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## EVALUATION REPORTS

## Agenda item 6

For consideration



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# SUMMARY REPORT OF THE IMPACT EVALUATION OF SCHOOL FEEDING IN CAMBODIA

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## NOTE TO THE EXECUTIVE BOARD



\* Office of Evaluation



## **EXECUTIVE SUMMARY**

This evaluation is the second impact evaluation of school feeding commissioned by the Office of Evaluation. It aimed to provide evidence of intended and unintended effects of the WFP school feeding programme in Cambodia with a view to supporting programme design and informing school feeding policy. The evaluation applied a mixed-methods approach using complementary quantitative and qualitative data collection methods and analysis.

The school feeding programme is aligned with government policies and educational goals and the national strategy framework. Over the past ten years it has supported primary education by contributing to increased enrolment, attendance and promotion and to reducing drop-outs. It has had a marked effect on nutrition and value-transfers to households. The modalities of school meals and take-home rations affect education, nutrition and value transfer in different ways.

The evaluation found a significant effect on enrolment in that school feeding was a strong incentive for parents to send their children to school – but the positive effect was only sustained while schools benefited from the programme. The evaluation also found that take-home rations had a significant positive effect on attendance. School feeding reduced drop-out rates, especially in grades 2, 3 and 4, but standard performance tests showed minimal benefits in terms of improved learning, which is probably attributable to contextual factors.

Anthropometric measurements among girls suggested that school meals enabled them to take advantage of the pre-puberty growth spurt. The evaluation also found an important correlation between the height of girls in the school meals programme and household sanitary conditions. The school feeding programme helped to reduce morbidity among pupils in general and absences from school as a result of illness among girls.

The school meals programme had no significant effect on haemoglobin levels and anaemia prevalence rates among pupils, but this was expected given that the food basket contained no iron-fortified foods. Survey data, however, indicate improved vitamin-A status in pupils benefiting from school feeding.

The school meals programme had a robust and significant association with increased dietary diversity scores, which is a proxy for nutritional adequacy, for both sexes and across provinces and wealth groups; as expected, the take-home rations had no significant effect on the scores.

The take-home ration was worth up to 26 percent of incomes in households with the fewest assets; among school meals beneficiaries the figure was 14 percent. The school meals modality had the effect of saving time in beneficiary families, especially for women. Beneficiary households will become more resilient to food shortages during lean periods, particularly because the take-home ration means that poor families can extend the period during which they do not have to buy rice, which in turn reduces their vulnerability and increases the options for investing in assets.



Certain factors limited the positive effects, however: i) poverty, vulnerability and the need for extra household income, which affected school attendance when children were old enough to work; ii) low education among parents; iii) low quality of education because of poor teacher training and absenteeism; and iv) access factors such as insufficient schools offering all nine primary grades and inadequate infrastructure.

Successful school feeding programmes are based on community involvement and government commitment. The Cambodia programme functioned effectively and was well organized, but the following factors could be reinforced to make interventions more effective and sustainable: i) programme design, in terms of objectives and food fortification; ii) community involvement and support for government ownership and commitment; and iii) strategic capacity development.



<sup>&</sup>lt;sup>\*</sup> This is a draft decision. For the final decision adopted by the Board, please refer to the Decisions and Recommendations document issued at the end of the session.



