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Supply Chain Analysis of Different School Feeding Models:

Botswana, Côte d'Ivoire, Ghana, Kenya and Mali

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Abstract

This study examines the different aspects of supply chains of five school feeding models with the local food sourcing perspectives in sub-Saharan African countries; Botswana, Côte d'Ivoire, Ghana, Kenya, and Mali. The analysis examines costs, cost drivers, cost-performance, and the challenges as well as trade-offs of each model in different contexts to support policy and planning.

Executive Summary

The purpose of this study is to examine the different aspects of supply chains of five school feeding models with the local food sourcing perspectives in sub-Saharan African countries; Botswana, Côte d'Ivoire, Ghana, Kenya, and Mali. The analysis examines costs, cost drivers, cost-performance, and the challenges as well as trade-offs of each model in different contexts to support policy and planning.

The analysis was guided by three methods: (1) Supply chain reference framework developed by PCD, WFP and partners (Kretschmer *et al*. 2012); (2) Five international school feeding standards developed by the World Bank, WFP and PCD (Bundy *et al*. 2009); and (3) Cost analysis framework which was developed for this study by PCD (Gelli & Suwa 2013a). This approach provides a standardized reference model and benchmarking framework for school feeding supply chains that allows for meaningful comparisons of programs across different implementation models. The study involved the development and analysis of performance indicators for the five school feeding models based on the standard reference model. Lack of adequate data availability limited the cost and cost-analysis to only three countries (Botswana, Côte d'Ivoire, and Ghana) with also limited data. Therefore, it is important to note that the conclusions drawn from the analysis are indicative. On the other hand, challenges and trade-offs that each model is facing were analysed for all five countries against the five standards.

The followings are the key indicative findings based on the cost analysis. Based on breakdown of project cost, Côte d'Ivoire shows the highest cost portion of food transportation which could be attributed to the decentralised modality. Based on the standardised cost comparison with benchmark, Botswana spends the most on the programme support activities due to its centralised modality. Based on the cost efficiency per micronutrients, GSFP is the only programme more efficiently providing the energy and micronutrients than the Benchmark.

Examination of supply chain against the five standards shed light on three challenges shared by most of the five countries: lack of (if not absent) institutional coordination, integration of local small-scale producers to SFP, and volume and stability of funding. Diversification of fund source, identification of gap between fund allocation and actual expenditure, strategic collaboration of public, private, and academic sectors, and agriculture- and business-based training of extension workers could be the points to be explored to overcome difficulties in finance and farmer inclusion. However, these would be difficult to address without an independent agency specialising in school feeding programme with perspectives of local agricultural and economic development.

Next agenda of this study should start with recording the fund flow ideally in unified templates and developing the templates by the stakeholders in a participatory manner for each programme. Implementation of baseline, and if appropriate, and the mid/endline survey is strongly recommended since the indicators of programme achievement (educational and nutrition change on the students, and economic impact on community members) are missing. After this, data collection and analysis can be followed. Analysis on Bangladeshi school feeding programme is introduced at the end of the study to illustrate the next agenda for the five countries.

It would be useful for the reader to also refer to Cost Analysis Framework developed by PCD (Gelli & Suwa 2013a) to better understand this study. The framework maps out the detailed information on which cost data needs to be collected for each country.

Table of Contents

Box

Equation

Figures

Tables

Abbreviation

AOP	Annual Operating Plan
BIDPA	Botswana Institute of Development Policy Analysis
CAASP	Comprehensive Africa Agriculture Development Programme
CAP	Centre d'Apprentissage Pedagogique, Local Centres for Pedagogic Learning
CC	Canteen Coordinators
CGS	Comités des Gestions Scolaires, School Management Committee
CNCS	Centre National des Cantines Scolaires, National Centre for School Feeding
COGES	Commité de Gestion Scolaire, School Management Committee
CRS	Catholic Relief Services
DA	District Assembly
DIC	District Implementation Committee
DNC	Direction Nationale des Cantines Scolaires, National Directorate for School Feeding
DNCS	Direction Nationale des Cantines Scolaires, National Directoreta for School Feeding
DNEB	Direction Nationale de l'Education de Base, National Directorate for Basic Education
DPS	Deputy Permanent Secretary
EFA	European Financial Association
FAO	Food and Agriculture Organisation
GoB	Government of Botswana
GoCI	Government of Côte d'Ivoire
GoG	Government of Ghana
GoK	Government of Kenya
GoM	Government of Mali
GSFP	Ghana School Feeding Programme
HGSF	Home Grown School Feeding
HGSM	Home Grown School Meal Programme
IDA	International Development Association
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MEN	Ministère de l'Education, Ministry of Education
MLG	Ministry of Local Government
MLGRD	Ministry of Local Government and Rural Development and Environment
MoA	Ministry of Agriculture

MoE	Ministry of Education
N/A	Not available
NEPAD	New Partnership for Africa's Development
NMK	Njaa Marufuku Kenya
NSFP	National School Feeding Policy
PCD	Partnership for Child Development
PIP/CS	Programme Intégré de Pérennisation Cantines Scolaires, Integrated Programme for Sustainable School Feeding
PTA	Parent-Teacher Association
RDA	Recommended Daily Allowances
SFP	School Feeding Programme
SHNM	National School Health, Nutrition and Meal Programme Strategy
SIC	School Implementation Committee
SMC	School Management Committee
SNP	School Nutrition Programme
ToR	Terms of Reference
UNDP	United Nations Development Programme
WFP	World Food Programme

1. Introduction

1 Background

School feeding programme (SFP), a system to provide in-school or takeaway food to school children through their schooling, shows different configurations in different contexts. Highly context specific nature of the programmes results in different combinations of a variety of approaches which sometimes co-exist even in the same country. While aiming at better health and nutritional conditions of school children for their physical, cognitive, and educational development, SFPs often explore linking food provision to local agriculture and economic development (Sumberg & Sabates-Wheeler, 2011). This approach, known as "Home Grown School Feeding" (HGSF), impacts multiple sectors including agriculture, local economic development, health, nutrition, and education.

Comprehensive Africa Agriculture Development Programme (CAASP), a programme of the New Partnership for Africa's Development (NEPAD), included this approach as a key intervention within its food security pillar in 2003. NEPAD also launched a pilot HGSF programme in the same year. There is, consequently, an increasing desire from the state decision makers to improve the cost effectiveness and sustainability of SFPs.

In response to this demand, Partnership for Child Development (PCD)[1] launched a programme to support governments to deliver sustainable nationally owned HGSF in sub-Saharan Africa. The programme provides direct, evidence-based, and context-specific support and expertise for the design and management of HGSF programmes. One key activity in the PCD programme involves understanding the trade-offs in terms of cost-efficiency of the different school feeding supply chain models (Kretschmer *et al* 2012). PCD has developed a generic supply chain framework to characterise school feeding supply and value chains. Key processes are mapped against the standardized framework so that some trade-offs can be examined across different supply chain models.

2 Aim and Objectives

This study is to examine the different aspects of the supply chains of five school feeding models in sub-Saharan African countries; Botswana, Côte d'Ivoire, Ghana, Kenya, and Mali. The analysis examines costs, cost drivers, cost-performance, and the challenges as well as trade-offs of each model in different contexts to support policy and planning. The study develops a cost-analysis framework which serves as a universal platform to compare cost performance indices of different models. Finally, an agenda for further research is presented.

[1] PCD consists of a global consortium of civil society organizations, academic institutions and technical experts based at Imperial College London. The role of the Centre is to engage experts, in identified countries, on specific issues, as and when required.

3 Methodology

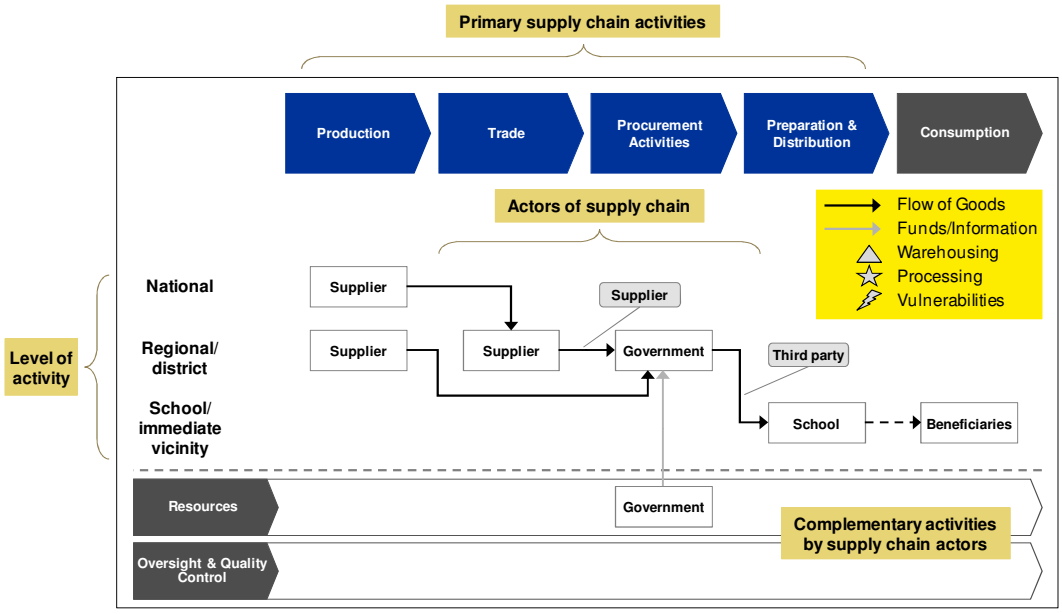
The document is mainly based on secondary data collected through a desk review of the documents available at PCD between November 2012 and June 2013. Some primary data was also available with regard to the SFP in Botswana through the PCD field office in South Africa. Some insights on the future of the study is added from the field study on the supply chain cost analysis of the Bangladeshi national school feeding programme (first kind as a hot meal provision programme in the country) called School Nutrition Programme (SNP). SNP field study was separately conducted from this study in March, 2013.

The study consists of three main sections. The first section includes Chapter 1 Introduction (i.e. the current chapter). Chapter 2 to 6 comprise the second section of country profiles of five sub-Saharan countries. Chapter 7 constitutes the third section to present the main common findings from the second section and to propose the next step of the study. Country profiles in the second section (Chapter 2 to 6) contain the analysis of primary and secondary data based on the following three types of framework.

1. Supply chain reference model

First, the review and analysis of the primary features of each country's SFP model was conducted by the application of the aforementioned standard supply chain reference model developed by Kretschmer *et al*. (2012). The Figure 1 displays the overview of the model.

Figure 1 Standard Supply Chain Reference Model for School Feeding Programme



The model is composed of three dimensions: primary supply chain activities, secondary supply

chain activities, and the actors of the chain at the national, regional/district and community levels. The chain of the primary activities is structured along the activities directly related to meal provision to the school children. It links food production, trade, procurement activities, and preparation and distribution of the meals to the point of consumption. This primary supply chain is complemented and supported by secondary supply chain which is composed of resources and programme management activities. Positions of the actors in the model indicate the activities (primary or secondary) that they undertake and the administrative levels at which they undertake those activities. The actors and their activities are linked by flows of goods, funds and information in the model. Points of warehousing, processing, and vulnerabilities will be also indicated along the supply chain in the model of each country.

2. Five standards form Rethinking School Feeding

Second, the comprehensive supply chain analysis as well as the trade-off points were analysed against the five standards developed in *Rethinking School Feeding: Social Safety Nets, Child Development, and the Education Sector* (Bundy, *et al.* 2009). The standards, generally observed in a quality SFP, were introduced in order to implement a systematic assessment of the quality and sustainability of SFPs as follows:

1. A national policy framework
   It is considered that the higher the degree of articulation of SFP in national policy frameworks the greater is the potential for sustainability and quality of the programme implementation.
2. Sufficient institutional capacity for implementation and coordination
   Best practices demonstrate the necessity for a programme to have an institutional home (usually a ministry or a government institution) that is mandated and accountable for the implementation.
3. Stable Funding
   It is one of the most essential prerequisites for sustainability and quality of SFP. The source of the programme may be from national core resources or development funding.
4. Sound design and implementation
   It is based on the notion that the design as well as the implementation process should be appropriately structured to address the problems, objectives, and beneficiaries of the programme.
5. Community participation
   Successful cases show that building the programmes responsive to community needs requires the incorporation of locally owned components such as cash or in-kind contribution, participation in decision-making and the programme operation. Community participation facilitates successful transition from donor dependence.

The overall programme analysis from the supply chain perspective was conducted based on these five standards. The elements of the standards consequently compose most of the main sub-chapters of country profiles. This study places the third standard of "finance" or "funding" at the first analytical point of each profile since the cost analysis of the programme supply chain is its principal objective.

3. Cost analysis framework

Finally, the cost and the cost-efficiency analysis were carried out by the application of the cost-analysis framework which was developed for this study.

This was designed by breaking down each primary and secondary activity mapped in the aforementioned supply chain framework developed by Kretschmer *et al*. (2012) into three categories: input (costs), output (direct results achieved by the activities), and value added (long-term outcomes from the output). Information on budget and expenditure in the documents from different countries and the field work on SNP in Bangladesh deepened the itemisation of the elements. SNP field work also became an opportunity to test the validity of the items of the framework. The primary objectives of the framework development are summarised as follows:

1. Identify the main cost drivers;
2. Visualise the amount and the location of the "hidden costs"; and
3. Compare the cost-performance indices across the different country models.

"Hidden costs" refer to all sorts of gratis services and goods contributed to SFPs of which added values are not recognised as financial cost by the programmes. Cross country comparison of the programmes was conducted through the application of the standardisation of the annual programme cost per child. Standardisation formula and its parameter setting[2] were developed by Galloway *et al*. (2009) as:

Equation 1 Standardisation Formula: Cost per Beneficiary

$$C_s = C_{pr} \times \left(\frac{200}{d_{sf}}\right) \times \left(\frac{700}{k_{cal}}\right)$$

where

C_s=standardised cost per beneficiary,
C_{pr}=actual cost per beneficiary using total (project) expenditure,
d_{sf}=(actual) number of days fed, and
k_{cal}=(actual) ration in kilocalories.

[2] Standard energy per meal is 700kcal and a number of feeding days is 200 feeding days.

The actual data applied for all five countries is based on the aforesaid set of primary and secondary information. In case of Botswana, for instance, most data was derived from a case study drafted by Botswana Institute of Development Policy Analysis (BIDPA) in 2012. Some raw data was also provided in the forms of document and spread sheet from Vanity M. Mafule of Ministry of Local Government of Botswana. Phone discussion and interview with Edna Kalima and Josephine Kiamba of NEPAD Planning and Coordinating Agency and Vanity provided non-food cost data for the year 2011/12.

While some guidance was available from Amadou Sékou of PCD-Mali through email, the study had to rely on one source to extract data of SFP in Côte d'Ivoire: a case study by DNC (Direction Nationale des Cantines Scolaires, National Directorate for School Feeding), PCD and WFP in 2010. The information and data are from 2009. This was the only source with high level actual expenditure data.

Even though no primary data was available for Ghana School Feeding Programme (GSFP), two reports by International Business Development programme, Haas School of Business of University of California Berkeley (2008 and 2011) and GSFP Annual Operating Plan (2011) provided information on supply chain and data on GSFP budget. Another document by Johnson and Janoch of Harvard Kennedy School of Government in 2011 allowed the study to deepen the analysis particularly from the community participation viewpoint.

Kenyan SFP analysis was informed by one case study by Njaa Marufuku Kenya Project (2012) and a technical development plan by the Republic of Kenya (2012). In terms of cost analysis, however, the only available financial data was projection of total budget and contribution from the government. Neither breakdown of budget allocation nor actual expenditure or number of SFP-covered students was available.

As for most of the countries, secondary data was the only information source for the case of Mali. Required data for cost analysis was mostly unavailable, while the supply chain structure and its challenges could be learnt from documents by Masset & Gelli (2012) and Johnson & Janoch (2011).

As a result, somewhat substantial yet still very much "tentative" cost analysis could be conducted for three out of five countries; Botswana, Côte d'Ivoire, and Ghana. The assumptions and the results of the analysis are available in each country profile. Data unavailability prevented the study from establishing the hypothesis which will be the basis of analysis in the cases of Kenya and Mali. In either case, the further data collection and study are evidently imperative to achieve more credible analysis.

4 Limitations

There is a significant difference for five countries in terms of the depth of analysis due to the different availability of documents and data. This also made it difficult to pull the data of the countries for identical years. Furthermore, budget data was applied in most cases since the actual data regarding expenditures is presently not available. Some crucial data including the capital costs/budget of the programmes and support cost of the programme are often not available due to the limitation that the budget data usually does not account for all cost components of a SFP. Even though one of the objectives of this study was to calculate so-called "hidden costs", this could not be entirely achieved due to lack of relevant information.

Therefore, conducting reliable cross country-model comparison was very difficult and severely constrained by limitations described above. The comparative analysis is still very much work in progress. Thus, the findings of this study should be taken as indicative and as a platform for further study. The findings of this study should not be quoted yet.

2. Country Profile: Botswana

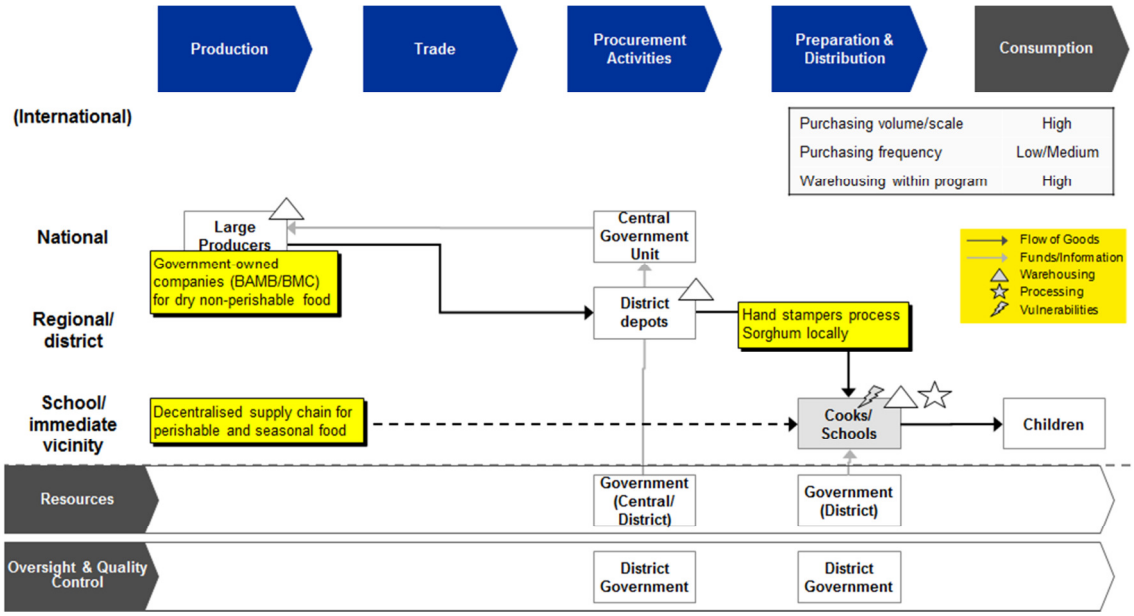
Botswana has more than four decades of SFP history. The Ministry of Local Government (MLG) initiated SFP with the assistance of WFP in 1966 and later the complete transition from WFP to the Government of Botswana (GoB) followed in 1997/98 (Botswana Institute of Development Policy Analysis [BIDPA] 2012). Motswana SFP consists of the following four objectives (BIDPA 2012):

1. Prevent children from feeling hungry during school days
2. Provide children a balanced diet
3. Keep children in school the whole day
4. Improve school attendance

According to the Botswana Institute of Development Policy Analysis (2012, xiii), the contributions of SFP have reached three dimensions: educational (increase in school attendance and enrolment rates); nutritional (improved nutritional status of the students); and local economies (increased employment, improved productivity, and creation of a new market for smallholder farmers).

