WFP EVALUATION

School-based Programmes Impact Evaluation Window

Measurement guidelines

WFP
World Food Programme

SAVING LIVES
CHANGING LIVES

THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP
Development Economics • Impact

April 2025

Acknowledgements

Many colleagues played a crucial role in developing the measurement framework for the School-based Programmes Impact Evaluation Window. Including WFP's Anna Hamilton and Hiba Audi (School-based Programmes), Ritu Rana (Nutrition), WFP country offices from Jordan, Guatemala, The Gambia, and Burundi, and regional bureaux. We are grateful for their reviews and feedback on earlier drafts. The teams' combined expertise and support were instrumental throughout the development process of this measurement framework.

Disclaimer

Suggested citation: Bogaards, C., Degla, A., Heirman, J., Khincha, R., Kondylis, F., La, MP., Lombardini, S., Zwager, A. (2024). School-based Programmes Impact Evaluation Window: Measurement Guidelines. Rome: World Food Programme.

Contact:
Simone Lombardini (simone.lombardini@wfp.org)
Cox Bogaards (cbogaards@worldbank.org)

Key personnel

WFP OFFICE OF EVALUATION

Jonas Heirman	Head of impact evaluation – senior evaluation officer
Simone Lombardini	Evaluation officer (impact evaluation)
Minh Phuong La	Monitoring and evaluation officer
Armand Degla	Evaluation analyst

WORLD BANK DEVELOPMENT IMPACT EVALUATION (DIME) DEPARTMENT

Florence Kondylis	Research manager
Astrid Zwager	Research officer
Roshni Khincha	Research analyst
Cox Bogaards	Impact evaluation analyst
Benedetta Lerva	Economist
Dahyeon Jeong	Economist
Erin Kelly	Economist
Paul Christian	Senior economist
Thiago De Gouvea Scot de Arruda	Economist
Hannah Irmela Uckat	Economist
Gregory Lane	Economist

Contents

List of tables

Introduction

1. With an estimated 418 million children currently benefiting globally, school meals are one of the most widespread social safety nets worldwide (WFP, 2022). For many children, it represents the most nutritious – for some, the only – meal of the day. School meals also encourage the poorest families to send their children to school. Once in the classroom, school meals ensure that children are well-nourished and ready to learn. Therefore, school meal programmes are crucial for promoting children's health, nutrition, education, and learning. At the same time, school meals are increasingly recognized as a key investment for governments to create a stable demand for locally produced food, support the creation of local jobs, and promote more sustainable food systems. If appropriately designed, home-grown school feeding programmes can promote greater demand for produce for smallholder farmers, stimulate crop diversity, and make communities more resilient to climate change (Pastorino et al., 2023).

2. There is a growing demand for evidence to inform programmes and national governments in design and scale-up of school meals programmes, and to contribute to the global evidence base for school health and nutrition. In 2021, the World Food Programme (WFP) Office of Evaluation and School-based Programme (SBP), in partnership with the World Bank's Development Impact Evaluation (DIME) department, created the School-based Programme Impact Evaluation Window (SBP IE Window) (WFP, 2021d) with the objective to contribute to the global evidence-based through a portfolio of rigorous impact evaluations.

3. Impact evaluation windows are portfolios of coordinated impact evaluations of WFP programmes in priority areas. They allow WFP to learn what works in a way that informs programmes and contributes to a global evidence base. While specific evaluation questions for each impact evaluation largely depend on country office priorities, it is expected that a set of consistent questions will be answered across studies.

4. In 2021, Burundi, The Gambia, Guatemala, and Jordan were the first four countries to be selected for the impact evaluation window. Malawi was also selected in 2023, and Madagascar in 2024. It is expected that more countries will continue to be selected as opportunities arise.

5. This guide presents the indicators and measurement tools in the first phase of impact evaluations conducted within the SBP IE Window. While measurement tools are expected to evolve and improve over time, this document presents those in use in this initial round of impact evaluations and provides a reference to the corresponding literature.

6. This guide has multiple objectives. First, to facilitate consistent use of indicators and measurement tools to be used within the SBP IE Window, which will facilitate and allow synthesis and comparison across evaluations. Second, to ensure that the measurement tools employed in the window are in line with WFP's Corporate Results Framework (CRF). Third, to support evaluation teams in ensuring that ethical standards are met and upheld in each evaluation throughout the window. The document provides a set of guidelines, checklists, and practices to ensure safe data collection with vulnerable groups such as children. Finally, this guide is also aimed at researchers and practitioners working on school feeding interventions to guide and support their choice of indicators and measurement tools.

7. The guide is divided into five sections. Section 2 presents the background and framing for the choice of indicators. Section 3 outlines the data sources, data collection tools and units of observation. Section 4 describes the indicators by outcome domains and their relevant literature.

Finally, Section 5 discusses the ethical considerations and presents guidelines for data collection tailored for school-aged children.

Background and framework

8. This section presents the background for the School-based Programme Impact Evaluation Window (SBP IE Window) and the key aspects that guide its measurement framework.

9. School feeding programmes have been implemented for centuries and have evolved over the years. The earliest documented record dates back to 1790 in Germany (Gunderson, 2003). The provision of school meals for children had become widespread in most high-income countries throughout the nineteenth century. The *State of School Feeding Worldwide 2020* report (WFP, 2021c) estimates that 388 million children worldwide currently benefit from school feeding, with almost every country in the world providing some form of food access to its school children (Gelli et al., 2016). The current global investment for school feeding is estimated to be between USD 41 billion and USD 43 billion per annum, with most of these costs being covered by domestic funds (WFP, 2021c).

10. School feeding programmes can have multiple benefits. By providing meals, snacks or take-home rations to children, interventions are intended to promote health, nutrition, learning, and the creation of human capital (Drake et al., 2017; Grantham-McGregor et al., 1998). They can play an important role as a social safety net, protecting boys and girls during shocks such as droughts or conflicts (Singh et al., 2014; Tranchant et al., 2019). Finally, while the evidence is still limited, school meals can stimulate local economies when they are procured locally (Gelli et al., 2021).

11. The World Food Programme (WFP) Office of Evaluation launched its first Impact Evaluation Strategy in November 2019. A key component of the strategy is the articulation of Impact Evaluation (IE) Windows, which are portfolios of impact evaluations managed and co-funded by WFP's Office of Evaluation, with the aim of building bodies of generalizable evidence in high-priority areas of WFP's work. The objective of these windows is to contribute with a portfolio of rigorous impact evaluations to the global evidence base and priority thematic areas, while simultaneously supporting local evidence needs for WFP country offices.

12. WFP launched its School Feeding Strategy in January 2020. Generating and sharing knowledge plays a critical role in the strategy. Rigorous impact evaluations on WFP programmes provide the opportunity to document, measure, and produce evidence to contribute to the research agenda that will help governments advance national objectives relating to School Health and Nutrition.

13. WFP's Office of Evaluation and SBP, in partnership with the World Bank's Development Impact Evaluation (DIME) department, launched the SBP IE Window in March 2021 (WFP, 2021d).

14. The SBP IE Window identified a set of key questions following a literature review on impact evaluations conducted on school feeding programmes in low- and lower-middle income countries between 2009 and 2019 (WFP, 2021b) and an extensive internal and external consultation process.

15. While specific evaluation questions for each impact evaluation largely depend on country office priorities, it is expected that impact evaluations conducted as part of the window will answer at least one question within the following three areas of interest:

Health, nutrition, and learning:

- What is the impact of school meal interventions on children's nutritional, health, and learning outcomes? How do these effects vary by age and gender?

- To what extent do different complementary activities contribute to children's outcomes? What is their relative cost-effectiveness?
- To what extent do the benefits of school meal programmes vary throughout the year depending on seasonal fluctuations, shocks, and stressors?

Food systems and local economies:

- What is the impact of home-grown school meal programmes on the local economy, including farmers' incomes, cooperative revenues, and market prices?
- To what extent can different procurement models be combined with crop and livelihood interventions to support farmers and communities in increasing their resilience and climate adaptation?

Transitions and localization:

- What procurement and delivery models are most suitable and cost-effective in supporting the transition to national governments and local authorities?
- To what extent can programmes' characteristics be optimized? Which ones are the most cost-effective?

16. The consultation process also identified a set of outcome domains and indicators for the SBP IE Window to collect. These are:

- **Health and nutrition** – the burden of malnutrition (underweight, thinness, stunting, overweight, and obesity) as well as food security, dietary quality, dietary diversity, nutritional behaviours, child physical health, and child psychosocial health.
- **Human capital** – cognitive abilities and student learning such as literacy and numeracy skills.
- **Gender** – girls' education, protection, pregnancy, early marriages, agency, aspirations, and intra-household time and labour allocation.
- **Social protection** – households' consumption, savings, investments, and shocks.
- **Local economy** – households' income, smallholder farmers' market access, agricultural outcomes, and employment.
- **Social cohesion** – trust, conflicts, social relations, and contribution to communities.

17. During the design phase of the first four impact evaluations, the need emerged to understand how procurement and delivery models influence school feeding outcomes as part of the causal chain. Therefore, two additional outcome domains were added.

- **School meal delivery** – quantity, quality and diversity of the meals distributed in schools.
- **School meal procurement** – sources, prices, stock, and management of the food procured and distributed to schools.

18. This guide will share the indicators and data collection tools that have been developed for the first four impact evaluations in the SBP IE Window. A key reference guiding the choice and development of indicators and measurement tools has been the literature review conducted in preparation for launching the window (WFP, 2021b). Additional key references include methodological guidelines for impact evaluations of home-grown school feeding programmes launched by the Food and Agriculture Organization of the United Nations (FAO) (Giunti et al., 2022), and WFP's Corporate

Results Framework 2022-2025 (WFP, 2022). Relevant literature and references to the individual indicators are provided in Section 4.

19. WFP country offices interested in conducting an impact evaluation should reach out to WFP's Impact Evaluation Unit[1] in the Office of Evaluation to assess feasibility.

[1] Please contact jonas.heirman@wfp.org and simone.lombardini@wfp.org for more information.

Data sources and data collection

21. School-based programmes are intended to have multiple effects ranging from individual child to local economy impacts. It is not a surprise that evaluations with the ambition to investigate multiple outcome domains will also need to measure indicators from a wide range of information sources and data collection processes. This section provides an overview of the data sources, unit of observation, and data collection processes in the School-based Programmes Impact Evaluation Window (SBP IE Window).

3.1. Unit of observation

22. The unit of observation refers to the unit in which the analysis will be conducted. This should not be confused with the data collection source, or instruments presented later in this section. The main units of observation identified for the SBP IE Window are[2]:

- **Child** – the main unit of observation for all child-level indicators. Indicators for this unit of observation range from health and nutrition, human capital, gender, and social cohesion domains.
- **Child household** – when possible, the window will measure household-level effects such as intra-household resources reallocation or other household-level outcomes referring to the child (for example, consumption, dietary diversity, shocks, coping strategies, essential needs, and so on). All the indicators with a focus on children under the outcome domains of social protection have the child's household as a unit of observation[3].
- **School** – the main unit of observation for indicators under the school meal delivery and the food procurement outcome domains.
- **Farmer/worker household** – the main unit of observation for household-level indicators under the social protection and local economy domains.
- **Farmer/worker** – the unit of observation for individual-level indicators under the local economy domain.
- **Cooperative/farmer organization** – the unit of observation for cooperative/farmer organization-level indicators, such as production, sales, and profits, under the local economy domain.
- **Market** – the unit of observation for the market price outcome.

[2] Additional units of observations might include **school food**, the unit of observation for some indicators that are part of school meal delivery and procurement and include school meal quality and diversity, stock management, and menu compliance. **School food ingredient** is the unit of observation for food prices under the food procurement domain.
[3] This unit of observation is not currently used in any of the ongoing impact evaluations due to budget constraints. It will be considered for future country impact evaluations where budgets allow.

