Impact evaluation of the Home-Grown School Feeding Commodity Voucher model in Burundi

School-based Programme Impact Evaluation Window

Inception note

July 2024

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1. Background and reasons for evaluation

1. This inception note was prepared by the United Nations World Food Programme Office of Evaluation (OEV)'s Impact Evaluation Unit and the World Bank's Development Impact (DIME) department based on an initial pilot phase in the academic year 2022-2023 and a revised feasibility assessment undertaken during an in-country mission in June 2023. The purpose of the inception note is to summarize key information about the impact evaluation to inform stakeholders, guide the evaluation team, and specify expectations during the various evaluation phases.

1.1. INTRODUCTION

2. This inception note is for the impact evaluation of the School Feeding Commodity Voucher model expansion in seven provinces in Burundi. This evaluation will be conducted in partnership with the WFP Office of Evaluation (OEV), the WFP Burundi country office (CO), and the World Bank's Development Impact (DIME) department.

3. The evaluation will take place from June 2023 to June 2026, covering programme activities from January 2024 to January 2026.

1.2. CONTEXT

4. Currently, the Burundi WFP CO school feeding model is based on a centralized procurement model, where WFP procures food and delivers them to schools, and meals are then prepared by parents of the students on a rotational basis. The meals comprise a combination of imported and local food such as cereals, beans and peas and parents contribute to food preparation on a rotational basis.[1]

5. Starting in 2022, the Burundi CO has been piloting a new decentralized school feeding procurement modality based on Commodity Vouchers (CV) to schools. Under this new Commodity Voucher (CV) procurement model WFP will make a transfer to the Direction Provinciale de l'Education (DPE) in each participating province, which will issue a restricted tender process to purchase from local cooperatives. Awarded cooperatives will then deliver food directly to schools. Meals will continue to be prepared by children's parents on a rotational base. This new model has the potential for developing agricultural markets in predominantly agricultural communities and may have a positive impact on local cooperatives and farmers.

6. Leveraging on the pilot of this new procurement model in the school year 2022/2023, a pilot impact evaluation was conducted to examine the impact of the CV procurement model on school meals' quantity, quality, and diversity. The pilot impact evaluation compared data from 50 schools randomly enrolled in the new procurement model with 45 randomly selected schools still receiving food according to the centralized procurement model. Preliminary findings which covered the period from September 2021 until February 2023 indicate that the new CV model resulted in a 60% higher number of meal days compared to the previous centralized model, with a large increase in rice distribution. This suggests that this model might also have the potential for increasing children's learning and nutritional outcomes.

7. Based on the evidence and lessons learned during the pilot phase[2] (June 2022 – July 2023), this inception note presents the design for a large-scale impact evaluation that aim to assess the impact of the decentralized procurement system on the local economy (i.e., smallholder farmers and cooperatives, market prices) as well as on children's nutrition, health, and education outcomes.

[1] *https://medium.com/world-food-programme-insight/feeding-the-future-the-smart-way-in-burundi-f4b910335b76*

[2] *See section 2.3 for further details*

1.3. IMPACT EVALUATION IN WFP

8. The WFP Evaluation Policy 2022 defines impact evaluation as: "*measuring changes in development outcomes of interest for a target population that can be attributed to a specific programme or policy through a credible counterfactual.*" WFP defines the counterfactual as estimating what would have happened in the absence of the intervention – or establishing that outcomes for the beneficiaries would not be present without the intervention. WFP impact evaluations are ty prospective, meaning they are planned and designed prior to programme delivery or a new phase of intervention[3]. Impact evaluations align with the timeline of a programme or pilot and usually cover one or more years.

9. The WFP Evaluation Policy (2022) identifies impact evaluations as a third category of evaluation, alongside centralized and decentralized evaluations. The policy states that impact evaluations are managed by OEV and delivered with external technical partners (for example, the World Bank's Development Impact department, DIME), in close coordination with the WFP COs, programme teams at headquarters, regional bureaux, and CO levels, and cooperating partners.

10. In line with the WFP Impact Evaluation Strategy (2019-2026), impact evaluations are primarily delivered through thematic impact evaluation windows, in partnership with programme teams and co-funded by participating country offices. Windows are portfolios of impact evaluations managed and co-funded by OEV, that aim to stimulate and shape demand for impact evaluations in priority areas and enable OEV to prepare cross-regional portfolios that allow for the kinds of evidence syntheses that meet WFP's global evidence needs. Starting in 2019, WFP has opened three impact evaluation windows, the first on cash-based transfers and gender, the second on climate and resilience, and a third on school-based programmes.

1.4. SCHOOL-BASED PROGRAMMES IMPACT EVALUATION WINDOW

11. School-based programmes are one of the most extensive social safety nets worldwide, with an estimated 418 million children currently benefiting from school meals (State of School Feeding Worldwide 2022). Such interventions are intended to promote children's health, nutrition, education, and learning; make communities more resilient; promote gender equality; and support national economies and social stability. There is an urgent need for more evidence to inform the trade-offs in school-based programmes' designs and implementation and to support governments as they scale up their programmes. The School-based programmes (SBP) impact evaluation window was launched in 2021 by the WFP's Office of Evaluation (OEV), SBP division and the World Bank's DIME department.

12. This window offers an opportunity for WFP to answer key questions about SBP interventions. While specific evaluation questions for each impact evaluation largely depend on CO 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 and education systems

- To what extent do different programmes' interventions, and complementary activities, contribute to children's (e.g., nutritional, health and/or learning) outcomes? How do these effects vary by age and gender? What is their relative cost-effectiveness?
- To what extent do the benefits of school feeding programmes vary throughout the year depending on seasonal fluctuations, shocks, and stressors?

