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The multiple impacts of school feeding: a new approach for reaching sustainability

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1. Introduction

Development activities that target children are tools for eradicating chronic hunger and lifting developing countries out of the poverty trap. By investing in the health and nutrition of school-age children, a country can increase the human capital of its younger generations and achieve sustainable economic growth and human development. This chapter describes school feeding as a powerful and effective intervention that can help fight chronic hunger while reducing poverty and inequality. It also shows how school feeding is a productive safety net that can be adopted in emergency and protracted crisis contexts, as well as more stable development contexts.

In fact, virtually all countries in the world provide their students with some sort of school feeding to achieve certain social and economic outcomes. With its 45 years of experience, WFP can be considered the largest international actor in school feeding. However, despite this internationally recognized role, three factors have provoked criticism of WFP's school feeding.

First, school feeding has always been considered an education-only intervention. In other words, donors, national governments and development stakeholders view the provision of food to hungry children in school as an effective tool for promoting and improving only educational outcomes in poor countries. Second, WFP has very often implemented school feeding as a stand-alone intervention, with very little integration or alignment with national policy strategies. In the majority of countries, WFP's partnership and cooperation with national governments have been limited, and this has often hindered the

effectiveness of hand-over strategies and the transition to national ownership. Third, traditional school feeding programmes have been associated with high costs relative to national education budgets and other food aid tools. These three factors have had a profound impact on donors' willingness to fund school feeding, and on national governments' interest in achieving national ownership.

WFP school feeding has responded to the organizational shift from food aid to food assistance by developing a framework of eight standards needed to ensure quality, sustainable and nationally owned school feeding. Achievement of these standards represents the ultimate objective of the new generation of school feeding programmes.

This chapter is structured as follows: section 2 reviews the available evidence on the multiple benefits of school feeding; and sections 3 and 4 introduce the new approach, with a focus on two analytical tools that WFP has developed in partnership with the Boston Consulting Group to achieve sustainability and support the transition to nationally owned school feeding programmes.

2. Education and beyond: the multiple benefits of school feeding

Solid empirical evidence of the impact of school feeding programmes on educational outcomes proves that school feeding increases school enrolment and attendance by reducing drop-out (Ahmed, 2004; Dreze and Kingdon, 2001; Lazmaniah *et al.*, 1999). There is also significant evidence that such interventions go beyond traditional educational outcomes by providing a wider range of short- and long-term social and economic impacts.

In contexts of emergency, economic shock, protracted crisis and vulnerability, school feeding is a productive safety net. This is the main conclusion reached by the World Bank Group and WFP in a joint analysis of school feeding worldwide (Bundy *et al.*, 2008), and the World Bank Group specifically includes school feeding as one of the programmes eligible for support from the US\$1.2 billion Global Food Crisis Response Facility established in 2008 to address the global food and financial crises (Grosh *et al.*, 2008).

This means that among all possible food assistance interventions, school feeding represents a unique opportunity by providing multiple benefits at both the outcome/short-term and the impact/long-term levels. This section reviews the most significant evidence for the various positive impacts of school feeding.

2.1 School feeding and nutrition

Enhanced nutrition and health of primary schoolchildren leads to improved learning and decreased morbidity, paving the way for healthier lives. School

feeding programmes not only alleviate child hunger in school, but also enhance nutrition, particularly when the food is fortified with micronutrients. This raises the potential to improve a child's health, school performance and educational attainment.

School feeding enhances the diet and increases the energy and kilocalories available to a child. It targets micronutrient deficiencies, which are widespread among school-age children in developing countries and which increase susceptibility to infection, leading to absenteeism and impairing learning capacity and cognition (Latham *et al.*, 2003; Van Stuijvenberg, 2005; Solon *et al.*, 2003; Grillenberger *et al.*, 2003). Improving micronutrient status through food fortification or micronutrient powders, particularly of iron, B-vitamins, vitamin A and iodine, contributes directly to enhanced cognition and learning capacity. Recent studies in Kenya and Uganda proved that both in-school meals and take-home rations (THRs) reduce anaemia prevalence (Andang'o *et al.*, 2007; Adelman *et al.*, 2008).