## **BACKGROUND AND CONTEXT**

- 1. The Cambodia school feeding impact evaluation was one of a series of impact evaluations commissioned by the Office of Evaluation. Its purpose was to provide evidence of the intended and unintended effects of WFP's Cambodia school feeding programme.
- 2. The objectives of the impact evaluation were to:
  - i) evaluate the outcomes and impact achieved so far from the various modalities used in relation to the programme's original educational and gender objectives;
  - ii) evaluate outcomes and impact achieved in relation to WFP's new social safety net policy objectives, even though they were not explicitly included in the school feeding programme, and to assess the extent to which the programme met or could potentially meet them; and
  - iii) identify changes needed to enable the programme to contribute optimally to the objectives of the Government, the current WFP Strategic Plan and the 2009 school feeding policy.
- 3. The evaluation focused on the three protracted relief and recovery operations in Cambodia from 2001 to 2010, which were designed before the Board approved the WFP school feeding policy in 2009.
- 4. The evaluation applied a mixed-methods approach consisting of complementary quantitative and qualitative data-collection methods. Schools were identified in advance according to the different components of the school feeding programme: take-home rations, the school meals programme, non-targeted schools and those with child-friendly activities. On this basis, 108 schools were identified, of which 30 were used as controls. Between 15 and 20 pupils were randomly selected at each school, and the household surveys were carried out in their homes: 2,014 such surveys were carried out as part of the impact evaluation. Apart from socio-economic data, the household survey included anthropometry, haemoglobin measurement, asset scores and food security assessments. Iron-deficiency anaemia is endemic in Cambodia, but data on school-age children were limited. The evaluation team was nonetheless able to study this aspect by partnering with the Cambodia office of Helen Keller International.
- 5. A survey based on the same criteria included 53 schools and gave 1,227 standardized tests for sixth-grade students. Econometric analysis was carried out on the basis of data from the Ministry of Education information system covering the period 2001–2010: this included panel data, standard cross-section regression and matching.
- 6. The evaluation faced some methodological challenges, mainly related to assessing income generation and effects on assets. In the absence of baseline information on key indicators, the analysis was limited to counter-factual assessment at the time of the evaluation.

### Context

7. Despite economic growth in recent decades, Cambodia remains one of the poorest countries in Southeast Asia. It has an estimated population of 13.4 million, of whom 30 percent still live below the national poverty line. Although Cambodia produces food surpluses, food insecurity affects an estimated 1.7 million people, particularly during lean seasons. The main causes of food insecurity are limited livelihood opportunities, recent



economic shocks such as food price rises, which have reduced household purchasing power and access to sufficient and diverse food, low productivity among small-scale farmers and the lack of access to land for the poorest households. Floods and droughts have also added to the vulnerability of poor households.

- 8. Cambodia's recent history is characterized by war and displacements, which all had detrimental effects on the social and economic situation, especially in education. Although Cambodia has made considerable progress in expanding basic education in recent years, major concerns remain with regard to deteriorating physical infrastructure, the quality of educational services, high drop-out and low retention rates and an acute shortage of trained teachers, especially in remote areas.
- 9. Under the National Strategic Development Plan (2006–2010), the Government is committed to ensuring equitable access to basic education for all children and to reducing the financial burden for poor students. The school feeding programme is aligned with the national strategy framework: it will help to increase school enrolment and ensure that pupils complete primary education. Net enrolment reached 95 percent in the 2009/10 school year, from 90 percent over the preceding five years; the average completion rate is 83 percent but there are large national variations: some areas have completion rates as low as 43 percent.
- 10. Nutrition and food security are major priorities of the Government under its National Programme for Household Food Security and Poverty Reduction (2007–2011), whose objectives include improved basic health among food-insecure and vulnerable people. There have been improvements in health in recent years: according to the 2005 Cambodia Demographic and Health Survey there were remarkable improvements in the health and nutrition status of the population after 2000. The infant mortality rate declined from 95/1,000 live births to 66/1,000, and mortality among children under 5 declined from 124/1,000 live births to 83/1,000. But 39.5 percent of children under 5 were stunted, 28.8 percent were underweight and 8.9 percent were wasted; in 2008, one child in 11 died before the age of 5. In spite of the progress made, the health status of the Cambodian people remains among the lowest in Southeast Asia.
- 11. Recent economic progress has not favoured all parts of the population: as a result, inequality has increased during the last decade and many Cambodians remain marginalized and vulnerable. To reach out to the most vulnerable, the Government formulated a National Social Protection Strategy in 2010 with support from WFP and the World Bank. The priority is to develop social safety net interventions to benefit the poorest and most vulnerable.

#### School Feeding Interventions, 2001–2010

- 12. Protracted relief and recovery programme 6038.01, which started in 2001, included the first WFP school feeding component in support of basic education. The number of beneficiaries in the school feeding programme rose from 291,593 in 2002 to 482,961 in 2009, peaking at 610,000 in 2006. The decrease after 2006 was a reflection of lack of funding for food and rising food prices. The programme reached a significant 20 percent of primary pupils in the 2009/10 school year in 1,624 of the 6,665 schools in the country.
- 13. During the period under evaluation, more vulnerable segments of the population were targeted as school feeding interventions were prioritized. On the basis of vulnerability assessments, coverage changed from a country-wide approach to a focus on the most food-insecure communities in 12 of the country's 24 provinces.