Kretschmer *et al*. (2012), by describing the supply chain systems of the Motswana SFP as Figure 2, categorise the supply chain systems of the Motswana SFP as ***Centralised Model***.

Figure 2 Supply Chain Map (Centralised Model): Botswana



Source: Kretschmer et al. (2012, 16)

To be more accurate, even though this SFP is primarily centralised in terms of management and finance, its supply chains for food procurement are two; main supply chain for dry and non-perishable products, and sub-supply chain for perishable and seasonal food.

The main supply chain, managed by the District Commissioners of the District Administration, starts from the large-scale (inter)national producers or government-owned companies who supply products such as cereals and canned (?) beef stew to the central food procurement system. Foodstuff is first stored at the intermediate depots by either suppliers or a lead organization. It is then delivered to the local delivery points by (logistics) service providers under the management of a lead organization. On the other hand, the sub-supply chain provides perishables and seasonal food mainly from immediate vicinity of schools. It was in 2003 when this sub-supply chain was introduced under the management of District Council as well as school heads, and financed by Finance and Procurement Services of MLG (BIDPA 2012, 26). Both supply chains adopt a tender system. These supply chains join at the activities of preparation and distribution of meals which are carried out by either community members or contracted workers at school level.

1 Funding: financial figures and cost performance

MLG is responsible for budgeting and procuring the centralised school feeding commodities as well as operating, accounting, and reporting about SFP (BIDPA 2012, 37). National SFP in Botswana has been facing serious financial difficulty. Although SFP is fully funded by GoB with a very small portion of participation fees from the parents of the school children, the actual budget of the Programme is meeting only 80% of food requirement.

Neither breakdown of the budget/expenditure (which includes administrative costs) nor the monetary value of the community contribution is available. Thus, more detailed financial data (budget and expenditure) and coverage figures (e.g. including the gratis contribution from the communities, jobs created by SFP, etc.) from the same academic year are required to get a clearer picture of the programme.

Detailed breakdown of the entire programme cost is available in *Cost Analysis Framework (version 01)* by PCD (Gelli & Suwa 2013a).

1. Budget and costs

The following data are from 2011-2012.

1. Budget source(s)

The only source of budget reported by BIDPA (2012) is 289,905,995 Pula (US$ 579,811.99, based on the exchange rate in May 2010) from Ministry of Finance through MLG which is meeting only 80% of the entire requirement of food supply. Funds for other non-food items and cooks' salaries are not provided (especially because, for salaries for cooks, they are from different budget source). Monetary values of both tangible and intangible forms of community contributions are uncertain

(tangible: participation fees called "pots fees"; intangible: labour, etc.).

2. Actual programme expenditure

Among the items listed in Table 1, [Trade/Processing], [Food Cost], [Other Costs], and [Preparation/Delivery] are covered by the fund of 289,905,995Pula from Ministry of Finance.

Table 1 Components of Programme Expenditure: Botswana

Item	Pula	%
Programme Oversight/Support	N/A	N/A
Production	N/A	N/A
Trade/Processing	8,663,040	N/A
Procurement		
a. Food Cost	276,429,835	N/A
b. Food Transportation Cost	N/A	N/A
c. Other Costs	820,000	N/A
Preparation/Delivery	3,993,120	N/A
Total:	N/A	**100.00**

Source: Budget sheet, Ministry of Local Government, Government of Botswana (2013)

3. Cost per meal

Annual meal cost per child is reported as P789.00 (US$ 106.62) which means cost per meal per child is around P4.26 (US$0.58) (BIDPA 2012, 38). This figure reported by BIDPA (2012) is different from the figure computed by this study since the study includes the wider cost items (e.g. programme oversight and support costs, transportation costs, etc.) than BIDPA (2012). The results (both annual per child and per meal per child) are presented below <Chapter 2-1-1-4: Analysis>.

4. Analysis

Based on the available data for Botswana, an attempt has been made to analyse the cost and the budget figures in order to provide better understanding of cost drivers and key components. It is important to note that the conclusions of the analysis are indicative due to limited data availability.

Table 2 shows the expenditure profile of Motswana SFP which is based on Table 1.

Table 2 Expenditure Profile: Botswana

	Financial Figures
Total Cost of SFP	**320,217,638.46 Pula**
(	43,229,381.19 US$)
% of Food cost.....	86.33 %
% of Food transportation cost...	0.92 %
% of Support cost.....	12.76 %
Cost per child per day	**5.15 Pula**
(	0.69 US$)
Cost per child per year	**967.42 Pula**
(	130.60 US$)
Standardised cost per child per year	**1,259.48 Pula**
(	170.03 US$)

Figure 3 shows the image of breakdown of programme expenditure between food items, food transport, and the programme support cost. Main cost driver is food item which accounts of 86% of the total programme cost.

Figure 3 Breakdown of Programme Cost: Botswana

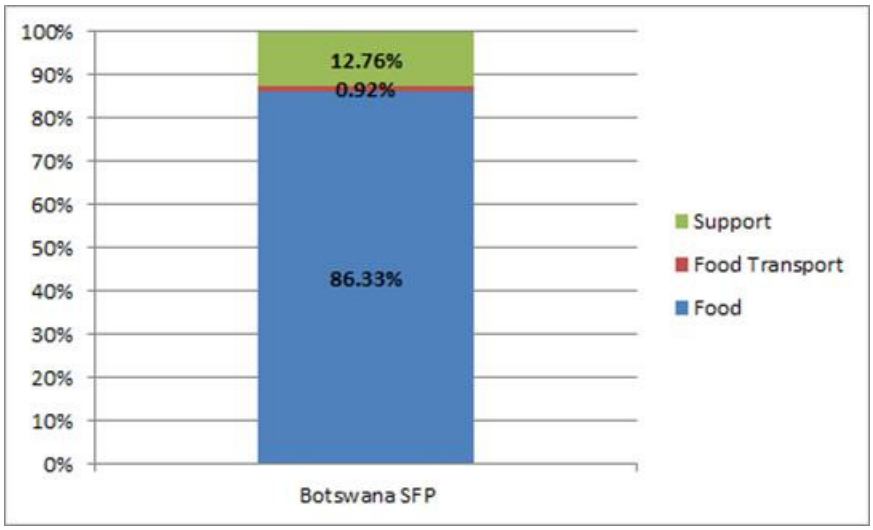


Figure 4 Breakdown of Support Cost: Botswana

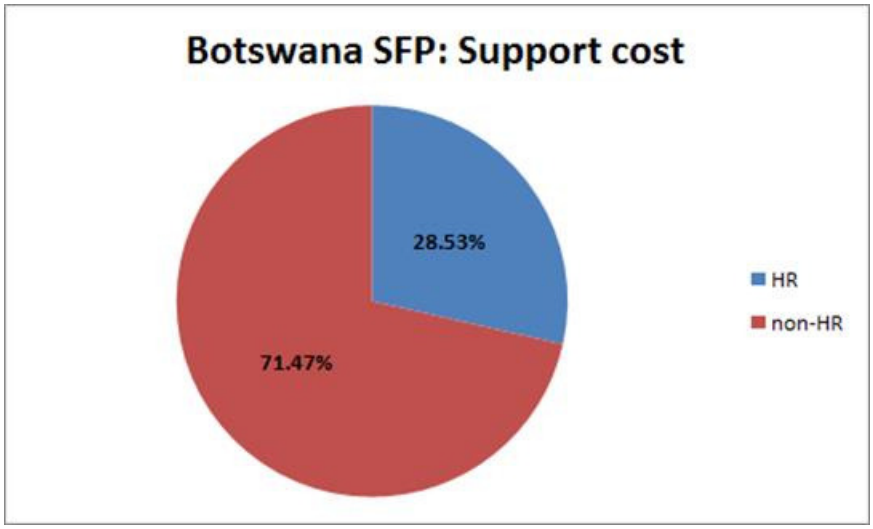
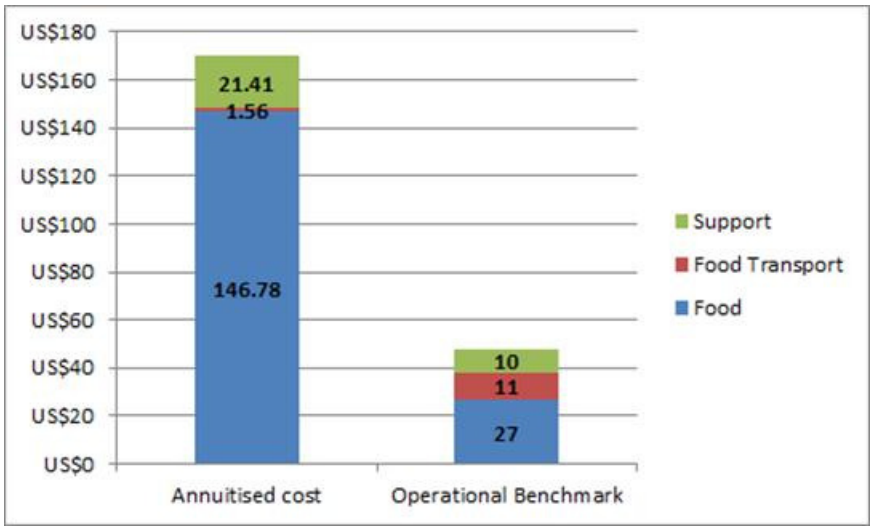


Figure 4 shows the breakdown of support cost between HR and non-HR costs. HR cost covers only the salaries and contingency for hand stampers, so far. HR cost constitutes almost 30% of non-food related cost of the programme.

Figure 5 shows a comparison of annual cost per child between standardised and annuitised Motswana SFP (US$169.57) and operational benchmark (US$48). The biggest gap between Motswana SFP and benchmark is created by food items of which Motswana cost 5.43 times more than the other one. Even though Botswana adopts relatively centralised food procurement modality, the portion of transport cost seems too little. Thus further research is required to obtain more accurate transport costs of both centralised (for staple food) and decentralised (for perishables) supply lines.

Figure 5 Botswana Programme Cost (standardised) vs. Operational Benchmark



2. Operational indicators

1. Size of the programme

The following data listed in the table below was collected from BIDPA (2012).

Table 3 Coverage and Ration: Botswana

Year 2011/12

Coverage			Ration		
No. of students	No. of schools	No. of feeding days	Energy (kcal)	Micronutrient content	Annual cost per child (US$)
331,000	752*	185**	572	N/A	106.62***

* …The number presents the all primary schools in Botswana.

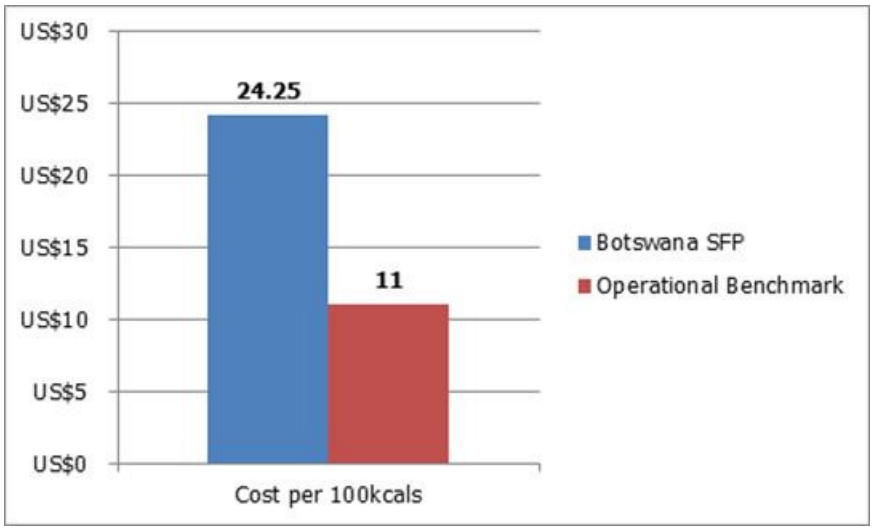
** …1 meal a day is planned to be provided for 185 days.

*** …This means cost per meal per child is around P4.26 (US$0.58) (BIDPA 2012, 38). As mentioned before, however, this figure is different from the figure computed by this study since the study includes the wider cost items (e.g. programme oversight and support costs, transportation costs, etc.) than BIDPA (2012).

2. Analysis

Based on the data available, as described in the table above, the study conducts the analysis to give better understanding of cost efficiency per micronutrient. In case of Botswana, however, since the ration design for vitamin A, iron, and iodine was not available, the study conducted the efficiency analysis only on caloric intake per ratio as Figure 6.

Figure 6 Nutrient Efficiency: Botswana vs. Operational Benchmark



In terms of energy provision, performance of Motswana SFP is 2 times lower than the operational benchmark.

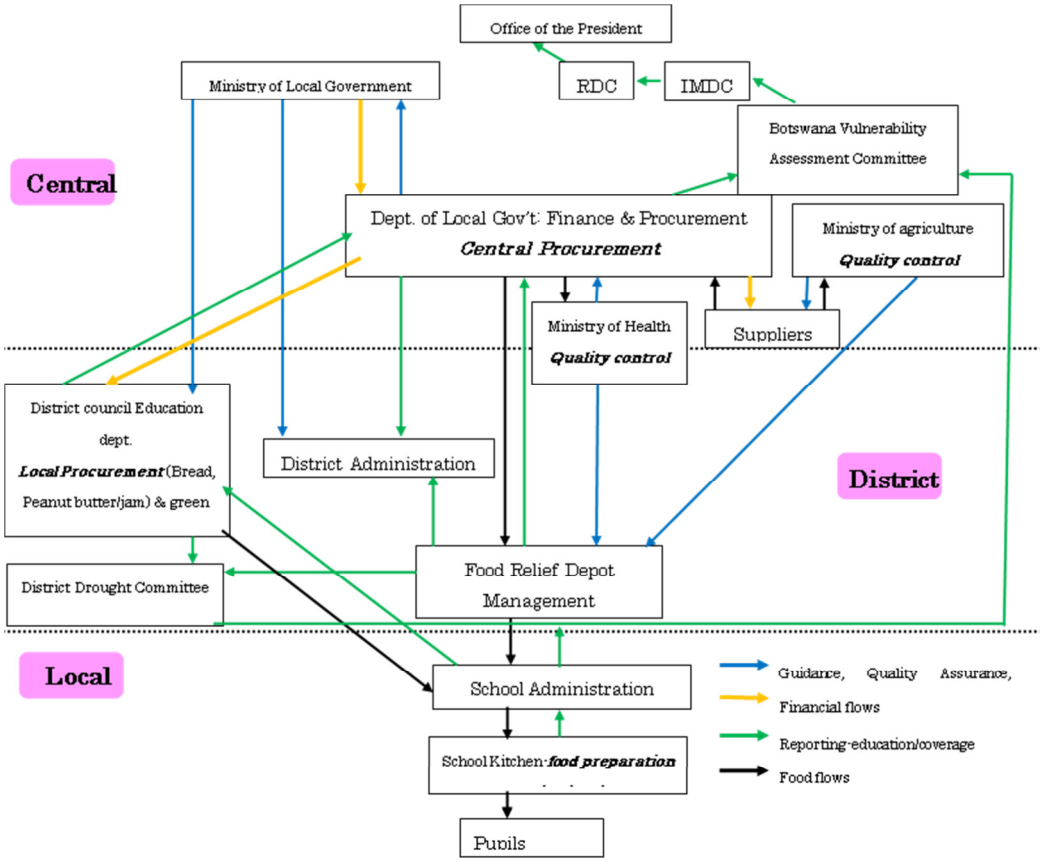
2 National policy framework

SFP objectives are linked with Vision 2016, MDGs, National Development Plan, revised National Food Strategy (2000) as well as the revised National Policy for Rural Development, but there is no school feeding policy to guide implementation (BIDPA 2012). The 1991 Agricultural Policy is not evidently linked to the SFP either. It is, however, remarkable from the supply chain perspectives that there is the guideline from the Ministry of Agriculture (Guidelines for Procurement of Agricultural Products for School Feeding) for procurement of (excessive) agricultural production of subsistence farmers for the SFP since 2009 (BIDPA 2012, 33, 35).

3 Institutional framework and coordination

Figure 7 presents the program management scheme which consists of three tiers of governance.

Figure 7 Programme Management Structure: Botswana



Source: BIDPA (2012, 23-25)

As a principal implementation agency, MLG manages SFP under the Department of Local Government Finance and Procurement Services and the supervision of the Deputy Permanent Secretary (DPS) (BIDPA 2012, 23). The District Councils manage the decentralised supply whilst MLG controls the centralised tender system-based supply chain (BIDPA, 2012, 23-26). The Ministry

of Finance and Development Planning plays an overarching coordinating role of national food strategy, and thus it is in a position to ensure that line ministries perform the set tasks within school feeding with MLG (BIDPA, 2012, 34).

Coordination system is reported to be weak ever since the takeover in 1997/98 due to a lack of clear management structure, and this seems 'a major constraint in management in the implementation of the SFP' (BIDPA 2012, 5, 34). At the school level, as well as the national level, this constraint seems apparent. For instance, even though the SFP is placed under the MLG, it is the Ministry of Education and Skills Development which employs the primary school teachers who are supposed to supervise the feeding at schools, yet this task is not a part of their job descriptions.

In addition to this weak overall coordination, inadequacy in other institutional capacities is addressed. Among them, (1) lack of technical expertise in food management, (2) lack of effective information management, (3) lack of adequate personnel, and (4) insufficient collaboration in monitoring could be highlighted as critical issues to maintain a durable SFP supply chain (BIDPA 2012, xii, 34).

4 Design and implementation

As aforesaid, SFP in Botswana is operated based on centralised management system combined with two food procurement lines and school-based kitchens. The existence of the secondary food procurement line (for some perishables) derives from the background that initially centralised SFP has been gradually changing toward more decentralised model to meet the increasing voice for inclusion of locally grown food in the school menu to achieve better nutrition and local poverty alleviation (BIDPA 2012, 22). With increasing government's momentum for adding input and promoting smallholders' agro-business, the national programme "*Letlhafula* (2008-)" also commenced to absorb the locally supplied agricultural products to SFP (BIDPA 2012, 30). In other words, all the activities around the procurement modality of Motswana SFP are in transition.

In terms of coverage, SFP suitably provides meals for school children although the quantity of meals was reported to be insufficient and lacking fruits, vegetables, and locally produced food (BIDPA 2012, 21). However, institutional structure does not seem to be tailored adequately to operate the programme. For example, it is repeatedly reported that the ministerial roles and responsibilities are not harmonized without a coordinating agency. Chronic shortage of funds also diminishes the institutional capacities of the Programme. Furthermore, even though systematic and regular monitoring is carried out at all the levels, inadequate monitoring for decentralised component of the Programme as well as for cooked meals is documented (BIDPA 2012, 36-37).

Some crucial weaknesses are listed in the food procurement modality by Botswana Institute of Development Policy Analysis (BIDPA, 2012). For instance, the Programme is suffering from the poor quality and availability of storage facilities. Food commodities are consequently often not meeting the quality standards. They are also frequently delivered late. By analysing that this poor procurement performance is due to the absence of the private sector players from the field of transportation and storage, BIDPA (2012) argues that the further decentralization of the supply chain can be a breakthrough.

5 Community participation

From the standpoints of local ownership of SFP, it is fairly accomplished while there is still some scope for improvement. At the school/community-level of programme implementation, it is PTA who suggests modalities and the entire community approves and carries it out. It is also the community who hires the cooks (BIDPA, 2012, 39). Parents of the students also financially participate in the Programme through payment of "pots fees" which are used to cover utensils, salt, and detergents. Local School Health Committees, established in 1999, visit the schools to monitor preparation process for the promotion of safe food management and nutrition. These committees are, however, either not functioning or only on an ad-hoc basis (BIDPA, 2012, 40).

