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TECHNICAL INSTITUTES IN KENYA.

Claremont Graduate School, Ph.D., 1974
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A STUDY OF THE POST-SECONDARY
TECHNICAL INSTITUTES IN KENYA

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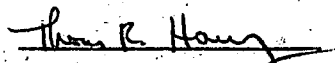
Stephen Ngui Mutunga

A Dissertation submitted to the Faculty
of Claremont Graduate School in partial
fulfillment of the requirements for the
degree of Doctor of Philosophy in the
Graduate Faculty of Education.

Claremont, California

1974

Approved by:


Dr. Thomas R. Harvey

We, the undersigned, certify that we have read this dissertation and approve it as adequate in scope and quality for the degree of Doctor of Philosophy.

Visiting Examiner

Faculty Reader

Faculty Reader

Supervisory Committee

Thomas R. Hauer
Chairman

[Signature]

Gambir Dalize

Dedication

To my parents, whose determination to ensure the best in education for their children entailed financial sacrifice. It is my fervent hope that they did not do so in vain.

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In closing, the writer states that he alone is responsible for the interpretations found in this study.

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CHAPTER I

INTRODUCTION

A. Background of the Problem

One of the commonest expressions, often by African leaders, of the way to modernize Africa, has been the literal declaration of 'war' on poverty, ignorance and disease. Formal schooling, introduced and popularized by Europeans, has been seen as an important vehicle to this goal. The dilemma, however, has been the difficulty in adapting western formal education to African culture. Most African countries have accepted the western formal processes of education but since this form of education had strong academic bias the practical side of education has been less emphasized. This study will, therefore, examine how one African country, Kenya, is going about in changing the outlook of education to accommodate technical education.

In one of his lectures on the nature and process of education the late John Dewey observed that:

There ought to be some place in the school system, and a good deal of place in the beginning grades, for what we might call direct modes of experience, where the child does things for the sake of doing them as he does outside of the school, and has his learning through the doing for its own sake; he learns through his experience.¹

¹John Dewey, Lectures in the Philosophy of Education, edited

Dewey was one of the most outstanding educational philosophers and his ideas on education had a great impact on the American schools. The experience and environment of the learner were very crucial to Dewey and he placed great importance in them. Contrary to Dewey's views of educational process and especially the importance attached to the individual learner, the Europeans introduction of formal education in Africa paid little attention to the Africans' needs or the needs of the learner.

Colonial rule created numerous myths about the superiority of Western Culture and education. The scramble for Africa culminated in the Berlin Conference of 1885 where Africa was divided among several European powers. From that time on the Europeans intensified their colonization and preaching of their superior ways of life. Many African institutions of learning became replicas of the former colonial models and many still remain that way even though they are in countries where political independence has been attained.

The failure by African universities to forge ahead in their identity and adaptation to the African culture has been observed by John Scott:

Black Africa enjoys neither an ancient civilization nor wealth and that its university system reflects both these lacks, [nevertheless] . . . there is an advantage in being tabula rasa and creating indigenous universities with their own stamp of individuality and originality.²

Scott, like most colonial educators, fails to acknowledge the existence

by Reginald D. Archambault (New York: Random House, 1966), p. 77.

²John McCallum Scott, British Universities Today (London: Plume Press/Ward Lock, 1973), p. 33.

of such ancient African empires as the Zinj, Monomotapa, Mali, Ghana, Zimbambwe, Songhay, to name a few. He seems to imply that the history of Africa starts with the arrival of the white man. The assumption that some Europeans had about their inherent superiority and the inferiority of the Africans must be corrected if education is to be meaningful to the Africans. What Africa needs now is a good supply of conscious African scholars to reconstruct her history and dedicated teachers to teach relevant events and ideas in the African schools. Relevance is defined here as those concepts which have meaning to the African existence.

The colonial attitude towards African education damaged the self concepts of many Africans who were unconsciously misled to assume that the European culture was superior to that of their own. The report of the British Under Secretary of State for the colonies on his visit to West Africa in 1926 reveals clearly the standards upon which excellence was to be measured, which he labelled as "cult of certificate." He said that:

This attitude, reflecting the spirit of the period when educational system was first established and also the natives' own preferences, finds expression in the demand for English examination standards and for the widest possible use of English as the medium of instruction.³

The school curriculum during the colonial days placed more emphasis on European culture at the expense of the African way of life. Great

³Report by the Hon. W. G. A. Ormsby-Gore, quoted by Lord Hailey, An African Survey: A Study of Problems Arising in Africa South of the Sahara (London: Oxford University Press, 1938), p. 1245.

emphasis was placed on English language and to qualify for high school or university one had to perform extremely well in the English language examination. During his high school days, the writer can remember many students who were not accepted in the university in Kenya because they had low marks in English language even though they had distinctions in several other subjects which were, ironically enough, written in English. Kenya inherited a British oriented curriculum with heavy academic bias. Consequently the majority of the students aspired for white collar jobs upon graduation from high school and never manual work. This expectation of white collar jobs is beginning to be questioned now that the Europeans are no longer ruling. Unfortunately the colonial hangover is still there and many European trained Africans still despise manual work. The curriculum reflects this lack of change. When Kenya became independent in 1963 however, the need for national development placed new burdens on the educational system. Kenya could no longer look up to Britain or any other foreign power for solutions to her educational problems.

Education is viewed in Kenya as a major vehicle for development. In 1965 in its Sessional Paper Number 10 the Kenya Government stated as one of the aims of education as:

At Kenya's stage of development, education is much more an economic than a social service. It is our principal means for relieving the shortage of domestic skilled manpower and equalizing economic opportunities among all citizens.⁴

⁴Sessional Paper No. 10, "African Socialism and its Application

While "education for national development" is not a unique or original concept for developing nations, Kenya faces two particular problems of clarification and definitions.

B. Statement of the Problem

As Kenya merges towards more egalitarian national development, it is faced with the need to redefine the role and function of its educational system. Of particular concern have been the need for: (1) expanding post-secondary education and (2) adapting the curriculum to local needs. These two concerns appear to merge in the recent creation of Kenya technical institutes.

There seems to be an increased awareness among the educators and government planners that the country's schools must emphasize vocational and technical education since the traditional curriculum has been so academic. With technical and vocational skills the government seems to assume that high school graduates will be easily employable. This view was clearly stated in Kenya's Development Plan for the Period 1970 to 1974:

The only group of young people who will have little difficulty finding wage employment (1970-1974) will be those in possession of technical and vocational skills and those in possession of University Arts degree who do not possess marketable skills or specialized knowledge will by the end of the Plan Period (1970-1974), begin to experience difficulty finding suitable employment.⁵

to Planning in Kenya" (Nairobi: Kenya Government Printer), p. 39.

⁵Kenya Development Plan for the Period 1970 to 1974 (Nairobi:

Kenya's population growth of over 3.3 percent, and the government's decision to provide "free" education (effective January 1974) in the first four grades of primary schooling, will no doubt have far reaching implications for the educational system in Kenya. School-age population growth as well as the need for marketable skills, have also affected the educational system.

A study by James Morgan and others in 1970 on "The Selection of Form Four Leavers for Further Education, Training and Employment" showed clearly that there are thousands of high school graduates who have no place to go. The study estimated that:

... of the 16,550 citizens who finished Form IV in December 1969 about 14% will have been offered places in H.S.C. (Higher School Certificate) and another 21% in other government training courses. A further 27% are likely to be absorbed into the labour market in technical, clerical, or skilled jobs during 1970. The remaining 38% will have to find self employment, work in family enterprises, agriculture, or in semi-skilled work, enter privately-run training courses, or will be unemployed.⁶

As this study shows, the supply of high school leavers far exceeds the country's capacity to absorb all of them into post-secondary education or employment. Since 1970 there has been great interest to develop technical education through the Harambee Institutes of Technology. This came about due to the fact that most of the unemployed high school

Government Printer, 1969), p. 105.

⁶ James Morgan, et al., The Selection of Form Four Leavers for Further Education, Training and Employment, Discussion Paper No. 94, (University of Nairobi: Institute for Development Studies, 1970), p. 6.

leavers are "unemployable," especially in the technical or industrial enterprises.

Another study which probably acted as a catalyst to the rapid expansion of higher education in Kenya was done by a Conference on the Development of Higher Education in Africa under the auspices of UNESCO in 1962. The report recommended that in order for the African countries to be self-sufficient with trained manpower they must:

... increase many times the number of students in their universities, higher technical institutes, teacher training, colleges and in all other post-secondary institutions. The population of students... must rise from present enrolment of about 31,000 to about 274,000 in 1980 or earlier.⁷

As a consequence of these changes there emerged two major educational movements in Kenya: First, there was the creation of the Harambee Secondary Schools. This movement, which can be described as a self-help effort of building secondary schools, gained momentum after independence in 1963. By 1969 there were in Kenya 366 secondary schools built on self-help basis.⁸

The second and the most recent movement, is that of building the Institutes of Technology. This movement, also under Harambee spirit, "started in the middle of 1971 and by March 1973 there were institutes proposed for Kiambu, Kirinyaga, Murang'a, Nyeri, Embu, Meru, Yatta, Mombasa, Nakuru, Kericho, Kihancha, Kisii, Kaimosi, Kakamega,

⁷UNESCO, Conference on the Development of Higher Education in Africa (Tananarive, Malagasy, 1962), p. 11.

⁸Kenya Development Plan for the Period 1970 to 1974, p. 105.

Sang'alo and Kajiado.⁹

This harambee movement to construct technical institutes will be the subject of this study. The writer will examine the rationale behind this movement and find out how these institutes will be funded, staffed, governed and their relationship to the national government. It appears to this writer that the Harambee movement for technical institutes could provide some solutions to the problems raised in the above-mentioned reports. In short, this study will be a descriptive one as it attempts to understand the past, present and speculates on Kenya's educational plans for the future.

C. Purpose and Organization of the Study

The purpose of this study will be to examine and describe the educational change taking place in Kenya as manifested by the harambee institutes of technology. The introduction of western formal schooling in Kenya and its effect on Africans will be traced and discussed in Chapter II. This study will also attempt to illuminate some of the forces behind the movement to construct technical institutes. This movement will be compared with the land-grant concept in the United States and with the British model of technical education in the hope of shedding some light and clarification of Kenya's model of technical

⁹E. Martin Godfrey, Technical and Vocational Training in Kenya and the Harambee Institutes of Technology, Discussion Paper No. 169 (University of Nairobi, Institute for Development Studies, 1973), p. 1.

education. The reasons for the institutes and their chances of success will be analyzed. Chapter III will describe the methodology and data-collection procedures of the study. Chapter IV and V will deal with results and conclusions of this study, respectively.

D. Significance of the Study

This study will show some paradoxes which exists in Kenya's educational programs which, if eliminated, could bring a greater appreciation of the role of technical education in Kenya. The comparative education section of this study could be a warning to Kenyans of the difficulties faced by others, or solutions attempted in other countries and their consequences. From the discussion on comparative education Kenya can decide to use similar models of education as those attempted by other nations or begin on a new model of educational planning, suited to her needs.