## Scope and Modality

- 14. The school feeding programme used two modalities: i) the school meals programme, which provided an early morning meal for pupils in targeted primary schools and accounted for 45 percent of resources; and ii) take-home rations, which benefited the poorest pupils in grades 4, 5 and 6 and accounted for 18 percent of resources. Some schools used a combination of both modalities, accounting for 37 percent of total resources. The age group targeted was 6–11 years in grades 1–6.
- 15. WFP reduced the number of partners in line with geographical targeting and focused on strategic partners such as national and international non-governmental organizations and government institutions. WFP and its partner the United Nations Children's Fund (UNICEF) have jointly promoted the child-friendly school concept in Cambodia since 2006, benefiting more than 600 schools through activities that are part of the Essential Package.

### Strategic Alignment

16. The school feeding activities in Cambodia were aligned with WFP's Strategic Objective 4 Reduce chronic hunger and undernutrition<sup>1</sup> and WFP's school feeding policy.

## **OUTCOMES AND IMPACT OF SCHOOL FEEDING**

#### Education

- 17. Enrolment. The evaluation revealed significant effects on enrolment. Analysis of Ministry of Education data showed that enrolment increased by 2.0 percent to 2.05 percent upon a school's inclusion in the school meals programme; interestingly, the effect was stronger among girls, with enrolment increases reaching 2.4 percent and 3.0 percent. Furthermore, over the period 2002–2009 the increase in enrolment was 6.1 percent higher for schools with school meals programmes. Both effects were clear indications that school feeding constituted a strong incentive for parents to send their children to school but the positive effect was only sustained for as long as the school benefited from the programme.
- 18. Attendance. The household survey showed that only the take-home rations had a significant effect on attendance, contributing to an annual increase of 2.4 percent to 3.2 percent. The effects of the school feeding programme were positive but could not be considered statistically significant. The survey also showed that take-home rations had a significantly greater effect on girl pupils than on boys, thereby achieving the objective of incentivizing attendance in grades 4–6. Interviews highlighted the positive effect of early-morning school meals on punctuality.
- 19. **Promotion and repetition.** On the basis of Ministry of Education data, the evaluation noted positive effects on promotion rates, particularly among girls, but there was statistical significance in grade 4 only. The statistical analysis also showed that the school feeding programme tended to reduce repetition rates, but the result was only significant for grade 1.

<sup>&</sup>lt;sup>1</sup> According to "Programme Category Review" (WFP/EB.A/2010/11/Rev.1), protracted relief and recovery operations will be designed in support of Strategic Objectives 1 and 3; country programmes and development projects will be designed in support of Strategic Objective 4.





Figure 1: Difference in Promotion Rates between Targeted and Non-Targeted Schools

Figure 2: Difference in Repetition Rates between Targeted and Non-Targeted Schools



20. **Drop-outs.** School feeding reduced drop-outs, especially in grades 2–4 where effects were significant at 1.8 percent to 2.7 percent. Drop-out rates among girls showed similar trends, but were only significant for grades 4 and 5. This was an essential indicator because the results showed that school feeding positively influenced pupils' and parents' willingness and capacity to ensure attendance at school.





## Figure 3: Difference in Drop-Out Rates for Boys and Girls in Grades 1–6 in Targeted and Non-Targeted Schools

21. **Improved learning.** Standard performance tests resulted in a non-significant score of 0.16 in favour of targeted schools, which was probably attributable to contextual factors. There was, however, a significant positive effect evident in girl pupils' mathematics tests in Siem Reap.