SFP has promoted participation of the locals, especially of the local women, through job creation. They work as cooks and paid "hand stampers" in the processing of sorghum (BIDPA 2012, 39). In addition, local smallholder farmers have been focused as the second target of the Programme by absorbing their products. This is, however, not yet fully practiced. Only some individual farmers' participation is reported and wider scale of community participation as food supplier appears to need more time to develop (BIDPA 2012, xi, 29). In spite of its potential of a win-win situation, the aforementioned "*Letlhafula*" is also facing some challenges such as adequacy of procurement, limited or poor monitoring and management of procurement (BIDPA 2012, 41).

6 External factors

"Escalation of food prices in the market" is one of the external factors affecting financial shortage mentioned by the stakeholders. Yet, the causality between this and the budget deficit of the Programme is not yet analysed.

7 Challenges, constraints, and trade-offs

The long standing SFP in Botswana is in its transitional phase. It seems appropriate to identify the bottlenecks and address the shortcomings. The main challenges should be summarized as below:

- Quality and adequacy of food procurement
- Strategic planning and implementation of local economic development through local food

supplier inclusion

Difficulties in food procurement, listed above as the first point, could be mitigated by opening the fields of transport and storage to private sector players. The second point needs more systematic approach through multi-ministerial and multi-stakeholder participation. However, these challenges do not seem to be solved unless the two root constraints listed below are solved:

- Chronic shortage of fund
- Absence of horizontal and vertical coordination (especially at the national level)

Since GoB inherited centralised school feeding programme from WFP, the HGSF concept was originally out of specification. It was only after the completion of transition that the Motswana school feeding naturally evolved to include decentralised supply chain through a government-led initiative *Letlhafula*"(BIDPA 2012, 42). However, to begin with, the present "rather centralised" SFP has many difficulties around overall supply chains especially in procurement and logistics as well as capacities in institutional, financial and coordination. Relatively new initiative of *Letlfafula* also has its own shortcomings in terms of budgetary allocation and coordination (BIDPA 2012, 43).

Moving towards a more centralised system allows the Programme to accomplish better cost efficiency and quality assurance of meals. Chronic fund scarcity may also be tackled by this approach. On the other hand, higher local ownership of SFP and more direct economic spill-over to the communities by supplying food to the programme would be realised if the Programme decentralised the system more. It is useful to note that in terms achieving economic development it might be better to adopt a product-based approach rather than a school-based approach as this would lessen the chances of duplication of product development activities. This however would depend on the extent of decentralization of SFP. In short, the trade-off of SFP in Botswana lies between centralization and decentralization coupled with local agricultural economic development. GoB has to consider and compare all these issues as well as potential benefits.

3. Country Profile: Côte d'Ivoire

Before the first national SFP rolled out in 1986, there was already voluntary implementation of school feeding by students and teachers and by UNICEF program in 1963. Current management style of DNC(S)-led (Direction Nationale des Cantines Scolaires) school feeding began in 1989 with the partnership of WFP (1989-), World Bank (2010-), and UNDP (1998-) (DNC *et al*. 2010).

SFP has three objectives (DNC *et al*. 2010, 6):

1. Improve education, health, and nutrition of school children
2. Increase the income of small-scale farmers
3. Improve nutrition, quality, and quantity of (production by) the small-scale farmers

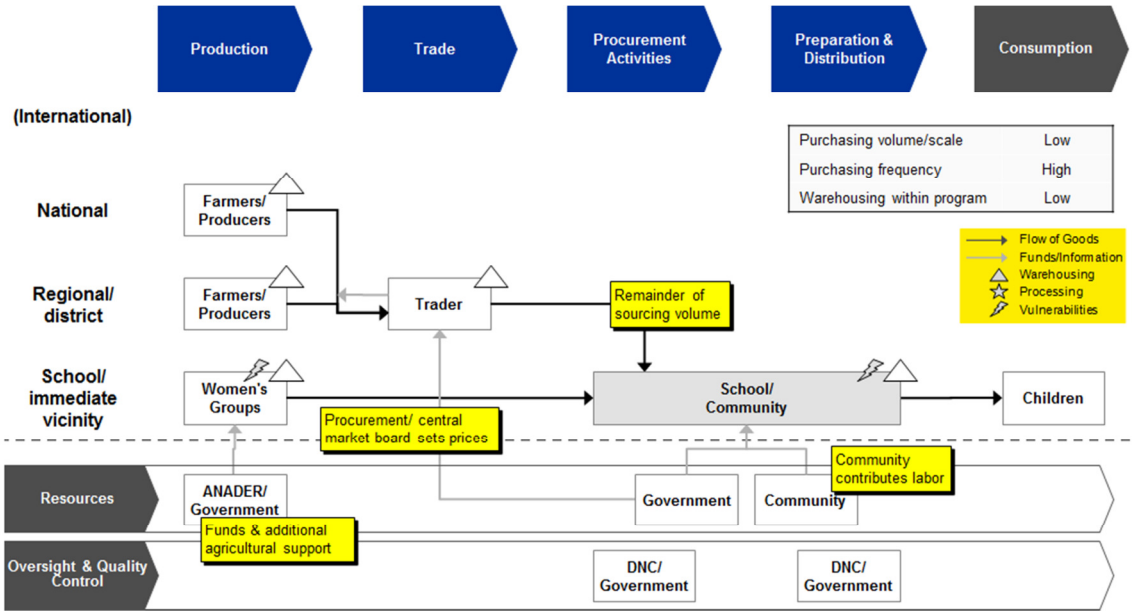
Improvement in educational, economic, and social spheres is reported with qualitative (and quantitative to some extent) analysis by DNC *et al*. (2010, 3, 26-28) as:

- Educational: according to a UNDP study, introduction of school feeding contributes for 15% increase of children in full-time education with 50% decrease in repeating a year and dropout. It also increased by 15% success at school in two consecutive years. Moreover, 90% increase in regular attendance, male-female parity improved from 0.69 to 0.77 in 2009.
- Economic: full-time job creation for rural youth around the micro-projects increased in food production.
- Social: enriched team-work spirit of the producers' groups, and improved life condition and roles of women in their families.

Regardless of the quality, canteens are prevalent nationwide.

According to Kretschmer *et al*. (2012), the supply chain modalities of SFP by the Government of Côte d'Ivoire (GoCI) are categorized as ***Integrated Farm-to-School Model***. Prominent feature of this system is its focus on the smallholder organizations around schools, especially those organized by local women. The Programme thus has both social safety net side for school children through meal provision as well as agricultural development side which includes provision of input and various types of training. Figure 8 shows that smallholders are prioritized as the first sourcing channel with nationally concentrated sourcing service as the second.

Figure 8 Supply Chain Map (Integrated Farm-to-School Model): Côte d'Ivoire



Source: Kretschmer et al. (2012, 16)

While GoCI provides funds to smallholder groups, communities can also contribute for SFP. Through a five-year Integrated Programme for Sustainable School Feeding (Programme Intégré de Pérennisation Cantines Scolaires, PIP/CS), vicinity communities of 10 % of the total beneficiary schools are trained to supply food stuff for schools as well as manage the programme at the school level (DNC, *et al*. 2010, 13). Preparation of hot meals is carried out at each school by cooks hired from immediate vicinities of schools while oversight is implemented at school/canteen level by Ministry of Education and at farmer organization level by Ministry of Agriculture.

1 Funding: financial figures and cost performance

As is the case with most of the other SFPs, direct feeding cost is the cost driver accounting for 80% of the total programme expenditure in Côte d'Ivoire during academic year of 2009 (DNC *et al*. 2010, 24-25). In order to analyse the cost performance, however, many more cost items need to become clearer. It is, for example, not clear whether GoCI receives funds from WFP and UNDP for DNC-led SFP or all three of them operate different school feeding frameworks separately (DNC *et al*. 2010, 13-15). Likewise, even though the one-year financial support of 68,000 meals for 401 canteens from IDA/World Bank is reported for the year of 2009, the total amount of the fund is unclear (DNC *et al*. 2010, 14). Furthermore, it is not clear how much fund is used for PIP/CS and who are the donors for PIP/CS. It is only natural that the stability and sufficiency of the programme fund are unknown, either.

Neither breakdown of the budget/expenditure (which includes administrative and capital costs) nor the monetary value of the community contribution is available. Thus, more detailed financial data

(budget and expenditure) and coverage figures (e.g. including the gratis contribution from the communities, jobs created by SFP, etc.) from the same and more recent academic year are required to get a clearer picture of the programme.

Detailed breakdown of the entire programme cost is available in *Cost Analysis Framework (version 01)* by PCD (Gelli & Suwa 2013a).

1. Budget and costs

The following data are from the academic year 2009.

1. Budget source(s)

The total budget and its breakdown are unknown. However, DNC *et al*. (2010, 24-25) reports that the Ivoirian SFP receives the participation fee of US$15 per student per year from the parents of students.

2. Actual programme expenditure

Table 4 Components of Programme Expenditure: Côte d'Ivoire

Item	US$	%
Personnel Emolument	47,214	0.84
Transportation		
a. International	855,556	15.24
b. Domestic	86,513	1.54
Feeding	4,520,611	80.53
Fumigation	3,801	0.07
Training	29,195	0.52
Other Direct Operational Costs	70,644	1.26
Total:	**5,613,534**	**100.00**

*This total cost of DNC (2009) does not include the monetary value of community contribution for SFP.

*Breakdown of usage of annual meal fee per child (25 FCFA per meal) is described in DNC *et al*. (2010, 21-22).

3. Analysis

Based on the available data, an attempt has been made to analyse the cost and the budget figures in order to provide better understanding of cost drivers and key components. It is important to note that the conclusions of the analysis are indicative due to limitation of the data availability.

Table 5 shows the expenditure profile of SFP in Côte d'Ivoire which is based on Table 4.

Table 5 Expenditure Profile: Côte d'Ivoire

	Financial Figures
Total Cost of SFP	**2,526,090,300.00 FCFA**
(	5,613,533.94 US$)
% of Food cost.....	80.53 %
% of Food transportation cost...	16.78 %
% of Support cost.....	2.69 %
Cost per child per day	**193.54 FCFA**
(	0.43 US$)
Cost per child per year	**10,064.10 FCFA**
(	22.36 US$)
Standardised cost per child per year	**23,740.02 FCFA**
(	52.76 US$)

Figure 9 shows the image of breakdown of programme expenditure between food items, food transport, and the programme support cost. Main cost driver is food item which accounts of 80.53% of the total programme cost.

Figure 9 Breakdown of Programme Cost: Côte d'Ivoire

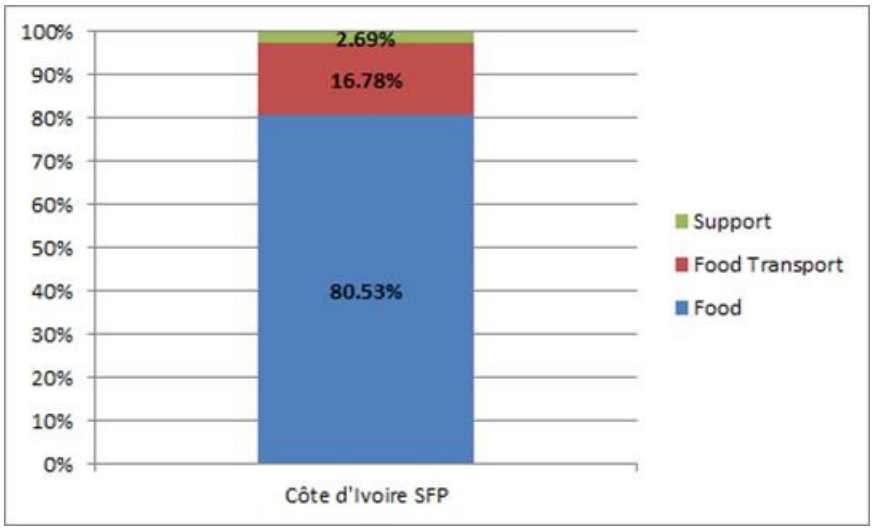


Figure 10 Breakdown of Support Cost: Côte d'Ivoire

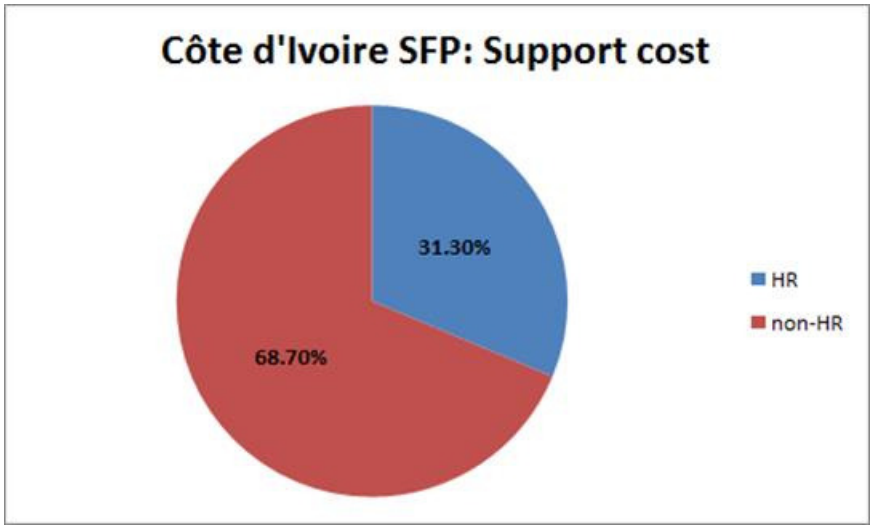
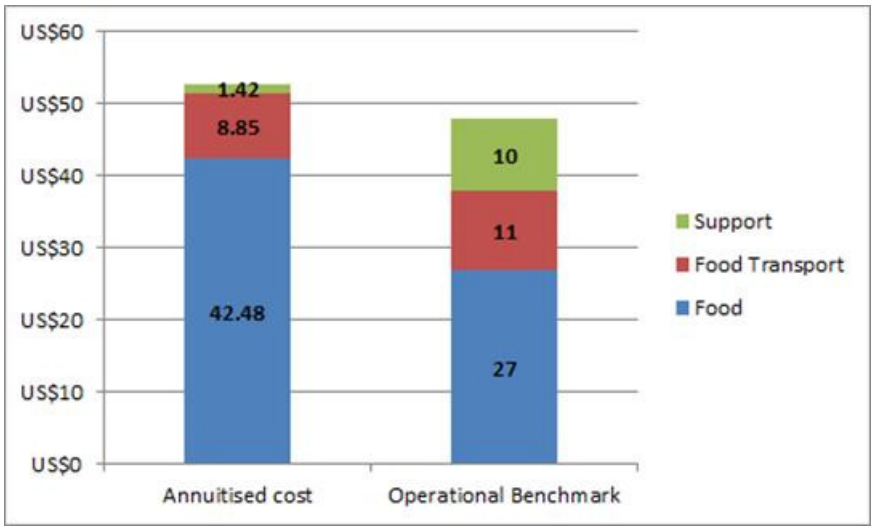


Figure 10 shows the breakdown of support cost between HR (assumption is that this includes the labour costs at mainly national/regional levels only) and non-HR costs. HR cost constitutes slightly more than 30% of the support cost.

Figure 11 shows a comparison of annual cost per child between standardised and annuitised programme cost (US$52.76) and operational benchmark (US$48). In terms of portion, the greatest discrepancy is created by support cost of which Côte d'Ivoire costs seven times less than the one of the benchmark whereas the gap between two food costs is the largest in terms of price (Benchmark costs US$15.48 less than SFP in Côte d'Ivoire).

Figure 11 Standardised Cost vs. Operational Benchmark: Côte d'Ivoire



2. Operational indicators

1. Size of the programme

The following data listed in the table below was collected from DNC *et al*. (2010).

Table 6 Coverage and Ration: Côte d'Ivoire

Year 2009

Coverage			Ration		
No. of students	No. of schools	No. of feeding days	Energy (kcal)	Micronutrient content	Annual cost per child (US$)
251,000*	2,027	52**	1060-1222kcal	Vitamin A: 147.3 – 157.3µg Iron: 5.0-7.9mg Iodine: 56.4µg	US$20***

* …Numbers of 265,000 and 291,369 students are also reported by the same source for the same year.

** …1 meal a day is planned to be provided for 100 days. Beneficiaries were actually fed for 52 days.

*** …This means that per meal per child is actually spent around US$0.38. The figure shows US$2.36 difference from the one the study computated. The reason for this could be that DNC *et al*. shows all the figures in US$ whilst the study calculated the cost by once converting the figures into FCFA.

In addition to Table 6, there is some other information explaining the coverage of the SFP. First, 908 women's groups are involved in SFP in the year of 2010-11 (DNC *et al*., 2010, 42). Second, in 2009, WFP also covers 590,000 students of 3,013 canteens/schools mostly in three regions (central, north, and west) while UNDP also covers 800 canteens/schools (DNC *et al*., 2010, 13-14).

2. Analysis

Based on the data available, as described in the table above, the study conducts the analysis to give better understanding of cost efficiency per micronutrient as Figure 12 and Figure 13.

Figure 12 Nutrient Efficiency: Côte d'Ivoire vs. Operational Benchmark (1)

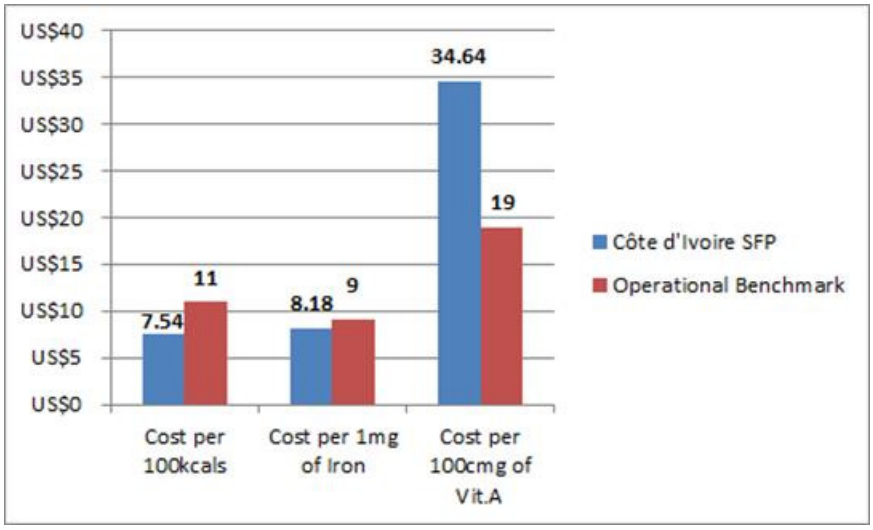
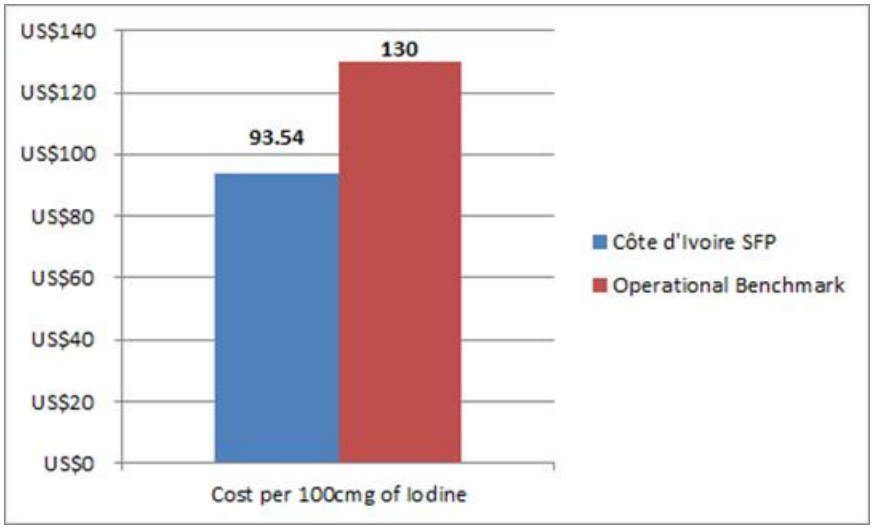


Figure 13 Nutrient Efficiency: Côte d'Ivoire vs. Operational Benchmark (2)



The only micronutrient which Côte d'Ivoire is less efficient than the benchmark is Vitamin A. Côte d'Ivoire spends 1.82 times more cost than the other to provide the same amount of Vitamin A.

