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**#004**

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## **School Feeding in South Africa: What we know, what we don't know, what we need to know, what we need to do**

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### **Authors:**

Stephen Devereux, Tessa Hochfeld, Abdulrazak Karriem,  
Clement Mensah, Matseliso Morahanye, Thabang Msimango,  
Agnes Mukubonda, Sigamoney Naicker, Grace Nkomo,  
David Sanders and Mohammed Sanousi

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in Food Security

# DST-NRF Centre of Excellence in Food Security

## Food Security SA Working Paper Series

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**Email:** [coeinfo@gmail.com](mailto:coeinfo@gmail.com)

**Website:** [www.foodsecurity.ac.za](http://www.foodsecurity.ac.za)

**Series Editor:** Stephen Devereux

**Design and Layout:** Mologadi Makwela

# School Feeding in South Africa:

## What we know, what we don't know, what we need to know, what we need to do

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#004

### AUTHOR DETAILS

AUTHOR'S NAME	INSTITUTION
Stephen Devereux	DST-NRF Centre of Excellence in Food Security and Institute for Social Development, University of the Western Cape  Email Address: <a href="mailto:S.Devereux@ids.ac.uk">S.Devereux@ids.ac.uk</a>
Tessa Hochfeld	Centre for Social Development in Africa, University of Johannesburg
Abdulrazak Karriem	Institute for Social Development, University of the Western Cape
Clement Mensah	Institute for Social Development, University of the Western Cape
Matseliso Morahanye	Ministry of Education and Training, Government of Lesotho
Thabang Msimango	Department of Plant and Soil Sciences, University of Pretoria
Agnes Mukubonda	Ministry of Education, Arts and Culture, Government of Namibia
Sigamoney Naicker	Western Cape Education Department, Republic of South Africa
Grace Nkomo	DST-NRF Centre of Excellence in Food Security and Institute for Social Development, University of the Western Cape
David Sanders	School of Public Health, University of the Western Cape
Mohammed Sanousi	Institute for Social Development, University of the Western Cape

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## **ABSTRACT**

This working paper draws on the proceedings of a 'National Workshop on School Feeding in South Africa', convened in November 2017 by the DST-NRF Centre of Excellence in Food Security. Workshop participants engaged with unresolved debates in school feeding, notably its objectives and impacts, which include food security and nutrition, education access and outcomes, intergenerational poverty reduction, employment creation and support to local agriculture. In South Africa, the National School Nutrition Programme (NSNP) currently provides meals to over 9 million learners. The NSNP has two other pillars – Nutrition Education and Deworming, and Sustainable Food Production – but 96% of the budget goes to school feeding. School food gardens can increase children's consumption of fruit and vegetables and function as 'outdoor classrooms', but less than half of NSNP schools have a food garden. No rigorous impact evaluation of the NSNP has yet been conducted, partly for methodological reasons – notably the challenge of identifying a control group – but a comparison of NSNP with an NGO-run in-school breakfast programme found that adding a second meal led to enhanced positive impacts on learners' nutritional status, school attendance and learner performance. NGOs and public-private partnerships are making important contributions, either by expanding the coverage of school feeding or by piloting innovative modalities. South Africa can also learn from experiences in other countries, such as Brazil, Lesotho and Namibia, for instance with alternative models such as local procurement and 'home-grown school feeding'.

## **KEYWORDS**

School feeding, food security, nutrition, education, social protection, South Africa

**Word count:** 11, 653 words

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## INTRODUCTION

School feeding in South Africa has a long history. The Peninsula School Feeding Association (PSFA), for instance, has been delivering meals to schoolchildren since 1958. Since 1994, the government has implemented the National School Nutrition Programme (NSNP), which provides daily meals to about 9 million children in over 20,000 public schools across South Africa. The NSNP has two sets of objectives: **food security** (to improve the health and nutritional status of school-going children), and **education** (to improve learners' school attendance, attentiveness and performance). The emphasis shifted toward education in 2004, from improving the nutritional status of learners to "reduce hunger and alleviate the effect of malnutrition on their learning capacity", and school feeding – then under the 'Integrated Nutrition Programme' – was moved from the Department of Health to the Department of Basic Education.

The NSNP has three pillars with associated objectives:

1. **Feeding:** to provide nutritious meals to learners
2. **Nutrition education:** to promote nutritional knowledge and healthy food choices
3. **Food gardens:** to improve food production knowledge and skills, natural resource protection and school meals.



School feeding is an important social protection instrument and a component of South Africa's social protection system, but it receives far less attention than other programmes such as the Child Support Grant.

In November 2017 the DST-NRF Centre of Excellence in Food Security convened a **National Workshop on School Feeding in South Africa** in Cape Town, which brought together policy-makers, researchers and practitioners in school feeding from South Africa and neighbouring countries, to assess the achievements and limitations of the National School Nutrition Programme and related interventions.

Participants included NSNP officials from the national and provincial (Western Cape and Eastern Cape) Department of Basic Education; officials from the Western Cape Government and the governments of Lesotho and Namibia; officers from the World Food Programme in Lesotho, Namibia and South Africa; researchers from the Universities of Johannesburg, Pretoria, Western Cape, Cape Peninsula University of Technology, the Economic Policy

Research Institute and South African Medical Research Council; NGO representatives from the British Council, JAM South Africa, Peninsula School Feeding Association and Tiger Brands Foundation; and teachers and food handlers from schools in the Eastern Cape and Western Cape.

By drawing on existing literature, ongoing research and lessons from other countries in the SADC region and globally, the workshop aimed to contribute to a better informed debate and to influence policy and practice. This Working Paper draws on the presentations and discussions at the workshop, and extracts implications for improved design, delivery and impact of school meals, school gardens and nutrition education in South Africa and beyond.

## WHAT IS SCHOOL FEEDING FOR? INTERROGATING THE THEORY OF CHANGE<sup>1</sup>

School feeding was initially promoted as an anti-hunger programme (“feeding hungry children”). However, relatively little impact on children’s nutritional status was found (Bundy *et al.* 2009; Finan 2009), for reasons discussed below. In the 1990s the World Food Programme – the largest global agency promoting school feeding – abandoned nutritional objectives in favour of education objectives. (“You can’t teach a hungry child.”) The primary indicators of school feeding impacts, therefore, are not nutritional but educational: school enrolment and attendance, girls’ access (reducing gender gaps), and learners’ performance in exams. Secondary indicators of positive impacts are economic, and include: income for farmers (under local procurement models), and employment for caterers.

So: is school feeding an **anti-hunger** programme or a **pro-education** programme – or both? This section explores several theories of change that are found in the school feeding discourse.

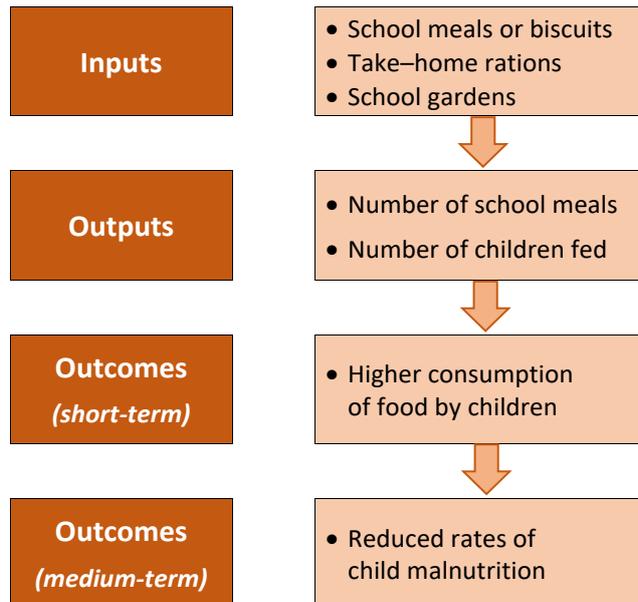
### 1<sup>ST</sup> theory of change: Food security and nutrition

The assertion that school feeding schemes should reduce hunger and malnutrition among poor children seems straightforward and intuitive. Giving meals or take-home rations to food insecure children should increase their food consumption and is expected to improve their nutritional status, especially in poor families that are unable to purchase enough food to feed their children adequately.

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<sup>1</sup> This section is based on Devereux (2017).

**Figure 1. 1st theory of change: Food security and nutrition**



Source: Devereux (2017)

This assumption is articulated in a fund-raising campaign for 'Add Hope', a school feeding scheme run by Kentucky Fried Chicken (KFC) in many countries around the world – including South Africa, India and Philippines – but using different messages in different contexts, as will be seen. Figure 2 shows a campaign from South Africa, which states: “Linda grows when you donate a R2” (emphasis added).

**Figure 2. Add Hope: South Africa**



Source: Add Hope South Africa campaign (<https://www.youtube.com/watch?v=4oOoDZGgz5E>)

A campaign from India uses statistics of hunger (“1 in 4 children malnourished”, “58% of children stunted”, etc.) to motivate why customers should contribute to the ‘Add Hope’ fund when they buy a meal at KFC: “Adding ₹5 to your bill will feed a hungry child” (see Figure 3).

**Figure 3. Add Hope: India**



Source: Add Hope India campaign (<https://csrmandate.org/kfc-india-brings-add-hope-to-maharashtra/>)

In both these campaigns, the implication is that delivering meals to schoolchildren will help them to “grow” and reduce child malnutrition and hunger. However, the evidence for this hypothesis is mixed, or even weak. A crucial point is whether meals provided at school are additional to food consumed at home, or whether they substitute for meals at home. Evidence for the ‘fly-paper effect’ comes from Mexico, where Jacoby (1997) found that food provided as school meals was close to 100% additional to food consumed at home. Several studies find evidence for a partial ‘fly-paper effect’ (less than 100% substitution). In Malawi,  $\frac{3}{4}$  of children who got school feeding got less food at home. In India and Peru, the increase in calories consumed was less than half of the calories transferred through school meals. In one case study in Kenya, a complete substitution effect was recorded (>100%): school meals caused a net decrease in consumption of more than 100 calories – these children would have eaten more food at home if they were not fed at school (Kristjansson *et al.* 2006).

