

STRATEGIC
NOTE ON
IMPLEMENTATION
OF PRODUCTION
UNIT

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National Science Centre



Republic of Zambia

Ministry of Education



*Revamping Production Unit in
the Education Sector:
Contributing Towards and
Beyond a Prosperous Middle
Income Zambia*

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The Zambia National Anthem

Stand and sing of Zambia, proud and free,
Land of work and joy in unity,
Victors in the struggle for the rights,
We've won freedom's fight.
All one, Strong and Free.

Africa is our own motherland,
Fashion'd with and blessed by God's good hand,
Let us all her people join as one,
Brothers under the sun.
All one, Strong and Free.

One land and one nation is our cry,
Dignity and peace 'neath Zambia's sky,
Like our noble eagle in its flight,
Zambia, praise to thee.
All one, Strong and Free.

CHORUS

Praise be to God,
Praise be, praise be, praise be,
Bless our great nation,
Zambia, Zambia, Zambia.
Free men we stand
Under the flag of our land.
Zambia, praise to thee!
All one, Strong and Free.

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3 Foreword



Hon. Douglas Munsaka Syakalima (MP)

Minister of Education

Zambia, through the Constitution Amendment act of 2016 stated its national values and principles as being: (a) morality and ethics; (b) patriotism and national unity; (c) democracy and constitutionalism; (d) human dignity, equity, social justice, equality and non-discrimination; (e) good governance and integrity; as well as (f) sustainable development.

Besides upholding the aforementioned values and principles, the country's resolve to attainment of a Prosperous Middle-Income Nation (Vision 2030), and becoming a Developed Country beyond 2030 (Agenda 2063), is ably demonstrated by its commitment to socio-economic development through the Eighth National Development Plan (8NDP). Through the 8NDP, Zambia aspires to make national development the main priority in which its citizens throughout the country take centre stage in everything that is being done. For this reason, Zambia's developmental operational agenda is themed, "Socio-economic transformation for improved livelihoods". At the helm of Zambia's developmental strategic plan is economic transformation and job creation supported by three main pillars namely; (1) human and social development; (2) environmental sustainability; and (3) good governance environment. To attain this much desired sustained economic growth, diversification driven by agriculture, mining, manufacturing and tourism will be fundamental. Undoubtedly, human and social development has been cited as a mainstay to inclusive development as it is a catalytic ingredient to the transformation of the country. This is expected to be achieved through investments and interventions in education and skills development, health, nutrition, water and sanitation in order to reduce poverty, inequalities and vulnerability. To improve education and skills development, the government will focus on expanding access, improving quality of early childhood, primary and secondary education as well as technical, vocational and entrepreneurship aligned education.

In order to attain such transformational agenda aspirations, various multi-dimensional approaches need to be employed. It is no longer debatable that attainment of such requires evidence-based education as one key factor towards the realization of the milestones set.

In the quality education provision framework, besides the intention of having responsible and patriotic citizens, the objective is that of producing a learner who is; critical, creative, analytical, a problem-solver, and able to relate thinking with real life situations. To this effect, the Ministry of Education has designed programmes aimed at taking Zambia to its desired developmental agenda. The blending of theory and practice in education provision is therefore paramount. This necessitates revamping the PU philosophy of the mid-seventies.

Developing PUs at all levels of education provision is the creation of a by-pass where academic education is amalgamated with vocational skills education. It has been argued that ‘industrialization’ accelerates development of any country of which Zambia is no exemption. In the Zambian context, schools are entities from which skill acquisition and sustainable developmental practices can begin to be implemented. This can be achieved through, among others, the diversification in the use of locally available resources through the process of PUs.

In this document therefore, the vision and strategies of implementing production units in the education sector have been provided. The desire is to have a vibrant Production Unit at all levels of education delivery. I therefore urge all players in the new transformation agenda to implement this program and that the outputs become among sustainable activities in Zambia.

4 Acknowledgement



Joel Kamoko (Mr.)
Permanent Secretary -Technical Services
Ministry of Education

Reading this document, gives the foresight that the revamping of Production Unit in the Education Sector in Zambia is necessary. This country has to move forward and one way is through the implementation of Production Units at all levels of education delivery. These practices will enhance nurturing the much-needed talent and energy of the youth in order to develop the required high order cognitive skills and values to drive the agenda of industrialization in the context of the UN Agenda 2030, AU Agenda 2063, Vision 2030, Smart Zambia transformation agenda 2064, and the Eighth National Development Plan (8NDP) roadmap. To this effect, venturing into production units would greatly help mitigate the cost of education provision as institutional income would readily be available. This vision is very clear on the role of education in realizing this aspiration in Educating Our Future (EOF) and the Education Sector Support Program (ESSP). Therefore, the practice of Production Units under the Ministry of Education can no longer be ‘business as usual’.

Gratitude is expressed to the Minister of Education for his tireless effort in demonstrating strong political will and providing informed direction in the championing of Production Units in the education sector. Therefore, I congratulate the honorable for his foresight to bear fruits as by the publication of this document.

Special thanks is extended to the Directorate of National Science Centre team for providing leadership in producing this document. To the education institutions at all levels, I direct you to implement this task with resilience and determination.

5 Message from National Production Unit Coordinator



Benson Banda (PhD)
Director – Directorate of National Science Centre
National Production Unit Coordinator
Ministry of Education

Zambia is endowed with massive varied resources which need to be well nurtured and also used to benefit its citizens sustainably. Human resource able to drive the agenda effectively is available within the education sector. The learners at all levels of education require development of desirable skills and values. Among the many values a human being requires is the ability to be productive in order to contribute to socio-economic development of the country. Therefore, implementation of Production Units program outlined here requires sharing the same sense of mission. There is need for all stakeholders in the education sector to work together and see to it that PU activities are implemented with joy. Various ideas on Production Unit will be developed through which attainment of effective implementation will be shared.

We shall endeavor to make available the implementation models as they emerge so that we are kept abreast with what education can do as regards to Production Units. As implementers, let us take this as a positive challenge which we should all cherish as we educate the nation.

6 Vision of the Country

A prosperous middle-income Nation By 2030

7 Vision of Education

Quality life-long education for all which is accessible, inclusive and relevant to individual, national and global needs and value systems

8 Mission of Education

To guide the provision of education for all Zambians so that they are able to pursue knowledge and skills, manifest excellence in performance and moral uprightness, defend democratic ideals, and accept and value other persons on the basis of their personal worth and dignity, irrespective of gender, religion, ethnic origin, or any other discriminatory characteristic

9 Goals of Education

a) *Producing a learner capable of:*

- i. *Being animated by a personally held set of civic, moral and spiritual values;*
- ii. *Developing an analytical, innovative, creative and constructive mind;*
- iii. *Appreciating the relationship between scientific thought, action and technology on the one hand, and sustenance of the quality of life on the other;*
- iv. *Demonstrating free expression of one's own ideas and exercising tolerance for other people's views;*
- v. *Cherishing and safeguarding individual liberties and human rights;*
- vi. *Appreciating Zambia's ethnic cultures, customs and traditions, and upholding national pride, sovereignty, peace, freedom and independence;*
- vii. *Participating in the preservation of the ecosystems in one's immediate and distant environments;*
- viii. *Maintaining and observing discipline and hard work as the cornerstones of personal and national development*

b) *Increasing access to education and life skills training*

c) *Building capacity for the provision of quality education*

d) *Creating conditions for effective coordination of policies, plans and programmes*

e) *Rationalizing resource mobilization and utilization.*

11 Abbreviations

ADB	Africa Development Bank
AU	African Union
7NDP	Seventh National Development Plan
CIPP	Context Input Process Product
CPD	Continuing Professional Development
DEBS	District Education Board Secretary
DESO	District Education Standards Officer
DEST	District Education Support Team
DRCC	District Resource Centre Coordinator
ECZ	Examinations Council of Zambia
EFA	Education for All
EOF	Educating Our Future
ESSP	Education Sector Support Programme
GMD	Geometrical & Mechanical Drawing
ICT	Information Communications Technology
IGA	Income Generating Activities
IMF	International Monetary Fund
HoD	Head of Department
HoS	Head of Section
KSV	Knowledge Skills & Values
LCD	Liquid Crystal Display
MDG	Millennium Development Goals
MoE	Ministry of Education
NDP	National Development Plan
DNSC	Directorate of National Science Centre
PEO	Provincial Education Officer
SBCPD	School Based Continuing Professional Development
SDG	Sustainable Development Goals

SMDT	Science Mathematics Design & Technology
SMT	Science Mathematics and Technology
STEM	Science Technology Engineering & Mathematics
TD	Technical Drawing
TLM	Teaching Learning Material
UN	United Nations
UNZA	University of Zambia
ZESCO	Zambia Electricity Supply Corporation
WB	World Bank

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12 Definition of Terms

1. Production Unit:

In the education Sector, this will mean any form of activity that an institution undertakes locally with an active involvement of all stakeholders resulting in development of life long competencies on one hand and that such activities translate into income generations for the institution

1. Introduction

The idea of revamping Production Unit (PU) in the Education Sector in Zambia comes in a wake of the concerns from the public noting the rise in costs of education provision on one hand, and the skills of valuing productivity among the learners on the other hand, which is among the aim of education provision. The poor PU performance over the years has shown a mismatch to the expectations of the public. This state of affair has brought attention to the Ministry of Education.

Therefore, the Ministry of Education took this concern seriously and developed the Production Unit Implementation Strategy. The purpose of this document is to provide guidelines on the management and implementation of Production Units in education. The ultimate objective is to enhance productivity, resourcefulness and value addition skills and competences among human resource at various levels of Education delivery.

2. Situational Analysis

The situations leading to the revamping of PUs include historical and economic contexts. In this case, historical context is vital to provide insight in what has been done before in line with PU in Zambia whilst economic context provides the basis and focus that PU in Education should take.

2.1. Historical Setting of Production Units

Since the pre-independence era, there were calls to have production units in education institutions. Further the previous reforms including those that established Education Boards were all in the frame of Production Units. Production Unit was viewed as a practical aspect of learning practical Subjects. Therefore, there was need to have a dichotomy of academic learning blended with manual labour. Later, the curriculum was supposed to be vocationalised (Colonial Office: 1965).