Food systems and local economies

- To what extent do different procurement models impact the local economy?
- 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?

Optimization and cost-effectiveness

- To what extent can programmes' characteristics be optimized (including in conflict-affected, fragile, food-insecure, and humanitarian settings)? Which ones are the most cost-effective?

[3] *In exceptional cases where data is available, an IE may be retrospective.*

13. Currently the SBP window includes four ongoing impact evaluations in The Gambia, Jordan, Burundi and Malawi and two pilot evaluations in Burundi and Guatemala, and OEV is looking for additional COs to join the window.

1.5. RATIONALE

14. School meals programmes are multisectoral interventions and an essential component of health and education systems that contribute to achieving children's development. Approximately 41 per cent of children enrolled in primary school now have access to a free or subsidized daily school meal worldwide. While there is already strong evidence that school feeding impacts children's attendance, more evidence is needed on whether this translates into higher health, nutrition, and human capital outcomes, as well as into improvements in gender, social protection, and social cohesion outcomes.

15. The global annual investment of US$48 billion in school meal programmes creates a huge and predictable market for food, offering an extraordinary opportunity to transform food systems. Evidence from this evaluation will investigate the extent to which different procurement systems can impact the local economy (such as market prices, cooperatives' sales, and farmers' agricultural practices, revenues and income).

2. Evaluation context and programme description

2.1. CONTEXT

16. Burundi is a landlocked country in east-central Africa, with an area of 27,834 km^2 and an estimated population of 12,309,600.2,568,616 (21 per cent) of the population is aged between 7 and 15 years old, according to the Institut de Statistiques et d'Etudes Economiques du Burundi (ISTEEBU) in 2020. The country's average GDP per capita is expected to reach 240.00 USD by the end of 2022, according to Trading Economics global macro models and analysts' expectations. According to World Bank data, Burundi is the poorest country in the world in 2022 as measured by GDP per capita (World Development Indicators 2022).

17. The Government of Burundi has established the National School Feeding Programme (Programme National d'Alimentation Scolaire – PNAS), bringing together all education stakeholders around school feeding. Supported by WFP, the PNAS considers school feeding as an opportunity for rural socioeconomic transformation and human capital development. The PNAS takes into account policies formulated by various sectors with cross-cutting interests in school feeding like education, health, social protection, agriculture and livestock, rural development, finance and the environment.

18. The school meals programme was first initiated by the Government of Burundi in 2009 when the northern provinces of Burundi were hit hard by drought. WFP started providing support for the implementation of the programme in 2013. According to the National School Canteens Department, in 2018, it was estimated that 528,541 children in 703 preschools and primary schools were assisted by the programme out of a total of more than 2.4 million children.

19. In 2018, the Government of Burundi adopted a National School Feeding Policy, validated by the Council of Ministers under the name of the National School Feeding Programme to continue the school feeding programme until 2032. The National School Feeding Programme is a key tool for the Burundian Government to achieve the objectives of the National Development Programme (NDP) and to contribute towards the Sustainable Development Goals. The Government of Burundi is strongly committed to investing in human capital, having identified school feeding as the largest social safety net programme for vulnerable children in Burundi.

20. The National School Feeding Programme defines a set of guiding principles, norms, and standards for the implementation of a range of activities around school meals made from foodstuffs produced largely in Burundi. The policy is oriented around six strategic objectives: First, it seeks to raise awareness of nutritious and locally available foods and promote their consumption in order to: (i) reduce food insecurity and chronic malnutrition among school-age children by increasing and improving production and local consumption and (ii) stimulate children's school enrolment and (iii) improve student school attendance. Second, it aims at promoting the development of local agriculture by allowing community technical support. Third, it is geared towards improving school performance and completion by helping to make access to quality learning more equitable for all children in school or of school age. Fourth, to establish a stable market for local food produced by small farmers and their cooperatives. Fifth, to promote multi-sectoral partnerships and coordination for complementary support and effective programme implementation. Finally, to strengthen the governance and accountability of actors in the implementation of the programme.

2.2. PROGRAMME DESCRIPTION

21. The World Food Programme (WFP), in partnership with the Government of Burundi, provides daily nutritious meals to over 500,000 school children in 847 schools. The Burundi WFP CO's current school meals model is based on a centralized procurement model, where WFP procures a combination of imported and local food and deliver them to schools through implementing partners (World Vision, Caritas, etc.). The meals comprise a combination of imported and local food for cereals, beans, and peas. They are prepared by parents who contribute on a rotational basis.

22. With the aim to increase the proportion of locally procured school meals, WFP in partnership with implementing partners in 2022 has started a pilot of a new decentralized school meals procurement modality based on Commodity Vouchers (CV). Under this new CV procurement model, WFP will make transfers to the DPE in the participating provinces, which will purchase from local cooperatives, and cooperatives will deliver food directly to schools.

23. This new model has the potential for developing agricultural markets in predominantly agricultural communities and may have a positive impact on local cooperatives and farmers, as well as improving the performance of school meals delivery to children if this translates into higher school meals days as observed during the pilot impact evaluation. Preliminary emerging findings which covered the period from September 2021 until February 2023 indicate that the new CV model has a nearly 60 per cent higher number of meal days than the previous centralized model, with a large increase in rice distribution.

24. The school feeding programme is currently implemented in 847 schools[4] in 124 zones (an administrative subdivision of the country) across seven provinces (Bujumbura, Bubanza, Cibitoke, Gitega, Kirundo, Muyinga, and Ngozi).

