They look like ordinary biscuits, but for more than a million Bangladeshi children, they may be a ticket out of malnutrition, illiteracy, and abject poverty.

The Government of Bangladesh devotes significant funding to provide incentives for rural families to send their children to school. The effort appears to be working: today more than 90 percent of children eventually enrol in school, and few disparities exist between boys and girls.

However, academic achievement is unsatisfactory, especially in primary schools. Hunger is a likely reason.

The School Feeding Programme

In July 2002, in order to diminish hunger in the classroom as well as to promote school enrolment and retention rates, the Government of Bangladesh and the World Food Programme (WFP) launched the School Feeding Programme (SFP) in chronically food-insecure areas of Bangladesh. SFP is the first effort in Bangladesh to provide incentives directly to primary-school children themselves, as opposed to cash or food to parents for sending their children to school.

The SFP provides a mid-morning snack consisting of eight fortified wheat biscuits. One million children in approximately 6,000 primary schools receive the biscuits. The schools are located in highly food-insecure rural areas plus four slum areas in Dhaka City. At a cost of US6 cents per packet of eight, the biscuits provide 300 kilocalories and 75 percent of the recommended daily allowance of vitamins and minerals.

IFPRI’s Evaluation

In late 2003, the International Food Policy Research Institute (IFPRI) conducted a comprehensive evaluation of the impact of the school feeding programme. The study was commissioned by the United Nations University. Most of the programme children had been eating SFP biscuits every school day for more than a year before the IFPRI surveys. Based on survey data, econometric models captured the impact of the SFP alone, isolating the effects of income and other factors.

Key Research Findings

The SFP significantly increases rates of enrolment and attendance, and reduces dropout. It has raised school enrolment by 14.2 percent and increased school attendance by 1.3 days a month. It has reduced the probability of dropping out of school by 7.5 percent.

The SFP also substantially improves the diet of the children in the programme. Energy (calories) consumed from SFP biscuits are almost entirely (97 percent) additional to a child’s normal diet. In other words, the child’s family does not give him or her less food at home for eating the SFP biscuits at school. These findings are based on a specifically designed experiment and an econometric model to assess the impact of SFP on children’s energy intake.

The biscuits are the single most important source of vitamin A in the diet of programme participants. After rice, they are the most important source of energy, protein, and iron (see figure). The average energy consumption of participating students are 11 percent and 19 percent higher in rural and urban slum areas, respectively, than in corresponding control areas.

Many participating students appear to share SFP biscuits with younger siblings and sometimes other household members. Sharing creates an interesting spillover effect: SFP biscuits account for 7 percent of total energy for children aged 2 to 5 in beneficiary households in the rural area. Clearly, sharing dilutes the benefit of supplemental nutrition for individual schoolchildren. However, it can be quite beneficial for the young siblings, since nutrient supplements have a proportionally greater effect on the nutritional status of the younger children.

The SFP improves child nutritional status: it increases the body mass index (BMI) of participating children by an average of 0.62 points. This represents a 4.3 percent increase compared to the average BMI of schoolchildren in the control group—a sizable increase that is partly due to the fact that most participating children were undernourished to begin with.

In addition to diet and nutritional status, the SFP improves academic performance. Participation in the SFP increases test scores by 15.7 percent. Participating students do especially well in mathematics. Students from urban slums do better in achievement tests than do students from rural areas, probably due to the difference in quality between urban and rural primary schools.

An extremely high percentage of mothers report several positive effects of the SFP on their children. They note that children’s interests in attending school and concentration on studies have increased; they are livelier and happier than before, and their incidence of illness has declined.

The study also emphasizes that urban slums in Bangladesh are considerably underserved, since other programmes designed to encourage enrolment and attendance operate only in rural areas. SFP is the only national intervention that operates in urban slums—and it only covers four slum areas in Dhaka City. This evaluation...
shows that about half of all primary school-age children in control and 41 percent in programme urban slums do not go to school. The corresponding figures in rural areas are 15 percent and 6 percent. In control urban slums, only about half of those entering primary school stay to complete it.

Direct and opportunity costs of schooling are likely to be the main causes for children from poor households in slums not to attend school. Besides low enrolment and high drop-out rates, urban slum children are threatened by violence and other social disruptions. Some of these threats can be mitigated if children can be drawn to school.

Other Findings
The econometric analyses underline factors beyond the SFP that also have interesting policy implications. The study corroborates effects found in much of the recent literature, such as

that a mother’s education has a positive effect on her child’s nutritional status as well as school enrolment and test scores. A mother’s BMI is positively associated with child nutritional status: healthy mothers have healthy children.

Child enrolment rates increase and dropout rates decrease as household income rises. However, absenteeism is higher among children from wealthy families than those from poor families, for reasons not yet clear.

The research revealed significant differences between children in urban slums and rural areas: children in urban slums have lower nutritional status (BMI) than children in rural areas. Both enrolment rates and attendance rates are considerably lower in urban slum communities than in rural communities, and dropout rates are higher. However, students from urban slum areas do better in achievement tests than do students from rural areas, probably due to the difference in quality between urban and rural primary schools.

The Way Forward
The encouraging findings of this study suggest that the SFP could well be scaled up to benefit many more Bangladeshi children—but care must be taken with targeting. To achieve maximum benefit for the cost, the programme should cover those areas where undernutrition is a serious problem, school enrolment and attendance rates are low, and dropout rates are high. Urban slums, in particular, are promising areas for expansion.

The Primary Education Stipend Programme—a cash-for-education incentive programme—is already active throughout rural Bangladesh. For SFP expansion in rural areas, geographical targeting methods—such as Vulnerability Analysis and Mapping (VAM)—could be refined to better identify places with the highest concentration of undernourished children and lowest educational attainment.

Implications for Food Assistance Programmes
Bangladesh’s SFP is highly cost-effective. It is inexpensive compared to related programmes. The SFP costs $18 per child per year, of which $13.50 goes to produce the biscuits. On average, WFP-supported school feeding programmes in other countries cost $34 a year per child.

The SFP is a far simpler and less expensive programme to implement and manage than a full school lunch programme. Since SFP in Bangladesh uses pre-packaged biscuits, it avoids the costs of cooking at the schools and diminishes teachers’ responsibility for food management. The packaged biscuits also offer better quality control and hygiene than school-cooked meals. Because of their low cost and high impact, nutrient-fortified snacks may in many countries prove a better programme option than a full meal. One way to make snacks even more palatable would be to vary their flavour, taste, and texture. On the other hand, the advantage of school-cooked meals would seem to be that (1) local women, such as members of self-help groups, can be employed to prepare and distribute the meals, and (2) cooked meals would likely rely on locally grown food.

In fact, either school meals or snacks could be produced from domestic crops, opening a new market opportunity to local farmers. Local procurement must be done with care, however, since such an initiative could also increase the risk of poor farmers’ taking their children out of school to help with farmwork to grow more food—thus defeating the very purpose of school feeding programmes.

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**Contribution of SFP biscuits to students’ daily nutrition**

**Energy, Protein, Iron, Vitamin A**

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