### Nutrition

- 22. The school meals programme in Cambodia provided 593 kcal per pupil per school day. On the basis of current evidence this indicated that the ration size was adequate to support enhanced nutrition and child health.
- 23. Anthropometry and child health. Anthropometry data showed that the mean for each group of schoolchildren was well below the expected mean for a well-nourished population. The poorest index was height-for-age, which was used to measure stunting or chronic undernutrition.
- 24. The survey showed significant anthropometric effects among girls, but no measurable effects among boys. Girls benefiting from school meals were about 1 kg heavier than those who did not, which constituted statistically significant evidence of positive impact on their weight; there was also evidence, though less marked, that girls in the school feeding programme were up to 1.56 cm taller that those who were not. No significant effect on mid-upper arm circumference among girls was seen. Among boys there were no effects on height, weight or mid-upper arm circumference. There was no clear explanation for this difference, which warrants further analysis, but it suggested that school meals enabled girls to take advantage of the pre-puberty growth spurt. The evaluation found no significant results for growth associated with take-home rations, which may be because the rations were shared among family members and so had less effect than the daily meals provided at school.
- 25. The evaluation showed that for girls, there was an important positive synergy between the school meals programme and household sanitary conditions: girls in the programme were up to 1.8 cm taller when sanitary conditions in their homes were good. This finding concerning synergy was coherent with current knowledge and supported healthy-school

approaches such as the child-friendly school concept as appropriate means to improve health among pupils.

- 26. The school feeding programme also helped to reduce morbidity among pupils. In the household survey, families were asked how many days their children had been absent from school because of illness in the previous two weeks. There was evidence that the school meals programme and the take-home rations led to a reduction in absences because of illness among girls, but not among boys. Reported morbidity was lowest where take-home rations and the school meals programme were combined, followed by the school meals programme and take-home rations alone.
- 27. Micronutrient status. On the basis of World Health Organization criteria, mean haemoglobin levels and prevalence rates for anaemia indicated no significant effects from the school meals programme. This was expected because the school meals programme food basket contained no iron-fortified foods. There is evidence that girls in asset-poor households had haemoglobin levels 0.40g/dl lower than those in households with more assets.
- 28. Vitamin-A deficiency was investigated using reported night blindness as a proxy indicator. The proportion reporting night blindness was lowest -5.3 percent among pupils benefiting from the school meals programme and take-home rations, followed by 5.5 percent among those benefiting from the school meals programme alone. The rate was high -7.2 percent in the group benefiting from take-home rations, which was the same as the rate in the control group. These differences are statistically insignificant, but they suggest that pupils benefiting from school meals had improved vitamin-A status.
- 29. **Improved calorie and protein intake.** Analysis of data from the household survey showed that the school meals programme had a robust and significant association with increased dietary diversity scores, a proxy for nutritional adequacy. On the basis of several regression analysis models, this was true for both sexes and across provinces and wealth groups. As expected, the take-home rations had no significant effect on the dietary diversity scores of boys or girls.

#### Value Transfer

- 30. The evaluation analysed the extent to which the school meal and take-home ration modalities had significant outcomes at the household level, particularly in terms of income generation, wealth, food security and physical protection. If the value transfer were of sufficient value, it could serve as or be a contribution to social safety nets, and so mitigate the negative effects of poverty or natural disasters on vulnerable and poor households.
- 31. The evaluation divided households into categories so that effects could be differentiated. In terms of value transfer, the take-home rations represented a higher proportion of household income than the meals provided in school. This result was expected, because take-home rations beneficiaries were selected from households that were poor and poorest in terms of assets in each community. The families benefiting from take-home rations generally had lower incomes than those benefiting from the school meals programme. The survey demonstrated that take-home rations represented up to 26 percent of household income in the lowest asset category; the figure for the school meals programme was 14 percent.
- 32. The survey and interviews showed that school meals saved time in beneficiary families, especially for women, who spent less time preparing meals and looking after children because the children at at school and were likely to attend more regularly. The assumption



was that the time saved could be spent on income-generating activities, but the survey did not identify any effects in terms of extra income in beneficiary households.

33. Food security. The household survey showed that beneficiaries would be more resilient to food shortages during lean periods. In particular, the take-home rations enabled poor families to extend the period during which they did not have to buy rice, thereby reducing their vulnerability and increasing the options for investing in assets. It was also found that in lean seasons take-home ration beneficiaries were able to enrich their diet with fish, vegetables or eggs on days when rice from the take-home rations rice was available.

