

# Exploration of Lived Experiences of Selected Schools in Production Units in Kalomo District, Southern Province, Zambia

Charles Simaambo, Gistered Muleya, and Francis Simui

## ABSTRACT

The study explored the lived experiences of selected schools in Production Units in Kalomo District, Southern Province, Zambia. The factors considered were the performance; management practices and the factors affecting management, performance and sustainability of production units in Kalomo District. Using the Hermeneutics Phenomenology research design, the study targeted Head teachers and those involved in PU management of which ten schools were purposively sampled. Data was collected by means of an online interview instrument and was coded to bring out the major themes for each research objective. The study found that the PUs were in place and performing at less than their capacity inhibited by lack of resources, animal diseases, poor marketing and competition from commercial agriculture. The school managers had the capacity to improve PU performance. PU was profitable enough to support PU and other school activities such as boarding school feeding and co-curricular activities. PU had management structures. Regarding management practices, it was found that school administrators were involved in planning, monitoring and supervision of production unit. Teachers were involved in the supervision of learners in PU; learners were also involved in PU as an extra-curricular activity; PU committees were involved in the management of PU and full-time/part-time workers were involved in production unit. There were other stakeholders involved in production unit. Recommendations were made to indicate how schools can improve PU with an appropriate model focused on schools mobilising resources, engaging community stakeholders; having PU as part of the mainstream school strategic plan and working with the Ministry of Education on PU. The study contributes towards the enhancement of PU at school and district levels.

**Keywords:** Entrepreneurship, Income Generating Activities, Production Units, Secondary Zambia

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## I. INTRODUCTION

### A. Background

This paper is an excerpt from the principal researcher's Master of Education Management dissertation. The Master's programme was offered by the University of Zambia (UNZA) and has been running since 2016 (Manchishi *et al.*, 2020). The University of Zambia is a public university with a history of more than 50 years (Mundende *et al.*, 2016).

Production is a process that involves many activities of combining inputs to produce goods that are of economic value which can be sold to gain profit or which can contribute to self-sustainance of the institutions. Production units in Zambia were first introduced by the first president Dr. Kenneth Kaunda. Just after independence, the Zambian government embarked on general expansion of the educational system by building many primary and secondary

schools but at the cost of neglecting technical and vocational schools (Hoppers, 1989). By 1969, the government saw the need for corrective measures kin to the educational system. The president passed an order that all villages, primary and secondary schools, colleges and the University of Zambia become food production units in order to make the country food secure and alleviate poverty (Daily Mail, 1975). Since then, schools have been engaging in agricultural production as part of their regular activities. Production unit in schools can help increase employment opportunities for pupils who graduate from educational and vocational training establishments, as it shortens the period of transition between school and labour market preparation. The production units in Zambia are mainly centred on agricultural production like gardening and crop farming, as well as livestock and poultry farming. This study will therefore, analyse the performance, management and sustainability of production units in Zambian schools of

Kalomo district with inclination to agriculture production.

### B. Problem Statement

It is the government's policy that each school must have a production unit, and there has been constant calls by the government of the republic of Zambia to revamp the production unit in schools in order for them to be self-reliant and self-sustaining (Lusaka Times, 2011; ZNBC, 2019). Despite the calls by the government and private sector organizations for the schools to be actively running production units, the contribution and performance of production units in Zambian schools is low (ZANEC, 2021). The study therefore explored the lived experiences of selected schools in production units in order to understand opportunities and challenges linked to management, productivity and sustainability of Production Units.

### C. Specific Objectives

The following specific objectives guided the study:

- i. To explore the performance of production units in Kalomo District
- ii. To describe management practices of production units prevailing in Zambian schools of Kalomo District.
- iii. To explore factors affecting management, performance and sustainability of production units in Kalomo District.
- iv. To design a sustainable framework for improving performance of production units of schools in Kalomo District.

## II. LITERATURE REVIEW

### A. Production Unit in Schools

Literature shows that production unit is useful in schools to equip pupils with entrepreneurship practices. Teachers can utilize production unit to help pupils develop competence in production lessons. Marniati *et al.* (2018) found that practice-based activities at production unit in schools were more effective than same activity in modest industries. Herry *et al.* (2016) recommended the establishment of production unit managers who can do planning, implementation guides, supervision and monitoring the activities and roles of teachers and pupils. School management must create time for pupils to go and participate in the activities of the production unit. According to FAO (2005), running a production unit like a garden requires a manager who may be the school principle or a teacher with experience in the management of the production unit.