During the post-independence period there was a presidential decree in 1975 that schools were supposed to have PUs. The aim of the decree was to ensure that schools were self-sustaining in terms of a steady and continuous supply of food and finance. Besides, everyone was to be involved in food production and availability including pupils. This was envisaged that it would promote diversification so that agriculture contributes to the country's economic growth.

2.2. Glocal Aspirations

Glocal aspiration positions which include global, regional and national aspirations have a bearing on the revamping of production units.

2.2.1. Global Situation

The developed world and underdeveloped world are struggling to co-exist in the global environment. To ensure global life improvements, binding world declarations have been put in place include the; Education for All (EFA) declaration of the 1990s, Millennium Developmental Goals (MDGs 2000 – 2015) that followed, and now the Sustainable Development Goals (SDGs 2015) arising from 2030 Agenda for Sustainable Development. In September 2015, the United Nations the 2030 Agenda for Sustainable Development that includes 17 SDGs builds on the principle of “leaving no one behind”, the new Agenda emphasizes a holistic approach to achieving sustainable development for all. The 17 goals being: No Poverty, Zero Hunger, Good Health and Well-being, Quality Education, Gender Equality, Clean Water and Sanitation, Affordable and Clean Energy, Decent Work and Economic Growth, Reduced Inequality, Industry, Innovation and Infrastructure, Sustainable Cities and Communities, Responsible Consumption and Production, Climate Action, Life Below Water, Life on Land, Peace and Justice, Strong Institutions and Partnerships to achieve the goal. All these SDGs are aimed at transforming our world into a better place for all to live in.

Despite all this, developing countries, Zambia inclusive, are scrambling for development as they are still major suppliers of raw materials and producers of primary products which are later imported back in form of finished products at a huge cost. The developed countries on the other hand, are focusing on value addition on raw materials, as well as technology and artificial intelligence.

2.2.2. Regional Situation

Despite Africa being the richest continent in terms of natural resources, its many economies are not well developed. The continent largely lacks advanced technologies to convert raw materials into processed products hence its reliance on exporting mainly raw materials which result into low revenue. Furthermore, the continent is in dire need of skilled young people. However, there is a mismatch between the skills young people acquire in learning institutions and what the job market needs as well as skills to unlock job and wealth creation potentials. As a result, many young Africans are unemployed or are under-employed in jobs with low productivity and pay.

2.2.3. National Situation

To actualize the global and regional aspirations the Government of the Republic of Zambia has through Vision 2030, implemented National Development Plans (NDPs) namely Fifth National Development Plan (FNDP), Sixth National Development Plan (SNDP) and its revised version the Sixth National Development Plan (R-SNDP) followed by the Seventh National Development Plan (7NDP) covering the period 2017-2021 and currently the Eighth National Development Plan (8NDP). The 8NDP focuses on economic transformation and job creation. To attain this, the stratagem still hinges on multi-sectoral integrated developmental approach framework of the preceding 7NDP. To this effect, the diversified approach in the (8NDP) includes investment in skills development being among key enablers of economic transformation and job creation. Therefore, strategic development activities that lead towards the creation of human capital reserve cannot be overemphasized. Alongside these interventions underway, indicators such as poverty and inequalities, skills development, job creation and employment as well as population provide the economic situation dynamics.

2.2.3.1. Poverty and Inequalities

Despite recording reduction in poverty levels, Zambia still ranks among the countries with high incidences of poverty and inequality in Africa and globally. These persistently high poverty levels in rural areas are mostly attributed to inadequate nutrition, child headed households', inability to afford agricultural inputs, low wages or salaries and lack of engagement in own business.

2.2.3.2. Skills Development

Regardless of the intervention made in education through use of a Knowledge, Skills and Value Curriculum at primary and secondary levels, the delivery of skills has not been adequately reconfigured. This is so because in the current education dispensation, the framework for lifelong learning to build skills as opposed to dependency mostly on white-collar professions has not been prioritized.

2.2.3.3. Job Creation and Employment

The unemployment rate among the youth was higher than the national average and showed an increasing trend from 2005 to 2012. In 2021, the youth unemployment rate was estimated at

17.41 percent compared to 14 percent in 2005 (Zambia Statistics Agency, Labour force Survey Reports, 2021). This indicates the need to create self-employment for sustainability of individuals and communities.

2.2.3.4. Population Progression

The global population in 2010 was 6.9 billion with developing countries recording the highest growth in the world in the most recent United Nations estimates of population census of October, 2018 which stood at 7.7 billion. Businesses and governmental bodies use such information to make determinations about interventions in certain communities or regions.

According to the Zambia Census Projection 2011 – 2035, the population of Zambia is projected to increase from 13,718,722 in 2011 to 17,885,422 in 2020 and 26, 923,658 in 2035. The (2018) population estimate is 16,887,720 (Zambia in Figures, 2018). Figure 1 shows the projection of Zambia’s population from the year 2011 to 2035.

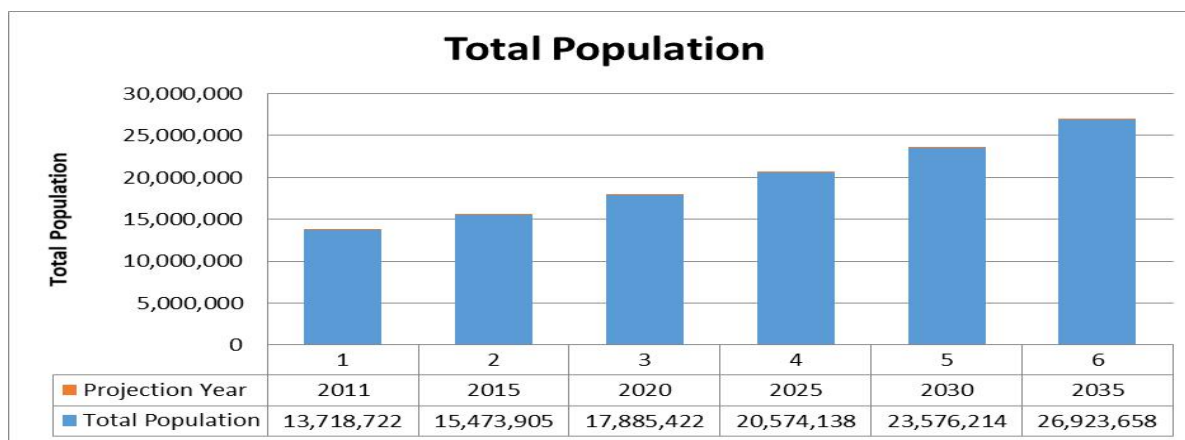


Figure 1: Population projections from 2011 to 2035

As the country’s population grows the demand for products and social services such as food, health, education, recreational facilities and manpower projections also gets higher. Similarly, as the demand for access to education increases the government is also expected to increase service provision. Since the total projected population in Zambia for the year 2030 is at 23,576,214, it therefore translates into increased number of school-going children by age groups in subsequent years at all levels as is estimated in Table 1 and 2.

Table 1: National population progression from 2018 to 2035

	Description	Year			
		2018	2023	2030	2035
Age	National Population Total	16,887,720	19,464,164	23,576,214	26,923,658
	0 to 4	3,007,844	3,324,277	3,809,376	4,198,099
	5 to 9	2,579,490	2,879,799	3,330,189	3,690,783
	10 to 14	2,148,691	2,538,093	2,964,330	3,288,876
	15-19	1,826,529	2,116,478	2,624,648	2,929,360

Table 2: School going age group variance from the national population progression

Description	Year			
	2018	2023	2030	2035
Age in years (0 to 19)	9,562,554	10,858,647	12,728,543	14,107,118
Nation Population	16,887,720	19,464,164	23,576,214	26,923,658
Variance from National Population (above 19)	7,325,166	8,605,517	10,847,671	12,816,540

According to the Central Statistical Office (CSO) report, (Central Statistical Office, 2013) the population in Zambia is steadily increasing at an estimated growth rate of about 3% per annum. Zambia's population is highest between the school-going and the economically active age group. This can be confirmed by population statistics by age and sex for 2021 in millions in the 8NDP shown in Figure 3.

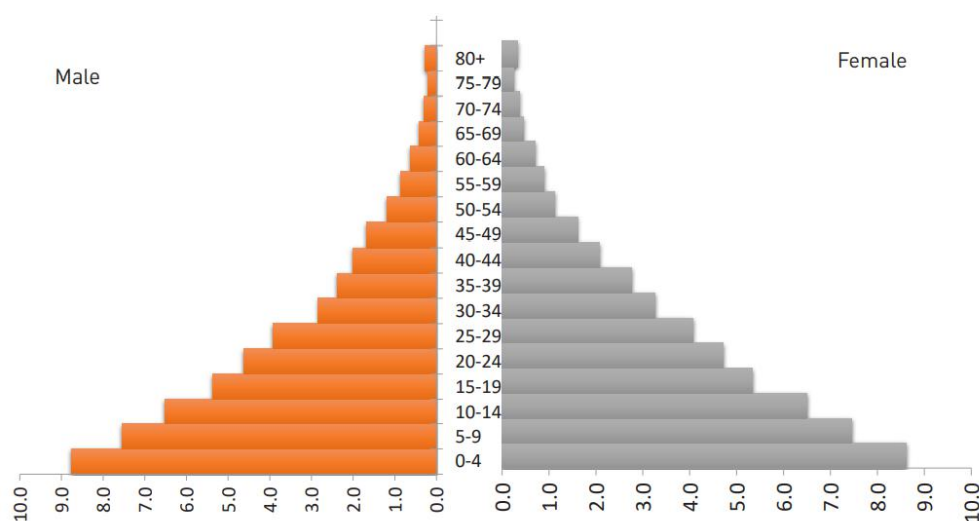


Figure 2: Zambia's Population Projections

The relatively high population growth rate for Zambia indicates a culmination of a young population with about 46 per cent of the population aged below 15 years and approximately 80 percent of the population are aged below 35 years. An increase in the population growth rate is directly related to demand for goods and services which include food consumption and employment amongst others.