School-age children also have the most intense worm infections (Jukes, Drake and Bundy, 2008). Between one-quarter and one-third of school-age children are infected with one or more of the major helminths – roundworm, whipworm or hookworm. Severe worm infestation contributes to morbidity, undernutrition and iron deficiency. Iron-deficiency anaemia is a major issue for school-age children, affecting more than half of this group worldwide, and evidence suggests that a significant reduction in anaemia can be achieved with de-worming (Brooker, Hotez and Bundy, 2008; Gulani *et al.*, 2007). In situations of high worm prevalence, de-worming is essential to maintain good nutrition status and achieve better absorption of food, as well as improved cognition (Grigorienko *et al.*, 2006; Sonnino, 2007; Nokes *et al.*, 1992; Bundy, 2005).

When school feeding targets preschool children, it can help give a child a healthy head-start and pave the way for a promising future. There is compelling evidence that poor nutrition in early childhood affects cognitive development and learning potential; poor health is an additional barrier to education (Jukes, Drake and Bundy, 2008). Increased access to preschools can enhance education outcomes and equity among children of primary school-age. School feeding should be seen as part of a continuum and one of many potential interventions that support nutrition for pre-primary and primary school-aged children; for example, it does not directly target poor nutrition in pregnancy, infancy and early childhood, which are the most important years in terms of immediate and long-term effects on cognitive abilities (Jukes, Drake and Bundy, 2008). School feeding in pre-primary schools, for children aged 3 to 5 years, can be seen as preventive, and has the potential to bridge the gap between infancy and primary

school age – 6 to 11 years – in countries where preschools are part of the basic education system.

2.2 School feeding: improving learning and cognition

Providing food for consumption at school can be beneficial for learning because it relieves immediate short-term hunger. Children who are not hungry are more attentive and have higher cognitive abilities (Simeon, 1998). The ration should be served as early as possible during the school day, for maximum benefit while the child is in school. Thus, timing of the meal or snack is important for addressing hunger and reaping cognitive benefits.

Alleviating short-term hunger among children at school may contribute to improved performance in school tests and promote normal progression from grade to grade in completing a basic education.

2.3 School feeding: the positive impact on gender, orphans and other vulnerable children

It has been proved that school feeding contributes to improved education for girls, as both in-school meals and THRs are effective in targeting gender objectives. This is particularly useful in boosting girls' enrolment where access to education is limited. Educated girls are more likely to have fewer and healthier children and to head families that are food-secure. School feeding closes the gender gap in schools and helps to empower women. It leads to improved protection from HIV/AIDS and better access to work opportunities for women. It changes the lives of not only girls but also of their future children. Maternal and infant mortality rates decrease, and better educated girls make more informed choices. The World Bank estimates that only one additional year of schooling for girls reduces the birth rate by 10 percent, and that every extra year of schooling provided to 1,000 girls results in 60 fewer infant deaths (Summers and Lawrence, 1992; World Bank, 2007a).

An evaluation of India's Mid-Day Meals Programme found that girls in the programme were 30 percent more likely to complete primary school (Dreze and Kingdon, 2001). In Pakistan, a programme that provides girls with a conditional THR of oil once a month has changed the way their parents think and act. Before the programme started, 48 percent of households did not send any of their daughters to school; afterwards, all households educated at least one daughter (WFP, 2005b).

When school meals are combined with THRs, the effect on girls is even greater. THRs draw girls to school, maintain their attendance and increase their progress from grade to grade, effectively eliminating the gender gap in school. A major WFP review documented increased enrolment of girls in higher grades in

schools with combined on-site and THR programmes (Gelli, Meir and Espejo, 2007). Similarly, the THR programme in Bangladesh increased girls' enrolment by 44 percent and boys' by 28 percent in schools on the programme, while enrolment in non-programme schools increased by only 2.5 percent during the same period (Ahmed, 2004).