Achieving success at any school depends on the effectiveness of the head teacher in managing of funds as the school administrator. Odhiambo and Simatwa (2012) stated that in order for a school to effectively achieve its desired objectives in an efficient manner, the head teacher should work with teachers, pupils and other relevant people within and outside community for the school. Mwamba (2017) stressed that the head teacher is expected to encourage and provide assistance for the professional growth of all the teachers under his/her leadership, and this can be accomplished through well planned seminars, workshops on financial management like financial record

keeping, book keeping as well as retirements and acquittal of funds for the government.

The need for head teachers' input in running PU has been established in literature. The entire framework includes more than just the head teachers. To ensure good performance and sustainability of production unit in schools, government, parents and teacher association (PTA), and stakeholders should assist in providing the resources needed like school garden, animal farm, demonstration plots and laboratories to facilitate the teaching of Agriculture Science in schools (Amuah (2009). Besong (2014) conducted a study on the effectiveness of head teachers in schools in Cameroon. The study focused on effectiveness of head teachers and its effect on managing human and material resources in schools. The study found that the effectiveness of head teachers (school administrators) was negative in managing material and human resources. This showed that, school administrators were not performing effectively in managing finances, assets and human resource. Empowering school administrators with knowledge and skills in management is critical to the success of all business ventures of the schools. Monitoring the performance of head teachers and all the personnel involved in the activities of the production unit is significant in achieving success and this can be done through regular reporting on the activities of the production unit to the District Education office and Provincial Education office.

The Zambian education system has been challenged with regards to effective PU management. The Ministry of Education (2010) reported that there are challenges concerning sector management and capacity building in Zambian education, which can affect the performance of the schools and the ability of schools to venture into various production unit functions. Among the challenges concerning management are; poor institutional capacity, slow procedures for tendering, slow process to expedite procurement works, ineffective supervision of the activities leading to misapplication of resources and poor workmanship. The Ministry of Education (2010) found that there was inadequate funding for identified programs and there was a weak linkage between the national budget and ministry work. The identified problems have a negative impact on the performance of schools, and affects schools' participation in many projects like running a sustainable production unit. The Ministry of Education (2010) further identified weaknesses in public sector education on how best to mobilise, receive, plan and source for external resources.

Based on the theory of production and the empirical studies and reports of other researchers presented in the literature, the current study develops a conceptual framework comprising of many different factors that have an effect on management, performance and sustainability of production unit. Among the resources that can positively or negatively affect production unit in schools is land, labour, capital, entrepreneurship and time. Developing a system of self-sustaining of production unit through market orientation is critical for sustaining production unit in schools. This implies that schools should be able to produce good quality products that are suitable for sale at the market, to gain income that can support the budget for running the

production unit. The success of a production unit will also depend on the commitment of head teachers, teachers, pupils, parents and all stakeholders in spearheading the activities of the production unit. Apart from the commitment, all the parties involved; teachers, parents and pupils must work in collaboration to support each other in carrying the activities of the production unit. Knowledge and skills of production is also critical to the operations of the production unit. School management must therefore ensure that the people managing the operations of the production unit have the required knowledge and skills to produce and manage all the activities effectively. In achieving a successful production unit, it's important for management to plan the activities of the production unit, organize the resources and activities needed, then coordinate proper implementation of the activities and ensure supervision of all the activities in the production process. One critical element under supervision is evaluation of the activities and progress of production at every stage to ensure that the production process is as planned and will achieve the intended objectives.

### B. Theoretical Framework

This study was guided by the Human Capital Theory, which was proposed by Schultz. According to this theory, education is an investment in human beings that may come in various forms. It may be in the form of learning a trade or it could take the form of personal development programmes aimed at improving personal skills. This study therefore, attempted to establish to what extent the Human Capital Theory would be applicable in indicating how sustainability and management of Production units can be achieved. Based on this theory, human capital goes a long way in playing the crucial role of accelerating agricultural productivity through learning, applying and disseminating of technical knowledge. Human capital also influences the farmer's capability in terms of adjusting new technology in particular circumstances as a changing demand (Muleya *et al.*, 2019 & Hennessy *et al.*, 2012). A person's human capital stock is a primary determinant of the kinds of employment they can successfully compete for, their consequent earning capacity, and lifetime earnings.

## III. METHODOLOGY

### A. Research Design

The study used Hermeneutics Phenomenology research design within qualitative methodology. The target population included all head teachers and all teachers managing production units in Zambian schools of Kalomo District in Southern province. Purposeful sampling method was used to select those who could offer comprehensive information about the phenomenon; that is, 10 schools were included as part of the study. Three participants were interviewed from each of the 10 schools, and the research had a sample size of 30 participants. Data was collected, employing interviews and questionnaires as the key instruments. Descriptive statistics and thematic analysis were used to establish the findings.