2.3. Production Units Situation in Zambia

The land linked geographical location of Zambia and the plenty water bodies besides other natural resources makes the country have the potential of being one of the most cost-effective producers of not only food but other products and services necessary for both local use and export. Regardless of all the above opportunities, some education institutions do not completely engage in production units at all whilst for those that do the practice is fragmented and done in an un-coordinated manner. There are few education institutions that have viable production units. Further, despite having policy directives for schools to embark on production unit activities and also pronouncement that Agricultural Science must be a compulsory subject, the various PU activities in Education Institutions have been mostly agro based, with less or absent value addition besides being on and off with less sustainability. Also, the most common feature for viable PUs is the preference in the use of auxiliary workers as opposed to involvement of learners.

3. Problem Statement

There is inadequate implementation and diversification of PU activities in schools. The few PU activities being implemented are done usually in the frame of manual work punishment for offenders hence PUs have faced negative connotation. Additionally, schools are heavily dependent on government for finances and cannot go outside the stipulated expenditure lines to better their learning environment. Further, adequate useful occupational skills and competencies are not fully being developed in learners despite having a skill-based curriculum. Instead, there has been little success in meeting the objectives of linking vocational theory and practice. Furthermore, there are no proper guidelines as regards to the implementation of production unit. Hence, the need to develop a policy framework for the implementation of PU in Education.

4. Rationale for Revamping Production Units in Education

The revamping of PU comes in the wake of the need to not only increase the production and provision of basic necessities in order to improve the quality of lives of citizenry but also to develop appropriate competences and skills in human resource. Through the already existing of knowledge, skills and value-based curricula, the education sector can play a role in developing the human resource through PU so as to drive the development agenda of the country. Furthermore, education learning institutions contain the human resource base of productive age group required to participate in the developmental roadmap. It is for this reason that the implementation of PU activities in Zambia targets the learners as they are an active age group. The success of PU in schools can be guaranteed owing to the advantage of increased number of pupils accessing education partly as a result of population growth coupled with the free education policy. The large numbers of pupils in schools can be used as a huge resource in PU activities to boost; entrepreneurship, productivity, resourcefulness, financial capacity of education institutions and above all develop skills and competences for future self-employment opportunities. This can help beset the challenges faced by education institutions and ultimately overcome the poverty levels of individuals and society at large. Therefore, if all institutions were to engage in effective PU activities, not only supplementary financial income will be guaranteed but also a well-equipped generation of learners with useful competences and skills to contribute to the country's developmental activities towards economic transformation and job creation.

5. Objectives and Outcomes

The objectives and outcomes of this Concept Note on Revamping PUs in Schools arise from the situation and problem statement.

5.1. Objectives

The objectives of this concept are to:

- i. Create a guideline on how Production Unit will be conducted and coordinated country wide in the education sector
- ii. Increase competencies and provision of quality education with reduced financial stress on schools
- iii. Propose ways of strengthening resource base for education provision
- iv. Expand provision of schools feeding program

5.2. Outcomes

The expected outcomes, among others, are the following:

- i. Vibrant Production Units conducted and well-coordinated country wide in the education sector.
- ii. More learners accessing quality education due to improved learning environment
- iii. Acquisition of life-long skills and competencies through practice and participation
- iv. Increased grass root resource base subsidizing education provision
- v. Healthy learners due to school feeding programs

6. Contextualization of Production Unit

The nature and composition of the PUs will be contextualized using past lessons learnt and remodeling through the lens of global, regional and national contexts and trends.

6.1. In the Context of Global Aspirations

The world is becoming complex with complex challenges that go with increased population and increased demand on resources. The world needs both a practically skilled cadre of human resource capable of being productive thereby improving standards of living and reducing environmental impact. On the global point of view, there is need for deliberate efforts to view education as an economic sector other than just as a social sector. Through effective Production Units implementation in education food will be made available and accessible by all learning institutions throughout the year taking into consideration an aspect of preserving the environment. All stakeholders in the Education Sector will be involved and other individuals. PUs in education, should be viewed as a contribution to sustainable development and part solution towards poverty reduction.

6.2. In the Context of Regional Aspirations

Africa is expected by 2063 to be a continent of “shared prosperity, which finances and manages its own growth and transformation” (African Union, 2015). Based on the guiding vision for Agenda 2063 which is the AU Vision championing an integrated, prosperous and peaceful Africa, driven by its own citizens and representing a dynamic force in international arena. African countries need to focus on the practice of Production Unit so that relevant human resources come out of the education system. Learners need to be prepared for the future and not only to be job

seekers but also job creators. Further, African Countries could address this situation by looking into their education policies and making Production Unit their priority, a situation which could hugely improve Africa's position in the competitive economy.

6.3. In the Context of National Aspirations

Production Unit, therefore, requires to be viewed from the National contexts backed by national policies taking into consideration both the Global and Regional contexts. It cannot be overemphasized that living in a global village entails co-existence, mutual respect and collaboration to achieve common goals. Therefore, Production Unit will be used as one of conduits for meeting global aspirations and goals of improving people's livelihood through food provision, offering employment, inclusive participation and promotion of value addition and innovation.

Additionally, Zambia is not only a member of United Nations but also a member of regional bodies, such as Southern Africa Development Community (SADC) and Common Market for Eastern and Southern African (COMESA). SADC state its main objective among others as being to achieve economic development, peace and security, and growth, alleviate poverty, enhance the standard and quality of life of the peoples of Southern Africa, and support the socially disadvantaged through Regional Integration. COMESA in its mandate also calls for regional integration and indicated in its main objective as to reduce the cost of cross-border trade through the removal of internal barriers; to increase local private sector participation in regional and global value chains. These objectives are aimed at providing linkages that do not allow exploitation but promote mutual benefits in the processes of development among member countries. In this case, both regional bodies recognize the importance of integrated development through which PU raw materials, services and products will leverage the member states. PU will therefore take advantage of these existing linkages among the countries under these regional bodies in order to contribute to the achievement of the regional aspirations.

Besides, in the SDGs context, the spirit of ownership for sustainable development should be inculcated in the citizens in early ages. In Zambia it can be done by all learning institutions participating in various PU activities taking into account their localities and comparative advantage. Thus, learning institutions will achieve this through development and use of localized

curriculum which allows them to adapt aspects of the curriculum to match local needs and circumstances and maximize the exploitation and value addition to the local resources. A platform for showcasing a variety of PUs products and services, among others, is the investment expositions such as Provincial Expos that are already in existence. This will not only act as catalyst for unlocking private sector finance and investment in various parts of the country but also boost trade and investment between Zambia and other countries.

To provide a conduit to SDGs, Zambia utilizes the 8NDP which places emphasis on economic transformation and job creation supported by three main pillars namely; (1) human and social development; (2) environmental sustainability; and (3) good governance environment. To attain this much desired sustained economic growth, diversification driven by agriculture, mining, manufacturing and tourism will be fundamental. All the other developmental areas fall into place when the issue of enhancement of human development is well tackled. Developing quality human capital, includes investing in quality education and skills development. Also, achieving diversification in Zambia will require a labour force that has functional skills and qualifications that support the development of practical skills through Production Units. Zambia being part of the existing regional bodies such as the AU needs to strive to place much emphasis on human capital development in Production Unit in the education sector. Through human capital development in production unit, the desire to reduce poverty and vulnerability, inclusive participation and source of employment may be achieved. This document provides strategies and revolutionary actions that should be undertaken in the education system regarding PU.

To create an enabling supportive environment for productivity to take place, Production Unit in the Education Sector in Zambia will:

- i. be coordinated through the Directorate of National Science Centre as it is a STEM Training Centre that can help emancipate the activities
- ii. be inclusive irrespective of demographic differences i.e. Urban, Rural and Remote, therefore will reduce demographic inequalities in terms of access for food, employment and other opportunities
- iii. directly and indirectly promote human development in form of skills and competencies
- iv. promote economic diversity

- v. help harness demographic dividend and employment provision
- vi. help reduce poverty and vulnerability since it will be a source of food for schools and community as well as a source of income for those who will be employed
- vii. sustainably contribute towards healthy nation through school feeding program

6.4. In the Context of Job Creation and Value Addition

As earlier stated, the aim of Production Unit in the education sector is developing ventures that are of quality meeting local, regional and global standards as well as satisfying consumer demands thereby sustainably capable of generating resources. Hence Production Unit participants will be job creators. The many resources Zambia is endowed with require value addition using fine (high precision) technological, scientific, engineering and mathematical skills among others in order to be adored as marketable products.

In the current situation, most of the locally made products may not look attractive and are usually without standardized measurements. This is as a result of unskilled human resources that have inadequate competencies and skills to develop quality products. It is for this reason that the Education Sector is promoting PU that will emphasize skill and competence development that will improve the quality of products.

To achieve this, educators need to be equipped with necessary competencies and skills to ensure products by their learners are refined to international standards. This will result into trend reversal; for instance, instead of raw materials going abroad for processing, they will be processed into semi and final products locally. This will result in an increased demand for locally available raw materials by processing companies that will ultimately create more job opportunities for the local market. Learners that will participate in PU from learning institutions will form a highly desirable workforce for the industries and can also become self-employed by producing high quality products for the local and international markets.

Therefore, stakeholders should have a mind shift that will train learners to work for themselves as entrepreneurs and their businesses. This will in turn require appropriately qualified human resource to help them produce on a large scale. This will lead to job creation for the country leading to poverty reduction thereby contributing towards the realization of the SDGs and AU for the agenda 2030 and 2063 as well as Smart Zambia 2064.

6.5. In the Context of Education Provision

As part of the education curriculum, Production Unit is an important aspect not only for skill development, but also as a tool to be used to enhance income generation and food security within the confines of education institutions, which could be linked to programmes such as the home-grown school meals. There is therefore need to embark on value addition such as processing primary to semi or final products. This would make production unit more profitable. In addition to the above, processing will not only help to add value to all products including the use of residues through recycling but also create jobs in value addition chain. This ultimately results into supporting the aspiration “to transform the country from a primary product-dependent economy to a strong, dynamic middle income industrialized country by 2030” (Ministry of National development and Planning, 2017) and also reduction in environmental pollution. It is also important to note that the Education Curriculum has not included adequate content, skills and strategies on actual processing of raw materials into their respective semi or final products. The inclusion of raw material processing and advocacy for entrepreneurship in various subjects in the curriculum will enhance skills development in the area of production unit, thereby promoting food security and value addition to the enterprise.