If the study shows ambiguities and contradictions in the country's educational philosophy regarding the purpose and process of technical education, then the nation may be challenged to redefine her objectives. In the modern world where accountability has become an important concept, this study may raise issues which could lead to further research as to whether the large portion of Kenya's gross national product spent on education is worth it. While Kenya continues to expand educational opportunities for her people, there is a serious lack of plans to expand post-secondary technical education.

The country spends more money on senior secondary schools as well as the universities than it does on post-secondary technical education, even though it has never been established that the academic graduates need their degrees or diplomas to perform the jobs which they enter. Higher education in Kenya, especially post-secondary technical education, is a relatively new phenomenon and there is therefore lack of information as to what direction this form of education will take. Outside the university, there is little emphasis on the role of post-secondary technical education in Kenya as it relates to the national development. Further, there is no systematic attempt to raise the value and social status of the technical education to the same level as that of the academic education. Technical education must be geared to local conditions rather than try to copy a particular foreign model which could dislocate the economy or even the cultural values of Kenyans.

Ethnic and geographical inequality of education has been expressed by most people as an unfortunate fact in Kenya. This study will attempt to suggest some ways of overcoming such an inequality.

E. Definitions of Terms

CAST. The British Colleges of Arts, Science and Technology.

C.P.E. Certificate of Primary Education awarded at the end of seven years of primary education in Kenya.

Form I-VI... equivalent to ninth through fourteenth grades in the United States, Form V and VI being equivalent to American Junior College education.

Harambee ... a Swahili word adopted as Kenya's national "motto" which is equivalent to English concept of "pulling together."

Most recently this word has come to mean "self-help" as seen in the regional harambee projects in Kenya.

Harambee Institute of Technology..... Community planned or built institutes in Kenya, generally accepted as a post-secondary institution, where different kinds of technical subjects will be taught.

Harambee Projects..... Community projects built on self-help basis.

Kenyanization..... the assumption of leadership in all walks of life by qualified Kenyans.

Land-Grant Colleges..... Colleges specializing in mechanic and agriculture built by money from the United States government through the sale of land or land scrip authorized by the Morrill Land Grant Act of 1862 and supplemented by the second Morrill Act of 1890.

Polytechnic... An institute specializing in technical and applied arts and sciences.

Secondary School..... Form I-Form VI.

Standard..... equivalent to grade in American primary schools.

Tribe an ethnic group with a common language and usually residing in one general area.

Wananchi A Swahili word for citizens.

CHAPTER II

BACKGROUND OF STUDY

The republic of Kenya, a former British colony, is located on the eastern part of Africa where it stands astride the equator. It borders the Somali Republic to the east, Ethiopia to the north, Sudan to the northwest, Uganda to the west, Tanzania to the southwest and the Indian Ocean to the southeast. A large portion of the country is on a plateau with a temperate climate. Kenya embraces some 225,000 square miles and, according to the Central Bureau of Statistics' estimation of 1973 she has a population of 12.5 million. This population compares with just under 11 million recorded in the 1969 census, thus clearly showing Kenya as having a very high rate of population growth. This growth, added to the economy of the country where per capita income is a little over \$100 per year has serious implications for education. As the cost of education continues to go up more and more Kenyans will find it difficult to get education, especially post-secondary education.

The great majority of Kenya's people are Africans and are members of one of over forty different tribes. Other racial groups include Europeans and Asians. Most people live in the rural areas where they engage in mixed farming for their livelihood. Recently however a

tendency to move to urban centers in search of employment has developed.

This migration to the urban centers is creating social problems. For example, R. Van Zwanenberg notes that:

In 1962 a partial survey showed that in Nairobi some 100,000 persons were living in only 28,387 rooms and two households out of every three had an occupancy of four or more persons per room.

The problem of overcrowding in addition to unemployment continues to be serious. To understand Kenya's present stage of educational development, one must view it historically. The current transitional state from colony to independent nation has many implications for the economic life of the country. Perhaps in no other area will the change be felt more than in the area of education. Currently primary education runs for seven years followed by four years of secondary education. The East African School Certificate examination is taken at the end of Form IV. Then a two-year course leads to Higher School Certificate (Form V & VI) after which the successful students who pass the examination given in Form VI are admitted to degree work at the university. Three years are required before degrees can be earned.

A. The Origin of School Education in Kenya

Historically Kenya had education long before the arrival of the Europeans. A mistake often made by many people when they talk about

¹R. Van Zwanenberg, "History and Theory of Urban Poverty in Nairobi: The Problem of Slum Development," The Journal of Eastern African Research & Development, Vol. 2, No. 2 (Nairobi: East African Literature Bureau, 1972), p. 165.

education is that education is the result of schooling. This assumption often leads to a fallacious conclusion that since the Europeans found no schools in Africa, in the western sense, then there was no learning taking place. The white man's burden of civilizing, educating and christianizing the African natives was therefore a very important calling. Education and human life imply each other. For Kenyans to survive as a society there were mechanisms whereby youths were socialized and trained to be effective and productive members of the society. Nearly all African societies had initiation ceremonies whereby young men and women were graduated to adulthood. Busia has clearly shown the value and kind of traditional African education:

In the traditional systems of education in Africa, there was not much knowledge of science to impart. ... But it is noteworthy that in the traditional forms of education, there was much emphasis on behavior, on good and evil as the society saw it, in terms of its own survival and continuity. Education was for life, for the fulfillment of social obligations.²

This type of informal education is dead or dying, giving way to the western formal type of schooling. Had the Europeans taken the African views and values into consideration while introducing schooling, Africa today might have a better system of education.

The earliest European visitors to settle in Kenya were Christian missionaries. Their contact with the Africans led to the establishing of school education in Kenya as J. Osogo notes:

²K. A. Busia, Challenge of Africa (New York: Frederick A. Praeger, 1962), p. 91.

... it all started when the C. M. S. (Church Missionary Society) agents, Krapf and Rebmann, opened the first school at Rabai in 1847, which though it did not make much progress in the first fifty years must be considered as the foremost pioneer effort in school education in Kenya.³

The missionaries, though all claiming to be Christians, confused the Africans by belonging to different sects of Christianity. Between 1847 and 1924 there were more than sixty mission schools all over Kenya. Table I shows the most active missions as evidenced by the number of schools each had built by 1924.⁴

Since the missionaries were competing for converts, there was very little effort of cooperation in educating the Africans. More often than not the converted Africans despised other Africans who belonged to different denominations as being unorthodox. The Africans who did not affiliate themselves with the missionaries were not only ridiculed by these missionaries and their African converts as being heathens but they would also find it difficult sometimes to find a school for their children. In some cases it was necessary for the parents to accept a particular faith as a condition for admission of their children to some missionary schools. The African Inland Mission, which was very strong in Ukambani, indirectly practised this process.

³J. N. B. Osogo, "Educational Development in Kenya in 1911-1924," in *Hadith 3*, ed. by Bethwell A. Ogot (Nairobi: East African Publishing House, 1971), p. 103.

⁴*Ibid.*, p. 116.

Table I

Mission Schools in Kenya Founded between 1847, and 1924

	Mission Schools up to 1910	Mission Schools Founded between 1911-1924	Total
Roman Catholic Mission	13	15	28
Church Missionary Society	8	8	16
Friends Africa Mission	1	4	5
Africa Inland Mission	3	1	4
Seventh Day Adventists	2	2	4
Church of Scotland	2	1	3
United Methodists	2	1	3
Gospel Mission	2	0	2
Mudrassa Burhania (Asian)	1	0	1
Pentecostal Assemblies	0	1	1
Salvation Army	0	1	1
Church of God	1	0	1
Total	25	34	69

Europeans came to Kenya in three powerful interest groups:

(1) missionaries, (2) settlers/businessmen, and (3) administrators.

Each one of these groups had its own special interests and their needs came to play a very important role in shaping education for the Africans.

For the most part the Europeans were responding to the Industrial

revolution in Europe and their motives for going to Africa were economic and religious as well as for the sheer excitement of visiting exotic places. Although the Europeans brought formal schooling to Kenya they also brought a number of evils including racism which acted as a divisive force between races rather than a unifying one. The Biblical reference that the black man was cursed is a common example. Professor Kamuti Kiteme in his article "Education in a Colonial Situation" reminds us of what Ewart S. Grogan, one of the earliest European settlers in Kenya, wrote in From Cape to Cairo (1902):

I will ignore the Biblical platitudes as the equality of men... The native is fundamentally inferior in mental development and ethical possibilities to the white man... A good sound system of compulsory labor (is) sic compulsory education as we call our weekly bonnet parades "Church"... what cannot be utilized (in an African) must be destroyed. And the time will come when the negroes must bow to this as the inevitable.⁵

Grogan did not have even to ignore the Bible because as mentioned above it has implications to show racism. What bothered most Africans during the colonial era, and even to this day, about the missionaries was the inconsistency between what they preached and what they practised. The missionaries would, for example, preach about the brotherhood of man in the Kingdom of Heaven but not the brotherhood of man here on earth. These attitudes were reflected in educational institutions as well. The missionaries built many schools but their aim was to teach natives so that they could read the Bible and help in evangelizing. A report of an

⁵Kamuti Kiteme, "Education in a Colonial Situation," The Pan Africanist, Vol. I, No. 2 (Claremont, 1973), p. 15.

official visit to a C. M. S. School at Kigari near Embu on August 1925 by then the Inspector of schools Mr. G. E. Donovan shows what could be generalized as a typical missionary attitude towards African education in those days:

I paid a brief visit to the mission to discuss with the Rev. J. Comely the questions of the registration of schools and the licensing of teachers. . . . He is here not as an educationist, but as an evangelist, and only desires such an amount of education as will steady native Christians by enabling them to read and use the Bible. . . . Mr. Comely, holding as he does that education is necessary only to serve the cause of evangelism, refuses to consider the acceptance of public funds in aid of his school work. The danger lies in the effect this attitude would have on the people if a grant-aided programme of development were desired by them. It is certain that any sudden break-up of the system would have very undesirable results.⁶

The schools themselves were segregated on racial basis. This, in addition to the missionary and settler attitudes towards Africans and their culture led to resistance by many Kenyans particularly in the Western, Central and Eastern regions of Kenya. Such resistance was expressed by refusal to send children to school, establishment of native churches as well as schools.

As far as colonial education policies were concerned the African was to receive poor quality of education. European powers differed only in degree in their token attempt to "educate" Africans. It has been said that the British believed in separation of races whereas the French and other European colonialists believed in assimilation of races in their

⁶ Official Reports: Ministry of Education (Nairobi: Kenya National Archives, August 1925).

colonial policies. Oliver and Fage make this point quite clearly:

France, Belgium, Portugal, and Italy all in theory maintained the doctrine of assimilation.⁷ /In contrast however among the British/ There was no feeling that Africans should be turned into Britons.⁸

Both policies, especially when applied to African education, worked to the detriment of the Africans. The former, because Africans were forced to lose their identity and the latter because the British were not interested in training the African to his full potential. The British believed in separate development, a living example of which is the apartheid policy in South Africa.