A desk review conducted by WFP found that, in 2008, 500,000 orphans and children affected by HIV in nine countries had benefited from WFP school meals, THRs or a combination of both, encouraging them to attend school, and thereby reducing the burden on their households.

2.4 School feeding as value transfer

During periods of shock and reduced purchasing power, families often resort to negative coping mechanisms, including taking children out of school to save on school fees and related expenses (World Bank, 2009a). School feeding programmes can help to safeguard households' investments in education by defraying some of the costs of schooling and encouraging parents to enrol their children in school and ensure that they attend class regularly throughout the complete cycle. This helps protect children from the risk of both formal and informal child labour and facilitates social integration (Paruzzolo, 2009).

School feeding is a well-recognized safety net that transfers significant value to households with children enrolled in school or with school-age children (Bundy *et al.*, 2008). The value transfer from school feeding frees up resources within households, allowing families to buy food and invest in productive assets, and ultimately improving their livelihoods, nutrition and education.

The value transferred is equivalent to the value of the food transfer delivered to the child at school, the value of the THR, or both. This serves as an incentive for households to send their children to school and ensure that they continue to attend. The provision of food therefore alleviates short-term hunger, while supporting the longer-term goals of educational attainment and improved nutrition and health.

School feeding value transfers have the potential to increase school enrolment and attendance at times when food-insecure families with low purchasing power may be at risk of resorting to negative coping strategies, including taking children out of school. THRs are the best vehicle for maximizing the benefits that a school feeding safety net offers, by extending the value and impact of the transfer beyond the benefits that a child receives from the food ration consumed in school. THRs can easily be targeted to the specific groups that may be most in need of support, such as girls, orphans or other vulnerable children of school age and possibly other members of a household.

3. A new approach to school feeding: the transition towards sustainability and government ownership

It is now undisputable that school feeding programmes provide an effective safety net to poor families in times of crises, in post-crisis recovery situations, and in chronic long-term development settings. School feeding increases household income, freeing up resources for productive investments. It offers an incentive for households to send their children to school and invest in education, breaking the poverty trap.

However, analysis has also highlighted some shortcomings. While school feeding programmes are widely recognized as far-reaching, effective and relevant, many have been essentially supply-driven and have sometimes fallen short of what the international aid community has come to see as essential and non-negotiable requirements: in essence, the principles of aid effectiveness. These are embodied in the Paris Declaration, in which donors agreed on government ownership of national strategies for poverty reduction, donor alignment behind these, and the harmonization of procedures for obtaining funds and measuring results, to avoid duplication and demonstrate mutual accountability. According to the new aid architecture, the recipient government is in the driver's seat, and priorities are to be based on the national development agenda. However, these principles are difficult to apply in the complex settings of developing countries, and it will take years of global effort to shift the policies and programmes of donors and agencies.

Where does WFP school feeding fit into this overall picture? Its current transformation reflects the organizational strategic shift from food aid to food assistance and is in accordance with the new aid agenda, in that it brings WFP school feeding closer to national development strategies, aligning it with education policies and embedding it in national financing frameworks and budgeting processes. WFP's role is expected to change from direct implementation with cooperating partners of all stages of programming – design, procurement, transport and warehousing, distribution and monitoring – to enabling, building capacity, advising, and acting as a repository for best practices. It is now clear that the way forward is to assist national governments in making the transition to sustainable programmes that are nationally owned, nationally led and locally sourced. During this process, WFP will continue its support to ongoing, traditional programmes. Until national capacities are adequate, WFP will lead the implementation, procurement, monitoring and evaluation of school feeding, when requested by national governments. Completing this transition may take several years, or even decades in some countries, and WFP will be present throughout, providing technical support where required.