6.6. In the Context of Improving Production Units

In order to improve Production Units in the education sector, there is great need to increase focus on need-based activities meeting direct demands of the nation. This can be achieved by improving the linkages between education institutions and the organizations through creating deliberate strategies that would allow technical knowledge, skills and practices exchanges. Further, other than looking at education sector as a social sector, it can be looked at as a potential economic sector in the sense that the learners in the process of learning are involved in productive activities that add value to raw materials. Additionally, there is great need to continuously monitor and evaluate the Production Unit practices to suit the current and future developmental demands as well as the local job market. Production Unit in the education sector can further be enhanced by allowing learners to learn by doing practical work through conducting research which will yield actual end products that are market ready and empower them to be self-reliant.

Strengthening partnerships with community is another important component of promoting Production Units in learning institutions. This will create wholesale as well as retail outlets for products and services of PUs. This way society would appreciate the learning outcomes from the learners, consequently leading to the expansion of PU activities in learning institutions. The stakeholders to initiate and sustain this notion must themselves be fully aware of the demands of the Production Units from the point of view of necessary competencies, tools, machinery, infrastructure and operational guidelines including the possible challenges and workable solutions. As PU is being implemented a mindset shift is inevitable. The Production Unit should allow more time for stakeholders and learners to practice as opposed to theorizing. Participants are encouraged to apply the knowledge, skills, positive attitudes and values. Therefore, Production Units should operationalize some subjects learned such as Agricultural science, Business Studies, Home Economics, Design and Technology using analytical, creative and innovative skills through the use of ICT for learners to produce entrepreneurship products ready for the local, regional and global markets.

To implement effective PU, some strategic steps can be undertaken which includes;

- i. Sensitizing stakeholders on the importance of PU in relation to raw material processing, food security, skills development, promotion of economic diversity and value addition
- ii. considering inclusion of Agricultural Science as a compulsory subject at Primary School level and Design and Technology Compulsory at Senior level
- iii. up skilling of educators and learners through capacity building in PU programmes
- iv. curriculum review from ECE to Tertiary
- v. adhering to policy guidelines provided in this booklet to implement PU activities

7. Strategic Implementation of Production Units in the Education Sector

The strategic implementation of PU in the Education Sector will include the, nature, composition, conceptualization, organization and operations.

7.1. Nature of the Production Units in the Education Sector

In the context of Education, Production Unit will mean any form of activity that an institution undertakes locally with an active involvement of all stakeholders resulting in development of life long competencies and income generating activities. The production units will be an engine for

sustaining education provision while allowing access to take place. Conceptually, it is expected that as Production Unit practices increase over the years, there will be subsequent reduction in school financial burden as shown in Figure 3 below.

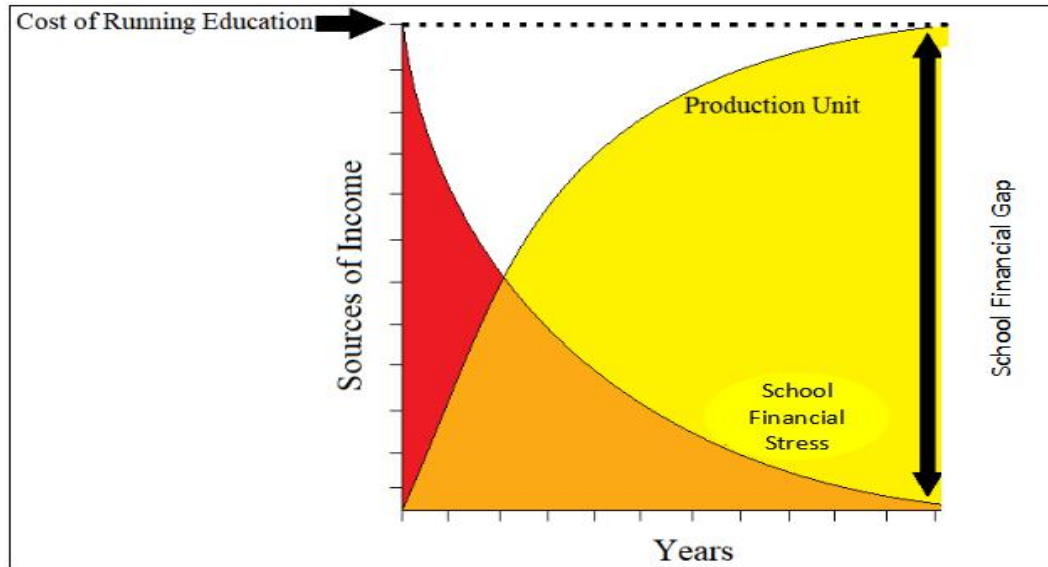


Figure 3: Production Unit School Financial Index

The purpose of this context of Production Units is for institutions to be creative, competitive, self-sustaining and high-quality resource generating meeting both the local, regional and global standards through value addition to goods. Ultimately, PU should contribute to developing an improved learning environment.

7.2. Composition of the Production Unit Activities in the Education Sector

To achieve the main purpose of PUs in the learning institutions which is income generation income and competence development, the following are guidelines on the mandatory and optional PU activities in the education sector.

7.2.1. Mandatory PU Activities

The mandatory PU activities will include, among others, the following:

- i. Primary Production (production of basic materials)
- ii. Marketing and selling of products within the institution and outside the institution (locally available market)

7.2.2. Optional Activities

The optional PU activities will include, among others, the following:

- Processing one or more of the produces for the purpose of value addition;
- Exporting or importing raw materials, semi and final products within and outside the country.

7.3. Conceptualization of Production Units

In its wide dimensions Zambia consists of education institutions and departments situated in different demographic areas that are categorized as remote, rural and urban. All these will have to engage in suitable PU ventures taking advantage of unique opportunities inherent in their locations and at the same time providing leverage to each other through a reflux of inter-linkages

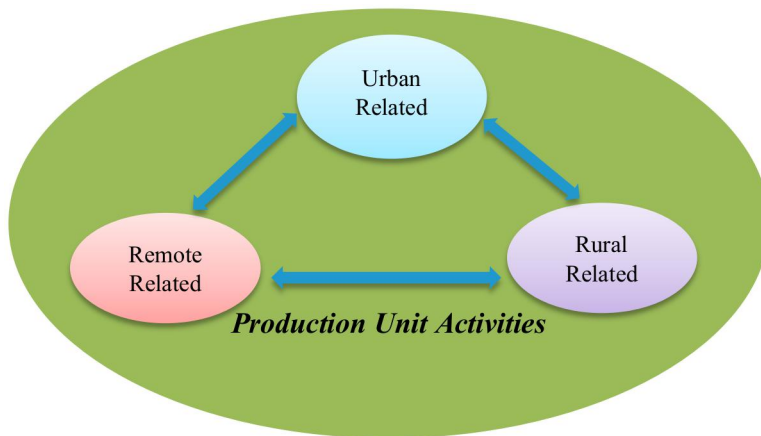


Figure 4: Production Unit Intra and Inter Reflux in Zambia

amongst them as shown in the Figure 4. These demographic linkages would ultimately benefit the country as there would be unit of purpose in conducting production unit ventures knowing very well that there exists a known producer and consumer within the network.

Therefore, there will be need to effectively engage in PU ventures, leveraging on both inter and intra linkages among the three demographic areas (remote, rural and urban – Appendix 1). The system will therefore encourage this type of doing business.

7.4. Organization of Production Units in the Education Sector

In order to be proactive in implementation, Production Units will cut across all education institutions such as schools, Colleges of Education, and other levels of Education Institutions (Zones, Districts, Provinces and Directorates at National Level).

7.4.1. Schools Context

Schools are the implementers of the educational curriculum therefore by participating in Production Unit:

- i. Learners access and acquire relevant knowledge, skills and values that when used would ultimately contribute to the country's economic status
- ii. Learners and educators have an opportunity to convert raw material into semi or final products for themselves and their schools
- iii. Schools will raise income there by reducing poverty and alleviating hunger as well as reducing the financial burden schools and communities are facing
- iv. Promoting production unit will motivate learners to pursue entrepreneurship related careers and apply lifelong skills in their daily lives. This will increase a human resource base for food security and raw material processing, training, appropriate research and development in entrepreneurship related fields for sustainable development.

7.4.2. Colleges Context

By engaging in production Unit, student teachers and lecturers will:

- i. be equipped with competencies (Knowledge, skills and values) to apply in their daily lives in order to contribute to the country's economic status
- ii. have an opportunity to convert raw material into semi or final products for themselves and their learning institutions
- iii. lead to income generation there by reducing poverty and alleviating hunger as well as reducing the financial burden learning institutions and communities are facing
- iv. motivate students and teacher educators to pursue entrepreneurship related careers and apply lifelong skills in their daily lives

Doing so will increase a human resource base for food security and raw material processing, training, appropriate research and development in entrepreneurship related fields for sustainable development.

7.4.3. Education Offices Context

Education officers will participate, promote and coordinate production unit in education Institutions such as Zones, Districts, Provinces and Directorates. Their involvement will result into the following:

- i. Income generating activities:
- ii. Acquisition of competencies enshrined in the Curriculum such as Knowledge, skills and values that can be applied in their daily lives to ultimately contribute to the country's socio-economic status
- iii. Conversion of raw materials into semi or final products for themselves and their learning institutions
- iv. Reducing the financial burden on learning institutions and communities at large
- v. Motivate institutions of learning to pursue entrepreneurship related careers and apply lifelong skills in their daily lives

8. Operationalization of Production Units in the Education Sector

The Education Sector will operationalize PU by using the application of the integrated and multi-sectorial approach model. This approach will entail;

- i. No exclusion of institution of learning and other levels in the education sector so that all stakeholders participate in production unit leaving no one behind;
- ii. Crop and animal production and diversification in order to reduce mono economy but promote economic diversity as well as reduce poverty and hunger;
- iii. Competition, creativity and innovation in order to produce products and provide services of high quality;
- iv. Conserving the ecosystem by practicing integrated PU activities in order to avoid wastages and promote value addition
- v. Forming intra and inter linkages among different PU players in order to enhance value chain systems
- vi. Enhancement of skills through workshops, field days, PU expos, in-service training within the nation and abroad.

