

Analysis of Supply Chain Studies for Home Grown School Feeding



Procurement Governance for Home
Grown School Feeding Project

Learning Series #2

SNV

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Author's Note

This report is the result of a collaborative effort of the authors with the SNV USA staff responsible for the Procurement Governance for Home Grown School Feeding (PG-HGSF) project. To accomplish this work, school feeding supply chain analysis reports from the three project countries were used as a starting point. These reports provided the initial inputs and insights to carry out the assignment which, together with additional research and analysis resulted in this Learning Document. The in-depth discussions with Dick Commandeur, Senior Technical Advisor for the project and the architect of the project's methodology, provided us with a good understanding of the field-level realities and the practical feasibility of the different interventions in the context of national school feeding programs. To add an additional dimension of relevance to this work, insights from the literature on humanitarian supply chains and the dynamics in these supply chains have been used. The initial drafts of the document were reviewed by the SNV USA team and the country teams to validate with their first-hand experience, which resulted in further fine-tuning. We are quite confident that in its current form this Learning Document complements the project's Learning Series published by SNV very well.

The authors are grateful to everyone involved; not only for giving us an opportunity to work on this educational assignment but also for their continuous support in bringing this work to successful completion. Last but not least, we would like to thank the Bill and Melinda Gates Foundation for providing their financial support for such purposeful work related to the Procurement Governance for Home Grown School Feeding project. We are confident that this Learning Document will help to align and deepen the work of the PG-HGSF project as well as the efforts of other organisations engaged in similar endeavors.

About SNV

SNV is an international not-for-profit development organization. We believe that no-one should have to live in poverty and that all people should have the opportunity to pursue their own sustainable development.

Founded in the Netherlands nearly 50 years ago, we have built a long-term, local presence in 38 of the poorest countries in Asia, Africa and Latin America. Our global team of local and international advisors work with local partners to equip communities, businesses and organizations with the tools, knowledge and connections they need to increase their incomes and gain access to basic services – empowering them to break the cycle of poverty and guide their own development.

By sharing our specialist expertise in Agriculture, Renewable Energy, and Water, Sanitation & Hygiene, we contribute to solving some of the leading problems facing the world today—helping to find local solutions to global challenges and sowing the seeds of lasting change.

This report is based on research funded by the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation.

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List of abbreviations

ALISCO	Alimentation Scolaire (governmental school feeding programme in Mali)
B2B	Business to Business relation
B2G	Business to Government relation
CGA	Cereal Growers Association (Kenya)
CGS	School Management Committee (from French: Comité de Gestion Scolaire)
CRS	Catholic Relief Services
EAGC	Eastern Africa Grain Council
FBO	Farmer-Based Organisation
HGSF(P)	Home Grown School Feeding (Project)
MLGRD	Ministry of Local Government and Rural Development
MoA	Ministry of Agriculture
MoE	Ministry of Education
MoFA	Ministry of Food and Agriculture (Ghana)
MoH	Ministry of Health
NADMAB	National Association of Domestic Matrons and Bursars
NAFCO	National Food Buffer Stock Company (Ghana)
NCPB	National Cereals and Produce Board (Kenya)
NGO	Non-Governmental Organisation
PG-HGSF(P)	Procurement Governance for Home Grown School Feeding (project)
SF	School Feeding
SFP	School Feeding Programme
SHF	Small Holder Farmers
SME	Small and Medium Enterprise
SNV	Netherlands Development Organisation
WFP	World Food Programme



Foreword

When national Home Grown School Feeding (HGSF) programmes were established nearly 10 years ago, they contemplated benefits to farmers and producers by generating a structured and predictable demand for their products. In practice however, smallholder farmers have not been able to access HGSF programmes to the extent anticipated.

Causes for this disconnect are attributed to both the procurement side and the supply side. On the procurement end, modalities that are not suitable for smallholders, entrenched mindsets, and lack of trust characterize an environment working against the programmes' worthy goal of boosting local agriculture. On the side of the smallholder farmers, barriers to overcome include their own reluctance to meet market requirements, low productivity, weak organization, and a lack of connection with financial and non-financial services and policies that could change their mode of production.

Other barriers include the attitude of traditional suppliers to school feeding programs, who in general are reluctant to involve farmers in the supply chains, due to additional costs or just because it is not an obligation. As a result, an important source of reliable income eludes the smallholder farmer, a significant segment of the population that faces persistent poverty and limited opportunities for growth. Finally, whether it is due to poor coordination among actors or purposeful misconduct, additional inefficiencies along the supply chain result in lower quality products and services and reduce the benefit to the region's most vulnerable children, the ultimate target for these important programs.¹

The ultimate goal of SNV's Procurement Governance for Home Grown School Feeding project is to generate an increase in the amount of smallholder farmer production purchased by school feeding programs in Ghana, Kenya, and Mali. Enhancing supply chain governance and building the capacity of its actors is one of our three main objectives.

The project proposes to contribute toward the strengthening and inclusiveness of school feeding supply chains operating in the 50 participating districts where it is engaged. To this end, the initial step by the SNV country teams was to conduct a thorough supply chain analysis. The importance of knowing the supply chain: its actors, mechanisms, weaknesses, and potential, cannot be underestimated as a starting point so that project teams would work on interventions that are relevant, timely, and appropriate.

For this publication, the second in the project's Learning Series, we have been fortunate to work with Woody Maijers and Vijayender Reddy Nalla of Maijers Ketens & Innovaties B.V., who produced this analysis after conducting a review of the Supply Chain Studies conducted by the country teams. We know the insights and expert appraisal from the authors will inform our project, enrich the pilot interventions, and ultimately increase the possibilities of success. We welcome your feedback and your participation in this ongoing dialogue.



Eliana Vera
Project Manager
PG-HGSF



1. SNV. Procurement Governance for Home Grown School Feeding Programs. April, 2011. Proposal to the Bill and Melinda Gates Foundation.



Executive summary

Background: SNV USA is implementing the Procurement Governance for Home Grown School Feeding (PG-HGSF) project in Kenya, Ghana and Mali to improve small holder farmers' (SHF) access to government-led school feeding programmes. The project focuses on three areas: the procurement process, the supply chain and social accountability; for all it tries to identify opportunities for increased inclusion of small holder farmers and develops those opportunities with local stakeholders through pilot interventions at the district² level. With respect to the supply chain area of focus, PG-HGSF aims to ensure inclusion of SHF in supply chain governance for school feeding and employs agreements and transaction mechanisms that facilitate their participation while strengthening their business orientation. SHF must know when opportunities arise and how to effectively provide food products in a competitive market. At the same time, they must overcome some of the inherent distrust in their ability to provide their products with consistency in terms of quality, quantity and timeliness. In cases where SHF would not supply directly to school feeding programmes (SFPs), other supply chain actors (traders, caterers) must be convinced of the opportunities for inclusive business agreements with SHF and their organisations.

To this end, the PG-HGSF project proposes a supply chain approach that analyses all of the steps along the school feeding supply chain, from production to delivery, and introduces improvements to ensure that SHF, including female small holders, will be able to participate in the chain effectively and efficiently. The three project countries have

conducted supply chain studies (a total of 22 studies covering 11 sub-counties in Kenya, 15 districts in Ghana and 15 communes in Mali), based on a similar SNV supply chain analysis methodology previously defined by the project, to identify constraints and opportunities to enhance the inclusion of SHF. This learning document analyses the district level studies to understand the opportunities and constraints for SHF involvement in SFPs and suggests recommendations to align the supply capabilities of the SHF with the procurement governance standards of SFPs.

Objective of this learning document: Analyse the results from a representative selection of the supply chain studies for school feeding programmes in Kenya, Ghana and Mali, and make specific suggestions for interventions that can efficiently include SHF in the supply chains.

Approach of the learning document: To realise the above objectives, 11 district level school feeding supply chain studies from the three target countries were systematically analysed, alongside additional literature.



2. District is the generic term used in this document for a level of subnational government that in Ghana is called district, in Kenya sub-county and in Mali commune.



SNV Supply Chain Analysis Methodology: The SNV teams in the three countries used the same methodology (provided by SNV) for carrying out school feeding supply chain analyses at the district level (see Annex 1). The studies provide a good macro level perspective of the supply chain actors, their positioning and participatory level within the SFP, and the opportunities and constraints for SHF within the SF supply chains (macro and meso level).

Role of women: In all three countries, women have roles along the entire supply chain. Women are primarily responsible for cooking/catering activities (some reported cases up to 95 percent). They also have a role as traders in these countries. In Ghana, women have a key and in some cases a dominant role in distribution (e.g., 'market queens' play a critical role in distribution in Ghana). On the production side, women do play a role but a less significant one in comparison to the downstream links of the chain. Though clear statistics are missing from the studies, it is clear that women are well represented in the entire supply chain.

Access of small holder farmers to government led school feeding programmes: Though there are some operational differences in the way the SF supply chains are performing in different focus countries, they seem to share similarities with respect to opportunities, constraints, organisational and operational structures, etc. In most cases the SHF were not found to be directly involved in the analysed SFPs. Some SHF deliver via a trader but are not aware that they are part of the supply chain for a SFP. In all studies but for Baringo and Mwingi in Kenya, local farm-level production is sufficient to meet the quantity demands for the SFP and hence supply potential is sufficient when viewed purely in terms of volume. At the demand/institutional level of SFP, we could sense the need to raise awareness among SFPs of the importance of engaging SHF actively into the school feeding programmes.

Challenges to involving SHF in SFPs: Local farmers face the following constraints to engaging in SFPs: seasonal production, fragmented production by SHF combined with their inability to organise into performing groups or farmer-based organisations (FBOs), lack of a good understanding of the market potential and opportunities that school feeding programmes present, operational mismatch between menu ingredient demand and local production/supply, lack of organisational level standards, supply chains crowded with intermediaries, lack of business-driven institutional support and insufficient infrastructure (storage, handling & transportation), miss-aligned cash flow and incentive chain, and miss-aligned availability of funds and products. Based on the critical operating and structural constraints, we present the following elements as leading threats/challenges to the inclusion of SHF in local supply chains for school feeding:

- 1. Lack of correct information:** In most cases SHF do not have clear and correct information related to SFPs as market opportunities. In cases when there is clear information in the form of open tendering, the SHF is unable to meet the supply conditions laid out in the tender.
- 2. Demand-supply mismatch:** From a volume perspective, in most areas the SHF production potential is able to meet the demand arising from SFPs. However, seasonal availability combined with lack of infrastructure, such as transportation, packaging, and storage, creates regular demand-supply miss-match situations. On the demand side the menu is most notably adapted to the products in the open market or based on the World Food Programme standards and not on the produce from local SHF. Hence, from a SHF perspective, their limited time window of supply combined with less flexible SFP menu lead to a shortage of raw materials at the level of the school.