3.2. Data sources

23. This section presents the data sources for collecting different indicators. The main data sources identified for the SBP IE Window are:

Administrative data sources:

- **School records** – school and government administrative records of activities that occur at the school, including results from national school tests, school feeding, and attendance records.
- **Cooperative/farmer organization records** – existing cooperative systems that record participation, sales, and revenues.
- **WFP monitoring systems** – those that systematically collect information and provide real-time insights on the programme.

Surveys:

- **Child survey** – conducted with children aged between 7 and 10 years old. Aims to capture child-level characteristics, health, nutrition, education, learning, and behavioural outcomes. This survey also captures anthropometric data. The aim is to keep this survey below 45 minutes due to a child's limited attention span. Due to the nature of this survey, it is always conducted in person.
- **School/headteacher survey** – conducted with school leaders to obtain school-level information that is not directly available from the administrative records.
- **Household survey** – conducted with household members to capture household-level information. Some components may target specific individual members of the household.
- **Individual survey** – conducted with an individual of the targeted household. Depending on the sensitivity of the questions, individual survey questions may also be incorporated into a household survey.
- **Cooperative/farmer organization survey** – conducted with a representative (typically president, treasurer, secretary) to obtain cooperative-level information for impact evaluations looking at economy-level effects.
- **Market survey** – conducted with traders or other market sellers to obtain market-level information on crop prices.

24. Table 1 provides a visual representation of how indicators from the same unit of observation can be collected from a multitude of data sources. For example, child-level indicators can be collected with child surveys, child household surveys, lab tests, administrative records. Alternatively, the same data source (household survey) can collect indicators from multiple units of observations (e.g., a household survey can collect indicators for child households or farmers/workers household analysis).

Table 1: Units of observation mapped against data sources

Unit of observation	Data source
Child	School records
	Individual child survey
	Household survey
School	School records
	WFP monitoring systems
	School/headteacher survey
	Individual survey/household survey
Household (child or worker/farmer)	Individual survey/household survey
Cooperative/farmer organization	Cooperative/farmer organization records
	Cooperative/farmer organization survey
Farmer/worker	Individual survey/household survey
Market	Market survey

3.3. Data collection process

25. Each of the data sources above can be collected using one or more of the following data collection processes:

- **Baseline** – a data collection team with multiple enumerators conducts in-person baseline surveys to collect extensive individual, household, anthropometric, and school-level information before the implementation begins.
- **Midline** – a data collection team with multiple enumerators conducts in-person midline surveys to collect extensive individual, household, anthropometric, and school-level information during implementation.
- **Endline** – a data collection team with multiple enumerators conducts in-person endline surveys to collect extensive individual, household, anthropometric, and school-level information after the implementation is concluded (or when the evaluation aims to assess impact).
- **High-frequency surveys** – data collection processes that collect data using a survey at a regular interval, multiple times a year. These types of surveys are typically collected to better understand seasonality and/or to increase statistical power.
- **School and government records** and **WFP monitoring systems** are typically collected independently from the evaluation timeline and can be valuable sources of data. When possible, the impact evaluation team works with relevant stakeholders to improve existing monitoring tools and ensure data quality.

26. The timeline for these processes is typically defined during the inception phase of an impact evaluation and can be adjusted throughout the impact evaluation process. Sampling strategies for these data collection processes depend on specific impact evaluation design features, outcomes of interest, available data collection budget, and field conditions.

Indicators by outcome domain

27. This section presents the indicators by outcome domains and specific outcomes. For each outcome, it presents the relevant literature, unit of observation and associated data sources. These will be presented in relation to the outcome domains identified in the School-based Programmes Impact Evaluation Window (SBP IE Window) concept note: (1) health and nutritional; (2) human capital; (3) gender; (4) social protection; (5) local economy; (6) social cohesion; and the two additional domains: (7) school meal delivery; and (8) school meal procurement**.**

4.1. Health and nutrition

28. School feeding interventions are expected to directly impact health and nutrition outcomes given the nature of the intervention. First-stage outcomes that are expected to be impacted by the provision of school meals are: food security; and dietary diversity outcomes. These first stage outcomes have been associated with child nutritional status, health, and growth (Ruel, 2003).

29. **Food security** is expected to improve in countries with the introduction, expansion, or improvement of school meal programmes. Food security is expected to increase among beneficiary children if households do not reallocate food away from children receiving school meals. Three indicators commonly used to measure food security are: the Food Insecurity Experience Scale (FIES) at child and household level; the Food Consumption Score (FCS); and the Reduced Coping Strategies Index (rCSI). Table 2 provides a summary of the different food security indicators.

30. Perceived food insecurity is measured using the FIES, a standardized tool to determine access to adequate food intake (FAO, 2018). The FIES is an experience-based measure of household or individual food insecurity (FAO, 2018); the survey can be updated to be individual or household referenced based on research priorities. It ranges from zero to eight and it is captured with eight 'yes or no' questions based on perceived food insecurity in the past month or 12 months, with more 'yes' (larger score) show higher level of food insecurity. An adapted version for children, the Child Food Insecurity Experience Scale (CFIES) is measured at child level through the administration of a child survey asking children ten questions with a choice of responses: 'many times', 'one or two times', 'never', 'don't know', and 'refuse to answer'. The survey captures experience of food insecurity with a varying range of severity in the past 12 months. (Fram et al., 2015; Frongillo et al., 2022).

31. The FCS is widely employed by WFP and its partners as the primary food security indicator. This composite score combines households' dietary diversity, food frequency, and the relative nutritional significance of various food groups. To calculate the FCS, the frequency of food item consumption from different groups is examined over a seven-day reference period. The FCS module gathers data on the sources of foods consumed by households, and it is measured at the household level through the administration of a household survey (WFP, 2019a). The FCS ranges from zero to 112, with classification from 0 to 21 as 'poor', 21.5 to 35 as 'borderline food insecure', and above 35 as 'acceptable'. FCS is measured at the household level through the administration of household surveys.

Table 2: Indicators on food security

Indicator	Indicator phrasing	Information collected	Indicator score range	Reference period	Unit of measurement	Promoted by
Food Insecurity Experience Scale (FIES)	Prevalence of food insecurity	Eight questions capturing a range of food insecurity severity, with yes/no responses.	0-8	1 month or 12 months	Household/ Individual	FAO
Child Food Insecurity Experience Scale (CFIES)	Prevalence of food insecurity	Ten questions capturing a range of food insecurity severity, with many times, one or two times, never, don't know or refuse to answer as responses.	0-20	1 month or 12 months	Individual (child)	UNICEF
Food Consumption Score (FCS)	Proportion (%) of the target population with acceptable FCS	Eight food groups Food frequencies.	0-112, with classification 0-21: Poor 21.5-35: Borderline >35: Acceptable	7 days	Household	WFP

32. **Dietary diversity** can be encouraged if children's school meals include a greater variety of food groups compared to what they would consume in absence of the school meals programme. Indicators that measure dietary diversity can be used at either child or household level. Table 3 provides a summary of the indicators on dietary diversity.

33. At the child level, the dietary diversity score for school-aged children is measured using an adapted version of the individual Minimum Dietary Diversity for Women of Reproductive Age (MDD-W) in which children (or their caretakers based on age) are asked about their consumption of ten food groups in the last 24 hours, with scores ranging from zero to ten. An alternative is using the preceding Individual Dietary Diversity Score (IDDS) asking children about their consumption of nine food groups in the last 24 hours, with scores ranging from zero to nine. The IDDS has proven to be related to nutrient adequacy in women, young children, and adolescents, but more research is currently ongoing on which food groups to include for in the individuals of different age and/or gender (Kennedy et al., 2010, 2013).

34. At the household level, the Household Dietary Diversity Score (HDDS) is typically used. This aims to capture the capacity of households to obtain sufficient food to meet members' energy and nutritional requirements. Increased dietary diversity is associated with a higher probability that individuals within the household will consume adequate nutrients (Kennedy et al., 2013). The information for this measure relies on households' reporting of the 12 food categories they

consumed within the last day, with scores ranging from zero to 12. This indicator, created by the Food and Nutrition Technical Assistance project, has been verified through its alignment with household caloric intake and demonstrates a strong association with indicators of food security (Kennedy et al., 2013). It is captured through the administration of household surveys.

Table 3: Indicators on dietary diversity

Indicator	Indicator phrasing	Information collected	Indicator score range	Reference period	Unit of measurement	Promoted by
Dietary Diversity Score (DDS) for School-aged Children: adapted from the Minimum Dietary Diversity for Women of Reproductive Age (MDD-W)	Proportion (%) of school-aged children meeting a minimum dietary diversity score (at least five out of ten food groups)	Ten food groups (17 including subgroups)	0-10	24-hour, includes foods consumed outside of the household	Individual (child)	WFP (Corporate Results Framework); FAO
Dietary Diversity for Women of Reproductive Age (MDD-W) preceded by IDDS	Average number of different food groups consumed by [target group] the previous day and night	Ten food groups (16 including subgroups)	0-10	24-hour, includes foods consumed outside of the household	Individual (child)	FAO
Individual Dietary Diversity Score (IDDS) – superseded by MDD-W	Average number of different food groups consumed by [target group] the previous day and night	Nine food groups (16 including subgroups)	0-9	24-hour, includes foods consumed outside of the household	Individual (child)	FAO
Household Dietary Diversity Score (HDDS)	Average number of different food groups consumed by the household the previous day or night	12 food groups (16 including subgroups)	0-12	24-hour	Household	FAO

35. **Dietary quality:** School meals may improve the overall diet and nutrient intake by school-aged children. The Global Dietary Quality Score (GDQS) considers a wide range of factors, including the consumption of nutrient-rich foods such as fruits, vegetables, whole grains, lean proteins, and

healthy fats. It also considers the presence of potentially harmful components such as added sugars, saturated fats, and sodium. By assessing the balance and diversity of food choices, nutrient density, and adherence to recommended dietary guidelines, the GDQS provides a comprehensive evaluation of dietary patterns and their potential impact on health outcomes (Intake, 2021). It is measured at the child level through the administration of a child survey or household survey asking about the consumption of 25 food groups in the last 24 hours. As it requires multiple data points for the same individual/household, it can be resource-demanding[4].

36. Food Consumption Score Nutritional Quality Analysis (FCS-N) can also be conducted based on the data collected from the FCS module to explore the nutritional adequacy of three key nutrients at the household level: heme iron, vitamin A, and protein. Like FCS, FCS-N is measured at the household level through the administration of household surveys.

37. The dietary diversity indicator for school-aged children also contains three additional food groups (with six subgroups) to capture whether and how many food items in unhealthy food groups children consume. Like the Dietary Diversity Score (DDS) indicator for school-aged children, these food groups are measured at child level through the administration of a child or child household survey.

38. **Nutritional behaviour:** The provision of school meals may be associated with changes in nutritional behaviour if linked to social and behaviour change campaigns. Questions are developed to measure whether children eat breakfast at home, before coming to school, bring food to school, or bring money to school, and to measure the consumption of unhealthy types of foods for breakfast and as snacks. To capture time spent on physical activity, two survey modules can be used: self-reported measures; or a time-use module. These measurements can be conducted through the administration of a child survey or child household survey.