25. The Burundi CO, in partnership with the Government of Burundi, are planning to expand the CV model to the remaining supported schools across the country, aiming to phase out the centralized procurement model by 2027. The Burundi CO is planning to expand the new CV model to approximately 90 new schools in 2024. More schools are expected to transition each year to the new model, however, this is conditional on successful fundraising, which, at the time of writing, was yet to be confirmed.

2.3. IMPACT EVALUATION PILOT

26. A pilot impact evaluation was conducted in partnership between WFP's CO, OEV and World Bank's DIME between June 2022 and June 2023. The primary goal of the pilot was to assess whether the CV procurement model impacted the performance of school meal delivery (e.g., quantity, quality, and diversity of meals) compared with the centralized procurement system. The secondary goal was to conduct a cost-efficiency analysis comparing the two alternative models. The third goal was to collect indicators on the local economy (such as farmers' income and welfare and agricultural practices) as well as child outcomes to provide a deeper understanding of the context before the full-scale evaluation.

27. The first question in the pilot was conducted as a lean impact evaluation, and randomly assigned 95 schools in three provinces (Bubanza, Bujumbura, and Muyinga) into two groups. 50 schools were assigned to transition to the new decentralized CV model and were mapped to 12 farmer cooperatives. 45 schools continued receiving food from the status quo centralized procurement system. The lean impact evaluation found that the new commodity voucher model delivered a statistically significantly higher number of school feeding days compared with the centralized procurement model (on average, 13 days against 7.4). In particular, the increase in school-feeding days for the CV model is mainly driven by the increased use of refined rice procured from local cooperatives. However, the increased use of refined rice, combined with a reduction of fortified maize, translated into a reduction in school meal quality, as measured by the GDQS-Meal. There seems to be, therefore, a trade-off between the increase in the number of school feeding days and a reduction in the quality of school meals when meals are distributed.

28. The costing analysis reveals that, on average, the CV model is less expensive than the old centralized model (US$37.61 per child per year compared with US$45.24). The main drivers for the difference are lower transportation costs.

29. Finally, evidence from the cooperatives involved in the pilot shows that a significant fraction of their revenues come from sales to schools, indicating the significant potential school meals represent for local farmers and cooperatives.

[4] with an expansion planned for 14 new schools in Makamba province in the academic year 2023/2024.

3. Evaluation Questions and Design

3.1. EVALUATION QUESTIONS

30. This impact evaluation will assess the following main questions:

    a) What is the impact of the new Commodity Vouchers procurement model on school meal distribution (e.g. quantity, quality and diversity of meals) compared with a centralized procurement model?

    b) What is the impact of introducing the Commodity Vouchers procurement model on children's outcomes (i.e. health, nutrition, learning, and behaviours) compared with a centralized procurement model? Does this changes by gender?

    c) What is the cost-effectiveness of the Commodity Vouchers procurement model compared with a centralized procurement model?

    d) What is the impact of introducing the Commodity Vouchers procurement model on agricultural cooperatives and their members?

    e) What is the effect of introducing the Commodity Vouchers procurement model on commodity prices in local markets?

31. While question (a) builds on the questions also explored in the pilot, questions (b) and (c) contribute to the first area of interest on health and education systems, investigating to which extent different programmes' interventions contribute to children's outcomes, how these vary by gender, and their relative cost-effectiveness. Finally, questions (d) and (e) refer to the window question aiming to assess to what extent different procurement models impact the local economy.

3.2. EVALUATION DESIGN AND PROGRAMME IMPLEMENTATION

32. Impact evaluation designs and programme implementation need to be fully aligned to identify the effects of an intervention on any intended outcomes. This section presents how the evaluation design will align with the programme scale-up and measure any changes that occur as a result.

33. Following in-depth discussions and considerations between the Burundi CO, government officials at the Ministry of Education, representatives at the DPE and the impact evaluation team, two embedded designs are proposed to answer the seven questions above. First, the School design will answer questions a), b) and c) and is based on a school-level randomized controlled trial. Second, the Cooperative design will answer question d) by conducting a cooperative-level random assignment. Finally, to answer question e), markets will be assigned either a treatment- or control status, depending on the distance to the nearest Cooperative and schools.

3.2.1 School Design

34. A **school-level randomized design** has been considered as the option with the highest likelihood of feasibility to embed a rigorous impact evaluation into the programme scale-up and to assess the impact of the new procurement model on children's outcomes and retaining the programme's principles.

35. The school feeding programme is implemented in 847 schools[5] in 124 zones across 7 provinces (Bujumbura, Bubanza, Cibitoke, Gitega, Kirundo, Muyinga, Ngozi and Makamba). The Burundi CO, in partnership with the Government of Burundi, are planning to expand the CV model to the remaining supported schools across the country, aiming to phase out the centralized procurement model by 2027. The Burundi CO is planning to expand the new CV model to 87 new schools in school year 2023-2024 (starting January 2024). New schools are expected to transition each year, however, it is conditional on successful fundraising, which, at the time of writing, was yet to be confirmed.

[5] *Excluding 50 schools from the pilot.*

36. It is proposed that in the scholastic year 2023/24 the expansion of the CV model will take place in three provinces (Bujumbura, Bubanza, and Muyinga) in 87 randomly selected schools out of the 300 currently supported. The outcomes from schools and students in these randomly selected schools (named treatment group) will be compared against other 86 randomly selected schools (named comparison group), which will continue delivering school meals using the old centralized model. The remaining 127 schools not part of the impact evaluation sample will also continue delivering school meals using the old centralized model. School randomization is stratified by province.

Question A: Impact on school meals distribution

37. Building on the evidence from the pilot impact evaluation, the first question for this large-scale impact evaluation is to assess whether the new CV procurement model is improving the performance of school meal distribution, defined by the quantity, quality, and diversity of meals distributed.