To this effect the PU activities, without neglecting others, will be based on Agriculture, Design and Technology, Retail, Tourism and Hospitality, Transport and Real Estates.

9. Thematic Areas of Production Units in the Education Sector

Production Unit activities have declined in the recent years because of lack of consistence in the practice. If each and every learning institution and education office had one or two PU ventures, the education sector would be having a huge contribution in products and services. Therefore, there is need to make production unit as one of the pillars in products and services provisions. Different types of PUs can be practiced by taking advantage of the country's geographical leverage of resource availability where the institutions are situated. This will promote diversification in the production of various products and services thereby creating linkages as well as enhanced value addition and acquisition of life-long skills. Therefore, PUs in the education sector will focus, among others, on Agriculture, Design and Technology, Wholesale and Retail, Tourism and Hospitality, Transport and Real Estates as all workable and applicable.

9.1. Thematic Area One: Agriculturally Based Production Unit

In order to boost the agriculture sector, institutions of learning will venture into Crop Production, Livestock Production Aquaculture, Mushroom growing and Forestry Activities. It is envisaged that the Agricultural-Based production unit will strive to make products and services available, accessible and affordable while on the other hand will enhance comprehensive value addition chain.



Figure 5: Agriculturally Based Production Unit

These will be achieved through the following strategies:

Strategy 1: Develop Crop Production

This strategy will be achieved through the following programmes;

Programmes:

- a. Establish Crop production activities
- b. Processing of crop products
- c. Research and Marketing of Crops

Strategy 2: Livestock Production

This strategy will be achieved through the following programmes;

Programmes:

- a. Establish Livestock production activities
- b. Develop incubation facilities and services for fowls
- c. Research and Marketing of Livestock production

Strategy 3: Aquaculture

This strategy will be achieved through the following programmes;

Programmes:

- a. Develop fish ponds
- b. Develop fish hatcheries
- c. Research and Marketing of fish production

Strategy 4: Mushroom Growing Activities

This strategy will be achieved through the following programmes;

Programmes:

- a. Establish mushroom growing activities
- b. Research and Marketing on mushroom production

Strategy 5: Forestry Activities

This strategy will be achieved through the following programmes;

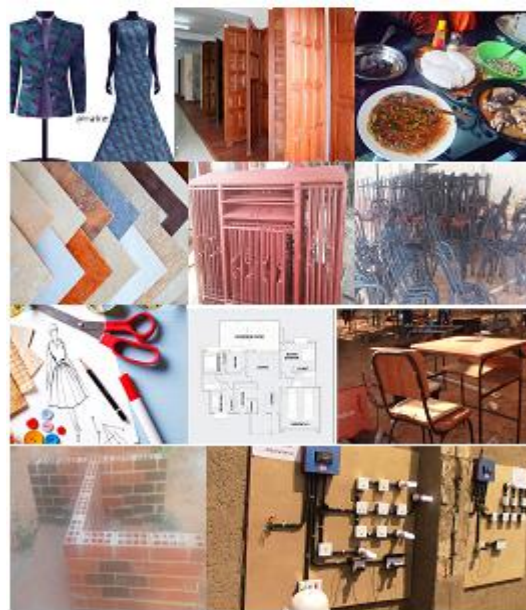
Programmes:

- a. Develop forests
- b. Establish Beekeeping activities
- c. Research and Marketing on Beekeeping activities

Table 3: Thematic Area One- Agricultural-Based Production Units Actualized

Thematic Area One: Agricultural-Based Production Units Actualized				
	Strategy	Programme	Performance Indicators	Baseline
1	<i>Develop Crop Production</i>	a. Establish Crop production activities	1. Type of crop production activities involved in 2. Quantity of crops produced	
		b. Processing of crop products	Types of crops processed	
		c. Research and Marketing of Crops	1. Number of crop products improved 2. Rate of sales of crops	
2	<i>Livestock Production</i>	a. Establish Livestock production activities	1. Type of livestock activities established 2. Number of livestock ventures established	
		b. Develop incubation facilities and services for fowls	Number of incubation facilities developed	
		c. Research and Marketing of Livestock production	1. Number of livestock products improved 2. Rate of sales of livestock products	
3	<i>Aquaculture</i>	a. Develop ponds	1. Number of functional fish ponds 2. Quantity of fish output	
		b. Develop fish hatcheries	Number of fish hatcheries developed	
		c. Research and Marketing of fish production	1. Number of crop products improved 2. Rate of sales of crops	
4	<i>Mushroom Growing Activities</i>	a. Establish Mushroom growing activities	1. Type of Mushroom activities established 2. Number of Mushroom ventures established	
		b. Research and Marketing on mushroom production	1. Number of Mushroom products improved 2. Rate of sales of Mushroom products	
5	<i>Forestry Activities</i>	a. Develop forests	1. Type of forests developed 2. Area of forest reserves developed	
		b. Establish Beekeeping activities	Quantity of honey produced	
		c. Research and Marketing on Beekeeping activities	1. Number of forest products 2. Number of honey products 3. Rate of sales of forest products	

Zambia is endowed with adorable natural resources which, if given fine and precise touch, could result in products that can easily attract consumers in and around the country. The timber products, coupled with metal fabrication, will not only bring the much needed income but also help to mitigate furniture challenges through innovations in remote, rural and urban areas. Therefore, embracing Design and Technology will help in the transformation of the economy through practical activities in food and fashion, material processing and systems technologies



The focus will be to use locally available materials, in different areas, to create and provide products and services that are competitive and market-ready. Some of the products will be used by the institutions themselves while others will be put on the market to generate the much-needed income by the institutions.

This strategy will be achieved through the following programmes;

- Develop engineering materials and facilities
- Research and Marketing on engineering materials

This strategy will be achieved through the following programmes;

- Develop catering service facilities
- Establish fashion and fabrics facilities
- Research and Marketing on catering and fashion trends

Programmes:

- a. Develop associated technologies
- b. Research and Marketing on associated system technologies

Table 4: Thematic Area Two- Design and Technology Based Production Unit

Thematic Area Two: Design and Technology Based Production Unit				
	Strategy	Programme	Performance Indicators	Baseline
1	Develop Raw Materials Processing Technology	a. Develop engineering materials and facilities	1. Types of engineering materials developed 2. Number of qualitable engineering facilities developed	
		b. Research and Marketing on engineering materials	1. Number of engineering facilities developed 2. Rate of engineering materials utilization	
2	Establish Food and Fashion Technology Facilities	a. Develop catering service facilities	1. Types of catering service facilities developed 2. Number of catering service facilities developed 3. Number of functional catering service facilities developed 4. Number of qualitable catering service facilities	
		b. Establish fashion and fabrics facilities	1. Types of fashion and fabrics service facilities established 2. Number of fashion and fabrics service facilities established 3. Number of functional fashion and fabrics service facilities established 4. Number of qualitable fashion and fabrics service facilities	
		c. Research and Marketing on catering and fashion trends	1. Number of different types of catering service facilities 2. Rate of change of fashion trends	
3	Venture into Associated System Technologies	a. Develop associated technologies	1. Types of system technologies developed 2. Number of functional system technologies developed	
		b. Research and Marketing on associated system technologies	1. Number of system technology facilities d 2. Rate of system technologies utilization	

9.3. Thematic Area Three: Wholesale and Retail Based Production Unit

Currently, Zambia schools are characterized with considerably low levels of entrepreneurship activities to trade PU goods and services. This is evident by the lack of viable distribution channels through which these products and services can be bought and sold. Learning institutions and education offices can venture into production unit activities that involve wholesale and retail trade. The Wholesale and Retail Production Units will be used to see the comprehensive value chain of products. Production Unit will not focus only on Agro PU

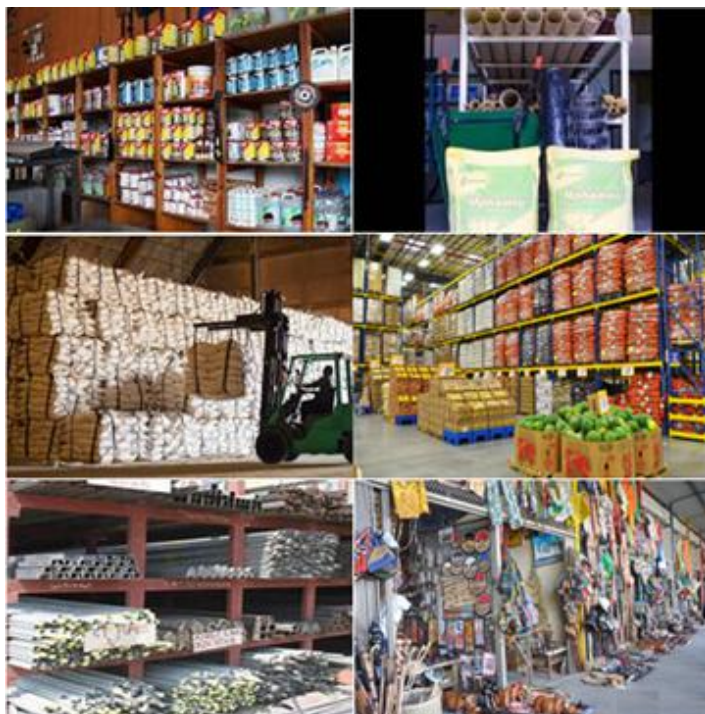


Figure 7: Wholesale and Retail Based Production Unit

based activities but include all other activities where all stakeholders will be involved to undertake activities which will lead to generation of income.

To ensure that *local raw products and services* through *Partnerships from* different PU ventures are maximally utilized, the stakeholders must set up distribution strategies, find cooperating partners within and outside the type of PU venture being undertaken and their geographical locations. This will lead to not only a reflux of inter and intra linkages within the local communities as well as among various institutions but also increased income sources to the learning institutions and education offices engaged in different PU ventures.