## HOW DOES SCHOOL FEEDING CREATE IMPACT?

### The Role of Contextual Factors outside WFP's Control

- 34. Education. The school feeding interventions were based on causality in which input, output, outcome and impact levels were logically connected. But certain factors prevented the effects from being more marked: i) poverty, vulnerability and the need for extra household income, which affected children's attendance once they were considered old enough to work; ii) low levels of education among parents, most of whom had one to three years of schooling; iii) the low quality of education resulting from poor training and absenteeism among teachers; and iv) access factors such as insufficient schools offering all nine primary grades and inadequate infrastructures. Interviews confirmed that pupils repeated grades either because of difficulties in understanding the subject matter or long periods of absenteeism.
- 35. Nutrition and food security. Despite high levels of food production and economic growth, food insecurity remains in Cambodia. The main causes are lack of work opportunities, vulnerability to natural disasters and economic shocks such as rising fuel and food prices. Poor households struggle with limited access to food and inadequate sanitary conditions, which affect child health and contribute to chronic undernutrition. The World Health Organization and UNICEF reported high levels of genetic anaemia in the population, which may have been another limiting factor.
- 36. Value transfer. The evaluation identified three external factors that influence the extent to which school feeding may produce outcomes in terms of income generation, asset creation and household capacity to cope with threats: i) assets were guarantees of access to private credit, which is the most common mechanism for acquiring assets in rural Cambodia; poor households have few assets and hence limited opportunities to access credit and increase their incomes; ii) low levels of education prevent poor families from escaping poverty, which means that they remain vulnerable and prone to adopting negative coping mechanisms; and iii) the characteristics and magnitude of natural disasters and other threats facing households affect vulnerability. The type of threat and the probability of recurrence determine the degree to which school feeding may serve as a safety net.

### The Role of Implementing Factors within WFP's Control

37. Successful school feeding programmes are based on community contributions and control and strategic and financial government commitment. The Cambodia school feeding programme functioned effectively and was well organized, but WFP should address the following factors to make interventions more effective and sustainable: i) programme design in terms of inputs, purposes and objectives; and ii) community involvement and government ownership and commitment, combined with capacity development.



- 38. There is ample evidence that partnerships with UNICEF to implement the child-friendly schools approach, which is similar to the Essential Package, are normally an enabling factor for improved schooling. There was no marked evidence of effects arising from child-friendly school activities: in the opinion of the evaluation team this was because such effects were limited by contextual factors.
- 39. More refined targeting of beneficiaries and clearly defined aims and objectives affect overall programme effectiveness. In Cambodia, the household survey indicated that targeting could be refined to focus more on the poorest and most vulnerable groups. There was evidence to suggest that food assistance among these groups was more effective, including in terms of value transfer. WFP considerably improved its targeting and increased its geographical concentration over the years. The choice of modality determined the level of targeting (e.g. school or household) and how sharply focussed assistance was on those most in need.
- 40. With regard to nutrition, the evaluation found that low levels of haemoglobin were usually a result of lack of iron in the diet. The country office was testing two different types of iron-fortified rice for acceptability: if the tests were successful, fortified rice could be introduced into the food basket to help to reduce iron-deficiency anaemia.

### **Interactions Among Factors**

- 41. Unlike conditional cash-transfer programmes, school feeding programmes depend on contextual factors to reach their objectives. Providing a meal does not automatically lead to expected outcomes and impacts, and this was the case in Cambodia. However, nutrition and value transfer seem to be less influenced by contextual factors when inputs are planned to suit the objectives.
- 42. The evaluation observed that the school meals and take-home rations modalities produced different results in education, nutrition and value transfer. WFP therefore needs to define the priorities of the school feeding programme, bearing in mind the following findings:
  - i) The school meals programme and take-home rations had the same effect on enrolment, but not on attendance.
  - ii) A combination of the school meals programme and take-home rations seemed to have had an effect on girls' performance in mathematics, but the rations modality may have made a more significant contribution.
  - iii) Take-home rations did not achieve the same nutritional results as the school meals programme.
  - iv) The school meals programme had beneficial effects on girls' health and reduced morbidity, but there was no evidence that take-home rations had this effect.
  - v) The school meals programme promoted greater dietary diversity than take-home rations.
  - vi) Take-home rations had more effect on value transfer, food security and household coping mechanisms than the school meals programme.
- 43. All activities in the two modalities were aligned with WFP's school feeding policy, but the evaluation was unable to track linkages reflecting causalities between one modality and the other. Improved child health resulting from better nutrition in the school meals programme, for example, did not lead to improved learning outcomes, even though pupils



were absent less frequently as a result of illness. Contextual factors may have cancelled out some marked effects and causalities between education, nutrition and value transfer.

