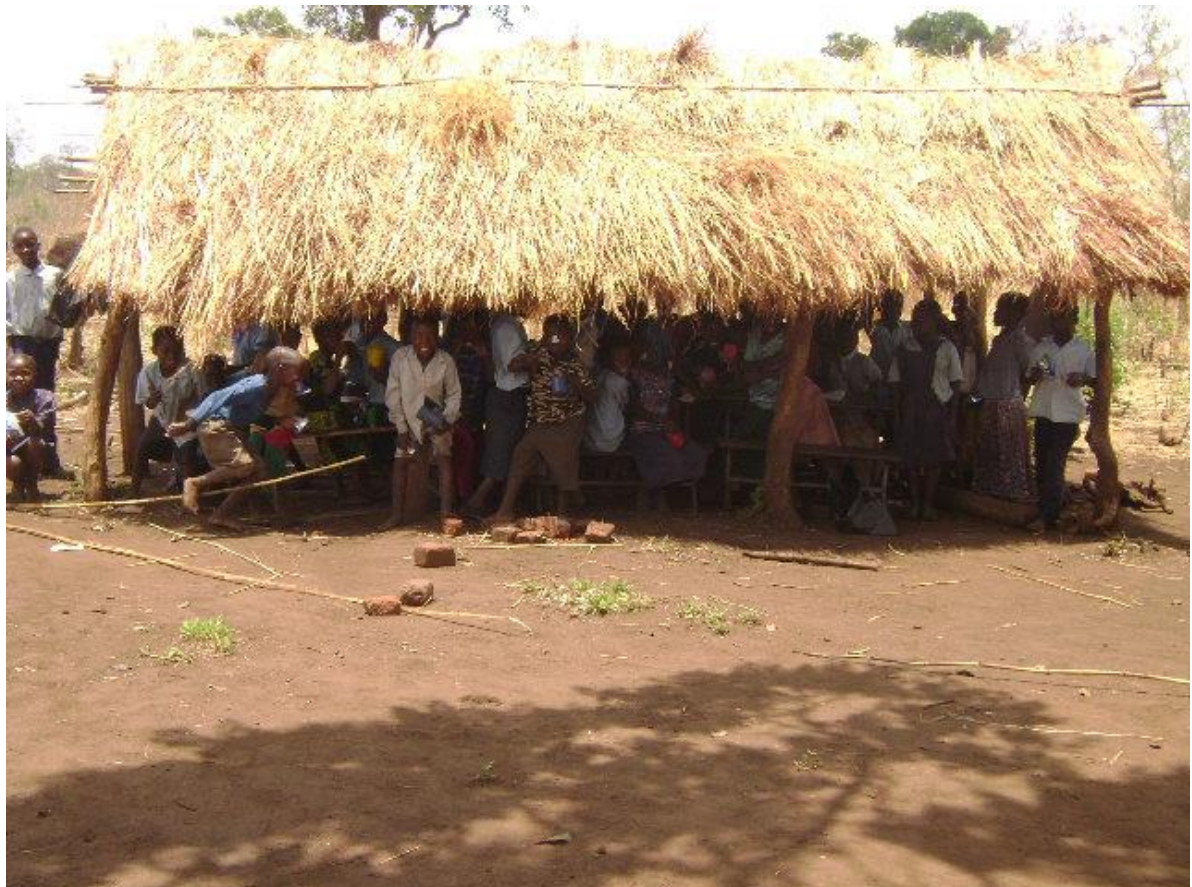


Report on School Food Production and Income Generation in Rural Schools in Zambia



Jesuit Centre for Theological Reflection.

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List of abbreviations

ABE	Assistance to Basic Education
APU	Agriculture Production Unit
CHANGES2	Community Health and Nutrition, Gender and Education Support – 2
DEBS	District Education Board Secretary
GRZ	Government of the Republic of Zambia
HEPS	High Energy Protein Supplement
IGA	Income Generating Activity
JCTR	Jesuit Centre for Theological Reflection
MoE	Ministry of Education
OVC	Orphans and Vulnerable Children
PAM	Programme Against Malnutrition
PRP	Poverty Reduction Programme
PU	Production Unit
SHN	School Health and Nutrition
WFP	World Food Programme

1. Introduction

This report summarises the outputs of the data collection and analysis undertaken during the period 19th October – 12 November 2008. This exercise was to inform the school feeding study contracted out by the Jesuit Centre for Theological Research (*JCTR*). This report will in turn inform the formulation of the school feeding manual for Zambia.

The collected data will be used for two purposes. Firstly, it will be used to document the practice of school feeding programmes and the lessons of best practice generated therein for both current and future school feeding programmes. Secondly, the data that was collected will also inform the formulation of a generic manual on school feeding programmes. This manual will contain a menu of options for school feeding programmes from which the schools can choose and adapt for their local programmes to best reflect their environment.

2. Study methodology

The study data collection was informed by the consultations that took place with Lusaka based stakeholders. The stakeholder consultations were guided by the Technical Committee set up specifically for this study. The committee is comprised of Ministry of Education (MoE), Jesuit Centre for Theological Reflection (*JCTR*), World Food Programme (WFP) and the National Food and Nutrition Commission.

The institutions consulted in Lusaka included the MoE, GTZ, Save the Children Norway, Food Security Research Project, Care International, Programme Against Malnutrition and the Zambia Civic Education Association. These consultations helped document the types of school feeding programmes currently operational in Zambia, identify the critical factors that have to be addressed during the field data collection exercise and identified the schools to be visited. The technical committee then guided the formulation of four questionnaires to be applied during the data collection exercise.

The first questionnaire was for the school administration. The second was the teachers' questionnaire. The third was the pupils' questionnaire. The fourth was the community members' questionnaire. These separate questionnaires were formulated as the different stakeholders may have different answers to the questions that are asked. As such, it was important that the various stakeholder perceptions be captured during the data collection to allow for verification of responses through triangulation.

The four questionnaires were used to collect data on the following parameters about each school feeding programme - description of the programme at school level; programme objectives; institutional arrangements; roles and responsibility of actors in each programme; the benefits accruing to each of the actors; effects of the programmes on the actors; the targeting criteria used to identify programme beneficiaries; the challenges affecting programme implementation; the lessons learned from programme implementation and the recommendations made by the actors to improve programme implementation.

A sample of twelve schools was chosen for field data collection through the Lusaka based stakeholder consultations and the discussions of the Technical Committee set-up to guide the study. The schools were chosen to represent the following types of school feeding programmes identified during the Lusaka consultations:

1. School administration driven school feeding programme, mainly supported through agricultural production units. This type of school was invariably boarding school related. These school feeding programmes are not really supplementary feeding programmes as they are designed to provide all the nutrition the pupil needs for the duration of the school term,
2. Assistance to Basic Education (ABE), i.e., GRZ/WFP supported schools,
3. Schools with supplementary feeding programmes supported by Income Generating Activities (IGAs), and
4. Schools with supplementary feeding programmes supported by the Ministry of Education using poverty reduction component of the annual budget.