## IV. PRESENTATION OF FINDINGS

### A. Performance of production units in Kalomo District

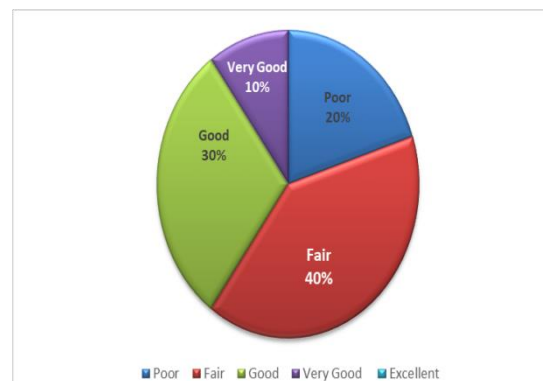


Fig. 1. Performance of production units in Kalomo District.

Fig. 1. shows the findings in percentage of the performance of the production units in Kalomo District. The majority considered that their school's PU was performing fairly (40%) while others considered it good (30%). Further analysis revealed that the good performing PUs were the ones operating tuck shops while the rest fell in the categories of other activities. Those whose PUs were performing poorly made up 20% and 10% with very good performance. Poor PU performance was attributed to lack of funding, water problems, diseases and animal invasion, marketing, declining capacity and competition from enterprises already in agriculture. Those performing fairly indicated slow growth with potential for better results. All the respondents indicated that despite their PUs levels of performance, they were profitable ventures capable of supporting school activities such as procuring teaching and learning materials. The profits were also found useful for sustaining the PU staff; and selling to the boarding schools.

In terms of structures of the PUs for management purposes, it was found that there was a Chairperson, PU Committee; and pupil representatives. The Deputy Head Teacher works as the Chairperson assisted by the teacher of Agricultural Science (not in all cases). The PU Committee is spearheaded by the PU Chairperson; in other schools by a Senior Teacher or some other specialized officer such as a Teacher. But the general overseer to whom activities are reported, is the head teacher. Each school had a PU Coordinator whose responsibility is to oversee the operations of the program. This officer is selected from among the teachers and must have an agricultural/entrepreneurship orientation.

It was found that the PUs were managed well through committees of which the Head Teacher was overall supervisor, seconded by the Deputy Head Teacher. The Committee was made of the Chairperson, Vice Chair Persons, Secretary Treasurer and Committee Members. The PU prefect was included on the committee. The entire PU Committee is in charge and reports to the school administration. The accounts department looks after the finances of PU. The school has a finance committee which checks on financial reports and gives advice.



### B. Emerging Themes Regarding Production Unit Performance

A number of themes emerged from the study regarding the performance of PUs in Kalomo District.



Fig. 2. Summary of the Major Themes of Production Unit (PU) Performance.

Fig. 2. shows the major themes regarding the performance of PU. There was consensus among the respondents that the schools in Kalomo District had operational PUs whose levels of performance varied. PU performance was inhibited by various challenges. The interviews established that the current low performance of PUs among schools in Kalomo District was not wholly attributable to school management but that there were other constraining factors. These were established as:

- i. Schools' low capacity to fight diseases affecting animals and crops under PU
- ii. Inadequate dedicated staff and members of PU Committees
- iii. Low capacity to improve PU performance at school level
- iv. Head teachers having a vast range of activities to divide their attention
- v. Inadequate capital resources to run PU
- vi. Poor PU profitability.

### C. Management Practices of Production Units

The respondents indicated how each management official was involved in PU at their school.

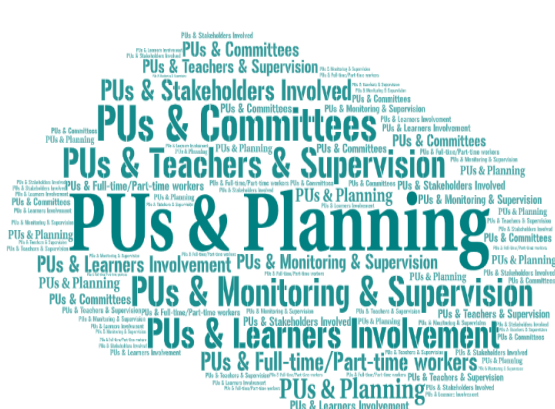


Fig. 3. Major Themes of Management Practices of Production Units.

Fig. 3 is a presentation of the major themes regarding how management of PU was practiced by various stakeholders in schools within Kalomo District. It shows that the major stakeholders affecting the management of PU were the school administrators, teachers, learners, PU committees, PU workers and others.

#### D. School Administrators' Involvement in Production Unit

The study established the various ways that head teachers were involved as administrators in PU. The administrators were involved in monitoring and supervision of the PU activities. While the other stakeholders are important, school administrators have the final say on strategic matters and on the purchase of capital equipment and inputs. They play an advisory role and obtain reports from the PU Committee, the PU Coordinator and teachers, depending on the matters at hand. Administrators were the school's link to, policy makers and were essential for policy implementation and direction.