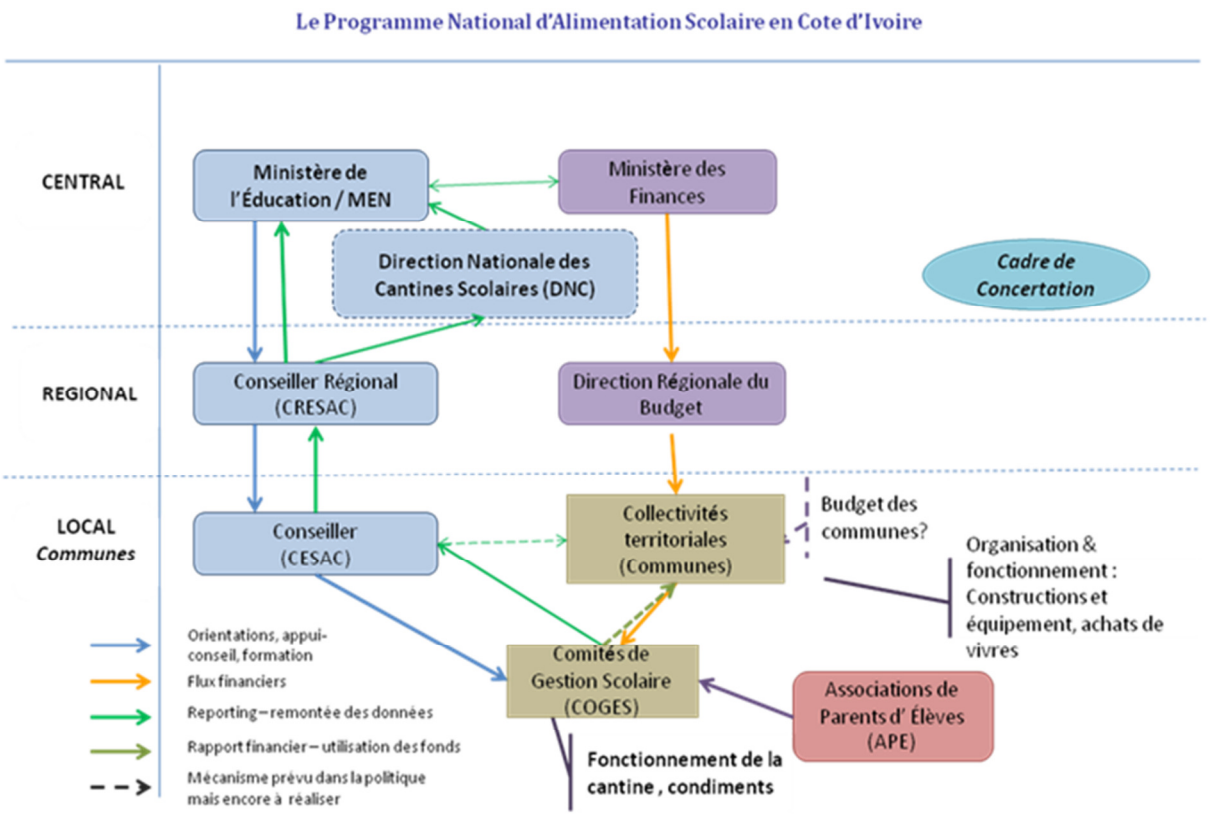
2 National policy framework

There is a "One School One Canteen" program by GoCI (DNC *et al.*, 2010, 12). The objectives of SFP are also designed to tackle the goals of MDGs and EFA simultaneously (DNC *et al.*, 2010, 6). However, it appears that there is no national school feeding policy in place.

3 Institutional framework and coordination

Figure 14 displays the comprehensive program management scheme.

Figure 14 Programme Management Structure: Côte d'Ivoire



Source: DNC et al. (2010, 21)

DNC(S) (la Direction Nationale des Cantines Scolaires) under the Ministry of Education (Ministère de l'Education, MEN) functions as the main implementation and coordination agency of the SFP (DNC *et al*. 2010). Aforementioned PIP/CS serves under the DNC to promote a gradual handover from WFP-managed SFP to the community-managed programme by assisting the small agro-business run by the local farmers.

School Management Committee (Commité des Gestion Scolaire, COGES), line department of MEN and therefore consists of government staffs, is a general school management agency at district/local level. It is this COGES which collects SFP fund from GoCI and participation fees from the parents of the school children (US$3 per child per year) via schools whilst it handles other general school-related tasks (CDN *et al*. 2010, 24). The collected money is spent for condiment purchase and cooks' salaries. COGES also pays for food products from local farmers groups at the price set by the central market. Since COGES also conducts monitoring at the school-level, COGES is the *de facto* executing agency of SFP at the community level.

In terms of supply chain, a flow of in-kind contribution from community and parents should be added to Figure 8 and Figure 14. This input, estimated to be around US$12 per child per year, is

mainly used for the canteen maintenance (CDN *et al*. 2010, 24; interview with A. Sékou).

However, the capacity of these main executing agencies, as well as their coordination modality, needs to be analyzed further through in-depth research.

4 Design and implementation

Unique feature of SFP in Côte d'Ivoire is the simultaneous introductions of school feeding (prioritizing locally grown food procurement) and of a five-year farmers training programme. This modality seems to be well suited to fulfil the specific programme aims: provide quality hot meals to school children during the school days while enforcing the local ownership of the Programme and increasing local food sourcing. This is based on the idea that school feeding can serve as a not necessarily large but fairly predictable and stable market for suppliers. Accordingly, the school children and the surrounding communities, especially women's groups, are adequately targeted by the Programme as its beneficiaries.

However, further study is required to analyze the school feeding supply chain activities, namely:

1. How (un)successful and reliable the farmers groups became in terms of their business and supply for SFP;
2. Value chain between providers and school feeding kitchens;
3. Transparency in resourcing and procurement;
4. Transparency in cooking staff recruitment;
5. Players who carry out meal design, procurement, cooking, and distribution;
6. Procurement modality;
7. Quality of cooked food;
8. In-depth fund flow and its control system;
9. In-depth management flow and its control system;
10. Monitoring (frequency, quality, and monitors); and
11. Feedback system (and how it affects the decision-making).

5 Community participation

SFP in Côte d'Ivoire enjoys both cash and in-kind contributions from the communities. Communities pay around 25FCFA per meal on average while contributing cooking fuels and labours for canteen maintenance (DNC *et al*. 2010, 24-25). This Programme also has a supply chain which allows the local producers to sell their products to the Programme so that the children can consume them. In short, local participation around production and procurement activities of the Programme supply chain is considerably high.

It is, however, not yet visible if community participation in the following aspects is equally active:

planning, implementation, and M&E.

Finally, although no statistics have been provided, there are some positive reports on the impact of the participation of the locals to the SFP. For instance, it is stated that organizing producers' groups and starting their businesses actually accelerates the reconstruction of the social capital in community after a series of conflicts. Their small businesses also create new jobs for the rural youth. Linking up their agro-business to the school feeding seems to have increased production while reduced the level of poverty (DNC *et al*. 2010).

6 External factors

Price volatility, natural disasters, poor infrastructure, poor environmental settings, and political/social instability could be listed as the external factors. With regard to the political and social instability, the consequences of the past series of political crisis and internal conflicts need to be analysed since they affected the SFP before.

7 Challenges, constraints, and trade-offs

Even though a concrete programme assessment has not been done by the third party yet, some challenges are raised by the DNC. DNC *et al*. (2010, 32) claim that the Programme needs to further achieve:

1. Higher degree of community's ownership;
2. Better food supply in quality, quantity, and stability;
3. Further local development motivated by SFP; and
4. More local product consumption.

Evidently, these "challenges" are the same as the "objectives" of the SFP. It is, thus, strongly assumed that further improvement of the programme is required.

The following points listed below are the questions that this paper considers to be further study:

- Why can Côte d'Ivoire provide the meals only for 50-60% of the planned days? Which problems cause this?
- How do the quality and productivity of the farmers' groups change by participating in PIP/CS framework?
- Does the SFP/DNC have any plan to support the agro-business of the farmers' groups even after the community becomes self-sufficient to operate SFP of the school(s) in their community?
- Who designs daily meals?

- What are the issues related to food procurement (food safety, timely delivery, stability of supply pipeline, funding)?

Root constraints of the current SFP will be identified only once the further study is conducted to answer many unanswered questions including the points above.

Trade-off points which GoCI has to consider emerge between achieving better economies of scale for procurement and remaining in the current position of local economic/agricultural development whilst sacrificing efficiency to some extent. More centralised system would be able to reduce the meal cost per child by purchasing the foodstuff in bulk. Centralised controlling system would also enable easier control in terms of food quality and management. On the contrary, the current decentralised system leaves possibility for the further community development along with autonomous school feeding programmes at the potential cost of economies of scale and scattered management.

4. Country Profile: Ghana

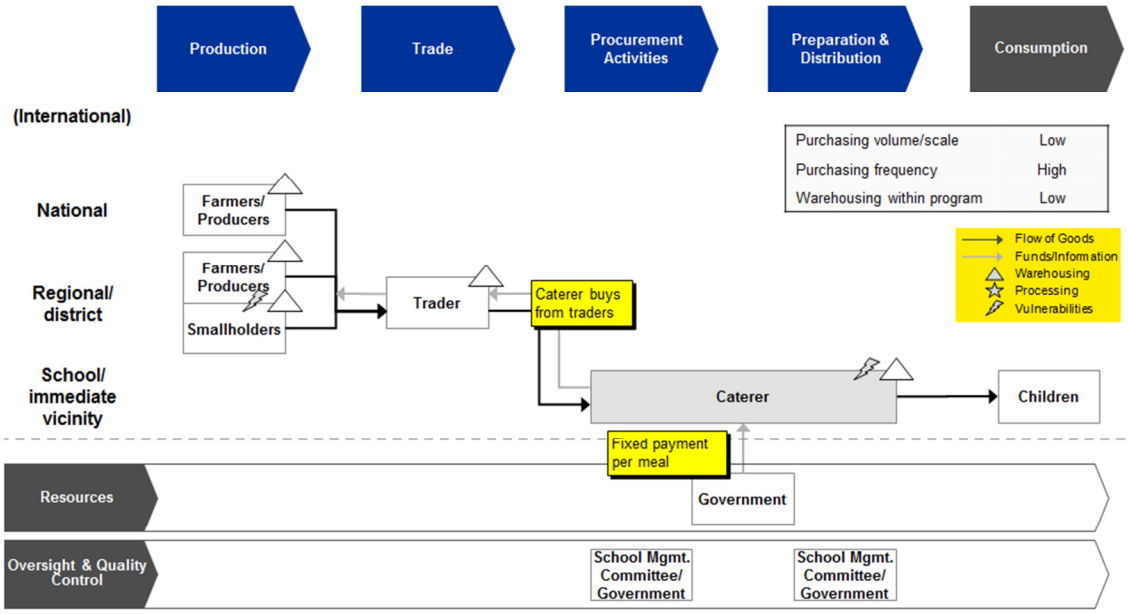
As a relatively young programme, Ghana School Feeding Program (GSFP) continues to evolve since its start in 2005 by the Government of Ghana (GoG). Replacing the function of the procurement from school teachers to contracted caterers in 2007 is one of the examples of learning-by-doing practice of GSFP (Johnson & Janoch 2011). Today, 22% of primary and kindergarten pupils are covered nationwide (GSFP 2011 Annual Operating Plan [AOP] 2011, 5). The three objectives of GSFP are:

1. Reduce hunger and malnutrition
2. Increase school enrolment, attendance, and retention
3. Boost domestic food production

Some achievements at the school level, such as reduced hunger of school children, 10% increase in enrolment, and improved kitchen and canteen infrastructures, are reported (de Calvalho et al. 2011; Johnson & Janoch 2011).

As Figure 15 demonstrates, the procurement, preparation, and distribution activities are outsourced to the contracted service providers in GSFP.

Figure 15 Supply Chain Map (Decentralised Third-Party Model): Ghana



Source: Kretschmer et al., (2012, 18)

Since there is no systematised focus on procurement from local smallholders, foodstuff is purchased by these caterers from markets in their vicinities. They are also responsible for storing the purchased food, preparation (either at school kitchens or their home), distribution, and have

the liberty to hire the assistants from the communities to cook meals (Johnson & Jonach 2011, 27). One caterer cannot serve more than three schools (de Calvalho *et al*. 2011). Government (District Assemblies) provides funds to these service providers after meals are provided. Apart from cooked food provision, there is no specific project such as increasing the production of the local smallholders. This programme is categorised as ***Decentralised Third-Party Model*** by Kretschmer et al. (2012).

1 Funding: financial figures and cost performance

de Calvalho et, al. (2012) find that the direct feeding costs around procurement and preparation activities are the main costs of GSFP by accounting for 96% of the total cost. Apart from GoG, GSFP also relies on the external support from the Netherlands (16%) and WFP (10%). Frequently reported issues, including chronic funding delay and inefficiency between the national levels and caterers and non-renewal of the commitment from the Dutch fund, suggest that the financial capacity of GSFP seems unreliable. In addition, financial insufficiency is equally indicated. The current GSFP allowance per child per meal 40 pesawas (0.40GH¢) is already analysed to be insufficient to cover the cost of ingredients for all present menus using any of the price sources.

Detailed breakdown of the entire programme cost is available in *Cost Analysis Framework (version 01)* by PCD (Gelli & Suwa 2013a).

1. Budget and costs

The following information is for 2011.

Note that de Carvalho *et al.* (2011, 78) recognise that the 2011 Annual Operating Plan (2011, 39) reports the annual fund requirement for GSFP in 2011 is GH¢69.1M. However, de Carvalho *et al*. (2011, 8) also claim that '*the most updated* 2011 budget figure' is 'GH¢84M' (italic process was done by the author) whilst using the figure of GH¢69.1M in some sections of their document. Therefore, as de Carvalho *et al*. (2011) use, the study uses GH¢69.1M for the budget source information while using GH¢84M for budget breakdown.

1. Budget source(s)

Table 7 Components of Budget Sources: Ghana

Source	GH¢	%
Government of Ghana	50,000,000	72.35
Government of Netherlands	11,668,611	16.88
WFP	7,440,800	10.77
Total:	**69,109,411**	**100.00**

Source: 2011 Annual Operating Plan (2011, 39)

2. Actual programme expenditure

Since the expenditure breakdown is not available, Table 8 shows a breakdown of GSFP budget. This cost breakdown does not include the monetary value of community contribution for SFP.

Table 8 Components of Programme Expenditure: Ghana

Item	GH¢	%
Administration	1,847,651	2.21
Service		
a. Feeding Cost (food items)*	76,033,776	90.21
b. Other Service Activities**	5,086,224	6.05
Investment	1,219,710	1.41
M&E	94,800	0.12
Total:	**84,282,161**	**100.00**

Source: de Calvalho et al. (2011, 76)

* …Originally reported figure is 18,120,000 GH¢ which accounts of 96.20% of the total cost.

** …This item was not found in the original source. However, based on the provided information that; (1) national average cost of ingredient out of 'total operating cost' of the caterers is 93.73% (de Calvalho *et al*. 2011, 48), and the assumptions that (2) 'total operating cost' of the caterers is equivalent of "Feeding Cost" in Table 8, and (3) neither 'total operating cost' of the caterers nor "Feeding Cost" includes any capital costs, the study computed "Other Service Activities" as above, which is equivalent of 6.27% of the original "Feeding Cost". Moreover, the study further equally divided this figure into three items (transportation, cooks' salaries, cooking fuel) based on the assumption that "Other Service Activities" consists of only the three items (de Calvalho *et al*. 2011, 45).

3. Analysis

Based on the available data, an attempt has been made to analyse the cost and the budget figures in order to provide better understanding of cost drivers and key components. It is important to note that since the data availability is limited and some of the data was created based on

assumptions, the conclusions of the analysis are indicative.

Table 9 shows the expenditure profile of GSFP which is based on Table 8.

Table 9 Expenditure Profile: Ghana

	Financial Figures
Total Cost of SFP	**84,282,161.00 GH¢**
(	56,192,602.38 US$)
% of Food cost.....	90.21 %
% of Food transportation cost...	2.01 %
% of Support cost.....	7.78 %
Cost per child per day	**0.41 GH¢**
(	0.27 US$)
Cost per child per year	**81.04 GH¢**
(	54.03 US$)
Standardised cost per child per year	**83.84 GH¢**
(	55.89 US$)

Figure 17 shows the image of breakdown of programme expenditure between food items, food transport, and the programme support cost. Main cost driver is food item which accounts of 90.21% of the total programme cost.

Figure 16 Breakdown of Programme Cost: Ghana

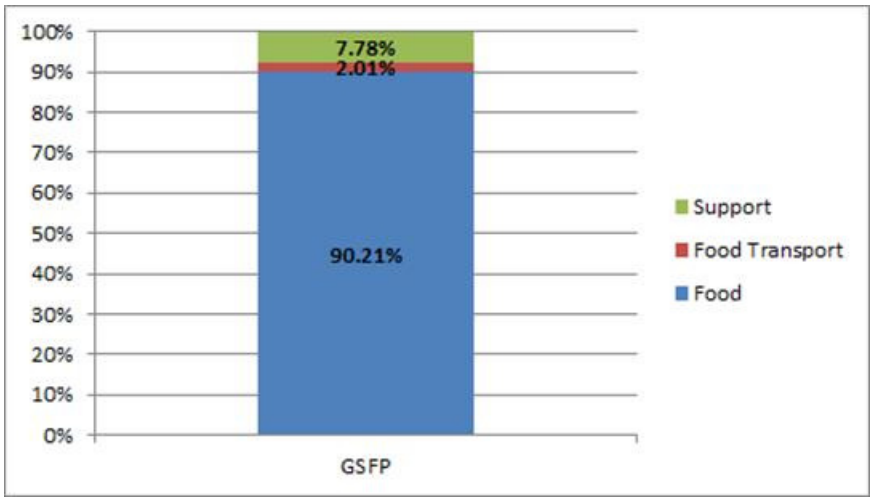


Figure 17 Breakdown of Support Cost: Ghana

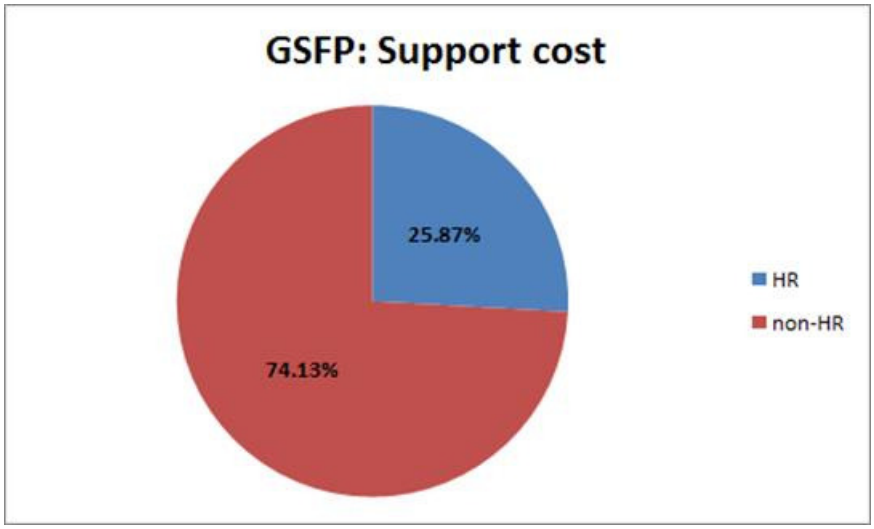
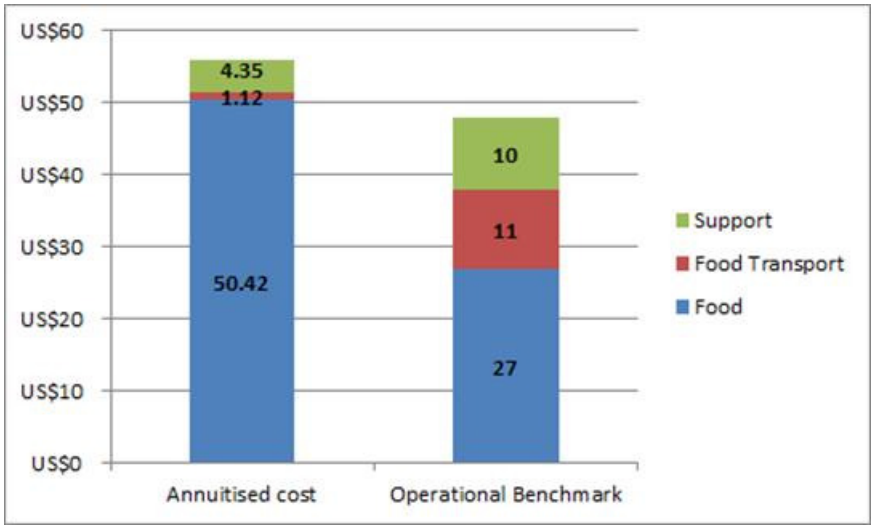


Figure 18 shows the breakdown of support cost between HR (which covers the salaries for cooks only) and non-HR costs. HR cost constitutes around one quarter of the support cost.