B. Development of Technical Education in Kenya

Ethnic segregation of education in Kenya was officially formalized in 1919 as a result of recommendations by a Commission appointed by Sir Charles Bowering the Governor of the East Africa Protectorate (later Kenya) "to investigate the types of education considered necessary for European and Asiatic children, and (as a separate exercise) the type of education suitable for Arab and Swahili children, and finally for native children."⁹ The composition of that Commission included no African. The African needs of education were to be "represented" by the missionaries and colonial administrators. As was to be expected, the

⁷Roland Oliver and J. D. Fage, A Short History of Africa (Baltimore, Md., 1962), p. 212.

⁸Loc. cit.

⁹Osogo, p. 107.

Commission's recommendations were released in 1919 and they recommended that Kenya should have four educational systems, one each for the Europeans, Indians, Arabs and Africans. Since the European settlers wanted laborers and the missionaries were not eager to allow Africans to attain advanced literary skills the Commission favored a technical type of education for the Africans. The right kind of education for the European children was one which would prepare them for leadership as well as management of agricultural farms. Later education for all European and Asian children from the ages of seven to fifteen was made compulsory. Education for the African children was neither free nor compulsory. This differentiation of educational curriculum whereby the Africans were destined to be servants of the white man, had damaging effects to the minds of many Africans towards education. They looked at technical education with contempt. The negative attitude of the colonialists towards Africans' ability to do academic work continued for a long time. Several educational reports including the ones of 1919, 1924, 1937 and 1944 all show how Africans' educational needs were relegated to the background. Kiteme points out that:

... the white man recognized the Black man's potential from the neck down. Our thinking and talking were, somehow, to be taken care of by the Europeans - a naked white lie indeed.¹⁰

Educational policy in Kenya, therefore, stressed primary and vocational schooling.

¹⁰Kiteme, p. 16.

The technical bias on education which the British encouraged for the Africans goes back to 1909 when Professor J. Nelson Frazier was appointed Educational Adviser to British East Africa. His report recommended three systems of education: European, Asian, and African. Later however, the Educational Commission, mentioned earlier, recommended four systems with one additional one for the Arabs. Kenya established a Department of Education in 1911 with J.R. Orr as its first director. According to Osogo both Frazier and Orr were influenced by the experiments in Negro education which had been carried out in the southern states of the U. S. A. for the previous three decades. Booker T. Washington's idea of technical education for the black Americans inspired both Orr and Frazier. Washington's theme in establishing the Tuskegee Institute was to show the difference between working and being worked. Since he was aware that many black Americans hated work because of its association with slavery he wanted to change that attitude by inducing pride, honor and dignity to work. He therefore promised:

...to teach our students to lift labour out of drudgery and to place it on a plane where it would become attractive, and where it would be something to be sought rather than something to be dreaded and if possible avoided.¹¹

The parallel between Washington's practical education for the black Americans and its applicability to Kenya's colonial situation was the

¹¹Booker T. Washington, Working with the Hands (New York: Negro University Press, 1904), p. 17.

little attention paid to intellectual development of the intended clientele. At any rate Orr and Frazier thought of Washington's model of practical education as a perfect one to be introduced to the Kenyan Africans. Consequently the first government school, called Machakos Native School patterned after the Tuskegee Institute was opened in 1913. This school had, "technical bias and... inspired on work with the hands as the ideal-education for black people."¹²

Although Orr was sympathetic with the African cause and wanted the Africans to get some technical skills to help themselves in the rural areas, the settlers wanted a supply of semi-skilled servants. The settlers were opposed to the idea of educating the native to do his own work. They saw such skills in education as creating competition and as an eventual threat to their dominance.

Another attempt to bring vocational and technical education in Kenya occurred as a result of a recommendation by the Phelps-Stokes Commission of 1925. This commission made a thorough review of education in East Africa and among its many sound recommendations it urged government, missionaries and settlers to cooperate and give Africans education aiming at character, health, agriculture, industry and sports. The commission also recommended the establishment of Jeanes Schools in Africa.

This type of school had its origin in a bequest by Miss Anna T. Jeanes for the training of visiting teachers for negro in

¹²Osogo, p. 105.

America. . . One aim of the system is to fit the bush school into local community life by providing interesting teaching which is in close relation to local needs.¹³

The idea was to bring teachers to Jeanes schools for further training usually accompanied by their wives. The teachers' wives would receive instruction in maternity and child-welfare. This idea of encouraging women to get education was popularized by the late Dr. J. E. K. Aggrey of Ghana who was a member of the Phelps-Stokes Commission. As far as education for women was concerned Aggrey drew attention to educators' conscious in Africa with his maxim:

If you educate a man, you educate an individual. But if you educate a woman, you educate a family.

As a result of the Phelps-Stokes Commission a Jeanes school, the first of its kind in Africa, was started at Kabete¹⁴ in 1925 with money given by the Carnegie Corporation. A few more Jeanes schools were opened in other parts of Africa later. Jeanes school at Kabete did not produce the results expected because the recommendation was carried half-heartedly. After all, this was an American idea and was not the settlers' or missionaries' idea of the African education. The initial idea was a good one but the colonial education system was not conducive to its success.

¹³Lord Hailey, An African Survey: A Study of Problems Arising in Africa South of the Sahara (London: Oxford University Press, 1938), p. 1228.

¹⁴Ibid., p. 1252.

¹⁵Ibid., p. 1252.

Its first principal Mr. Dougall, was an able educationist, but the candidates sent to him (selected for their docility or loyalty to the missionaries) were such poor material that the experiment to produce visiting teachers never really worked.¹⁵

The government continued to pen more native schools with the emphasis on elementary forms of technical training.

The Africans in Kenya were not just sitting passively absorbing the western form of education. There were many forms of protests. In many ways western education was seen as destroying community values. The residential school idea, where students would be taken to live in the guise of building their character was not well liked by most Africans. Many African parents resented the idea of having their children sent off to a boarding school. They would often refuse to allow their children to go to school in the fear that their character would be ruined. The Europeans were aware of this resistance and they would in turn offer a small payment to the students to persuade them to go to school.

Many independent schools sprung up as a form of protest:

The existence of these independent schools, which are found in several territories beside Kenya, is of some significance. They are evidence that Africans may in certain circumstances not be content to allow those who control education to use the schools for purposes of which a large body of African opinion does not approve; and they constitute a warning that educationists in Africa may greatly increase their own difficulties, if they do not find means for associating African opinion with them.¹⁶

¹⁵J. E. Anderson, quoted by Osogo, p. 114.

¹⁶Hailey, p. 1240.

Technical education was not appealing to the Africans since it was seen as only a preparation for manual work. Missionaries, who controlled education, with the government's supervision were not eager to teach advanced technology. The trade schools' and vocational schools' curriculum was at a very rudimentary level, to say the least. Many African students began to despise technical education and preferred academic education which, they thought, would help them get white-collar jobs. Despite the reluctance that Africans showed towards technical education, the government continued to support the 'working with the hands' concept. Indeed the first institution of higher education opened in 1956 as the Royal Technical College.

C. The Emergence of the Harambee Institutes of Technology

Although Africans generally accepted the idea of formal education as being somehow good for their children, they were not happy with the process and purposes of education practised by the Europeans on their children. Many independent schools started emerging in the early part of the twentieth century built by the communities themselves. Keller reports that "the first independent school was perhaps established in what is today Nyanza Province in 1910 by John Owalo."¹⁷ The Harambee spirit is an essential part of African culture and through it many independent schools were built in many parts of Kenya following

¹⁷E. Keller, The Role of Harambee Schools in Education for Development, Working Paper No. 118 (University of Nairobi, Institute for Development Studies, 1973), p. 3.

Nyanza's example. Keller points out that Kikuyu area developed "perhaps the most sophisticated network of independent schools."¹⁸ By and large the reasons for independent schools came about as expressions of dissatisfaction by the Africans with the Europeans' educational goals.

The settling of white settlers and missionaries in the central parts of Kenya accelerated in the early 1920's after Kenya was declared a British colony. Among the tribes of Kenya, the Kikuyu, perhaps due to their proximity with the Europeans and because of occasional clashes over land and customs, built more independent schools than any other tribe. J.E. Anderson reports that:

The Kikuyu... created 400 harambee schools between 1922 and 1952, including a few second-level schools and one teacher training college.¹⁹

The British government had given the missionaries almost a free hand in deciding the destiny of the black man in Kenya as far as education was concerned. However African resistance continued and was further manifested by the construction of community schools. The first detailed report on education in Kenya was issued in 1949 and the statistics of the non-aided schools were surprising. The report showed that:

... there were 840 aided schools and 1,356 unaided schools, run either by the missions or by independent communities.²⁰

¹⁸Ibid.

¹⁹J. E. Anderson, Organization and Financing of Self-Help Education in Kenya (Paris: UNESCO, International Institute for Educational Planning, 1973), p. 7.

²⁰Loc. cit.

The pressure for more schools continued to increase as Kenya moved towards independence. By 1963 it was estimated that of all students qualified to attend high schools only 4% would be able to do so.²¹ The harambee movement to build independent schools therefore gained momentum to respond to such a need. The Ministry of Education estimate showed that as late as "1972 more than 520 of 585 unaided schools were harambee schools." The distinction between unaided and harambee schools was never very clear. All harambee schools happened to be unaided but not all unaided schools were harambee schools. This confusion must be attributed to, at least in part, the authorities concerned for their lack of providing clear cut definitions. Loosely though it can be said that most missionary schools were unaided whereas the government schools under the district education boards were aided. Currently, some of the better harambee schools (community) are being slowly taken over by the national government. The growth of secondary schools in Kenya, and especially those of harambee origin, can be seen in Table II constructed by Keller from the data provided by the Department of Education Triennial Reports.

Table II shows clearly the tremendous growth of education in Kenya since independence in 1963. The figures show a much more aggressive government involvement in education as evidenced by an increasing number of unaided schools taken over by the government.

²¹Keller, p. 8.

Table II
The Growth of African Secondary Education in Kenya²²

Year	aided schools	number of students	unaided schools	number of students	Total schools	Total number of students
1945	4	0	0		4	
1957	21		4		25	
1960	33		8		41	
1963*	82(36)	23,166	13(19)	6,954	95	30,120
1964	152	27,476	68	8,445	222	35,921
1965	186	35,576	150	14,400	336	45,976
1966	199	41,227	204	21,966	400	63,197
1967	206	49,488	336	32,291	542	80,779
1968	232	56,546	369	44,815	601	101,361
1969	263	65,644	431	49,602	694	115,246
1970	300	74,521	486	52,254	783	126,855
1971	331	81,043	476	59,676	809	140,719
1972	364	91,494	585	70,416	949	161,910

*From 1963 on figures included previously all-Asian and all-European schools which were integrated into one system.

²²Ibid., p. 9.

Unfortunately the government has not been able to take most of the unaided schools since these schools are increasing at such a high rate.