3. **Lack of consistent quality, safety and hygiene standards:** Quality and safety standards are not well defined, and monitoring and control procedures are not uniformly adopted and enforced. This poses huge health and safety risks for the consumers/children. The monitoring and control committees for SFPs lack proper training and are in many cases a source for corruption.
4. **Non-coordinated institutional support:** Two non-coordinated institutional bodies converge at the level of implementing home-grown school feeding (HGSF): The demand side (school feeding programme), represented by the ministry of education; and the supply side (the agriculture supply chain), represented by the ministry of agriculture, which has the main mandate to support farmers/rural development. The macro policies, meso planning and contracting, and micro level operations of both bodies are not properly aligned in the context of SFP and SHF business inclusiveness. Specifically, different institutional support programmes (rural development and SFP) are not very well aligned to enable the SHF to leverage the benefits of the SF programmes. Supply chain development is a complex multi-actor operation, necessitating proper coordination on policies and clearly defined time frames of support. The lack of proper coordination at the policy level leads to inefficiencies such as wastage of produce and higher transaction costs.
5. **Lack of access to proper finance:** At both the strategic and operational level, the SF chain is completely dependent on funds/grants from institutional bodies. Because of the irregular and seasonal allocation of funds, the chain financing for day-to-day operations is a challenge. Delays in payment lead to lack of trust among chain partners, and some SHF find that supplying to a SFP presents a higher risk than selling in the open local market.

6. **Lack of capacity for the FBOs to engage the HGSF market:** The current practice of FBOs that have developed commercial activities is to trade in grains during and around harvest time. They rely on members to aggregate the produce, wait for prices to appreciate, and look for a buyer who, in most cases, purchases all the crop. The farmers then wait for the next harvest. The HGSF market, just like any other structured demand market, requires supplies throughout the year which the SHF are not able to fulfil.

The constraints could be divided into two types: a set of constraints related to the School Feeding Programme itself, and more general supply-related constraints of the SHF (inclusive business model). This learning document discusses opportunities and constraints in further detail and suggests interventions to enable business inclusiveness possibilities for the SHF within the procurement governance framework of the SFP.

Recommendations to improve the supply chain for SHF inclusion: It is suggested to have a better look at the critical business side dimensions and interventions such as the economic incentives (costs, margins, etc.) of the essential actors (farmers, current suppliers) and the relationship dynamics that exist among different players in the chain (micro level, Business to Business (B2B)



and Business to Government (B2G)). While the economics determine the incentives and competitiveness of the SHF, the relationship dynamics bring out the level of trust and the feasibility to deploy any particular intervention to enhance the inclusion of the SHF.

The top eight of recommendations suggested in the 11 study reports can be ranked in order of how often they are mentioned (see Table 1). Though the recommendations in the reports do not pertain to increasing SHF inclusiveness per se, an important point that emerged that could be of relevance to SHF is the need to establish an inclusive business supply chain model. To create impact there is a logical order, interdependency and need for synchronisation of the different decision making bodies in their decision making processes and implementation.

Based on our own analysis, the authors propose the following interventions (both strategic and operational) which would/could enable the SHF to overcome the challenges and leverage on benefits of the SFP:

a. Understand the incentive drivers and relationship dynamics among the different actors of the chain and judge the competitiveness of the SHF in a mi-

cro business context (B2B and B2G). Taking school (micro level) as a starting point, align the demand, supply and supporting elements of the chain (education, agri-supply and finance). A clear workable business case could be useful at the level of the SHF taking all the influential actors and their roles into consideration. From the studies there are indications that SHF chains can be competitive.

b. Improving SHF production quantity and quality. Training (extension service), input supply, access to credit, etc. are essential. The farmers also need to get a more business and market-oriented attitude. The market is in the village, i.e., the school, but very often SHF are oblivious to this market opportunity. Basic marketing skills and access to the relevant information needs to be provided at the level of the farmer.

c. Create interdependencies that facilitate SHF participation in the SFP supply chain by organising SHFs into FBOs. FBOs allow for the creation of requisite organisational structures and capabilities, supporting logistics/infrastructure, quality management and control

Table 1. Top eight recommendations, ranking based on number of reported recommendations

	Recommendations and actions	# times mentioned	Effect on SHF inclusiveness
A	Information, training and extension services	9	Yes
B	Enhance productivity and product variety	8	Yes
C	Increase access to credit	7	Yes
D	Enhance business and organisational capabilities	7	Yes
E	Align storage facility utilisation to meet SF demand	6	Yes
F	Organise farmers into FBO	5	Yes
G	SFP secretariat decentralised to district levels	5	No
H	Capacity building public organisations incl. disbursement of funds	5	No



standards, and supportive partnerships. Training and capacity building for FBO board and management is essential to understand SFP requirements and how to enter SFP as a market. The FBO's role would be to support the individual farmers and translate the requirements of the SFP from a supply quality and quantity point of view. In situations where FBOs are not feasible, similar interventions (much more business driven) can be tried out at the level of local trader/s.

- d. **Motivate catering/procurement organisations to procure through organised associations.** This already exists in Ghana. A clear business case for doing so must exist to make this easier to organise.
- e. **Use institutional support to raise awareness or provide relevant information through local radio/TV/news media.** Such initiatives play a role in organising the farmers, empowering local actors including the caterer, and building relationships with traders at the national level for additional products (off season, salt, spices etc.).
- f. **Change the procurement and/or catering system from tendering to that of a longer-term contractual relationship building process that includes thorough process of screening the partners.** This way the upstream players (farmers owned) can be motivated to invest in the organisational and operational infrastructure rather than having full focus/attention on the next tender deadline. The procurement system should be competitive, and lack of compliance should be a reason for seeking a new partner.
- g. **Adapt the school feeding menu to include products available locally.** Currently, there is too much focus on commodities. We suggest considering the addition of fresh, local products to the menu.



- h. **Create business case development services that cover B2B and B2G dimensions and take a lead orchestration role in the execution/implementation of the business cases.** The analyses from the point of views of the business actors will give much better insight and options for interventions leading to sustainable involvement of SHF.

From the studies it can be concluded that school feeding programmes offer an interesting and assured market for small holder farmers that can enhance their productivity, competitiveness and income. The market is relatively secure and can offer better returns than operating in the open market, as demonstrated through two case studies in section 2.3. Furthermore, farmers could use the SFP as a stepping stone to enter potentially interesting and more secured future markets. This learning document presents concrete interventions which could make this possibility a reality.



1. Introduction

1.1. Background

The Procurement Governance for Home Grown School Feeding (PG-HGSF) project is implemented by SNV USA in Kenya, Ghana and Mali to improve small holder farmers' (SHF) access to government-led school feeding programmes. The project focuses on three topics: the procurement process, the supply chain and social accountability; for all it tries to identify opportunities for increased inclusion of small holder farmers and develops those opportunities with local stakeholders through pilot interventions at the district level. With respect to the supply chain area of focus, PG-HGSF aims to ensure inclusion of SHF in supply chain governance for school feeding and employs agreements and transaction mechanisms that facilitate their participation while strengthening business orientation.

The project proposes to reach an estimated 26,000 SHFs as direct beneficiaries, tracking the increase in their participation in the HGSF market. The project is expected to indirectly benefit an estimated 78,000 additional farmers in the intervention and nearby areas who will gain information, take advantage of a more enabling market and business environment and of better practices from state and private sector buyers, thereby increasing their potential earnings. The project anticipates that at least 30 percent of the direct farmer beneficiaries will be women.

1.2. Approach of the learning document

Objective of this learning document

The objective of this learning document is to analyse the results of 11 selected district-level supply chain studies for school feeding

Table 2. Reports used for analysing the school feeding programmes (see Annex 2)

Report	District/County	Country
1	Baringo	Kenya
2	Elegeyo Marakwat	Kenya
3	Mwingi Central and East Districts	Kenya
4	Narok County	Kenya
5	Laikipia	Kenya
6	GA South	Ghana
7	GA East	Ghana
8	Builsa	Ghana
9	B.Yunyoo	Ghana
10	Nadwoli Kaleo	Ghana
11	General for the national school feeding programme (ALISCO)	Mali



programmes in Kenya, Ghana and Mali (see Table 2), and provide specific suggestions for interventions that will help supply chains to be more efficient and more inclusive of small holder farmers.

Approach of the learning document

Each of the 11 supply chain studies analysed used a research methodology framework provided by SNV and have carried out supportive field level investigations. These reports along with additional literature^{3,4} have been systematically analysed to determine the feasibility and promising approaches for involving SHF in SFPs.

1.3. Content of the document

Section 2 discusses the SNV supply chain methodology to create a base for interventions to improve SHF inclusiveness in the SFPs. Section 3 discusses the different types of government school feeding programmes and the potential effect on SHF inclusiveness. Sections 4 and 5 presents the lessons learned from the perspective of the supply chain actors of the SFP. Section 6 focusses on the ways and means to stimulate the inclusiveness of SHF within the SFP. Section 7 provides an overview of the constraints and opportunities for inclusive SFPs. Finally, Sections 8 and 9 provide conclusions and summarise the recommendations for inclusive SFPs.