The need to make the most efficient and effective utilisation of limited financial resources also influenced the geographical distribution of the schools that were visited for data collection. The geographic areas that had the higher concentration of the above combination of schools were included in the sample. As a result, a larger number of schools were visited in the Southern Province as more schools were identified representing income generating projects and Assistance to Basic Education programmes.

The data collection was undertaken in Kalomo (two IGAs), Monze (two IGAs), Gwembe (two ABEs), Siavonga (two ABEs) in Southern Province, Chibombo (one school administration driven feeding programme) and Kapiri Mposhi (one school administration driven feeding programme) in Central Province, Mpongwe (one school driven administration feeding programme) and Lufwanyama (three school driven administration feeding programmes) in the Copperbelt Province, Luangwa (two MoE supplementary school feeding programmes) in Lusaka Province and Nyimba (one MoE supplementary school feeding programmes) in Eastern Province.

In total seventeen schools were visited during the data collection exercise. These were comprised of one primary school, ten basic schools and six high schools. These schools had the following characteristics; Three were implementing the GRZ/WFP supported supplementary feeding programme, three were implementing the MoE supported supplementary feeding programmes; two were mission schools with very active agriculture production units, four were implementing income generating programmes that supported supplementary feeding and four had school administration driven production units that also supported supplementary feeding programmes. Five more schools were visited as opposed to the twelve that were initially identified during the sampling exercise. The additional schools were visited as they were close to those already identified. Eighty-five respondents were interviewed comprising of staff at the District Education Board Offices, Head Teachers, Teachers, Pupils and Community members.

The major limitation to the data collection exercise was the period during which it was undertaken. The schools were involved in the preparation of examinations for Grades 7 and 9 pupils during that period. This meant that some key respondents that should have been interviewed during the data collection were not available. There was also the problem of making appointments with some of the District Education Board Secretaries (DEBS) and the schools that were visited. In some instances, this resulted in the above failure to interview key respondents and in some reduced interaction with the focal points for the school feeding programmes in some schools.

3. Findings

This section summarises the findings of the interviews held with respondents in the districts and the seventeen schools. The tables containing the findings have deliberately not been summarised so that the reader can get a feel of what is taking place on the ground.

3.1. Description of the programmes

The classification of the programmes below is purely illustrative as most of the schools visited have Agriculture Production Units (APUs) and some also either have the GRZ/WFP supplementary feeding programme or the one supported by the MoE. It should also be noted that the APUs in the school administration driven programme and the mission schools are mostly similar but differ in terms of orientation and institutionalisation.

3.1.1. School administration driven

The school administration driven supplementary feeding programmes which were supported by agricultural production units comprised of poultry and piggery units, goats multiplication, field crop (maize) production and gardens.

The start-up funds for these production units were from one of the following two sources:

- The first was an allocation from the school budget to provide start-up funds for the APUs.
- The second was the administration allocating part of the boarding fees meant for food to the purchase of inputs to be utilised in the agricultural production unit.

The way the APU is sustainably funded is that the school administration purposely aligns the funding of the unit to the needs of the boarding unit. For example, the funds allocated in the school budget for purchase of chickens to feed the pupils per term are used to finance the purchase of day old chicks, feed them and pay for other chicken rearing expenses. The chickens produced in the PU are sold at a price equivalent to the production costs to the boarding unit. As such, a client-customer relationship has been established within the school where one unit is the supplier and the other the market. The supplier is the APU. The market is the boarding section that buys the chickens used for feeding the pupils who attend school as boarders.

One school also accessed the Government subsidized fertilizer from the Fertiliser Support Project in 2007 for its maize production. This effectively reduced the school's inorganic fertiliser expenses by half.

3.1.2. Mission Schools

Similar to the school administration driven feeding programme, the mission schools administration purposely aligns the funding of the unit to the needs of the boarding unit. A client-customer relationship has been established within the school where one unit is the supplier and the other the market. The difference between the school administration driven APU and the mission schools' APUs is the level of institutionalization of the APU in the curricula. The mission schools emphasise the need for holistic development of the pupil and link the academic work to productive manual labour. The productive labour is included both for ensuring that what is learnt in class is practiced and for life skills formation in the pupils.

3.1.3. GRZ/WFP Assistance to Basic Education

The Government of the Republic of Zambia (GRZ) and WFP supported supplementary school feeding programme provides High Energy Protein

Supplements (HEPS), cooking oil, plates, spoons and efficient wood stoves (Rocket Stoves) to the schools. The HEPS is cooked by the communities in the locality of the schools and fed to pupils during break.

3.1.4. MoE Supplementary feeding

The MoE supplementary school feeding programme comprises the provision of a pre-packed food supplement called Provita. This supplement is bought by the MoE HQ and supplied to the school through the DEBS. This food supplement does not require cooking. The pupil only needs to add water to it to make a thick porridge or a drink by adding more water. Some pupils sometimes do not bother to add water and eat it dry. The supplement is distributed during break time.

3.1.5. Income Generating Activities

The IGAs at the schools that were visited were comprised of maize marketing, poultry unit, piggery unit, goat rearing, hammer mill, tuck shop and a field/garden unit. These units produced outputs and services for sale to the local community and external market. Some of the IGAs are focused on providing support to orphans and vulnerable children (OVCs). The resources generated from some IGAs also help contribute to supplementary feeding programmes and purchase of school learning materials for all pupils. The supplementary feeding is undertaken either by feeding the produce to pupils, e.g. eggs and vegetables, or purchase of requisite supplementary feeding inputs.

3.2. Objectives of the programmes

3.2.1. Enrolment

None of the schools reported having supplementary feeding programmes primarily to increase enrolment. However, even those whose primary objective is not to increase enrolment have found that school feeding increases enrolment and attendance in class. Experience has shown a lack or shortage of food supplements results in reduced enrolment and attendance.

However, a review of the Assistance to Basic Education (ABE) documentation revealed that it aims to increase rates of enrolment and attendance in primary schools, while also improving pupils' nutritional intake and capacity to concentrate and stimulate parents' increased participation in education. The food assistance targets schools in the food-insecure districts and communities with a concentration of orphans and high levels of malnutrition. As such, the schools supported by ABE are in drought prone areas like Siavonga, Gwembe and Nyimba.