39. **Malnutrition:** Most of the attention on nutrition and health outcomes has been driven by the analysis of intervention effects on children's anthropometric outcomes (Alderman & Bundy, 2012; Jomaa et al., 2011). Anthropometric measurements, specifically height and weight, are widely used as the standard in the school feeding literature (WFP, 2021b). In addition, these measurements are also commonly used in the broader nutrition literature in developing countries and in child development (McDonald et al., 2013). Based on the World Health Organization (WHO) references for school-aged children and adolescents (5-19 years old) (de Onis et al., 2007) indicators for malnutrition are: (1) prevalence of stunting; (2) prevalence of underweight (5-10 years old); (3) prevalence of overweight; (4) prevalence of obesity; and (5) prevalence of thinness. These can be measured based on height, weight, and age. Unlike the WHO standards for children aged 0-5 years (WHO, 2006), prevalence of wasting is not part of the WHO growth references for school-aged children and adolescents (WHO, 2007). For school-aged children, WHO introduced Body Mass Index (BMI)-for-age as a supplementary measurement alongside height-for-age to overcome the limitations of weight-for-age in tracking growth beyond childhood (de Onis et al., 2007). BMI-for-age helps to differentiate between relative height and body mass, making it useful for evaluating thinness (low BMI-for-age), overweight and obesity (high BMI-for-age), and stunting (low height-for-age) in school-aged children and adolescents (de Onis et al., 2007). These outcomes are typically measured at the child level through the administration of a child survey or child household survey.

[4] Some ongoing impact evaluations within the window rely on GDQS-Meal and GDQS-Menu which are presented in subsection 4.7 School meal delivery.

Finally, lab tests and blood samples are required to compute the prevalence of micronutrient deficiency. This is currently beyond the scope of any of the impact evaluations conducted under the SBP IE Window.

40. **Physical health:** A child's physical health status is expected to mostly be relevant in a context where there is food insecurity and children's health improves due to receiving school meals. It can be measured by asking the number of days he/she was ill in the past week, through the administration of a child survey or child household survey. Alternatively, it can be measured by calculating the number of absences marked as sick in the student attendance ledgers and made available through school surveys that digitalize these records. Where possible, the reason for absence is also captured.

41. **Psychosocial well-being:** Psychosocial well-being indicators such as life satisfaction, stress, depression, and agency are used to measure the effects of school feeding on psychosocial health on children[5]. Life satisfaction is measured with an adapted version of Diener's Satisfaction with Life scale (Diener et al., 1985) in which respondents are asked about their agreement on statements using a six-point Likert scale. In addition, life satisfaction can be captured using the Cantril Ladder, where child respondents rate their sense of well-being on a scale from zero to ten (Cantril, 1965). To assess stress levels, the widely used White's Perceived Stress Scale for children (White, 2014) can be employed. Depression can be measured using the nine-question depression scale of the Patient Health Questionnaire for adolescents (PHQ-A), a standardized screening tool that assesses mental and emotional health disorders (Johnson et al., 2002). Sense of agency, which is evaluated in terms of locus of control, can be measured using an adapted version of the Nowicki-Strickland's Locus of Control scale for children (Nowicki & Strickland, 1973). All psychosocial indicators and impacts on children are measured at child level through the administration of a child survey or child household survey. Indicators and their impact on farmers/workers are measured at farmer/worker level through the administration of household or individual surveys.

[5] An overall psychosocial well-being index can be constructed by aggregating and inverse covariance weighting the standardized outcomes.

Table 4: Indicators for the health and nutrition domain

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Food security	Incidence of food insecurity experience	Child Food Insecurity Experience Scale (CFIES)	Child	Child survey
		Food Insecurity Experience Scale (FIES)	Child household; Farmer/worker household OR respondent	Household survey
	Food Consumption Score	Food Consumption Score (FCS)	Child household; Farmer/worker household	Household survey
Dietary diversity	Proportion of school-aged children meeting minimum dietary diversity score	Dietary Diversity Score (DDS) for School-aged Children	Child	Child survey/ household survey
	Child Individual Dietary Diversity Score	Dietary Diversity Score for Women of Reproductive Age (MDD-W)	Child	Child survey/ household survey
		Individual Dietary Diversity Score (IDDS)	Child	Child survey/ household survey
	Household Dietary Diversity Score	Household Dietary Diversity Score (HDDS)	Child household; Farmer/worker household	Household survey
Dietary quality	Diet Quality Score	Global Dietary Quality Score (GDQS)	Child	Child survey/ household survey
	Food Consumption Score – Nutritional Quality Analysis (Vitamin A, protein, and heme iron rich foods)	Food Consumption Score – Nutritional Quality Analysis (FCS-N) part of FCS	Child household; Farmer/worker household	Household survey

	Number of unhealthy snack groups consumed by children	Consumption of unhealthy food, part of the minimum dietary diversity for school-aged children	Child	Child survey/ household survey
Nutritional behaviours	Proportion of children who ate breakfast at home	Reports of children eating breakfast at home	Child	Child survey
	Proportion of children who brought food to school	Reports of children bringing food to school	Child	Child survey
	Proportion of children who brought money to school	Reports of children bringing money to school	Child	Child survey
	Proportion of children that reported doing at least three hours of physical exercise (walking, cycling, playing, any sport) in the previous seven days	Reports of time spent on physical activity/time-use module	Child	Child survey
Malnutrition	Prevalence of stunting: Proportion of children with a height-for-age z-score (HAZ) below -2 standard deviations (SD) from the median of the reference population	Anthropometrics: Measure of height and age	Child	Child survey/ school records
	Prevalence of wasting: Proportion of children with weight-for-height z-score (WHZ) below -2 SD from the median of the reference population	Anthropometrics: Measure of weight and height	Child	Child survey/school records
	Prevalence of underweight: Proportion of children with weight-for-age z-score (WAZ) below -2 SD from the median of the reference population	Anthropometrics: Measure of weight and age	Child	Child survey/school records
	Prevalence of thinness: Proportion of children with body mass index-for-age (BMI-for-age) lower than 1 SD from the median of the reference population; Proportion of children with body mass index-for-	Anthropometrics: Measure of height, weight, and age	Child	Child survey/school records

	age (BMI-for-age) lower than 2 SD from the median of the reference population			
	Prevalence of overweight and obesity: Proportion of children with body mass index for age (BMI-for-age) greater than 1 SD from the median of the reference population; Proportion of children with body mass index-for-age (BMI-for-age) greater than 2 SD from the median of the reference population	Anthropometrics: Measure of height, weight, and age	Child	Child survey/school records
	Prevalence of micronutrients deficiency	Biomarkers: Blood samples	Child	Child survey/school records/ WFP monitoring system (Lab test module)
Physical health	Proportion of children absent from school due to ill-health	Records of class attendance/self-reported absences and reasons for absence/household survey	Child	School survey/child survey/child household survey
Psychosocial well-being	Standardized (perceived) life satisfaction level	Cantril Ladder score	Child	Child survey
		Subset of Diener's Satisfaction with Life scale	Child	Child survey
	Standardized (perceived) stress level	Perceived Stress Scale (Child version)	Child	Child survey
	Standardized (perceived) health-related quality of life level	Subset of Patient Health Questionnaire – Adolescents (PHQ-A)	Child	Child survey
	Standardized (perceived) level of control over life outcomes	Subset of Locus of Control (Child version)	Child	Child survey

4.2. Human capital

42. School feeding programmes are also expected to support human capital development among children, typically include education, cognitive ability, and learning outcomes.

43. **Education**: School feeding can improve access, participation, and school progression and reduce dropouts by incentivizing children to go to school to receive a school meal. Access to education can be tracked through child enrolment and monthly attendance rate. Dropouts are measured in two ways: (i) by capturing whether a child is enrolled at multiple time points during the school year; and (ii) by capturing whether the child is no longer enrolled in the school as compared to the previous academic year. In most cases, distinguishing dropouts from student transfers to another school can be challenging. Progression is measured whether a child is in the next grade (as compared to the previous school year) in the next academic year. Repetition is measured by determining whether the child remains in the same grade in the next academic year (as they were in the previous school year). The graduation rate is captured by the proportion of children that successfully complete the final year of primary school. These indicators are measured at child level through the digitalization of school records, such as child attendance ledgers typically available at schools. This data can be complemented by data collected in the child survey.

44. **Cognitive ability:** Cognitive ability and its multidisciplinary nature – particularly in connection to nutrition and health – remains significant as a foundation of children's learning. To measure the influence of school feeding on children's cognitive ability (WFP, 2021b)**,** standardized tests including the Stroop Colour and Word Test (SCWT), a shortened version of the Raven's Progressive Matrices and subtest of the Wechsler Intelligence Scale for Children (WISC): the forward and backward digit span test (Wechsler, 2014). In some contexts, easier tests are used: the SCWT is supplemented or replaced by the Day-Night Stroop and the Raven's Progressive Matrices are supplemented or replaced by the Coloured Raven's Progressive Matrices. Attention span, memory and fluid intelligence can improve directly through receiving a school meal and indirectly through increased school attendance. The Stroop Colour (Golden, 1998) and the Day-Night Stroop (Montgomery & Koeltzow, 2010) can be used to measure a child's attention span. The forward and backward digit span test are part of the WISC IV Working Memory Index (Lange, 2011). It is important to note that the forward and backward digit span measure different but interdependent cognitive functions: the forward digit span captures short-term memory, while the backward test captures the ability to manipulate information in working memory (Pham & Archibald, 2023). Adapted for children, a shortened version of the Raven's Standardized Progressive Matrices is used to measure fluid intelligence (Langener et al., 2022). In relevant contexts, a shortened version of the Coloured Raven's Progressive Matrices is used. This test is an easier colour-based version of the Raven's Progressive Matrices specifically designed for children aged between 5 and 11 years, elderly persons, and mentally and physically impaired persons. All cognitive ability indicators are measured at the child level through the administration of a child survey or child household survey.

45. **Learning:** School feeding can improve learning outcomes by incentivizing children to attend school more consistently, and ensuring that they are fed, which can improve their concentration in class. Among impact evaluations in school feeding literature , although almost all studies report educational outcomes, only half the studies investigate the impact of school meals on learning (WFP, 2021b). Metrics to assess learning outcomes vary among studies. For instance, one study employed a standardized national learning assessment test (Chakraborty & Jayaraman, 2019), while another utilized a 15-item test measuring mathematical and literacy skills (Aurino et al., 2020). A third study, in contrast, employed a set of "four simple arithmetic questions" (Kazianga et al., 2012). Standardized scores of the national school testing results will be used whenever

available, complemented with two orally conducted tests administered to students. Reading skills are measured using the core subtasks of the Early Grade Reading Assessment (EGRA). Numeracy and mathematics skills are measured using scores of the core subtasks (by numeracy or mathematic skill) of the Early Grade Math Assessment (EGMA). For both EGRA and EGMA, we create an index of the core subtasks by using inverse covariance weighting. Both EGRA and EGMA are standardized tests that are administered orally and have been validated in low-income and developing contexts (RTI International, 2014, 2016). The administration of such scores can be cognitively demanding if implemented as part of a wider questionnaire. Efforts to reduce such workload should be considered and explored. All learning indicators are measured at child level and national school testing results are obtained through administrative records and EGRA and EGMA through the administration of a child survey or child household survey.

Table 5: Indicators under human capital

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Education	Enrolment: Proportion of children newly enrolled between two measurements	Students enrolled school; (records of) attendance/enrolment	Child	Administrative school records/child survey
	Attendance: Average monthly proportion of school days child was present	Students attending school; (records of) attendance/enrolment	Child	Administrative school records/child survey
	Dropout during school feeding year: Proportion of children who are not enrolled in school between two measurements within the same academic year	Students still in school between two measurements; (records of) attendance/enrolment	Child	Administrative school records and child survey/child survey
	Dropout: Proportion of children who are not enrolled in school between two measurements between two academic years	Students still in school between two measurements; (records of) attendance/enrolment	Child	Administrative school records and child survey/child survey
	Progression: Proportion of children who progress to the next grade	Student progressing to next grade between two academic years; (records of) attendance/enrolment	Child	Administrative school records/child survey
	Repetition: Proportion of children who remain in the same grade	Student in same grade between two academic years; (records of) attendance/enrolment	Child	Administrative school records/child survey
	Completion rate of primary school	Students completing the last grade of primary school; (records of) attendance/enrolment	Child	Administrative school records/child survey

Cognitive ability	Attention span: Standardized Stroop interference score	Stroop Colour and Word Test (SCWT) for children	Child	Child survey
	Attention span: Standardized Day-Night interference score	Day-Night Stroop Test	Child	Child survey
	(Short-term) Memory: Forward digit span length	Forward digit span test	Child	Child survey
	(Working) Memory: Backward digit span length	Backward digit span test	Child	Child survey
	Fluid intelligence score	15-item Standard Progressive Raven's Matrices adapted for children and adolescents	Child	Child survey
		Coloured Raven's Progressive Matrices	Child	Child survey
Learning	Standardized scores	National school testing results	Child	Administrative school records
	Standardized weighted score of Early Grade Reading Assessment (EGRA) core subtasks	Core subtasks of the EGRA	Child	Child survey
	Standardized weighted score of Early Grade Math Assessment (EGMA) core subtasks	Core subtasks of the EGMA	Child	Child survey

4.3. Gender

46. Gender is a cross-cutting theme, wherever data are available and relevant. Various modalities of school-based programmes (school meals, as well as complementary activities) are expected to contribute to advancing girls' education and reducing gender disparities.