3. Kretschmer, A., S. Spinler & L.N. Van Wassenhove (2012). *Supply Chain Management at Humanitarian Organizations: A Structuring Framework for Sustainable School Feeding*. Abstract INSEAD POMS 23rd Annual Conference Chicago, Illinois, U.S.A. April 20 to April 23, 2012.
4. Gelli A., K. Neeser & L. Drake (2010). *Home Grown School Feeding: linking small holder agriculture to school food provision*. PCD HGSF working paper series #1



2. Supply chain methodology implementation in three project countries

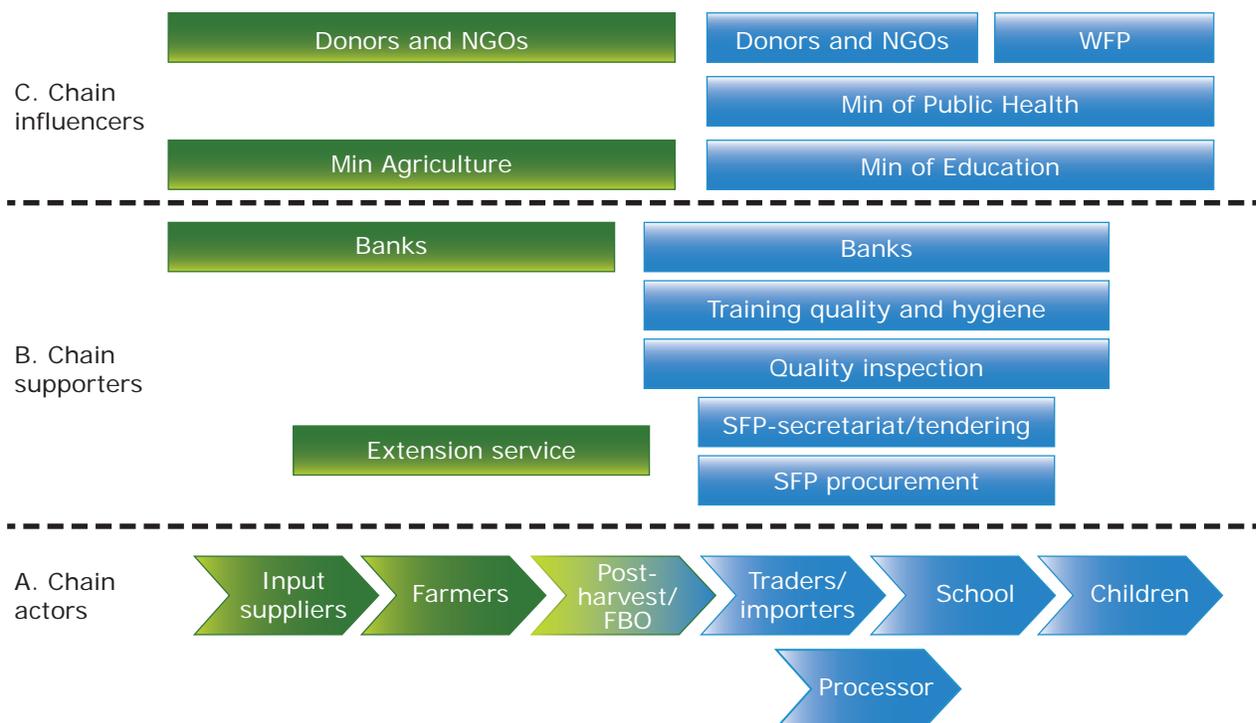
2.1. General supply chain structure

The 11 supply chain studies mapped the supply chain and the stakeholders and, while the representation of the supply chain and the names depicting stakeholders along the chain differ by country, in general their basic structure is very similar. The basic supply chain framework consists of the supply chain (actors), linked service providers and an enabling institutional environment (see Figure 1). In the case of SFPs, the public partners are not only enabling but also acting as an actor (via the tender system and financial chain). The school is the final user with the children as consumers (in this learning document,

the school will be considered as the final end user). The school kitchens/canteens in Kenya and Mali are less entrepreneurially organised than in the case of Ghana (where school feeding is contracted out to the caterer) leading to lower level of risk taking and lesser flexibility with menu and other elements.

The intriguing aspect of the SFP supply chain and network structure is that it works as two non-interactive and unaligned components: policy bodies and the bodies responsible for the design and execution of the SFP from the educational and nutrition perspective (blue in above figure), and the supply component of farmers and trader network (green). Absence

Figure 1. Chain and network structure of the different SFPs



of alignment between these two can easily lead to inefficiencies, higher transaction costs and system-based constraints.

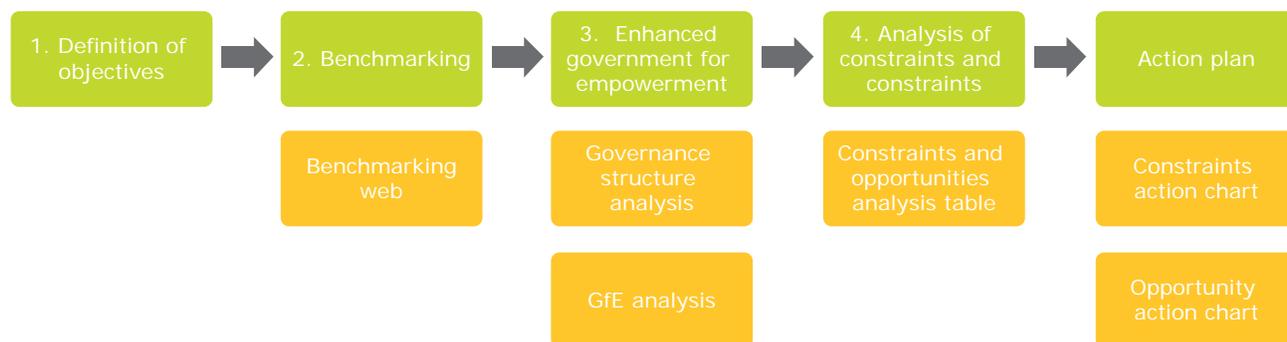
2.2. Summary of the supply chain analyses methodology

The SNV teams in the three countries used the same methodology (provided by SNV⁵) for carrying out school feeding supply chain analyses at the district level (see Annex 1 for more detail of the methodology).

The SNV methodology for supply chain analysis for school feeding consists of three phases:

- A. The supply chain study, to obtain data about the real situation of the chain, its actors and their relationships;
- B. The supply chain analysis; and
- C. The elaboration of the action plan, based on prioritisation of constraints and opportunities during the analysis.

Phases B and C strongly rely on the participation of existing and potential (e.g., FBOs) supply chain stakeholders. In the following graphic the different steps (in green) of the analysis and action planning phases are indicated and the tools used (in yellow).



SNV USA has created this methodology to understand the current level of business inclusiveness of small holder farmers and interventions that could enable more and sustained inclusion of SHF.

2.3. Justification for the SFP supply chain inclusive approach

Based on the results of the supply chain analyses, it is clear there is a large potential for local supply of SFPs. Table 3 (below) presents the price increases along the chain in two different districts of Baringo and Elegeyo in Kenya.

In Baringo, the average production cost for maize⁶ can be estimated at 30 Ksh per kilo. The farmer sells it to the local trader for a maximum price of 40 Ksh, giving the farmer a profit margin of 10 Ksh (25 percent). District and national-level traders buy from the local traders at about 50 Ksh per kilo, and they in turn then sell it to the school feeding programme at 55-65 Ksh per kilo. This example demonstrates farmers could realise an additional margin of at least 25 Ksh (250 percent) if the SF procured maize from them directly.

In the case of Elegeyo, the average production cost for maize is also estimated at 30 Ksh per

5. Supply chain analysis methodology SNV HGSP 3.2 and Monitoring framework SNV HGSP vs 3.0.

6. Maize is one of the most widely used raw materials in most of the school feeding programs.



kilo and the farmer can realise a maximum price of 35 Ksh, offering a profit margin of 5 Ksh (approximately 15 percent) when selling the produce to local traders. District and national level traders buy from the local traders at the price of 40Ksh and then sell the maize to the school feeding programme at 50 Ksh. This example demonstrates that farmers could realise an additional margin up to 15 Ksh (up to 300 percent) if the SFP procured maize from them directly.

The added margin in both cases indicates that there is sufficient economic value in pursuing SFPs as a market and taking up

the additional effort and associated costs in being able to cater to the quality, safety and other standards prescribed by the SFP.

The transportation costs are not discussed very elaborately in most studies, but in the case of Baringo (Kenya), the transportation costs are substantially higher because of its remoteness and poor roads. To give an idea of the influence of the transportation and storage costs, see Table 4. These costs could provide a competitive advantage to local farmers (organisations), who save on these transportation costs due to their proximity to traders.

Table 3. Cases demonstrating additional incentive potential in SFPs

Country & district	Production cost estimate [per KG] A	Price realised by farmer from local traders [per KG] B	Purchase price-Trader/suppliers [per KG] C	Procurement price-School [per KG] D	Additional margin for farmer when selling directly to schools (D-B)/(B-A)
Kenya-Baringo	30 Ksh	40 Ksh	50 Ksh	55-65 Ksh	250%
Kenya-Elegeyo	30 Ksh	35 Ksh	40 Ksh	50 Ksh	300%

Table 4. Overview of the different costs for maize Kenya-Mwingi Central and East Districts

Average Procurement price indications at the level of school	Procurement price for the traders	Transportation costs	Storage costs	Other transaction costs
43 Ksh/kg	23-28 Ksh/kg	3,9 Ksh/kg	2 Ksh/kg/month	13,7 Ksh/kg



3. Diversity of school feeding programmes

The school feeding programmes of the three countries have differences and similarities in aspects including: procurement structures, governance in the programmes, the role of public and private actors in the supply chain, cash flow, and quality control. Understanding the structure of the SFP is important before identifying opportunities for increased SHF involvement. This section analyses the different SFPs, and section 4 discusses the SFP supply chain structure.

3.1. Role of the ministries

In all three study countries, several ministries are involved in the SFP:

The **Ministry of Education** is responsible for the policies related to SFPs. It formulates SF policy guide, provides funds, and supervises and monitors the programme implementation. Officers in charge of the deployment of the programme work at district level. The decision to develop a SFP is made at a higher macro policy level. Based on the policy, districts and the schools are selected for the SFP. The execution is supposed to be carried out as per the SFP manual, which includes an explanation of the tender, procurement system, payment system, menu, and quality control. In Ghana and Kenya, the government decides on the menu for school feeding. However, in some cases in Ghana, caterers decide on the menu due to funds flows, price and/or foodstuff availability constraints.

Ministry of Public Health is responsible for occasional inspections to ascertain the quality of storage, food delivered and feeding conditions. This is meant to ensure that safety and nutritional requirements stipulated by the programme are met.

Ministry of Local Government and Rural Development (MLGRD) in Ghana is tasked with the responsibility of supervising and monitoring the implementation of the SFP in the districts and organising the flow of funds from national government to the district level.

Ministry of (Food and) Agriculture is focussing on agricultural policy formulation, planning and coordination. They oversee monitoring and evaluation as part of their essential services such as capacity building of farmers, promotion of farmer to market access, provision of extension services, and technology transfer. Farmer and public education and sensitisation, research into improved varieties of crops and breeds of animals, and provision of technical advice also fall within their overall goal of improved livelihoods.