This unprecedented change of education in Africa was in some ways foreseen by Newsweek magazine in 1959. Although the Newsweek editors, in discussing "Rising Africa" were a bit paternalistic, especially when they refer to "grandsons of cannibals... learning to drive bulldozers and the daughters of witch-doctors being taught to handle X-ray machines" their observation on Africa's educational change is worth noting:

The most explosive force of the sixties may not be economics but education. All over the continent, except perhaps in the still sleeping Portuguese colonies of Angola and Mozambique, young Africans have found a new fetish—the ability to read and write. In reed huts along the Lualaba, in dung-caked houses, in Mashonaland and Dahomey, they are poring over the alphabet, unlocking the keys of knowledge and power.²³

Soon after Kenya's independence an education commission was appointed, chaired by Professor S. H. Ominde, to review all aspects of education and issue a report to the government. That commission saw Kenya's educational institutions as "Charged with a number of national tasks of first class importance, relating to the building up of the nation, the promotion of national development and the guidance and stimulation of social change."²⁴

The Ominde report, as it is commonly called, had great impact

²³"Rising Africa," Newsweek, Vol. LIV, No. 24, December 14, 1959, p. 68.

²⁴Republic of Kenya, Kenya Education Commission Report Part I (Nairobi: Government Printer, 1964), p. 26.

on the educational policies in Kenya. The government saw education not only as an agent of social change but also as a socializing and a unifying force. The report argued strongly in favor of a strong national government's control of education.

... the powers of the Central Government must be those of a planning authority, that is, they must enable the government to determine the nature, the extent and the location of educational development.²⁵

In 1964 when the Ominde report was published there were three main institutions offering viable technical education. These were: the Kenya Polytechnic, the Royal Technical College (forerunner of the University of Nairobi) and the Mombasa Institute of Muslim Education. The latter was initially intended to raise the educational and economic standards of Muslims in East Africa. However, the notion of having an ethnic-religious college in an independent and multi-racial nation was not well-received. Such an idea was seen as a colonial legacy as Frazier had recommended in his report of 1909. Social and political pressure was applied until the Mombasa Institute was eventually open to all Kenyans irrespective of their religious background.

The Royal Technical College was also sponsored by an ethnic group--the Asians. The Asian community raised money to supplement the government's grant to help establish the college in 1956. Initially there were more Asian students studying at the Royal College than other races but political pressure changed the racial composition of the student

²⁵Ibid.

body. All of these three pioneering institutes of technology were opened to provide a wide variety of courses in the technical and commercial fields. The Kenya Polytechnic was especially geared to preparing its students for the qualifications of the City and Guilds of London Institute and Royal Society of Arts. It also offered courses leading to certificates from the "Association of Certified and Corporate Accountants, the Institute of Bankers, the Chartered Institute of Secretaries, the Corporation of Secretaries, the Chartered Insurance Institute and the British Institute of Management."²⁶

The Mombasa Institute of Muslim Education was in reality a technical secondary school preparing students for the Cambridge Overseas School Certificate. It also provided some full time courses in electrical and mechanical engineering for students who had completed two years of secondary school. The Royal Technical College was for all practical purposes the highest institution of higher learning before independence. Although it had a heavy bias in technical subjects such as mechanical, civil and electrical engineering it was later transformed to a university college (1965) and broadened its base of course offerings. Finally in 1970 the university college's title was changed by government statute to a fully fledged University of Nairobi.

In addition to these three technical institutions it must be pointed out that there were other kinds of colleges in Kenya prior to independence specializing in different skills. These included agricultural colleges such

²⁶ibid.

as Egerton and Siriba, a forest school at Londiani, and Embu Agricultural Training Center. These were government colleges sponsored by different ministries. Several large companies and corporations had their training centers also: These included the Railway Training School, Posts and Telecommunications Training School at Mbagathi (the alma mater of the writer), East African Power and Lighting Company Training School, Gailey and Roberts Technical School, the East African Cargo Handling Services Training School and the Ministry of Works Staff Training Center. Other similar institutions with professional programs were the Police Training School at Kiganjo, the Medical Training School, the School of Aviation and the Kenya Institute of Administration. All of these training centers provided specialized industrial or professional training and many of them would send their students to the Kenya Polytechnic for more advanced work. The Ministry of Education was and continues to be in charge of the teacher training colleges. For a long time there was no science teacher training college until the Swedish government helped Kenya establish one in the middle 1960's. The Canadian government is also planning to help Kenya build a technical teacher's college.

As the Ominde report suggested, by the late 1960's government controlled technical education in Kenya, at least the secondary level.

By 1973 the Ministry of Education had eight secondary vocational schools located at Kabete, Thika, Kisumu, Eldoret, Kaiboi, Mwegu, Meru and Machakos. In addition to these vocational schools there were four

secondary technical schools situated at Mombasa, Nairobi, Nakuru and Sigalagala.²⁷ Diagram I showing the system of technical education in Kenya was first developed by C. D. King in 1970 and reproduced by Godfrey in 1973. The disturbing fact about this diagram is that it shows only one senior secondary school, Nakuru, emphasizing technical education.

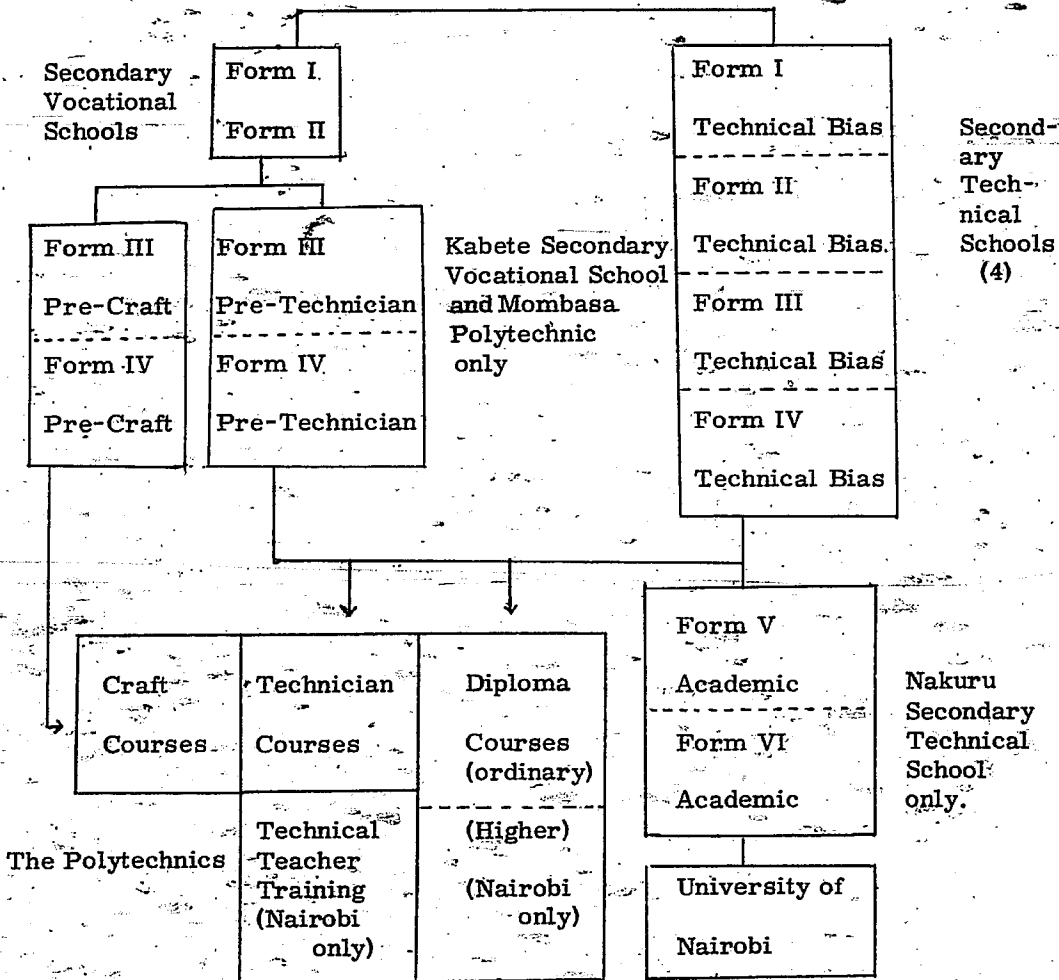
As it should be realized by now, the major emphasis of technical education in Kenya seems to be focused on the secondary and post-secondary level. This does not mean that there is nothing being done about technical or vocational orientation in the primary schools in Kenya. There has emerged another type of institution known as the Village Polytechnic. The original idea behind the Village Polytechnic was proposed by the National Christian Council of Kenya in 1966 and it is supposed to give the primary school leavers some skills so that they can live a productive life in the rural areas. These Village Polytechnics* are spreading under the Ministry of Co-operative and Social Services. Some of the skills emphasized include: carpentry, masonry, baking, shoe-making,

²⁷E. M. Godfrey, "Technical and Vocational Training in Kenya and the Harambee Institutes of Technology," Discussion Paper No. 169 (University of Nairobi, Institute for Development Studies, 1973), p. 2.

*For details see National Christian Council of Kenya: "After School What?" A report on the further education, training and employment of primary school leavers, Nairobi, 1966. One might add here that the government would like to see more primary school leavers stay in the villages rather than migrate to the urban centers. A future study of the Village Polytechnics should be of some interest to show their effects on the rural-urban migration of people. The scope of this study, however, does not include the Village polytechnics but only the post-secondary technical institutes.

Diagram I

Technical Education and Training System in Kenya²⁸



²⁸Godrey, Loc. cit.

tailoring, beekeeping, and vegetable growing. The Village Polytechnic Manual suggests that:

A village must be aware of its economic situation. If the town is taking too much money away from the rural areas, the Village Polytechnic must try to create the products and services that will keep the money in the local area.²⁹

The growth of the technical institutes, or at least of the awareness of the need for such institutes, has no doubt been given a great impetus by the upsurge of the harambee secondary schools. John Anderson (1973) in his paper on the "Self-Help Factor in Education" noted that by 1970 the harambee schools "accounted for 62 per cent of secondary schools and 41 per cent of their enrolment." In the same year since there were only a few institutions of higher learning in Kenya (the University of Nairobi, Kenyatta University College, Kenya Polytechnic, Mombasa Polytechnic, Kenya Science Teachers) where some form of technical education could be received a demand for the institutes of technology was already there. In 1970 out of "126,866 students in secondary schools only 2,508 were admitted to the universities"³⁰ in East Africa. The growth of the institutes of technology can therefore be seen as a response to pressure of secondary school leavers. Mutiso and Godfrey clearly point out that the planners and supporters of the harambee institutes are against students' scrambling for more and more academic education.

²⁹Handbook for Instructors: Village Polytechnic and Youth Center: Industrial Rehabilitation Centre (Nairobi, 1972), p. 8.

³⁰Central Bureau of Statistics, Ministry of Finance and Planning, Kenya Facts and Figures, 1972.

In doing so they have made educational history, since technical training in Africa has traditionally been something that was foisted on unwilling recipients by paternalistic colonial governments or foreign advisers.³¹

The enthusiasm with which the Kenya people have responded to the national call of harambee is phenomenal as evidenced by these technical institutes, as well as other projects. In his paper on "Development Trends in Kenya," Kenneth King (1972) states that Kenya is "the first country voluntarily to espouse technical training on this scale in Africa." The role to be played by technical education, which has been second class, will be interesting to watch in the years ahead.