47. **Girls' education:** Evaluation in the SBP IE Window will conduct sex disaggregated heterogeneity analysis on educational outcomes. These indicators are measured in the same fashion as children described in the human capital domain. At analysis stage, these indicators will then be used to estimate the relative impact between boys and girls.

48. **Protection:** School feeding programmes can serve as a safety net, safeguarding children, especially girls, from the adverse effects of shocks and stressors. This is important because, in many communities, girls are often the first to be withdrawn from school in the aftermath of such events. Through school records, it is possible to quantify the proportion of girls who are enrolled in school relative to boys. Similarly, it is possible to measure the proportion of girls who discontinue their education after a household experiences a shock.

49. **Early pregnancy and child marriage:** School feeding programmes could contribute to enhanced gender social equity outcomes by diminishing the incidence of child marriage and early pregnancy, particularly when they specifically focus on girls from disadvantaged social backgrounds (Masset & Gelli, 2013; Watkins et al., 2015). This may be captured from a substantial sample of all female children aged 13 and older in the intervention and comparison areas. Nevertheless, measuring this in the SBP IE Window might not always be feasible due to smaller sample frames which do not represent the entire population.

50. **Attitude towards early marriages:** Girls who stay in school tend to marry later in life; they are more likely to develop personal career aspirations, as well to have the awareness and confidence to resist early marriages and make independent decisions about their future. It is possible to measure attitude towards early marriage as an indirect outcome of school meal programmes on gender equality through surveys with girls of a suitable age group (15 years and older). The survey can also include girls' perspectives on the ideal age for a girl to get married.

51. **Agency**, **aspirations, and pride:** These traits can be positively associated with school meal programmes as other indirect benefits. 'Agency' measures the extent to which a person feels in charge of his or her life and destiny, and therefore is sometimes referred to as a measure of empowerment. For aspirations, the survey will include questions on a child's desired education level. 'Pride or self-esteem' can be measured by asking children to rate the likelihood of their feelings and reaction given specific contexts. These can be administered through individual child surveys, and the analysis will examine whether there is a difference between male and female children, and if there are changes over time between groups.

52. **Time and labour allocation:** Economic stressors may mean that families need to take children out of school to find work or take on caregiving responsibilities. This might happen disproportionally for boys and girls. School feeding programmes can possibly contribute to the reduction of children dropping out of school and engaging in labour activities, including unpaid care. Self-reported time use data can be included in individual child surveys and shed light over the differential effects on boys and girls.

Table 6: Indicators under gender

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Girls' education	School's female/male rate of students' enrolment/attendance/repetition/progression	Students enrolled at start of school year by gender	School	Administrative school records school survey
Protection	Proportion of girls dropping out of school following a shock	Attendance rate/shocks experienced by the household	School	Household survey
	Proportion of enrolled girls over boys	Household roster and education status	School	Household survey
Pregnancy and early marriages	Proportion of school-age girls pregnant or with at least one child	Household roster	Child (girls aged 13+ only)	Household survey
	Proportion of married school-aged girls	Household roster	Child (girls aged 13+ only)	Household survey
Attitude towards early marriages	Proportion of girls who report that the ideal age for a girl to get married is after completing school	Attitudes and social norms	Child (girls aged 15+ only)	Child survey
	Proportion of girls who report being able to say no to a marriage proposal	Attitudes and social norms	Child (girls aged 15+ only)	Child survey
Agency, aspiration, and pride	School's girls/boys agency rate	Agency index (Self-efficacy scale): self-reported level of agency	School	Child survey
	School's girls/boys aspiration rate	Child's desired education	School	Child survey
	School's girls/boys pride rate	Pride index (Self-esteem scale)	School	Child survey
Time and labour allocation	Proportion of children reporting sharing care duties with women and girls in their household	Self-reported time on activities	Child	Child survey

4.4. Social protection

53. School-based programmes, including school feeding, are one of the most -extensive safety nets worldwide. They are expected to improve social protection outcomes for households of children receiving school meals or individuals and households benefiting indirectly including through employment or other income-generation activities.

54. **Consumption expenditures:** To estimate consumption expenditures, the value, quantity, and price of food and non-food income expenditures are measured for a subset of products. Food expenditures are measured by source: own production, gifted or compensated for, or purchased. Products are selected by relying on food and non-food items following measurement tools from the Living-Standards Measurement Study. This indicator is measured at household level through the administration of a child household or farmer/worker survey.

55. **Shocks:** Shocks are captured through household surveys by asking whether the household has experienced any of the following shocks (rising food prices, family death, asset loss, job loss, and so on) in the previous 12 months. This indicator is measured at household level through the administration of a child household or farmer/worker survey.

56. **Coping strategies:** In response to any of the shocks identified, households may use coping mechanisms. The simplest way to elicit coping strategies is to ask the respondent which mechanisms the household used to cope with shocks over the previous 12 months. Examples of coping mechanisms are: selling assets for cash; reducing consumption; increasing labour supply; and withdrawing children from school. The types of coping strategies and rationale for using specific strategies are also captured by Livelihood Coping Strategies Indicator for Essential Needs (LCS-EN), which provides a better understanding of the severity of individual household scoping strategies for essential needs (shelter, food, health, an so on) (WFP, 2021a). Similarly, the food security version – The Livelihood Coping Strategies Indicator for Food Security (LCS-FS) – focuses on strategies that are used to meet food shortages (WFP, 2023b). LCS-FS is recommended to be used in contexts where the prevalence of food insecurity is high, and food needs are one of the top unmet needs in the communities. The Reduced Coping Strategies Index (rCSI) measures the frequency and severity of household behaviours when faced with shortages of food or finance to buy food (WFP, 2019b). It considers both the frequency and severity of five pre-selected coping strategies that the household used in the seven days prior to the survey. It is a simplified version of the full Livelihood Coping Strategies Index indicator. All coping strategies are measured at household level through the administration of a child household or farmer/worker survey.

57. **Essential needs:** The Economic Capacity to Meet Essential Needs (ECMEN) measures households' economic capacity to meet all their essential needs, including food and non-food needs, and is a proxy for economic vulnerability (WFP, 2023a). Economic capacity is calculated by aggregating households' expenditures for food and other essential non-food needs during a predefined recall period. This indicator is measured at household level through the administration of a child household or farmer/worker survey.

58. **Intra-household food reallocation:** Indicators that measure intra-household food reallocation focus on dietary diversity and aim to measure the extent that food reallocation is taking place within households where children receive school meals. This indicator can be measured relying on recall or household recording. Food quantities consumed by each household member, or a subset of household members, are measured through the administration of a child household or farmer/worker survey.

59. **Finances:** Finances capture household savings, credits, and transfers. For household savings, the type and value of these savings are recorded. For credit, access to credit (and its value) is determined by asking about the total amount of loans and the amount that remains outstanding. For transfers, the value is recorded alongside whether the sender is from within or outside the household. These outcomes are measured at household level through the administration of a child household or farmer/worker survey.

60. **Child labour:** School-based programming may be associated with the reduction of child labour (Aurino et al., 2019, 2020; Kazianga et al., 2012). A school meal can incentivize a child to go to school rather than engage in work. Time use might be measured as a proxy for child labour. This indicator is measured at child level through the administration of a child survey or child household survey.

Table 7: Indicators under social protection

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Consumption expenditures	Quantity, value and proportion (of income) of food expenditures	Quantity, value by product from own production, gifted or compensated for work, or purchased	Child household; Farmer/worker household	Household survey
	Value (and proportion of income) of non-food expenditures	Value for non-food expenditures by product	Child household; Farmer/worker household	Household survey
Shocks	Number and type of shocks experienced by household	Type of shocks experienced	Child household; Farmer/worker household	Household survey
Coping strategies	Number and type of coping strategies	Type of coping strategies	Child household; Farmer/worker household	Household survey
	Share of households within each essential needs coping strategies group: Emergencies coping, crisis coping, stress coping, and not coping	Livelihood Coping Strategy for Essential Needs (LCS-EN)	Child household; Farmer/worker household	Household survey
	Share of households within each food security coping strategies group: Emergencies coping, crisis coping, stress coping, and not coping	Livelihood Coping Strategy for Food Security (LCS-FS)	Child household; Farmer/worker household	Household survey
	Frequency and severity of household behaviours when faced with shortages of food or finances to buy food	Reduced Coping Strategies Index (rCSI)	Child household; Farmer/worker household	

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Essential needs	Proportion of households meeting essential needs	Economic Capacity to Meet Essential Needs (ECMEN)	Child household; Farmer/worker household	Household survey
Intra-household food reallocation	Occurrence and amount of food resources reallocated to other household members	Self-reported recall of food intake of each or a subset family member	Child household; Farmer/worker household	Household survey
		Self-recorded food intake records of each or a subset of family member	Child household; Farmer/worker household	Household survey
Finances	Occurrence and value of household savings by savings form	Types of savings forms used and amount	Child household; Farmer/worker household	Household survey
	Proportion of households with access to credit and value of initial and outstanding credit	Credit access, total amount borrowed, and total amount still outstanding on loans	Child household; Farmer/worker household	Household survey
	Proportion of household receiving transfers and value of transfers	Total amount of transfers received	Child household; Farmer/worker household	Household survey
Child labour	Incidence of child labour	Time-use survey	Child	Child survey

4.5. Local economy

61. Home-grown school feeding programmes are expected to have an impact on markets and household income, and agricultural practices when the meals are procured or prepared locally. Increased demand for school feeding crops may lead to increased sales and have trickle-down effects on a household's income, wealth, and willingness and ability to invest. Depending on the type of procurement and preparation process, their impact can be analysed at workers, farmers and cooperative or farmer organization level.

62. In some contexts, some indicators such as sales, land area, and storage are also measured at the cooperative or farmer organization level since school feeding food commodities are often sourced from local cooperatives or farmer organizations through a competitive bidding process or other types of procurement.

63. **Sales of agricultural products:** The school as new or larger buyer on the market can affect the market equilibrium. In the short term, farmers, cooperative or farmer organizations may shift their sales from local markets, traders, and other types of buyers to schools, which will lead to an increased market share for, and quantities sold to, schools. If the school is a sufficiently large new buyer on the local market and there is no surplus on the market, prices received for crops sales may increase. In future agricultural cycles and due to sustained stable school demand, sales may increase due to an increase in crop production. To measure these potential impacts, sales in terms of quantity and the type of buyer are captured by asking the volume and value over a predefined period for all types of buyers. This information can then be used to construct the price received by type of buyer. These indicators are measured at household level through the administration of a child household or farmer/worker household survey, or at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey.

64. **Cooperative/farmer organization membership:** In contexts where the competitive bidding process takes place at cooperative or farmer organization level, membership of such organizations may increase. This indicator is measured at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey.