Strategy 1: Venture into Associated Wholesale and Retail Enterprise

This strategy will be achieved through the following programmes;

Programmes:

- a. Provide associated wholesale and retail services
- b. Research and Marketing on associated wholesale and retail services

Strategy 2: Establish Partnerships

This strategy will be achieved through the following programmes;

Programmes:

- a. Establish Twinning Linkages
- b. Research and Marketing on associated partnerships

Table 5: Thematic Area Three -Wholesale and Retail Based Production Unit

<i>Thematic Area Three: Wholesale and Retail Based Production Unit</i>				
	<i>Strategy</i>	<i>Programme</i>	<i>Performance Indicators</i>	<i>Baseline</i>
1	<i>Venture into Associated Wholesale and Retail Enterprise</i>	a. Provide associated wholesale and retail services	1. Type of crop production activities involved in 2. Quantity of crops produced	
		b. Research and Marketing on associated wholesale and retail services	Types of crops processed	
2	<i>Establish Partnerships</i>	a. Establish Twinning Linkages	1. Type of twinning among institutions 2. Number of twinned institutions with operational ventures	
		b. Research and Marketing on associated partnerships	Number of functional partnerships	

9.4. Thematic Area Four: Tourism and Hospitality Based Production Unit

Zambia is endowed with vast natural resources and many tourism attraction sites whose features include, among others, the Victoria Falls, variety of species of wild life resources, varied scenery, diverse culture and national heritages. Moreover, the country has conducive weather patterns, warm and friendly people. All these attract tourists from all parts of the globe making Zambia potential for tourism productivity.



Figure 8: Tourism and Hospitality Based Production Unit

Currently, Zambia's tourism sector is underdeveloped with limited investments in the sector. This has been coupled with inadequate promotion and marketing. Moreover, there is low participation by locals in tourism developmental activities. PUs will promote the expansion in the tourism industry by promoting domestic tourism development enabling learning institutions understand the importance of quality infrastructure, services and products that go with tourism and hospitality.

To be able to develop the tourism and hospitality sector, PUs will engage in, among others: Lodging, Catering and/or Conference facilities, Internet facilities, Recreation facilities, Museum and Historical programmes to grow and expand traditional mode of tourism. It will also increase market penetration and exploitation of currently available markets. Create animal sanctuaries (zoo) and botanical gardens. As for national parks, PUs will encourage public private partnerships where the learning institutions will be encouraged to collaborate with other stakeholders to earn shares in such ventures. This will be achieved through awareness programmes to bring about mind-set change in institutions of learning to realize that tourism is another venture that increases productivity by increasing income generation.

Strategy 1: Establish Lodging, Catering and/or Conference Facilities

This strategy will be achieved through the following programmes;

Programmes:

- a. Develop Lodging, Catering and/or Conference facilities
- b. Research and Marketing on Lodging, Catering and Conference facilities

Strategy 2: Establish Internet facilities

This strategy will be achieved through the following programmes;

Programmes:

- a. Develop internet facilities
- b. Research and Marketing on internet facilities

Strategy 3: Establish Recreation Facilities, Museums, Historical Sites, Animal Sanctuaries and Botanical Gardens.

This strategy will be achieved through the following programmes;

Programmes:

- a. Develop recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens
- b. Research and Marketing on recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens

Table 6: Thematic Area Four-Tourism and Hospitality Based Production Unit

Thematic Area Four: Tourism and Hospitality Based Production Unit				
	Strategy	Programme	Performance Indicators	Baseline
1	Establish Lodging, Catering and/or Conference Facilities	a. Develop Lodging, Catering and/or Conference facilities	1. Type of Lodging, Catering and/or Conference facilities established 2. Number of Lodging, Catering and/or Conference facilities developed	
		b. Research and Market on Lodging, Catering and Conference facilities	1. Types of Lodging, Catering and/or Conference facilities established 2. Number of Lodging, Catering and/or Conference facilities developed 3. Number of functional Lodging, Catering and/or Conference facilities developed 4. Number of qualitable Lodging, Catering and/or Conference facilities	
2	Provide Internet Facilities	a. Establish internet facilities	1. Number of internet facilities established 2. Number of functional internet service facilities established	
		b. Research and Marketing on internet facilities	1. Number of reliable internet service facilities 2. Number clientele accessing internet service facilities	
3	Establish Recreational Facilities, Museums, Historical Sites,	a. Develop recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens	1. Number of recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens established 2. Number of functional recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens facilities established	

<i>Thematic Area Four: Tourism and Hospitality Based Production Unit</i>				
	<i>Strategy</i>	<i>Programme</i>	<i>Performance Indicators</i>	<i>Baseline</i>
	<i>Animal Sanctuaries and Botanical Gardens</i>	b. Research and Marketing on recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens	1. Number of recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens 2. Number clientele accessing recreation facilities, museums, historical sites, animal sanctuaries and botanical gardens	

9.5. Thematic Area Five: Transport Based Production Unit

Transport based production units will involve water and land transport facilities to tap into the comprehensive value chain of transporting goods and services from one place to another. However, the current road, air and water transport networks to reach places for buying and selling products and raw materials have not been fully exploited. It is envisaged that if transport network is strengthened, it could contribute positively to the livelihood of the individuals and their communities. The modes of transport will be dependent on geographical location and market systems.



Figure 9: Transport Based Production Unit

These will be achieved through the following strategies:

Strategy 1: Provide Water and Land Transport Facilities

This strategy will be achieved through the following programmes;

Programmes:

- a. Establish associated water and land transport
- b. Research and Marketing on associated water and land transport

Table 7: Thematic Area Five-Transport Based Production Unit

<i>Thematic Area Five: Transport Based Production Unit</i>				
<i>1</i>	<i>Strategy</i>	<i>Programme</i>	<i>Performance Indicators</i>	<i>Baseline</i>
	<i>Provide Water and Land Transport Facilities</i>	a. Establish associated water and land transport	1. Type of associated transport established 2. Number of associated transport ventures established	
		b. Research and Marketing on associated water and land transport	1. Number of associated transport ventures sustained 2. Rate of clientele preferring mode of transport	

9.6. Thematic Area Six: Real Estates Production Unit

Investment in real estate's ranging from pleasure and leisure resorts, camping sites, to housing units and will allow learning institutions and education offices tap into, participate and harness short-term, medium term and long-term benefits from the patronage hiring and sub-letting of facilities, rentals and real estate transfers. It is also a known fact that the Education Ministry has the highest work force across



Figure 10: Real Estates Production Unit

the country as well as learner clientele who from time to time perpetually need such facilities as accommodation in form of housing facilities and lodging facilities inclusive of boarding houses. Obviously availability of funds to initiate some of the aforementioned capital ventures may obliquely stand in the face of institutions and education offices. This will call for institutions and education offices to work closely with each other in collaborative efforts including those involving partnerships through twining and cooperatives as well as stakeholder engagement of the public-private partnerships nature. The strategic position of the PTAs, School boards, the Alumni, well-wishers, civic and constituency leaders, among others, will all be vital suture to actualize tinkering of these PU undertakings.

Strategy 1: Venture into Associated Real Estates

This strategy will be achieved through the following programmes;

Programmes:

- a. Provide associated real estate's ventures

Research and Marketing on *associated real estates*

Table 8: Thematic Area Six-Real Estates Production Unit

	<i>Thematic Area Six: Real Estates Production Unit</i>			
	<i>Strategy</i>	<i>Programme</i>	<i>Performance Indicators</i>	<i>Baseline</i>
1	<i>Venture into Associated Real Estates</i>	a. Provide associated real estate's ventures	1. Type of real estates involved in 2. Number of associated real estate ventured into 3. Number of functional real estates established	
		b. Research and Marketing on associated real estates	Turn over from associated real estates	

Note:

To ensure Production Unit activities are effective in attaining the set objectives, institutions of learning and education offices are encouraged to collaborate, whenever need arises, through twinning in the course of implementation.

10. Organization Structure of Production Unit

For effective implementation of production unit in learning institutions, there is need to have organizational structures at each PU operational level in remote, rural and urban areas. These structures of PU will incorporate community stakeholders into existing levels of administrative structures as shown in Figure 11.

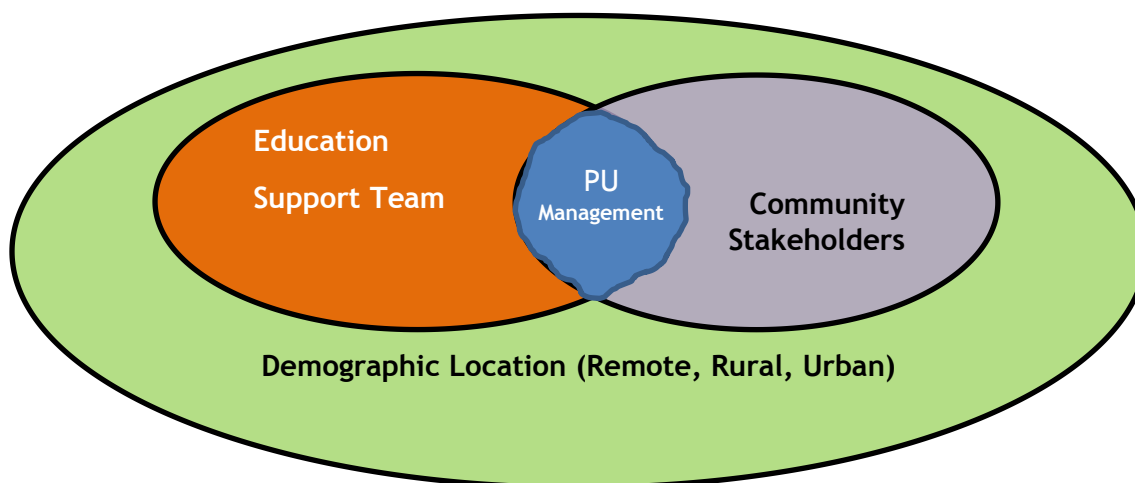


Figure 11: Organization Structure of Production Unit

The structure above will be used to coordinate, implement PU activities and address gaps that exist between and within each level in the Education sector. The implementation will consider the demographic set up in remote, rural and urban areas in which PUs will be operating so as to maximize the benefits and opportunities including specific contextual interventions.