3.2. Different systems of procurement

As can be seen in Table 5, the procurement process is country dependent. Kenya and Mali have a yearly tendering system in place targeted towards the suppliers of raw materials. In essence, the actual procurement can be done through the suppliers who qualify the tendering process which happens at the level of the school. However, in Ghana the tendering process is targeted towards caterers, who have the right to decide on their suppliers based on the price-quality criteria that they define. In essence, contracted caterers in Ghana are responsible to deliver a specified standard of meal while holding the right to decide on their supply sources. Mali's situation is similar to Kenya, with the addition that the districts ('communes') procure products from mainly traders.

3.3. Menu

In the programmes in Kenya, the menu is based on nutritional guidelines from the Ministry of Education or Public Health and

restricted to maize, beans and oil (see Box 1). In most cases, guidelines from the World Food Programme are used without any adaptation to local conditions or local raw material availability. Once the menu is decided at the national level, the volume of ingredients is estimated and the tendering and budget allocation process is carried out accordingly.

Ghana has a national standard for its school menus for every week day. However, caterers have the discretion to adjust based on availability of local foodstuffs and seasonality.

In Mali, the menu is decided by the school canteen management committee. Because it is easy to prepare, rice is highly preferred, although it is not produced in most regions. Local grains, like millet, are used less extensively, as well as some local vegetables and condiments, the latter mainly provided by parents.

The menu selection is one of the prime reasons for the mismatch between demand

Table 5. Different types of procurement systems and contracts in school feeding programmes

Report	Region/programme	Country	Procurement channel	Product purchasing party
1	Baringo	Kenya	Contracted suppliers	By schools
2	Elegeyo Marakwat	Kenya	Contracted suppliers	By schools
3	Mwingi Central and East Districts	Kenya	Contracted suppliers	By schools
4	Narok County	Kenya	Contracted suppliers	By schools
5	GA South	Ghana	Contracted caterers	By private caterers
6	GA East	Ghana	Contracted caterers	By private caterers
7	Builsa	Ghana	Contracted caterers	By private caterers
8	B.Yunyoo	Ghana	Contracted caterers	By private caterers
9	Nadwoli Kaleo	Ghana	Contracted caterers	By private caterers
10	ALISCO (national)	Mali	Contracted suppliers	By schools and communes



Box 1

Typical portion (Narok Kenya)

Githeri, referred to as 'enkararuma' locally, is a boiled mixture of four food components: raw dry maize, raw dry beans, vegetable oil and salt that forms the main menu under HGSFP. The recommended ratio for the mixture for a lunch plate per child children are fed 150 grams of maize, 40 grams of beans, 5 grams of oil and 3 grams of salt.

and local supply, as some ingredients are not locally available and in some cases even need to be imported. A conscientious effort to construct school menus based on locally available produce could lead to more inclusiveness of local farmers, including SHF, and lower procurement costs, as is demonstrated in some cases in Ghana.

3.4. Quality control of the delivery

In Ghana, the Ministry of Food and Agriculture supervises 30 percent of storage facilities of FBOs and 60 percent of the storage facilities of traders and caterers. In Kenya, the MoA and MoH supervise all school stores. In Mali, no supervision exists on the good use of storage facilities.

3.5. Observations and recommendations

At the level of the school (canteen)

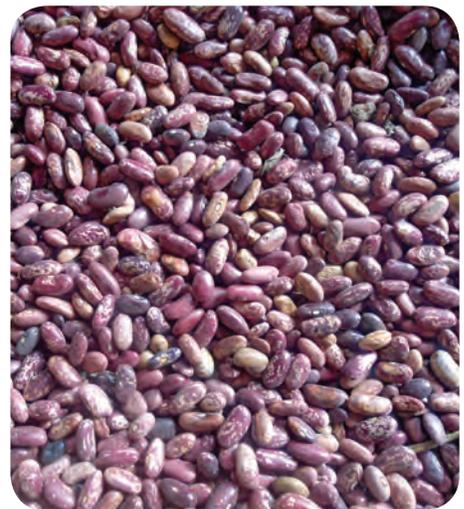
Encouraging inclusion of more local produced products in the menus will be helpful. During the trainings of the school canteen management, 'How to use local products' could be a part of the training.

Localised menu

The entry point of a well-designed menu is the key entry point for the discussion. The menu could be designed based on nutritional requirements, local preferences and production options, available infrastructures [storage, processing and transportation] and cooking and preparing process.

Aligned and synchronised cash flow

Almost all studies show a clear problem of delayed disbursement of funds from the government to the SFP, leading to a serious operational challenge at all levels in the supply chain. Due to delayed payments, the actors in the supply chain need to have access to credits. This leads to higher costs and excluding SHF and FBOs.



4. Supply chain actors and their positioning

The core processes in the supply chain of the SFP include input supply, primary production (farm level), post-harvest handling, transportation, storage, import and food processing (milling). All these supply chain actors are important to ensure a good supply to the school for meal preparation and delivery to the school children. In most cases different actors manage these different processes. This means six to eight different actors are involved in the supply chain of a school feeding program. Support services include extension services, training centres for school management, financial services and quality control bodies. At the institutional level, different ministries, WFP, national SFP committees and inspection bodies are involved.

In this section, the core supply chains actors, their activities and positioning are discussed in the context of the SFP.

4.1. Input Suppliers

The input suppliers are not directly linked to the SFPs but are important partners for supply chain development. Input suppliers—agro dealers—are prime suppliers of seeds, fertilizers and pesticides and have a key influence on the production output of the farmers. At this stage of development they are totally disconnected from the SFP. They are supportive to farmers. Most of these businesses are privately owned, and in some cases the Ministry of Agriculture (such as the case of Baringo Kenya, discussed in Box 2) supplies seeds and other elements to enhance productivity at subsidised prices. Inputs constitute substantial value of the total production costs for the farmers and most importantly also have an impact on the quality of the produce. In the case of

Baringo and Elegeyo Marakwet (both districts of Kenya), inputs constitute up to 50 percent of the total production costs for farmers. In both these cases, input costs are cited as the primary reason that produce from Uganda is more competitive than the local produce within Kenya. Input costs also influence the competitiveness of the farmers substantially in Ghana. In all cases analysed there, the individual farmer is responsible for purchasing inputs, which can reduce his bargaining power with respect to both price and quality due to a lack of support and adequate information on prices. In several cases analysed, input suppliers offer extension services to the farmers as a means to gain individual farmer loyalty. Organising the farmers to get a better bargaining position is an option to lower the costs. An FBO is very well positioned to organise such a service and in many cases be the stepping stone for organising farmers because they can benefit directly from the FBO. The Ministry of Food and Agriculture (MoFA) and non-governmental organisations



Box 2

Channels of input supply, Baringo Kenya (as presented in the Baringo Kenya study)

The main input supplier for maize is Kenya Seed Company Limited, which distributes through the National Cereals and Produce Board (NCPB) and agro-vets and is the only source of supply for Single Super Phosphate (SSP) fertilizer in the nearby urban centres and Kabarnet town. Fertilizer and pesticides are the main items that farmers buy from input suppliers. The local agro-vets are the main source of other farm requirements such as gunny bags and farm equipment. While the cost of fertilizer remains high in the distribution outlets run by commercial businesses, there is also the risk of purchasing adulterated fertilizers.

NCPB assists farmers to access fertilizer at a reduced cost thereby reducing the cost of producing a bag of maize. The board sells at a price of Ksh 2,000 compared to between Ksh 3,500 and Ksh 4,000 in commercial outlets. The farmers are required to be vetted by the Ministry of Agriculture officers to ascertain the farmer's acreage and the type of crop to be planted. The officer will then issue a Government Subsidised Fertilizer Voucher which shows the farmer's county, division, location, sub-location and the farm size. It will also show the crop, type of fertilizer, and number of bags applied for by the farmer. Once the Agricultural Officer issues the Government Subsidised Fertilizer Voucher, the manager of NCPB in the respective area countersigns so that the farmer can pay at the bank. When the farmer brings a bank deposit slip, a cash receipt is given along with the fertilizer. According to NCPB, issuance of fertilizer is supposed to take place immediately but there are sundry challenges which normally cause delays, such as lack of fertilizer at the depot arising from lengthy government procurement processes. According to the farmers, more often than not, most fertilizers arrive after the onset of the rains and the planting season, resulting in late planting.

(NGOs) could help ensure that farmers have access to credit facilities, which can enhance the quality and productivity of farmers' produce.

The input supply case of Baringo is presented in Box 2 below as an example of input supply (to farmers). This example indicates supply through both private and subsidised channels.

4.2. Farmers

The position of the farmers in the supply chain of SFPs is rather complex. As indicated in the earlier section, many farmers are not aware they are the base of the SFP supplies. Traders buy the goods from farmers and distribute the products without the farmers knowing the consumption/market channels. In essence, from a SHF's point of view, the SFP is one of the unleashed market opportunities. The following topics have been identified to get a better understanding of

the SHF's position in the (future) supply chain of the SFP: characteristics of the SHF, market approach, organisation of Farmer Based Organisations (FBOs) and flexibility of the farmer.

Diversity in the characteristics of SHF

SHFs carry out the bulk of the production of foodstuffs at the district level, mostly in leased out farm lands. For example, in Baringo (Kenya), only 25 percent of the cultivation is in owned farms, and up to 45 percent of the farmers hold farm land of less than 0.5 acre. However, there is a correlation between the size and location of the farmers and their ability to access school feeding programmes. For example, in some districts, farmers are remote and scattered due to the limited natural production possibilities, making it difficult for them to access means of selling their products to SFPs. Larger farms, on the other hand, have the capacity to manage input supply and sales activities



more professionally, allowing them to more successfully offer their products to SFPs. Small farmers can look into the feasibility of working with these large farmers and benefit from their buying power.

Farmers look at different options before deciding on the type of products and

quantities to produce. The evaluation of different options depends very much on the optimisation of the income, which is a trade-off among four different but interrelated parameters, namely the yield, price, costs, and risk (input, production and nature, and market acceptance and price). From a market

Box 3

Warehouse Receipt System (WRS), Mwingi Kenya

The WRS consists of handing over a delivery certificate to farmers at the store gate, which they can use to receive credit from the bank. On selling the product in bulk, the debt for the credit is repaid directly and deducted from the final payment to the farmer.