3.2.2. Support to improved nutrition

The document review and meetings with the District Education Board officials during the school visits revealed that the School Health and Nutrition programme primarily supported improved health and nutrition for pupils. The Community Health and Nutrition, Gender and Education Support (CHANGES) programme, as part of the MoE's strategic plan for a national school health programme, has been focusing on the basic nutrition and health status of primary school-aged Zambian children to improve their school performance. The MoE supplementary feeding programme using the poverty reduction funds also primarily supports improved nutrition.

3.2.3. Support to Orphans and Vulnerable Children

The schools undertaking IGAs seem to concentrate more on support for educational materials to OVCs. In this instance, this was because most of the schools visited had income generating activities supported by the CHANGES 2 programme. The component of the CHANGES 2 programme accessed by the schools has OVCs as the main beneficiaries of income generating projects.

3.2.4. Imparting of lifeskills

Some schools' main objective for having school feeding supported through the PU is to transfer agricultural skills to the pupils. This trend is the same for the boarding schools though they have the added objectives of subsidising the school boarding needs through own food production. Furthermore, it is a requirement in the curriculum that schools with agricultural sciences keep small livestock, e.g. poultry or rabbits, for use in practicals for this subject.

3.2.5. Multiple objectives

Some schools have multiple objectives for their supplementary feeding programmes. Some of the schools really believe that classroom work and theory are never adequate for "learning". There is the added requirement that the pupils leave school with skills that are relevant to their livelihoods.

3.3. Implementation arrangements

The implementation of the programmes is coordinated through various committees.

3.3.1. School Health and Nutrition Committee

Most of the schools used the existing School Health and Nutrition (SHN) Committee comprised of teachers, pupils, community members, Ministry of Agriculture and Cooperatives (MACO) and Ministry of Health (MoH) staff to implement the school feeding and production units. Each school appointed one teacher as coordinator of the activity. The inclusion of MACO was to tap into the agricultural technical expertise resident within the local institution. The inclusion of MoH was especially for the school drugs administration for de-worming and bilharzia as included in the SHN programme.

3.3.2. Dedicated school feeding committee

Some schools constituted a separate committee to manage the school feeding and production units. These committees include teachers, pupils and community members. The only role allocated to this committee was the management and coordination of the school feeding or production unit.

3.3.3. School based committee

Some schools running APUs had committees comprised only of teachers and pupils. They felt there was no need for community participation as the APUs were basically owned and managed by the school.

3.4. Roles and responsibilities of actors

The roles and responsibilities of the actors are presented in Table 1 for the four types of school feeding programmes addressed in this report. The responsibilities reported in the table capture all the responsibilities that were stated by the respondents. As such, though the responsibilities are summarised for ease of presentation, they may not all apply to every individual school visited.

The responsibility for the school administration was mainly to provide oversight to the committees implementing the IGA, APU or school feeding programmes. The school administration also has a critical role in proving the commitment of the school to the IGA or APU through consistent allocation and disbursement of funds to these programmes.

Some of the roles that teachers play are common to all the four types of school feeding programmes including daily supervision of programmes and record keeping.

However, the APU has a greater teacher involvement in terms of labour and transfer of knowledge and skills to pupils. Furthermore, this activity offers the greatest possibility for aligning academic work to life skills development.

The MoE and ABE supplementary feeding programmes offer the least skills and knowledge transfer opportunities for the teachers to the pupils. Despite this, these feeding programmes have a more immediate impact on the health of the pupil, her/his participation in learning and uptake of learning.

The pupils play a more active role in the APUs as compared to IGA and supplementary feeding programmes. The exception is where the IGA is a

Table 1: Actors and their responsibilities

Actor	Income Generating Activities	School Administration Driven school feeding programme (Mainly APU)	MoE Supplementary school feeding	Assistance to Basic Education
Teachers	<ul style="list-style-type: none"> • Supervision of IGA staff • Teaching theory in class • Impart poultry production skills • Undertaking manual labour in the enterprise • Daily supervision of IGAs • M and E of IGAs • Marketing of IGA produce • Write and submit reports 	<ul style="list-style-type: none"> • Ensure continuity oversight, planning, control and accountability • Supervise the daily work in the PU, i.e. feeding, watering, planting, weeding, fertilization and harvesting by the Pupils • Train the pupils skills in crop and livestock management • Teach theory in class • Sale of PU produce • Practical demonstration of agricultural skills in the APU 	<ul style="list-style-type: none"> • Fill in the daily attendance register • Tallying the number of the sachets of Provita to be disbursed • Provita stores management and distribution • Weighing of pupils every two weeks to check for nutritional effects of Provita • Compare availability of food supplements to enrolment and attendance • Secure the storeroom • Keep records of all Provita supplies, e.g., stocks, distribution • Organise meetings of the Committee • Report to the DEBS on the feeding programme 	<ul style="list-style-type: none"> • Coordinate the programme • Write and submit reports • Supervise the parents cooking the porridge • Record keeping of food stocks, i.e., deliveries and utilization • Tasting the food to ensure quality
Pupils	<ul style="list-style-type: none"> • Participate in committee • Feeding, watering and collecting eggs in the poultry • Cleaning the IGA surroundings • Planting, watering and weeding the crops and harvesting produce 	<ul style="list-style-type: none"> • Feeding the chickens and pigs • Cleaning the poultry/piggery sheds and surroundings • Planting, weeding, applying fertilizer and harvesting both the field crops and vegetables 	<ul style="list-style-type: none"> • Drawing water for the preparation of Provita • Cleaning spoons and cups • Reminding teachers on the time for meals • Eating • Proper disposal of used Provita sachets • Monitoring the Provita programme implementation • Assist in carrying Provita packages from the storeroom • Bring own eating utensils 	<ul style="list-style-type: none"> • Until recently Grade 6's used to weigh the food at one school • Counting the pupils participating in school feeding • Tasting the food for quality • Occasionally volunteer to cook in absence of community members • Sometimes draw water • Clean school feeding shelter
Community	<ul style="list-style-type: none"> • M and E of IGAs • Entering and custody of financial records • Provision of poultry management advisory services through skilled community members • Material support provided the upfront materials for the poultry house, i.e., bricks • Supervision of IGA through the Committee • Providing manual labour, e.g. ploughing virgin land and feeding poultry during weekends 	<ul style="list-style-type: none"> • Participate in providing oversight through the PTA • Provide labour for hire • Provide training on farming skills • Manage the PTA portion of the PU • Contribute funds towards PU operations • No role 	<ul style="list-style-type: none"> • Help account for Provita stocks utilisation • Prepare boiled water • Collect fire wood • Built the school feeding shelter • Prepare timetable for the villages to contribute labour for the feeding programme • No role 	<ul style="list-style-type: none"> • Prepare meals • Collect firewood • Draw water • Prepare roster for cooking meals for the villages • Men built the shelter in which to prepare meals • Weighing the food

garden for field crops production unit. The APUs offer the best opportunity for lifeskills learning for the pupils.