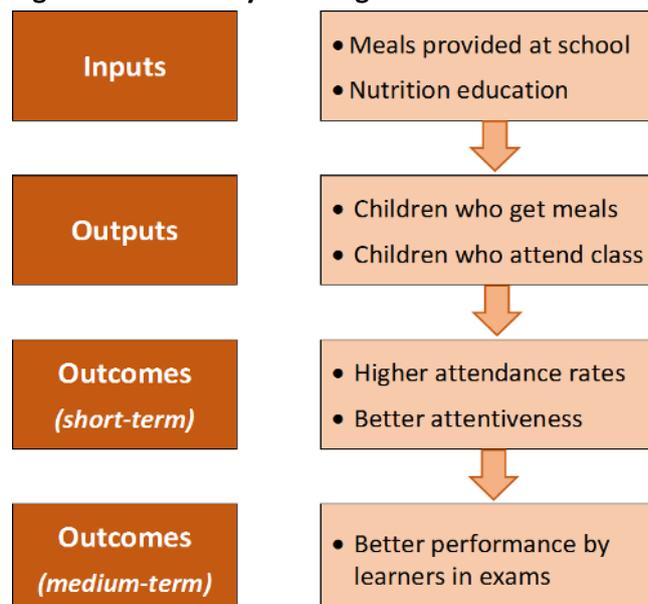
Another reason why school feeding achieves limited impacts on anthropometric indicators such as stunting is because it comes too late in a child’s physical development. Nutritional deficits that occur in the first 1,000 days of life leave negligible potential for ‘catch-up’: “providing food to school-age children cannot reverse the damage of early nutritional deficits” (Bundy *et al.* 2009: 29). Bigger impacts could be achieved if nutritional interventions targeted children in ECD centres rather than at primary school. On the other hand, school feeding in the form of fortified biscuits (with added iron and zinc) can reduce micronutrient deficiencies such as anaemia (Adelman *et al.* 2008).

## 2<sup>nd</sup> theory of change: Education

The second hypothesised impact of school feeding is on education access and outcomes. This is actually two related hypotheses. Firstly, offering free meals is intended to attract children to school who might otherwise not come (especially children from poor and marginalised families), and to keep them in school even when their families are facing difficulties (instead of being withdrawn as a 'coping strategy'). Indicators of education access include enrolment rates, attendance rates, and retention rates.

Secondly, "you can't teach a hungry child", because hunger reduces attentiveness and cognitive capacity. Providing meals during school hours is expected to improve learners' ability to concentrate and learn, which in turn should improve their performance in examinations. Indicators of education outcomes include pass rates and promotion rates (Adelman *et al.* 2008).

**Figure 4. 2nd theory of change: Education**



Source: Devereux (2017)

An 'Add Hope' fundraising campaign from the Philippines exploits claims that school feeding enhances education access and outcomes. "Hunger affects the academic performance and retention of young students in the Philippines. ... School feeding programs have the benefit of increasing school attendance and helping students boost academic performance" (see Figure 5).

Figure 5. Add Hope: Philippines

The poster features the headline "FEED THE DREAMS OF FILIPINO YOUTH JUST ADD HOPE WHEN YOU VISIT KFC". Below this, the "add HOPE" logo is displayed in a stylized red font, with a small KFC logo integrated into the word "HOPE". To the left of the logo is the text "TO FEED DREAMS".

Hunger affects the academic performance and retention of young students in the Philippines.

However, combating hunger and undernutrition is well within our hands, through the Add Hope project – a fund-raising initiative by World Food Programme (WFP) and KFC Philippines. School feeding programs have the benefit of increasing school attendance and helping students boost their academic performance. The partnership has fed 100,000 children since 2007. KFC Philippines & WFP invite you to join them in rebuilding the lives of those in conflict-affected communities through WFP's school-feeding programme in various public elementary schools. Visit [AddHope.com.ph](http://AddHope.com.ph) to learn more.

**When you ADD HOPE**

**P10 = 1 nutritious meal**      **P1800 = feeds 1 child for 1 year**

The poster includes an illustration of a red bowl with the "add HOPE" logo on it, and a cartoon illustration of a young girl with dark hair, wearing a red shirt and blue skirt, waving.

**Don't let hunger stop them from achieving their dreams**

Source: Add Hope Philippines campaign (<http://momsworldofartsandhappiness.blogspot.co.za/2015/12/be-part-of-add-hope-project.html>)

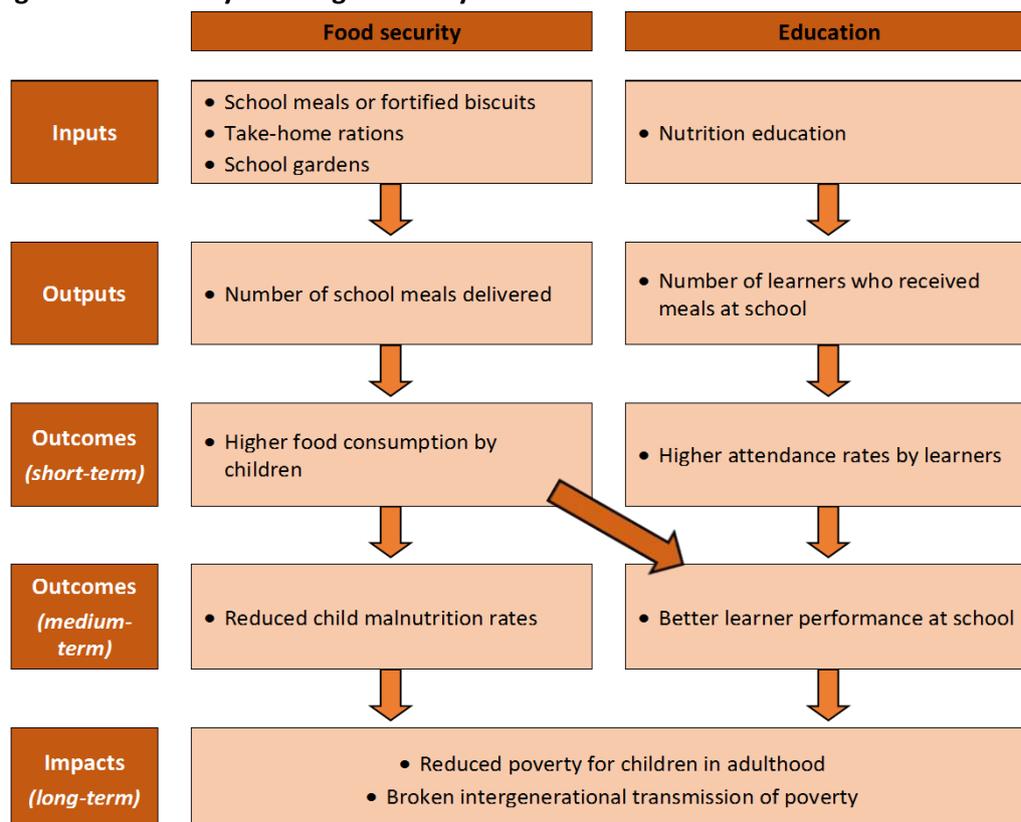
There is strong positive evidence that school attendance rates do improve after free school meals are introduced (Ahmed and Del Ninno 2002; Molinas and de la Mothe 2010). Sometimes programmes such as take-home rations target girls, providing an incentive in the form of a sack of grain each month or term that the girl attends school, in an effort to reduce gender gaps in access to education. These initiatives have been successful in several countries (Gelli, Meir and Espejo 2007).

But the impact of school feeding on education outcomes is less persuasive. One obvious reason for this is that school feeding enhances the demand for education, but it does not enhance the supply of education. If the quality of education is poor then even well-nourished learners will struggle. There might even be a negative feedback loop: if school feeding increases the demand for education to such an extent that class sizes and learner/teacher ratios get too large, the quality of education delivered could decline. School feeding schemes can also create problems of stigma and social exclusion, if some learners (poor children, or orphans) are singled out to receive school meals, or if claiming meals is associated with poverty. This could be a disincentive to eligible learners claiming their free meals, or might even discourage them from attending school altogether.

### 3<sup>rd</sup> theory of change: Poverty reduction

The combined effect of improvements in children’s food security in the short-run and their education access and performance at school in the medium-run, amounts to an investment in human capital that is expected to break the intergenerational transmission of poverty and reduce household and national poverty rates in the long-run. This is because well-nourished and well-educated children are likely to be more productive as adults and to enjoy better prospects in the labour market.

**Figure 6. 3rd theory of change: Poverty reduction**



Source: adapted from Devereux and Roelen (2015: 152)

This argument is exploited in the ‘Add Hope’ campaign in the Philippines, which shows several children who are named and labelled as aspiring teachers, accountants, doctors and architects. The tag-line ‘Don’t let hunger stop them from pursuing their dreams’ (see Figure 7) suggests that the ‘Add Hope’ school feeding scheme will enable these poor schoolgirls to achieve their aspirations one day and become successful middle-class professionals.