Several aspects of the Kasikeu Multi-purpose Cooperative Society in Makueni district and the Emali stores based in Sultan Hamoud are contributing to SHF's successful marketing of grains and can serve to inform interventions on Mwingi HGSFP:

- The grain stores are certified by the East African Growers Council (EAGC). The certification assures that the grains are stored in the recommended structure; they meet high standards (fair average grades); and the use of proper post-harvest handling practices, with respect to cleaning, moisture testing, fumigation, packaging and use of pallets. EAGC also guides members on insurance, policy issues, mobilisation and governance among producers.
- EAGC confers certification to stores according to four categories (A, B, C, and D) in order of their capacity to maintain high quality standards of the products. Kasikeu ranks at the lower end thus certified under category D. Adherence to certification standards is enforced through strict penalties. EAGC certification is also specific to the kinds of products certified, due to quality considerations. Thus stores in Makueni are certified for pulses, while stores in the North Rift (e.g., Mama Millers in Trans Nzoia) are certified for maize.
- Kasikeu cooperative's WRS marketing approach was able to achieve bulking of a total of 1,138 bags (90-Kg) of produce from 2,000 small holder farmers during the July/August harvesting season, consisting of pigeon peas (524 bags), green grams (307 bags), cowpeas (283 bags) and sorghum (24 bags). Bulking was accomplished by having 13 smaller aggregation centres which collect to two main stores. After a storage period of three months, the produce prices had improved by 40-60 percent. For example, pigeon peas prices improved from Ksh 70 to Ksh 100, and beans fetched Ksh 130 per Kg against Ksh 80 at time of harvesting. The better prices are attributed to bulked product volumes, higher quality and better market linkages through EAGC.

This case makes clear the solution to organise the chain is complex and should be detailed from a business perspective to make sure the required level of sustained impact is achieved.





point of view, the farmers' family is his/her first customer and the surplus is sold in the open market mostly through local traders. Hence, depending on the risk profile of the selected product, it might (at least sometimes) lead to extra income.

Market approach

Most SHF carry out post-harvest marketing and distribution on their own. In most cases this means that they bring surplus production (after allocating for their own consumption needs) to the local market to sell the produce to the traders who are most easily accessible to them. In some districts, the farmers are geographically located close to each other and also to the market. Wherever feasible, this can be used as a good base for local collection centres with storage, cleaning and even milling facilities.

Farmer-based organisations (FBOs)

The FBO has a crucial role in creating a strong position for the individual farmers related to input supply, bulking, post-harvest support and access to SFPs. In almost all the cases, the FBOs were either non-existent or not organised well enough to meet the supply standards set by the school feeding programmes.

Narok County in Kenya has to some extent focussed on strengthening the FBOs to support

SHF with post-harvest handling and storage of produce. Romosha and Angata farmer associations are important FBO models, as they have demonstrated that margins for all involved actors were improved. Currently, the FBOs in Ghana, Mali and Kenya are not involved in supplying to SFPs.

A report on the baseline study and supply chain analysis of the HGSFP in the Nadowli Kaleo District by SAVE-Ghana notes that 'none of the FBOs have ever participated in SF procurement or received any training from any institution. It turns out that no institution has ever invited FBOs to any procurement process or trained them on SF supply chain related issues. Furthermore, any cases of financial support received from institutional or financial bodies to specifically cater to SFPs are not indicated.'

Flexibility of the farmer

Farmers look at different options before deciding on the type of products and quantities to produce. The evaluation of different options depends very much on the optimisation of the income, which is a trade-off among four different but interrelated parameters, namely the yield, price, costs, and risk (input, production and nature, and market acceptance and price). From a market point of view, farmers' family is his/her first customer and the surplus is sold in the open market mostly through local traders. Hence, depending on the risk profile of the selected product, it might (at least sometimes) lead to extra income.

4.3. Role of the trading partners

Traders have different functions: buying and selling, collection, transport, storage and quality control. An important element of their business model is their purchasing strategy which is to buy during the peak production season (at relatively low prices) from farmers. Subsequently, the products are stored and sold at a later period when the demand is higher than the supply offering



Box 4

Traders in Mwingi Kenya

Currently, traders are the sole suppliers to the SF programme in Mwingi districts. They are identified to tender based on having at least three years of experience in cereal business and for their experience operating cereal stores, among other requirements. The traders number more than 20, and it is a common policy among schools to change tender awardees from time to time. The major traders operate stores mainly in Mwingi town (Mwingi Central); and Nguni and Nuu market centres (Mwingi East district). The traders source maize originating from Uganda (through Busia). Other areas include Nyahururu, Sirare, Mpeketoni, and Taveta, and imports from Tanzania (through Isebania border). Beans are sourced by traders from Keroka, and also from Uganda and Tanzania.

the traders with an arbitrage opportunity. They are able to supply the SFP when the products are needed, in many cases at the beginning of the school term. While they can sometimes gain a double return on their investment, they need to take certain risk in pre-financing and take up the additional costs due to storage and spoilage. In Ghana, the government introduced the National Food Buffer Stock Company (NAFCO) as public buffer storage (see Section 4.5).

Large traders, who operate at the national level, buy products from local farmers and/or import products from neighbouring countries. These traders supply to retail markets and professional buyers like millers, national boards (like NCPB in Kenya), and small traders in deficit areas (such as Mara, Kericho, and Ukambani [Eastern province Kenya]). Two suppliers in the Narok North district not only supply cereals but also other items such as books and stationeries to the schools. Furthermore, they manage all these operations without owning any storage facilities but rather by using third party storage facilities.

The SFP is one of the many markets for the traders. Depending on the SFP, the traders compete within the programmes.

There is a difference between large national and international operating traders and small and medium enterprises (SMEs). The larger traders can have a local office or work through their head office in the capital. The traders buy the products from the farmers (local or national) to sell to the SFP or school. Many traders operating at a national level have stores for storage of foodstuffs. They hire private trucks to transport and distribute the products to schools and caterers. Due to poor road networks to remote areas of most districts, transport could be relatively expensive, inflated by up to 250 percent of a normal price. School canteens located in remote areas pay higher transport costs than those within proximity of traders' area of operation.



The need for production and supply of processed ingredients like oil and flour depends on the SF programme menu. In Mali and Ghana, milled products are used in meals. In Ghana milling is mostly carried out by SMEs. In most cases the milling is done in the local community, though not all communities have a milling facility.



4.4. At the level of the consumption/ school

In the case of Ghana, the delivery of meals to the pupils is operated by a private catering company. The caterer is willing, and even obliged, to take risk and action to organise and pre-finance the supply. In some cases the supply is obtained at the local market or even through private production.

In Kenya and Mali, the schools are responsible for managing their SFP, including preparing and feeding meals to their students. The Mali report gives a good overview of tasks/ activities that go into managing SFPs:

1. Reception and storage of food and non-food items;
2. Conducting the students attendance lists;
3. Daily sampling of food for the kitchen;
4. Preparation and distribution of meals;
5. Periodic reporting of the operations (most programmes have strict regulations for reporting);
6. Presentation of the balance sheet of operations at the end of year.

The lack of infrastructure at schools requires managers to cook during the school hours, most often outdoors in the school courtyard. The school management receives food and non-food items (kitchen utensils) from suppliers which are then sent for storage. School principals lead most of these activities. In some cases, the school also contracts a local milling actor to produce flour. The raw material for milling is delivered by the traders.

The meal preparation process in Kenya and Mali could occur in one of two ways:

1. The schools hire cooks who prepare and serve the children. Cooks are employed locally and paid from contributions of parents through supplying fuel wood, water and salary for the cooks.
2. School employees volunteer in shifts.

The SFPs have special training programmes for the managers of the school, but few caterers were trained (see Ghana example in Box 5 below). Less than half of the school management is trained (for example in Ghana-Nadwoli Kaleo, 39 percent of the managers received trainings on quality and hygiene).

Box 5

Caterers, Nadowli Ghana

To ensure quality services for the number of children who are part of SFPs, all the caterers have employed the services of an average of three full-time cooks. About 40 percent of the caterers had formal training related to the SFP covering topics such as food quality and hygiene. The key employees of the caterers (i.e., cooks, mostly women) have not received any formal training to deliver to the SFP, instead relying on the instructions of their bosses and their own household kitchen experiences over the years. This has implications on the quality of meals delivered to the children, as cooking for large numbers in a SFP is not the same as cooking a family meal.

4.5. Public infrastructure: storage and transportation

In some cases public-private initiatives are depicted as a solution to improve the effectiveness of the SF supply chains.

NAFCO

In Ghana, NAFCO was set up as a public storage and transportation entity by the Ministry of Food and Agriculture to ensure food security and to protect farmers against losses resulting from anticipated increases in production and subsequent low prices. A key objective of NAFCO is to promote the consumption of locally grown produce and to increase the local production such as rice, maize and soya. NAFCO's role is to purchase these cereals from farmers and supply state institutions. They rent warehouses in three



regions to stock food from local farmers. This way the SFP became one of the largest clients/consumers of rice produced locally. The SFP raw material is stored and after receiving an order is directly delivered to the school or caterer.

4.6. Women's participation

In each of the three countries, women have roles along the entire supply chain. In all the three countries, women are primarily responsible for cooking/catering activities (in some reported cases up to 95 percent). In Ghana, women have a key and in some cases a dominant role in trade (e.g., 'market queens' play a critical role in distribution in Ghana). Though clear data related to participation of women as traders in Kenya and Mali is not available, women are mentioned as having this role. On the production side, women do play a role but a less significant one in comparison to the downstream links of the chain. In a few cases a few crops are completely left for women to cultivate (e.g., in Kenya bean crops are cultivated by women and, in Mali, women produce rice in small areas allocated to them).

Though clear numbers are missing from the studies, it is clear that women are well represented and when evaluated at an entire supply chain level, would easily represent more than 30 percent, which is one of the targets of this project.

4.7 Observations and recommendations

Although the methodology asks for the relationship among the supply chain actors, the studies included very little information about questions such as: How are the incentives distributed in the current supply chain structure? Who sets the business rules and price? Who carries the most risk? What are the transactions among different supply chain actors and what is the cost structure associated with these transactions? What is the nature of relationships and history among the supply chain actors? While some of the studies provide a basic glimpse, most of these critical questions are unanswered.



5. Demand-supply compatibility

Understanding demand-supply compatibility is crucial to give insight into the real potential for including SHF into the SFP. To understand the demand-supply compatibility, it is important to consider compatibility not only on pure volume terms but also on other relevant criteria such as quality control and monitoring standards along the entire supply chain. Other considerations are the availability of storage and transportation infrastructure to cater to rather stable demand over the entire year, and the compatibility of financial flows for the demand and supply side partners.