Although all the seventeen proposed institutes of technology are self-help projects the Kenya Government has given encouragement for these institutes to be developed. In his 1972 annual report on education Arap Towett, the Kenya's Minister for Education, made the following statement regarding the development of the technical institutes:

This development is likely to usher in an unprecedented era of technology in Kenya. It is a welcome move and the government will not sit by idle. It is intended to assist by way of advice on possibilities of affecting economies in building and utilization of resources generally, preparation of curricula and in control and management of finances.³²

Mr. Towett went on to say that his ministry would see to it that the efforts of the wananchi (citizens) in building the institutes were not dissipated but

³¹E. M. Godfrey and G. C. M. Mutiso, The Political Economy of Self-Help: Kenya's Harambee Institutes of Technology (University of Nairobi, Institute for Development Studies, 1973), p. 5.

³²Kenya Mission to the United Nations, Kenya Newsletter, Vol. 2, No. 10 (New York, 1973), p. 14.

that concrete results were realized. He said that his ministry had set up "machinery for co-ordinating the activities of both Harambee schools and colleges of technology."³³

At the official launching of the Kiambu Institute of Science and Technology at Kirigiti Stadium in 1972 President Jomo Kenyatta told the citizens:

Education in technology will serve the people by bringing strength and prosperity to our country. In the next few years, we shall need thousands of expert technicians together with personnel capable of operating equipment and complex science instruments associated with every kind of processing of manufacturing industry.³⁴

The above remarks, both by the President and the Minister for Education, make it quite clear that the Kenya government has endorsed the institutes of technology movement, at least in principle. What is not clear at this point is whether the government will eventually take over these institutes as Mr. Towett implied.

Besides government officials there were other citizens who viewed the beginning of the institutes of technology with a skepticism. Some saw the rate of growth of the technical institutes as alarming:

The mushrooming of colleges of technology throughout the country is a new phenomenon in our educational development that holds out hope for thousands of young Kenyans who leave school every year without the basic industrial skills required for absorption in our fast-changing economy. It also poses a challenge to the respective communities--and the government.

³³Ibid.

³⁴Embassy of the Republic of Kenya, Kenya Newsletter (Washington, D. C., August 1972), p. 6.

on how to plan, equip, staff and finance the colleges before they become fully operational.³⁵

In 1972 there were only thirteen institutes planned (by 1973 there were seventeen) and due to lack of adequate funds and staff it was speculated that only about five of them could be expected to succeed. However the leaders and planners of these ambitious projects are quite enthusiastic and optimistic. In May 1971 the Training Review Committee was appointed by the Kenya Government under the chairmanship of W. N. Wamalwa. Among other tasks, it was to examine the government's training policy, objectives and programmes and recommend whatever changes might be necessary. This committee made the following statement about the institutes of technology:

... We recommend... that all these efforts are coordinated and integrated into a national scheme for post-Form IV education and that they are related to national manpower requirements. We further recommend that the individual projects should be planned so that they complement each other and should not attempt to cover the whole range of technical training.³⁶

This Committee was concerned about possible duplication of efforts which could be costly to the country. The committee also warned about the acute shortages of technical teachers who had both the theory as well as the practical experience:

It would be most unwise to plan these colleges on the

³⁵"Colleges of Technology: Problems and Prospects," Inside Kenya Today, No. 17 (September 1972), p. 23.

³⁶W. N. Wamalwa, "Report of the Training Review Committee" (Nairobi: Government Printer, 1972), p. 32.

assumption that suitable training staff in adequate numbers can be obtained from overseas, since there is a global shortage of technical trainers...³⁷

Wamalwa's report rhetorically suggested perhaps one of the colleges "could make an important contribution by concentrating on training instructors" (p. 32).

Another report made by the International Labor Office in 1972 contained far-reaching recommendations particularly on the transformation of Kenya's education. As far as the non-university post-secondary education is concerned the report suggested:

Building-up of a series of second-chance institutions catering for drop-outs and adults. These schools would be based largely on Harambee and other local efforts. As their name indicates, they would be specifically geared to recuperating those who have either missed the education boat or have fallen out of it.³⁸

However, the government reaction to such a recommendation was less than enthusiastic:

The proposal which is most intriguing is that which calls for the creation of "second chance" institutions. The government will determine the conditions under which it can assist Harambee institutions which have the functions which the report envisages.³⁹

Most of the recommendations by the International Labor Organization are

³⁷Wamalwa, Loc. cit.

³⁸International Labor Office, Employment, Incomes and Equality: A Strategy for increasing employment in Kenya (Geneva, 1972), p. 242.

³⁹Sessional Paper on Employment, No. 10 of 1973 (Nairobi, Republic of Kenya, 1973), p. 52.

sound. Their suggestion of one year's community service after a student finishes upper secondary before proceeding to the university and one more year after finishing university studies is imaginative. However, the writer is less impressed with the concept of building of 'second chance' institutions. This type of an institution would help in perpetuating competitiveness, class consciousness and stigmatize technical institutes as second class colleges for those who are not of superior ability.

The International Labor Office report not only recognizes the "massive popular backing" of the Harambee Technical Institutes but also points out that the planners of these institutes may not know precisely whether there is a demand for their graduates. The report argued that these institutes:

Promise formal training for formal-sector technicians, or even technologists, for whom there is an important but relatively small and not clearly defined demand. ⁴⁰

Finally, the ILO report raises a serious question about inequality of education in Kenya. Since there are geographical inequalities in access to higher education, and even to secondary education, the report recommended:

Entry into upper secondary education to take place according to a quota. The size of the quota to be determined by two criteria--costs, and national demands for skilled manpower. ⁴¹

⁴⁰ILO report, p. 239.

⁴¹Ibid., p. 242.

The ILO report also specifically revealed that according to the Ministry of Education information sheet of 1971, "... Central Province had a preponderant share of the 11 new higher school certificate schools that were established."⁴²

Table III

Distribution of Senior Secondary Schools in 1971 by Province

Coast Province	5	Rift Valley Province	4
Central Province	15	Western Province	8
Eastern Province	7	Nyanza Province	8
Nairobi	12		

In 1969 the enrolment in primary schools in Kenya by Province, according to the Ministry of Education was as follows:

⁴²Ibid., p. 515.

Table IV
Enrolment in primary schools by province, 1969⁴³

Province	Provincial enrolment		Population of Province as Percentage of national population
	Numbers	Percentages of national enrolment	
Central	311,970	24.3	15.3
Coast	76,805	6.0	8.6
Eastern	269,652	21.0	17.4
Nairobi	60,944	4.8	4.7
North-eastern	3,301	0.3	2.2
Nyanza	206,462	16.1	19.4
Rift Valley	183,233	14.3	20.2
Western	169,930	13.3	12.2
National	1,282,297	100.0	100.0

The two tables shown above clearly show a great inequality in distribution of educational opportunities in Kenya. Some possible explanation for these discrepancies is the inequality of facilities and resources. It is incredible, for example, to see Nairobi area with only 4.7% of the national population as having over 20% of all the total schools with higher school certificate classes in the country. Inasmuch as education is under central government's control, the government must do all it can to bring

⁴³Ibid., p. 512.

about equality in education. It must be kept in mind that the higher school certificate schools feed directly into the University and if there are inequalities in geographical or ethnic representation, then these inequalities will persist even at the university itself. Referring to this inequality of access to education the ILO report pointed out that:

It is more serious from the point of view of inequality in the long run that of the six new schools in Central Province five specialize in science.⁴⁴

The case for a quota system of higher education in Kenya is further strengthened by the ILO's statement that:

... although the university discloses no data on student intake by district and ethnic group, the 1971 intake had an obvious preponderance of students from Central Province. This shows clearly that the existing secondary school system leads to an unbalanced national intake of students...⁴⁵

It is amazing to note that in its rebuttal paper the government ignored to comment on whether or not a quota system can be worked out in the higher education:

The government already operates a system of district quotas for entry into secondary schools in the interests of providing equal access for all children. Nevertheless, the government accepts that a problem remains, but would prefer to solve this problem by reorganizing existing facilities and creating new facilities which will provide greater opportunities for all.⁴⁶

It is conceivable that the emerging institutes of technology in Kenya

⁴⁴Loc. cit.

⁴⁵Ibid., p. 516.

⁴⁶Republic of Kenya, Sessional Paper No. 10 (Nairobi: Government Printer, 1973), p. 52.

might attempt to equalize geographical or ethnic opportunities for higher education. But then another inequality of opportunity is on the horizon and that is the inequality between the haves and the have-nots. Even if every region were to have its own college, the gap between the rich and the poor students will not have gone away. The question to be solved would still be: who gets the opportunity to get higher education?

As for the Harambee Institutes' policies, it is too early to know what will happen regarding admissions and tuition. At the writing of this study only Kiambu Institute of Science and Technology has started operating where tuition was announced as three thousand shillings (\$428.00). Tuition, room and board for Friends' College, Kaimosi was announced as almost 700 shillings. The other institutes are at different stages of development. A more detailed discussion on the pros and cons of these harambee institutes of technology will be found in Chapter IV.

D. Comparative Education

1. The British Post-Secondary Technical Education and its Applicability to East Africa.

While history does not repeat itself, it has many parallels and if the new nations are not aware of what mistakes the developed nations have made in the past they, too, are likely to make similar mistakes. Although there is no educational system which can be fully understood outside of its cultural context this writer believes that Kenya can benefit by comparing its harambee movement with the American land-grant

colleges movement. Additionally a clear view of the needs of technical education viewed against the British system which Kenya inherited would help in deciding the kinds of change needed in higher education which are compatible with Kenya's needs. The latter will be discussed first. As has already been mentioned the origin of school education in Kenya is tied in with the arrival of the British. As for higher education, the British did very little to provide it for its subjects. Graham's observation about Ghana characterizes all other former British territories:

Throughout the greater part of the nineteenth century nearly all Africans who had received anything beyond elementary schooling had had to seek it in Europe.⁴⁷

In Kenya the situation was even worse. Prior to 1956 post-secondary education for the Africans was almost non-existent. A few students went to study in Makerere College, Kampala, Uganda. Makerere was started as a technical college in 1922 and was supposed to serve the British territories of Tanzania (then Tanganyika), Uganda, Kenya and Zanzibar. It was not until 1949 that the Senate of the University of London admitted Makerere College to the degree granting status through the University of London. Consequently: "Makerere began its career as a University College in 1950 and the first thirteen students to obtain Bachelor of Arts or Bachelor of Science degrees

⁴⁷C. K. Graham, History of Education in Ghana (England: Frank Cass & Co. Ltd., 1971), p. 139.

completed their courses at the end of 1953.⁴⁸

The Royal Technical College (the forerunner of the University of Nairobi) was opened in Nairobi in 1956. Again, like Makerere, the British decided that the highest institution of learning in Kenya should be a technical college. Liberal arts education at the college level for the Africans was almost unthinkable. However, because of thirst for higher education and lack of opportunities at home a few lucky Kenyans managed to get away to study in foreign countries among them Britain and the United States of America.

