

## Resources and Facilities for Secondary School Agriculture: A Beacon for Rural Transformation and Development in Kenya

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**ABSTRACT:** Integrating agriculture teaching with rural transformation and development requires resources and facilities. This has been a beacon, a philosophy and a mission of school agriculture in Kenya since 1959. School agriculture has had an elaborate support from government, community and international donor agencies for this purpose. Despite the support, the mission and philosophy of school agriculture remains unattainable. The study sought to establish the provision and use of agriculture teaching resources and facilities since 1959 relevant for the promotion of rural transformation and development. The study used qualitative research with historical design in determining the historical strategies and policies related to provision and use of teaching resources and facilities to describe, analyze and interpret how the policies and strategies have been implemented. A sample of 119 respondents from 26 purposively sampled secondary schools in which agriculture was taught was used to provide relevant data. Due to snowballing effect extra 17 secondary schools yielding extra 46 respondents was added to the study. The instrumentation included interview schedules and documentary sources and archival searches. Data was synthesized and analyzed qualitatively by generating a narrative account of acquisition and use of resources and facilities. The findings of the study show that the provision and use of agriculture teaching resources has failed to demonstrate that farming is a dignified and profitable occupation which can stimulate rural development. It is recommended that relevant and sustainable teaching resources be marched with the syllabus and use to reflect curriculum objectives. This will be a beacon for rural transformation and development.

**KEYWORDS:** Beacon, Curriculum, Development, Resource, Rural, Transformation.

### 1 INTRODUCTION

Agriculture has been and will continue to be the driving force for rural transformation and development for the vast majority of Sub-Saharan African economies in which it accounts for up to 40 percent of the gross domestic product, 15 percent of exports and 60–80 percent of employment (World Bank, 2009; Adams, 2008). This is a reason why the UN Millennium Development Goals targeted elimination of poverty and hunger within this year as its number one goal GoK (2007). The worrying trend in developing economies and specifically in the African continent is the rising levels of rural hunger, child malnutrition and poverty Fox and Mellissa (2008). The introduction of vocational agriculture in schools and introducing young people to practical agriculture has been seen as one possible way of arresting the projected worsening livelihood conditions in sub Saharan Africa. Young people with correct skills, knowledge and attitudes can involve themselves in commercial agricultural enterprises that may help reduce poverty in the population

In Kenya over 80% of the population is employed either directly or indirectly in the agriculture sector (GoK, 2007). This implies that Kenya is a rural society and the implementation of agriculture curriculum for rural transformation and development as stated by World Bank (2005) and UNESCO (2012), must address how to efficiently utilize the dwindling arable land through effective use of agriculture teaching facilities if meaningful change in the quality of lives is to be realized

in the rural areas. However for school agriculture to promote rural transformation and development it must address qualitative aspects of education as championed by the United Nations Educational Scientific and Cultural Organization UNESCO (2005) and the World Bank, (2009) reports both of which emphasizes that quality is the heart of education and in this respect; school agriculture curriculum must be concerned with the content, values and attitudes transmitted to the learners.

The Kenya vocational agriculture programme in which resources and facilities are provided to implement the teaching of agriculture in a practical manner with a mission to transform and promote rural development dates back to 1959 (Bennell, 2007; Maxwell, 1965) when agriculture was first introduced in the Secondary School curriculum. The mission of school agriculture being the beacon for rural development relates to long term goals set by the Food and Agricultural Organization which has for a long time recognized school agriculture as key to rural development (FAO, 1997) and championed by (King & Martin, 2002; UNESCO, 2005) in which the main emphasis on agricultural education has been the; improvement of the methods of production, intensification of technical and practical skills, improvement of the scope and content of school agriculture, and rural poverty eradication by raising the technical competencies of farmers. The aim of linking the resources and facilities to the curriculum and syllabus was in a way a move to implement the teaching of agriculture in a practical manner. This approach can be linked to John Dewey (1938) philosophy which emphasizes practical and experiential learning. This study looked at the attempts and strategies used in the past to put resources and facilities at the disposal of schools to teach agriculture and the extent to which these attempts have promoted rural development.