38. The evaluation will answer this question by estimating the following equation:

$$y_i = \beta_0 + \beta_1 CV_i + \delta_{s(i)} + \varepsilon_i,$$

39. where y_i represents the outcome of school *i* (e.g., feeding days, quantity of meals distributed, school-level enrolment and attendance), CV_i is a dummy variable indicating whether the school *i* receives the commodity voucher procurement (dummy equals 1) or the centralized procurement method (dummy equals 0), $\delta_{s(i)}$ as strata fixed effects, ε_i is the error term. β_1 is the parameter of interest, capturing the impact of the CV procurement model.

Question B: Impact on children's outcomes

40. Preliminary findings from the pilot IE showed that the new CV model had a nearly 60% higher number of meal days than the previous centralized model during the 2022/2023 school year. While there is already strong evidence that school feeding impacts children's attendance, more evidence is needed on whether having more meal days, translates into learning and cognitive abilities, and better nutrition and health outcomes.
41. The impacts of the CV model on children's outcomes will be assessed using the sample of children from schools that are part of the school-design, by estimating the following equation:

$$y_{pi} = \beta_0 + \beta_1 CV_i + \delta_{s(i)} + \varepsilon_{pi},$$

42. where y_{pi} denotes the outcomes of pupil *p* in elementary school *i*. Other variables are defined as in para. 39.
43. The differential effects for boys versus girls are analysed by interacting the dummy with the child's gender as below:

$$y_{pi} = \beta_0 + \beta_1 CV_i + \beta_2 female_{pi} + \beta_3 CV_i \times female_{pi} + \delta_{s(i)} + \varepsilon_{pi}$$

44. β_3 is the parameter of interest, capturing the differential impact of the CV procurement model on female students relative to male students.

Question C: Cost-effectiveness

45. In light of the increased school feeding days from the new procurement model in the pilot impact evaluation, the evaluation will also collect detailed cost data to investigate the cost-effectiveness of the new procurement model. The primary question will be the ratio of the food quantity delivered (or feeding days) and the cost of delivery under each procurement model. To answer this question, for example, the difference in the average implementation cost *per school* is compared against the effects of the CV model on school feeding days obtained from school-level analysis. This will allow the evaluation to derive how much the improvement in food quantity delivered (or feeding days) due to the new model costs. If the CV model leads to significant increases in student attainment, a similar statement will be derived in terms of test score improvements.

3.2.2 Cooperative design

46. A cooperative-level randomized design has been considered the option with the highest likelihood of feasibility to embed a rigorous impact evaluation to assess the impact of the new procurement model on the local economy.

47. Following a mapping process, 54 cooperatives have been identified to be eligible to potentially supply directly to schools in the three provinces where the new CV model will be scaled up in 2023/24 (Bujumbura, Bubanza, and Muyinga). Under the CV model, the DPEs in each of the three provinces will launch a restricted tendering process to select the local cooperatives which will deliver food directly to schools.

48. All 54 eligible cooperatives will be invited to tender. The cooperatives which were part of the pilot, if participating in the tender, will go through the same selection process as any other cooperatives.

49. The cooperative-level design randomizes a contract offer within equally eligible offers. All submitted bids will be reviewed by the Burundi CO, the tendering review committee, and the impact evaluation team based on criteria such as types of crops, quantity, price offers, and the list of schools within reach of the cooperatives. The review process will discard all cooperative bids which are not competitive or eligible. It will also identify the best two cooperatives' bids and award them directly (and therefore they are not part of the study). The remaining group of cooperatives' bids are then expected to be all similarly comparable. After this initial screening, it is proposed that the remaining bids are randomly selected to win a contract.

50. Given the uncertainty around scale-up funding and plans for the scholastic year 2024/25 and beyond, the design and data collection plans for this component will be revised in July 2024. An amendment of this inception note will be produced with the updated design.

Question D: Impact on cooperatives and farmers outcomes

51. To assess the impacts on the local economy, the evaluation will compare the outcomes of cooperatives and their farmer members who submitted a similarly comparable bit. The total sample is still unknown as it will depend on the selection process.

52. To analyse the impact of the CV procurement model on cooperatives, we estimate the following equation:

$$y_c = \beta_0 + \beta_1 T_c + \delta_{s(c)} + \varepsilon_c,$$

53. where y_c represents the outcomes of cooperative c (e.g., revenues, sales volume, income, production, etc). T_c is a dummy variable indicating whether the cooperative was awarded the bid. Other variables are defined as above.

54. In addition to the cooperative-level analysis, we directly assess how this decentralized procurement improves individual farmer's welfare by conducting cooperative member-level analysis using the following equation:

$$y_{ic} = \beta_0 + \beta_1 T_c + \delta_{s(c)} + \varepsilon_{ic},$$

55. where y_{ic} denotes the outcomes of individual farmer *i* who is a member of cooperative *c.* Other variables are defined as above. Standard errors will be clustered at the zone level. Similarly, the first-stage outcomes are whether the farmer sells via the cooperative to schools, and whether the farmer increased the sales of crops to the cooperative. The primary outcome of interest is how farmers' sales revenue and consumption change when they are part of a cooperative procuring to the CV model relative to cooperatives not procuring to schools.

56. In the event the implementation of the design above does not materialize, two alternative models will be explored. First, the analysis will try to compare cooperatives that win the bidding process against cooperatives that do not win or do not participate in the tender. Historical data from 2021 until 2023 will be collected from all cooperatives eligible to participate in the school feeding tenders to test for the parallel trends assumption. Second, the analysis will compare three groups: a) farmers from cooperatives that won the procurement process and produced the commodity procured; b) farmers

belonging to the same cooperatives and that produced different commodities; c) finally, farmers from cooperatives that were eligible but did not win the procurement process.