“It has been observed that the pattern of economic growth in Zambia is highly unequal and has not increased the incomes of the poor rapidly enough to lift them out of poverty, mainly for three reasons: First, economic growth has historically been concentrated in capital-intensive industries such as construction, mining and transport. The second reason is related to the geographical component of growth, where urban areas have

gained more than rural areas. The third reason is related to the structure of the economy; economic growth in the country has not been associated with labor-intensive sectors in which the poor tend to work, such as agriculture.”(7NDP: page 5).

For this reason, Production unit will promote equitable social economic development across the country since all learning institutions dotted across the country irrespective of demographic leverages will be involved.

In line with the Ministry of Education, in Educating Our Future, (1996), the incorporation of different stakeholders in Production Unit committees will allow promotion of a sense of ownership, inclusive participation, resulting into improved efforts in the mobilization of funds and resources and transfer of expertise for improved productivity. In order to cater for a greater degree of democracy in the management and administration of PU activities and allow for greater responsiveness to local needs, the grassroots consisting of learning institutions and the community stakeholders will be cardinal in this bottom-up PU implementation as outlined below.

11. Roles and Responsibilities of PU Stakeholders

Irrespective of the different demographic locations, the strategy of implementation of PU activities will be determined by the coordinating committees as indicated in Table 9.

Table 9: Roles and Responsibilities

Table of roles and responsibilities			
Level of PU Implementation		Coordination/Implementation Structure	Roles and Responsibilities
1.	Primary School	Primary School Production Unit Coordinating Committee (PSPUCC) PTC Executive Committee Traditional and/or Civic leader PU coordinator Teacher representative(s) – depending on type and number of PU ventures	Role: To participate, coordinate and supervise effective implementation of PU. Responsibilities: Familiarise themselves on issues of policy on production unit; Disseminate and orient teachers and lecturers on strategic implementation guidelines on production unit; Timely organise trainings for teachers and lecturers in- charge of production unit; Monitor, assess and evaluate production unit activities in the Schools/Colleges; Hold Schools/ Colleges Production Unit Expos; Conduct Research on Production unit related Activities; Attend and exhibit production units’ products and services during the District and Zones Agricultural Science Shows.
2.	Secondary School	Secondary School Production Unit Coordinating Committee (SSPUCC) Education Board Executive Committee Traditional and/or Civic leader PU coordinator Teacher representative(s) – depending on type and number of PU ventures	
3.	College of education	College Production Unit Coordinating Committee (CPUCC) Education Board Executive Committee Traditional and/or Civic leader PU coordinator Teacher representative(s) – depending on type and number of PU ventures	
4.	Zone	Zone Production Unit Coordinating Committee (ZPUCC) Zonal Education Support Team (ZEST) School PU coordinators Traditional and/or Civic leader	Role: To participate, coordinate and supervise effective implementation of PU in the zones Responsibilities Familiarise school/ college PU teams on issues of policy on production unit; Disseminate and orient School/college PU teams on strategic implementation guidelines on production unit;

Table of roles and responsibilities			
Level of PU Implementation		Coordination/Implementation Structure	Roles and Responsibilities
			<p>Timely organise trainings for teachers/ lecturers in- charge of production unit; Monitor, assess and evaluate production unit activities in the colleges/schools; Hold Schools/ Colleges Production Unit Expos; Conduct Research on Production unit related Activities; Attend and exhibit production units' products and services during the district and school Agricultural Science Shows.</p>
5.	District	<p>District Production Unit Coordinating Committee (DPUCC) District Education Support Team (DEST) Zonal Head teachers Traditional and/or District Civic leader. Community Stakeholder</p>	<p>Role: To participate, coordinate and supervise effective implementation of PU in the zone schools and colleges</p> <p>Responsibilities Familiarise zone, school and college PU teams on issues of policy on production unit; Disseminate and orient Zone, School/college PU teams on strategic implementation guidelines on production unit; Timely organise trainings for teachers and lecturers in- charge of production unit; Monitor, assess and evaluate production unit activities in the zones, colleges and schools; Hold Districts, zones and Schools and Colleges Production Unit Expos; Conduct Research on Production unit related Activities; Attend and exhibit production units' products and services during the Provincial and District Agricultural Science Shows.</p>
6.	Province	<p>Provincial Production Unit Coordinating Committee (PPUCC) Provincial Education Support Team (PEST) DEBS Representative</p>	<p>Role: To participate, coordinate and supervise effective implementation of PU in the districts.</p> <p>Responsibilities: Familiarize Districts PU teams on issues of policy on production unit;</p>

Table of roles and responsibilities			
Level of PU Implementation		Coordination/Implementation Structure	Roles and Responsibilities
		Traditional and/or Constituency leader. Community Stakeholder	Disseminate and orient District PU teams on strategic implementation guidelines on production unit; Timely organise trainings for District Coordinators on production unit; Monitor, assess and evaluate production unit activities in the province; Hold Provincial Production Unit Expos; Attend and exhibit production units' products and services during the National and Provincial Agricultural Science Show.
7.	National	National Production Unit Coordinating Committee (NPUCC) National Education Support Team (NEST) PEST Representative Traditional and/or Constituency leader Community Stakeholder.	Role: To participate, coordinate and supervise effective implementation of PU in Provinces. Responsibilities: Interpret policy and orient Provincial PU teams on production unit ventures and activities; Formulate strategic guidelines for implementation of Production unit; Timely organize trainings for Provincial coordinators on production unit; Monitor, assess and evaluate PU activities in learning institutions; Hold International and National Production Unit Expos, competitions and field days Attend and exhibit production units' products and services during the International and National Agricultural Science Show; Conduct Research on Production unit related Activities.

The roles and responsibilities at each level will be streamlined for effective implementation of PU activities.

12. Implementation Strategy

The implementation of PU activities will follow a 5-year phased approach. There will be a series of activities to be conducted in line with the strategic implementation. The major activities will include the following

12.1. National launch of PU

The production Unit activities for educational institutions in Zambia will be launched officially under the theme

“Revamping Production Unit in the Education Sector: Contributing Towards and Beyond a Prosperous Middle-Income Zambia”

The theme will provide a roadmap for strategic implementation of PU activities in Zambia as well as provide a framework for interpretation of PU policy to all stakeholders at different levels.

The official launch will take set the tone and provide mandate for the operationalization of PU activities.

12.2. Baseline status across all levels

As entry into the existing PU undertakings by all educational institutions at the point of launch, a baseline survey will be undertaken to establish the state of PU activities in operation, their viability and sustainability. This will help develop suitable approaches on the way forward in terms of various PU activities at different levels. The baseline survey will be done before the launch as a theoretical survey through gathering information on PU ventures from provincial education offices but also as empirical survey through conduct of the actual baseline survey to ascertain the status quo across the country.

12.3. Capacity Development

Trainings will be conducted to capacity build, up-skill and develop competencies in human resource who will be engaged in PU activities at all levels. This will be done for the purpose of motivating, strengthening, improving and providing insights on how to engage and conduct sustainable PU ventures. This would encourage stakeholders to improve the implementation of PU. Trainings in the different categories under which PU will be conducted in the different institutions will be ongoing based on demands and needs.

12.4. Develop Institution-Based Action Plans

Institutions will be required to develop action plans indicating the strategic directions and projections that will guide the production unit ventures. These action plans should contain measurable long term and short-term productivity objectives, estimates of budget lines as well as projections of outputs. These action plans should be developed immediately after the launch.

13. Creation of a Database from School to National

In order to ensure information availability of the schools, colleges and other Education Ministry departments across the Country engaged in PU activities as well as the kind of ventures and scale of operations, the Ministry of Education will develop a data base. The database will serve as reference for information storage & sharing, creation & promotion of linkages, tracking progression and accumulated expertise as well as future plans among stakeholders. This will ultimately stimulate the demand side and improve the supply side of PU products and services as an aspect of value addition. The database will set as a preliminary to launch and will continuously be developed with time

13.1. Production Unit Tracking Software

The Production Unit Tracking Software was developed by the Directorate of National Science Centre. The software is designed to track Production Unit activities taking place in all schools in Zambia. The software can generate a detailed report on PU activities being undertaken at province, District, Zone and school Levels. Data will be fed into the system quarterly in order to track the performance and progress schools are making in various PU activities. This will enable policy makers to design interventions to assist schools and other institutions that are facing

behind. The snapshots below show the type of queries that can be performed by the Database Administrator.

13.2. Fetch all PU activities for a particular school

When the user Clicks on the Search School button, a live search box pops up where they can type the name of the school. The search is live and it gives the user a list matching the search.

The screenshot shows the 'Ministry of General Education Directorate of National Science Centre National Production Unit Database' interface. It features several navigation buttons: 'Search School', 'PU Activities by Province', 'PU Activities by District', 'PU Activities by zone', 'PU Activities by School', and 'PU Activities by Geo Location'. The 'Search School' button is highlighted. Below the navigation bar, the title 'Production Unity Activities' is displayed. A search input field contains the text 'kalo', and a 'Submit' button is next to it. Below the input field, a list of search results is shown:

- KALONGA HIGH SCHOOL
- KALOMBE PRIMARY SCHOOL
- KALOMBE PRIMARY

Figure 12: Querying PU Activities by School

13.3. Fetch all PU activities in a Province

The screenshot shows the same 'National Production Unit Database' interface. The 'PU Activities by Province' button is highlighted. Below the navigation bar, the title 'Production Unity Activities' is displayed. A dropdown menu is open, showing a list of provinces: 'Central', 'Copperbelt', 'Lusaka', 'Muchinga', 'Northern', 'North_Western', 'Southern', 'Western', 'Luapula', and 'Eastern'. The 'Lusaka' option is selected. To the right of the dropdown menu, a button labeled 'Query all PU Activities by Province' is visible. A red arrow points from the text 'dropdown menu of provinces' to the dropdown menu.