65. **Household income:** Income from all potential income sources is aggregated to establish the household's income. Household income may increase due to increased demand for crops on local markets, if prices are higher or they have a surplus crop production that is in demand. Income from wage, business profit, and potential other sources (e.g., transfers received by the household) are measured for every household member. Income from agriculture is measured at household level based on crop, livestock, and animal product sales, given that it is difficult to attribute this to individual household members. All income indicators are measured at household level through the administration of a child household or farmer/worker household survey.

66. **Market access:** The number of markets/channels where produce is sold by farmers, cooperatives, or farmer organizations and the proportion of formal buyers are both proxies for market access. These indicators are measured at household level through the administration of a farmer survey or farmer household survey, or at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey.

67. **Market prices:** Market food prices are determined by capturing the price per product or the volume (converted to kilograms) and the total price received for a sales event. These indicators are measured at agricultural market level through the administration of a market survey or farmer household survey.

68. There are also a series of outcomes where we can only expect to see changes after school feeding has started (when planting season has occurred due to agricultural cycles), and when demand from schools is sustained and stable.

69. **Crop inputs:** The cost of inputs outcome measures quantity and cost of agricultural inputs including consumable inputs (seeds, inorganic fertilizer, and so on) and labour. This indicator is measured at household level through the administration of a farmer survey or farmer household survey. The consumable inputs indicators are measured at household level through the administration of a child household or farmer/worker household survey, or at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey for common land.

70. **Crop production:** Crop production is measured through the volume of harvest. Depending on the context, it can be measured for multiple years, across seasons, plots, and crops. To be able to measure changes in productivity – volume of harvest by hectare – the cultivated area is also measured. Finally, by capturing the production by crop, an indicator can show whether the school (as a new or larger buyer on the market) shifts the production of crops to school meal crops. Crop production are typically measured at household level through the administration of a farmer survey or farmer household survey. It can also be measured at household level through the administration of a child household or a farmer/supplier/worker household survey, or at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey for common land.

71. **Investments:** Investments are assets that can increase future production. Investments are measured through four channels: number of farm assets; number of cooperative/farmer organization assets; land area owned or hired; and livestock assets. Assets are adapted to the context – for example, using Living Standard Measurement Surveys. These indicators are measured at household level through the administration of a child household or a farmer/worker household survey, except for number of cooperative/farmer organization assets, or at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey, except for livestock assets. For cooperatives/farmer organizations, the number of farm assets and land area applies to common land.

72. **Household wealth:** A household's wealth is proxied through the Poverty Probability Index (PPI) or the number of household assets. These indicators are measured at household level through the administration of a farmer survey, or a farmer/worker household survey.

73. **Storage:** The storage outcome measures the type and volume of storage available and stored in kilograms. This indicator is measured at household level through the administration of a farmer survey or a farmer/worker household survey, or at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey for common land, ideally with high frequency or relying on records to understand the availability of crops across the year.

74. **Subsistence agriculture:** The proportion of farm, livestock, and livestock production produced for the household's own consumption is a proxy for subsistence agriculture, with a higher proportion meaning a higher degree of agriculture activities as a means of subsistence. In addition, the share of harvest from subsistence crops (as compared to high-value crops) can measure subsistence agriculture. These indicators are measured at household level through the administration of a farmer survey or farmer household survey.

Table 8: Indicators under local economy

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Sales of agricultural products	Volume and value by crop and type of buyer	Sales information by crop and type of buyer	Farmer/worker; Cooperative/farmer organization	Household survey; Cooperative/farmer organization survey
	Received price by crop and type of buyer	Quantity and value of sales by crop and type of buyer	Farmer/worker; Cooperative/farmer organization	Household survey; Cooperative/farmer organization survey
Cooperative/farmer organization membership	Number of total members and share of new members	Records of membership or number of new members out of total number of members	Cooperative/farmer organization	Cooperative/farmer organization survey
Household income	Value of income from wage by household member	Wage from primary and secondary employment	Farmer/worker	Household survey
	Value of profit from business by household member	Profit from primary and secondary business	Farmer/worker	Household survey
	Value of net income sales from agriculture (e.g., crops, livestock, and animal products)	Sales minus cost of inputs for agricultural products	Farmer	Household survey
	Value of income from other sources (e.g., transfers)	Other sources of income	Farmer/worker	Household survey
Market access	Number of formal markets/channels where produce is sold	Sales by type of buyer	Farmer; Cooperative/farmer organization	Household survey; Cooperative/farmer organization survey
	Market share of formal buyers: Proportion of sales sold to formal buyers	Sales to buyers on formal market out of total sales	Farmer; Cooperative/farmer organization	Household survey; Cooperative/farmer organization survey

Market prices	Market food prices	Price by product/total value and volume	Agricultural market	Market survey
Crop inputs	Price and volume by type of input	Quantity, and price by type of input, including seeds, inorganic fertilizer, labour	Farmer; Cooperative/farmer organization	Household survey; Cooperative/farmer organization survey
Crop production	Volume of harvest by crop	Total harvest (can be captured over multiple years, seasons, plots, and crops)	Farmer; Cooperative/farmer organization – common land	Household survey; Cooperative/farmer organization survey
	Agricultural productivity: Volume of harvest by hectare	Total harvest (can be captured over multiple years, seasons, plots, and crops) over total number of hectares cultivated	Farmer; Cooperative/farmer organization – common land	Household survey; Cooperative/farmer organization survey
Investments	Number of farm assets	Type of assets owned – farm	Farmer; Cooperative/farmer organization – common land	Household survey; Cooperative/farmer organization survey
	Number of cooperative or farmer organization assets	Type of assets owned – cooperative or farmer organization	Cooperative/farmer organization	Cooperative survey/farmer organization survey
	Land area owned or hired	Total land area owned, rented in, or rented out	Farmer; Cooperative/farmer organization – common land	Household survey; Cooperative/farmer organization survey
	Number of livestock assets by type	Total number of livestock owned by type	Farmer	Household survey

Household wealth	Poverty Probability Index (PPI)	Ten questions to determine poverty probability	Farmer	Household survey
	Household assets	Type of assets owned – household	Farmer	Household survey
Storage	Type of storage used, and volume available and stored	Type of storage and quantity available and stored	Farmer; Cooperative/farmer organization – common land	Household survey; Cooperative/farmer organization survey
Subsistence agriculture	Proportion of agricultural products (farm, livestock, and animal products) for own consumption	Agricultural outputs consumed (farm, livestock, and animal product), sold, and owned/harvested	Farmer	Household survey
	Share of subsistence crops (vs. high-value crops)	Total harvest by crop	Farmer	Household survey

4.6. Social cohesion

75. School meals might also have an impact on social cohesion by fostering a sense of belonging and attachment to the community. This can happen through the act of sharing meals among children or through the active involvement required by parents and communities towards a common good, when meals are procured and prepared locally.

76. Social cohesion is a multidimensional concept and can be measured at micro, meso, or macro level (Esenaliev et al., 2018). Three aspects of social cohesion will be explored within this SBP IE Window: social relations; connectedness; and focus on the common good. They are all measured though individual surveys administered to adults (e.g., child household, farmer/worker household).

77. **Social relations:** Many school-based programmes often involve local communities – from farmers who supply the food to kitchen workers or volunteers who help with food preparation and distribution. By creating opportunities for individuals and various community actors to collaborate or encouraging them to participate more actively in related meetings and events, school-based programmes can foster stronger relationships among people – first within their workplaces, such as school kitchens or farmer cooperatives, and within the wider community. Questions about social networks (e.g., one's ability to receive help), trust in other people (e.g., sense of security with others), and acceptance of diversity, may be asked to determine social relations.

78. **Connectedness:** The connection among people can extend beyond the school-based programme itself and may positively influence various aspects of community life. This aspect can be investigated through survey questions on a person's identification (sense of belonging at different levels of community), their trust in institutions, and perception of fairness that they experience (Larsen & Boehnke, 2016).

79. **Focus on the common good:** Involvement in school feeding programmes – such as participating in a cooperative supplying to a school feeding programme or preparing meals for children – can foster a sense of ownership and collective responsibility for the well-being of the students and their education. This can be measured through an index looking at individuals' general perception of solidarity and helpfulness, respect for social rules and civic participation (Esenaliev et al., 2018).

80. It is also important to explore social cohesion from the perspective of children. In emergency and food insecure settings, school meals can create a sense of normalcy in traumatic circumstances and become part of the hope for a more peaceful future with stronger social cohesion (Burbano de Lara, 2019). In this window, various aspects of social cohesion – tailored to school and local community settings – can be measured using child surveys (as depicted below).

81. **Belonging and inclusion:** By providing meals to children, school-based programmes can help eliminate the stigma associated with poverty for those children who are unable to afford to bring meals to schools. These programmes can also encourage parents to send their children to school, allowing more equal access to education and fostering a sense of belonging and inclusivity. Belonging pertains to children's sense of connection to their community, such as their classroom or school, and the feeling of being recognized as a member of that community. Similarly, inclusion is tied to the strength of one's social network, such as being comfortable talking to other children, the ability to get help, and so on. Inclusion also involves equal access to opportunities and fairness (UNICEF, 2014). These factors can be measured by asking children to rank their level of agreement with statements regarding their feeling about school, teacher's treatment of students, and so on.

82. **Tolerance:** School feeding programmes create a shared space where children from various backgrounds interact daily. This interaction can help break down prejudices and foster positive

relationships from a young age. Tolerance is linked to an individual's acceptance of other groups and respect for diversity. Central to this is the willingness to tolerate the existence of opinions or behaviours that a person dislikes or disagrees with (UNICEF, 2014, 2019). Such levels of tolerance can be explored by asking children to rank their level of agreement with statements on their perception about other children from different backgrounds, and the way they would resolve a disagreement or conflict.

83. **Participation:** School-based programmes are expected to strengthen children's participation in school and may be able to support their involvement in activities in their local communities. This aspect can be measured by asking children about their enjoyment and sense of engagement in school events, groups, or clubs.

84. **Trust:** School-based programmes may positively influence children's feelings of trust in other people and in institutions through their improved well-being. Survey questions such as ranking one's level of trust in people in their local community and sense of safety can be included in a child survey to measure trust.

Table 9: Indicators under social cohesion

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Social relations	Social relations index	Social networks, trust in people, acceptance of diversity	Farmer/worker	Farmer/worker survey
Connectedness	Connectedness index	Identification, trust in institutions, perception of fairness	Farmer/worker	Farmer/worker survey
Focus on the common good	Focus on the common good index	Solidarity and helpfulness, respect for social rules, civic participation	Farmer/worker	Farmer/worker survey
Belonging and inclusion	Belonging and Inclusion index	Sense of belonging (connection to a community) and inclusion (one's social network and access to equal opportunities and services)	Child	Child survey
Tolerance	Tolerance index	Acceptance of other groups and respect for diversity	Child	Child survey
Participation	Participation index	Involvement in activities in one's school or community	Child	Child survey
Trust	Trust index	Trust in community	Child	Child survey

4.7. School meal delivery

85. School meal reliability, quantity, quality, and diversity are identified as the main outcomes of interest for tracking school meal delivery in new or transition school feeding programmes.

86. **School meal coverage:** To capture the coverage of school feeding distribution, the proportion of school feeding days can be calculated using the number of schools feeding days and the number of school days. A child-level data point is collected by asking children whether they received a school meal on the day of the survey and the previous day the school was in session. The school-level indicators are measured through administrative or monitoring data. The child-level indicator is measured through the administration of a child survey.

87. **School meal reliability:** To capture school meal reliability, the proportion of actual school feeding days as a percentage of the planned number of school feeding days can be recorded. This school-level indicator is measured through administrative or monitoring data.

88. **School meal quantity:** The number of school meals distributed, and the quantity of food distributed per child per meal, are measures of school meal quantity. The quantity consumed per child per meal can also be calculated using quantity (kilograms) of products provided by food group and the number of children attending school. These indicators are measured at school level through administrative or monitoring data.