5.1. Compatibility on the criteria of volume dynamics

On the production volume front, most of the studied regions appear to have the potential to supply SFPs. Farmers produce enough to sell in the market. Baringo in Kenya is an exception, as supply is insufficient to meet SFP requirements. Despite sufficient production volume overall, the operational match during the season needs attention. For example, SFP demand during the year is not stable: generally a school year is 39 weeks and during the holidays there is no demand. Among farmers, the supply during growing season is low and after harvesting high. Often the high supply period does not coincide with demand from the SFPs, necessitating storage and (simple) post-harvest processing to overcome the time mismatch.

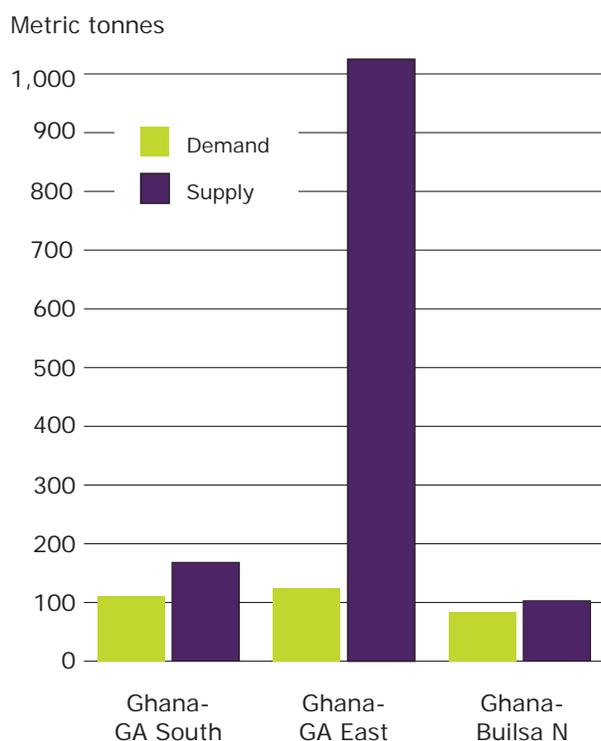
From the available data, the total SFP usage of the quantities at the district level varies between 60 metric tons (Builsa N in Ghana) to 608 metric tons (Laikipia in Kenya). On the supply or offer side, data is not presented clearly for all the studies but apart from the district of Baringo and Mwingi in Kenya it appears that, depending on the product, there is enough supply potential through local sources (Figure 2). In some cases like in

Ghana-GA East, the local production greatly exceeds the SFP needs.

In Kenya, Ministry of Agriculture programmes are in place to increase the production quantities of maize, especially in the regions of Baringo and Mwingi. In Ghana, the data suggests that there is sufficient production potential through local SHF to supply SFPs. However, apart from Builsa N district in Ghana (where the caterers purchase up to 92 percent of their total needs either directly through SHF or through local traders) most of the procurement for the SFP is carried out in the open markets which are supplied through national level traders.

Not all menu ingredients can be delivered from local sources. Oil, salt, herbs and some staple products are not produced locally though in most cases can be bought easily

Figure 2. Balance between local production (supply) and demand



locally. In Mali, parents of school children often contribute condiments. In some cases the ingredients are not available because the SFP uses non-traditional ingredients, resulting in a need to source somewhere else in the region or import. For some products it is possible to substitute ingredients using local products, though this could have consequences for the nutritional balance and affect cooking time.

Box 6

Complex mixture of ingredients: The case of Mali ALISCO

A SFP's ingredients often depend on the programme's policies and/or funding sources. For example, integrated schools with state financing are exclusively supplied with local products, which include the following:

1. Unshelled dry cereals (sorghum/millet/corn) and rice;
2. Cowpea;
3. Husked peanut;
4. Meat or livestock (cattle, small ruminants, poultry);
5. Oil;
6. Various condiments (onion, dry and smoked fish, salt, concentrated tomato cube Maggi; okra; vermicelli; spices).

Except rice, other cereals are delivered in non-shelled form and are shelled and ground at local mills. Cowpeas require no transformation at the level of schools, because they are delivered in the shelled form. Despite the presence on local markets of inexpensive seasonal vegetables such as squash, okra and tomatoes, the School Management Committee (CGS) does not seek to improve the quality of the dishes with these vegetables. The WFP and Catholic Relief Services (CRS) programmes buy the cereals (maize-sorghum-millet and rice) locally, but the rest of the food and oils are imported from the international market.

5.2. School feeding programme quality control and hygiene standards

In each of the studies it was clear that quality control standards are unevenly defined and applied. In a few cases, there is a lack of clear standards (such as GA South district in Ghana). In most cases, the quality and hygiene standards of the food for the SF programmes is well embedded in policies and handbooks but not used and enforced in practice. In Baringo in Kenya, the procurement process is tendered with clearly stipulated standards for product quality, but lack of proper storage and treatment standards leads to several food safety issues. In almost all cases, chemicals are used to treat food, which may increase food safety risks. Furthermore, hygiene is an issue in most schools due to poor cooking material and poorly trained staff.

5.3. Logistics infrastructure

Here we focus on the transportation, processing and storage infrastructure (for cost indication see Table 4 in Section 2.3). Most of the menus within the school feeding programme require very basic processing of the ingredients based on commodities. Most of the value addition (by the middlemen) is carried out in the process of de-husking, packaging and storage. Most SHF and FBOs have minimal value-adding facilities and most lack basic storage facilities, which presents a very good opportunity for the traders to buy their produce at low (and unprofitable for the farmer) prices.

Generally, only large traders have sufficient storage capacity, making them attractive vendors for the SFP. The larger traders enable SFPs (schools or caterers) to procure regularly and overcome their own storage deficiencies and seasonality challenges presented by the SHF, and to procure produce during the peak of the production at relatively low prices.





5.4. Observations and recommendations

From the conclusions and recommendations made in Section 3.5, it is clear that most of the SFP menus are designed to suit the commodity availability and handling at the national level. Adapting the menu to incorporate local production can increase the use of fresh produce/products (vegetables and fruits), enhance the nutritional value of the meals and also reduce the impact of seasonal variability between supply and demand.

Quality control and hygiene standards can be enhanced by having several measures in place. First and foremost, efforts are needed to ensure that all actors in the supply chain (especially at the school level) have all the required basic knowledge to apply quality and safety standards. They will also need access to the required tools and facilities to meet the stipulated/desired quality standards. One means to control quality could be a requirement that those responsible for school feeding consume the school feeding meals together with the children. This policy could be enforced by the SFP committees and the school management.

Basic storage and value-adding facilities (such as grading and packaging) should be made accessible for the SHF or to local traders. For the SHF, FBOs could offer the scale needed to be competitive candidates to supply SFPs. In cases where this is not feasible, local traders should be supported to supply to the SFP.

Procurement of produce at scale also offers a promising option for SHF. For example, caterer associations (National Association of Domestic Matrons and Bursars [NADMAB] in Ghana) and organisations like NAFCO in Ghana could facilitate joint procurement for a group of schools. This can ensure price, availability and usage of SHF produce in the school feeding programmes. The financing aspect could be formalised through local financial institutions to cater to financing challenges created by irregular disbursement of funds/grants.

For the SFP, traders source local, regional and international suppliers to make sure they have enough products for the whole year and a complete assortment of ingredients. Price (including cost for transport and storage), quality and quantity are critical performance indicators. Some products have travelled a lot of food miles before being cooked and consumed at the school. More transparency of food sourcing could be helpful to create awareness along the supply chain actors. For example, products might go from a farmer to a storage facility in a major town and back to the village for the SFP. This leads to higher costs, sometimes up to 2 times more expensive than direct local sourcing (based on maize, five studies Kenya), and also raises the issue of quality problems related to pest infestation, stones, dust, etc. Both the SHF and the SFP would benefit from understanding the dynamics of the supply chain in this case, which clearly reveal a mutual advantage in using a direct local sourcing arrangement rather than going through a trader.



6. Promoting SHF inclusion in supply to SFPs

Most of the current procurement for SFPs is carried out in the open market serviced by national level traders. In the case of Baringo in Kenya, less than 10 percent of the total produce managed by national level traders is from SHF; around 90 percent comes from international channels (in this case Uganda) and local large-scale farmers. National level traders dominate SFP procurement tenders, as they are able to meet the stringent criteria set up within the tendering process. However, in Ghana, where procurement is organised through school caterers, participation of SHF is relatively higher. As SNV's core objective is aligning SHF with the SFP procurement process, it is important that the procurement processes of the SFPs are aligned with the supply chain of the SHF. At the same time, SHF need to upgrade their marketability by enhancing their supply potential in terms of volume, flexibility and quality.

The different supply chain analyses came up with a variety of opportunities and constraints related to the school feeding programmes, though not necessarily with a specific focus on the SHF inclusion. Table 6 presents a summary of opportunities and constraints identified in the reports, ranked in order of



priority (with ranking determined by how often the issue is mentioned).

The discussion below focusses more on the processes that could enable SHF to align with the procurement process of the SFP.

6.1. Strengthening capacity of farmers to increase production for the market

Many farmers in the districts are still at a self-subsistence level. The first challenge is to increase their production, which mandates more inputs, cash, agronomic insights to use the inputs and to create margins, and a connection to the market to get a good price. Strengthening the production capacity (ability to produce increased volumes of goods with particular attributes appreciated by the market) entails ensuring that these goods are produced at a lower cost and meet the stipulated market requirements. This step is only feasible with a good connection to the input suppliers and market. The classic development strategies need be connected with supply chain development interventions like technical support services for post-harvest and marketing capabilities as a stimulus to enter the SFP market.