#### E. Teachers' Involvement in Production Unit

Teachers were considered direct facilitators of PU activities in the school as they worked to directly supervise pupils 'hands on' as they did their assigned PU duties, usually according to class on specific days. Teachers were assigned on a weekly rota basis to supervise pupils during PU. The teachers do not directly supervise the PU workers but work hand-in-hand to place the learners on duty.

#### F. Learners' Involvement in Production Unit

All pupils were directly involved in PU activities as part of their regular extra-curricular activities. In special circumstances, the PU was used for teaching purposes in subjects such as Agricultural Science and Design and Technology. Learners have a timetable on when they should go and attend to PU activities outside their normal learning time. Learners participate through students Leadership representation. Prefects supervise fellow pupils. Apart from doing the actual work, pupils also do sales.

### G. Production Unit Committee Involvement in Production Unit

The management of PU was also done through the PU Committees composed of teachers, Prefects, pupils, and a PTA representative. The committee is fully involved in the management of all the PU projects at the school and are accountable to the school administration. The school administration obtains recommendations from the Committee and helps in better supervision of PU works, marketing produce and networking with other external stakeholders.

#### H. Workers' Involvement in Production Unit

The study found that schools employed either full time or part-time staff. In other cases, they relied on the learners. The roles of the workers varied according to the type of PU running at the school. Their responsibilities included handling cash sales, accounting, purchasing of materials and implements. Where the PU was a tuck shop, the Coordinator was responsible for purchases but worked with the sales person to do the physical orders. The welfare of the animals and birds under PU was the responsibility of the PU

Coordinator working with the personnel at the location. The workers were responsible for feeding, cleaning, planting, weeding, fumigating, grazing and other general duties related to the PU activities at the school.

#### I. Other Stakeholders Involved in Production Unit

Other stake holders give financial and material support. Parents, through the PTA Executive Committee participate in the school PU committee. The PUs receive professional support from agricultural staff and parents. The PTA Committee also helps in providing animal power and manure.

#### J. Factors Affecting Management, Performance and Sustainability of Production units in Kalomo District

It was found that the key factors were related to the application of resources to PU; Level of strategic planning; level of PU management independence from the school; level of support from the DEBS; challenges and opportunities of running PU at school level; type of PU and the status of PU at school level.

#### K. Application of Resources to Production Unit

The type of resources applied to PU were also related to kind of activity the school engaged in. Financial resources were initially sourced by the school with the involvement of the PU Committee. PU infrastructure was mainly constructed with the involvement of both schools and the community. Not all resources were found to be requiring money. The study found that the local materials were also applied to PU.

#### L. Strategic Planning for Production Unit

The study found that PU management in most schools was considered strategically at managerial level. There were indications that certain PU activities would be undertaken in the near future.

#### M. Independence of the Production Unit

The level of independence in the management of PU was assessed by whether schools had employed staff specifically working at the PU. It was found that 70% of the schools did not have independent staff working at the PU. The 30% who had their own independent PU staff indicated that these were employed to professionally oversee the operation of the production unit and plan the activities to be carried out.

#### N. Support from the DEBS Office

The study found that the schools were obtaining support from the DEBS in form of guidelines on how to start and run a PU programme; monitoring and capacity building programmes; how to run a profitable PU; motivation to engage in PU; ensuring compliance with government policy on PU; other advice and sensitization on the importance of PU.

#### O. Managerial Challenges and Opportunities

The study found that running PU at school level had challenges and opportunities.

| Challenges                        | Percent | Data Bar |
|-----------------------------------|---------|----------|
| Lack of training                  | 50      |          |
| Inadequate financing              | 50      |          |
| Inadequate water supply           | 30      |          |
| Inadequate land                   | 20      |          |
| No full time trained farm manager | 20      |          |
| Inadequate time for PU activities | 10      |          |

Fig. 4. Challenges.

Fig. 4. shows that the most significant challenges were lack of training (50%) and inadequate financing (50%). Of concern was the inadequacy in water supply (30%). Other schools had inadequate land (20%) and no full time trained farm managers (20%). Other schools did not have adequate time allocated for PU activities.

| Opportunities                    | Percent | Data Bar |
|----------------------------------|---------|----------|
| Readily available pupils' labour | 70      |          |
| Readily available market         | 60      |          |
| Supportive and zealous staff     | 50      |          |
| Near to town                     | 40      |          |

Fig. 5. Opportunities

According to Fig. 5. the major opportunities with regards to PU were the availability of labour through learners (70%); a readily available market (60%) and supportive school staff (50%). Additionally, schools were advantaged by being closer to town (40%). Other opportunities were the availability of farm workers (30%); having trained teachers of Business Studies and Agricultural Science (30%) and sufficient school or traditional land (30%).