Question E: Effects on commodity prices in local markets

57. The demand for crops created locally by the school meal procurement through cooperatives can be considered a large demand shock for the local agricultural market. If price differences are not fully arbitraged due to fragmented market structures, schools' demand is large enough relative to the aggregate market demand, and supply cannot adjust in the short term, it is possible that the large demand shock from schools' increases commodity prices in local output markets. The shift in food prices, especially the types of staple food demanded by schools, may have unintended consequences for rural households who are mostly net buyers.

58. To assess the impacts on market prices, local markets are assigned to CV model or centralized procurement model depending on their distance to each school or cooperative. The following equation will be estimated:

$$p_{ivm} = \beta_0 + \beta_1 CV_m + \phi_i + \eta_v + \delta_{s(m)} + \varepsilon_{ivm},$$

59. In the equation above, p_{ivm}denotes price of individual commodity *i* sold by market vendor *v* in market *m*, CV_m denotes whether market *m* is assigned the CV model status or not, $\phi_i$is a commodify fixed effect, and $\eta_v$is a vendor fixed effect. $\beta_1$captures the difference in prices between CV model and centralized procurement zone markets.

4. Data collection and measurement

4.1. DATA SOURCES, SAMPLING STRATEGY, AND SAMPLE SIZE

60. The evaluation will collect data from multiple sources and points in time. Figure 1 provides a visual representation of the expected timeline for data collection.

4.1.1 School Design

School headteacher survey

61. School headteacher survey will be collected in 173 schools (87 that made the transition to the new model and 86 that remained in the old, centralized model). It will collect information about commodity delivery, meals distribution, and meals quality. Data collection will take place in January 2024 for the baseline (before the schools make the transition to the new model), January 2024, one year after the transition to the new model, and finally in January 2026, two years after the transition.

Children survey

62. For each of the 173 schools in the evaluation, 10 students in Grade 3 (expected to be at least eight years of age) will be randomly selected for child surveys for a total of 1,730 children. The child survey will collect education outcomes, nutrition and health outcomes, and anthropometrics data. Data collection will take place in January 2024, before schools make the transition to the new model, and January 2026, two years after the change in model.

School monitoring data

63. Monitoring data will be conducted in all 793 WFP-supported school feeding schools in eight provinces regardless of their procurement model. Monitoring data includes number of feeding days; quantity (Kgs) served in school meals per child by food group (corn flour, rice, beans, peas, oil, salt, milk); attendance, enrolment, and retention. Monitoring data will either rely on School Connect Data or digitised paper-based forms. Digitized paper-based forms will be entered approximately once every six months, starting from January 2024 until January 2026, for the 173 schools involved in the impact evaluation.

Parent survey

64. The parents/legal guardians of the child surveyed as part of the child survey will also be interviewed as part of the endline survey in 2026, two years after the change in model, to study household outcomes, including intra-household allocation.

Programme costing data

65. Detailed programme costing data sheets will be developed to accurately monitor costs and used to perform detailed cost-analysis.

4.1.2 Cooperative design

Cooperative head survey

66. A cooperative survey will be conducted in all 54 eligible cooperatives. The cooperative survey will include indicators on the demographics of cooperative members, conditions and benefits of membership, production and sales, assets, finance, and deliveries to schools, among others. The baseline cooperative survey will be conducted in January 2024, and two follow-up surveys will be conducted, one in 2025 and the second in 2026. During the baseline data collection process, the cooperative survey will also collect historical data from 2021 until 2023.

Farmer survey

67. For each of the eligible cooperatives that submitted a bid, at least ten farmers will be randomly selected for interviews, totalling at least 540 farmers.

68. The farmer survey will include indicators on income, employment, agricultural and non-agricultural businesses, education and welfare, agricultural practices, production and sales, assets, consumption, coping strategies, finances, and cooperative membership, among others. The baseline farmer survey is expected to be conducted in January 2024, and two follow-up surveys will be conducted, one in 2025 and the second in 2026.

Market survey

69. To prepare for the market surveys, a census of all primary (permanent or regular e.g., monthly) agricultural markets in the CV model and centralized procurement zones will take place. In each market, three vendors will be randomly chosen to provide price information for each of the crops of interest to get up to three price points per crop. The market price survey will collect information about prices and units of the commodities included in the school meals (maize flour, beans, rice, oil, salt), as well as information about prices and quantities of commodities that may be substituted for these school-feeding crops (e.g., cassava flour, peas). The market survey is expected to be conducted not less than every six months from January 2024 until June 2026. Alternative data collection strategies will be put in place to fit within the available data budget.

Qualitative data collections

70. A combination of Focus Group Discussions (FGDs) and direct observations will be employed to interpret and describe specific evidence resulting from the survey processes mentioned above. Data collection will take place between September 2023 to January 2026 and will be responsive to evidence needs encountered throughout the evaluation process.

OUTCOMES OF INTEREST

71. The outcome indicators are standardized across the SBP window to allow for comparison across countries. Additional measures can be proposed upon interest and will be reviewed by all stakeholders. Gender and disability indicators will be collected as part of the child survey and farmer survey to provide descriptive summary statistics evidence.