## **2 LITERATURE REVIEW**

### **THE FOUNDING OBJECTIVES OF SECONDARY SCHOOL AGRICULTURE CURRICULUM**

An analysis of related literature shows that Secondary school education is an essential tool in the development of nations (Bennell, 2007; United Nations, 2007; ) and it is at this level where education programmes in the developing economies as in Sub-Saharan Africa may aim to provide the mass of the learners with relevant skills needed in the transformation of rural economies. The founding objectives of school agriculture constructed in 1969 by the Council for Agricultural Education in East Africa and which formed the basis of teaching school agriculture for rural transformation and development include to:

- i. Reinforce interest and awareness of opportunities existing in agriculture.
- ii. Demonstrate that farming is a dignified and profitable occupation.
- iii. Expand the knowledge of the basic principles and practices in agriculture.
- iv. Develop self-reliance, resourcefulness, problem solving abilities and occupational outlook in agriculture.
- v. Teach in a practical manner basic principles and skills in agriculture.
- vi. Relate in broad terms the value of agriculture to the family and community in general and to show how improved agriculture will contribute to worldwide campaign of freedom from hunger.
- vii. Ensure that schools take an active part in rural development by integrating agricultural activities in the curriculum (EAEC, 1969).

These objectives could be seen as the fulfillment of the 1924 Phelps-Stokes commission recommendations which emphasized:

- i. Development of respect for the cultivation of the soil by showing pupils the dependence of humanity upon the products of the soil not only in Africa but throughout the world.
- ii. Show that regularity, thoroughness, foresight will greatly improve farming with existing methods.
- iii. To interest the native and enable him to work more intelligently.
- iv. Transmit some of the experiences and research results from advanced countries for adaptation of Africa needs.
- v. Explain economic laws that would determine the selection of crops to be grown and the methods of marketing.
- vi. To explain the conservation of the soil, crops and labor.
- vii. Encourage and organize planting of trees, replacement of those that die and protection of forests from wasteful use.
- viii. Show that soil is the most valuable physical resource of the world, and that its cultivation is among the most significant activities of humankind (Dillard, 1932)

The Phelps – Stokes Commission report has continued to influence subsequent education commission reports and school agriculture curriculum development and the teaching of practical subjects in sub Saharan Africa.

Whereas the above objectives stand as pillars of school agriculture curriculum for rural transformation and development in Kenya Bergmann (2003), Arbache and Page (2008) their implementation has stagnated as the rural areas which would have benefited from the implementation remain impoverished. The implementation would have led to the realization of vocationalizing the secondary school curriculum which has been taken to mean curriculum change in a practical direction. However the mission of school agriculture in Kenya and possibly in several African countries remains elusive as vocational education appears to be for the less fortunate members in the society and for students who cannot advance in academics and also a political response to poor articulation of schooling policies in relation to labour market. This is so as the best talented students in most secondary schools opt out of agriculture classes for subjects leading to white-collar occupations. Current indications are that agricultural education and training in Kenya has not transformed to be entrepreneur oriented and it must be transformed to match the market demand as a way of transforming rural areas.

Despite the efforts to create strategies for rural transformation through school agriculture between 1959 and 1964 when the subject was launched, and policies for implementation put in place, there after school agriculture policies especially on resources and facilities has taken the back seat as the subject reverts to theoretical teaching. Whereas school agriculture in Kenya traces its origin to the US Vocational Agriculture Acts such as the National Vocational Education Act of 1963 Soretire (1968), FFA(1909),Alison (2000) and FAO/ILO/Ministry of Agriculture (2007) these have remained hopes and wishes tucked in education policy documents gathering dust in shelves. An analysis of the foundation objectives of school agriculture EAEC(1969) shows that the implementation of the objectives would have led to rural transformation by promoting agricultural competencies needed by a segment of the population willing to enter into production agriculture and for those preparing to look for, opportunities in agricultural occupations besides farming.