Figure 7. Add Hope: Philippines



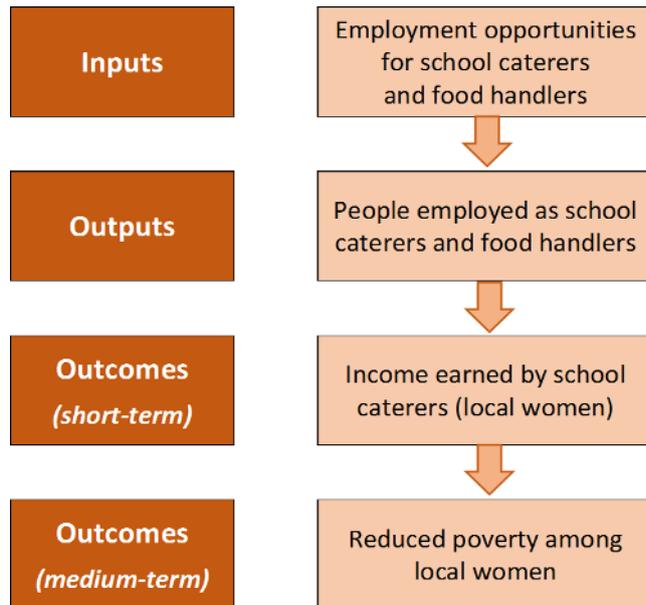
Source: Add Hope Philippines campaign (<http://momsworldofartsandhappiness.blogspot.co.za/2015/12/be-part-of-add-hope-project.html>)

A cross-country analysis of the returns to investment on school feeding found speculative evidence for this pathway out of poverty. The combined positive impacts of school feeding on household income, school attendance, learner cognition and micronutrient deficits are hypothesised to lead to enhanced academic performance, higher productivity and higher earnings in adult life. Benefit to cost ratios modelled in Ghana, Kenya, Zambia and Lao PDR ranged from 7:1 to 16:1. In Kenya, for instance, “the productivity increase resulting from improved education and better wages throughout the future life of the child yields US\$1,782” on an investment cost of US\$146 per child (Molinas and de la Roche 2010: 227). Of course, modelling these effects means that these benefits were anticipated to occur, not that they actually occurred and were measured.

#### 4<sup>th</sup> theory of change: Employment

A secondary benefit of school feeding programmes is the employment it creates for food handlers and caterers who manage and prepare food at participating schools. If these jobs are allocated to poor people in local communities, this can be another pathway to poverty reduction (Figure 8). In South Africa more than 50,000 food handlers work to support the NSNP. These jobs are often dominated by women, so there is also a positive gender effect.

**Figure 8. 4th theory of change: Local employment creation**

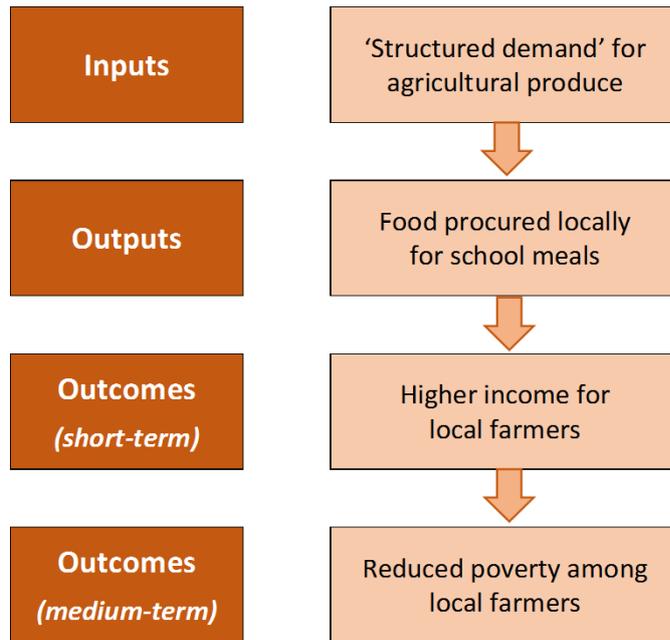


Source: Devereux (2017)

## 5<sup>th</sup> theory of change: Agriculture

Early modalities for school feeding schemes were damaging for African agriculture, because they used imported food that was provided by American and European farmers, who were subsidised by their governments to produce surpluses that were 'dumped' in Africa as emergency or project food aid. More recently, local purchase of food has become preferred to food imports in many countries, through modalities such as Home-Grown School Feeding (HGSF) and Purchase for Progress ('P4P') (WFP 2015). Local purchase supports agriculture by creating structured demand for local produce, thus generating income for local farmers. Often poor smallholders are targeted by these schemes, as part of efforts by governments and development partners to reduce rural poverty (Figure 9).

**Figure 9. 5<sup>th</sup> theory of change: Agriculture**



Source: Devereux (2017)

The pros and cons of different procurement models for school feeding schemes are explored further in section 6.1 below.

Summing up, school feeding might appear to be a straightforward intervention with clear and simple objectives: to attract poor children to school and reduce their hunger, thereby improving children’s nutritional status and education outcomes. (“Poverty is a very complicated issue, but feeding a child isn’t.”<sup>2</sup>) In fact it is more complex than this. Whether school feeding is primarily a nutrition programme or an education support is contested, and the evidence on impacts is mixed and often contradictory. There is also a risk of overloading school feeding with too many objectives and expectations.

## **OVERVIEW OF THE NATIONAL SCHOOL NUTRITION PROGRAMME (NSNP)**

### **Precursors to the NSNP in the Western Cape<sup>3</sup>**

The Primary School Nutrition Programme (PSNP) was introduced in 1994 under the Reconstruction and Development Plan (RDP), as one of President Mandela’s ‘1st 100 days’

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<sup>2</sup> American actor Jeff Bridges (<http://www.azquotes.com/quote/35915>).

<sup>3</sup> This section draws on an interview with David Sanders by Stephen Devereux, Pretoria, 13 September 2017.

projects. Although it had high political priority as a means to achieve “Optimum nutrition for all South Africans”, nutritionists argued that its impacts would be limited because it is difficult to reverse nutrition deficits among school-aged children – the best ‘bang for the buck’ would be achieved by intervening with children under two years old. For this reason the nutrition project was conceptualised mainly as a mechanism to improve attentiveness and attendance at school.

In the transition period the new MECs appointed Strategic Management Teams (SMTs). In the Western Cape a Health SMT was established. Nutrition fell under the Health SMT, and a Provincial Technical Task Team was convened for the Primary School Nutrition Programme. The Technical Task Team included people working on nutrition issues in the provincial administration, dieticians working at district level, academics working in education and child health, and NGOs like Philani, which worked on child health issues on the Cape Flats, and Peninsula School Feeding Association.

In the Western Cape, unlike other provinces, Peninsula School Feeding already ran a school feeding programme, but not province-wide and targeted mainly at Coloured schools on the Cape Flats, with limited coverage of African schools. Peninsula was supplying brown bread and jam sandwiches, also a white sweetened drink called Nutri-A that looked like milk but was actually an artificial protein and micronutrient enriched drink. They raised money through activities like Blisters for Bread – sponsored fund-raising walks, and they wanted to expand their activities under the PSNP.

The Technical Task Team decided to devise and pilot a scheme that would provide a hot nutritious meal at the beginning of the school day, preferably also generating some local employment. This meal should comprise nutritious, recognisable and accessible foods, that people would know from home but would stimulate better dietary choices. Together with a local community dietician, the Technical Task Team devised a breakfast based on mielie-pap, beans and a nutritious pulse-based sauce, which compared favourably in terms of cost and nutrient quality (energy, protein and micronutrients) with Peninsula School Feeding’s combination of a sandwich and Nutri-A. The big difference was that Nutri-A could not be bought in shops, it was made specifically for the school feeding programme, so it could not be incorporated by families into a healthy diet.

The Technical Task Team presented this idea to the Provincial Administration and got permission to pilot it in Ocean View. They hired local unemployed women and gave them a small stipend to come early to the school and cook food, so that when the children arrived at school they got a hot meal. There was no meat in the meal but there was a sauce that

included a protein. The pilot project was evaluated for feasibility, acceptability, whether it was disruptive for the school, and so on – it came out very positive. Nutritional impact was not assessed. The findings were presented to the Provincial Administration and they received a very positive response.

Other innovations were about to be implemented, such as 'child to child', where children would be taught about nutrition at school so they could go home and teach their siblings and even their parents about healthy diets. The Technical Task Team also planned to roll out and scale up the pilot project. But then the Provincial Health authorities unexpectedly disbanded the Technical Task Team. No reason was given except that "Your work has been done", so the Ocean View pilot project ended and was not scaled up.

## **National School Nutrition Programme<sup>4</sup>**

In 2004 the Primary School Nutrition Programme was transferred from the Department of Health to the Department of Education, and in 2006 it was renamed as the National School Nutrition Programme (NSNP). Coverage expanded to include secondary schools, and from poorest quintile schools to all schools classified in the three poorest quintiles. Currently the NSNP reaches around 20,000 quintile 1–3 schools and provides meals daily to more than 9 million learners nationwide.

The NSNP is run by the Department of Basic Education (DBE), working in partnership with other government departments, namely the Departments of Health (DoH) and Agriculture, Forestry and Fisheries (DAFF). Private companies also assist with the breakfast programme, namely Tiger Brands Foundation (TBF), Pioneer Foods and Economic Development Solutions (EDS).

### **Rationale**

Studies by the Food and Agricultural Organisation (FAO), UNESCO and the World Health Organisation (WHO) show that hunger, nutrition and poverty are strongly correlated. Research has established that well-designed "nutrition-sensitive school meals programmes" (WFP 2017) can improve the nutritional status of children, improve school attendance, encourage learners to stay on throughout primary and into secondary school – girls in particular – and improve cognitive performance in certain domains.

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<sup>4</sup> This section is based on Naicker (2017).

In South Africa, indices of poverty show that Africans, females in particular, are consistently in the lowest bands of household expenditure. South Africans are at high risk of micronutrients deficiency, specifically Vitamin A and iron. Lack of Vitamin A impairs the immune system, while lack of iron leads to anaemia, fatigue and dizziness. Hunger and micronutrient deficits are known to impact negatively on school attendance, cognitive capacity, death rates of young children and mothers, and immunity to disease. Through implementation of NSNP, DBE aims at sustainable provisioning of quality food to learners who are threatened by poverty and hunger.

## Pillars

The NSNP has three pillars:

- **School Feeding:** providing nutritious meals to all learners in quintile 1–3 primary and secondary schools, as well as identified special schools, on all school days.
- **Nutrition Education and Deworming:** educating learners and the community at large about good nutrition and creating awareness about the Deworming Campaign.
- **Sustainable Food Production (SFP):** facilitating food gardens and other food production projects in schools.