89. **School meal quality:** Meal quality is a concept that can be measured through indicators such as the Global Diet Quality Score for Meal and Menu (GDQS-Meal and GDSQ-Menu) and children's experience. GDQS-Meal is calculated at the daily level based on records of food quantities of food groups, micronutrient content, and number of food groups served in school meals in school feeding days (Bell et al., 2023; Intake, 2023). GDQS-Menu is similar to GDQS-Meal but is calculated during a predefined period such as on a weekly basis. Children are also asked whether they fell ill after consuming a school meal. The QGDS indicators are measured at school level through administrative or monitoring data. The child-level indicator is measured through the administration of a child survey.

90. **School meal satisfaction:** Children can also be asked to rate their satisfaction with the school meal by selecting whether they feel happy, neutral, or sad about the school meal they received. This indicator is measured at the child level through the administration of a child survey.

91. **School meal diversity:** School meals can contribute to the dietary diversity of children's food intake. School meal diversity indicators can be constructed to determine the dietary diversity of the meals provided. Depending on the data source, ingredients can be grouped into different food categories, as described for the indicators on dietary diversity. The school meal dietary diversity indicator is measured at school level through administrative or monitoring data.

Table 10: Indicators under school meal delivery

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
School meal coverage	Number of feeding days as a proportion of total school days	Records of school feeding days and days school was in session	School	Administrative school records/ monitoring
	Share of children reporting to receive school meal	Report of children receiving school meal	Children	Child survey
School meal reliability	Number of feeding days as a proportion of planned school feeding days	Records of school feeding days and planned school feeding days	School	Administrative school records/ monitoring
School meal quantity	Number of school meals	(Records of) Children enrolled and children receiving school meals	School	Administrative school records/ monitoring
	Quantity provided in school meals per child (by food group)	Records of volume of produce served	School	Administrative school records/ monitoring
School meal quality	Average number of school days per month on which multi-fortified or number of food groups were provided (nutrition-sensitive indicator)	Records of food quantities of food groups served in school meals, and whether they are fortified or not	School	Administrative school records/ monitoring
	GDQS-Meal	Meal-quality score based on records of quantities of food groups, micronutrient content, and number of food groups served in meals on school feeding days	School	Administrative school records/ monitoring/school survey

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
	GDQS-Menu	Menu-quality score based on records of quantities of food groups, micronutrient content, and number of food groups served in meals of a predefined period (2-7 days)	School	Administrative school records/ monitoring/school survey
School meal satisfaction	Self-reported school meal satisfaction score	Children's satisfaction scale with school meals	Child	Child survey
School meal diversity	School Meal Dietary Diversity Score (SMDDS)	Records of food groups served in school meals (out of 12 food groups)	School	Administrative school records/ monitoring/school survey

4.8. School meal procurement

92. School meal procurement outcomes include prices and sources, competitiveness, stock management, menu compliance, delivery, and efficiency. These indicators are particularly important when analysing home-grown school feeding programmes. Market activeness is relevant for contexts where an encouragement design (e.g., information campaigns on school feeding opportunities and procurement) is used.

93. **Prices and sources:** Sourcing school meal ingredients locally can influence the food market(s) in the area and can increase or decrease the affordability of providing school meals, depending on the price of school meal ingredients locally as compared to imported ingredients. Contracts, invoices and/or transaction records from schools are used to determine food prices. Ideally, data sets include the provider, the quantity, the type of good or service, and the price. To determine the extent of local sourcing within the school feeding programme, the volume, value, and share of school meal items sourced from smallholder farmers are captured through invoices and/or transactions. The price and source outcome indicators are measured at school meal ingredient-level through the administration of a school survey or administrative or monitoring data. These indicators are measured at school level through the administration of a school survey or administrative or monitoring data.

94. **Competitiveness:** Encouragement designs aim to increase the number of bids and the success rate – that is, the number of successful purchases. Therefore, to measure market activeness, the proportion of cooperatives/farmer organizations that have submitted bids, the number of bids and those successful from the cooperative/farmer organization. These indicators are measured at school level through the administration of a school survey. For schools, the number of bids submitted and those bids that were successful can be a proxy for the market competitiveness. These indicators are measured at cooperative/farmer organization level through the administration of a cooperative/farmer organization survey for common land.

95. **Stock management:** Low stock quantities can influence the ability of schools to provide all ingredients and their recommended quantities in a school meal. The food stock can be low due to depletion, which is measured by recording the proportion of meals where at least one ingredient is lacking or below the recommended quantity due to stock depletion. The food stock can also be low due to spoilage, which is measured through the proportion of meals where at least one ingredient is lacking below the recommended quantity due to stock spoilage. These indicators are measured at school level through the administration of a school survey, ideally with high frequencies.

96. **Menu compliance:** Some countries have prescribed menus that schools should follow. To measure menu compliance, we examine the proportion of meals that comply with these menus. This indicator is measured at school level through the administration of a school survey with high frequencies or administrative or monitoring data.

97. **Delivery:** Transitioning to a home-grown school feeding modality may have implications for procurement delivery. Records of issues indicated by schools, including delivery accuracy and delays, are captured to calculate the proportion of transactions with issues in quality, quantity, and procurement process. This indicator is measured at the school level through the administration of a school survey.

98. **Timing:** Timing is a crucial aspect of procurement. The duration of the procurement process is captured by measuring the total processing time from initiation of the tender to signing the contract. The decision time is captured by measuring the duration between the initiation of the tender and the submission deadline. The delivery time is captured by measuring the duration

between the signing of the contract and the (actual) first delivery. Delays are quantified by the difference between the actual and planned date(s) of delivery. Procurement efficiency is captured by the time spent on the full procurement process. This indicator is measured at the school level through the administration of a school survey.

Table 11: Indicators under school meal procurement

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Prices and sources	Volume (and proportion of total volume) of school meal items sourced from smallholder farmers/locally	Invoices or transaction records	School – meal ingredient	Administrative school records/ monitoring/school survey
	Value (and proportion of total value) of school meal items sourced from smallholder farmers/locally	Invoices or transaction records	School – meal ingredient	Administrative school records/ monitoring/school survey
	Food prices	Invoices or transaction records of volume and value	School – meal ingredient	Administrative school records/ monitoring/school survey
Competitiveness	Proportion of cooperatives/farmer organizations that have submitted a bid	Invoices or transaction records (if any) of encouraged and total number	Cooperative/farmer organization	Cooperative survey/farmer organization survey
	Number of bids submitted	Number of bids submitted by cooperative/farmer organization	Cooperative/farmer organization	Cooperative survey/farmer organization survey
	Proportion of successful purchases	Number of successful purchases and total number of bids submitted	Cooperative/farmer organization	Cooperative survey/farmer organization survey
	Number of bids received	Records of bidding forms	School – meal tender	Administrative school records/ monitoring/school survey
	Proportion of successful purchases	Records of bidding forms and information on which ones were successful	School – meal tender	Administrative school records/ monitoring/school survey

Outcome	Indicator	Survey modules/definition	Unit of observation	Data source
Stock management	Stock depletion: proportion of meals in which at least one ingredient is lacking or below the recommended quantity due to stock depletion	Stock below required inputs due to reasons other than spoilage	School	School survey
	Stock spoilage: Proportion of meals in which at least one ingredient is lacking or below the recommended quantity due to stock spoilage	Stock below required inputs due to spoilage	School	School survey
Menu compliance	Proportion of meals that comply with menus	Compliance of school feeding meals with menus	School	Administrative school records/ monitoring/school survey
Delivery	Proportion of transactions with issues in quality, quantity, and procurement process	Records of issues/challenges indicated by schools (delivery accuracy, defect, etc.)	School	School survey
Time	Total processing time	Contract signature – tender initiation	School	School survey
	Submission time	Submission deadline – tender initiation	School	School survey
	Decision time	Contract signature – submission deadline	School	School survey
	Delivery time	Delivery date – contract signature	School	School survey
	Duration of delay in days	Actual and planned delivery	School – meal delivery	School survey
	Time spent on school meal procurement process	Estimated time spent on school meal procurement process (planning, reviewing bids, etc.)	School – meal tender	School survey

Ethics and guidance note

99. Many indicators for this window require data collection with children and vulnerable populations. Therefore, it is necessary to put into place guidelines to minimize potential risks of harm resulting from data collection. This section lays down a summary of basic requirements and preparation that should be considered when carrying out data collection on school-aged children.

100. This guidance is underpinned by the general principles for human subjects research ethics, the United Nations Convention on the Rights of the Child outlining children's rights to be heard and their needs for safety addressed, WFP's *How to Mainstream Child Protection into Programme and Operations: Step by Step Guidance*, as well as previous work from other United Nations institutions, international non-governmental organizations, and research organizations trained and specialized in collecting sensitive data. It is also informed by ethical principles articulated by the International Charter for Ethical Research Involving Children[6], which aims to assist the research community in understanding, planning, and conducting ethical research involving children and young people in any geographical, social, cultural, or methodological context.

101. This guidance serves to consolidate the advice found in these documents and the advice of professionals within WFP and the World Bank, but is not meant to be an exhaustive document nor an official protocol from either organization. This guidance also complements *WFP's Measurement of Sensitive Subjects: Guidance on Ethics and Protection for Data Collection in Impact Evaluations* by providing further guidance on data collection with children under 18 years of age.

102. The following guidance highlights some important steps related to impact evaluations that collect child data, organized into three stages: before, during, and after data collection.

5.1. Before data collection

Planning considerations

103. The most fundamental consideration in undertaking research and evaluations involving children and/or vulnerable groups or populations is deciding whether they need to be involved in the evaluation process and in what capacity. At the outset of the evaluation, the evaluation team needs to engage with critical issues regarding the purpose of the evaluation and the impact that participating in this may have on the participants in terms of potential harm and benefits.

104. The evaluation team needs to ensure that:

- evaluation with children will only address questions that cannot be carried out with adults or answered in other ways;
- the purpose of the evaluation is to obtain new knowledge relevant to the needs of children;
- support for children, if needed during and after the research process, has been planned for;
- steps have been taken to maximize the protection of participating children and their communities; and

[6] The International Charter for Ethical Research Involving Children is a joint project between UNICEF's Office of Research – Innocenti, the Childwatch International Research Network, the Centre for Children and Young People at Southern Cross University, Australia, and the Children's Issues Centre at the University of Otago, New Zealand. See the full charter at childethics.com.

- there is consultation on who to involve, such as consulting locally when planning the evaluation and developing protocols without jeopardizing children's safety or well-being.

Materials to prepare

105. Develop **age-appropriate survey instruments:** The evaluation team needs to design survey questions that are easy to understand and appropriate for the age group of children targeted for research. The language used in the survey should be simple, avoid jargon or complex terms, and consider visual aids, illustrations, or diagrams to enhance comprehension.

106. When preparing for data collection in an impact evaluation, **Institutional Review Board (IRB) approval** is to be sought through either local research ethics committees or international IRBs. WFP does not have its own IRB, so research protocols are often submitted to private IRBs and/or IRBs from universities located in the country where research takes place. Members of an IRB are trained professionals in the ethical review of research. They serve to provide an impartial eye toward the ethics of WFP's impact evaluation designs, flagging any concerns that may have been overlooked by the evaluation team.

107. Obtaining **consent from parents/guardians/caregivers and children** is central to the study ethics and signals respect for the research participant's dignity, their capability to express their views, and their right to have these heard on matters that affect them. Informed consent is an explicit agreement which requires participants to be informed about the study. Consent must be given voluntarily and may be withdrawn at any stage of the survey.

108. The overall consent process for surveying school children will need to secure permissions from:

- relevant local authorities, according to local laws and norms, when applicable;
- a parent/guardian/primary caregiver of each child who participates in the survey (inform consent); and
- the agreement (assent) of each child to the extent of the child's capabilities.