Observations show that school agriculture itself is engulfed with negative perceptions as such, the majority of students and out of school youths views farming as an arduous labour which is unrewarding. However, it should be recognised as Gunnar (1970), Maguire (1999) and Konyango (2014) observes, agriculture is the generating force behind the economy of many developing countries. Given an enabling political support equivalent to other industrial pursuits such as mining and oil exploration agriculture has the potential to provide opportunities for offering decent jobs and nutritionally sustain the now starving Kenyan population.

In order to ensure that the mission of school agriculture was attained there were deliberate moves to link the syllabuses to the resources and facilities. Records from the Government of Kenya (GoK, 1970) show a systematic funding and provision of resources for the teaching of agriculture in schools. The plan included provision of facilities for practical learning and teaching activities such as; tractors, combine harvesters, cultivators, wood and metal working tools, farm shop equipment including welders as well as science related equipment. Besides the above, there was a provision to construct an agriculture workshop in all schools teaching agriculture. The aim in providing these facilities was to link school agriculture with relevant skills to the learners and to establish a foundation for further studies in agriculture and related fields that would further help in reducing unemployment among the youth.

#### **THE POSITION OF AGRICULTURE IN SCHOOL CURRICULUM**

Due to the premium the Kenya Government has on agriculture in comparison to other countries (GoK, 1967 & FAO, 1997) it has focused on developing and expanding the programme and equipping more schools, with a view of improving the quality of education. According to Maxwell (1965) and the MOE Inspectorate circular of 1971, the policies for the establishment of a sustainable agriculture curriculum in secondary schools included availability of land for practical and project work as a strategy for making the subject more responsive to rural development needs.

Various education commission reports among them the Weir commission (GoK 1967) and ILO, (2007) all point out at the central position of agriculture in the school curriculum as a facilitating factor in youth employment and rural transformation. The 1976 Gachathi report in line with recommendations of the World Bank (GoK,1976; World Bank,2009) respectively concurred that education should be integrated with training to the local environment and to strengthen the teaching of agriculture by making the subject more scientific. This is a reason why Gunnar, (1970) contended that it is in the agriculture sector that the battle for long term economic development will be won or lost. This could have been the basis of the apparent success of vocational education in the US in which the 1917 Smith Hughes Act, Martin (1991) set the pace for vocational agriculture.

#### **RURAL DEVELOPMENT AND TRANSFORMATION**

Transformation and development of rural communities in developing countries is a fundamental issue. According to (World Bank,2002; United Nations,2007), rural transformation implies eradication of poverty and attainment of better health

and living standards, to attain this, agricultural education curriculum must undergo regular review to match the changing times the curriculum must transform itself. However it must be observed that school agriculture on its own cannot have an impact on rural development, it will provide skills, but there must be a deliberate move to provide an infrastructure for rural development which include rural electrification, irrigation and conducive business and trade policies. Education for human resource development is understood to be a learning process of acquiring complete mastery over ones destiny Gunnar (1970) and Blanchard (1989). The implication of the statement is that external injection of assistance, improved consumption and livelihoods cannot be sustained in the absence of education, training and skills. Agricultural education has to facilitate capacities of people, promote their competencies, change their attitudes and practices which can improve their life styles (Bird 2002). The majority of Kenyans live in rural areas; hence rural development remains a fundamental commitment for the development of Kenya’s economy.

**3 METHODOLOGY OF RESEARCH**

This study used qualitative approach of historical design. This involved using systematic nature of historical studies by interviews, documentation search of past records from schools, and education offices libraries and archives to search for facts on policies relevant to school agriculture resources and facilities provision and use; these were described, analyzed and interpreted with reference to their past and current impacts on contribution to rural transformation and development (Ary et al., 1985; Borg & Gall, 1989; Deebold, 1962; Wiersma, 1995) were employed in this review.

**TARGET POPULATION**

The targeted population for this study was the relevant individuals and institutions with both primary and secondary sources of information on school agriculture provision and use of funds, resources and facilities for teaching agriculture over the study period. The individuals interviewed for information included former and current agriculture teachers who were responsible for use and care of resources and facilities in their teaching. Former and current head teachers of schools who were responsible for the acquisition of funding, resources and facilities for the subject. The study purposively sampled 26 secondary schools in which agriculture was taught and additional 17 schools were added due to snowball effect (tables 1&2).