The three pillars each support a different objective of the NSNP: (1) contribute to enhanced learning capacity through school feeding; (2) strengthen nutrition education in schools and communities; and (3) promote and support food production and improve food security in school communities (DBE 2014).

Under the conditions of the Division of Revenue Act (DORA), budget allocations for the NSNP must be as follows: school feeding, including cooking equipment (minimum 96%); nutrition education and deworming (minimum 0.5%); administration (maximum 3.5%) (Republic of South Africa 2016: 131).

The policy environment is highly regulated. Any deviation has to be applied for through the DBE. Audit requirements are stringent, and include: average cost of meal per learner, feeding register (list of learners fed each day), compliance with the approved NSNP menu (meals containing starch, protein and fresh vegetables or fruit), attendance registers of volunteer food handlers (VFHs) and gardeners, signed agreement forms with both parties, proof of payments signed by VFHs and gardeners. Finally, quintile 1–3 primary and secondary schools that are not feeding all their learners should have a copy of the deviation letter submitted to the district office declaring the number of learners that are fed.

## SCHOOL FEEDING IN SOUTH AFRICA: THE EVIDENCE

Very few evaluations have been undertaken of school feeding in South Africa. There are several possible explanations for this. One is that school feeding is often seen as a logistical exercise: the benefits of feeding poor children at school are obvious, there is no need to quantify impacts, only to monitor that the programme is being delivered efficiently and cost-effectively. Another explanation is that it is methodologically difficult to evaluate a national programme like the NSNP rigorously: no baseline survey data exist for this long-running programme, and it is almost impossible to establish a control group when almost all poor schoolchildren who are eligible are actually benefiting. A related but more fundamental issue is a lack of clarity around what hypothesised impacts should be assessed, because, as noted above, the theory of change of change and the expected outcomes of school feeding programmes in general, and the NSNP in particular, are far from clear.

### Evaluating school feeding in the Eastern Cape<sup>5</sup>

The Tiger Brands Foundation (TBF) complements the NSNP by delivering breakfast as a second meal at school to more than 60,000 learners in all nine provinces of South Africa (see the case study in section 7 below). In 2014 TBF commissioned an evaluation of their in-school breakfast programme to assess its impacts on learners' nutritional status and education access and outcomes, as well as its wider impacts. The evaluation was conducted in Lady Frere and Qumbu, two poor rural districts in Eastern Cape. The research design included two groups of beneficiary learners – one receiving NSNP only, the other receiving NSNP plus TBF – and a 'control group' that started receiving NSNP during the course of the study (a true control group was not possible). Changes in anthropometric indicators, school attendance and learner performance for each group were assessed over two points in time.

One intriguing finding is that school feeding appears to have some potential to reduce stunting among school-age children. Received wisdom has been that children whose growth is impaired in early life (the first 1,000 days) have little chance of 'catch-up' growth and will remain stunted. However, recent evidence suggests that catch-up is possible in mid-childhood and puberty (Prentice *et al.* 2013) – and school feeding could contribute to this. An earlier evaluation of TBF's in-school breakfast pilot project in Alexandra township, Johannesburg found that levels of severe stunting were reduced by 4.7% over a 10-month period (Hochfeld *et al.* 2013).

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<sup>5</sup> This section is based on Hochfeld (2017).

The evaluation in Eastern Cape found that children who received an additional meal at school have lower stunting rates (8.7%) than those receiving only the NSNP (14.5%) (Table 1). However, without a rigorous study that measures stunting levels before and after the introduction of breakfast at school, the lower stunting levels observed in these schools cannot be attributed with certainty to the TBF breakfast programme. This question requires further research.

**Table 1. Learners with stunted growth in selected Eastern Cape schools, 2014**

'Control' schools [n=276]	'NSNP only' schools [n=570]	NSNP + breakfast [n=541]	Total [n=1,387]
6.5% [p=0.005]	14.5% [p=0.005]	8.7% [p=0.05]	10.6%

Source: Graham *et al.* (2015: 26)

The evaluation found that both the NSNP and TBF interventions reduce the prevalence of wasted and underweight children, which are indicators of short-term malnutrition. Both programmes also have a protective effect against overweight and obesity for children, particularly for girls. This represents a good return on investment, since obesity in adult life is associated with health risks such as Type II diabetes and heart disease (Graham *et al.* 2015).

In terms of education access, the evaluation found evidence that the TBF breakfast programme has positive impacts on school attendance. Schools with the breakfast programme have higher rates of zero absenteeism than 'NSNP only' and 'control' schools. There is a perception that the breakfast provides an incentive to attend school, and that it encourages learners to get to school on time.

In terms of education outcomes, learners at schools receiving nutrition interventions perform better than those who do not receive such interventions. "Children at the schools receiving the NSNP had higher marks than those at control schools in both the first and the last term. Children receiving the breakfast had higher marks at both points in time than either those at the control or the NSNP only schools" (Graham *et al.* 2015: 10).

These findings, although positive, are tentative. The indicative evidence suggests that school feeding interventions can improve children's nutritional status – wasting, underweight, stunting – and even protect against overweight and obesity. Also, learner attendance and performance at school appears to improve. The addition of breakfast as a second meal in-school seems to reinforce these positive outcomes for children. If these findings can be confirmed by rigorous impact evaluations, the case would be proven for continuing the NSNP and for adding a breakfast to school feeding programmes.

## School food gardens with the NSNP<sup>6</sup>

Sustainable Food Production in Schools (SFPS), referring to school food gardens, is the second pillar of the NSNP. Nationally, 45% of schools where the NSNP is implemented (8,717 out of 19,383) had school food gardens in 2014 (DBE 2014). These gardens are administered by one or two SFPS officers in each province, who liaise with the school coordinators and gardeners.

Different sources – the DBE website, NSNP Annual Reports and NSNP officials – offer different objectives for the sustainable food production pillar of the NSNP. These include: to obtain fresh produce to supplement NSNP feeding; to sell produce to generate income for schools; a resource for teaching and learning; to provide skills for learners, teachers and parents to grow their own food for household food security; and to beautify the environment.

Apart from lack of clarity over its objectives, the SFPS pillar faces severe funding constraints. As noted above, within the NSNP budget, the school feeding component is allocated 96% of funding, leaving 4% for all other components – nutrition education, deworming and administration. There is no allocation in the Division of Revenue Act for school food gardens. Apart from small grants from DBE, funding also comes from school garden competitions (prizes range from R10,000 to R25,000). In 50% of schools surveyed, the school is the sole supplier of funding to its food garden (Laurie *et al.* 2017).

In the Western Cape, the NSNP partners with the Department of Agriculture, Forestry and Fisheries (DAFF), which is the primary funder of resources needed in gardens (compost, equipment, seeds, seedlings), and gives grants of up to R100,000 through the Small Community Farmers initiative. Since 2012, the Expanded Public Works Programme (EPWP) has provided stipends for workers to work as school gardeners in the Western Cape. The number of gardeners funded through EPWP fluctuates and is unpredictable from year to year, ranging from as few as 80 to as many as 380 (see **Table 2**).

**Table 2. Number of gardeners funded by EPWP in the Western Cape, 2012–2017**

Year	2012	2013	2014	2015	2016	2017
Gardeners	380	194	216	80	280	120

Source: Nkomo (2017)

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<sup>6</sup> This section is based on Nkomo (2017).

Before EPWP paid for gardeners, school caretakers or community members took responsibility for managing school gardens, and this remains the case today in schools without EPWP support. Another key partnership is with NGOs that provide training, resources and markets for produce. Some schools sell produce worth over R100,000 per year, others export seeds, one sells tomatoes to supermarkets.

Literature confirms that involvement in food gardens increases children's consumption of fruit and vegetables, which are essential components of a healthy diet. Increased intake of fruit and vegetables reduces micronutrient deficiencies (iron, zinc, vitamin A) and decreases the likelihood of childhood obesity (Roche *et al.* 2017). School gardens can function as 'outdoor classrooms' and encourage positive attitudes towards implementation of gardens, both at school and at home.

Nonetheless, the SFPS seems to be a neglected pillar of the NSPS. School food gardens have potential to contribute to children's learning, household food security and local employment creation, but their objectives are unclear and they are severely underfunded, so their potential remains underexploited.

### **Qualitative perceptions of the NSNP in the Western Cape<sup>7</sup>**

A qualitative study in the Western Cape aimed to explore the perspectives of programme stakeholders – school principals, teachers, School Governing Body (SGB) members, food handlers and NSNP staff – on issues including the objectives of the NSNP (is it a nutritional or educational programme?), its expected impacts, whether these impacts have actually been achieved, and if not, why not.

According to an official from the Department of Health, before school feeding was moved to the Department of Education in 2004, "*the programme was primarily designed to provide direct services to primary school learners to reduce hunger and alleviate the effect of malnutrition on their learning capacity and not to improve nutritional status of the school learners*".<sup>8</sup>

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<sup>7</sup> This section is based on Sanousi (2017).

<sup>8</sup> To protect the anonymity of respondents, no names of persons or schools are provided here.

An official from the Department of Basic Education in the Western Cape noted that: *"the programme is trying to achieve two things. First, to provide nutrition to poor children, because there is a relation between nutrition and cognitive development. We are also trying to keep poor children in schools, so food is an incentive as well. Ultimately, we want to improve our education outcomes"*.

A school principal argued that *"the programme is trying to improve both nutrition and education outcomes as well as other social values that have been embedded into programme. For example, we tell our learners 'pray before you eat', 'don't talk while you are eating'"*. A schoolteacher clarified this connection between nutrition and education objectives: *"I think the programme is trying to feed children who don't have food at home. A child cannot learn if he or she is hungry. If children are hungry you get nothing out of them. They cannot concentrate, cannot work and they won't have energy. so I think the programme is trying to achieve nutrition outcomes"*. This synergy was reiterated by a SGB member: *"Food helps learners to concentrate in class. You cannot think or learn with an empty stomach. So the programme is trying to keep the stomach full so that mind can work and focus in class. It's kind of 50/50"*.