There are three main areas of innovation in school feeding:

- (i) Knowledge, in-depth analysis and understanding: WFP will provide analytical support and advice on needs assessment, targeting, cost-effectiveness and cost containment to governments that seek it, thereby enhancing design and implementation.
- (ii) Support to governments' coordination of national school feeding strategies: This is facilitated by bringing the stakeholders together to ensure an effective national approach to school feeding programmes that respond to local needs.
- (iii) Capacity development and technical support to ensure sustainability: The aim is to increase governments' capacities to design and implement programmes that are sustainable and affordable and that can be brought up to scale.

These three elements all help to enhance the sustainability of school feeding as a productive safety net. Framing school feeding programmes as a safety net opens the door to new national and global funding sources, other than ministries of education, such as funding for poverty reduction strategies, social protection, the Fast Track Initiative and the World Bank's recently established Rapid Social Response Fund.

Eight drivers of sustainability were identified through an analysis of WFP's 45 years of school feeding and the recent joint World Bank/WFP school feeding analysis (Bundy *et al.*, 2009). These standards for quality and sustainability are an essential part of WFP's school feeding policy, approved by the Executive Board in November 2009. All school feeding projects are now to be conceived and designed to ensure: (i) sustainability; (ii) sound alignment with national policy frameworks; (iii) stable funding and budgeting; (iv) needs-based, cost-effective quality programme design; (v) strong institutional arrangements for implementation, monitoring and accountability; (vi) a strategy for local production and sourcing; (vii) strong partnerships and inter-sector coordination; and (viii) strong community participation and ownership. Both newly designed and existing programmes must adhere to these eight quality standards, or establish a strategy for working towards them, to ensure a gradual transition to national ownership.

Sustainable school feeding requires strategic partnerships at the global and country levels, such as the newly established school feeding partnership with the World Bank, whose objectives are very much in line with the new thinking on school feeding: (i) assist country efforts to mainstream school feeding; (ii) develop institutional capacity for implementing school feeding programmes effectively, cost-efficiently and sustainably; and (iii) promote the transition

towards national ownership and resourcing.

Initial WFP/World Bank cooperation efforts have focused on countries that have already expressed an interest in partnership, including Ghana and Kenya in 2009, and Lao People's Democratic Republic (PDR) and Bangladesh in 2010, and possibly extending to Haiti and Mozambique. These pilots receive extensive support from the headquarters of both institutions, throughout the four stages of enabling, assessment, design and implementation.

During the enabling stage, to ensure government leadership, ownership and commitment, a set of analyses and other tools have been developed and are being tested in the pilot countries: (i) a needs/coverage analysis; (ii) a school feeding investment case; (iii) a school feeding cost containment tool, or cost analysis; (iv) an assessment based on the eight quality standards; (v) mapping of stakeholder and coordination mechanisms; (vi) a stakeholder workshop; and (vii) an analysis of school feeding modality options. The school feeding investment case and cost containment tool are described in more detail in the following section.