*Table 1. Sampled Category of Schools and Procedures*

Category of school	Number of schools sampled	No. of current Agr. Teachers	No. of former Agr. Teachers	No. of current H/T	No. of former H/T	Total No. initial respondents
Pilot Project	1	2	3	1	1	7
USAID assisted schools	3	5	4	2	2	13
IDA/World Bank Projects	4	6	8	4	2	20
Kenya Government funded projects	6	10	9	5	6	30
Non funded 8-4-4 Projects /Own Funding/PTA/BOG	12	16	15	11	7	49
<b>TOTAL</b>	<b>26</b>	<b>39</b>	<b>39</b>	<b>23</b>	<b>18</b>	<b>119</b>

Table 2. Additional schools visited

Category	No. of Current Agriculture Teachers	No. of Former Agriculture Teachers	No. of Current Head teachers	No. of Former Head teachers	Total
USAID Project	2	2	2	2	8
IDA Project	1	1	-	1	3
Government Of Kenya	6	3	5	2	16
Nun-Funded Own Projects, B.O.G/PTA	8	6	7	1	22
<b>TOTAL</b>	<b>17</b>	<b>12</b>	<b>14</b>	<b>6</b>	<b>49</b>

#### INSTRUMENTATION

Two interview schedules were used to collect data for this study. One schedule was intended for current and former head teachers and the other for current and former agriculture teachers. An observation schedule to record the activities in the school farm and school workshop (where available) was used.

#### DATA COLLECTION

Between May 2011 and August 2012, field work involving identification, locating, and collecting information pertaining to provision and use of secondary school agriculture resources and facilities provision and use was carried out. This involved visiting the 26 secondary schools as categorized in the population sample. Using the interview schedules, the current head teachers, and agriculture teachers were interviewed to obtain information on curriculum changes in the principles and practices of teaching agriculture resources available for teaching and how the strategies could influence rural development. A critical area in the visit to the schools was the visit to the school farm, agriculture workshop (where it existed) for on the spot observation of the facilities and the general impression on the organization of the agriculture department.

#### DATA SYNTHESIS AND ANALYSIS

Both qualitative data synthesis and analysis were used in this study. This involved systematic synthesis and putting the data and information collected into narrative account of the policies that had relevance to the provision of school agriculture resources and facilities p and as well as their use. It required analyzing reports, agreements, recommendations, correspondences and policy statements from various sources ranging from schools, former and current agriculture teachers, former and current head teachers, former and current education officials. Information was divided into the following themes:

- i. Funding and resources policies
- ii. Staffing and responsibilities
- iii. The place of agriculture workshop
- iv. Equipment and facilities for teaching agriculture
- v. The books and teaching aids
- vi. The school farm

## 4 RESULTS AND DISCUSSIONS

The findings of this study show a sustained resource provision for school agriculture between 1965 and 1975 when school agriculture still enjoyed political goodwill of the government. The level of financial support is illustration of the government desire to use school agriculture as an engine for rural development. During this period, the USAID (United States Agency for International Development) support to school agriculture amounted to US\$ 21,300 (at an exchange rate of Kshs 7.50 per US dollar as at that time, compare with the current exchange rate of Kshs 91 per US dollar) for six schools, while the World Bank sponsored seven more schools at total cost of Kshs. 107151/= in 1967 and the Kenya Government between 1968-1974 planned for n expenditure of Kshs.5, 160,000/= for 20 additional schools. Despite these remarkable investments in school agriculture with a goal to transform rural areas, there exists a dehumanizing continuous annual cycle of hunger to a vast

number of rural population who can only survive through charitable support. Whereas agriculture on its own cannot spear head rural development, it can be concluded that school agriculture has failed to meet its mission.

For a developing rural economy to reduce poverty levels and create job opportunities for rural youth, the provision of the resources was a direct injection of investment in agriculture, hence an investment for rural development and transformation. Appropriate tools and resources would facilitate innovations in agriculture this would multiply employment opportunities; equally, the financial support to school agriculture programme would promote value addition on agricultural products besides stimulating physical output. Among the facilities provided was the agriculture workshop which was the most expensive resource in the secondary school agriculture programme. This was a facility for promoting practical teaching of the subject. Despite this magnitude of expense, the study reveals that most of the workshops were later modified by schools for uses other than the teaching of the subject. This study found the only reminder that at one time, schools teaching agriculture had workshops. The reminder can be traced to Chavakali High School, where the plaque showing the original founding of the subject serves as a reminder that agriculture was once funded.