109. To give their consent, potential parents/guardians/caregivers and child participants must know and understand the purpose of the evaluation. In planning for data collection, consent materials should be prepared and should cover the basic elements, such as:

- a broad explanation of the purpose of the evaluation, the expected duration, and a description of the process;
- a description of any foreseeable risk or discomfort;
- a description of any benefits to the subject that can be expected, if appropriate;
- a description of how confidentiality and anonymity will be assured and any limits to such assurances;
- contact information for answers to questions about the study, the rights of the subject, and study-related harm to the subject; and
- an indication that participation is voluntary, and that refusal to participate will involve no penalty or loss of benefits.

110. Communication regarding the data collection should be transparent and consistent. **A communication plan** includes a summary of the data collection for partners, local leaders, and other stakeholders, as well as a separate script for the respondents themselves.

111. When communicating with parents/guardians/caregivers and child respondents, it is important not to create unrealistic expectations that the study will result in any specific programme or service, or that it will be used to evaluate children's ability for any treatment or reward.

112. Finally, data collection preparations should include preliminary **plans for analysing and reporting** the data. Researchers should adhere to these plans as closely as possible and communicate any proposed changes to the country office and involved partners.

113. Prepare a data-sharing plan that specifically sets out who will have access to the data, which portions of the data, and at what aggregation level, noting that personal identifying information will never be shared outside of the research team.

Selecting and training enumerators

114. There are several considerations when hiring the enumerators who will carry out data collection with children. Together with any partner organizations and WFP programme teams, ensure that the age, sex, religion, ethnicity, and language of the enumerators are appropriate and unbiased for the context and the child population being interviewed.
115. Provide training to enumerators on ethical considerations, child protection, and appropriate techniques when interacting with children.
116. Ensure that the enumerators are sensitive, patient, and capable of engaging with children effectively.

5.2. During data collection

Location: Privacy and safeguarding

117. The location used in data collection can have an impact on the privacy of the participant and the confidentiality of the information collected. At the same time, it is important for the child and enumerator to always remain in a visible place. The evaluation team should set out strategies to uphold the privacy and confidentiality of interviews in school and/or home settings while ensuring adequate safeguarding measures.

Interview methods

118. Consider using creative and child-friendly methods to collect data, such as games, drawings, role-plays, or interactive activities. This approach encourages active participation and makes the survey process more engaging and enjoyable for children.

119. Sensitive survey topics require innovative methods encouraging honest answers as well as maintaining privacy and confidentiality.

Professional conduct

120. Maintain professionalism at all times when interacting with respondents and their family or guardian. Treat everyone with respect, empathy, and sensitivity.

121. Be aware of and respect cultural, religious, or other sensitivities that may affect children's willingness to participate in the survey or the anthropometric measurement process.

Monitoring children's physical and emotional well-being

122. During the survey, be attentive to any signs of distress or discomfort. If necessary, provide emotional support or refer them to appropriate resources, such as school counsellors or child protection services.

123. If carrying out anthropometric measurements, minimize any physical discomfort during measurements by ensuring that proper equipment and techniques are used.

124. Continuously assess the survey process and its impact on the respondents involved. Solicit feedback from children, parents, and administrators to identify areas for improvement and make necessary adjustments to enhance future survey experiences.

5.3. After data collection

125. Once data is collected, take care to closely follow the data security protocol which was formulated during the preparation stage. There are several things to consider regarding the security of the final data set, as well as data sharing and reporting. First, researchers should ensure that all children's data is securely collected, stored, and protected in a designated storage location. Avoid distributing the data across multiple servers or file hosting services. The data should be stored in encrypted formats, and access should be limited to only authorized personnel involved in the analysis process.

126. Carefully define who should access the data in its various forms. Specify here which kind of data is shared and at what aggregation level. In most cases, only the principal investigator (i.e., the lead researcher) should have access to personal identifying information and individual-level data. Only a few people on the evaluation team will have access to the de-identified, individual-level data. All others who have permission to see data should receive it aggregated at the largest level that is still useful for their intended purpose.

127. Conduct data analysis in a manner that respects the privacy of the children. Aggregate data whenever possible to ensure that individual responses cannot be identified. Avoid reporting or discussing specific responses that could potentially reveal the identity of individual participants.

128. When reporting the findings or disseminating the survey results, ensure that the information shared is presented in a manner that protects the anonymity of the children. Use aggregated data or present findings in a way that preserves confidentiality. Avoid sharing any information that could potentially lead to the identification of individual participants.

129. Regularly review and assess the data handling and analysis protocols to identify any areas for improvement. Stay updated with relevant laws, regulations, and best practices related to handling children's data to ensure ongoing compliance.

130. The checklist in Box 1 gives an overview of the protocol outlined in this document, organized to highlight the main tasks associated with collecting children’s data as units of observation for impact evaluations.

Box 1: Checklist summary

STOP! First:

1. Define the purpose of data collection. What information are you looking for?
    - Does data already exist which can answer your evaluation question?
    - If appropriate data sets are already available, do NOT proceed with data collection.
2. Define the child population to be surveyed, paying special attention to specific vulnerabilities.
    - Is the participation of children indispensable?
    - Is the evaluation method appropriate for children?
3. Did you assess all the risks related to this data collection and develop mitigation measures? How will children's safety be ensured during the evaluation/research process?
    - If risks cannot be mitigated or are higher than the benefits of the data collection, do NOT proceed.
4. Establish a basic infrastructure for ethical data collection.
    - Can you find or provide a location for the interviews that guarantees privacy and confidentiality? If not, do NOT proceed.
    - Do all the researchers have the requisite skills and expertise to undertake the research? If not, do NOT proceed.
    - Are enumerators trained in child protection? If not, do NOT proceed.

Once the above ethical infrastructure is established, continue with preparations.

Develop:

5. Identify the most age-appropriate survey instrument and tool for the research purpose.
6. Improve the tool and tailor it to context.
7. Seek Institutional Review Board (IRB) approval.
8. Seek advice and approval from relevant local authorities.
9. Develop a data security plan for collecting and storing sensitive data.
10. Develop a communication plan for partners and respondents (including informed consent).
11. Develop a plan for analysing, sharing, and reporting data. Only researchers certified in protecting human research participants should handle personal identifying information.

Collect:

12. Hire enumerators appropriate for the child population being surveyed.
13. Conduct the training with enumerators on ethical considerations, child protection, and appropriate techniques when interacting with children.
14. Pilot the data collection tool for final improvements.
15. Closely follow logistics outlined in 'During data collection' (subsection 5.2) of the guidance.
16. Provide oversight, feedback, and support to enumerators.

Analyse and report:

17. Closely follow the plan for analysing, sharing, and reporting data.
18. Communicate the results with actionable recommendations for improved decision making.
19. De-identify all data for storage once reporting is done.

Acronyms

BMI	Body Mass Index
CFIES	Child Food Insecurity Experience Scale
COMET	Country Office Monitoring and Evaluation Tool
CRF	Corporate Results Framework
DDS	Dietary Diversity Score
DIME	Development Impact Evaluation department (World Bank)
ECMEN	Economic Capacity to Meet Essential Needs
EGMA	Early Grade Math Assessment
EGRA	Early Grade Reading Assessment
EMIS	Electronic Management Information System
EOI	Expression of Interest
FAO	Food and Agriculture Organization
FCS	Food Consumption Score
FCS-N	Food Consumption Score Nutritional Quality Analysis
FIES	Food Insecurity Experience Scale
GDQS	Global Diet Quality Score
HAZ	Height-for-age Z-score
HDDS	Household Dietary Diversity Score
HGSF	Home-grown school feeding
IDDS	Individual Dietary Diversity Score
IE	Impact Evaluation
IPC	Integrated Food Security Phase Classification
IRB	Institutional Review Board
LCS-EN	Livelihood Coping Strategies for Essential Needs
LCS-FS	Livelihood Coping Strategies for Food Security
MDD-W	Minimum Dietary Diversity for Women of Reproductive Age
PHQ-A	Patient Health Questionnaire for adolescents
PPI	Poverty Probability Index
RCT	Randomized Control Trial
rCSI	Reduced Coping Strategies Index
SBCC	Social and Behavioural Change Communication

SBP	School-based Programmes
SBP IE Window	School-based Programme Impact Evaluation Window
SCWT	Stroop Colour and Word Test
SD	Standard Deviation
SMDDS	School Meal Dietary Diversity Score
WAZ	Weight-for-age Z-score
WFP	World Food Programme
WHO	World Health Organization
WHZ	Weight-for-height Z-score
WISC	Wechsler Intelligence Scale for Children

References

Alderman, H., & Bundy, D. (2012). School Feeding Programs and Development: Are We Framing the Question Correctly? *The World Bank Research Observer*, *27*(2), 204–221. https://doi.org/10.1093/wbro/lkr005

Aurino, E., Gelli, A., Adamba, C., Osei-Akoto, I., & Alderman, H. (2020). Food for Thought? Experimental Evidence on the Learning Impacts of a Large-Scale School Feeding Program. *The Journal of Human Resources*. https://doi.org/10.3368/jhr.58.3.1019-10515R1

Aurino, E., Tranchant, J.-P., Sekou Diallo, A., & Gelli, A. (2019). School Feeding or General Food Distribution? Quasi-Experimental Evidence on the Educational Impacts of Emergency Food Assistance during Conflict in Mali. *The Journal of Development Studies*, *55*(sup1), 7–28. https://doi.org/10.1080/00220388.2019.1687874

Bell, W., Blakstad, M., Deitchler, M., & Milani, P. (2023). Measuring and Improving the Quality of School Meals: The Global Diet Quality Score (GDQS)-Meal and Menu Metrics. *Current Developments in Nutrition*, *7*, 100902. https://doi.org/10.1016/j.cdnut.2023.100902

Burbano de Lara, C. (2019). Feeding a Nation's Future: The Transformative Power of School Feeding Programmes. *World Food Programme Insight*. https://medium.com/world-food-programme-insight/feeding-their-future-the-transformative-power-of-school-feeding-programmes-301ffcc4569f

Cantril, H. (1965). *The Pattern of Human Concerns*. New Brunswick, New Jersey, USA, Rutgers University Press.