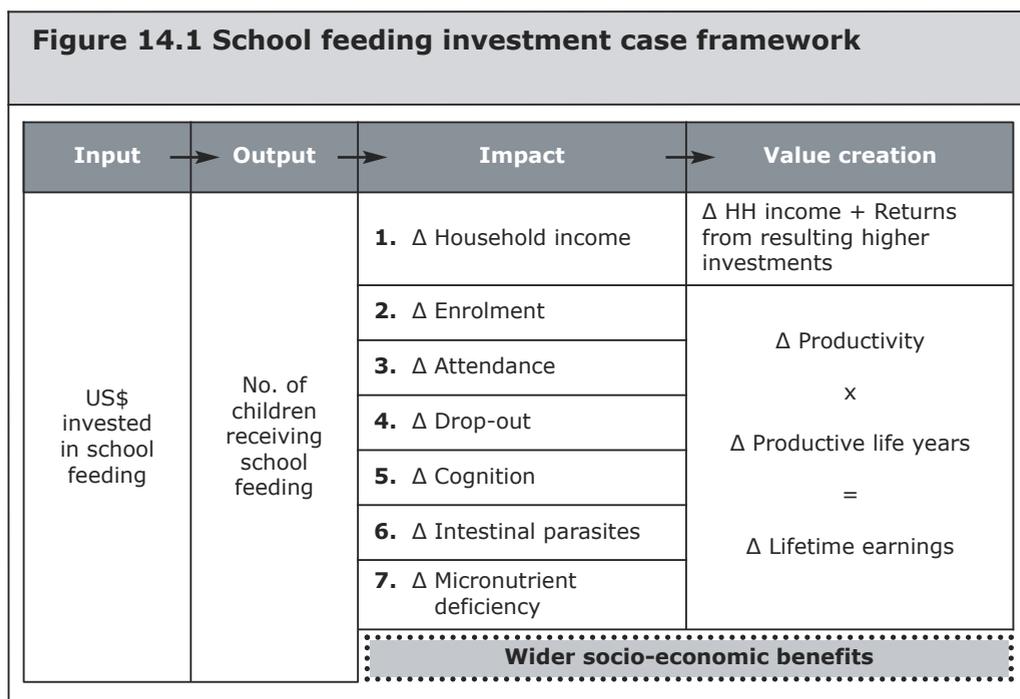
To identify a road map for transition and to enhance coordination, findings from the analyses are presented and discussed at a stakeholder workshop, which is jointly organized with the World Bank. Eventually, all the WFP country offices with school feeding programmes will be introduced to the new approach, which WFP aims to roll out wherever possible, ensuring that all lessons learned and best practices are implemented in WFP's and government-owned school feeding programmes.

4. Two analytical tools for the new approach

The analytical tools for helping to improve the quality, efficiency and coordination of sustainable school feeding include two – the school feeding investment case and the cost containment tool – that constitute a new, innovative way of looking at school feeding programmes, by introducing elements that have historically been regarded as pertinent to the private sector. In using these tools, WFP's aim is to design and implement programmes that are better targeted and more focused and cost-effective than in the past. Both tools were designed by a team of consultants from the Boston Consulting Group and WFP.

4.1 School feeding investment case

The first step was to develop an analytical framework, shown in Figure 14.1. Each of the coefficient impacts of school feeding, defined by a *delta* (Δ), is calculated based on the most reliable current academic evidence (see section 2).



Source: Devised by the authors in cooperation with the Boston Consulting Group, based on WFP Standard Project Reports.

Reading the framework from left to right, the various impacts of school feeding lead to a single, long-term quantifiable value created: higher productivity over a longer, more productive life of the school child. This is then monetized to obtain a single figure, which constitutes the return on investment. Some assumptions have to be made.¹ The logical sequence of the benefits and their estimated values are described in the following paragraphs.

A. School feeding improves education and nutrition: School feeding leads to increased time spent in school, through increased enrolment and attendance and decreased drop-out rates (Ahmed, 2004). WFP data from Lao PDR show that attendance increases by 5.5 percent per year, enrolment by 16 percent, and drop-out declines by 9 percent. School feeding also leads to increased cognition: learning is improved. For instance, in Lao PDR, one additional year of school feeding leads to an increase in cognition of 0.09 SD in test scores. An increase of 1 SD leads to an increase of 11 percent in wages over a productive life (Jukes, Drake and Bundy, 2008). School feeding and deworming lead to improved micronutrient status and decreased prevalence of intestinal parasites. These lead to decreased morbidity: children in school are

less frequently sick, and attend more. Fewer schooldays are lost. A 1 percent increase in school attendance rate leads to a 0.055 percent increase in life expectancy (Grigorienco *et al.*, 2006; Brooker, Hotez and Bundy, 2008).

B. Better education cognition, health and nutrition: These lead to higher productivity: academic evidence² shows that every additional year of primary schooling leads to a 5 percent increase in future wages. When children are well nourished during primary school age, they will be healthier and more productive during their future working years. This, together with the wage impact arising from increased learning skills, adds up to longer life expectancy. Higher income also leads to increased life expectancy.³ Each additional year of schooling raises disease awareness, particularly to HIV, and decreases HIV prevalence by 6.7 percent (De Walque, 2004); this too increases life expectancy and productivity.