Table 2: Outcomes of interest

Evaluation question	Unit of observation	Indicators	Data source	Sample
Question A	School	*Food quantity: Feeding days, Quantity served per child;* *Food diversity: Dietary diversity score of served meals* *Food quality: Global Diet Quality Score - Menu (GDQS-M)*	School monitoring data (school connect or digitized papers)	173 schools (87 intervention and 86 comparison)
Question B	Child	*Nutrition: Dietary Diversity (Food consumption score); Food insecurity (Food Insecurity Experience Scale)* *Psychological well-being, Mental health and psychological well-being; Life satisfaction, Stress, Depression, Agency* *Physical health status: Number of ill days; Washington Group Short Set on Functioning (Disability) 6* *Learning: Reading skills (EGRA); Numeracy skills [(EGMA)* *Cognitive abilities: Attention span (SCWT), Working memory (digit span), Fluid intelligence (Raven's Progressive Matrices or RPM),* *Social cohesion: Trust, Belonging and inclusion.* *Anthropometrics: height and weight*	Child survey	1,730 children. 10 children per school.
	Parent	Intra-household food allocation, attitudes and believes	Parent survey	1,730 parents/legal guardians
	School	Attendance, dropouts, grate progression, repetition, new enrolment	School survey	173 schools (87 intervention and 86 comparison)

[6] *For descriptive purposes only.*

Question C	The evaluation team will closely work with preprogramme colleagues and government officials to determine the cost of delivery under each procurement model			
Question D	Cooperative	Sales, prices, markets	Cooperative survey	54 eligible cooperatives identified during the cooperative mapping exercise
	Farmer	Agricultural production, diversification, sales, revenues, income, savings, investments, shocks, market preferences	Farmer survey	540 farmers per data collection exercise.
Question E	Market	Market prices and quantities for commodities included in school meals (maize flour, rice, beans) and commodities that may be substitutes (e.g. cassava flour, peas)	Vendor survey	Three vendors in each of the 30 primary market identified in the market census

4.3. POWER CALCULATIONS

72. As part of the WFP CO's scale-up plan, 87 schools will start receiving meals under a commodity voucher model. Therefore, we use 87 schools as a basis for power calculations for school-level and children-level outcomes. Moreover, the WFP CO identified 54 cooperatives during its mapping exercise who will be invited for tendering. We assume that all invited cooperatives submit their bids and therefore use 54 as the sample size for cooperative-level and farmer-level outcome indicators. For all calculations, a power of 0.8 and a statistical significance level of 0.05 are used.

School-level outcomes

73. Table 3 displays the minimum detectable effects of monthly school feeding days and attendance rates. The number of feeding days is the raw count of days where a meal is served, tracked through digitization of meal monitoring forms filled by schools each month.

74. The results suggest that the experimental design can detect an increase of 2.7 school feeding days (40 percent) and 10.5 percentage points (13.7 percent) in attendance rates. Analysis of the pilot data shows an increase from 7.3 to 13 meal days/month in centralized procurement vs CV model schools (approximately 80 percent). This suggests that the design is powered to detect changes in school feeding days.

Table 3: Power calculation – school-level outcomes

Outcome	T	C	Comparison Group Mean	Comparison Group SD	MDE	MDE (% of mean)	MDE (in SD)
School feeding days	87	86	6.856	6.388	2.737	39.9%	42.8%
Attendance rate (%)	87	86	0.765	0.244	0.105	13.7%	42.8%

Children-level outcomes

75. Table 4 shows the minimum detectable effects for children's learning and cognitive ability outcomes as well as nutrition outcomes. The learning outcomes are proxied by standardized literacy test scores (i.e., Early Grade Reading Assessment and Early Grade Mathematics Assessment), while cognitive ability is proxied by standardized scores of Ravens and Stroop test. Finally, child nutrition is measured by the dietary diversity score of what the child consumed in the past 7 days. The data are obtained from the child surveys that was conducted in June 2023 during the pilot impact evaluation. The number of children to be interviewed per school is 10, resulting in 870 students in treatment schools and 860 students in control schools.

76. The power calculation results suggest that the experimental design can detect 0.19-0.21 standard deviation increases in EGRA and EGMA scores, and approximately 0.15-0.2 standard deviation increase in cognitive abilities. The pilot IE showed that, despite doubling the days of school feeding for CV model schools, there is a limited impact on test scores 6 months after the intervention. The literature review for the SBP impact evaluation window found that the academic literature reported an increase in test scores of 0.09-0.2 standard deviation from a change from no school feeding to school feeding. Given that the comparison group in this IE is already receiving some form of school-feeding, the new modality is unlikely to have similarly sized effects. While this individual IE is not powered to detect these large changes in children's learning outcomes, it will still contribute to adding power for a window-level multi-country study that assesses children's outcomes.

77. The power calculation results also suggest that the current design is powered to detect a 8.4 percent increase in children's diet diversity score.

Table 4: Power calculation – children-level outcomes

Outcome	T	C	Comparison Mean	Comparison SD	MDE	MDE (% of mean)	MDE (in SD)
Std. EGRA	870	860	0	1	0.199	-	19.9%
Std. EGMA	870	860	0	1	0.211	-	21.1%
Std. Ravens	870	860	0	1	0.148		14.8%
Std. Stroop	870	860	0	1	0.203	-	20.3%
Diet Diversity Score	870	860	4.42	1.505	0.371	8.4%	24.7%

Note: Children-level outcome power calculations assume a baseline and endline correlation of 0.5

Cooperative level outcomes

78. For cooperative level power calculations, it is assumed that all invited 54 cooperatives submit their bids, and they are randomly assigned to the commodity voucher model or the status-quo model. Table 5 shows that the experimental design can detect a 26.3 percent increase in the share of sales revenue from selling to schools. The table also shows that the minimum detectable effect for sales revenue is US$24,889 (65.1 percent). The average share from sales to schools was 85 percent and the average size of the initial contract was approximately US$44,000 during the pilot IE. Therefore, the size of the procurement contract between DPEs and cooperatives will determine whether the design is powered to detect any changes in cooperatives' income.