6.2. Increasing Production Volumes at the level of the farmer through FBO

The fragmented production situation (see Section 4.2) poses a challenge with respect to organising the required volumes for the SFP. Furthermore, the lack of volume limits SHF's ability to invest in growing their farming activity as a business, which would allow them to be a part of any serious and assured market (like SFPs in this case). Local



Table 6. Constraints and opportunities for SHF inclusion

Constraints	
1.	High cost of agricultural inputs, e.g. fertilizer
2.	Low productivity of farmers
3.	High price farm gate compared to regional import
4.	Lack of information about and understanding of the SFP
5.	Lack of business-oriented FBOs
6.	Lack of quality management and control mechanisms in the supply chain, such as a quality-based price system
7.	Access problems and high cost of credit facilities for farmers and FBOs
8.	Lack of a clear understanding of the economics of the supply chain
9.	Lack of clear sustainable market and business possibilities for the producer
10.	Limited capacity of farmer groups to supply SFPs
11.	Certain stringent procurement requirements to enter a SFP
12.	Irregular and inadequate flow of funds from the government to the school
13.	Poor school management
14.	Poor quality and business orientation of extension service providers and training centres
15.	Poor road network in remote areas
Opportunities	
1.	The policy mandate to support local sourcing of supply
2.	Support from the MoA to improve productivity
3.	The potential to supply the demanded quantities for the SFP
4.	Potential for producing different products in different geographical zones
5.	Current supply chains are already buying local for SFPs, though the farmer may not realise this
6.	Current supply chain inefficiency offers good opportunities for a local for local supply chain to enter this market
7.	SFPs can be a stepping stone for SHF to develop more market power or market driven capabilities
8.	Organised farmer groups might be willing to work with SHF to be involved in bulking and marketing
9.	Presence of numerous extension service providers and training centres
10.	Presence of suppliers with adequate capacity and networks to source products from other counties and districts. These suppliers are needed to supplement what local SHF could potentially provide.
11.	Subsidised fertilizer programmes and other local donor programmes
12.	Open procurement system; the school managers are interested in local procurement
13.	Availability of subsidised credit facilities and grant funds
14.	The growing HGSFP budget
15.	On-going review of HGSFP management and procurement rules



collection centres and the establishment of a business-driven FBO would be helpful to create the critical mass of produce needed to supply SFPs. The core assumption behind the inclusive business model is that vulnerable small holder farmers can be 'pulled' into and linked to specific markets and therefore successfully integrated into the local and regional economy. To succeed, SHF, or FBOs on their behalf, need to build and enhance linkages with the downstream chain actors (traders, processors) and the SFP market. SNV projects in Ethiopia⁷ show business FBOs are the key success factor for organising local logistic hubs or collection centres. The collection centre can provide farmers with inputs and advice, make a quality-based payment system feasible, and most importantly the SHF members can work with the FBO for the post-harvest processes.

The FBO can function to bridge the gap between supply fluctuations resulting from seasonal production and demand from the SFP (which is rather stable and dispersed over the period of the whole year). Assessing the feasibility of the precise role and investments needed for the establishment of a FBO is a first step.

As most of the demanded products are commodities, having storage and inventory management capabilities could offer SHF the required flexibility to stock produce and meet demand. Formation of a business-oriented FBO could present the SHF with possibilities to cater to SFP procurement demands. Training and capacity building of the board and management of the FBO in combination with the members as suppliers is essential.

Members of FBO and Cooperative Unions (individual cooperatives) need training in good governance, administration, member

support and services, marketing, funds management, requirements of the process of tendering for public procurement etc. In the case of processing (post-harvest), they also need capacity building in processing, quality control, storage and logistics.

The case in Box 7 from Narok, Kenya demonstrates the benefits that SHF can obtain by organising themselves into FBOs.

Box 7

Narok Kenya: The Benefits of Organising SHF into FBOs

Organising in FBOs allows SHF to sell to a broader scope of buyers. While individual farmers typically sell at farm gate to small traders, where they obtain a margin of 39.8 percent, maize farmers organised as FBOs enjoy the higher margins from supply contracts to WFP (56.3 percent), and from supplying schools (non-HGSFP) or other local institutions (55 percent). This difference is nil when FBOs sold to NCPB (39.3 percent).

For FBOs, selling to retailers at grain stores, or wholesalers (large traders) offers a good net return of 48.1 percent, while this is slightly reduced to 44.1 percent due to added transport costs if the FBO is selling to distant markets.

From the Web tool analysis, the ranking of the alternative marketing routes for FBOs, in order of profitability, is as listed as follows for maize:

1. Selling to WFP
2. Selling to local institutions, including both HGSFP schools and non-HGSFP schools
3. Retailing at grain stores or wholesaling to large traders
4. Selling to distant markets
5. Farm-gate retailing/selling to small traders
6. Selling to NCPB

7. Visser, P. M. Steen, J. Greiling, T. Hayesso, R. Neefjes, and H. Greijn (eds.) (2012). Pro-poor value chain development: Private sector-led innovative practices in Ethiopia, SNV Netherlands Development Organisation, Addis Ababa, Ethiopia.



6.3. Aggregated procurement

The product purchase processes in Kenya and Mali are organised by schools (through tendered suppliers) and in Ghana through caterers (see Section 3 for more details). The consequences are dispersed and small scale purchase processes. This makes the opportunity less interesting for FBOs, although it may give more possibilities for individual SHFs. Aggregating demand at county level in Kenya or at the level of a caterers association in Ghana can facilitate linkage with FBOs when larger quantities will be required. In Ghana this is more or less already in place by way of NAFCO for the rice (see section 4.5).

In Mali currently most products are bought at commune level, to be distributed to several school canteens, but because of the legal restrictions this is not directly accessible for FBOs. New policy is inducing to more procurement at the canteen level, which might give opportunities for SHF and FBOs.

6.4. Flow of resources (information, materials and finances)

The smooth functioning of a supply chain depends on the flow of three critical resources:

3. information (market opportunities, procurement criteria, product varieties and volumes, prices, quality standards etc.);
4. materials (goods including inputs, raw material, bags, chemicals, etc. along the entire supply chain);
5. funds (monetary transactions, loans and credits, SFP funds etc.).

As indicated earlier, the studies demonstrate a good flow of materials but a dearth of accurate information at almost all the links of the chain. However, the discussion on the flow of finances in relation to the transactions is missing in almost all studies. In government-led SFPs, the government body is the only source of financing in the chain.



With few exceptions, caterers in Ghana lack private financing, which threatens not only the sustainability of the SHF procurement but also the SFP itself. Traders normally give on credit to caterers, but the need to prioritise financial considerations this way limits caterer's options in selecting their supplier. For example, caterers in the SF programme in GA South district (Ghana) found that SHF were unwilling to do business with them because of payment delays (of up to 90 days), which are caused by untimely disbursement of funds. Only large traders with sufficient cash reserves can overcome the long payment periods, and they charge an extra fee for this service.

Funds flow is fairly good between financial institutions and traders/processors. This could be because the latter have a more reliable source of income than the SHF and can easily access loan facilities from the financial institutions. Their risk profile is relatively low for financial institutions because they have a volume-based business and collateral. Commerce is always less risky than agricultural production. FBOs with assets and commercial activities could cultivate these to realise similar advantages, and then play a role in facilitating access to financial institutions for SHF.



7. Overview of conclusions and recommendations from the reports

The PG-HGSF project proposes a supply chain approach that analyses all of the steps along the school feeding supply chain, from production to delivery, and introduces improvements to ensure that SHF, including female SHF, will be able to participate in the chain in an effective and efficient way.

7.1. Conclusions

The following conclusions are based on the outcome of the 11 different studies analysed for this learning document:

1. With a rare exception, SHF are not directly involved in the analysed SFPs.
2. Some farmers supply SFPs indirectly via traders but are not aware of this.
3. In each of the three countries where the studies took place, women have roles along the entire supply chain, especially at the level of the school as cooks and caterers (in a few cases up to 98 percent).
4. In Kenya and Mali, the food purchases are carried out by schools through contracted suppliers organised through a tendering process regulated at the national level; in Ghana, the tendering process is at the level of the caterers. The way they purchase the food is not regulated by a tendering process.
5. The SFP decision making chain is not organised with the objective to create an inclusive business model as evidenced by: inadequate standards such as requirements before entering the SFP as a supplier; menus that are not based on local products; a lack of transparency in the op-

erational supply chain planning, and interrupted or delayed cash flow. All of these factors hamper SHF participation in the supply chains.

6. The structure of the SFPs makes it difficult for FBO and farmers to participate in the supply chain:
 - 6.1. The menu ingredients are not all locally produced, and organising the supply requires good national and international trade connections.
 - 6.2. The tender requirements favour large traders because they generally have more experience and availability of storage and transportation facilities.
 - 6.3. The payment system has many days of delay (up to 90 days in Ghana), therefore requiring significant working capital.
 - 6.4. Focus on economies of scale and the national or district level of the SFP organisation makes it difficult to bridge on a local level.



7.2. Lessons learned, short cases

Some reports suggest interesting lessons that could be a stepping stone to develop a new and inclusive supply chain business model for SFPs.

Lesson 1: Grain business hub, Narok Kenya

FBOs can consider constructing their own store. This has been done by Ramosha. Another option would be to lease, as the Kasigeu cooperative is doing, or to rent NCPB storage.

Lesson 2: Market linkages and capacity building to attain quality standards, Narok Kenya

Experiences of the model FBO grain stores have shown that FBO members must be supported to attain quality standards such as those defined by the NCPB. The critical capacity building needs for quality assurance include:

- Certification of stores
- Training of operators on quality standards
- Equipping stores with quality testing facilities, e.g., moisture meters

Lesson 3: Establishing linkages with buyers

Experiences from the model FBOs show that stocking a grain store with quality produce leads to improved market access and prices through contracts with large buyers including development agencies such as WFP.

Lesson 4: Establishment of market information systems

For the FBOs in Narok, Kenya, development partners initially carried out market information sourcing relying on traders. Currently the FBOs participate in collection and analysis of relevant market information through their own market survey visits and other sources.

Lesson 5 Supply end arrangements for produce bulked at the grain store

Kasigeu Kenya operates as a cooperative dealing in the bulking and marketing of produce from its members who separately belong to different self-help groups. In this way it has been able to mobilise up to 2,000 farmers to cater to SFPs. On the other hand, for Romosha FA Kenya, an umbrella FBO consisting of 44 members, markets their own produce, but only tops up with produce from other non-federated FBOs if they cannot meet contracted orders. About 200 farmers have been mobilised this way.



7.3. Recommendations

The recommendations suggested in the 11 reports can be ranked in order of how often they have been mentioned (see Table 7 below). Considering these recommendations as a whole, we suggest establishing an inclusive supply chain business model based on a combination of actions that are needed to create impact. The recommendations in the supply chain analyses reports do not expressly consider impact in terms of SHF

inclusiveness. Therefore, the first step will be to structure the different recommendations along the chain actors and network stakeholders. Who should do what (see Figure 3)? This information can then be used to inform an inclusive business development plan (see Figure 4), which in turn will form the basis of an intervention plan that will ultimately open the door to greater SHF involvement in SFPs.