#### P. Status of Production Unit

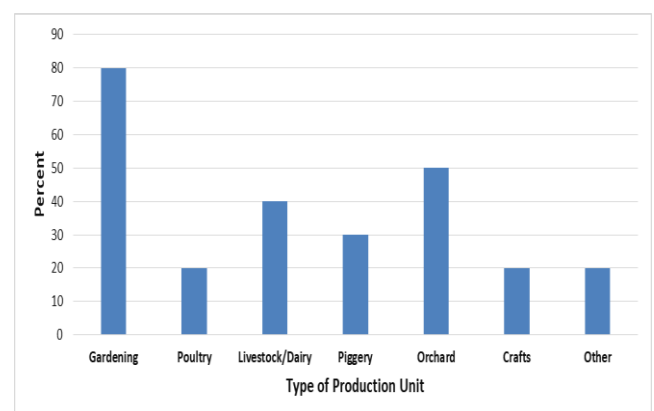


Fig. 6. Status of Production Unit.

Fig. 6. shows the findings that gardening was the most active at 80%; followed by orchards (50%) and livestock (40%). In lesser cases, schools had active piggery (30%); crafts (20%) poultry (20%) and other activities (20%).

### Q. Sustainability Framework for Improving Performance of Production Units Schools in Kalomo District.

To make PU more sustainable, the respondents made suggestions from which a framework for improving PU performance was derived.

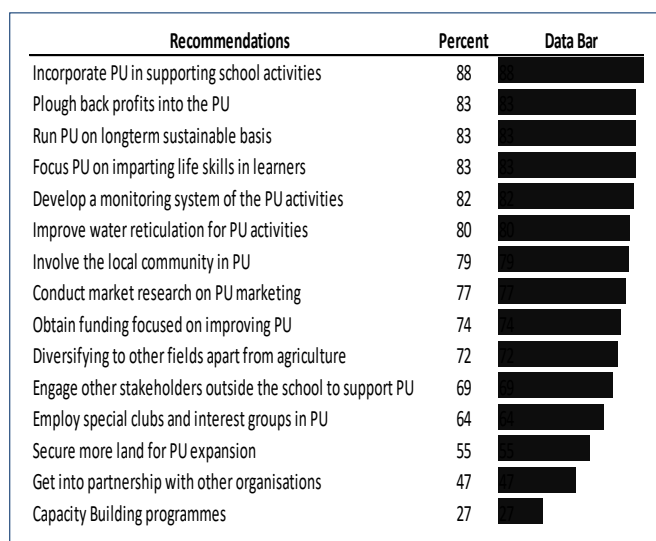


Fig. 7. Sustainability Framework for Improving the Performance of Production Unit.

Basing on the recommendations from the respondents, Fig. 7. shows the framework within which PU can be structured so as to improve its operations. In this regard, it would be appropriate to incorporate PU in supporting school activities such as buying teaching and learning materials (88%). There was strong indication by 83% of the respondents to plough back profits into the PU. By 83% of responses, it was suggested that PU Committees would undertake longterm planning for sustainable, and focus PU on imparting life skills in learners (83%). It was further established that an appropriate PU model would incorporate a monitoring system (82%); improved water reticulation system (80%); and involvement of the local community (79%).

The study found that the respondents believed that to be sustainable, the PU should engage in market research (77%); obtaining financing (74%); diversification into non-agricultural activities (72%); and engage private stakeholders (69%). Other views for improving PU performance focused on reviving special clubs and interest groups (64%); procure land for Pu expansion (55%). Fewer of the respondents were specific on partnering with other organizations such as NGOs (47%) and conducting capacity building programs for PU (27%).

## V. DISCUSSION OF FINDINGS

### A. Performance of Production Units in Kalomo District

The first objective of the study was to explore the performance of production units in Kalomo District. This was reportedly fair and good. Performance in this context was considered as defined by Bhasin (2021) that it is the actual output of an activity measured against the output intended over a period of time; that is, what an organization

is able to accomplish with the assigned resources and interaction with its various constituencies. The PUs in the study had the appropriate management structures consisting of the Head Teacher, the Deputy Head Teacher; the PU Committee, the PU Coordinator and a teacher of Agricultural Science or Business Studies (in certain cases only). It was found that the Deputy Head Teacher and PU Chairpersons were actively involved in the operations of the PU with the Head Teachers taking up more strategic roles. This finding is in harmony with research and practice whereby it has been established that the Head Teacher and the entire administration team are responsible for the success of all school activities. This was noted in the study by Etsey (2005) who found that unless the school principal acted to manage the school with appropriate leadership in all areas, other areas may suffer. The principal should pay attention to all curricular and co-curricular areas to ensure they thrive. School managers' involvement could serve as enablers to productivity in a school their by contributing to quality education in a school setup (Simui *et al.*, 2019 & Simwatachela-Simui *et al.*, 2020).