C. School feeding provides a value transfer: By providing school meals, school snacks and THRs, school feeding frees up household income that would otherwise be used for food consumption. The financial value saved from food expenditure is equal to the monetary value of the food transferred, and households can invest part of these savings in productive assets. Evidence from developing countries shows that the poorest households consume an average of 85.5 percent of this added income, spending the remaining 14.5 percent on productive assets. In other words, of every US\$100 of value transferred through school feeding, US\$14.5 is invested in productive assets. The median return on this US\$14.5 investment in developing countries is estimated to be 54 percent per year (Banerjee and Duflo, 2004).

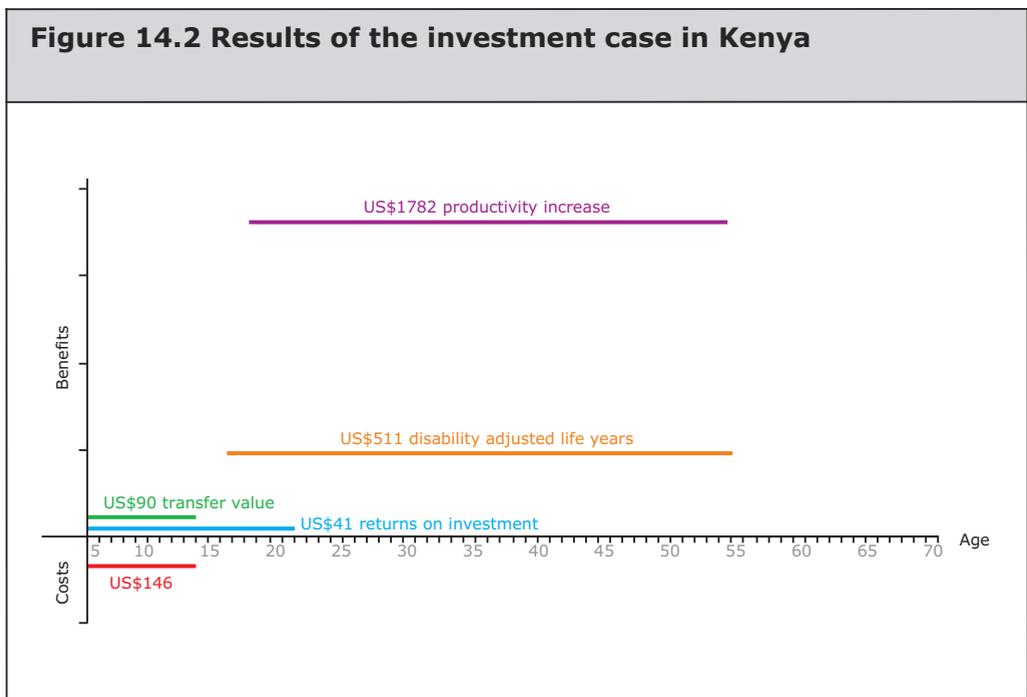
D. All of these factors lead to higher lifetime earnings: The combination of higher productivity and longer productive lives results in higher earnings for longer periods. This effect, when added to the increased household income resulting from increased investments in productive assets, leads to higher returns on investment for school feeding, making school feeding an attractive investment.

Two main conclusions can be drawn from the investment case:

- (i) Investing in school feeding creates significant economic value. Based on the four cases analysed so far – Kenya, Lao PDR, Ghana and Zambia – the benefit to cost ratio ranges from 7:1 to 16:1. For every US\$1 invested in school feeding, between US\$7 and US\$16 can be expected in return.
- (ii) School feeding is a unique safety net intervention owing to the interdependency and multiplication effect among its various outcomes and

to its combination of short-, medium- and long-term benefits from nutrition, education and value transfer.