Figure 19 shows a comparison of annual cost per child between standardised and annuitised programme cost (US$55.89) and operational benchmark (US$48). Even though GSFP spends approximately 1.86 times more cost on the food stuff, the rest stays significantly fewer than the benchmark.

Figure 18 Ghana Programme Cost (standardised) vs. Operational Benchmark



2. Operational indicators

1. Size of the programme

The following data listed in the table below was collected from Lopatka *et al*. (2008, 22) and de Calvalho *et al*. (2011, 8, 11).

Table 10　Coverage and Ration: Ghana

Year 2011

Coverage			Ration design		
No. of students	No. of schools	No. of feeding days	Energy (kcal)	Micronutrient content*	Cost per meal per child (US$)
697,416	1,741	N/A	567 (age 4-6) 800 (age7-10)	Vitamin A: 400.0μg Iron: 7.0mg Iodine: N/A	US$0.26**

* …Data does not reflect the actual menus of GSFP. It is derived from the recommended nutrients by RDA.

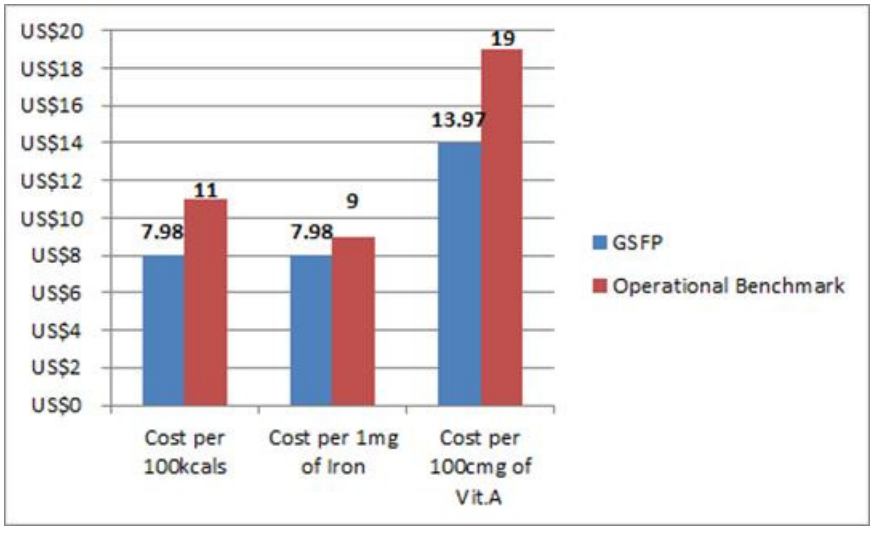
** …GSFP allocates GH¢0.40 per meal per child. The figure is the converted version of GH¢0.40 into US$. Since the number of either planned or actual numbers of the feeding days is not available, the annual meal cost per child cannot be calculated.

In addition to information of Table 10, 16.4% of targeted schools have school gardens (GSFP 2011 Annual Operation Plan 2011, 6).

2. Analysis

Based on the available data, the study conducts the analysis to give better understanding of cost efficiency per micronutrient as Figure 20.

Figure 19　Nutrient Efficiency: Ghana vs. Operational Benchmark



In terms of energy and micronutrient provision (except iodine), GSFP spends less cost than the benchmark. However, as mentioned before, this analysis needs to be done again after the actual menu sample is collected.

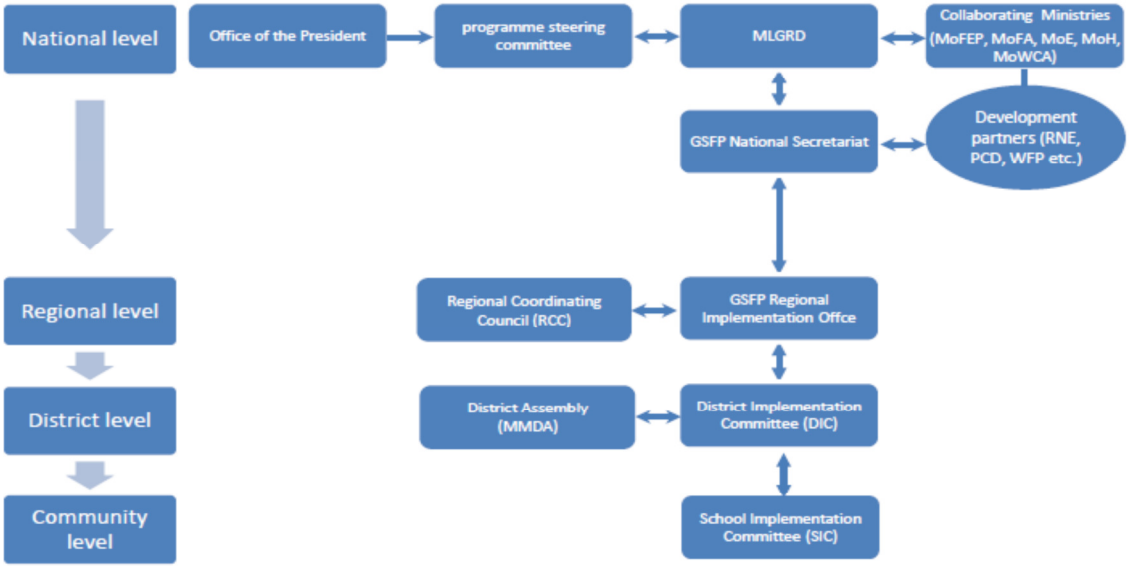
2 National policy framework

It seems fair to say that the GSFP, whose objectives are closely aligned with the issues of hunger, poverty, and primary education of MDGs, is incorporated into the national policy (Lopatka, et. al. 2008, 7). However, there is no national school feeding policy which supports an enabling environment for stakeholders from the public/private sectors and civil society contribute actively for GSFP in place as of now.

3 Institutional framework and coordination

Figure 21 presents the comprehensive program management scheme with four tiers of governance.

Figure 20 Programme Management Structure: Ghana



Source: GSFP 2011 AOP (2011, 4)

According to de Carbalho *et al.* (2011), the Ministry of Local Government and Rural Development and Environment (MLGRD) is the nodal agent of the GSFP in collaboration with other ministries and strategic partners. The National Secretariat of MLGRD plays the role of Programme coordination and management at the national level. It is also this body who provides its support to the District Implementation Committees (DICs) and School Implementation Committees (SICs).

At the regional/district levels, it is the District Assemblies (DAs) who receive and distribute the funds to the caterers. While the DAs function as the core implementation and management agent of the Programme, DICs hire the caterers and provide the direct oversight to the schools. SICs are the Programme player at the community level who execute feeding activities with direct oversight and supervision of the caterers as well as mobilize communities. The caterers are located at this

community level and implement (1) food procurement, (2) storing, (3) preparation of cooked meals, and (4) delivering the meals.

In terms of coordination, Johnson & Janoch (2011) report that the poor understanding of roles and accountabilities of stakeholders themselves are very much evident across all levels. With frequently raised critique of horizontally and vertically poor communication across all levels, it seems fair to say that the coordination capacity of the MLGRD needs to be developed more for the better supply chain performance of the Programme, particularly in terms of fund allocation to the caterers, monitoring, and the system to incorporate the feedback from the schools and the caterers into the decision making. More detailed analysis will be discussed in <4-4 Design and implementation>.

4 Design and implementation

As explained before with Figure 15, GSFP adopts Decentralised Third-Party Model i.e. the contracted caterers at the community level perform the primary executing agent of hot cooked food provision which consists of food procurement, preparation, and distribution. They receive funds from DAs once meal provision is completed. In other words, it is these caterers who play a prominent role of primary supply chain activities of GSFP at present. On the other hand, local farmers, who are supposedly encouraged by GSFP are participating in it to be the other player of the primary supply chain activities as food provider as well as school-level monitor, are not yet fully incorporated in the Programme strategies and operation.

Accordingly, most of the challenges of design and implementation are around these caterers and local smallholder farmers from the supply chain perspective. First of all, the beneficiaries of the Programme are not well targeted. For instance, Lopatka *et al*. (2008) argue that the school children in the poorest areas of the country are not sufficiently addressed. In addition, as partially mentioned before, very low community as well as local farmers participation is repeatedly reported in terms of program management, implementation, and as suppliers (de Calvalho *et al*. 2011; Johnson & Janoch 2011). From the viewpoint of modality, there is neither 'mechanism…to facilitate purchases from local farmers' nor 'support to boost their production' (Johnson & Janoch 2011; Lopatka, *et. al*. 2008, 8). Therefore, local farmers can hardly be considered as one of the two main beneficiaries[3] of the GSFP, especially in the sense of HGSF.

Caterers are surrounded larger numbers of challenges. To begin with, lack of transparency in the caterer selection is raised. Johnson & Janoch (2011) point out that the practice of unpublished advertisement for caterer recruitment and politicized selection process can determine caterers' competence, food sourcing, and quality of meals. Unknown terms of reference of the caterers confuse the community members to understand what they can expect from caterers and how they

[3] The other principal target is the students in the GSFP-targeted schools.

can hold accountability of the caterers. Quasi-non-existent M&E worsens this opaqueness of the Programme (de Carvalho *et al*. 2011; Johnson & Janoch 2011).

Moreover, caterers are exposed to one serious difficulty: delay and insufficiency of payment. Reported delay in payment reception is 1-3 months, which pushes the caterers in the position where they have to pre-finance with a bank loan and later return the higher amount of money due to the interest (Johnson & Janoch 2011, 27). Even though the minimum cost to prepare closely aligned quality meal to the dietary custom was already calculated as 53 pesawas at the point of 2008 by Lopatka *et al*. (2008, 31), per child per meal allowance was still 40 pesawas in 2011 (de Calvalho *et al*. 2011). In addition to these obstacles, payments are in principle done only after the meal provision. This payment timing prevents the caterers from mass procurement of the quality food at the lower market price so that they can better cope with the price fluctuation (de Carvalho *et al*. 2011).

Furthermore, the monitoring and feedback systems are not fully functioning, if not non-existent, to maintain the quality of the school feeding supply chain. Johnson & Janoch (2011) report that coordination of monitoring is very week across the national to community levels, measurement standards of M&E are missing, and the capacities of the community members to execute M&E are crucially in dearth. Feedback from the schools and their vicinity communities are not effectively absorbed nor reflected in the decision-making at any level. The fact that the Programme is widely unknown by the community members causes the lack of the ownership at the community level and exacerbates these situations.

The problems discussed above thwart the Programme in reaching its maximum ability to achieve the goals. Leaving the smallholder farmers and school children in the poorest areas out of the Programme scope will not lead GSFP to achieve one of its three objectives: improvement in domestic food production. Closed selection process as well as financial difficulties with regard to the caterers could consequently critically undermine the outputs of the school feeding, such as quality and quantity of meals and regularity of school feeding which are already argued to be revised (Lopatka *et al*. 2008). Feeble M&E and feedback systems weaken the roles of both caterers and the community members. From the supply chain aspect, thus, the programme design and implementation should be reviewed.

5 Community participation

GSFP is intended to include communities of the target schools in its supply chain, namely design and management of school feeding, and food and labour supply for the Programme at the local level. However, the degree of such community participation remains quite low until today.

Firstly, they are not involved in programme or menu design phases. Ineffective programme introduction resulted in the fact that the majority of them are not yet aware of the Programme, so that the fundamental basis to foster community participation is missing. It is only predictable that they are not involved in any sort of decision-making phase either as decision maker or as feedback provider (Johnson & Janoch 2011).

Secondly, their presence in a day-to-day school feeding is not recognisable in general. It is DIC who is responsible for ensuring the timely payment for the caterers, GSFP promotions in community, and monitoring the activities of SIC. SIC oversees all GSFP-related activities (i.e. activities performed by caterers, teachers, parents, and community members) at the local level and facilitates community involvement. Caterers are reported to understand the different roles of those two agencies, while large portion of parents and teachers do not even recognise them (Johnson & Janoch 2011). More seriously, 14% of DICs and 47% of SICs were unaware of their ToR in the framework of GSFP (Johnson & Janoch 2011, 18). This status quo i.e. lost substance of DICs and SICs appears to be the determinant of absence of the community participation in a school feeding through M&E practices.

Finally, community participation as source provider is mixed. Contribution through gratis in-kind participation (e.g. firewood, free labour, etc.) is prevalent. Job creation for the locals as cooks hired by caterers is also mentioned in the available documents, but the significance and size are unknown. It is equally uncertain whether caterers are locally hired. On the other hand, participation as food provider is very seldom. This greatly arises from the mismatched demand from caterers and supply of the local farmers. While caterers need to purchase food in bulk on credit, farmers cannot meet the required volume nor receive credit payment due to the poor access to the available financial services (de Carvalho *et al*. 2011; Johnson & Janoch 2011). No national programme addresses the issue of smallholder farmers' financial access (de Carvalho *et al*. 2011). On the caterers' side, the factors including inabilities to identify the local producers and to visit them and bring back the foodstuff also affect their purchase decision-making. Absence of local food purchase promotion for the caterers by DICs and SICs plays a role in this as well (Johnson & Janoch 2011). For the farmers, their poor productivity, technical knowledge, lack of inputs and equipment hinder access to GSFP (de Carvalho *et al*. 2011). It is also true that most of them simply do not know GSFP (Johnson & Janoch 2011).

6 External factors

High increase in the prices of the staple food greatly affects the programme. Since the GSFP began in 2005, the average price increase of these staples is 52.5%, and price discrepancy between harvest and lean seasons can be as high as 400% (de Carvalho *et al*. 2011, 58; Lopatka *et al*. 2008, 10, 18). Thus, food price volatility, coupled with the absence of the mechanism or ability to

mitigate it, impose a significant challenge to GSFP supply chain.

7 Challenges, constraints, and trade-offs

Among the hurdles discussed above, the most prominent challenges of GSFP from the viewpoint of the supply chain would be the following:

- Prevalent poor self- and mutual-awareness of roles and responsibilities among the programme stakeholders at all levels
- Horizontally and vertically poor communication derived from non-existent stakeholder coordinating agent
- Weakly established monitoring and feedback mechanisms together with an absence of the universal guidelines
- Critically low recognition of GSFP among the community members as well as local food producers
- Opacity in caterer recruitment
- No substantial linkage mechanism between GSFP procurement by caterers and the smallholder farmers which could mobilise the Programme towards building more enabling support package for the producers to meet the needs of the school feeding

These challenges are, although difficult to resolve, not impossible to overcome. Participatory stakeholder meetings could be the beginning to share the common notion of the problems and objectives so as for them to create the action plans accordingly. Solving one difficulty could have a multiplier effect. For example, de Carvalho *et al*. (2011, 59) argue that more proactive involvement of the local farmers into the procurement could mitigate the price volatility for it can be 40-50% cheaper than the market prices. Nevertheless, the constraints of GSFP, as listed below, position the Programme in a difficult position to face the challenges above:

- Budget: instable sourcing and the insufficiency in the cost of a meal to ensure the quality
- Irregular payment from DA to caterers

One of the trade-off points which GSFP must be aware of is that it is currently sacrificing the option of achieving the economies of scale through mass food sourcing by not choosing the centralised food procurement model. Adoption of this model could also mean the easier meal quality control for the larger number of beneficiaries whilst the current GSFP model has potentials of more economic and agricultural pass-on to the communities. Adoption of the present universally free meal provision to the students should be raised as another trade-off point. This option would be alleviating the burden of the families of the students on the expense of securer programme budget and higher notion of programme ownership by the community which could be realised by cost sharing between GoG and the parents.

5. Country Profile: Kenya

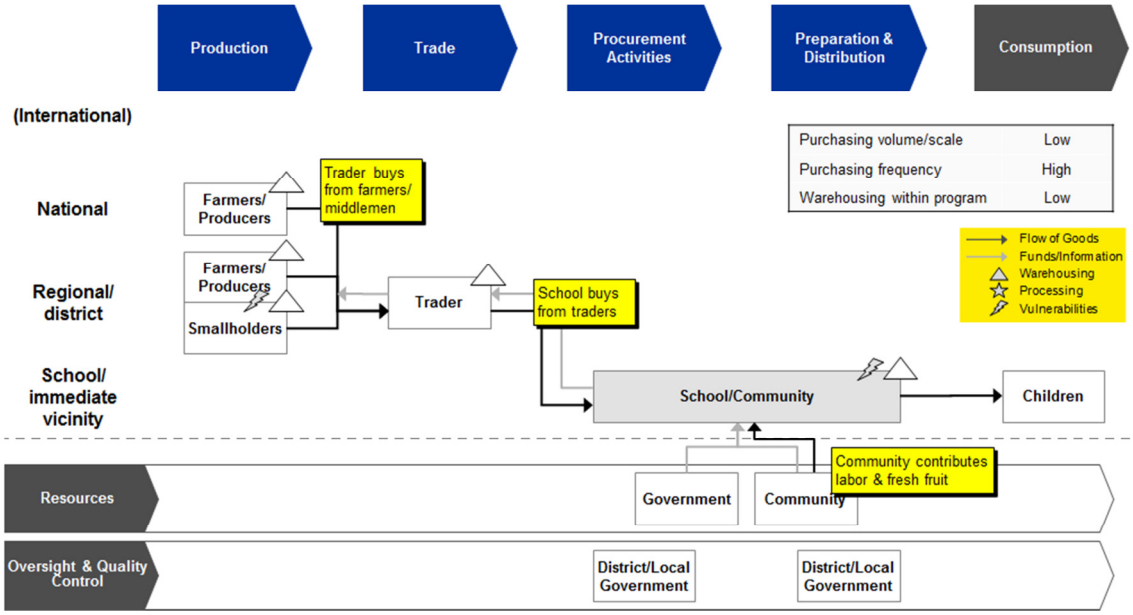
Home Grown School Meal Programme (HGSM) has provided school meals to the school children mostly in semi-arid lands since it was launched in July 2009 by the Ministry of Education (MoE) (Government of Kenya [GoK] 2012). The objectives of HGSM are:

1. Improve education, health and nutrition of school age children;
2. Improve small-holder farmer income through structuring market demand from HGSM programme; and
3. Improve nutrition, quality and quantity amongst smallholder farmers.