The role of the community includes participation in monitoring the implementation of the activities in all the programmes. The community's direct input of its own time is highest in the ABE schools feeding as it has to do the cooking, drawing of water and fetching of firewood. The community makes the least input into the MoE school feeding as the food supplements do not require cooking. Text box 1 below illustrates some constructive utilisation of the technical skills available in the communities.

Text box 1: Accessing local knowledge

Some schools have accessed the skills resident in the communities to contribute to the teaching practice in the following manner:

- Provision of agricultural support, e.g. poultry, advisory services for improving the performance of APUs reported in Chibombo and Kapiri Mposhi Districts.
- Training in local crafts, e.g. basket weaving, as a contribution to the localised curricula reported in Kalomo District.

3.5. Benefits accruing to actors

The benefits accruing to the school administration from the IGAs was that sustained IGAs proved that the school administrations and the PTA could effectively implement a project. This makes it easier to advocate for more and bigger projects. The school administration in schools implementing the APUs benefited from reduced costs in feeding pupils resulting in budgets being stretched further.

The initial bias in thinking that the IGAs and APUs would help build lifeskills for pupils only was debunked. It came out strongly that participation in IGAs and especially the APUs contributed to lifeskills training for pupils, teachers and community members. The teachers also benefited from local availability of agricultural produce, groceries and grinding services. The supplementary feeding programmes contributed to improved teaching environment for the teachers as they had more pupils, who were more attentive and participated more in class work. This filtered to a perceived improvement in results.

The IGAs and APUs both contributed to agricultural skills transfer to the pupils. The IGAs in this category included poultry and gardening. The PU further contributed to improved diets for the pupils.

In some instances, the produce from PU subsidized learning and pupils' educational and sporting trips. The participation in PU by pupils also started the process of inculcating the virtues of hard work and the dignity of work in the pupils. The major benefit the pupils got from the supplementary feeding

was access to at least one additional meal a day even in times when there was no food in their homes. The food also contributed to improved health status visible in better looking skins and putting of extra weight. The pupils also believed that their brains operated “faster” due to the supplementary feeding as they were able to participate more effectively in class activities. It should be noted that the HEPS and Provita also contained the required daily requirements of micronutrients that may not be easily accessible, especially, during the hunger period.

Table 2: Benefits accruing to actors

Actor	Income Generating Activities	School Administration Driven school feeding programme (Mainly APU)	MoE Supplementary school feeding	ABE Supplementary school feeding
Teachers	<ul style="list-style-type: none"> • Learning of poultry management skills • Increased availability of pupils to teach • Grinding mill services closer to the school • Groceries available locally • Learning gardening skills • Increased availability of learning materials 	<ul style="list-style-type: none"> • Local availability of agricultural produce • Availability of credit facilities for chickens • Learning of agricultural skills 	<ul style="list-style-type: none"> • Improved pupil attention span reflected in reduced dozing • Better uptake of lessons taught due to reduced truancy. • Managing the pupils during feeding time has taught teachers skills on how to manage large number of pupils at one time 	<ul style="list-style-type: none"> • Better teaching practice and motivation due to increased pupil attendance and participation in class • Increased pupil learning due to consistent attendance of pupils • Increased enrolment and daily school attendance • Improved pupil health contributes to increased pupil participation in class
Pupils	<ul style="list-style-type: none"> • Pupils learn agricultural production skills • Pupils are given some of the IGA output to eat • OVCs are supported for school materials from IGA income • Improved access to learning aids like chalk, pens and pencils as the school purchases these using the revenue from the IGA • Monthly transport sponsorship for HIV+ pupils from the school 50km from Monze to Monze General Hospital for medication and review • Some groceries are now available locally • Pupils do not have to go far to access hammer mill services when they are sent to mill maize • Subsidisation of pupil participation in sports festivals 	<ul style="list-style-type: none"> • Learning of agricultural skills • Availability of dressed broiler chickens locally • Varied diet from PU chickens, pork and vegetables • Better diet for pupils who represent the school during trips • Costs for teachers accompanying pupils on trips subsidized by PU • Fuel for trips paid for from boarding savings • Lower boarding fees due to savings created from the PU supply to boarding • Learn to appreciate the importance of hard work • As agriculture is affected by the natural seasonal cycles the pupils learn that they cannot control everything in life. • Output from the OVCs section of the PU contributes to their school fees • The revenue from OVCs labour in school PU during holidays contributes to their school fees and upkeep 	<ul style="list-style-type: none"> • Improved pupil enrolment and attendance • The pupils who have to attend classes in the afternoon but live far from the school have access to food at lunch time in form of Provita • Improved pupil health and nutrition status evidenced in weight gain • The vitamins protect them from vitamin deficiency diseases • Guaranteed at least one meal per day • Increased concentration in class as the pupils do not have to worry about food especially when there is none to eat at home 	<ul style="list-style-type: none"> • Have at least one meal a day even in times when households run short of food • Better concentration and attention span during class as they are not hungry and have energy • Improved results due to increased attendance, concentration and learning • Pupils no longer carry food to school for break as they are fed HEPS • Improved health and nutrition as their skins look better, have more energy, feel strong and are fit • Weekly boarders reported access extra food through food supplementation • Access to food as pupils usually have only one meal per day during school holidays • Increased participation in class activities • Pupils sleep less in class due to reduced hunger • Increased enrolment • The pupils observed that their minds operate "faster" in class

Community	<ul style="list-style-type: none"> • Local supplies of eggs and vegetables • Hammer mill services available closer especially during the rainy season when other locations • The hammer mill grinds mealie rice that is convenient for brewing chibwantu (a drink) for sale • Maize bran for feeding livestock is now locally available from the hammer mill • Reduced requests for financial support from the school as the vegetable garden supplements government grants. 	<ul style="list-style-type: none"> • Local availability of broiler chickens • Slower increment on boarding fees due to the PU subsidy to boarding • The PTA meetings are subsidized with PU maize produce in the form of ifisunga (munkoyo)- non-alcoholic traditional drink and nshima • The community has learned that children with disabilities can also be productive • The community benefits by learning agricultural techniques from the school and their children when they go back home 	<ul style="list-style-type: none"> • Their children are fed • Improved children's health • Relief from serving children one meal in a day • Reduced food budget on the school going children • Food stocks last longer at home as they have to feed the children one less meal a day 	<ul style="list-style-type: none"> • Children receive food even when the parents cannot provide it at home • Children learn more • The rocket stove that was introduced with the programme saves on labour as it utilizes less firewood than traditional cooking methods • Increased children's enrolment in schools • Parents supplemented in feeding their children
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The community received its greatest benefits from the children accessing at least one meal per day during the hunger period. The community also benefited from not having to worry about feeding children before they went to school. The local availability of agricultural produce, hammer mill operations and groceries at the school have also been benefits derived by the communities.