Figure 13: Fetching PU Activities in the Province

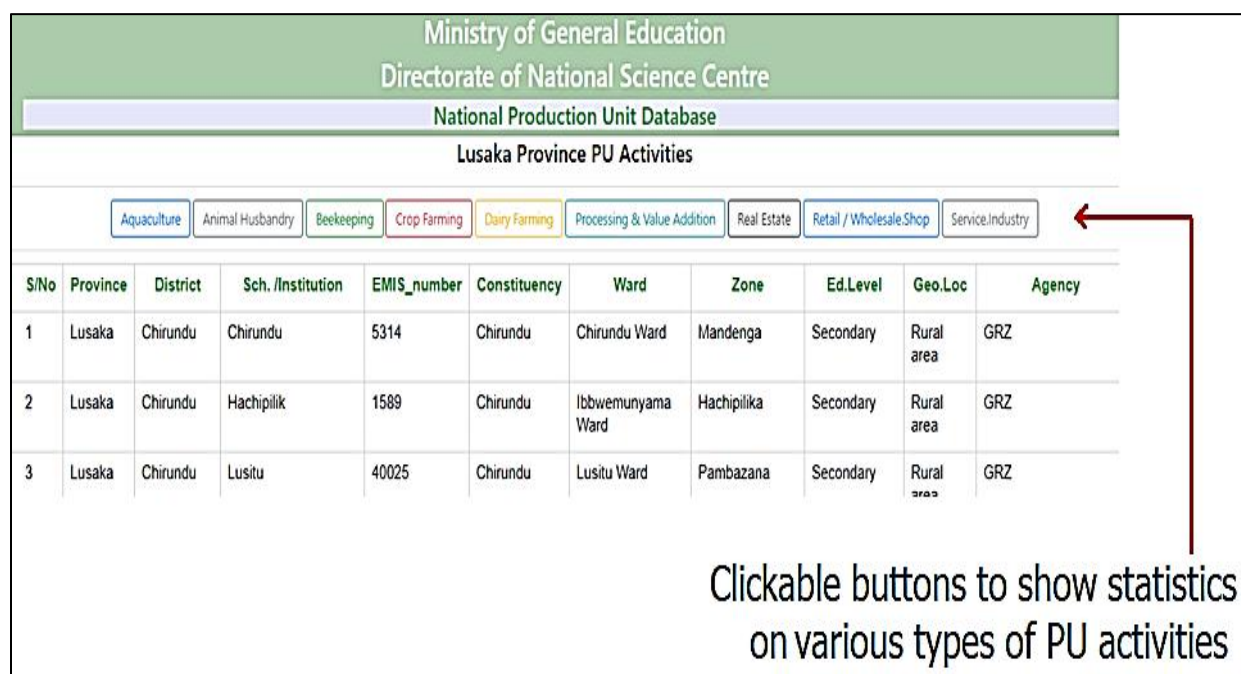


Figure 14: Profile of all Schools in the Province

13.4. Fetch all PU activities in the district

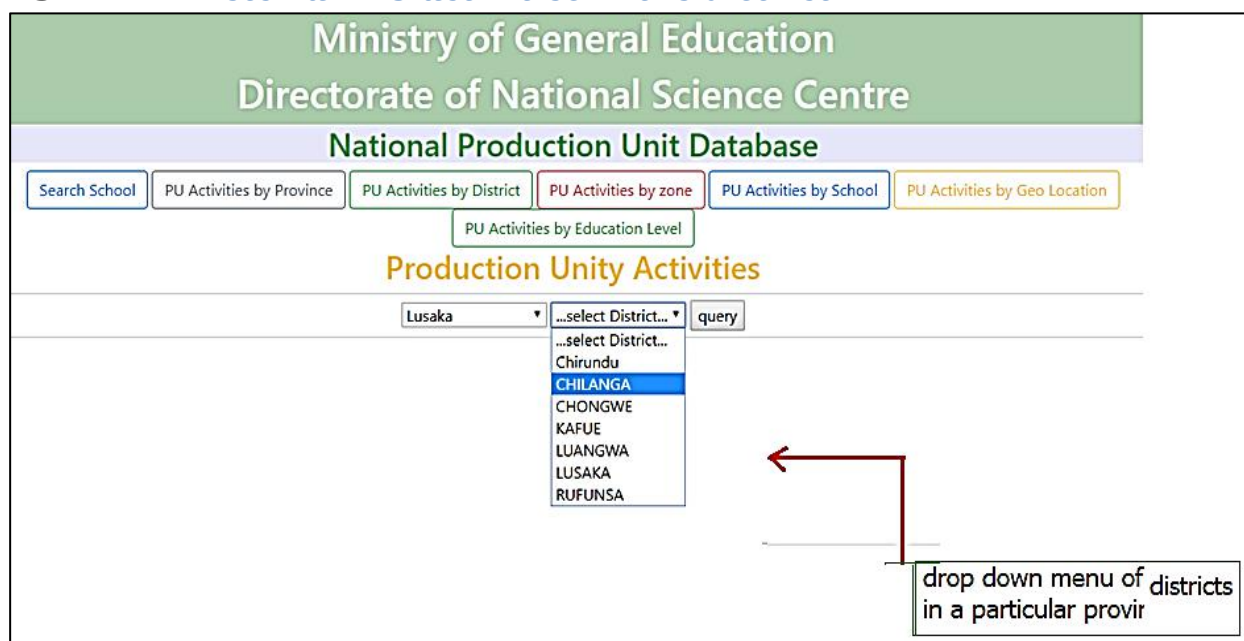


Figure 15: Fetch all PU Activities in the District

The database can be populated using an SMS server. The server creates a log of all PU activities which are then posted in the appropriate tables.

14. Production Unit Assessment and Evaluation

Projects of PU activities by all learning institutions will be subject to inspection checks by the MoE and/or other assigned experts at different stages of implementation (initial, developmental and final product formation). The focus of these assessment-evaluation engagements of the PU programmes and activities will be in order to measure their potential viability, provide technical advice, share lessons learnt or learning points, track progression and accumulated expertise as well as future plans. This assessment record of the PU activities will not only allow a wide range of stakeholders share insights, gather experiences from different points and learn from the point of PU implementation but also to offer advice and timely recourse, where need be.

Therefore, as follow-up and trace to every PU assessment and evaluation record, implementing institutions will keep and make available on request various records of their projects' implementation such as PU project proposals, activities actually commissioned and running, composition of implementing committees, minutes of PU planning meetings, projections of input-output schedules, evidence of income flows and cycles of production planned in a given time frame, as examples of some of the records to be kept by institutions.

14.1. Assessment

It is expected that Implementation of PU in the Education Sector will lead to increase in competencies and provision of quality education with reduced stress on school fees, strengthen resource base for education provision and expand provision of school feeding programs. In order to establish that these objectives are attained, there will be assessment of PU activities done by the Coordinating Teams with respect to three demographic levels which are remote, rural and urban.

Therefore, it is important that the assessment criteria are outlined based on demographic set ups that is remote, rural and urban, roles and responsibilities of stakeholders, carry out field days, strengths, weaknesses, opportunities, threats at all levels of learning institutions. This will help to give feedback to all stakeholders on the level of effectiveness of the implementation of PU

activities in the learning institutions. Coordinating Committees for each level will play a role and have responsibilities of assessing PU venture in order to ensure that its intended objectives are met.

14.1.1. Competitions at various demographic levels

Competition is one way in which the implementation and effectiveness of PU activities in learning institutions can be assessed. Learning institutions will be expected to participate in PU competitions at school/college, zone, district, provincial and national levels. During these competitions demographic features and set ups will be considered in order to maximize the benefits and opportunities of PU. This in turn will promote creativity and innovativeness and preserve the ecosystem.

14.1.2. Field days

Field days are meant to showcase products and services of PU activities. Additionally, they will be used as a forum for assessing implementation and effectiveness of PU. Activities of field day are characterized by demonstrations, research and information sharing in a spirit of openness and curiosity. In order to attract maximum participation and involvement of all stakeholders, field days are free and open to all. PU field days should be organized at school/college, zone, district, provincial and national levels to learn about varying topics that span the PU spectrum and to disseminate new technologies to others, enhancing access to less costly raw materials and promoting quality education and training to enhance skills and competence development

14.2. Evaluation

To help give feedback to all stake holders on the effectiveness of implemented PU activities in learning institutions, it is important that evaluation is done. The evaluation of PU activities will be done by the Coordinating Teams with respect to three demographic levels which are remote, rural and urban. This will reveal contextual strengths, weaknesses, opportunities and threats of PU activities at all levels. Therefore, Coordinating Teams will be able to give appropriate advice and facilitate suitable measures which can lead to improvement of PU in learning institutions.

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Appendix

Agriculture		Remote	Rural	Urban
	Crop production: Olericulture (Vegetables), Horticulture (Citrus fruits), Fruits, Field Crops	*	*	*
	Livestock Production: Poultry (Chickens, Guinea Fowls, Quails, Pigeons, Ducks and Geese), Pigs, Sheep, Goats, Cattle (Dairy and Meat)	*	*	*
	Agriculture: Pisciculture (Fish farming), Crocodile farming	*	*	*
	Fungi culture: Mushroom	*	*	*
	Forestry: Timber, Bee Keeping, Herbal trees, soil fertility	*	*	*

Wholesale and Retail		Remote	Rural	Urban
	Buying and selling of various PU products and services	*	*	*
	Buying and selling of various products and services	*	*	*

Transport		Remote	Rural	Urban
	Water transport facilities	*	*	
	Land transport facilities	*	*	*
	Rail transport facilities	*	*	*
	Air transport facilities	*	*	*

Design and Technology		Remote	Rural	Urban
	Material processes			
	Carpentry products	*	*	*
	Metal Fabrication products	*	*	*
	Ceramic products	*	*	*
	Plastic products	*	*	*
	System Technology			
	Household electrical appliance and electronics		*	*
	ICT related (soft and hard ware)		*	*
	Graphic Communication			
	Architectural works	*	*	*
	Construction related/ bricklaying and plastering	*	*	*
	Home Economics			
	Fashion Technology	*	*	*
	Food and Nutrition	*	*	*

Tourism and Hospitality		Remote	Rural	Urban
	Lodging facilities		*	*
	Conference facilities			*
	Internet facilities		*	*
	Recreation facilities		*	*
	Museum/ historical cites	*	*	*

Real Estates		Remote	Rural	Urban
	Lodging facilities			*
	Residential facilities			*
	Conference facilities			*
	Recreation facilities			*
	Land and farm facilities	*	*	
	Internet facilities			*
	Game ranching	*	*	
	Museum/ historical cites	*	*	*
	Mobile facilities		*	*