In addition, HGSM is exploring ways to strengthen links with smallholder farmers to enhance local agricultural production. Furthermore, HGSM is in the process of harmonization with NMK[4], operated by the Ministry of Agriculture (MoA), under a common framework through the National School Health, Nutrition and Meal Programme Strategy (SHNM) (GoK 2012, x).

Kretschmer *et al*. (2012, 14), by describing the supply chain systems of HGSM as Figure 22, categorise as ***De-centralised Model***.

Figure 21 Supply Chain Map (De-centralised Mode): Kenya



Food stuff is supplied from all types of farmers, and most of the staples are transported and stored

[4] Njaa Marufuku Kenya (NMK) was initially developed by the Ministry of Agriculture in collaboration with FAO and MDG Centre in 2005. NMK provides a three-year period school feeding with yearly decreasing financial support in the area where there is no other SFP. The focus is on agricultural development rather than education by aiming at increase in productivity and stability of output on smallholder farms whilst addressing environmental-related issues. For more information on NMK, one can refer to NMK (2012).

by traders whilst fresh vegetables are contributed directly from the local communities to schools which also have storage facilities funded by parents (GoK 2012, 14-15; Kretschmer *et al*. 2012, 14). Community also provides labour for cooking. It is schools who receive budget from MoE and purchase the food stuff (MNK, 2012, 14). From the resource and management perspectives, GoK funds procurement of staples by traders and provides oversight.

1 Funding: financial figures and cost performance

Information on the actual expenditure and its breakdown need to be collected to carry out substantial cost and cost-performance analysis of the programme. Due to the limitation that the budget breakdown is not available as well, it is not possible to identify cost drivers and to conduct cost-performance analysis.

A frequently reported issue concerning the financial aspect of the programme is that the funding source is independent of external support but neither stable nor sufficient. In spite of the fact that GoK has constantly increased its funding for HGSM, there are always budget deficits except for the financial year 2010/11 attributable to one-year financial support from Japan (GoK 2012, 19-20). Strong desire for additional funding source from private sector, donor community, and local communities (cash and in-kind) has been discussed (GoK 2012, xi, 21).

Detailed breakdown of the entire programme cost is available in *Cost Analysis Framework (version 01)* by PCD (Gelli & Suwa 2013a).

1. Budget and costs

The following data is for the financial year of 2011/12.

1. Budget source(s)

GoK announced the projected funding of US$4,960,000 (GoK 2012, 20). However, it was also projecting US$9,372,500 deficit in the SFP budget.

2. Actual programme expenditure

N/A

3. Analysis

N/A

2. Operational indicators

1. Size of the programme

The following data listed in the table below was collected from GoK (2012, 15, 20).

Table 11 Coverage and Ration: Kenya

Year 2011/12

Coverage			Ration*		
No. of students	No. of schools	No. of feeding days	Energy (kcal)	Micronutrient content	Annual cost per student (US$)
592,638	1,800	N/A	N/A	N/A	N/A

* …There is no established menu or standard. HGSM however adopted daily hot meal ration of WFP: 150g of cereal, 40gm of pulses, 5gm of oil, and 2mg of salt.

2. Analysis

N/A

2 National policy framework

Relevant policies and strategies seem to be in place in the case of HGSM. Among them, National School Health Policy (and its guideline) appears to be the most relevant one since it outlines school nutrition services, nutrition education, school feeding, and community involvement (GoK 2012, 17).

3 Institutional framework and coordination

Figure 23 presents the comprehensive program management scheme.

Figure 22 Programme Management Structure: Kenya

Level	Function & Membership
National	•Provide guidance on policy matters. •Lobbying, advocacy and resource mobilization. •Members: Ministries of Education (chair), Agriculture, Public health, etc., and development partners.
County	•M&E, guidance and backstopping district level problems. •Regulate, co-ordinate and ensure standards in implementation of SHNM programme. •Capacity building. •Members: County sectoral officers of each ministry and cooperatives.
Sub-County	•Include in agenda meetings, health and nutrition issues as they arise. •Co-ordinate programme implementation at district level. •Advise county units. •Members: all line departments, civil society, and development partners.
	•Sectoral planning/implementation including M&E and technical assistance.

	• School feeding oversight portfolio. • Capacity building. • Members: Sub-county sectoral officers of each ministry and cooperatives.
Zonal	• Co-ordination and supervision of programme implementation at zonal /divisional levels (where applicable). • Regular monitoring/supervision of programme, providing advice to schools. • Receiving and preparing reports from schools to Sub-county Education Offices. • Capacity building of stakeholders at school level. • Members: line ministries, Area Education Officers, Zonal Quality Assurance & Standard Officers, etc.
Local	• SMC administers and manages, at school level, all facets of HGSM programme implementation, including procurement, food preparation, and reporting. • Members: SMC, SMPC (School Meals Programme Committee).

Source: GoK (2012, 18)

MoE is the nodal agency and thus responsible for implementation and finance (for food stuff and its procurement only) of HGSM (GoK 2012, 18). GoK does not have regular external dependency for its HGSM finance. Monitoring at the district level is implemented quarterly by District Education Office while school-level monitoring is done by more decentralised agencies. SMC is responsible for the SFP management at the school level including food procurement, preparation, and reporting.

In terms of coordination and institutional capacity, there is recognition that inclusion of wider range of key stakeholders is required to link education and agricultural development perspectives as well as to ensure sufficient funding for improving the sustainability of HGSM (GoK 2012).

4 Design and implementation

Supply chain modality of HGSM is, as mentioned before, decentralised. In other words, the primary meal provision activities including food procurement and preparation, and recruitment of cooks and security staff are carried out by each school while MoE and its line departments provide funding and regular monitoring. Main target of HGSM is in principle pre-primary and primary school children in semi-arid lands to improve low enrolment, high dropout and low completion rates, and short-term hunger. Local smallholder farmers and traders follow as secondary target of the programme for better productivity and income generation through fulfilling the needs of the primary target (GoK 2012, x).

Before discussing the potential for the further scale-up of the programme, however, it seems that more research has to be done to analyse the current effectiveness of the programme design and implementation to achieve the goals. For example, although GoK (2012, 23) indicates the necessity

to develop and improve the nutrition standards, it is not clear if quality, quantity, and stability of actual meal provision are appropriate and achieving the intended impact on the students. The practice of feedback reception and its impact on decision-making also need to be researched. Moreover, even though the food procurement modality is known to be competitive procurement through registered suppliers with some preference to underprivileged groups, transparency in resourcing and procurement remains unclear.

On the other hand, it is clear that HGSM does not provide any agricultural support to help smallholder farmers to meet the demand in the school feeding market (GoK 2012, 14). Since their limited capacity also hinders the farmers from registering and thus being qualified to participate in competitive bidding, agricultural assistance including extension service should be addressed for the further improvement of HGSF aspects of HGSM supply chain. On-going process of cooperation with the Ministry of Agriculture seems to be timely to meet this need.

5 Community participation

Despite the fact that community inclusion was initially out of the focus of HGSM, local autonomy in the school-level programme planning and implementation in Kenya is considerably high. It is SMC who manages 'all facets of HGSM programme implementation' (GoK 2012, xi, 14). Parental contribution in both cash and in-kind is also active for the items such as salaries for cooks and security guards, firewood, water, salt, and construction as well as maintenance of improved stoves and storage facilities (GoK 2012, 21).

Participation as food supplier has, however, not yet reached to the maximum level as discussed in <5-4 Design and implementation>. Thus, economic impact of HGSM on local economy is not significant apart from some job creation for cooks and safety guards (God 2912, 18-19). HGSM currently does not have capacity building components not only for food production but also nutrition and health condition in household all of which should be expected to increase local awareness for and participation in HGSM (GoK 2012, 22).

6 External factors

GoK (2012) does not discuss external factors which could threaten the implementation and scalability of HGSM. This issue, therefore, needs to be further studied. Price volatility of the items in the HGSM food basket, degree of imported food dependency, food security situation in the past several years of neighbouring countries, could be examples to begin with the analysis on the potential external factors of HGSM.

7 Challenges, constraints, and trade-offs

Based on the points discussed before, pronounced challenges to the HGSM supply chain could be

listed as below:

- Diversification of fund source to supplement the budget deficiency and to scale up the programme in a sustainable manner
- Establishment of ration design
- Inclusion and coordination of wider range of stakeholders, especially from two ministries (Education and Agriculture) and private sector, to better reach the goals of educational, agricultural, and local economic development
- Incorporation of capacity building component and its implementation at all levels
- Comprehensive approach to increase the linkage to small-scale farmers

These challenges, however, could only be the tip of the iceberg. More detailed study is indispensable to analyse from a variety of the programme perspectives such as levels of capacities in communication and institutional coordination, gaps between planned and actual meal provisions, impact of the programme on growth and educational performance of the students as well as local economies, and satisfaction level of the beneficiaries. HGSM supply chain will benefit from the study to improve the chain.

The points listed below constrain HGSM the most from improving or even effectively tackling the challenges above:

- Weak, if not absent, partnership between MoE and MoA
- Chronic budget deficit (65% of projected total budget for 2011/12 is likely to be deficient)

The current supply chain modality is well suited to facilitate the orientation of highly autonomous school feeding operation by the local community. It is also easier to achieve quality local food sourcing and local food culture is also more likely to be reflected in school meals. The present system could, however, be functioning on some serious trade-offs. . For example, schools could be facing a difficult task in balancing between daily operation of school meals and their principal duty: teaching. Burden on the parents should also be examined. Moreover, it is possible that the entire programme is sacrificing lower running cost and better quality which could be realised through more centralised system. Trade-offs for HGSM lay in these points.

In addition, it is worth bearing in mind that local economies do not exist in alone. Economies have a tendency to impact each other and this often results in cluster of a certain industry. However, the smallholder farmer linkage aspect of HGSM does not have a framework for the parents/community members to grow economically with the other vicinities of different schools in a locality even if it starts providing smallholder farmer support package. Thus, promotion of small-scale farmers' enterprising would need to be product-focused rather than "a school"-focused.

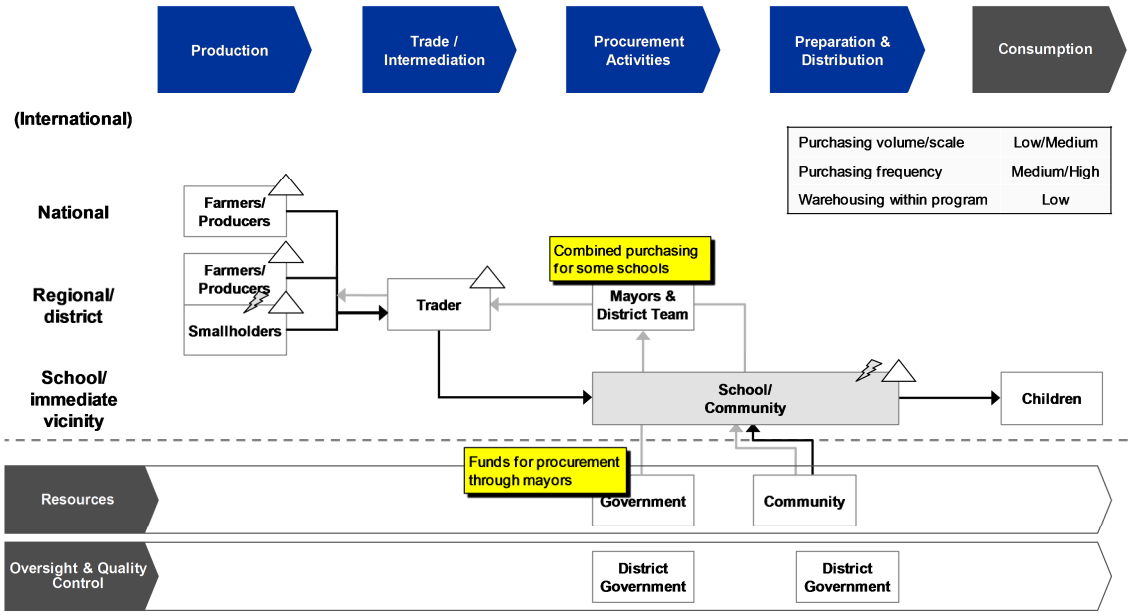
6. Country Profile: Mali

The national school feeding programme was launched in 2009 (Masset & Gelli 2012, 5). 26% of schools in food insecure zones and 15% of schools overall in Mali are covered by the different school feeding programmes by the Government of Mali (GoM), WFP, Catholic Relief Services (CRS), and others (Johnson & Janoch 2012, 34). The aims of the National Directorate for School Feeding are:

1. Create an orienting framework which harmonizes all school feeding interventions/approaches;
2. Contribute to the achievement of MDGs; and
3. Contribute to local development in the host community.

Supply chain modality is categorised as ***Semi-Decentralised Model*** and mapped as Figure 24 according to Kretschmer *et al.* (2012, 15).

Figure 23 Supply Chain Map (Semi-Decentralised Model): Mali



There is no specific emphasis on purchasing from the smallholder farmers, and main staples and cooking oil are supplied centrally (partly from WFP and CRS) whereas water, vegetables, and firewood are provided locally (Johnson & Janoch 2011, 38). Mayors at the district level are also involved in procurement process while traders function as intermediaries to organize transportation and storage (some kept at the school level). Ministry of Finance channels funds for the communes through the mayors so that communes or CGS can procure staples from the local markets when prices are the lowest (Kretschmer *et al.* 2012, 15; Masset & Gelli 2012, 5). GoM also provides funds to implement oversight at the school and the district levels. Local communities participate in the SFP by contributing labour (e.g. on a voluntary based cooks) and fresh

vegetables (Masset & Gelli 2012, 5). School-level SFP management is controlled by CGS (Kretschmer *et al*. 2012, 15).

In the Malian SFP framework, HGSF pilot will take place in order to promote purchases from small farmers. In this framework, traders and mayors will be tasked to procure food from local producers at minimum percentage whilst School Management Committees (Comités de Gestion Scolaire, CGS) will be requested to identify local suppliers and establish contacts between these suppliers and the traders (Masset & Gelli 2012, 6).

1 Funding: financial figures and cost performance

Neither breakdown of the budget source nor the information on actual expenditure is available. Gaps between planned and actual coverage (numbers of students, feeding days, and meals), actual ration design and its nutritious components, the programme's impact on job creation as well as the amount of voluntary contribution for the programme equally remain unrecorded. Thus, this study can certainly indicate that these fields should be targeted to collect the data whilst it cannot conduct meaningful cost analysis at this time.

Detailed breakdown of the entire programme cost is available in *Cost Analysis Framework (version 01)* by PCD (Gelli & Suwa 2013a).

1. Budget and costs

The following information is for the year 2011.

1. Budget source(s)

GoK allocated a total budget of 3.1 billion FCFA (US$ 5.8 million) in 2011 mainly for expenses against infrastructure construction, cooking equipment, and food stuff (Masset & Gelli 2012, 5). Other important information, such as other budget sources and the monetary value of contributions (cash and in-kind) from parents and communities need to be captured. Budget for food stuff is allocated based on the enrolment figures and the prices for staples estimated at the beginning of the academic year.

2. Actual programme expenditure

N/A

3. Analysis

N/A

2. Operational indicators

1. Size of the programme

The following data listed in the table below was collected from BIDPA (2012).

Table 12 Coverage and Ration: Mali

Year 2011/12

Coverage			Ration		
No. of students	No. of schools	No. of feeding days	Energy (kcal)	Micronutrient content	Annual cost per child (US$)
N/A	51*	N/A	N/A	N/A	N/A

* …The figure represents the number of primary schools in 166 most vulnerable communities whilst other partners in parallel cover 724, 120, and 25 schools (WFP, CRS, and parents-run programmes respectively) (John & Janoch 2011, 33; Masset & Gelli 2012, 5).

2. Analysis

N/A

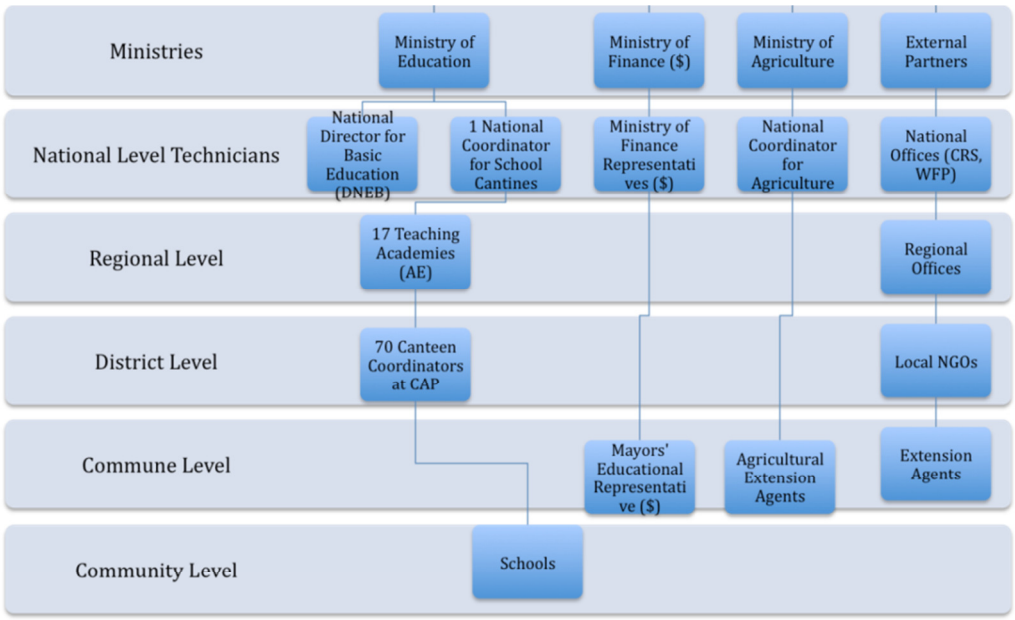
2 National policy framework

National School Feeding Policy (NSFP, 2009-) aims at improvement of educational and physical development of pupils by supporting SFP. Together with National Decentralisation Policy, NSFP support and directs the SFP implementation towards a more decentralization to the communes and CGS levels (Johnson & Janoch 2012, 35; Masset & Gelli 2012, 5). Further study is required to analyse how this policy in reality supports the effectiveness and transparency of SFP supply chain operation.

3 Institutional framework and coordination

By describing the programme management structure as Figure 25, Johnson & Janoch (2012, 34) argue that Malian SFP built the structure which would 'naturally adopt ownership of school feeding programming at the local level'.

Figure 24 Programme Management Structure: Mali



Source: Johnson & Janoch (2012, 34)

National level SFP nodal agency is CNCS (Centre National des Cantines Scolaires, National Centre for School Canteens) which is a part of the DNEB (Direction Nationale de l'Education de Base, National Directorate for Basic Education) of MoE. CAP (Centre d'Apprentissage Pedagogique, Local Centres for Pedagogic Learning), line department of MoE, directly works with seventy seven canteen coordinators (CC) at the district level as well as CGS. This might contribute to the fact that CAP is said to have a good sense of the realities in the field. CGS, on the other hand, serves day-to-day management including control over the local procurement process (human resource and food) to some extent (Johnson & Janoch 2011, 34-35).

In addition, DNCS (Direction Nationale des Cantines Scolaires, National Directorate for School Feeding) was created under NSFP to build government capacity in coordination of SFP-related efforts and services and eventually to harmonize all school feeding approaches in Mali under the same umbrella of DNCS (Johnson & Janoch 2012, 35).