- 44. Improved food security resulting from the take-home rations modality could not be linked to educational outcomes during the evaluation, but longitudinal studies may shed more light on possible causalities. It can be assumed that improved food security and the possibility of more investment in assets would have an impact on children's schooling, because opportunity costs might outweigh the short-term benefit of taking children out of school. The same is true for improved health, which will probably contribute to improved educational performance.
- 45. In the Cambodia programme, the take-home rations modality was an adequate tool for targeting vulnerable populations, because it had potential as a social safety net; it was also effective as an incentive for poor families to keep children, especially girls, in school. On the other hand, the school meals programme was a modality serving nutritional purposes to increase enrolment in targeted areas. Both cases underline the need to define the purpose of the interventions and identify the appropriate modality. Both modalities work, and may produce more marked effects and impacts in their own ways.

### **CONCLUSIONS AND RECOMMENDATIONS**

- 46. The school feeding programme was aligned with the Government's education goals and strategy. In the past ten years it has achieved its aim of supporting primary education by contributing to increased enrolment, attendance and promotion and to reduced drop-out rates. The school feeding programme had marked effects on nutrition and value transfers to households, but the school meals programme and take-home rations affected education, nutrition and value transfer in different ways.
- 47. **Recommendation 1:** The country office should consider the differentiated effects of modalities in future programming.
- 48. The National Social Protection Strategy is the most appropriate framework for future school feeding, and take-home rations are the preferred approach because they target those most in need and have a higher value for beneficiaries than the school meals programme, thus functioning as a more effective social-protection scheme.
- 49. **Recommendation 2:** A higher proportion of resources should be allocated to take-home rations.
- 50. The school meals programme was an incentive for families to enrol their children, complementing other efforts in the country to increase enrolment and attendance. The modality had a stronger effect on nutrition than take-home rations did. Government commitment is fundamental if such programmes are to be effective across the education sector. As a large-scale programme with targeting at the school rather than household level, value transfer to the poorest households within a targeted community was limited.
- 51. **Recommendation 3:** The country office should focus on supporting the development of a sustainable, nationally owned school meals programme. The core of WFP's involvement should be support for the development of capacities in national institutions and development of a sustainable procurement modality. On the basis of current experience WFP and the Ministry of Education should identify a pilot modality for later roll-out.
- 52. The positive effects of the school feeding programme could be significantly increased through mutually reinforcing partnerships with agencies working to improve the quality of education.



- 53. **Recommendation 4:** Future interventions should be part of comprehensive packages; the collaboration with UNICEF should be broadened to include other partners.
- 54. Schoolchildren in Cambodia suffer from high levels of chronic undernutrition, underweight and anaemia, which will affect child health, economic productivity and maternal mortality.
- 55. **Recommendation 5:** The country office should continue its participation in multi-sectoral initiatives such as technical working groups, which are required to combat childhood undernutrition in an efficacious and cost-effective manner.
- 56. Tackling childhood undernutrition is vital in Cambodia, and different approaches need to be explored. The use of fortified rice in the school feeding programme could be effective in this context if evidence can be provided to show that it reduces the prevalence of iron-deficiency anaemia in both sexes. The school feeding policy emphasizes that WFP will ensure that school meals are nutritious and that it will fortify them where necessary.
- 57. **Recommendation 6:** The country office should design and implement modalities for including fortified food in its school feeding programme.
- 58. More precise targeting of household-level vulnerability criteria would increase the effects and impacts of the take-home rations modality, especially with regard to value transfers and retention of children from poorer families.
- 59. **Recommendation 7:** Targeting should be improved to better ensure a focus on the most vulnerable populations.
- 60. School feeding monitoring measurements change over time for some indicators, but they do not provide for comparisons with non-programme areas. To improve monitoring, prospective analysis must be improved and smaller control groups should be used as part of regular monitoring.
- 61. **Recommendation 8:** WFP should use control groups and longitudinal indicators for future monitoring to improve results-based programming and produce evidence of the effects of school feeding programmes on education, nutrition (including anaemia) and value transfer as set out in the school feeding policy.