Figure 14.2 illustrates the case of Kenya, where the investment of US\$146 in each child provides US\$90 of value transferred directly to the household as savings, of which an average of US\$41 is invested. The productivity increase resulting from improved education and better wages throughout the future life of the child yields US\$1,782, with an additional US\$511 to allow for disability-adjusted life years. Overall, each US\$146 invested generates a net present value of US\$2,400 over the life of the child: a return on investment of 16:1, which is very worthwhile, even by private sector standards. WFP advocacy efforts now focus on the school feeding safety net as an investment, rather than a non-productive expenditure.



Source: Devised by the authors in cooperation with the Boston Consulting Group, based on WFP Standard Project Reports.

4.2 The cost containment tool

When seeking sustainability, costs are probably the most important issue. School feeding programmes are expensive for governments, especially during the transition from external funding to national budgets. Trade-offs are carefully weighed by national decision-makers, who have to prioritize limited budgets. In this context, a cost containment tool is a valid means of ensuring that school feeding is included in national social protection and education agendas. The tool is based on an analysis of costs, which highlights the areas where savings could be made.

The cost analysis has three objectives: (i) to validate and update current benchmarks for school feeding costs and cost-efficiency, by modality and by programme model; (ii) to understand the drivers of apparent variations in costs, and the concomitant opportunities for cost containment; and (iii) to guide the design of tools for retrospective cost analysis and cost projections based on different programme/modality options.

In designing this tool, the first step was to establish global benchmarks for different categories of school feeding programme, based on data from 94 countries, to allow comparisons among school feeding programmes in the same category. For example, Kenya is compared with the other 29 school feeding programmes that provide meals only and use international procurement.

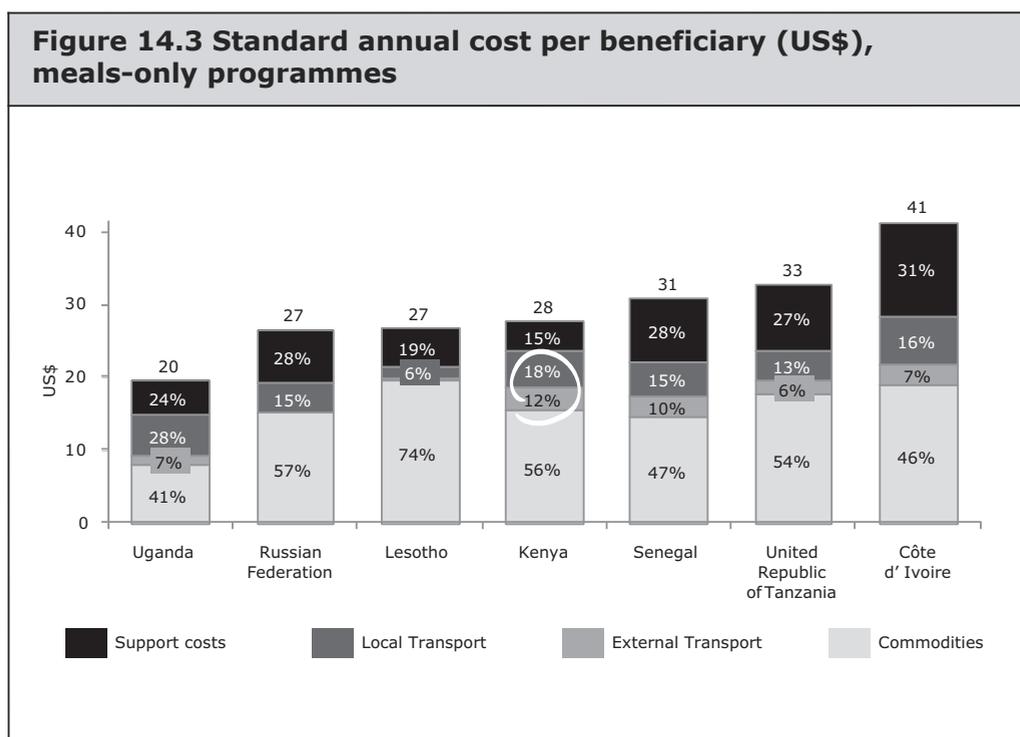
The innovation from previous studies is the attempt to estimate the full range of complementary, non-WFP costs related to implementing a school feeding programme, including government costs, such as staff, warehouses, office space, transport and monitoring, and community costs, such as building the school canteen and warehouse, paying cooks, fetching fuelwood and water, and parents' time spent managing and monitoring school feeding. These were estimated for the global benchmark and then validated through specific surveys in the 2009 pilot countries, Kenya and Ghana.