The general performance of the PUs in Kalomo district were reported to be organized in terms of management structures. It was found that management was cardinal for effective performance of the PU at any of the schools. Up to 70 per cent of the PUs in the district indicated a level of good performance, especially those that had assigned their tuck shops under PU.

Whatever the level of performance, it was found that the PUs were making progress despite the challenges of resources and operation. All the PUs indicated strong potential for profitability if left to operate on strict business terms. This finding is similar in approach to Chukwu *et al.* (2019) who found that PUs could not be effective unless they were a significant contributor to the school under specialized management. Thus school activities such as poultry, fishery, clothing, textiles, catering, feed production, leather manufacturing, equipment repair and maintenance and crafts, among others were also attached to PU.

It was found that the PUs were managed well through committees of which the Head Teacher was overall supervisor, seconded by the Deputy Head Teacher. The Committee officers were the Chairperson, Vice Chair Persons, Secretary, Treasurer and Committee Members. The PU prefect was included on the committee. The entire PU Committee is in charge and reports to the school administration. The accounts department looks after the finances of PU. The school has a finance committee which checks on financial reports and advises. While the current study found that the schools in Kalomo had the appropriate management structures for effective performance of PU, a study by Galeh, Putra and Moch (2018) found that management structure challenges impeded the performance of PUs. The study found that there were weaknesses of managerial planning, monotony, overlaps in job descriptions and supervision not running maximal. The study found that there was no PU management model for schools. PU was mainly used as a source of learning and alternative funding; thus did not have room to expand.



The findings of this study that most PUs in Kalomo District were performing positively but on a small scale resonate with Kaluba (2020) who found that since 1975, school PUs have not broken through to become influential contributors to educational income comparable to school fees and other contributions to the schools. PU has remained much a part of school regular activities involving crop farming and livestock. The schools still lack the advanced equipment; managerial capacity; access to finances and expert methods of production and business. Although recent years have seen a resumption in PU activity, the total and aggregate value of goods being produced remains low.

### *B. Management Practices of Production Units*

The second research objective was to describe the management practices of production units prevailing in Zambian schools of Kalomo District. The study established that management of PU was through various stakeholders undertaking specific roles. The school administrators (Head Teachers, Deputy Head Teachers and PU Coordinators) were involved in the strategic and operational managerial activities. This implies that they were concerned with establishing the longterm progression of the PU and implementation of the PU activities at the school. Managerial roles include planning, organizing, leading and coordinating the activities and resources of the institution. It is within this framework that they made decisions regarding purchase of capital items and undertook monitoring and supervisory roles.

The study found that management of PU involved teachers working under the supervision of the Deputy head Teachers and in collaboration with the PU Coordinators to supervise learners at assigned portions according to a weekly rota. Learners were directly involved in PU as a part of their extra-curricular activities and also for academic purposes (for learners taking Agricultural Science and Design and Technology). In most cases, learners did PU after class or when specifically assigned and supervised by prefects. The schools in Kalomo were found to be operating PU under PU Committees composed of teachers, Prefects, pupils, and a PTA representative.

For convenience of management, the Deputy Head Teachers were assigned to chair the PU Committees. The operations level of PU management included PU workers. These varied from farm workers to tuck shop sales personnel, depending on the type of PU. Some schools had full-time staff while others had part-time workers. Other schools did not have workers but relied on the PU Committee, teachers and pupils. The roles of the workers included farming crops; taking care of the PU facilities; raising animals; sales; purchases and any other general duties as assigned by management. The study found that there were other people involved in running the PUs including parents, community members, PTAs, business and agricultural experts; government officials and well-wishers.

The current study considered management practices according to the types of stakeholders involved. In a different study Martoki (2012) found some general weaknesses in PU management practices that not all schools had adequate building facilities to be used as production unit offices. The production unit planning was found to be

monotonous. This means that the production unit was only seen as a place for the practice of learners. The school was still overlapping in terms of duties. Many schools had members of production units organization who were still holding positions in other organizations at the school. Thus, the school members were not entirely focused on PU work. In addition, school members in PU were not experts in the field. This resulted in a lack of PU development because the manager was not competent in their field, the organization of PUs in some schools was only a formality for the purposes of school accreditation so that there was no real form of PU organizational structure.