3.6. Effects of the programmes

The issue of the effects of the programmes was not easily distinguishable from the benefits for some respondents. However, they provided the inputs outlined below. One of the major effects of the supplementary feeding programmes, i.e. increased community school partnerships, is highlighted in Text box 2 below.

3.6.1. Income Generating Activities and Production Units

The IGAs and APUs have had the following effects on the schools:

- IGAs have positively impacted the learning objective of the school as learning materials are purchased from the revenue they generate,
- The importance of improved school community partnerships has been recognised,
- An IGA is a commercial business thus is heavily taxing on time for it to be sustained,
- The success of the IGA and APU has increased the community's confidence in the school administration ability to drive the implementation of projects,
- Increased teacher workload as IGAs and APUs, e.g. poultry, need constant care resulting in teachers working outside regular hours and diverting them from family responsibilities,
- Teaching time is diverted to the IGA at the expense of learning,
- Pupils who do not like working in the IGA or APU lead to them hating the subject taught by the teacher negatively affecting their results, and
- The intensity of time required for some IGAs and APUs has necessitated the need to recruit full time staff.

Text box 2: School – Community Partnership

One school in Kalomo purchased thirty goats for rearing and multiplication. These goats are kept at the homesteads of the community members who are members of the Committee. The goats cannot be kept at the school because of limited space and availability of labour to herd them. The community members already have their own goats thus undertake the keeping of the goats as an additional voluntary function.

The ABE supplementary school feeding programmes in Gwembe and Siavonga require that communities build cooking/feeding shelters and provide labour to cook HEPs. This has increased room for cooperation between the communities, teachers and schools administration. The lessons from the experiences in community-school partnership for effective supplementary feeding can be used to improve collaboration for other activities.

3.6.2 Supplementary feeding

The supplementary feeding programmes have had the following effects on the schools:

- Increased enrolments and attendance,
- Improved teacher motivation as there is consistent pupil attendance in all classes, and
- The time required to eat hot porridge can disrupt lessons especially for young pupils. This is minimised by letting them eat when it is time to knock off. However, this means they have more energy to undertake other activities outside of learning.

3.7. *Incorporation into curricula*

There seemed to be a belief that placing the PU and school feeding programme on the timetable effectively incorporated it into the curricula. This was not supported by further discussions as including the activity in the timetable did not automatically lead to learning. The reason was that some of the activities undertaken during break time are not necessarily linked to the lessons taught in class.

3.7.1. Income Generating Activities

The IGAs that were of a highly commercial nature, e.g., hammer mill and tuck shop had little integration into the curricula. The IGAs that were production unit based, e.g. poultry, gardens and piggeries, had more teacher and pupil participation. There was more learning from this type of IGAs as the theory learnt in class could be related to practice.

3.7.2. Production Units

The production units activities were more inclined to be included in the curricula and learning. This included allocation of portions to classes undertaking agricultural sciences.

3.7.3. MoE and Assistance to Basic Education School Feeding

The integration of the MoE school feeding into the curricula was more inclined to be at the teachers' discretion than curricula driven. However, there were innovative instances when the programme was included in the curricula. This included linking the nutrition content of the supplementary feeding to the locally available vegetables, crops and wild fruits.

3.8. Targeting criteria

The programmes revealed two types of primary beneficiaries:

- OVCs: This was mainly for the IGAs funded by CHANGES 2.
- Universal application: This included both the MoE and ABE school feeding programme and the production units. All the pupils at the schools were free to participate in school feeding or APUs.

3.9. Lessons learned

The lessons learned from the programmes are very diverse as shown in Table 3 below. The table lists all the lessons learned as narrated by the respondents. These lessons also incorporate the lessons that were brought out by staff in the District Education Board offices.

For the IGAs and School Administration driven school feeding programme, the major lessons learned include:

- Commitment and patience are required in implementing IGAs and APUs as they take time to bear fruit,
- The theory taught in class should be supported by practicals,
- The practice helps nurture problem solving skills as these programmes have diverse participants in implementation and marketing,
- APUs are susceptible to unfavourable weather. This can wipe out all the school's PU capital in one season, and
- There is need for assured water supply if gardens are to be productive all year round.

The major lessons learned through the ABE and MoE school feeding programmes include the following:

- School feeding can be a tool for increasing enrolment,
- Nutrition is important for improved learning,

- There is need to link school feeding to local agricultural production and markets for it to be sustainable, and
- The record keeping skills learned implementing the school feeding can be used for other school activity.

Table 3: Lessons learned

Actor	Income Generating Activities	School Administration Driven school feeding programme (Mainly APU)	MoE Supplementary school feeding	ABE Supplementary school feeding
Teachers	<ul style="list-style-type: none"> • Commitment is required to sustain any IGA. • A successful IGA increases motivation for other IGAs. • Patience is required in undertaking an IGA involving the school, community members and pupils as mobilising the required resources takes more effort and negotiation. • Implementers should be involved in the formulation and introduction of new initiatives. • School community partnerships should be actively supported if the joint school/PTA projects are to succeed. • Problems solving skills have been learnt through the IGA . • Theory taught in class should be tested through practice. • The revenue from IGAs helps reduce the financial stress that accompanies the procurement of learning resources. • If you are productive you can solve problems. • Teachers have been encouraged to practice what they teach in class. 	<ul style="list-style-type: none"> • Practical business skills can be inculcated in both teachers and pupils through the PU. • Planning skills and perseverance are required in the face of adverse market conditions and competition if a business is to be established and sustained. • Tangible benefits from the PU encourage continuous and improved participation. • The commitment of the school administration to the PU in disbursing the budgetary allocations encourages everyone's participation. • If the APU, or any other school project is to succeed, there should be strong partnership between the administration, teachers, pupils and community. • APU activities that rely on rain will suffer more from the ravages of nature, be it drought, floods or irregular rainfall pattern. • It is difficult for any school to keep boarding costs low without own production through the APU. • Buying produce from the market reduces amount and availability of food due to increasing costs and seasonality of production. • Some crops can be produced to cater for annual needs, e.g. the maize harvest used to be enough for the annual boarding mealie meal and samp needs. • There is need for committed supervision if the PU is to be successful. • The PU contributes to reduced costs in running the boarding . • The PU can demonstrate that the local soils and people are productive . • The APU can help a school generate resources to supplement school fees and GRZ funding. • Participation in APU activities and eating the produce from these activities increases the pupil's motivation for productive manual labour. • The deaf, or other people with different disabilities, can do anything that others can. • No child is useless. Each child has a God given talent that the school should identify and help develop. Some 	<ul style="list-style-type: none"> • Nutrition plays a good role in a pupil's education because a hungry child is a poor performing child. • The lesson that has been learned from implementing the school feeding programme is that improved children's health contributes to better performance in class. • Community and pupil organisation skills • Learnt the eating habits of children • Learnt how to undertake on-going nutrition assessment based on the Provita programme. 	<ul style="list-style-type: none"> • For sustainability, there should be increased local food production. • The importance of keeping records as data on school feeding has to be filled in forms daily • Reporting is important for any programme • School feeding has increased pupils interest in learning • School feeding is a public service that increases children's access to education.