Chakraborty, T., & Jayaraman, R. (2019). School Feeding and Learning Achievement: Evidence from India's Midday Meal Program. *Journal of Development Economics*, *139*, 249–265. https://doi.org/10.1016/j.jdeveco.2018.10.011

de Onis, M., Onyango, A. W., Borghi, E., Siyam, A., Nishida, C., & Siekmann, J. (2007). Development of a WHO Growth Reference for School-aged Children and Adolescents. *Bulletin of the World Health Organization*, *85*(9), 660–667. https://doi.org/10.2471/BLT.07.043497

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, *49*(1), 71–75. https://doi.org/10.1207/s15327752jpa4901_13

Drake, L., Fernandes, M., Aurino, E., Kiamba, J., Giyose, B., Burbano, C., Alderman, H., Mai, L., Mitchell, A., & Gelli, A. (2017). School Feeding Programs in Middle Childhood and Adolescence. In D. A. P. Bundy, N. de Silva, S. Horton, D. T. Jamison, & G. C. Patton (Eds.), *Child and Adolescent Health and Development* (3rd ed.). The International Bank for Reconstruction and Development / The World Bank. http://www.ncbi.nlm.nih.gov/books/NBK525249/

Esenaliev, D., Bolotbekova, A., Kyzy, G. A., Tilekeyev, K., Aladysheva, A., Mogilevskii, R., & Brück, T. (2018). *Social Cohesion through Community-based Development in Kyrgyzstan* (SSRN Scholarly Paper 3807810). https://doi.org/10.2139/ssrn.3807810

FAO. (2018). *Food Insecurity Experience Scale (FIES)*. Food and Agriculture Organization of the United Nations. https://www.fao.org/in-action/voices-of-the-hungry/fies/en/

Fram, M. S., Bernal, J., & Frongillo, E. A. (2015). *The Measurement of Food Insecurity Among Children: Review of Literature and Concept Note*. UNICEF Office of Research. https://ideas.repec.org/p/ucf/inwopa/inwopa784.html

Frongillo, E. A., Fram, M. S., Ghattas, H., Bernal, J., Jamaluddine, Z., Kirkpatrick, S. I., Hammond, D., Aurino, E., Wolf, S., Goudet, S. M., Nyawo, M., & Hayashi, C. (2022). Development, Validity, and Cross-Context Equivalence of the Child Food Insecurity Experiences Scale for Assessing Food Insecurity of School-

Age Children and Adolescents. *The Journal of Nutrition*, *152*(9), 2135–2144. https://doi.org/10.1093/jn/nxac127

Gelli, A., Masset, E., Adamba, C., Alderman, H., Arhinful, D. K., Aurino, E., Folson, G., Osei-Akoto, I., & Asante, F. A. (2021). *School Meals as a Market for Smallholder Agriculture: Experimental Evidence from Ghana*. International Food Policy Research Institute (IFPRI). https://doi.org/10.2499/p15738coll2.134616

Gelli, A., Masset, E., Folson, G., Kusi, A., Arhinful, D. K., Asante, F., Ayi, I., Bosompem, K. M., Watkins, K., Abdul-Rahman, L., Agble, R., Ananse-Baden, G., Mumuni, D., Aurino, E., Fernandes, M., & Drake, L. (2016). Evaluation of Alternative School Feeding Models on Nutrition, Education, Agriculture and Other Social Outcomes in Ghana: Rationale, Randomised Design and Baseline Data. *Trials*, *17*, 37. https://doi.org/10.1186/s13063-015-1116-0

Giunti, S., Aurino, E., Masset, E., & Prifti, E. (2022). *Impact Evaluation of Home-grown School Feeding Programmes – Methodological Guidelines*. Food and Agriculture Organization of the United Nations (FAO). https://doi.org/10.4060/cb8970en

Golden, C. J. (1998). *Stroop Color and Word Test: A Manual for Clinical and Experimental Uses*. Chicago, Illinois, Stoelting Company.

Grantham-McGregor, S. M., Chang, S., & Walker, S. P. (1998). Evaluation of School Feeding Programs: Some Jamaican Examples. *The American Journal of Clinical Nutrition*, *67*(4), 785S-789S. https://doi.org/10.1093/ajcn/67.4.785S

Gunderson, G. W. (2003). *The National School Lunch Program: Background and Development*. New York, Nova Publishers.

Intake. (2021). *Global Diet Quality Score: Data Collection Options and Tabulation Guidelines*. Intake – Center for Dietary Assessment/FHI Solutions. https://www.intake.org/sites/default/files/2021-04/GDQS%20Overview%20Document%20-%20April%202021.pdf

Intake. (2023). *Global Diet Quality Score-Meal Metric: An Innovative Metric for Measuring Meal Quality*. Intake - Center for Dietary Assessment/FHI Solutions. https://www.intake.org/sites/default/files/2024-02/GDQS-Meal_Brochure_Web_English_24Jan2023.pdf

Johnson, J. G., Harris, E. S., Spitzer, R. L., & Williams, J. B. W. (2002). The Patient Health Questionnaire for Adolescents: Validation of an Instrument for the Assessment of Mental Disorders Among Adolescent Primary Care Patients. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine*, *30*(3), 196–204. https://doi.org/10.1016/s1054-139x(01)00333-0

Jomaa, L. H., McDonnell, E., & Probart, C. (2011). School Feeding Programs in Developing Countries: Impacts on Children's Health and Educational Outcomes. *Nutrition Reviews*, *69*(2), 83–98. https://doi.org/10.1111/j.1753-4887.2010.00369.x

Kazianga, H., Walque, D. de, & Alderman, H. (2012). Educational and Child Labour Impacts of Two Food-for-Education Schemes: Evidence from a Randomised Trial in Rural Burkina Faso-super- †. *Journal of African Economies*, *21*(5). https://ideas.repec.org//a/oup/jafrec/v21y2012i5p-760.html

Kennedy, G., Ballard, T., & Dop, M.-C. (2013). *Guidelines for Measuring Household and Individual Dietary Diversity*. Food and Agriculture Organization of the United Nations (FAO). https://www.fao.org/4/i1983e/i1983e00.pdf

Kennedy, G., Razes, M., Ballard, T., & Dop, M.-C. (2010). Measurement of Dietary Diversity for Monitoring the Impact of Food-based Approaches. *Food and Nutrition Security: Food-Based Approaches for Improving Diets and Raising Levels of Nutrition*, 284–290. https://doi.org/10.1079/9781780642994.0284

Lange, R.T. (2011). Working Memory Index. In: Kreutzer, J.S., DeLuca, J., Caplan, B. (eds) Encyclopedia of Clinical Neuropsychology. Springer, New York, NY. https://doi.org/10.1007/978-0-387-79948-3_1076

Langener, A. M., Kramer, A.-W., van den Bos, W., & Huizenga, H. M. (2022). A Shortened Version of Raven's Standard Progressive Matrices for Children and Adolescents. *The British Journal of Developmental Psychology*, *40*(1), 35–45. https://doi.org/10.1111/bjdp.12381

Larsen, M. M., & Boehnke, K. (2016). *Measuring Social Cohesion in the Kyrgyz Republic*. University of Central Asia – Institute of Public Policy and Administration (IPPA) Working Paper No. 37. https://doi.org/10.2139/ssrn.2946732

Masset, E., & Gelli, A. (2013). Improving Community Development by linking Agriculture, Nutrition and Education: Design of a Randomised Trial of "Home-grown" School Feeding in Mali. *Trials*, *14*(1), 55. https://doi.org/10.1186/1745-6215-14-55

McDonald, C. M., Olofin, I., Flaxman, S., Fawzi, W. W., Spiegelman, D., Caulfield, L. E., Black, R. E., Ezzati, M., Danaei, G., & Nutrition Impact Model Study. (2013). The Effect of Multiple Anthropometric Deficits on Child Mortality: Meta-analysis of Individual Data in 10 Prospective Studies from Developing Countries. *The American Journal of Clinical Nutrition*, *97*(4), 896–901. https://doi.org/10.3945/ajcn.112.047639

Montgomery, D.E. & Koeltzow, T.E. (2010). A Review of the Day–night Task: The Stroop Paradigm and Interference Control in Young Children. *Developmental Review*, Volume 30, Issue 3, September 2010: 308–330. https://www.sciencedirect.com/science/article/abs/pii/S0273229710000298

Nowicki, S., & Strickland, B. R. (1973). A Locus of Control Scale for Children. *Journal of Consulting and Clinical Psychology*, *40*(1), 148–154. https://doi.org/10.1037/h0033978

Pham, T., & Archibald, L.M.D. (2023). The Role of Working Memory Loads on Immediate and Long-term Sentence Recall. *Memory*, 2023 Jan;31(1):61-76. doi: 10.1080/09658211.2022.2122999

RTI International. (2014). *Early Grade Mathematics Assessment (EGMA) Toolkit*. https://shared.rti.org/content/early-grade-mathematics-assessment-egma-toolkit

RTI International. (2016). *Early Grade Reading Assessment (EGRA) Toolkit: Second Edition*. https://shared.rti.org/content/early-grade-reading-assessment-egra-toolkit-second-edition

Ruel, M. T. (2003). Is Dietary Diversity an Indicator of Food Security or Dietary Quality? A Review of Measurement Issues and Research Needs. *Food and Nutrition Bulletin*, *24*(2), 231–232. https://doi.org/10.1177/156482650302400217

Singh, A., Park, A., & Dercon, S. (2014). School Meals as a Safety Net: An Evaluation of the Midday Meal Scheme in India. *Economic Development and Cultural Change*, *62*(2), 275–306. https://doi.org/10.1086/674097

Tranchant, J.-P., Gelli, A., Bliznashka, L., Diallo, A. S., Sacko, M., Assima, A., Siegel, E. H., Aurino, E., & Masset, E. (2019). The Impact of Food Assistance on Food Insecure Populations During Conflict: Evidence from a Quasi-experiment in Mali. *World Development*, *119*, 185–202. https://doi.org/10.1016/j.worlddev.2018.01.027

UNICEF. (2014). *Compilation of Tools for Measuring Social Cohesion, Resilience, and Peacebuilding*. https://inee.org/resources/compilation-tools-measuring-social-cohesion-resilience-and-peacebuilding

UNICEF. (2019). *Towards a Child-led Definition of Social Cohesion*. https://www.unicef.org/jordan/reports/towards-child-led-definition-social-cohesion

Watkins, K. L., Gelli, A., Hamdani, S., Masset, E., Mersch, C., Nadazdin, N., & Vanhees, J. (2015). *Sensitive to Nutrition? A Literature Review of School Feeding Effects in the Child Development Life Cycle.* HGSF Working Paper Series #16. The Partnership for Child Development. https://www.imperial.ac.uk/media/imperial-college/medicine/sph/pcd/HGSF-Working-Paper-16-Sensitive-to-nutrition-lit-review-of-school-feeding-effects-in-child-development-life-cycle.pdf

Wechsler, D. (2014). *Wechsler Intelligence Scale for Children*. Pearson. https://www.pearsonassessments.com/store/usassessments/en/Store/Professional-

Assessments/Cognition-%26-Neuro/Wechsler-Intelligence-Scale-for-Children-%7C-Fourth-Edition/p/100000310.html

WFP. (2019a). *Food Consumption Score*. WFP VAM Resource Centre. https://resources.vam.wfp.org/data-analysis/quantitative/food-security/food-consumption-score

WFP. (2019b). *Reduced Coping Strategies Index*. https://resources.vam.wfp.org/data-analysis/quantitative/food-security/reduced-coping-strategies-index

WFP. (2021a). *Livelihood Coping Strategies – Essential Needs*. World Food Programme. https://resources.vam.wfp.org/data-analysis/quantitative/essential-needs/livelihood-coping-strategies-essential-needs

WFP. (2021b). *School Feeding Programmes in Low- and Lower-middle-income Countries: A Focused Review of Recent Evidence from Impact Evaluations*. https://www.wfp.org/publications/school-feeding-programmes-low-and-lower-middle-income-countries

WFP. (2021c). *State of School Feeding Worldwide 2020*. World Food Programme. https://www.wfp.org/publications/state-school-feeding-worldwide-2020

WFP. (2021d, March 24). *School-based Programmes Impact Evaluation Window: Concept note | World Food Programme*. https://www.wfp.org/publications/school-based-programmes-impact-evaluation-window-concept-note

WFP. (2022). *World Food Programme's Corporate Results Framework 2022-2025*. World Food Programme. https://www.wfp.org/publications/corporate-results-framework-2022-2025

WFP. (2023a). *Essential Needs Guidelines Guidance Note*. https://www.wfp.org/publications/essential-needs-guidelines-july-2018

WFP. (2023b). *Livelihood Coping Strategies – Food Security*. World Food Programme. https://resources.vam.wfp.org/data-analysis/quantitative/food-security/livelihood-coping-strategies-food-security

White, B. P. (2014). The Perceived Stress Scale for Children: A Pilot Study in a Sample of 153 Children. *International Journal of Pediatrics and Child Health*, 2(2), 45–52. https://doi.org/10.12974/2311-8687.2014.02.02.4

WHO. (2006). *The WHO Child Growth Standards*. https://www.who.int/tools/child-growth-standards

WHO. (2007). *Growth Reference Data for 5-19 Years*. https://www.who.int/tools/growth-reference-data-for-5to19-years

Office of Evaluation

World Food Programme
Via Cesare Giulio Viola 68/70
00148 Rome, Italy
T +39 06 65131
wfp.org