According to Johnson & Janoch (2012), lack of formal and functional coordination is recognised especially at the national level. Existence of different criteria for site selection and canteen construction is one of the examples of this. Poor role recognition of each player complicates the situation further. Some signs of lack of accountability, for instance, were recorded among the mayors at the district level who are responsible for cash transfer from GoM to CGS (Johnson & Janoch 2012, 39-40). Moreover, since the Cabinet of Ministers has not signed off the creation of DNCS (as of January 2011), CNCS remains the national coordinator (Johnson & Janoch 2012, 36).

Holistic coordination and flow of management, finance, and information are vital to maintain sound operation of primary and secondary supply chain activities. Thus, these shortcomings require improvement, especially at the national level, for not only better current national SFP operation but also the harmonisation of the different programmes and scale-up for the future.

4 Design and implementation

Programme objectives, targets (i.e. school children and communities in vicinity of their schools), and the decentralised programme modalities are theoretically well aligned. However, based on the field study of 20 sample communities, Johnson & Janoch (2011) point out weaknesses in the programme scheme and implementation. First of all, fund flow seems not to be adequately informed by the realities. For example, the present system de-centralises fiscal powers to the mayors at the district level (Johnson & Janoch 2011, 39-40). In other words, once GoM sends resources, the timely and accurate fund flow then depends only on the interest of mayors. Considering this with the problem of weak role recognition, this current system might worsen the timely distribution of fund.

In addition, food procurement structure seems to require revision. Shortage in quality infrastructure (including transport, warehousing, and communication) causes major problems for centrally procured food such as delay in delivery, poor estimation of required food quantities based on rough enrolment estimation, and difficulty in quality control by communities (Johnson & Janoch 2011, 37-38). Masset & Gelli (2012, 6) report the similar problems in the food procurement by mayors. These two procurement flows also lead to the problems such as inflexibility to reflect local food culture in school meals and poor compliance with nutritional advice (Johnson & Janoch 2011, 38; Masset & Gelli 2012, 6). Moreover, the fact that smallholder farmers are not prioritized as supplier is incoherent with the programme objectives; contribution to the local economic development.

Furthermore, practice and system of M&E and feedback still fall short in full function. According to Johnson & Janoch (2011, 44), the major hindrance of substantial M&E practice is not in the M&E system but in lack of capacity at the national level. Data collection and reporting flow of CGS-CAP-CNCS/DNEB is in fact well established and practiced with 'fairly comprehensive set of indicators', but it is 'doubtful' if the limited numbers of national staff can absorb all the collected data (Johnson & Janoch 2011, 44). Additionally, it seems extremely difficult for the current educational-based M&E system to suitably capture and process agricultural measures (Johnson & Janoch 2011, 44). In terms of feedback (or rather communication), the current reporting flow allows GoM to access to the information and feedback from the community level, but not towards the communities (Johnson & Janoch 2011, 32).

Overall, Johnson & Janoch (2011, 34-35) report that all 20 sample communities express their satisfaction with the decentralised orientation of the programme. However, all of the drawbacks listed above, fund flow, procurement design, and M&E and communication flow, are vital to sound supply chain management. Lack of transparency also seems to be an issue common to the current finance and food procurement structures. GoM is surely confronting with these complex issues.

5 Community participation

Both CGS and communities demonstrate 'fairly robust' participation in school-level SFP management which even makes up for some of the deficiencies at the national-level in food procurement such as delay and insufficient delivery (Johnson & Janoch 2011, 32). Their commitment takes both cash and in-kind forms. However, community participation is limited to the school level in reality. Programme planning (e.g. programme scoping and designing interventions) is thus mostly carried out without the presence of communities.

As a local food supplier, however, participation from the community-level smallholder farmers is constrained since no small-scale farmer prioritisation is in place (Masset and Gelli 2012, 6). Furthermore, the official strategic partnership between MoE and MoA does not exist to assist local farmers to enhance productivity for becoming reliable food suppliers (Johnson & Janoch 2011, 36). Consequently, communities are still facing obstacles to take part in SFP as food item suppliers.

6 External factors

The current political instability (2012-) could possibly hamper the SFP operation, revision, and scaling-up. Other major external factors on SFP implementation, such as price volatility of the items in the food basket, degree of imported food dependency, food security situation in the past several years of neighbouring countries, should be further studied as next step.

7 Challenges, constraints, and trade-offs

Based on the points examined above, the foremost challenges for the supply chain of the Malian national SFP are:

- Insufficient coordination within the National SFP scheme and with other school feeding programmes in Mali
- Shortage of national staff in terms of numbers and capacity
- Absence of strategic partnership between MoE and MoA
- Poor self- and mutual-awareness of roles and responsibilities among some important stakeholders of the programme
- Structure of fund distribution which is individual-dependent without a system of supervision
- Non-optimised food procurement modalities with no procurement guideline

- Poor infrastructure
- Failure of community inclusion in the programme design and food sourcing

In order to achieve the maximum improvement of the current national SFP with the optimal input, the two following points seem to be the root constraints:

- Institutional coordination
- Capacity building of MoE and its line department staffs
- Partnership between MoE and MoA

Better coordination amongst stakeholders should re-organize the roles and responsibilities, duplicated roles and functions could be streamlined, and overall efficiency should be increased. DNCS seems to be best placed to play this role. This also should provide stakeholders a good opportunity to identify some missing linkages and functions in the programme, such as lack of system for transparency at different flows and levels and links between national and local levels. Capacity building of human resource of the nodal agency is indispensable for the better operation and the programme scale-up. Nevertheless, agricultural element to link the programme and local small-scale farmers cannot be accomplished without well-designed collaboration with MoA to achieve the objectives of the programme. Finally, budget deficit also could be one of the most critical constraints of the programme if it exists.

Majority of the feedback from the communities expressed that the more local-based procurement will mitigate the current problems in centrally-procured food such as late deliveries, poor quality control, and inflexible quantities while being economically more efficient (Johnson & Janoch 2012, 38-39). This voice, however, has not proven to be universally correct. Total coverage of school feeding by all school feeding approaches is, after all, still not reaching even 20%. Choice of centralised and decentralised should thus be made rather carefully depending on food item whilst considering the optimal food procurement and meal quality when the programme becomes nationwide. In addition, cost sharing by government and beneficiaries (parents of school children) should be taken into consideration in the comparison with the benefit and demerit of the universally free meal provision. In this manner, the direction of centralisation and decentralisation of Malian SFP should be meticulously decided based on domains and degrees.

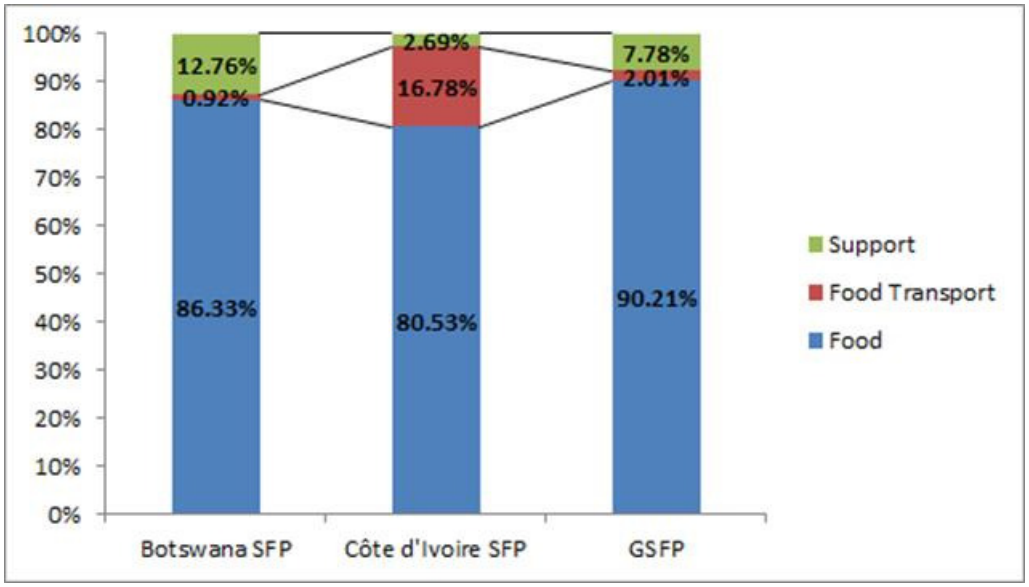
7. Key Findings & Research Agenda

By its very nature, SFP requires a very complex set of cross-disciplinary (education, health, agriculture, and local economy) and cross-sectoral approaches (public and private). Its modality becomes inevitably highly context-dependent for the programme management as well as from the point of production of quality food items to the point of regular distribution of sufficient, nutritious, and safe meals to school children. This study observed different SFPs from five countries all of which have the national will to enforce the HGSF aspect, i.e. accomplishment of dual objectives: educational development for the students via school meal provision and agro-economic development for the local communities through food supply to SFP as a market. Beyond their differences in supply chain modalities, examination of supply chain structures albeit based on limited data found some challenges in common among the five countries.

1 Findings

Although it is not possible to provide a conclusive picture, very high level cross country SFP cost analysis (among Botswana, Côte d'Ivoire, and Ghana) can be conducted to emphasize which data has to be carefully collected and the agenda for further research.

Figure 25 Breakdown of Programme Costs of 3 Selected Countries

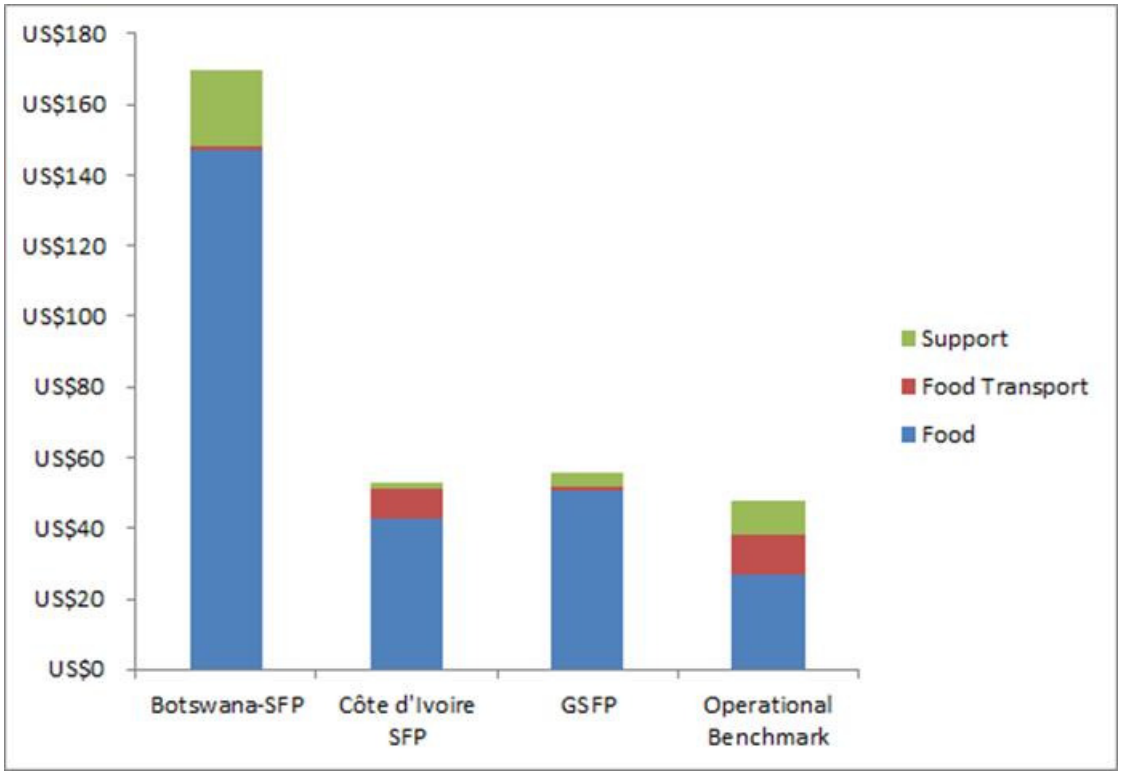


As Figure 26 displays, Côte d'Ivoire shows the highest cost portion for food transportation among the three countries. This could be attributed to the fact that Côte d'Ivoire has the most decentralised and most well-linked food supply chain system with the local farmers. Nonetheless, it is very difficult to conduct meaningful analysis for each country categorizes cost items under the different titles. More critically, none of them includes the costs spent for farmers' training or activities to facilitate better linkage between the programmes and farmers even though these play

vital roles in the HGSF framework.

Figure 27 also re-emphasises the importance of establishment of somewhat standardised cost categorisation among the countries for the purpose of cost analysis.

Figure 26 Standardised Costs vs. Operational Benchmark: 3 Selected Countries



This suggests that Botswana spends the most on the programme support activities due to its centralised modality. However, data collection and its categorisation have to be carefully implemented hereafter.

Figure 27 Nutrient Efficiency: 3 Selected Countries vs. Operational Benchmark

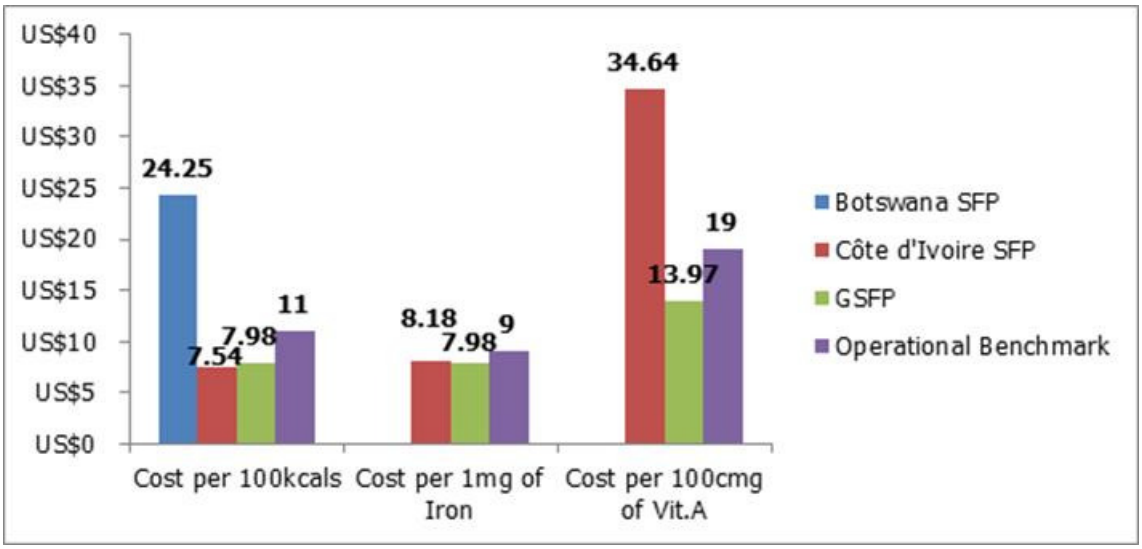


Figure 28 shows that GSFP is the only programme more efficiently (or more precisely, "less costly") providing the energy and micronutrients than the Benchmark. On the other hand, Botswana spends two times more than the Benchmark and three times more than the other two countries. This may be simply a reflection of the higher value of Motswana currency or may suggest the need to rethink its menu and food procurement system.

Figure 28 Benchmarking against School Feeding Programmes of Different Countries

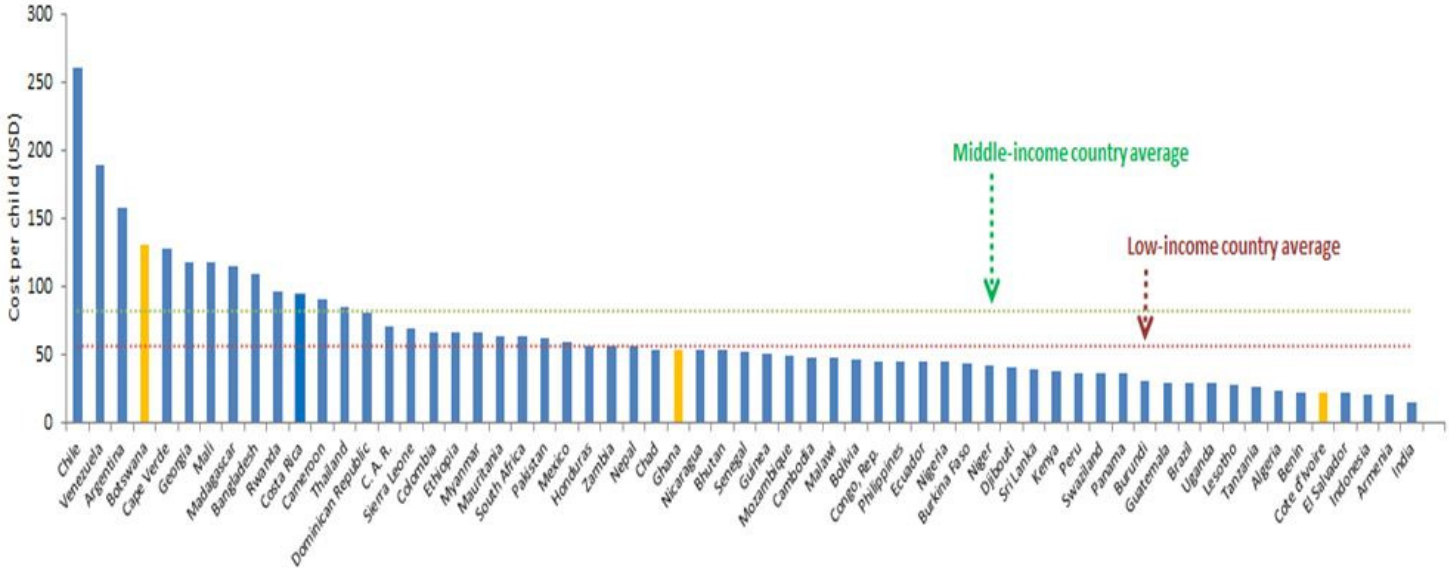


Figure 29 shows the dispersion of the cost per beneficiary of the programme in US$ among sixty-one countries. Bars in yellow indicate starting from the left Botswana, Ghana, and Côte

d'Ivoire. While Botswana shows higher cost than the average line for the middle-income countries[5], the other two countries hit lower than the average line for the low-income countries. It would lead to some interesting findings if more detailed and comprehensive data collection and well-organised analysis will be conducted not only for the three programmes but also for Kenya and Mali. It might show us how the supply chain modality affects the entire cost of the programme compared to other modalities for costs around food items is the most significant cost driver for all types of SFPs although the programme cost alone cannot be the determinant to decide the modality of one programme. Supply chain structure is a choice based on a complex set of conditions, such as food price and availability, infrastructure and geographical features of the target regions, and above all, priority of the programme objectives.

In theory, the size of the different cost components should change according to the supply chain model: centralised or decentralised. However, the difference is not too evident among Botswana, Côte d'Ivoire, and Ghana for the moment. Moreover, it seems yet too early to conduct cross programme cost-efficiency analysis and even more so for programme achievements. In order to assist decision-makers, thus, more thorough data collection and analysis are required.

On the other hand, analysis of supply chain structures (primary chain of food provision as well as the secondary chain of programme management) from different standards revealed that all five countries are facing the same three challenges as below:

1. Institutional coordination
2. Linking smallholder farmers to SFP
3. Fund shortage

Durable institutional coordination seems to be extremely difficult unless the programme has an independent nodal agency which specifically concentrates on SFP including programme and financial management, food provision and improvement of educational achievement of the students through the provision, and local food sourcing. It could still remain challenging for this agency to maintain good two-way communication and operational coordination both vertically (from the local to the national levels) and horizontally (intra- and inter-sectoral teamwork). Creating a system to guarantee transparency in finance and procurement of all kinds would also be a key task of the agency. Enabling the agency to effectively work with other ministries, private partners and development partners requires the agency to be vested with the appropriate degree of authority. Setting national policy and legal framework is thus important to support the agency and incorporate its functions in the national development plan. Establishment of such agency also

[5] According to the World Bank, the division between low and middle incomes is according to 2011 gross national income (GNI) per capita. $1,025 or less GNI per capita is categorised as low-income. The more detail is available at: http://data.worldbank.org/about/country-classifications (as of 25/June, 2013).

needs adequate number of staffs who are well trained for their services.