Table 5: Power calculation – cooperative-level outcomes

outcome	T	C	Comparison Mean	Comparison SD	MDE	MDE (% of mean)	MDE (in SD)
Share of revenue from selling to schools	27	27	0.843	0.285	0.222	26.3%	77.7%
Sales revenue (in USD)	27	27	29,687	24,889	19,337	65.1%	77.7%

Note: Cooperative level outcome power calculations assume a baseline and endline correlation of 0.3

Farmer-level outcomes

79. Table 6 reports the power calculations for farmer level outcomes. During the pilot impact evaluation, the evaluation team collected data on how much of the farmer's crop sales revenues are from the sales to cooperatives. The Food Consumption Score (FCS) is calculated over a seven-day recall period, pertaining to consumption of various food groups.

80. The impact evaluation design assumes surveying 10 farmers per cooperative, distributed over 27 CV model and 27 comparison cooperatives. The results suggest that this design can detect an increase of 24.8 percent in the share of farm revenue generated through sales to cooperatives, and of 47.8 percent in total farm revenue (250.35 USD). An increase of 5.4 is detectable in the FCS (between 5-6 more servings per week added to a household diet).

Table 6: Power calculation – farmer-level outcomes

Outcome	**T**	**C**	**Comparison Mean**	**Comparison SD**	**MDE**	**MDE (% of mean)**	**MDE (in SD)**
Share of revenue from selling to cooperatives	270	270	0.701	0.428	0.174	24.8%	40.6%
Farm revenue (in USD)	270	270	524.04	715.50	250.35	47.8%	35%
Food consumption score	270	270	27.62	12.86	5.484	19.9%	42.7%

Note: Farmer-level outcome power calculations assume a baseline and endline correlation of 0.3

5. Ethical considerations

81. Evaluations must conform to 2020 United Nations Evaluation Group (UNEG) ethical guidelines. Accordingly, OEV and DIME are responsible for safeguarding and ensuring ethics at all stages of the evaluation cycle. This includes but is not limited to, ensuring informed consent, protecting privacy, confidentiality, and anonymity of participants, ensuring cultural sensitivity, respecting the autonomy of participants, ensuring fair recruitment of participants (including women and socially excluded groups), and ensuring that the evaluation results in no harm to participants or their communities.

82. The evaluation will need ethical clearance from a recognized Institutional Review Board (IRB) before collecting survey information from children and farmers. The following additional considerations have been made when designing the evaluation:

83. Children enrolled in the impact evaluation are all given an equal chance to receive school meals. Children in CV model schools will receive school meals through the new CV procurement model, while children in comparison schools will receive school meals through the centralized procurement model.

84. All eligible cooperatives from selected provinces are entitled to participate in the tendering process. The cooperative-level randomisation will take place only among equally eligible tenders.

6. Organization of the evaluation

6.1. EVALUATION TEAM

85. The **Impact Evaluation Team** (IET) is responsible for designing, managing, and delivering the evaluation throughout all its steps and maintaining relationships with the country office and governing bodies. The IET includes an Evaluation Manager (EM), Technical Lead (TL), research analyst (RA), and Field Coordinator (FC). In general, the EM is based at OEV, while the TL and RA are from an external partner (e.g., DIME). The IET may also include external academic partners with attempts made to identify and include local/regional academic researchers as part of the IET, in a case-by-case situation.

86. The **Evaluation Manager** is a WFP Impact Evaluation Officer. S/he is responsible for the overall implementation throughout the evaluation process and for ensuring that the evaluation responds to WFP evidence priority needs. The EM provides the first level of quality assurance. In line with the WFP Evaluation Policy 2022, the OEV EM can also play a more significant role in an evaluation, such as team leader, who is responsible for the overall technical quality of the evaluation. All IET members shall not have vested interest in the evaluand (i.e., subject under evaluation). In cases of WFP staff, they should come from an independent evaluation unit with clear and distinct career paths and career progression incentives that are different from the programme's performance.

87. The **Field Coordinator** (FC), or Field Manager in the case of large multi-year impact evaluations, is based either at the country or regional level and is responsible for liaising with programme team and implementing partner throughout the IE. Generally, the Field Coordinator is based in the country where the intervention is implemented. Arrangements on how the Field Coordinator is recruited will vary on a country-to-country base, as they can be hired by WFP's CO or the evaluation partner(s). The Field Coordinator will need to have access to the field and WFP data and information, including access to WFP systems and WFP duty of care.

Table 7: Impact Evaluation Team

Name	Role	Organisation/Unit
Jonas Heirman	Head of Impact Evaluation Unit	World Food Programme (OEV)
Simone Lombardini	Evaluation Officer	World Food Programme (OEV)
Minh Phuong La	Evaluation Officer	World Food Programme (OEV)
Florence Kondylis	Research Manager	World Bank (DIME)
Dahyeon Jeong	Economist	World Bank (DIME)
Hannah Uckat	Economist	World Bank (DIME)
Roshni Khincha	Research Analyst	World Bank (DIME)
Vedarshi Shastry	Research Assistant	World Bank (DIME)
Assereou Atekou	Field Coordinator	World Bank (DIME)

6.2. EVALUATION MANAGEMENT GROUP

88. The **Evaluation Management Group** (EMG) is programme- or country-specific- management group serving as a key interlocutor during the impact evaluation. The EMG is chaired by the CD (or their designee who can steer the programme implementation, e.g., DCD or Head of Programme), with the EM serving as secretary. It is composed of country office and regional bureau staff, who have a key interest in the evaluation. The EMG is responsible for the co-design of the evaluation, identifying priority questions and feasible implementation options together with the IET. It reviews key outputs during each phase of the IE. It is expected to meet at the end of each phase and no less than once a year.