No quantitative outcome indicators were monitored or collected for this research, which relied on direct observations and opinions of stakeholders. However, one school principal claimed that, in his school: *"enrolment has improved, attendance has improved and participation in class has also improved. There is better concentration in class, and absenteeism has reduced."* A teacher confirmed the positive impact on school attendance: *"attendance has improved – especially in winter, they come early in the morning to have breakfast, otherwise they are going to miss the food."*

Schoolteachers and food handlers observe visible differences in learners before and after eating school meals, and during term time and after holidays.

*"Children who have not had breakfast in the morning are a bit slow in my class, this is my own experience as a teacher, but after they had a meal, I can see they are able to do their work in the class, they participate much better, they are more awake and satisfied, I could see that in their eyes."*

*"I don't hear any stomach is paining in the class, there is no fighting and no-one is yawning. They are more awake, energetic and focused."*

*"the children are now more happy and outgoing...they are interacting and not lazy/sick anymore...they are more vibrant...sometimes they are out of control and giving the teachers troubles in the classes."*

*"Learners are more shining and outgoing. The children enjoy my food very much. You can see when they are eating they shake their legs. When they come back from holiday they say 'Aunty, we miss your food!' and you can see they are very thin and run down."*

Several challenges in implementation of the NSNP were noted by stakeholders interviewed. These include: limited quantities and inadequate quality of food provided; delays in food deliveries; failure to make or maintain school food gardens; social stigma associated with the programme; and questions about the quintile system. School principals explained that the targeting approach based on quintiles excludes many needy learners. Specifically, a school might be situated in a wealthy area and classified as quintile 3 or 4, so it will be excluded from NSNP, but the majority of learners attending this school might be coming from poor areas.

A final limitation is the lack of evaluations to establish and quantify the actual impacts of the NSNP. Currently, only process monitoring data are regularly collected, to check that the programme is being delivered as planned. According to an official from the Department of Basic Education:

*"Our success indicators are: one, the learners are fed two meals every school day, breakfast and lunch and we monitor that the feeding is done on time, and two, they are feeding the correct meals. The NSNP was introduced to reduce poverty through skilling our learners. The only thing I can tell you is that attendance has improved, but whether the results have improved, we have not done a thorough investigation, so we need to look at that. We have not looked at the performance or education outcomes yet in a formal study, but we intend doing that."*

## **LEARNING FROM OTHER COUNTRIES**

School feeding is popular worldwide – most countries, rich and poor, have implemented one or more school feeding schemes – but their design and implementation modalities vary, and there are lessons to be learned from choices and practices in different countries. In southern Africa, Lesotho and Namibia both have decades of experience with school feeding, and both are testing new approaches to procurement, delivery and monitoring. Brazil also has a history of innovation in its school feeding. The experiences of these three countries is reviewed here.

## School feeding in Lesotho<sup>9</sup>

School feeding has a long history in Lesotho, starting in 1961 with a project supported by Save the Children Fund that targeted 10 schools in just one district. In 1965 the World Food Programme (WFP) started operations in Lesotho and expanded school feeding to all 10 districts. In 1990 the Government of Lesotho launched School Self Reliance projects, with the objective of taking over school feeding from WFP, but this was unsuccessful. Free Primary Education (FPE) was introduced in 2000, together with a new school feeding model (catering). In 2014 the National School Feeding Policy (NSFP) was developed, and local purchase was piloted, with maize, beans and sorghum procured from local farmers for 51 primary schools with 9,700 beneficiaries. In 2017 the National Management Agent (NMA) model was piloted.

School feeding in Lesotho has multiple objectives, including (1) to reduce hunger and malnutrition; (2) to increase school enrolment and attendance, and reduce drop-out rates; (3) to promote local food production and the local economy; and (4) to provide jobs for communities around the schools.

Three school feeding models operate in parallel in Lesotho. Firstly, under the **WFP Model**, the World Food Programme procures food internationally and subcontracts the Food Management Unit (FMU) to transport the food to schools. The Government of Lesotho provides funds for procurement of food and payment of cooks, who prepare two daily meals: breakfast (maize-meal porridge with sugar) and lunch (mielie-pap with beans or peas). WFP currently supports about 920 primary schools with an estimated 186,000 beneficiaries, and also supports feeding of about 50,000 learners in more than 2,000 ECCD centres.

Secondly, under the **Government Model (Catering)**, the Ministry of Education and Training (MoET) contracts and pays caterers who procure and prepare food at a fixed rate per child. Five different meals are provided, including vegetables and animal protein from eggs and milk. The Government supports 188 primary schools with 78,000 beneficiaries under this model, as well as 246 reception classes with 5,700 children.

Thirdly, under the **National Management Agent (NMA) Model**, the Government outsources the NSFP implementation by contracting individuals or companies as agents. Their

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<sup>9</sup> This section is based on Morahanye (2017).

responsibilities include procuring, storing and transporting food to pilot primary schools and recruiting cooks to prepare and serve meals. Under the NMA Model, 91,000 children in 18 constituencies across the country are receiving a variety of meals, with ingredients that include eggs, milk, soya mince, vegetables, wheat and sorghum.

Among the achievements recorded by the NSFP in 2017 are the following:

- more than 350,000 children were fed at least one meal a day at school;
- over 3,000 community members were employed as cooks, caterers or transporters;
- more than 200 farmers benefited by supplying maize, beans and vegetables to the NSFP;
- WFP began procuring food commodities locally as Home-Grown School Feeding (HGFSF);
- more than 70 school kitchens and storerooms were constructed with WFP support and government funding;
- the National School Feeding Policy was developed and policy guidelines were drafted;
- an evaluation was commissioned of the direct and wider impacts of the NSFP.

A number of challenges were also identified. These include a lack of storage and kitchen facilities in most schools; failure to adhere to prescribed menus; procurement of sub-standard food commodities; inadequate capacity of farmers and processors (e.g. millers) to fully implement Home Grown School Feeding; and delays in paying cooks, farmers and transporters subcontracted by NMAs. Also, delays in establishing the School Feeding Secretariat, developing the NSFP Strategic Plan and printing the NSFP guidelines, have inhibited the effective oversight and close monitoring of the programme by the Feeding Unit.

## **School feeding in Namibia<sup>10</sup>**

The Namibian School Feeding Programme (NSFP) was launched by the World Food Programme (WFP) in 1991, initially reaching just 500 learners in 5 schools. In 1996 it was handed over to the Government of Namibia, with 78,000 beneficiaries in 146 schools. It is now fully owned, managed and implemented by the Ministry of Education with technical support from WFP. In 2016, 330,000 pre-primary and primary learners in 1,456 schools across

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<sup>10</sup> This section is based on Mukubonda (2017).

14 regions benefited from the programme. It delivers one nutritious meal – fortified maize blended with soya protein, salt and sugar – every school day.

The principal objective of the NSFP is captured in its slogan: "*Enabling vulnerable children to learn*". More formally, the NSFP has 3 objectives: to contribute to increased school enrolment, attendance and retention; to contribute to improved health and nutrition of children; and to contribute to learning performance and progression through grades.

An evaluation in 2012 made several recommendations for improvements to the NSFP, including:

- develop a Namibian School Feeding Policy: this was prepared for cabinet ratification in 2017;
- link school feeding to smallholder producers: a feasibility study on Home Grown School Feeding in Namibia was undertaken in 2016, and a HGSF project will be piloted in 2018;
- strengthen community participation: a TV documentary was produced for advocacy purposes and to raise awareness of the benefits of the NSFP;
- increase the focus on private sector engagement: a PPP strategy for school feeding was developed and validated in 2017;
- strengthen monitoring and evaluation systems: an M&E plan and system are in place at all levels of management – reports are automatically generated using the web-based Namibian School Feeding Programme Information System (NaSIS) to inform decision making (data entry is decentralised to school level and 80% of schools are reporting activities through NASIS).

Remaining challenges to the NSFP include: staffing capacity constraints at national and regional levels, inadequate inter-sectoral coordination, limited community participation, lack of storage and kitchen facilities at schools, and delays in food deliveries and release of funds to pay cooks and other service providers. Priorities for the NSFP going forward include: implementation of the school feeding policy and the Home Grown School Feeding pilot project; strengthening inter-sectoral coordination and private sector engagement; decentralising management of school feeding to regions and building capacity at regional level; and enhancing the use of IT to improve efficiency and effectiveness of monitoring and accountability.

## School feeding in Brazil<sup>11</sup>

Brazil's national school feeding programme is one of the oldest and largest in the world. In the 1940s, the Ministry of Labour established the Social Security Food Service, to provide food to workers' children and fight hunger and malnutrition. In the 1950s, UNICEF provided skimmed milk to 350,000 school children in 8 Brazilian states, and the First National Plan for Food and Nutrition was drafted in 1955. In 1979, the National School Feeding Programme – *Programa Nacional de Alimentacao Escolar* (PNAE) – was launched. The NSFP was centralised, dominated by food processing companies, and it delivered a standardised menu.

In the early 2000s, when 35% of Brazilian households were found to be food insecure, food security and 'Zero Hunger' became a key focus of government policy under President Lula. The Zero Hunger programme adopted a multi-sectoral approach to food security, it encouraged public participation in the design of policies (notably through the National Council for Food and Nutrition Security (CONSEA), and it developed partnerships with civil society and the private sector to re-connect production and consumption and create new food distribution networks.

School feeding was seen as key to addressing food and nutrition insecurity. PNAE was reformulated to include pre-schools and indigenous schools, and management was decentralised to municipalities. School menus were revised to promote healthy eating habits, incorporate regional dietary traditions, and increase consumption of non-processed foods. Funding for PNAE increased from US\$ 450 million in 2002 to US\$ 1.9 billion in 2012.