		children that fail to excel in classroom work have actually been found talented in other hands-on activities.		
Pupil	<ul style="list-style-type: none"> If you are productive you can solve problems IGAs can bring services closer to communities 	<ul style="list-style-type: none"> Practical business skills can be inculcated in teachers and pupils through the APU The learning from the APU activities can be utilised in private life as demonstrated by the way most teachers now grow their own maize. 	<ul style="list-style-type: none"> Nutrition plays a good role in a pupil's education because a hungry child is a poor performing child. School feeding contributes to enrolment 	<ul style="list-style-type: none"> School feeding has increased pupils interest in learning
Community	<ul style="list-style-type: none"> IGAs can bring services closer to communities 	<ul style="list-style-type: none"> The learning from the APU activities can be utilised in private life as demonstrated by the way most teachers now grow their own maize. 	<ul style="list-style-type: none"> Nutrition plays a good role in a pupil's education because a hungry child is a poor performing child. School feeding contributes to enrolment 	<ul style="list-style-type: none"> School feeding has increased pupils interest in learning

3.10. Challenges

The challenges faced by schools in implementing IGAs, APUs and supplementary feeding are as diverse as the programmes themselves. The detailed challenges that were mentioned for each of the school feeding activities are contained in Table 5 below.

3.10.1. Income Generating Activities

The major challenges encountered in implementing IGAs include the following:

- Security for the IGA from vandalism by animals and human beings,
- Inadequate water reduces dry season production,
- Poor availability of inputs locally,
- Inadequate skills to run the IGA,
- Seasonality of farmers as a market. Farmers' income generating activities are unevenly distributed throughout the year resulting in peaks and troughs in their income. This affects school IGA income, and
- Limited local market to absorb the IGA services for increased profitability.

3.10.2. Production Units

The major challenges encountered in implementing APUs include the following:

- The perennial problem for all APUs is water availability,
- Shortage of labour at critical times, e.g., weeding of maize during school holidays,
- Balancing the PU as a business and as a learning tool,
- Availability of adequate capital,
- Increased input costs reduce the amount of land placed under crop,
- Security for the PU, and
- Crops require timeliness of activities otherwise yields or a whole season can be foregone.

3.10.3. Supplementary feeding

The major challenges encountered in implementing the MoE and ABE supplementary feeding programmes include the following:

- Encouraging voluntary community participation in preparation of foods, i.e., cooking HEPS and preparing safe boiled water for Provita,
- Ensuring continuous provision of the food supplements is not controlled by the schools, thus, when there are lapses in food supply enrolment suffers, and
- Ensuring that the time used in feeding does not disturb the timetable.

Table 4: Challenges

Income Generating Activities	School Administration Driven school feeding programme (Mainly APU)	MoE Supplementary school feeding	ABE Supplementary school feeding
<ul style="list-style-type: none"> • Poor fencing resulted in garden invasion by cattle in the dry season • Vandalism and theft from the garden by school drop-outs from the surrounding community • Inadequate water as villages use school borehole when their pump breaks down • Inadequate water when borehole is dry • Impassable road in rainy season makes it difficult to access diesel for hammer mill and tuck shop supplies • Lack of local skills to repair the hammer mill makes for long down time when it breaks down • The trained teacher has been transferred from the school taking out some of the first hand capacity that was built. • The market is sometimes over supplied by the large commercial egg producers whose price is lower due to economies of scale • Lack of specialist knowledge of poultry diseases leading to closing of project • Lack of market for the eggs • Lack of own transport to move eggs to the market and back • Seasonality of local market wherein farm households only purchased eggs during the maize marketing period when they receive sizeable cash returns • The education policy on free education is free for Grades 1 – 7 reduces funds raised by schools • The core curricula formulated by the school has not been responded to by the DEBS in most schools. • People from HQ and DEBs sometimes do not seem to know about the school curricula. 	<ul style="list-style-type: none"> • Water shortage due to lack of a borehole. This limits dry season production • Labour shortage during school holidays • Theft from maize field • Expensive inputs restrict the amount of land cropped • Care has to be taken to ensure that PU does not grow so much that it needs large capital investment as compared to learning • Some of the land now requires liming due to regular mono-cropping • Funding for PU activities is not stable from GRZ. • Limited budget as school funding is based on the number of pupils. • The school land is limited and is already used at full capacity • Rocky land will cost a lot to improve for PU activities • Communication barrier during educational school trips as the pupils mostly can only communicate through interpreters, as the other pupils do not know how to use sign language. (School for the Deaf) • The PU subsidy to boarding is being eroded by the increase in input costs • Improving attitude to PU manual labour by incorporating it into timetable • When staff levels are low, PU activities impinge on class periods • The revenue generated by the poultry is low as the chickens are sold basically at production cost. This narrows the scope of expansion. • The limited market restricts expanding the poultry output to take advantage of economies of scale. • Timeliness of activities for the field crops, mainly maize, is affected when the school is hit by financial problems. 	<ul style="list-style-type: none"> • Inconsistent supply of the Provita affects Pupils' attendance, as the pupils have to go and source food from elsewhere. • The Provita is meant to supplement the SHN drug administration programme. Non-availability of MoH staff results in the delayed de-worming and bilharzia control activities. • The seasonal floods cut off some villages from the school in Luangwa District during the rainy season. The pupils then have to wade through the bilharzia-infested water resulting in regular recurrence of the disease in pupils that have had drugs administered to them. • Community participation is reduced during the garden preparation times as they have to attend to their households food security first • Community participation is sometimes difficult to mobilize as they do not get immediate personal reward • Community members are sometimes reluctant to participate as they have sometimes been held accountable for missing sachets when they do not have immediate personal reward 	<ul style="list-style-type: none"> • Community mobilisation to start up the programme difficult as there are no immediate monetary payments. The Chief was mobilised to assist in this and continues to assist mobilize the community. • A few parents instructing their children not to eat HEPS, as they do not know where the porridge is from. This is despite the children physically looking malnourished. • The children take too long to eat and this affects the flow of lessons. • Teaching the children responsibility as some children refuse to clean plates. Therefore, the school has decided that they should thus bring plates from their homes and see how they respond to this duty. • As cooking is voluntary the community members sometimes do not come to cook as they have to attend to their household's and other community needs • The school administration was blamed for the reduction in serving from 150 grams to 100 grams of HEPS. This was more so as it coincided with a change in Head Teacher. • Keeping the HEPS from being damaged by pests in storage • Feeding on damaged HEPS causes stomach upsets • Private work suffers as the community volunteer to cook the food without any remuneration • As the community members do not have enough money to buy soap and detergents they are not always able to be clean enough to keep hygienic conditions for cooking food • The borehole sometimes runs dry increasing the labour input for drawing water • The pupils sometimes find the porridge to be too watery, as they prefer it thick. • Despite the HEPS already having sugar added to it the pupils would prefer to have extra sugar added.