Table 8: Evaluation Management Group

Name	Role	Organisation/Unit
Arduino MANGONI	Deputy Country Director	World Food Programme (Burundi)
Niamkeezoua KODJO	Head of Programme	World Food Programme (Burundi)
Marthe MBENGUE	Head School Feeding	World Food Programme (Burundi)
Bidio KOUASSI	Head of Bujumbura sub-office	World Food Programme (Burundi)
Monique BARIHUTA	National School Feeding Officer	World Food Programme (Burundi)
Josephine TWAGIRAYEZU	M&E Officer	World Food Programme (Burundi)
Jean MAHWANE	M-Vam Officer	World Food Programme (Burundi)
Eddy NAHIMANA	M&E Associate	World Food Programme (Burundi)
Sujin PAK	Regional Evaluation Officer	World Food Programme (RBN)

6.3. WORKING GROUP

89. The Working Group (WG) is composed by representatives from the EMG and IET and is responsible for ensuring that programme intervention(s) is implemented as outlined in IE design. The WG serves as the day-to-day key interlocutor between the IET and EMG during the impact evaluation process. It ensures that programme implementation is in line with the evaluation design. The FC or RA coordinates the WG. The working group is expected to engage regularly, depending on the phase, this can be from a weekly base to a monthly base. It is suggested that a member of the CO RAM team and relevant RB focal points also be appointed to the WG.

7. Indicative timelines

90. Figure 1 provides a visual representation of the data collection processes described in Section 4.

91. Figure 2 provides a timeline of the expected key deliverables for evidence sharing and report writing. Given uncertainties around scale-up, it is expected that the cooperative design will be revisited in June 2024. Presentations of the preliminary results and sharing of the draft report are expected to take place 4 and 6 months, from the last data collection round.

Figure 1: Timeline data collection

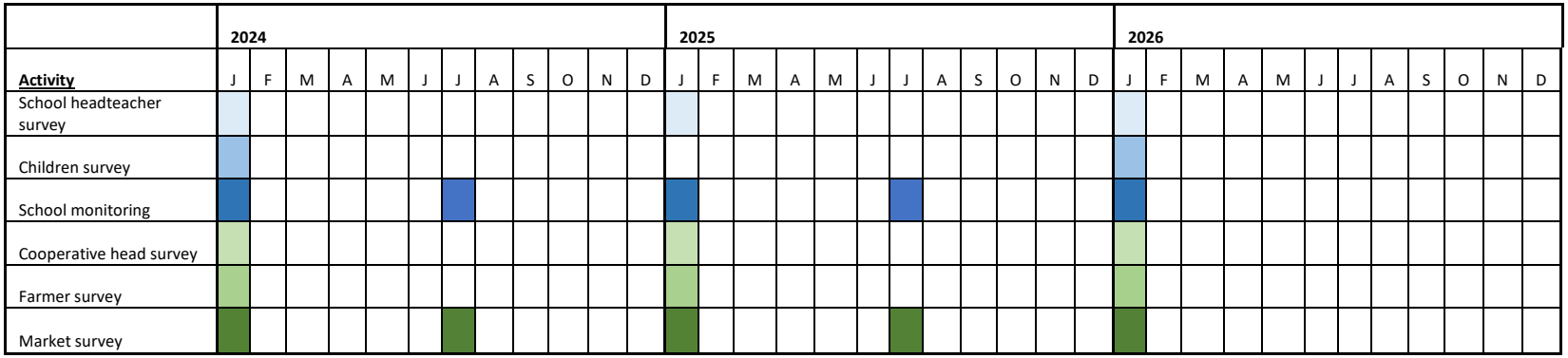
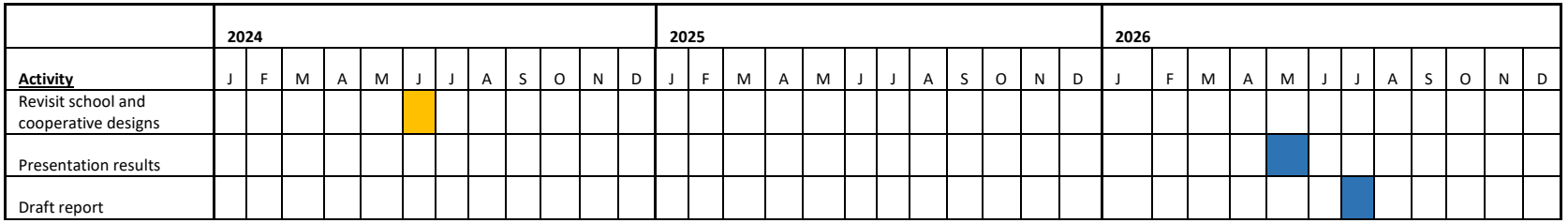


Figure 2: Timeline deliverables



Acronyms

CO	Country Office
DIME	Development Impact Evaluation
EL	Endline
EMIS	Education Management Information System
IE	Impact Evaluation
IET	Impact Evaluation Team
IRB	Institutional Review Board
ITT	Intend to Treat
M&E	Monitoring and Evaluation
MDE	Minimum Detectable Effect
MoA	Ministry of Agriculture
MoE	Ministry of Education
OEV	Office Of Evaluation
RCT	Randomised Control Trial
SD	Standard Deviation
TOR	Terms of Reference
UNEG	United Nations Evaluation Group
WB	World Bank
WFP	World Food Programme

Office of Evaluation

World Food Programme

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July 2024