In 2003 the Food Acquisition Programme (PAA) was launched. It aimed to link school feeding to agricultural production. Under the PAA, the government procured agricultural produce at guaranteed prices from poor farmers, stored and distributed these food commodities to schools, crèches and NGOs. By creating 'structured demand' through public procurement and distribution policies, farmers were each able to sell produce to PAA and PNAE up to the value of US\$ 10,000 per annum. Under the PAA, more than 3 million tons of food were acquired and distributed to 15 million schoolchildren.

In 2009, an amendment to the PNAE set six goals for school feeding in Brazil: (1) increase consumption of healthy food; (2) promote healthy lifestyles via food and nutrition education; (3) ensure universal school attendance; (4) promote community involvement in provision of

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<sup>11</sup> This section is based on Karriem (2017).

healthy food; (5) provide incentives for procurement of food from family farmers, and (6) improve food and nutrition security of school children.

One of the most significant amendments was a legal requirement that a minimum 30% of agricultural produce must be procured from small farmers and land reform beneficiaries. 'Structured demand' via PAA and new 30% purchase law increased the supply of fresh fruits and vegetables to school feeding and increased incomes for smallholder farmers. At the same time, purchases of products with high levels of sodium, sugar and saturated fats were restricted, and the provision of low-nutrition drinks at schools was prohibited.

An evaluation of PNAE found several positive impacts following these amendments. There was a significant increase in purchase of produce from family farmers – up to 39% in 2010 and 45% in 2011. Participation in the PAA significantly increased the quantity and variety of nutritionally recommended foods, especially vegetables, legumes and fruits, in PNAE meals. Pre-packaged and canned foods and beverages with low nutritional value were removed from school menus. There was a reduction in foods that are high in sugars, but consumption of saturated and trans fats remained high.

Several challenges have affected the PNAE and PAA. Implementation is uneven across the country, reflecting Brazil's legacy of uneven regional development. Smallholders in the north and northeast struggle to supply adequate food, so procurement is lower there than in central and southern Brazil. Local procurement makes it difficult to maintain standardised school menus all year round, because of agricultural seasonality. Maintaining adequate sanitary standards is another major challenge.

Civil society and School Nutrition Councils (CAEs) have played an important role. CAEs have 2 members representing parents, 2 representing teachers, and 2 representatives from civil society. CAEs monitor food quality, work with nutritionists in designing school menus and oversee bidding processes and budget statements provided by local government.

Overall, school feeding in Brazil made important gains during the Lula administration. Subsequently, the more conservative government has reduced funding to both PNAE and PAA, as well as other social protection programmes such as Bolsa Familia, resulting in an increase in food insecurity. Nonetheless, school feeding remains an important pillar of social policy. The PNAE currently feeds 45 million pre-school, primary and secondary students in Brazil.

## DESIGN AND IMPLEMENTATION ISSUES

One of the most enduring debates in school feeding is how best to **source** the food – through food aid or commercial food imports, local procurement or home-grown school feeding? Secondly, following a recent listeriosis outbreak in South Africa, **food safety** has risen to the top of the food security agenda, even in school feeding programmes. These two design and implementation issues are discussed here.

### Food procurement for school feeding programmes<sup>12</sup>

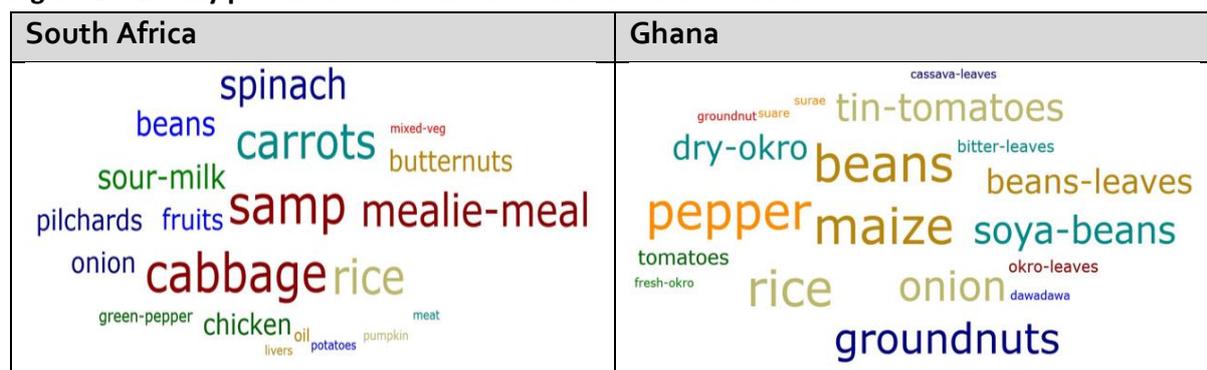
As noted above, school feeding in Africa used to be a mechanism for ‘dumping’ North American and European food surpluses in the form of project food aid, along with food-for-work and supplementary feeding. This practice was criticised for undermining local production and trade, by distorting rural markets and depressing food prices. One solution that has been pursued in many countries is ‘local purchase’ or ‘home-grown school feeding’ (HGFS), where procurement from local farmers replaces imported food aid with domestic produce. HGFS has been recognised as a ‘win-win’ model for both farmers and schoolchildren, because it creates ‘structured demand’ – a guaranteed market for farmers – while also delivering locally preferred food items to learners (Devereux *et al.* 2010; Sumberg and Sabates-Wheeler 2011; Swensson 2015). Local sourcing of food for school feeding was a priority in the Comprehensive Africa Agriculture Development Programme (CAADP) in 2003. NEPAD (the New Partnership for Africa's Development) subsequently launched HGFS pilots in 12 African countries, including Ghana.

A research study compared food procurement models for school feeding in Ghana and South Africa. The first interesting observation is that the commodities procured are very different between the southern African and West African countries (Figure 10). These two contrasting “worlds of food” on the school plate speak to the debate over what constitutes a nutritious menu for school meals.

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<sup>12</sup> This section is based on Mensah (2017).

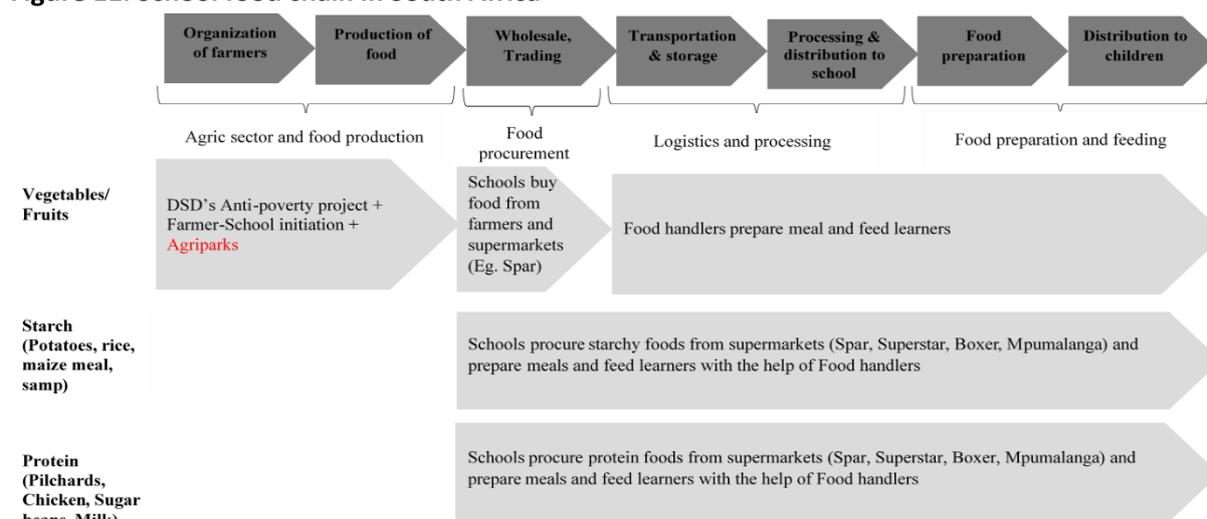
**Figure 10. Locally procured food items in South Africa and Ghana**



Source: Mensah (2017)

Under South Africa’s decentralised procurement model, most food for school meals, especially starches and proteins, is purchased by schools from local branches of large national supermarkets, and food handlers prepare meals for learners. Small quantities of vegetables and fruits are purchased from farmers (Figure 11).

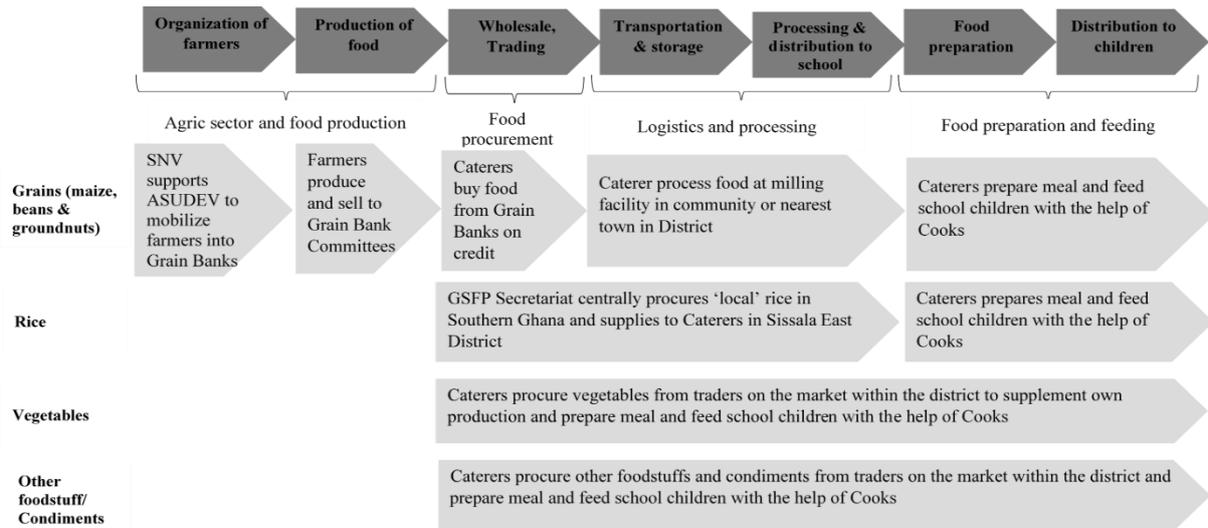
**Figure 11. School food chain in South Africa**



Source: Mensah (2017)

In Ghana, a different model based on local procurement is followed. Farmers produce grains and legumes for local Grain Banks, caterers buy this food from Grain Banks and process it at local millers before school cooks prepare meals to feed learners. Vegetables and other food items are purchased in local markets. Some commodities like rice are procured by the Ghana School Feeding Programme from surplus producers in southern Ghana and transported to schools in northern Ghana (Figure 12).