Table 7. Ranking based on number of reported recommendations

	Recommendations and actions	Mentioned	Effect on inclusiveness
A	Information, training and extension services	9	Yes
B	Enhance productivity and product variety	8	Yes
C	Increase access to credit	7	Yes
D	Enhancement of business and organisational capabilities	7	Yes
E	Align storage facility utilisation to meet SF demand	6	Yes
F	Organising farmers into FBO	5	Yes
G	SFP secretariat decentralised to district levels	5	No
H	Capacity building public organisations incl. disbursement of funds	5	No
I	Building farmers associations	3	Yes
J	Support FBOs for input supply	2	Yes
K	Lobby policy requirements for tender access for farmers	2	Yes
L	Improve quality inputs	2	Yes
M	Capacity building storage school	2	Yes
N	Capacity building farmers	2	Yes
O	Community involvement	1	Yes
P	Increase fund allocation per child	1	Yes
Q	Lobby county government for better roads	1	No
R	FBO collection centres and stores	1	Yes
S	Quality standard development and enforcement	1	Yes



Figure 3. Different recommendations and actions positioned in the stakeholder network

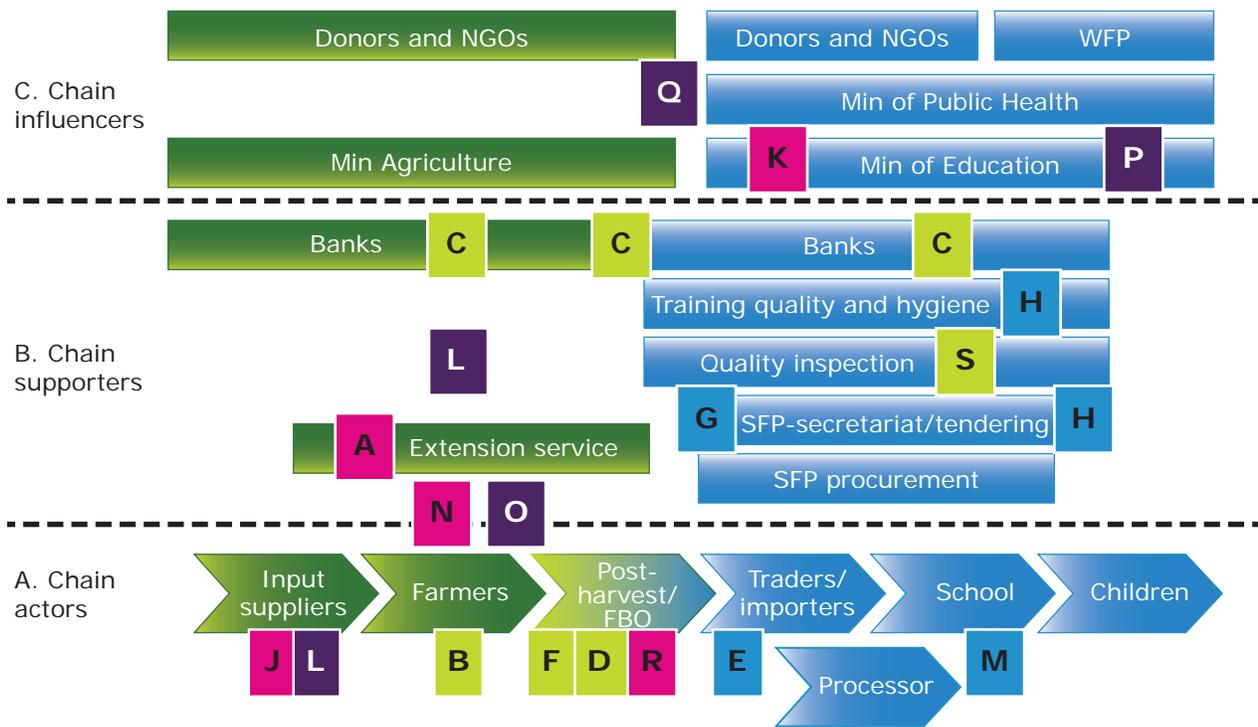


Figure 4. Estimated impact effort relation on inclusive business development



Source: Stakeholder mapping by The Partnering Initiative.



8. Recommended interventions for improved SHF inclusion in the School Feeding Supply Chains

The following are the suggested interventions (both strategic and operational) which may enable the SHF to overcome the challenges and leverage on the benefits of supplying for SFPs:

Understand the incentive drivers and relationship dynamics among the different actors of the chain and judge the competitiveness of the SHF in a micro business context (B2B and B2G).

Taking school (micro level) as a starting point, align the demand, supply and supporting elements of the chain (education, agri-supply and finance). A clear workable business case at the level of the SHF needs to be worked out, taking all the influential actors and their roles into consideration. The studies indicate that SHF chains can be competitive.

Improve SHF's skills for increased production quantity and quality.

Training (extension service), input supply, access to credits etc. are essential. The farmers also need to get a more business and market-oriented attitude. The market is in the village, i.e., the school, but very often SHF are oblivious to this market opportunity. Farmers need to acquire basic marketing skills and access to the relevant information.

Develop an efficient business model by creating interdependencies and organising SHFs into FBOs.

The FBO would provide a supportive framework for organisational structures and capabilities, a logistics infrastructure, quality management and control standards, and complementary and value-added eco-system of partnerships. Training and capacity building for board and management will be essential to understand the requirements of the SFP and how to enter the programme. The FBO's role would be to support the individual farmers and translate the requirements of the SFP with respect to supply quality and quantity. In situations where FBOs are not feasible, similar interventions can be tried out at the level of local trader/s.

Encourage the existing suppliers (traders) to develop a more locally inclusive supply model via a good business case.

The business case could focus on lower costs (lower purchasing costs because local sourcing saves on transport and coordination costs), higher quality (less waste because less transport), better quantity planning (local storage), less credit costs and more secure supply to the schools. More research and discussion with the traders is needed to make a good business case because the opportunities need to be aligned and investments are needed in capacity building and facilities.



Motivate the catering/procurement organisations to procure through organised associations (which already exist in Ghana).

Given the clear business case for doing so, this should be relatively easy to organise.

Use institutional support to create awareness and provide relevant information through local radio/TV/news media.

This support would help organise the farmers, strengthen capacity of the local actors including the caterer, and build relationship with traders at national level for non-locally sourced products (off season produce, salt, condiments etc.).

Change the procurement and/or catering system from tendering to longer-term contractual relationships that includes a process of screening partners.

This way the upstream players (farmers) can be motivated to invest in the organisational and operational infrastructure rather than having full focus/attention on the next tender deadline. Lack of compliance should be a reason for seeking a new partner and interrupting this longer-term relationship.

Adapt the school feeding menu to the availability of local products.

Currently, there is too much focus on commodities. There is a need to include or at least look into the feasibility of adding fresh local products into school menus.



ANNEX 1 Supply chain analysis methodology

The SNV teams in the three countries used the same methodology (provided by SNV⁸) for carrying out school feeding supply chain analyses at the district level. Highlights of the method follow.

This methodology for supply chain analysis to school feeding consists of three phases:

- A. The supply chain study, to obtain data about the real situation of the chain, its actors and their relationships. The study phase consists of the following steps:
 1. Defining of the end food product(s) demanded by the school feeding programmes.
 2. Identification of foodstuffs grown by local farmers that can form the main menus for school feeding in the district.
 3. Determining of the core processes in the supply chain;
 4. Mapping of the main actors involved in these processes as well as the supporting actors (e.g., financial institutions, extension services and certification).
 5. Developing of the supply chain map showing flow of goods and linkages between the primary actors and the final consumers.
 6. Validating of the mapping, together with the actors. The major goal of chain mapping is to identify what basic or important functions take

place in the supply chain, who performs these functions, how the actors are interrelated, how the product moves from conception to consumption and how enabling the environment is for this to happen.

- B. The supply chain analysis consists of the following steps:
 1. Defining of the objectives for enhancement of the supply chain
 2. Benchmarking
 3. Enhancing government for empowerment analysis. The SNV team can come with suggestion for:
 - a) How to include or improve the position of the small holder farmers in the chain?
 - b) How to enhance the chain's effectiveness (technological, economical, organisational)?
 - c) How to lower transaction costs between actors and stages of the chain?
 4. Constraints and opportunities analysis
- A. The elaboration of the action plan, based on prioritisation of constraints and opportunities during the analysis.

Phase A involves background research, while Phases B and C rely heavily on the participation of existing and potential supply chain stakeholders.

8. Supply chain analysis methodology SNV HGSF 3.2. A Word document and Excel spreadsheet Monitoring framework SNV HGSF vs 3.0.



ANNEX 2 List of used reports

Report	Region/programme	Country	Title
1	Baringo	Kenya	Supply Chain Study and Analysis for Home Grown School Feeding Programme in Baringo County, December 2012
2	Elgeyo Marakwat	Kenya	Supply Chain Study and Analysis for Home Grown School Feeding Programme in Elgeyo Marakwet region, September 2012
3	Mwingi Central and East Districts	Kenya	Supply Chain Mapping and Analysis for Home Grown School Feeding Programme, Mwingi Central & East Districts Draft Report, December 2013
4	Narok County	Kenya	Procurement Governance for Home Grown School Feeding Programme Supply Chain Analysis Report Narok County, March 29, 2013
5	Laikipia	Kenya	The Supply Chain Study for Home Grown School Feeding Programme, Laikipia region, October 3, 2013
6	GA South	Ghana	Baseline Study and Supply Chain Analysis of School Feeding Programme in the GA South municipality, June 2012
7	GA East	Ghana	Procurement Governance for Home Grown School Feeding. Report on the Baseline Study and Supply Chain Analysis of the Ghana School Feeding Programme in the GA East municipality, greater Accra region, Ghana
8	Builsa	Ghana	Procurement Governance for Home Grown School Feeding Project in Ghana. Final District Baseline and Supply Chain Analysis Report, Builsa north district–Upper East Region, July 2013
9	B.Yunyoo	Ghana	Report on District Baseline Development and Supply Chain Study and Analysis on Procurement Governance for Home Grown School Feeding Project in Ghana Bunkpurugu-Yunyoo district, July 2013
10	Nadowli Kaleo	Ghana	A Report on the Baseline Study and Supply Chain Analysis of the Home Grown School Feeding Programme (HGSFP) in the Nadowli Kaleo district, June, 2013
11	ALISCO	Mali	Rapport de l'étude sur l'analyse de la chaîne d'approvisionnement des cantines scolaires (avec un focus sur les produits locaux), Janvier 2013, Version provisoire
	Workshop report	Kenya	The Supply Chain Analysis and Action Planning Report of HGSFP Validation Workshop Ibis Hotel, Nanyuki, Kenya, 16 October 2012



SNV SMART DEVELOPMENT WORKS



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