3.11. Use of programmes for punishment

Most of the schools responded that they usually avoid sending children to work in the APUs or IGAs as punishment. This is to reduce the linking of APUs to punishment as it can negate the positive values taught about skills learned in APUs as a livelihoods means.

Text box 3: Reducing negative impact of punishment

One school in Kapiri Mposhi District never allows pupils to be punished by cleaning the Church or its surroundings. This is an effort not to diminish the Christian values and ethics taught to the pupils.

Another school in Lufwanyama District does not allow pupils to be punished before they are counselled on the rationale why their behaviour is not acceptable or productive. The pupils are only punished when they understand why their behaviour is not socially acceptable and why it is also detrimental to their personal development and future livelihoods.

3.12. Sustainability of the school feeding programmes

The respondents participating in four of the programmes provided their impressions on the sustainability of the existing programmes. Their responses are summarised below.

Income Generating Activities: The IGAs were viewed as sustainable if they are well planned and the skills required for their operations are available. This requires that the IGA serves the unique needs of the community it is located in. For sustainability, there is need for a secure market for the IGAs outputs or merchandise. A secure market in this instance requires that the schools are innovative in identifying and accessing markets. Furthermore, external factors such as the amount of wealth created in the community where the IGA is located will affect its viability and revenue flows through time. This is more so in cases where the community is dependent on economic activities that provide seasonal returns like maize production.

School Administration Driven school feeding programme (Mainly APU): The school administration driven programmes were viewed as sustainable if they are well planned and skills for their operations are available. The APUs that are linked to the school budget and pupil feeding have a higher chance of being sustainable. The APUs further require integration into the curricula to increase their contribution to learning and improving lifeskills transfer to pupils.

MoE Supplementary school feeding: The MoE supported school feeding programme is supported through the poverty reduction component of its annual budget. The districts that are supported are identified through the

Vulnerability Assessment Committees' processes. As such, only schools that are located in districts that are identified as vulnerable are supported. The sustainability of the programme depends on the availability of Government funding. Practice on the ground has shown that the programme is not sustainable as some schools had not received the supplementary food for one term without any clear communication of the reason.

ABE Supplementary school feeding: The ABE programme is supported through WFP as part of its emergency response to Zambia's developmental needs. The schools that are supported are those located in districts that are identified as vulnerable through the Vulnerability Assessment Committees' processes. As such, the ABE as a programme is not designed to be sustainable. Other programmes, both within and outside the education sector, are supposed to improve food security in the host population so that the pupils have access to adequate nutrition at the household level.

3.13. *Recommendations for programme improvement*

The recommendations proposed by respondents ranged from reliance on Government to creating self-sustaining programmes. These recommendations are contained in Table 5 below. The recommendations in Table 5 include all the recommendations made by the respondents, namely, DEBS, school administration, teachers, pupils and community members.

3.13.1. Income Generating Activities

The following are the major recommendations made by respondents on improving the design and performance of IGAs:

- Reinvestment should be the first priority for the utilisation of the revenue generated through IGAs. This should enable IGAs to grow in capacity, turnover and contribution to school feeding,
- All actors in the school must participate in choosing the IGAs to increase their relevance and alignment to available skills in the community,
- There should be a trained team to spearhead the implementation of the IGA so that there are no lapses if one person moves from the school or community. This will also enable stronger school community partnerships,
- Incorporate entrepreneurship training into the curricula of Teacher Training Institutions so that the teachers are able to effectively contribute to IGAs in the schools they are employed in, and
- IGAs should contribute to learning.

3.13.2. Production Units

The following are the major recommendations made by respondents on improving the design and performance of APU:

- Production units should be encouraged as they reduce both the cost of feeding and fill the gap in GRZ funding. The reduced cost of feeding can be used to subsidise school fees or the savings can be used to improve the learning environment,
- APUs should be made part of the curricula to increase the pupils' perception of their relevance. This is more so as Agricultural Science is an optional subject. This reduces the importance of the knowledge and skills it imparts in the eyes of the pupils, and
- The productivity of APUs is only as relevant as the available market. As such, schools should invest in understanding the diverse markets they can access for sale of their produce. This requires entrepreneurship skills in the actors participating in the APU.
-

3.13.3. Supplementary Feeding Programmes

The following are the major recommendations made by respondents on improving the design and performance of supplementary feeding programmes:

- Government should develop strategies to help improve the livelihood standards in areas where the school feeding is being undertaken. This is to ensure that the pupils live in a community that has high nutrition status. This should contribute to pupils placing more emphasis on learning at school rather than on supplementary feeding,
- Supplementary feeding should be targeted at areas that are deemed vulnerable,
- Supplementary feeding should be linked to locally available foods if it is to be made sustainable, and
- Integrate the school feeding into the fabric of the curricula so that children come to school primarily to learn and not primarily to eat.