**Figure 12. School food chain in Ghana**



Source: Mensah (2017)

Local procurement generates income for local farmers and can have a double impact on education, if some of this income is invested in costs of schooling: *"When I sell to the schools, I can use the money I get to support myself and my family. For instance, from the maize that I sold to them last year, I used part to pay one of my children's school fees"* (farmer in northern Ghana).

Choosing an appropriate procurement model is not only based on a technical assessment of which model works best in theory, it requires consideration of many pragmatic issues. Factors that influence this choice include pricing, ability to meet demand, institutional collaboration arrangements and governance issues. Comparing the contexts of Ghana and South Africa on these issues is illuminating.

**Pricing:** In Ghana, the Grain Bank pays an economic (market) price to farmers for food, which it sells to caterers at a social (subsidised) price, thereby creating a win-win price mechanism for both farmers and caterers. In South Africa, farmers quote higher prices than supermarkets for food items, making it more cost-effective for NSNP officials to procure from shops than farmers.

**Meeting food demand:** In Ghana, Grain Banks work with all farmers at community level, including smallholders and emerging farmers, to meet the demand for agricultural produce. In South Africa, food supplies offered are limited and unstable, due to competition from supermarkets, seasonality of production, and drought.

**Institutional collaboration:** In the Ghana context, there is strong institutional collaboration among the district offices of Agriculture, Education, Local Government and local NGOs to procure food and deliver the school feeding programmes. In the South African context, institutions are currently working in silos, as a provincial official from the Department of Basic Education explained: *"We don't have a KPI as a programme that says how many farmers have you procured from? Ours is to provide a learner with a hot meal by 10am. If the Department of Rural Development want to take advantage of the secondary spin-offs, they must show interest and come on board."*

**Procurement governance:** In Ghana, the local procurement model is compromised by delayed disbursement of funds, as one GSFP caterer explained: *"While the grain banks are helping the school feeding programme, the delayed payment by government is not making the grain banks grow fast. As we speak, I owe the grain banks for about eight months. This is because government is yet to pay me for my services."* In South Africa, a related problem is delayed disbursement of budgeted funds to schools, especially during the first quarter of each year.

Given these diverse considerations and different contexts, there is no 'one size fits all' procurement model for school feeding programmes. An assessment of each context must be made before choosing an appropriate model for sourcing food for schools – or 'models', as they might vary across provinces. However, there are clearly lessons to be learned for the NSNP from experiences in other countries, such as Ghana.

## Food safety in South African schools<sup>13</sup>

Globally, foodborne diseases cause almost one in 10 people to fall ill and 420,000 deaths every year, one-third of them being children. Symptoms include stomach cramps, vomiting, nausea, abdominal cramps and diarrhoea. Worldwide, diarrhoeal diseases cause 230,000 deaths annually, 96,000 of whom are children, and one-third of these deaths occur in Africa (World Health Organisation 2015). Foodborne pathogens include micro-organisms (bacteria, viruses), parasites (protozoa, worms), chemicals (arsenic, dioxins, pesticides), and toxins (fungal, marine, plant). The most common foodborne pathogens are *Salmonella*, *Clostridium perfringens*, *Campylobacter*, *Staphylococcus aureus*, pathogenic *E. coli*, *Listeria monocytogenes*, *Norovirus*, and *Toxoplasma gondii* (FDA 2017). These pathogens can contaminate fresh produce via soil, irrigation and rinse water, water used to apply fungicides and insecticides, dust particles, insects, faeces, manure as well as wild and domestic animals

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<sup>13</sup> This section is based on Msimango (2017).

and human handling. Harvesting and processing equipment, transport containers and vehicles can also contribute to the contamination of fresh produce with pathogens (Beuchat 2002).

As with food in restaurants and homes, food safety in schools is a serious challenge. Meals prepared in schools deserve special attention, as they are for feeding children. Foodborne disease outbreaks in schools are a global challenge, and have occurred in countries across the world, including the United States (Daniels *et al.* 2002), the United Kingdom (Bayliss *et al.* 2015), Switzerland (Johler *et al.* 2015), Italy (Pol *et al.* 2016) and China (Zhou *et al.* 2016).

In South Africa, publicised outbreaks of illness at schools from several provinces have highlighted the need to ensure food safety in school feeding schemes. In 2014, learners from two primary schools in Sekhukhune district, Limpopo Province were examined for food poisoning after they experienced vomiting and abdominal pains after consuming food served at school. The provincial Department of Education attributed this outbreak to the supplier, who allegedly did not comply with food safety standards and whose contract was consequently terminated (South African Press Association 2014).

In 2016, an outbreak occurred at Tholulwazi secondary school in Gauteng Province. About 90 learners and teachers complained of stomach cramps and had diarrhoea after eating food from the school feeding scheme. Investigations by municipal health inspectors revealed that *Clostridium perfringens* was the cause of the outbreak. The Bhekisisa Centre for Health Journalism (under the Mail & Guardian) reported in 2017 that the storerooms at Tholulwazi secondary school were infested with rats and that the school lacked the proper equipment to prepare and serve food. Furthermore, it found that the municipality had not certified the school to serve meals (Msomi 2017).

More recently, reports surfaced on the death of a learner at a secondary school in Bloemhof, North West Province. It was alleged that this learner died while several others were hospitalised after consuming meals at school. The North West Department of Education disputed these claims and stated that an investigation would be done, in addition to a post-mortem to determine the cause of death (Shange 2017). These cases indicate the urgency and necessity of research into the safety of food served at schools in South Africa, to prevent further outbreaks.

A project conducted in 2017 by the University of Pretoria aimed to determine the level of safety of fresh produce grown, prepared and served in South African schools by the NSNP, to identify the driving forces that introduce contamination of fresh produce in schools, and to develop guidance documents to ensure food safety in South African school feeding schemes. The methodology involved collecting samples of fresh produce and soil (from gardens and store-rooms), irrigation and wash water, and contact surface swabs (from

kitchen floors and counters) from three schools in Tembisa, Gauteng. These samples were then tested for the presence of bacterial foodborne pathogens, which provide evidence of poor hygiene, inadequate processing, or post-process contamination of food items.

Irrigation water stored in open refuge bins at school 3 was not of an acceptable standard (> 1000 CFU *Escherichia coli* /100ml) according to the SA Water Guidelines for irrigation water. Rain water used at school 1 and municipal water at school 2 was of acceptable quality according to the national guidelines. Water used for washing fresh produce at schools was also considered potable according to the national standard. Not all fresh produce grown at the school and delivered by the Department of Education were within the Department of Health microbiological guidelines for raw vegetables and fruit. Coliform counts exceeded the specified limit (2.3 log CFU/g) and *E. coli* was detected from some samples, also exceeding the specified limit (0 CFU/g). *Staphylococcus* species, including *S. aureus* were found in irrigation water, fresh produce and contact surface samples. No *Salmonella* was detected in any of the samples collected.

## THE ROLE OF NGOs AND THE PRIVATE SECTOR

Partnerships are important for the NSNP, both to supplement the delivery of the programme and to pilot test innovative ideas. Several NGOs deliver school meals in South Africa, including the Peninsula School Feeding Association, JAM, Lunchbox Fund, Add Hope and Tiger Brands Foundation. These NGOs extend the coverage of school feeding in several ways, either by delivering meals to NSNP schools under a contract from DBE, or by reaching out to quintile 4&5 schools that are needy but not eligible for NSNP support, or by targeting pre-school children (e.g. in ECD centres), or by adding a second meal at schools where NSNP provides only one meal a day. (In wealthier provinces such as Gauteng and Western Cape, children in quintile 1–3 schools receive two meals each day, but in less well-resourced provinces the NSNP delivers only one meal a day.)

Three of these NGOs participated in the National Workshop on School Feeding in South Africa. Their activities are summarised below.

### Case study #1. Peninsula School Feeding Association (PSFA)

PSFA has been active in school feeding in the Western Cape for 60 years, since 1958. PSFA's motto is 'You can't teach a hungry child', and its vision is 'No more hungry school children'. Its primary objectives are to reduce short-term hunger, enhance children's ability to learn and increase school attendance. Secondary objectives are to support job creation and agriculture. As of 2017, PSFA supported 260,000 learners in 458 NSNP schools, 30,000 learners in 160 PSFA schools, 26,000 learners in 196 after-school programme, and 2,000

each in 52 early childhood development (ECD) centres and 7 further education and training (FET) institutions.

PSFA is a service provider that delivers the NSNP in Western Cape Metro districts under a contract with DBE that is tendered every 2 years. The menu and suppliers are prescribed by the Western Cape Education Department, which also monitors implementation. PSFA schools are quintile 4&5 (i.e. not served by NSNP) in the Western Cape Metro and Cape Winelands that apply to join PSFA's programme. The implementation model is the same as NSNP, but the menu differs slightly. The ECD programme is a new initiative that focuses on addressing child stunting, by targeting children aged 6–24 months in unregistered ECD centres in informal settlements.