The plaque reads: ***This agriculture building and shop was constructed through combined financial contribution of the people of United States of America and the people of this Community.*** A specific study of the conditions of workshops at different school reveals the following information-

- i. The early supply of workshop tools and equipment in the USAID, IDA and Kenya Government Agriculture Programme are either not there or were transferred to other courses.
- ii. In one school the relics of the tractor and welding equipment are in a section of the workshop now turned into laboratory for Physics.
- iii. In a number of schools, tractors, tractor parts, and equipment are either buried in the thick vegetation or scattered in the school compound.
- iv. In one school there were three tractors lying un-serviced and unused.
- v. Agriculture workshops stopped being used as early as 1971 and that the wood, metal and welding equipment were not operational in most schools. The position of hand tools has remained the same in that most of them had gone missing or poorly looked after.

Further findings arising from the visits to the study schools reveals that the workshops were converted in to dormitories, regular classrooms, stores, science laboratories, stores of all sorts and grave yards for broken furniture. Nearly all the tractors supplied under the USAID/IDA projects went out of use between three to four years after delivery. The school farm where practical and demonstration agricultural lessons could be conducted no longer exists. None of the 43 schools visited in this study have a functional school farm. The Young Farmers Club movement which was to serve as a launching pad for application of practical skills and provide a linkage with the rural communities was buried as schools race for examinations excellence. Further results from the study shows no difference in the status of the subject in the different categories irrespective of their origin whether World Bank, USAID, Kenya Government or Self-Funded. None of the respondents have an idea of the mission and philosophy of school agriculture.

The purpose for inclusion of agriculture in the school curriculum and providing these resources was in the recognition that farmers needed methods and skills to raise the level of agricultural production and that supervised agricultural experience has a contribution to make in rural development. Rural transformation in Kenya has to be seen as a contemporary issue in development. Development must be viewed as an integral state of health, income and consumption. The mission of school agriculture in transforming the rural lives would induce increased consumption by providing the right training and skills. This is one way of ensuring that education expands avenues of competencies, redirect people's attitudes and practices which promote life styles. This was the basis upon which the 1969 secondary school Agriculture Principles and Practices Syllabus was drawn.

## **5 CONCLUSIONS AND RECOMMENDATIONS**

### **CONCLUSIONS**

The results and the findings from on site observations from the 43 schools in the study, and interviews from the 119 respondents of different categories confirm that efforts were made by the stakeholders to provide resources and facilities which could be used as a base for building a store of human resource for rural development. However the desire by schools, teachers, and parents for excellence in examinations has overshadowed the relevance of skills, values and attitudes in education hence relegating the need for reforms in which vocational and practical subjects like agriculture are given prominence.

This implies that the provision of resources and facilities for agriculture has been inconsequential. An analysis from KNEC reports of 1999 and 2000 show, impressive results from schools on agriculture yet there are no facilities, for teaching the subject in the same schools. This by itself undermines any possible consideration to provide facilities to these schools. Further findings show that there is no linkage between agriculture teachers, the farming communities and the extension officers, which in a sense shows that there is no link between the teaching of agriculture in schools to agricultural productivity and rural development. It can be further be concluded that school agriculture in Kenya has been downplayed in the education system such that its purported role in rural development is no longer mentioned except as one of the subjects in the curriculum. It is no longer a beacon for rural transformation and development.

#### RECOMMENDATIONS

It is recommended from this study that there is need to re-define the mission and philosophy of school agriculture in Kenya in order to promote rural transformation and development. Teaching strategies should be developed to reflect practical and responsiveness to the developmental needs of rural areas. Stakeholders both in agriculture and in education should design strategies to review secondary school agriculture curriculum to help the country attain food security and reduce rural poverty.

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