Food costs were estimated by calculating either the quantity of food distributed in school feeding as a proportion of the total food distributed in a project, or the share of country office school feeding expenditures in total project expenditures. WFP project reports and country office yearly expenditures, by beneficiary, were used to estimate non-food expenditures related to the school feeding programme. In projects with multiple activities, the expenditure accountable to school feeding activities only had to be estimated. Beneficiary and food distribution data are usually reported by activity within a country programme or development operation, but non-food expenditures – such as ocean transport; landside transport, storage and handling (LTSH); direct support costs (DSC); other direct support costs (ODOC); and the 7 percent indirect support costs (ISC) – are not, so they had to be approximated. The cost

estimates were then standardized across the different modalities: meals, biscuits, THRs, meals plus THRs.

To allow more accurate comparisons, costs then had to be standardized according to fixed parameters: 200 school days and fixed calorie contents for meals and biscuits. A linear regression with standardized costs as the dependent variable and number of beneficiaries as the explanatory variable was used to assess economies of scale.

The results for Kenya, presented at the November 2009 stakeholder workshop in Nairobi, show how the country's school feeding programme ranks against others in its category (Figure 14.3). Although the Kenya programme is quite cost-efficient, coming twelfth out of 44 meals-only programmes, there are still opportunities for cost containment, as external transport costs represent 12 percent of total costs, and are growing, while LTSH costs represent 18 percent – 60 percent of which is incurred to reach district warehouses. Cash donations allow more flexible sourcing, and procuring from local or regional markets would reduce both external transport and LTSH costs.



Source: Devised by the authors in cooperation with the Boston Consulting Group, based on WFP Standard Project Reports.

5. Conclusions

This paper outlines a completely new way of conceiving and designing school feeding programmes. Tests in pilot countries are only the beginning, and mainstreaming this new approach into the school feeding portfolio will require time, effort and a multi-year strategy. The programmes implemented by only three of the main actors in this field – India, Brazil and WFP – reach a total of 180 million beneficiaries, which illustrates the scale of the efforts needed.

A global alliance of donors, governments, international organizations, NGOs and practitioners will be needed to support this approach, which is clearly in line with the new thinking on school feeding: greater alignment with national strategies; increased government ownership and commitment; and an evidence-based approach to designing cost-effective, relevant and well targeted programmes.

¹ Costs: build on expenditures as reported in standard project reports; are adjusted for government and community contributions through mark-ups based on project documents, academic studies and country data requests; and annualize one-off costs to spread set-up costs over the project's life time.

Benefits: education parameters are derived from local monitoring reports or ministry of education sources; the country average is used as the control group to disentangle school feeding effects from country-wide trends; change in education parameters has the same impact, independent of starting level; potential decreases in quality of education are controlled for by artificially keeping the student-teacher ratio constant; and income transfer is valued according to commodity prices on local food markets.

Methodology: the discount rate is 6.5 percent, and gross domestic product (GDP) growth is ~2 percent (below); life expectancy at birth in Kenya is 54 years (World Bank), and in Lao PDR 64 years (World Bank); growth rate of the economy converges to ~2 percent over the next 30 years; the monetization factor is based on GDP per capita (United Nations country data); and impacts of pipeline breaks on both costs and benefits – income transfer, education impacts – are based on an average of pipeline breaks that is relatively constant over time.

² Coefficient calculated by the Boston Consulting Group and WFP as the median of those from Psacharopoulos and Patrinos (2002); Onphanhdala and Suruga (2007) Miguel and Kremer (2004)

³ A 100 percent increase in per capita income increases life expectancy by 7.4 percent.