The main challenge faced by PSFA is how to deliver nutritious meals within budget while food and transport prices (especially maize, fish and fuel) are constantly rising. In 2017 it cost PSFA R2.50 to feed a child 2 meals a day.

Sources: Presentation by Petrina Pakoe (Director, Peninsula School Feeding Association) at the National Workshop on School Feeding in South Africa; and [www.psfa.org.za](http://www.psfa.org.za).

### Case study #2. JAM South Africa

JAM (Joint Aid Management) was established in 1984 as a humanitarian relief and development organisation, and currently operates in Angola, Mozambique, Rwanda, South Sudan and South Africa. It delivers food to more than 1.4 million people every day, and also runs agricultural and water programmes. JAM's motto is '*Helping Africa help itself*'.

JAM's school feeding programme delivers a pre-cooked 'super porridge' (CSS+, a Corn Soya Sugar Blend fortified with micro- and macro-nutrients) that provides 75% of the child's daily nutrient requirements. The model is based on a 'FEED' cycle: Farm (producing needed commodities); Empower (developing commercial farmers); Enhance (processing commodities); and Distribute (to children in schools).

JAM's intervention in South Africa focuses on pre-school years. JAM SA currently delivers food to more than 100,000 pre-school children in 2,000 centres in all 9 provinces.

Apart from feeding children, JAM SA also equips small farmers to manage and run backyard and community gardens through its agricultural development programme. "In addition, every JAM-supported ECD centre is encouraged to grow their own food garden to further supplement the children's nutritional needs and provide an 'outdoor physical classroom' to help them learn."

Also, since many ECD centres do not have their own on-site water sources, JAM SA provides water tanks to harvest rainwater for irrigating food gardens (to produce food items for the children's midday meals all year round) and for hygiene (hand-washing).

Sources: Presentation by David Brown (Managing Director, JAM South Africa) at the National Workshop on School Feeding in South Africa; and [www.jamsa.co.za](http://www.jamsa.co.za).

### Case study #3. Tiger Brands Foundation (TBF)

TBF's motto is '*Nourishing Young Growing Minds*', and its mission is "*To improve the lives of learners at no-fee paying schools and their surrounding communities by creating sustainable, scalable and replicable programmes focused on nutrition and education enhancement*".

TBF is a Section 18A not-for-profit trust, established in 2011 and funded through a 5% trickle dividend from Tiger Brands Limited. TBF operates in a formal public-private partnership under a Memorandum of Agreement with the Department of Basic Education.

By 2017 TBF was delivering breakfast to 63,000 learners in 92 no-fee schools across all 9 provinces. All learners in participating schools receive the breakfast. More than 350 jobs have been created as food handlers, monitors and Provincial Coordinators. Over 50 million meals have been delivered at an average all-inclusive cost of R2.50 per meal. Menus are designed and assessed by a panel of external dietitians and dietary experts from the DBE. TBF also provides infrastructural support to the schools and to date have built 33 school kitchens, with 6 currently under construction.

Given the evidence that the addition of breakfast has positive impacts on learners' education and nutrition (see section 4.1 above), TBF is advocating for breakfast to be provided in all NSNP schools.

Sources: Presentation by Eugene Absolom (Director, Tiger Brands Foundation) at the National Workshop on School Feeding in South Africa; and [www.thetigerbrandsfoundation.com](http://www.thetigerbrandsfoundation.com).

## IMPLICATIONS FOR FURTHER RESEARCH AND POLICY

### What we know

School feeding is an important social protection instrument in South Africa. Implemented by the government and several NGOs, it reaches 9 million children in over 20,000 schools every school day. The National School Nutrition Programme has the potential to contribute to household food security, improved education access and learning outcomes, food production and local livelihoods. The NSNP has three components – school feeding, nutrition education, and school food gardens – but 96% of the budget is allocated to school meals, so nutrition education and food gardens are underfunded.

NGOs such as Peninsula School Feeding Association, JAM SA, Lunchbox Fund and Tiger Brands Foundation are important partners in this sector. Either they are contracted to deliver meals to NSNP schools, or they extend coverage to pre-school children in ECD centres or to quintile 4&5 schools, or they add a second daily meal to the school feeding programme.

No rigorous evaluation of the NSNP has been conducted, but studies have found evidence of positive impacts on learners' nutritional status, school attendance and educational performance, especially when breakfast is added as a second meal. South Africa can learn

from experiences in other countries such as Brazil, Ghana, Lesotho and Namibia, especially on design and implementation aspects.

### **What we don't know**

Despite the sizeable scale and cost of the NSNP, its objectives and priority outcomes are vague, and too little research has been undertaken into its impacts. This means it is unclear what the NSNP is trying to achieve beyond simply delivering meals to schoolchildren, and what difference it is making.

An important objective of the NSNP is to promote sustainable food production through school food gardens and possibly also local procurement. But this component has not received much attention in terms of budget or policy processes. What planning and organising is needed to make it work better, particularly in provinces with decentralised systems of procurement for school feeding? What is the contribution of NSNP to local economic development? How much do schools use foodstuffs procured from local communities? What happens to the food produced in school food gardens?

Food safety in South African schools is a concern, but our knowledge is very limited. We don't know the level of safety of fresh produce served in South African schools by the NSNP, and we don't know the prevalence of foodborne disease outbreaks in schools as a result of consumption of school meals or food sold to learners by vendors. A few cases are reported, mainly in the media, but there could be others that are swept under the carpet by schools.

### **What we need to know**

More clarity is needed on what the NSNP is actually trying to achieve. Rigorous research is urgently needed into the NSNP's impacts on key outcome indicators, in order to improve its design and delivery and thereby enhance its developmental impacts.

The nature of malnutrition in South Africa is changing, with child stunting staying stubbornly high while obesity is rapidly rising. We need to know more about how school feeding and nutrition education in schools can contribute to fighting both. Lessons can be learned from Mexico, the Pacific Islands and other middle-income countries that are also facing this 'double burden' of malnutrition.

In terms of home-grown school feeding, more understanding is needed of what the concept actually means in different country contexts and how it is applied in practice, including how to address challenges such as seasonality of food production.

Also little understood is the role of the Department of Basic Education in ensuring food safety, at national, provincial, district and school levels. Are there laws, regulations and guidelines in place to ensure food safety in schools? Is the training received by volunteer food handlers adequate? What more should be done to deliver safe and nutritious meals to South Africa's schoolchildren?

## What we need to do

### Research

A strengthened monitoring and evaluation (M&E) system is needed for school feeding in South Africa, to provide an evidence base to generate recommendations for better programming decision-making.

The indicative findings reported in this paper, suggesting that the NSNP is associated with positive outcomes for children and that these impacts are enhanced by the addition of breakfast as a second meal, urgently need to be validated with a larger, rigorous, longitudinal research study. Furthermore, research is required to understand what is delivering the impact – the timing of the meal(s), the type of nutrient intake, or the combination of delivering breakfast and lunch?

Moreover, policy research is needed that compares school feeding models in other African countries, Brazil and elsewhere with the current dominant South African model. Aspects to be assessed include:

- food procurement modalities
- nutritional value of foods supplied in schools
- nutrition education delivered and its impact on knowledge and behaviour
- livelihood impacts of school feeding (e.g. income for farmers, job creation for food handlers).

### Procurement

Decentralised school feeding models should actively involve smallholder farmers in the food supply chain. Local procurement will stimulate agricultural production and generate income for local farmers, and it will strengthen relationships between schools and local communities. Small farmer production should be stimulated by offering contracts to supply staple foods and fresh produce to local schools, and by subsidising selected inputs such as seeds and fertilisers for nutritious crops.

Inter-sectoral coordination must be strengthened between relevant actors in the school feeding chain – government ministries at national, provincial and municipal levels; school

governing bodies; private sector suppliers; participating farmers; local intermediaries like NGOs; caterers and food handlers. Capacity building is critical for all these actors.

### Food safety

Food safety measures in schools must be strengthened, to better protect learners and school staff against outbreaks of foodborne illness. These should include infection control policies, such as training and certification of food handlers in proper storage and cooking of foods, meticulous hand-washing practices and paid sick leave for food handlers with gastroenteritis.

The Department of Basic Education and the Department of Health should work together towards devising a food safety strategy that can be implemented at all schools that serve NSNP meals. Food safety evaluations should also be included in regular monitoring and evaluation of the NSNP.

### Nutrition-sensitive school feeding

Persistently high levels of malnutrition among children at NSNP schools, especially stunting but increasingly also overweight and obesity, point to an urgent need for earlier investments in childhood nutrition. This may require coordinated efforts between the Departments of Basic Education, Health and Social Development, as well as NGO partners, to ensure that children in the first 1,000 days of life and those attending ECD centres receive targeted support aimed at eliminating malnutrition.

As for school-aged children, the three pillars of the NSNP provide a holistic set of instruments for improving the nutrition status of schoolchildren and their families:

- **school feeding** can improve the consumption of nutritious food by children, if the menu is well designed (by nutritionists) and especially if both breakfast and lunch are delivered at school;
- **nutrition education** can inform learners, their families and the community at large about good nutrition practices such as dietary diversity and exclusive breastfeeding up to six months old;
- **school food gardens** can produce food such as fresh vegetables for consumption at school or at home, as well as learning opportunities (e.g. about kitchen gardens and backyard farming).

Nutrition-sensitive school feeding requires investing adequately in all three pillars, but currently the nutrition education and school food gardens pillars are under-invested, due to financial regulations that need to be amended to balance the three pillars better.

Finally, many aspects of NSNP implementation need to be improved, such as: adhering to feeding times, not deviating from prescribed menus, ensuring that food is delivered and handled hygienically; involving parents and local communities in planning and school food gardens, ensuring that adequate infrastructure is available (kitchens, storage space, utensils); and keeping good records for monitoring and lesson-learning purposes.

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