Inclusion of small-scale producers into SFP also has to be implemented through multi-sectoral/disciplinary approach. Raising awareness of SFP as their potential market is necessary. Before doing so, however, preparation of extension workers would be a suitable step. It is desirable to train them not only technically but also in the subject of agro-enterprising of producers and marketing in both school feeding food basket and agro-product market in general[6]. The approach should be driven by farmers' interests and products/business but not by the division of schools. Extension workers should eventually facilitate the farmers to enter the formal sector so that they can be capable of participating in SFP open bidding, besides assisting productivity improvement and enterprising. It is, therefore, an absolute prerequisite to establish well-tuned partnership of key stakeholders, especially ministries of education, agriculture, and private giants in agricultural products and their logistics. Academics and private sector also can contribute as an information source for extension workers and producers through exploratory value chain analysis of the locally produced food items. Ghana is currently in the process of exploring the ways of consumption and business potential of orange flesh sweet potatoes with a number of development partners (University of Davis, California 2010; International Potato Centre [CIP] & Helen Keller International 2012; CIP & Sweetpotato Action for Security and Health in Africa 2013).

Budget scarcity can be solved only by two ways; increasing revenue and/or decreasing spending. As Kenya has been discussing, diversification of fund resource needs to be addressed. Donor community, private sector, civil society, and parents of the students should be targeted. Expenditure management has to start from comprehension of how much fund is actually required through more accurate estimation. Sound understanding of difference between budget allocation and actual expenditure is therefore required for it will reveal a number of key findings: cost drivers, which items are likely to have a significant gap between budget estimation and actual spending, and how much budgetary change would be necessary in case when there is a change in input (costs) and/or output (programme coverage). It is equally crucial to (re)create the fund flow as simple as possible with inspection mechanism to maintain high transparency.

2 Next steps

From the point of supply chain cost-analysis, the points below constitute more substantial analysis based on the better and sound understanding of overall budget and expenditure:

1. Cultivation of the bookkeeping habit at all levels
2. Baseline (and/or endline) survey on the indices of programme achievement
3. Conduct field study to collect data

[6] Uganda Land Management Project in Uganda might be a useful example. For details see Suwa (2011).

Record of inflow and outflow of all sorts of financial activities, procurement, and food transportation, storage, and delivery is absolutely essential to carry out the analysis. It is ideal to have the unified measurement (price and quantity) among all stakeholders and unified template for bookkeeping among the stakeholders engaging with the same types of operation at least in one SFP. Development of template should be done in a participatory manner by developer, actual users, and staffs from the nodal agency who process the record collected from all levels of the programme supply chain.

Mid/long-term achievement and impact of SFP on its beneficiaries also should be measured. Some of the fields to measure against could include are: educational (e.g. enrolment, attendance, repeating year, and ideally some indices of cognitive function such as math performance and social behaviour), nutritional (caloric intake, reduction in short-term hunger, prevalence of deficiencies in micronutrients including vitamin A, iron, and iodine), and anthropometric (wasting, underweight, and stunting). For the vicinities of the target schools, there should be at least two types of indices: job creation (number of full-/part-time jobs and producer groups created through engaging with SFP, change in ratio of certified peer groups through SFP-related activities), income generation (change in income of people engaged with SFP), and agro-business (number of farmers trained through SFP-related programmes, productivity, profitability, accessibility to financial services, quantity of wastage of food products, etc.).

Data collection around budget and expenditure is the next step. Interviews and focus group discussions are also useful methods to be included if the research needs to discover stakeholders' feedback on some programme aspects, such as institutional coordination, cash transfer, programme design and implementation, school meals, small-scale farmers inclusion, and opportunities as well as constraints of their activities.

Some of the suggested research agenda were applied for the study of SNP[7] in Bangladesh conducted by the author in March 2013. Although the specifics of the study would depend on the country context, the Bangladesh example can be instructive in methodology, process, analysis and findings (see Box 1).

It will be very beneficial to programme implementation if the five countries clarify cost components and cost-performance of the programme. Strategy design for programme improvement and scale-up will be meaningful only if it will be created based on the understanding of status quo.

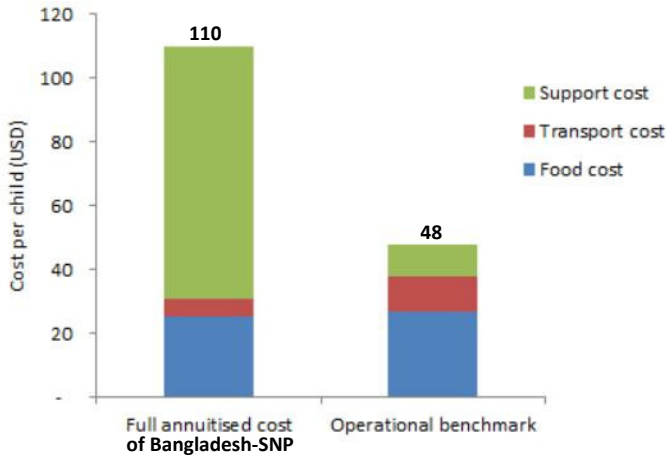
[7] It has been around 7 months since SNP started hot meal provision to all target school as of March 2013.

Box 1 Country Illustration: Bangladesh

Though still at very initial stage and thus measuring the programme impact was out of scope, the analysis on SNP in Bangladesh in March 2013 was guided by three methodologies: supply chain reference model (Kretschmer *et al.* 2012), five standards (Bundy, *et al.* 2009), and cost analysis framework (Gelli & Suwa 2013a).

This field study included interviews and focus group discussions at schools, kitchens, food provision implementing agencies, and the country office of programme managing agency. Qualitative and quantitative data was collected using semi-structured questionnaires (sample questionnaire is available in Appendix 2), covering coverage, fund management structure, procurement, preparation/delivery, distribution, infrastructure and extent of involvement. The qualitative data collection also captured more information on the challenges and constraints of achieving the various school feeding objectives and possible trade-offs among them. Cost data was collected retrospectively following an ingredients approach using a semi-structured questionnaire and financial reports. The survey was based on the standardised costing framework capturing capital and recurrent costs incurred at all levels of programme implementation. It also covered both cash and in-kind contributions and was used to estimate both financial expenditure (actual expenditures in terms of programme implementation on an annual basis) and economic expenditure (including the opportunity costs of goods and services involved in the SFP activities). Opportunity costs of school staff and community members were calculated using local pay scales.

Even though it is still too early to analyse and hypothesise the possible explanations of the result for it is still in the process of the further data collection and analysis, it tentatively displayed that SNP spares more budget on support cost (including all levels of implementation) than the operational benchmark of 61 SFPs (which usually does not include community-level costs equivalent of 5-10% extra overhead) as the bar chart below shows.



Source: Gelli & Suwa (2013b)

Appendix 1 Sample Menus

Sample menus are available from three countries; Botswana, Côte d'Ivoire, and Ghana.

Botswana

Ingredient as well as nutrition components are not mentioned.

Table 13 Sample Menu: Botswana

Day	Menu	Quantity
Monday	Porridge/sorghum	100g
	Canned beef stew	100g
		Total 200g
Tuesday	Samp	100g
	Beans	100g
	Vegetable oil	15g
		Total 215g
Wednesday	Porridge	100g
	Beans	100g
	Vegetable oil	15g
		Total 215g
Thursday	Bread	25g/slice x3
	UHT milk	340ml
	Jam	45g
	Peanut butter	45g
		Total 165g & 340ml
Friday	Porridge	100g
	Beans	100g
	Vegetable oil	15g
		Total 215g

Source: BIDPA (2012, 21)

Côte d'Ivoire

Table 14 Sample Menu: Côte d'Ivoire

Menu N°1		**Menu N°2**		**Menu N°3**		**Menu N° 4**		**Menu N° 5**		**Menu N°6**	
Peanut sauce rice enriched by dah leaves		**Thick rice enriched by legumes**		**Leaf sauce rice**		**Steamed yam with leaf sauce**		**Cassava pasta with leaf sauce**		**Ground cassava with fish**	
Ingredient	**gm**	**Ingredient**	**gm**	**Ingredient**	**gm**	**Ingredient**	**gm**	**Ingredient**	**Gm**	**Ingredient**	**gm**
Rice	150	Rice	150	Rice	150	Yam	300	Cassava pasta	300	Ground cassava	150
Peanut pasta	75	Dried fish/ beans/ Lentils	100	Potato leaves	75	Potato leaves	75	Green leaves	75	Fresh fish	50
Dah leaves	25	Dried fish	50	Dried fish	50	Dried fish	50	Dried fish	50	Vegetables*	50
Vegetables*	50	Vegetables*	50	Vegetables*	50	Vegetables*	50	Vegetables*	50	Oil	10
Dried fish	50	Oil	10	Oil	10	Red oil	10	Red oil	10	Iodized salt	5
Oil	10	Iodized salt	5	Iodized salt	5	Iodized salt	5	Iodized salt	5	Fruit	75
Iodized salt	5	Fruit	75	Fruit	75	Fruit	75	Fruit	75		
Fruit	75										

* Vegetables : tomatoes, onions, and peppers.

Source: DNC et al. (2010, 26)

Ghana

Lopatka *et. al*. (2008, 41) provide the sample menus of a week from Ashanti Region from Monday to Friday. This, however, does not provide the quantitative information of each ingredient.

Instead, Optimized Model Menus are developed for Southern and Central regions in 2008 (Northern region was excluded due to the unavailability of price data in the region) as below:

Table 15 Sample Menu: Ghana

Region	South				Central			
Age groups	4-6		7-10		4-6		7-10	
Ingredient	Quantity Per Meal	Cost in GH₵	Quantity Per Meal	Cost in GH₵	Quantity Per Meal	Cost in GH₵	Quantity Per Meal	Cost in GH₵
Cassava (cups)	1.00	0.094	1.00	0.094	1.00	0.094	1.00	0.094
Palm Oil (tb)	0.17	0.004	0.10	0.002	0.12	0.002	0.10	0.002
Cowpeas (cups)	0.74	0.117	1.50	0.245	1.50	0.151	1.50	0.245
Groundnuts (cups)	1.61	0.349	1.96	0.425	1.21	0.262	1.96	0.425
Total cost of a meal in GH₵		0.565		0.767		0.526		0.689
Nutrient	MAR*	APM**	MAR	APM	MAR	APM	MAR	APM
Energy (kcal)	567	1277	800	1595	567	1165	800	1595
Protein (g)	10	44	11	57	10	39	11	57
Vitamin A (µg)	333	642	467	467	333	515	467	467
Iron (mg)	7	7	7	8	7	7	7	8
Folate (µg)	133	405	200	616	133	515	200	616
Zinc (mg)	7	7	7	9	7	7	7	9
Calcium	333	333	533	533	333	458	533	533

*MAR …Minimum amount required

**APM …Amount provided by meal

Source: Lopatka et. al. (2008, 25-27)

Appendix 2 Sample questionnaire

Example from a questionnaire for kitchen operation implementation agencies

Interviewee Information

Please tell me about yourself in your work for the School Feeding programme:

Description of supports that your Organization provides for SNP
Description of Your responsibilities and tasks for SNP

Duration of dealing with SNP

(if applicable) Brief description of previous SNP-related experience

I. Scale

1. Number of feeding days per year, is it different for schools?
2. How many kitchens do you operate?
3. How many meals per week does the programme provide?
4. What are the components of the service per week? ⇒80 Hot meal days & 160 Processed food days? (GAIN & MPME 2012, p. 24)

E.g. 1	E.g. 2
Hot meal x6	Hot meal x5
	Processed x1

5. What do you mean by "Clustered" Kitchens (but not "Centralised" Kitchens)?

6. Please describe the operation figures of each central kitchen.

Kitchens / Locations (NGO)	Budget	Expenditure (if possible)	Schools / Locations	1-way Delivery Min/Km	No. students	No. Feeding days	Others
e.g. Kitchen A in Town B (NGO C)	500,000	500,000	School A in Town X	20min/15km	300	300	
			School B in Town Y	45min/38km	500	500	

II. Fund

1. What is the overall budget that your organization receives from the SNP? What is the process to decide that budget? Can you raise any request?
2. What are the major components of the entire budget?
3. In your organization, did you form a special office or team to participate in the SNP? If so
   a. How much did it cost for you to set it up? (capital costs)
   b. How much does it cost (annually?) for you to run the SNP, apart from the catering services? (Recurrent costs.) If possible, please illustrate the breakdown of the cost.
      i. Project support package activities (de-worming, nutrition education, safety practices)
      ii. Promotion of the community involvement/ownership (any activity example?)
      iii. Other activities?
   c. Do you have any specific format to keep a track of expenses of all sorts of SNP-related activities of your organisation?
   d. Is there usually any surplus for SNP at the end of month/term/financial year? How is it utilized?
4. How much does it cost to build and equip one kitchen on average? (**Capital** costs.) And if possible, please describe the breakdown of that capital cost per kitchen.
   a. Please describe the average equipment/facility of a kitchen. (E.g. Construction of kitchen area, oven, storage facilities, toilet block, water pump, and hand washing facilities, utensils, cutlery, stationary, etc.)
   b. Who covers the cost of the building and equipping the kitchens? What is the cost?
   c. Who designs the kitchens? How closely does it follow the guideline?
5. What is the **direct** recurrent cost per month (No. of days) or per year?
   a. Per kitchen or per cluster on average?
   b. If possible, please provide the breakdown. (E.g. Transportation, fuel for cooking, electricity, potable water, uniforms for kitchen workers, staple crops, legumes, vegetables, meat, fish, fruits, oil, condiments, other food products, drivers/deliverers, security/watchman, etc.)
6. What is the **indirect** recurrent cost per month (No. of days) or per year?
   a. Per kitchen or per cluster on average?
   b. If possible, please provide the breakdown. (E.g. maintenance for cookery, stove & chimney, storage facilities, toilet block, water pump, hand washing facilities, etc.)
7. Do you have any specific format to keep a track of expenses of the kitchens?
8. Is there usually any surplus for kitchen operations at the end of month/term/financial year? How is it utilised?
9. How much do prices fluctuate over a year? Please provide some examples if possible. How do you cope with it?

10. Does the SNP have any financial support programme for its stakeholders? (E.g. for service providers, cooks, schools, farmers, etc.) If so,
    a. What are the programmes?
    b. How often do you carry out them?
11. What is the most significant cost driver for your SNP-related activities?
12. In your opinion, is the budgetary allocation sufficient to carry out the planned activities (of either your organization or the entire programme)? If not, which part(s) of the programme suffer(s) from the scarcity? Why?

III. Management Structure

1. Is there an oversight mechanism?
    a. Who checks what parts of YOUR activities? How often?
    b. What do YOU check? How often?
    c. How much budget do you have for oversight provision?
2. What are the procedures to collect the school-level information to assess the feeding volume (e.g. enrolment figures, feeding days, etc.)?
3. Is there a feedback mechanism?
    a. How is it collected?
    b. Is the decision-making informed by the feedback?
    c. Any example of actions taken?
4. In your opinion, what are the major challenges of the overall SNP implementation?
5. In your opinion, what are the major challenges particularly for the kitchen operation?

IV. Food Procurement

1. Is frequency of purchase different for the products and/or kitchens?
2. Which product is procured from where (how far from the kitchens?) by whom?
3. How do you decide the food providers (traders, shops, markets, farmers, etc.)? Is it closely following the guideline?
4. What are the food purchasing criteria? If there are any guideline or set criteria, then, how closely is it followed?
5. Who does actually purchase food? "Administration Department" of your organization?
    a. How often? (please describe based on different types of food)
    b. Is food purchased strictly according to the menu or is there some flexibility?
6. Who brings the purchased food to the kitchens, and how?
7. How much does each product cost (ballpark cost/unit)?
8. How much money do you spend on each product per month (per kitchen/all kitchens)?
    a. Is there any gratuitous food contribution from the community or parents? If so, what do they contribute? How much in quantity and how often?

9. How many guidelines do you have for food storage? How closely are they followed?
10. Throughout the procurement (and storage) process, is there food wastage? How do you manage it?
11. What are the difficulties that your organisation is currently facing in terms of the food procurement (and storage)?
12. In your opinion, which local food products could be suitable to include in the food basket?
    a. Why? (E.g. taste, nutrition value, production, etc.)
    b. What does "local" imply in this context?
    c. Are you interested in local smallholder involvement? If so, what would you expect to achieve?

V. Preparation/Delivery

1. How many people work in the kitchens? (E.g. per cluster/kitchen on average)
2. Does running kitchen create jobs for the local community?
    a. Any example?
    b. What are their roles? (E.g. Cooking, packing, cleaning, delivery, supervising, etc.)
3. How much does your organisation pay them per day?
4. How does your organisation pay them?
    a. How often? (Daily? Monthly?)
    b. Cash? In-kind? Or receive free voluntary labour contribution from whom?
    c. How much is the national minimum wage? Is it per day?
    d. Does the payment process involve any commercial bank?
5. Are there nutrition standards?
6. Who designs the menu, and how?
7. Does the SNP have intention to reflect local food culture in the menu? If so, how is it done? Any example?
8. Please describe a model menu for one week. If possible, with a breakdown of nutrition components.
9. Do you know which menu is popular among the students and their parents? If so, how did you get to know? What are they?
10. Is there a mechanism to check the actual food basket? What do you do about the result?
11. In your opinion, what are the challenges in terms of preparing the meals?
12. Is there a mechanism to check quality and amount of food delivered? How is it done?
13. Throughout the preparation and delivery process, is there food wastage?
14. In your opinion, what are the difficulties in meal delivery?

VI. Distribution

1. Please describe the process from "receiving delivered meals" at the school level to

"distribution to the students".

a. Who are involved? If they are paid, how much do they get paid?
b. How long does it take?
c. Are the distributors trained before they start their services? If so, how long does the training last? What does the training contain?

2. How do you keep track of the numbers of meals you deliver and distribute per day? Any guideline for this?
3. Do you serve students that are not part of the SNP? If so,
   a. Do you serve them the same meals as the SNP?
   b. Do you collect fees from them? How much?
   c. How do you keep the record of different numbers served between SNP-target school children and those who are not?
4. Do the kitchens also provide dishes and cutlery along with the hot meals?
5. What is the procedure to discharge the waste after the distribution (left-over food)?
6. What is the procedure to re-collect food containers (and dishes & cutlery)?
   a. Who are involved? If they are paid, how much do they get paid?
   b. Who clean the containers and where do they clean them?
7. In your opinion, what are the challenges in the distribution stage?

VII. Infrastructure

1. What are the criteria for kitchen site selection?
   a. Geography?
   b. Ease of remodeling construction?
   c. Others (storage, cooking space, commitment from the Mother's Club, etc.)
2. In your opinion, what are the challenges in the kitchen infrastructure?
3. What are the criteria of school targeting?
   a. Geography?
   b. Poverty level?
   c. Others
4. Are there any prerequisite for schools to be selected?
   a. Hand washing facility
   b. Toilet facility
   c. Canteen / Dining area
   d. Others (storage, cooking space, commitment from the Mother's Club, etc.)
5. How much does it cost to build and maintain the hand washing facility in school, and who covers the cost?
6. How much does it cost to build and maintain the toilet facility in school, and who covers the cost?

7. How much does it cost to build and maintain a canteen (or, simply a dining area) in school, and who covers the cost?
8. In your opinion, what are the challenges in the school infrastructure?

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