Table 5: recommendations

Income Generating Activities	School Administration Driven school feeding programme (Mainly APU)	MoE Supplementary school feeding	ABE Supplementary school feeding
<ul style="list-style-type: none"> • The revenue from the current IGAs should first be allocated to re-investing in the IGA. This will reduce the IGA's contribution to school feeding. • School administrators should be fully trained in any IGAs so that they are technically competent to supervise the teachers and the community • The choice of project should be made within the school by the school administration, community and pupils. • Projects that involve the participation of both the teachers and community should be properly facilitated. • The IGAs require their own transport resources. • IGAs should be of a scale where the returns can significantly impact on the lives of the OVCs. • IGAs should have a component of imparting life skills to pupils. • Schools need IGAs to improve their financial capacity due to limited GRZ and community funding. 	<ul style="list-style-type: none"> • Schools should be encouraged to find ways of increasing production of food as it is less expensive than buying from the market. • The Government should fund the start up of Production Units • The Government should extend the subsidized agricultural support it gives to smallholder farmers to school production units • Incorporate PU into the schools curriculum and timetable to increase pupils perceptions of lessons learned there • Integrate manual work into the lessons learned by the pupils as many will either end up not getting white collar jobs and have to be self employed or may indeed identify high paying professions that incorporate manual work. • The success of the PU depends on the teamwork of the administration, teacher, pupils and community. • The Government budget should support APUs where there is committed administration. • Each school should get professional advise on what can be grown best in its locality. • Schools should undertake study visits to other schools that are already implementing the activity to learn from their experiences. • Schools should be innovative in fundraising activities as GRZ funding is not enough. • The schools should be aware of wider market options, e.g. have contracts to supply excess produce to hospitals or other institutions. 	<ul style="list-style-type: none"> • The Government should document the good benefits arising from the school feeding programmes and prepare strategies to make it a sustainable programme. • The school feeding programmes should be targeted to vulnerable areas like the drought prone areas. Vulnerable areas include those that are flood or drought prone or are close to game reserves and game, management areas. These areas have low agricultural productivity resulting in poor nutrition in the home. • To improve sustainability of the feeding programmes, initiatives should be undertaken to identify alternative local foods that can be used as supplements as opposed to using Provita. • The school feeding programme activities should be integrated into the timetable so that the children learn about its food value and benefits. The possible subjects that it could integrate into include Home Economics and Social Development Studies 	<ul style="list-style-type: none"> • Strategies should be put in place to improve household food security for areas like Gwembe that have perpetual drought spells that negatively affect food production. • WFP and the District Education Board should take time to come and explain the school feeding programme to the community as they are suspicious of the messages school administration pass on regarding community involvement, availability of supplementary food and the recommended rations. • Facilitate dialogue with the community so they understand the objective of the school feeding programme • The ration should be increased in the hunger season as the children have no food to eat at home • HEPS that are damaged by weevils should not be fed to pupils. It should be destroyed and replaced with fresh stocks • Have improved storage facilities that help separate the HEPS that is delivered at different times. This will help reduce cross contamination if one batch of HEPS is contaminated or damaged by pests. • Place the interest of the children first • The school feeding should be implemented in such a way that it is sustainable otherwise the children will leave school as soon as the food is not available • Have a well planned and communicated exit strategy for any donor-funded school-feeding programme. • There is need to integrate the school feeding into the fabric of the curricula so that children come to school primarily to learn and not primarily to eat. This is because some children either turn up at eating time or run away from class after eating.

4. Distillation of Lessons learned

The lessons listed below have been generated mainly from the challenges, lessons and recommendations made by the respondents in sections 3.9, 3.10 and 3.13 above. These lessons all highlight the need to begin building sustainability into programmes starting at programme conceptualisation.

4.1. Environmental scanning

An analysis should be made of the existing environment that may affect the success of the proposed programme. This should include an analysis of suppliers in the trade, markets and prices for income generating activities. Furthermore, possibilities for locally producing or sourcing the requirements for school feeding should be analysed. Environmental scanning can incorporate visits to institutions already undertaking similar ventures. The outcome of adequate environment scanning will be choosing of a programme that is relevant to the needs of the stakeholders. This will improve its social acceptability and the likelihood that stakeholders will make the required contributions.

4.2. Programme design

Programmes should be designed with the participation of all stakeholders to be involved in their implementation and benefits. This will increase communication between the stakeholders, improve the sharing of skills and knowledge and increase ownership of the programme. The outcome will be improved programme implementation.

4.3. Targeting of programmes

There is space for both universally applied programmes and those to cater for special needs. As such, the programme initiators should be clear on who the beneficiary is during programme design so as to avoid creating expectations that cannot be met. Furthermore, this should also help properly align responsibilities for programme implementation.

4.4. Skills requirements

An analysis should be made of the skills available in the school to undertake the proposed programme. The skills resident in the local institutions and communities should also be documented so that they can be tapped into as and when necessary.

4.5. Entrepreneurship

Each school should facilitate the assessment of its competency, interest and skills to run both IGAs and APUs. Entrepreneurship skills are required for identifying opportunities in the market, conceptualizing products to satisfy market demand, preparing marketing strategies, marketing the products and innovative problem solving. Entrepreneurship competency in some of the stakeholders is also necessary as the engine that keeps the enterprise alive and vibrant all the time.

4.6. Integration into curricula

The integration of IGAs, APUs and school feeding into the curricula can help make them more visible, more acceptable as they have universal coverage and improve their rating on the scale of importance to other regular subjects taught in schools.

The integration of IGAs, APUs and school feeding into the school curricula has to be supported by their integration into the Teacher training institutions curricula. This will make for easier incorporation of the activities at the school level as it will increase the availability of human resources required to deliver them. This means that every graduating teacher will have some competence in IGAs, APUs and school feeding.

5. Conclusion

This report summarises a vast amount of information that was generated from the data collection processes. The information helps to document the practice of school feeding programmes and the lessons of best practice generated therein for both current and future school feeding programmes. Secondly, the data that was collected will also inform the formulation of a generic manual on school feeding programmes. This manual will contain a menu of options for school feeding programmes from which the schools can choose and adapt for their local programmes to best reflect their environment.

The study findings indicate that there is a positive relationship between supplementary school feeding programmes and increased enrolment. The findings also indicate that the pupil's attendance and participation in class also improve. The foregoing was said to contribute to improved academic performance as pupils participate in more of the planned learning activities.

The School Administration Driven feeding programmes were found to be more associated with boarding schools that already have the responsibility of providing adequate nutrition and food for the pupils. The IGAs in turn were directed at providing assistance to the educational needs of the pupils. The

findings show that there are similarities between the School Administration Driven feeding programmes and the IGAs as both are entrepreneurship driven. These two types of programmes require a level of entrepreneurial skill that should be purposely planned for and built up within the schools. The capacity building of these skills should actually be built into the training of all the teachers during training at teacher training colleges. This entrepreneurship training should also be incorporated into the school curricula so that the pupils have life skills training in entrepreneurship. The two programmes have a high potential for sustainability as their implementation is managed and influenced by the local stakeholders.

The Assistance to Basic Education and the MoE Supplementary Feeding programmes are primarily targeted at providing access to supplementary food. This contributes to improved nutritional status of pupils, increased enrolment and performance of pupils. Both programmes rely on food supplements supplied by partners from outside the school. For improved sustainability, these programmes require that they be linked into the local economy. This will make it possible for a customer-supplier relationship to be established between the school and the local market.

All the four types of school feeding programmes require that better community-school partnerships are established. Given this, all stakeholders should participate in the design and implementation of the programmes if they are to be relevant to the pupils and community. This would contribute to sustainability of the programmes.

The differences observed between the four types of schools feeding programmes only served to enrich the lessons generated in documenting them.

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