### *C. Factors Affecting Management, Performance and Sustainability of Production Units in Kalomo District*

The third objective of the study was to explore the factors affecting management, performance and sustainability of production units in Kalomo District. In an organized system, Sinclair (2012) submits that it would be expected that the operations would be done in a systematic manner according to best practices in management and that the activities would be sustainable rather than be found to fail and close down. This would indeed be expected of the PUs at school level. However, previous studies have shown that PU in Zambia has been constrained in terms of performance and sustainability such that there has not been significant growth and certain schools had stopped operating any sustainable PU activities (Mulenga, 2006). In the case of Kalomo District PUs the factors that had a direct relationship with management were resources, strategic planning, PU management independence from the school; support from the DEBS; challenges and opportunities of running PU at school level; type of PU and the status of PU at school level.

The factors of management of PU can be discussed in terms of the managerial functions of resource allocation and planning. These factors fall within the main framework of school managerial functions of planning, organizing, leading, coordinating, leading and motivation (Bailey, 2019). It was found that the PU management factors of resource allocation and planning were cardinal. This was done according to the type of PU which required management to obtain the actual resources such as chemicals and implements in farming. The major resource was financing of which most PUs were meant to raise money for the school activities rather than to sustain their own operations.

Although profitability was mentioned as a goal, there was no significant indication of ploughing back of profits to grow the PU. Physical resources were readily available in terms of school land, except in situations where the schools were running PUs requiring extensive land such as farming. Financial resources for PU were also assigned from the school fees collected.

Planning was found to be a significant managerial factor in the management of PU in Kalomo District. Schools indicated that they had plans of expanding their PU to large scale operations, especially in agricultural activities such as animal keeping, poultry, and crop farming. There were also plans of improving infrastructure such as water reticulation, land improvement, diversification of activities and enhance production. Despite such orientation, there was not one

school with a PU strategic plan or business plan. Some of the plans had been mentioned without reference to time frame of actualization or any resources being channeled to achieve the plans.

Performance of PU as conceived for this study meant to establish how well the schools were doing in terms of achieving the goals of this sector of the school. In any organization, the most essential factors affecting organizational performance are Leadership, Motivation, Organizational Culture and Knowledge Management (Murthy, 2015).

The study established that all schools had a management structure in place from which leadership would ensue to make sure that the school Head Teacher can work with the management team to influence others to achieve the PU goals and direct the school towards working on PU projects with motivation and consistency. The study found that the majority of schools did not have an independent PU staff. The aspect of leadership was not strongly positive in the performance of the PU as the respondents did not indicate how stakeholders were brought together in harmony. Thus most PUs were still on very small scale and detached from the mainstream activities, leaving teachers and other people with interest to work alone. The Head Teachers were overseers requiring other staff to work at the PU by assignment. This aspect of leadership was positively identified in a study by Mwiinga (2016) that the leadership style employed by the head teacher had implications for school climate. In essence, the head teacher's leadership behavior for example, his/her expectations, values, beliefs, relationships with teachers and the examples he/she set for the whole school shaped the climate in the school. In view of this, the need for head teachers to be well informed to use their leadership styles to create and improve school climate could not be over emphasized.

Motivational factors such as salaries, working conditions, strategy, competence and sense of belonging were not evidenced from the study. It was found that PUs were operated under a system of structures that had top officials, teachers, workers and learners. There was no strong indication that the PU stakeholders were taking their roles with significant motivation, except that they were assigned to perform certain tasks. Going by the factors of organizational culture, Mulunga (2012) has established that there has been negative beliefs, values and practices relating to the operation of PUs in Zambia. Similarly, the current study did not establish positive culture as most PUs were not well assimilated into the operations of the school and did not stand out as major activities of a sustainable nature. Knowledge management was significant only as far as the office of the DEBS Kalomo in providing guidelines on how best to run PU, monitored the activities and undertook capacity building. The DEBS further motivated head teachers to ensure compliance with government policy and focus on revamping PU around the country. However, the level of actualizing the support was lower as most schools were trailing in terms of having sustainable PUs.

The study undertook to establish whether the operations of the PUs in Kalomo district were sustainable. Sustainability is the concept that an activity will proceed with its operations into the foreseeable future and that the

resources applied to the venture today will be sufficient to make future operations profitable (Simons, 2020). It is argued that simply having an activity going on in operation does not make it sustainable. It may be a burden to the organization, drawing upon the resources of other units to support unsustainable operations (Best, 2015). The current study found that achieving sustainability of PU was constrained by various factors while other factors provided opportunities that would make for sustainability. Among the constraining factors were the lack of human resource training; inadequate funding; poor water supply; inadequate land; lack of trained PU managers and inadequate time for PU activities. On the other hand, it was found that PU activities in schools had potential to continue in operation since they had readily available labour in pupils and a readily available market. There was opportunity for schools in Kalomo to have supportive school staff; cheap labour of farm workers; trained teachers of Business Studies and Agricultural Science and sufficient access to large traditional land. The study found that the most sustainable PU activities in Kalomo district were gardening; fruit orchards and livestock. All the respondents indicated that PU would be a sustainable venture if properly managed. Similar challenges have been established in earlier studies. For example Chukwu *et al.* (2019) found that PU was largely constrained by lack of organizational vision for productivity; poor perception of school production units; lack of manpower to drive the establishment and perceived problems of integrating industries and entrepreneurship in school programmes.