It is indeed ironical that the first higher degrees earned by Kenyan Africans were not from England but from the United States. The first M. A. was earned by Mbiyu Koinange in 1937 from Columbia University and the first Ph. D. was earned by Julius Gikonyo Kiano⁴⁹ in 1957 from the University of California at Berkeley. As an expression of inadequate higher educational facilities Koinange and others started Kenya Teachers College at Gethunguri in Kiambu District in 1939. The College's Curriculum was to be extended to include study of law, medicine, home economics, liberal arts, agriculture, science and technology. This curriculum would have been much better and more comprehensive than the one found in Makerere and later in the Royal

⁴⁸Kenneth Ingham, The Making of Modern Uganda (London: George Allen & Unwin Ltd., 1958), p. 258.

⁴⁹Mugo Gatheru, Child of Two Worlds (New York: Frederick A. Praeger, 1964), p. 108.

Technical College. According to Koinange, the Teachers' College first President, by 1946 the college had about "900 students aged from seven to 50."⁵⁰ Unfortunately the life of the college was short-lived. It was closed down by the government in 1952 along with other Kikuyu independent schools, mentioned earlier, at the outbreak of the Mau Mau revolution. The government's decision to close down the Teachers' College did not completely destroy the African spirit of Harambee and it looks as if the new institutes of technology are in a way restoring and strengthening that spirit once again.

The British system of higher education makes clear distinction between university and polytechnic education. The polytechnics were always supposed to prepare technocrats and issue them with diplomas or certificates while the degree could only be issued by the university. As far as the African polytechnics are concerned, Sir Frederick Pedler made it clear that the African technical institutes should not be allowed to be on the same footing with the university. Rather, he suggested that:

students in the technical colleges who successfully completed a course in technician studies should be awarded a degree by the university to be called an associate-degree.⁵¹

The British regarded the technical institutes in England as second class (they were for students who were not bright enough to go

⁵⁰Mbiyu Koinange, The People of Kenya Speak for Themselves (Detroit, Michigan: Kenya Publication Fund, 1955), p. 28.

⁵¹Sir Frederick Pedler, "Universities and Polytechnics in Africa." The Twelfth Lugard Memorial Lecture, Journal of the International African Institute, Vol XLII, No. 4 (1972), p. 262.

to either Cambridge or Oxford). They brought the same attitude with them when they started establishing the technical schools in Africa and especially Kenya. Although the British university was influenced by the ancient Greek education where a scholar was the one with disciplined mind the British did not bother to introduce this kind of education in Kenya. The technical aspect of education was the most important thing that they thought the African could understand. As mentioned earlier, Africans looked at vocational and technical education with contempt.

Besides the political reasons for keeping the African uneducated, racial arrogance and sheer paternalism which were manifested by the British benign neglect for liberal higher education for the Africans in Kenya there was also a financial problem. Ashby makes this point very clearly:

The colonial governments were too impoverished, and the missionaries too preoccupied with their task of combining schooling with proselytization, to devote funds or time to higher education.⁵²

Throughout Africa schools presented problems of content in the curriculum. The missionaries designed schools as they knew them back home. They naturally taught the way they were taught although obviously changed somewhat to subjugate the natives. Ferkiss makes a profound point about the curriculum and purpose of European education in Africa:

⁵²Eric Ashby, African Universities and Western Tradition (Cambridge, Massachusetts: Harvard University Press, 1964), p. 15.

The schools not only stressed white values at the expense of directly or indirectly African ones-but partially through design and partially through lack of knowledge and of teaching materials--unfitted Africans for life in their own country. The botany texts discussed not native but European plants; the poetry praised June days and new fallen snow...⁵³

With the advent of independence Ferkiss offers some useful suggestions as to how education in Africa should be changed to suit the African needs:

New textbooks, using African data and examples, must be written. Teachers must be trained, and as long as Africa depends heavily on teachers from abroad, as it must if it is to continue to increase school enrolment, their teaching must somehow be Africanized.⁵⁴

The British education as it was applied to Africans in Kenya was designed to train Africans to fit specific jobs. But liberal education and learning for its own sake was missing. The colonial government looked at the educated African as a member of an elite whose specialized training fitted him to assist the administration in pushing for acceptance of western civilization. This type of education did not help the African in terms of his cultural identity and values. In the eyes of the British the education worked very well. It accomplished the aims for which it was set. The consequences for the adoption of British system of education are severe and are likely to stay for a while. Mamadou Dia deplores the African intellectual arrogance when he says:

⁵³Victor Ferkiss, Africa's Search for Identity (New York: The World Publishing Company, 1966), p. 165.

⁵⁴Ibid., p. 166.

With all due respect to local elites, one may note that they prefer to take the easiest way out rather than to select scientific or technical vocations that do not necessarily provide access to power or assume comfortable positions.⁵⁵

This type of education tends to remove students from their environment to an unreal world of fantasy.

Hargreaves gives a good example of how African higher education is not gearing its services to the masses. He attributes it to Professor Onoge of the University of Ibadan, Nigeria, who defined a colonial university as:

one which paid greater attention to its standing in the eyes of foreigners than to the relevance of its activities to the needs of its own country.⁵⁶

Professor Onoge was referring to the way in which the University of Ibadan was being run as late as 1971. There seems to be a neo-colonial mentality prevailing in higher education in the African universities. With this assumption this writer concludes that the British type of higher education should not be adopted in totality by the Africans but rather the Africans must be selective, if they must borrow British ideals of education. The applicability of the British higher education in Africa is no longer as obvious as the British once thought. With the African nationalism dominating these days educators must adapt education to African culture. What is good for Britain, is not necessarily good for

⁵⁵Mamadou Dia. Quoted by Chango Machyo in "The University: Its Role in Africa," East Africa Journal (February, 1969), p. 15.

⁵⁶John Hargreaves, "The Idea of a Colonial University," African Affairs, Vol. 72, No. 286 (January, 1973), p. 26.

Kenya. Technical education should be viewed in the same light as to its possible side effects.

Probably the most important change towards mass higher education in modern British history was brought about by the Robbins report published in 1963.⁵⁷ It recommended expansion of university facilities and increasing of enrolment from 150,000 in 1966-7 to 170,000 by 1973-4. The report was based on two crucial doctrines.⁵⁸

1. Courses of higher education should be available for all those who are qualified by ability and attainment to pursue them and wish to do so.

2. Principle of equal academic awards for equal performance.

As a consequence of this report the British "university" started taking on a different meaning. The report made four specific recommendations to the government the first two of which were accepted. The recommendations were:⁵⁹

1. that many of the existing universities should increase their student numbers to 8,000 or 10,000.
2. Colleges of Advanced Technology (CATS) should in general be given status as technological universities, derive their financial support through the UGS (University Grants

⁵⁷Sir James Mountford, British Universities (New York: Oxford University Press, 1966), p. 42.

⁵⁸Ibid.

⁵⁹Ibid., p. 43.

Committee), and be empowered to award first and higher degrees.

3. that six additional new universities should be founded, at least one of which should be in Scotland.
4. all small number of Special Institutions for Scientific Education and Research should be developed with university status along the lines of the great technological institutes of America, Holland and Switzerland.

In 1965 the government turned the last two recommendations down and emphasized that there would be no new universities built in Britain for ten years. Most of the Colleges of Advanced Technology were promoted to university status although many of them did not like to use the word 'technological' in their title. They preferred to be called University of Surrey, Brunel University, University of Aston in Birmingham, etc. The old social stigma and lack of prestige associated with technical education was quite evident.

The pressure to expand post-secondary education is a worldwide phenomenon. According to a study done in 1971 by Organization for Economic Cooperation and Development (OECD) in Paris⁶⁰ there is a steady increase toward mass higher education in most European countries and almost an increase towards universal post-secondary education in the United States. In 1968-9 academic year United States

⁶⁰"Towards New Structures of Post-Secondary Education" (Paris: OECD, 1971).

had 35% of its 18-23 age group in higher education while Britain had 13.5% of the same age group in higher education.⁶¹

Currently Britain is projecting to have 280,000 students in higher education by 1976-7 academic year out of which 120,000 will be in the Polytechnics.⁶² Change is another thing British higher education has in common with the Kenya's higher education; although Kenya's change may not be as dramatic.

As far as the actual differentiation of the university and the polytechnics in Africa is concerned this idea came about through a recommendation by British Inter-University Council in 1949 which among other things suggested that"

The Council believes that the educational structure of the colonies will be mis-shaped if the chief form of post-secondary education available locally is that provided by universities. It regards the establishment of regional colleges or something like them, as having the same importance and urgency as that of the university colleges.⁶³

This policy seems to have been adopted by Kenya with the establishment of the senior secondary forms (Form V & VI) which could be seen as equivalent to American Junior Colleges. The curriculum for these higher secondary forms is university preparatory. Of the more than sixty senior secondary schools only Nakuru emphasizes technical

⁶¹Philip Altbach, Comparative Higher Education (Washington, D. C. : American Association for Higher Education, 1973); p. 8.

⁶²House of Commons Paper No. 96, London Times (January 25, 1974).

⁶³Peddler, p. 267.

education.

The impact of the British higher education in Kenya was so profound that the only major difference between the Kenyan university and the British is that the former is in Africa and its environment is culturally different from the latter. Otherwise the university governance, funding, organization of academic departments, and length of courses are all similar. The recent shift in respectability of technical education in Britain, especially the creation of polytechnic universities, might help Kenya if adopted there.

2. The American Land-Grant Colleges Concept:

Comparisons and Contrasts to the Kenya's Movement of Harambee Institutes of Technology

Probably the greatest contribution that American higher education has made is the pragmatic approach to education. This philosophy of education which emphasizes practical application is American-grown and exemplifies a departure from European, and especially British elitism. Altbach observes, the land-grant college:

combined a research orientation with direct service to the state and an unprecedented sensitivity to social needs.⁶⁴

Even though most countries in Africa were colonized by European nations which exported their ideals and institutions to Africa, the American model has been appealing to some African nations for quite some

⁶⁴Altbach, p. 13.

time. The University of Nigeria at Nsukka was established under the American model where, for example, the freshmen are Form IV graduates and degree studies take only four years. The other African universities patterned after the British take only Form VI graduates and degree work lasts at least three years. The United States influence is being felt around the world, especially in the field of education. This has been the case in Africa especially after World War II when many Africans and Asians were fighting for their political freedom.

Reference has already been made to the early interests of the British government in introducing technical education to Kenyan Africans, patterned after the United States philosophy of pragmatism, where the British were not very successful. There is always a danger in transplanting ideas or institutions to different cultural contexts. Although technology has benefited the industrialized nations, there also have been ill effects, such as the pollution of air and water. If technology is introduced into the developing countries too abruptly, the results can be even more disastrous. Although many Kenyans seem to assume that technical training will provide jobs in the land, it is well to remember Bowman's warning about the land-grant colleges' results:

The college provided a road off the farm, not back to it.⁶⁵

⁶⁵Mary Jean Bowman, "The Land-Grant Colleges and Universities in Human-Resources Development," Journal of Economic History, Vol. XXII (1962), p. 527.

