markets created by national school meal programmes can create investment opportunities in the drought-resistant and biofortified crops needed to protect food security in an era of global warming.

Despite these well-established effects, school meals have been almost entirely absent from the dialogue on climate finance (Sustainable Financing Initiative for School Health and Nutrition, 2024a, 2024b). This represents a lost opportunity. Carbon pricing currently generates US$105 billion annually – and that figure is set to rise steeply. Climate change adaptation financing is also on the rise. US$29 billion was provided through multilateral development banks in 2023. Research commissioned by the Sustainable Financing Initiative on the Green Climate Fund's portfolio found almost no evidence of funding for school meals.

To change this, school meals will need to be positioned as part of wider efforts to align food system reform with initiatives to address climate and disaster risks, which must start with national governments. One reason for the absence of school meals from climate change adaptation funding is their omission from the Nationally Determined Contribution papers through which governments set out their Paris Agenda commitments. Including the provision of school meals in Nationally Determined Contribution papers could be a concrete action. Moreover, multilateral development banks and climate funds could do far more to integrate school meals into their operations. There is also an urgent need to redistribute finance mobilized through carbon levies.

Blended finance could also play a role. While this category of innovative finance spans a vast array of instruments – including green, sustainable, social investments and impact bonds – it describes the mobilization of private investment through public finance in the form of risk guarantees. In certain aspects, school meals are not amenable to blended finance because these types of investment need to generate a profit for investors. However, there is untapped potential for public–private partnerships to invest in the development of smallholder agriculture and the small and medium-sized enterprises linking farms to schools.

New approaches to risk guarantees can play a wider role. Providing guarantees can reduce the risks associated with lending, enabling multilateral development banks to lend more. The International Finance Facility for Education combines risk guarantees and interest rate subsidies to unlock multilateral development bank finance on affordable terms. While traditional aid delivers a dollar in development assistance for every dollar in grants, the International Finance Facility for Education blends risk guarantees and grants to deliver US$7 in support of every US$1. Tapping into that multiplier effect could transform school meal financing in many countries.[10]

[10] The financial engineering is explained in detail here: *https://iff-education.org/wp-content/uploads/2023/07/IFFED-Explainer.pdf*

Over the next few years, the momentum behind innovative finance is set to gather pace. The Global Solidarity Levies task force established at the 2023 United Nations Framework Convention on Climate Change conference of the parties (COP 28) is set to report by 2025 and make recommendations on a range of innovative finance levies. The G20 has called for a renewed effort to mobilize innovative finance for the SDGs.

One proposal, outlined in a report prepared for the Brazilian Presidency of the G20, calls for a 2 percent wealth tax on billionaires – a measure that would raise up to US$250 billion a year globally. The political and economic feasibility of the intervention can be debated, but the fact that four days' worth of revenue from a modest tax on 3,000 of the world's richest people would be sufficient to finance school meals for the "162 million children ambition" is both a reflection of the world's shocking inequalities, and a reminder of what can be achieved through innovative finance.

3.4 Way forward

This chapter shows the extraordinary complexity of the topics involved in research and evidence on school meal programmes. The work involves an unusually multisectoral approach, both in terms of outcomes and programme design. In terms of outcomes, it is apparent that school meal programmes have important consequences for education, health, nutrition, human capital, earning capacity, social protection, environment, planetary health and agricultural systems. In terms of inputs, all these sectors are again important, as well as diet, labour economics, political economy, cooking technologies and programme management. Even this extensive list is not comprehensive; for example, all aspects of management are also relevant. It is no surprise then that much of the work reported here is both highly technical and subject specific, and that the research and evidence included in this edition is both incomplete and at an early stage. Subsequent editions of the publication will continue to build on these topics.

An important conclusion is that understanding in this area is evolving and becoming more connected. It is no coincidence that much of this work has been led by initiatives arising from the School Meals Coalition in response to demand from its member countries, as well as topics addressed by specialist units within WFP, FAO, WHO and other UN agencies with a mandate which includes the broad range of issues relevant to school meal programmes.

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