The factors of sustainability as established in the current study are similar to what Hang'andu (2016) found in their particular dimensions. It was found that there was low participation by influential political and business people within the communities who did not sit on the PU Committees. Most schools had poor water supply; no electricity; poor financing and experienced constant theft both internally and externally. It was found that the proceeds of PU were mainly channeled to other school needs, requiring schools to start all over every year from school fees. Farming was considered the most sustainable type of PU.

#### *D. Sustainability Framework for Improving Performance of Production Units Schools in Kalomo District*

The fourth research objective was to design a sustainability framework for improving performance of production units of schools in Kalomo District. The need to improve PU and make it more sustainable was strongly established in the current study. Earlier studies have attempted to come up with a sustainable framework for running PU. Despite the challenges, the study showed potential that much can be achieved by integrating PU into the mainstream educational framework. Some of the major inclusions proposed included making PU more profitable; focus on improving managerial performance; extend stakeholder participation; improve PU infrastructure; pool more resources into PU; research into new areas of PU; extension of capital infrastructure and changing the school culture towards PU sustainability with appropriate human



resource training and development.

Various other researchers have recommended frameworks that may enhance PU. NAS (2021) recommends finance-related strategies as the basis for improving school productivity. They recommend a systematic approach to raising PU funds and applying such to specific projects until they reach a profitability threshold before applying the funds to other school needs. They recommend a shift from equity to adequacy in PU spending and strong policy framework to control and address expenditure gaps that impede PU productivity. Zamzam (2012) recommends a model that would reshape and strengthen school PU based on policy direction considerate of the needs and resources available to each school. Ananda and Mukhadis (2018) developed a model of PU based on the school as an entrepreneur. The model proposes that PU be run purely as a business with the school as the major shareholders, but also allow other investors. This was based on the finding that there is a significant direct relationship between the production units as edupreneurship with entrepreneurship mindset vocational students. The students getting accustomed to working on the workpiece on the activities of the production unit indicates ability to open their own entrepreneurship after graduation.

Paradise (2012) came with the PU model of learning through action in a work-based learning environment. This action learning approach is a model of learning in which an individual with the others in a small group learn together to solve important problems, through the process and problem solving they learn to resolve existing cases. Herry and Hendro (2016) proposed a six step-model. At the first step, consideration is given to the examination of school resources available for PU, including financial, human, material and infrastructure. At the second stage, a SWOT analysis is conducted. Third step is establishment of the PU. Fourth stage is the strengthening of skills and knowledge to grow the PU. The fifth is the choice and launch of the products/services under PU in relation to market research and product design. The sixth step is the incorporation of sustainable partners within the ministry and other stakeholders.

## VI. CONCLUSION

The exploration of the lived experiences of selected schools in PU within Kalomo District reveals that school head teachers and other administrators were well versed in interpreting their managerial practices in PU. In terms of performance, the head teachers were contributing at less than their capacity, evidenced by the constraints of resources, marketing, competition and animal diseases. Regardless, the head teachers had capacity to improve PU performance at their schools as this was profitable while capable of contributing to other school activities. The study affirms that there was significant involvement of various stakeholders in the management of PU, including head teachers; deputy head teachers; PU Committees; teachers; PU workers and pupil representatives. Learners continue to be a significant labour resource if well managed and engaged in direct production at PU. The findings of the study provided a firm basis for designing an appropriate PU model focused on schools mobilising resources, engaging

community stakeholders; having PU as part of the mainstream school strategic plan and working with the Ministry of Education on PU.

## VII. RECOMMENDATIONS

- i. PU should be incorporated into the mainstream strategy of the school in order to have a long-term focus and approach.
- ii. The Ministry of Education should provide a structured guideline for schools to follow in the executing of PU activities.
- iii. Schools should be equipped with qualified, professional staff to run PU projects at school level.
- iv. The factor of profitability should be inculcated into school PU so that it can be self-sustainable in the long-run.
- v. There is need to have a system of managerial continuity and accountability so that the performance of PU does not depend on the individual commitment characteristics of the head teachers but becomes part of managerial practice.

## CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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