Before the writer takes a closer look at the pros and cons of the land-grant colleges movement and how this movement compares with Kenya's harambee movement, a brief historical discussion on the origin of the American higher education will be made.

The growth and development of the American higher education is a unique characteristic of the United States. The founding of Harvard University⁶⁶ in 1636, the nation's first institution of higher learning was based upon an awareness that learning had been inherited and imported from abroad. This particular origin parallels Kenya's university as the writer has discussed already. But the founders of Harvard and other early American Colleges and Universities realized sooner that dependence had to stop. For the most part colleges and universities were established to train teachers, doctors, ministers and lawyers. So it can be seen right from the beginning that American colleges were started by the Americans and emphasized the curriculum that they thought they needed. In Africa, however, the colleges were started by foreigners and Africans had little say as to what was to be taught. Although early American universities were modelled upon the English and later the German they were far from being carbon copies of European universities. Each institution was controlled locally and there was no attempt to move towards uniformity. The American system of higher education is a reflection of the nature of the United States as a nation. The geographical

⁶⁶Frederick Rudolph, The American College and University (New York: Vintage Books, 1962), p. 4.

diversity of American society, even before it became one nation, always allowed for a diversified culture and institutions. Unlike Kenya, and other developing nations where school education is mostly controlled by the national government, education is the responsibility of either the state, Church, local community or corporate body in the United States of America.

They early colleges adapted rapidly to the changing environment as they grew with their regions. First, it was the frontier, then a rural and agricultural economy and finally the industrial and commercial development. So as the environment changed, so did the colleges themselves. This trend was epitomized in the first major federal subsidy to higher education by the Morrill Land Grant Act of 1862.⁶⁷ This act provided that there should be financial grants from federal resources (usually by sale of public land) for the land-grant colleges and was supplemented by a similar act in 1890. These institutions of higher education particularly stressed agriculture and the mechanic arts.

Although the United States constitution relegated education to the states and local communities the federal government's participation in education gradually set in:

The land ordinance of 1785 and 1787 as well as the land and monetary grants during the first half of the nineteenth century were all steps in this direction, as was the Morrill Act of 1862... The establishment of the Federal Department of

⁶⁷ Ibid., p. 247.

Education in 1867 attested to this, as did the heightened agitation for federal aid to common schools between 1870 and 1890.⁶⁸

Other federal laws were passed to support education. The major ones were Smith-Lever Act of 1914 and the Smith-Hughes Act of 1917 both of which provided huge sums of money "to specific vocational programs in the various states."⁶⁹ During and after the World War I the question about federal support for education was no longer "whether" but rather "how" the federal government could support education. This federal participation in education continues to be very important in modern America.

With the exception of the ministry and law, the other professions were not highly developed in the American institutions of higher learning by 1800. Consequently the distinction between university and college remained minimal. To this day the distinction between these two terms has really never been clear although it is generally accepted that most professional programs and nearly all Ph. D. programs in America today are in the universities rather than colleges. Before 1800 competence was gained by apprenticeships, reading and experience. Not until late in the nineteenth century did the concept of graduate study begin to take hold in a major way. As with early scholars in Kenya, the early American scholars were not influenced by the British universities but by

⁶⁸Lawrence A. Cremin and Robert F. Butts, A History of Education in American Culture (New York: Henry Holt and Company, 1959), p. 425.

⁶⁹Ibid.

German scholarship:

The quality of German academic life attracted students from around the world, including the United States. Between 1810 and 1915 approximately 10,000 Americans crossed the Atlantic to study in German universities. When they left Germany, many carried with them the ideals of research and national service. During the early nineteenth century, men like George Bancroft, Joseph Cogswell, Edward Everett, and George Ticknor returned home and called for the reform of American higher education along the lines of German academic life.⁷⁰

Once the idea of graduate studies was established particularly pioneered by Johns Hopkins University, it spread rapidly across the country but still there was not a standardized form of higher education as such. Some national as well as regional voluntary associations of universities were established in the early twentieth century for the purpose of accrediting programs offered by colleges and also for standardizing the programs. This last aim was never fully realized.

As professors continued to show great interest in research the government and industry continued to aid able professors to do more research dealing with higher education in America. One such professor was Abraham Flexner who after studying for a year at Harvard went to study in the University of Berlin in 1906-1907. He was convinced that the German universities were superior to those in the United States. Upon his return to the United States Flexner was very critical of the American higher education in his critique The American College. Soon

⁷⁰Michael Harris, Five Counterrevolutionists in Higher Education (Corvallis: Oregon State University Press, 1970), p. 26.

thereafter the Head of Carnegie Corporation commissioned him to study and issue a report on medical education in the United States and Canada. He visited everyone of the one hundred and fifty-five American and Canadian medical schools and described them in detail. The findings were shocking:

The facilities of some of their teaching hospitals were so antiquated and unsanitary that he called them death traps. Flexner discovered that most medical schools were not training the nation's future physicians in even the fundamentals of modern medicine... Unscrupulous physicians were operating without any concern for the public welfare... He recommended that one hundred twenty medical schools be closed.⁷¹

This report was quite instrumental in bringing major changes in medical education in America. It also brought Flexner national reputation as an authority on higher education.

Higher education in America continued to expand so that today there are almost no communities in the United States without a college or university within easy reach. While America has slowly moved toward universal higher education, Kenya and Africa by contrast, have established few universities catering to only a minority of very "capable" students. Many Africans are not likely to see a university much less attend one for quite a few years to come.

One of the most unfortunate and stubborn facts of life of the African university is that of isolation as an ivory tower. Traditionally the curriculum has been very academic and theoretical thus isolating

⁷¹Ibid., p. 110.

the university from the society around it. The only African leader who has explicitly demonstrated an attempt to bring about change to the ivory tower concept is President Nyerere of Tanzania as seen in the Arusha Declaration, Education for Self-Reliance. Nyerere suggests that education should have two objectives.⁷²

1. (egalitarian) adjust the educational system to the social goals defined in the Arusha Declaration, and Socialism and Rural Development.
2. (economic) prepare pupils for life of service to the community bearing in mind that their standard of living will depend mainly on the level of productivity they attain in farming.

Under these two objectives the school will not be allowed to be an elite establishment, aloof and detached from the community but rather it will become an integral part of the entire community. Also intellectual arrogance will be discouraged and the idea of human equality will be fostered. Looking back at the American land-grant colleges objectives there are a lot of similarities, with exception of Tanzania's socialistic overtones, with the educational objectives in Tanzania. The land-grant colleges encouraged community involvement and geared their programs to the economic needs of the region or nation.

⁷²Solomon Odia, "Rural Education and Training in Tanzania," International Labor Review (1969), p. 18.

Besides academic programs, universities in America have been characterized by numerous programs and activities which link the universities with the communities in which they are situated. Among these are orchestras, music, poetry, sports, etc. With the advancement of science and technology universities are producing educational programs which help them keep in touch with the communities. University presses have increased publications of books and learned journals and all these products help keep the university quite visible. The question as to what percentage of the community gets involved in the university program is difficult to determine. However, a comparison between the involvement of Americans and Africans in the activities of their universities one could say that since the majority of American people live in towns where universities are located, as opposed to the majority of Africans who live in the rural areas, Americans are probably more involved in the university life than the Africans.

Bowman gives a summary of certain conditions which made it possible for the land-grant colleges to grow with the nation.⁷³

1. Innovative activity (both organizational and technological) is a part of and essential to dynamic economic growth.
2. At least in its earlier and probably its middle stages, economic growth requires a sizeable core of willing risk-takers (or alternatively a coercive central authority that undertakes

⁷³Bowman, p. 538.

economic experiments).

3. Economic growth requires value attitudes among the population as a whole or a substantial minority of "deviants" supportive of business enterprise.
4. Economic growth requires also value attitudes that encourage men to rise to whatever the occasion may demand, even though the demand may involve working with one's hands. Rigid conceptions of what is "suitable" to a given status are inimical to growth.
5. Economic growth requires a belief in hard work.
6. Economic growth requires open channels of opportunity.
7. There are thresholds of development potential reached only when education at one or another level has spread widely through a society.
8. Continuing economic growth requires not only a trained elite but also a substantial cohort of subprofessional technicians and skilled workers.
9. There is an interplay between educational and economic development that conditions the time and place in which technical training will "take" other attitudes aside.

All the above propositions, particularly number 8, had a direct bearing on the origin, development and success of the land-grant colleges. The American nation and its social milieu make these propositions possible. While recognizing that there are different cultural variables

such as tribes and the forms of governments which might not allow a land-grant type of institutions to develop in a country like Kenya all the conditions mentioned by Bowman could be tried in Kenya.

The land-grant colleges were agents for transformation from a rural society to an urbanized one. As the technology increased the demand for scientists increased. Eddy reports that:

In 1850 the total population stood at 23 million of whom 20 million lived on farms or in rural communities a very impressive majority, however mechanized farming made available hundreds of thousands of men and women who previously had been tied to the land.⁷⁴

The industrial revolution in America increased demand for land-grant colleges graduates. In Kenya the harambee movement of building institutes of technology has been seen by some people as purely political and therefore likely to make the job situation worse. The most pessimistic view about the institutes of technology was expressed by E. N. Mwendwa, Kenya's Minister for Labor in November 1972 when he said:

I don't know how these proposed colleges of technology are going to help the situation... as far as I can see there is a danger these may worsen the situation by doing exactly what the Harambee schools have done. Producing people who cannot be employed or producing too many of them... We are now trying to put up seven colleges of technology, but where are we going to get the staff? We need perhaps 1,000 or 2,000 technical staff, where are they going to come from?⁷⁵

⁷⁴Edward D. Eddy, Colleges for Our Land and Time (New York: Harper and Brothers, 1956), p. 113.

⁷⁵E. N. Mwendwa Press Conference, The Sunday Post, November 12, 1972.

Mwendwa warned the nation that the expansion of the economy was not keeping up with the output of schools.

One major contrast between the Kenyan movement to expand higher education and the United States land-grant colleges is that the latter was supported by the government. The former is not. One probable source of difficulty in Kenya is the confusion prevailing regarding the role or place of the institutes of technology. It takes time, hard work and patience to build a viable institution. So, Kenyans should not expect first rate technocrats overnight. Eddy observes that:

The land-grant colleges in the first thirty years had never been certain of their place on the educational ladder. Some thought themselves purely as trade schools, others attempted, often unsuccessfully to emulate the standards of the older institutions then regarded as the top academically.⁷⁶

The land-grant colleges curriculum emphasized agriculture, engineering, home economics, veterinary science and military instruction. Kenya definitely needs specialists in all these fields at this stage of her development. The American practical education as expressed by the land-grant colleges, or the British polytechnic university model could offer some useful alternatives to Kenya's education. However, in the final analysis, the Kenyans themselves must decide what role their emerging institutes of technology will play in Kenya's development.

⁷⁶Eddy, p. 117.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine the development of technical education in Kenya and especially the emerging trends underlying the harambee movement of constructing the new institutes of technology.

Since this movement is relatively recent it was found out that there is only limited literature available concerning the institutes. However, some statements by public officials, scholars' reports and press comments on the subject were viewed and supplemented by the questionnaire and personal interviews. The objective of the interviews and the questionnaire was to sample opinions and attitudes of Kenyans regarding the harambee technical institutes. The data on the responses from both the interviews and the questionnaire will be presented descriptively in Chapter IV of this study. A minimum statistical analysis which will help in testing the significance of the results will also be used.

The information for this study was collected by the writer in Kenya during the summer of 1973. The sources of data were: (a) public documents, (b) Questionnaires, and (c) open-ended interviews.

A. Public Documents

Although at the moment Kenya does not have any specific policies on the harambee institutes of technology the writer found some useful references to them in a few public documents. These documents are government reports and most of them were available in the national archives. One of the most detailed reports regarding technical training was written under the chairmanship of W. N. Wamalwa and published by the government in 1972. This report warned the planners of the technical institutes of the acute shortage of faculty to teach in such institutes. It also advised the institutes not to duplicate courses as this would lead to wastage of resources.

The other public documents reviewed which had portions on technical education were: Kenya Development Plan for 1970-1974, Sessional Paper No. 10 (African Socialism and its Application to Planning in Kenya), Sessional Paper on employment, Kenya Facts and Figures, and Educational Committee Reports I and II published in 1965 under the chairmanship of S. Ominde. In addition to these documents a study of 1972 by International Labor Office on Employment, Incomes and Equality (a strategy for increasing productive employment in Kenya) was also reviewed.

All these documents indicated clearly that there was a need for improving and expanding facilities for technical education in Kenya. As far as the harambee technical institutes are concerned there was little discussion in these documents as to how they were to be staffed,

financed or controlled.

B. Questionnaire

Before leaving the United States for Kenya to do this research the writer had developed a questionnaire to determine the opinions and attitudes of Kenyans towards the Harambee Institutes of Technology. The questionnaire itself contained twenty-one questions of which the first seven dealt with demographic background. Questions number 8-18 were to be ranked on a scale of 1-5, "1" being the first choice and "5" the last. Questions 19 and 20 were to be answered by a "Yes" or "No" answer and dealt with whether Kenya needs many institutes of technology and whether Kenya was able to educate her people in the existing institutes, respectively. The last question, number 21, was open-ended and asked the respondents to briefly assess the chances of success for emerging institutes of technology. The cover letter assured the respondents of the confidentiality of their answers and their anonymity. (See Appendices A and B)

The questionnaire was given to four samples mainly composed of students and teachers (these samples were selected) from Kenyatta University Collège, Kenya Polytechnic, Mombasa Polytechnic and Mbusyani Village. In order to assure a fair random selection the statistical method used was suggested by the writer to be the one Travers discusses and that was to:

select every fifth or sixth or tenth name... interval to

yield the needed number while still distributing them over the entire list.¹

The Mbusyana Village sample was gathered by simply giving the questionnaires to the entire population of twenty high school students. The writer was assisted in distributing the questionnaire to this group by Mr. J. Ndambuki who is a teacher in Mbusyani Village. The reason for limiting this sample in the village to high school students was because the writer felt that people with fewer years of schooling, who are the majority, might experience some difficulty with the English language in which the questionnaire was written. The writer assumed that a sample from a rural setting might have different ideas from those of the city dwellers.

The two polytechnics (Mambasa and Nairobi) were chosen primarily because they deal with technical education as a result of which their samples might shed some light as to the purpose of the new technical institutes. In order to get a sample of opinions of an 'elite' and a traditional university group the writer decided to get a sample from Kenyatta University College, Nairobi. This university, the newest in Kenya, specializes in training secondary school teachers. The writer thought that the nation's future teachers should have some ideas regarding the purpose of education and especially technical education in a developing country such as Kenya. All the samples, except the Mbusyani Village one, were drawn from national institutions and the

¹Robert Travers, An Introduction to Educational Research (London: Collier-MacMillan Limited, 1969), p. 206.

writer therefore expected to get a cross-regional sample of opinions from all the six regions in Kenya. The principals of the two polytechnics and the head of the education department at Kenyatta University College assisted the writer in distributing the questionnaire.

Rather than getting detailed demographic analysis of the entire sample the writer decided to look for possible group and regional characteristics. The groups were seen as cleavages with similar educational and age background. The four groups showing the number of questionnaires sent and the number received are shown in Table V. It was estimated that about 10% of the population in each group, except Mbusyani Village, was sent the questionnaire. When all the questionnaires received were analyzed the data showed that of the total sample

Table V
Number of Questionnaires

Institution	Number Sent	Number Received	Percentage Received
Kenyatta University College (KUC)*	50	49	98
Mombasa Polytechnic (MP)	50	20	40
Kenya Polytechnic (KP)	130	65	50
Mbusyani Village (MV)	20	11	55
Total	250	145	58

*Abbreviations used throughout the study.

of N=145, 80% were students and 20% were teachers. Further, it was revealed that there were only 14% females of the entire sample, which unfortunately reflects the national lack in women's education.

Since the writer had also decided to look for regional differences the entire sample was sorted out into the six regions. Table VI shows numbers of respondents in each region; their sex, average age and number of years of schooling.

Table VI
Number of respondents and their sex, average age and years of schooling

Region	Number of respondents	Males	Females	Average age	Average years of schooling
Central	47	75%	25%	20-29	13-14
Coast	25	96%	4%	20-29	13-14
Eastern	26	89%	11%	20-29	9-12
Nyanza	16	88%	12%	Under 19	9-12
Rift Valley	13	100%	0%	20-29	9-12
Western	18	89%	11%	20-29	9-12
Total	145	86%	14%	20-29	13-14

It should be pointed out here that although Nairobi is a separate administrative region with a Provincial Commissioner there are very few Africans who call Nairobi home. Nearly every African is attached

to a rural community somewhere in the country. There was not, in the sample, a single respondent who claimed Nairobi as his home region. Consequently only the six major regions are discussed here.

Some interpretations and inferences were made on some responses to the questionnaire by using percentages. However, the writer decided to place the responses on the questions ranked, number 8-18, on a statistical model to test the consistency and the significance of such ranking.

C. Open-ended interviews

A number of key educational leaders in Kenya as well as some people in different occupations were interviewed by the writer regarding the establishment of the technical institutes in Kenya. The interviews were of two kinds: (1) informal and (2) formal. Since the idea was to get as much information both formally and informally about peoples' views on the subject as possible, the writer used two processes.

First, the informal interviews were engaged in different settings such as peoples' homes, schools or churches. The writer summarized his impressions of the informal interviews after they were over, usually in the evenings. Most of the informal interviews dealt with key issues similar to those on the written questions for formal interviews. The formal interviews, on the other hand, were only done with a few educational leaders since availability of people who were willing to talk on the subject of the institutes was limited. Qualitatively, however, the

writer felt that the people interviewed were knowledgeable in the subject. Two educational administrators Mr. H. F. Mtula, the Principal of the Kenya Polytechnic, and Mr. D. Williams of the Ministry of Education consented to taped interviews which are reproduced in Appendix F of this study.

The questions to the educational leaders were specific and written up prior to the interview. Listed below were the standard questions asked in the formal interviews:

1. Why the technical institutes? Is there a need in your view for the mushrooming of the technical institutes in Kenya?
2. How do you think these technical institutes will be financed?
3. Who should be admitted to the new institutes? Should there be a quota system, maybe on regional basis?
4. Will there be enough jobs for the technical institutes graduates?
5. Are the technical institutes going to make higher education easily accessible to the common man?
6. What role should or will the Kenya government play in maintaining the institutes of technology?

The questions asked during the informal interviews were similar to these formal ones and they all sought an understanding of the institutes' financing, staffing, admissions procedures, governance and employment prospects for the institutes' graduates.

Other educators interviewed included Dr. D. Kiminyo of the Ministry of Education (Planning Section), Dr. M. Godfrey of the

University of Nairobi, Mr. A. Hordyk, principal-designate of the Kiambu Institute of Science and Technology and Mr. and Mrs. Jan Oomen, curriculum experts of the Kiambu Institute of Science and Technology.

Statistical Model used in the data analysis. Since the kinds of statements to be ranked on questions number 8 to 18 (see questionnaire in Appendix B) were not absolute classes the most useful scale to use in ranking them was determined to be ordinal scale. One of the major reasons ordinal scale was selected as suitable for this kind of study is that, according to Siegel, it "incorporates not only the relation of equivalence (=) but also the relation 'greater than'..."² The five statements in each question were seen as related and that the differences were only in terms of degree. The statistical measurements appropriate to ordinal scale was that suggested by Siegel as "Median, Kendall W...", [among others, and that the appropriate statistical tests are] nonparametric statistical tests."³ The nonparametric method was particularly suited to this questionnaire since the sample was not drawn from a normally or homogeneously distributed population, an essential condition in parametric tests. Also the nonparametric tests promise better results with smaller samples irrespective of the shape of the population.

²Signey Siegel, Nonparametric Statistics for the Behavioral Sciences (New York: McGraw-Hill, 1956), p. 24.

³Ibid., p. 30.

With the assistance from the Claremont Graduate School Computer Committee all the responses were processed in a rank order survey program. The computer gave detailed information on the entire sample about the means, modes, medians, skewness, absolute frequency distribution, relative and cumulative frequencies in percentages, among other kinds of data. In order to arrive at some quantitative examination of the pattern of ranking the questions the writer dispensed with some detailed information and decided to look at the four groups as if they were judges ranking the five statements in each question. The six groups, one from each region, were also examined in the same way.

The procedure was, ranking the statements as ranked by each group using the medians. Then, in order to find the degree of association in ranking the Kendall's coefficient of concordance: W formula⁴ was used:

$$W = \frac{s}{\frac{1}{12} k^2 (N^3 - N)}$$

Where s = sum of squares of the observed deviations from the mean of R_j [sums of the ranks assigned to each statement].

k = number of sets of rankings [for this study $K=4$ or 6 groups].

N = number of entities or objects ranked [for this study $N=5$ statements].

⁴Ibid., p. 231.

$\frac{1}{12}k^2(N^3 - N) =$ maximum possible sum of the squared deviations, i. e.
 the sum s which would occur with perfect agreement
 among k rankings [for this study perfect agreements
 with $K=4$ or 6 the sum of s will be 160 and 360
 respectively]

In this study W expressed the degree of agreement among the
 four or six groups in ranking the five statements for each of the ques-
 tions 8 to 18. When the value of W was found it was tested for the signi-
 ficance at the .05 and .01 levels* for both groups. It must be empha-
 sized here that the broad assumption held by the writer was viewed
 against each question with its five statements and either accepted or
 rejected rather than looking at all the questions as a whole and then
 apply the conclusion from the tests of significance. Consequently the
 general assumption was accepted in some questions but rejected in
 others. The hypothesis held by the writer prior to the study was that
 "People from different regions or ethnic backgrounds in Kenya would
 strongly disagree on ranking questions 8 to 18." In short, the writer
 assumed that there are many differences between the groups and these
 differences would be revealed by the study.

The values for W in each of the questions ranked, their statisti-
 cal significance and interpretation in the context of this study will be
 found in Chapter IV.

*See interpretation of data for details in Chapter IV.

CHAPTER IV

RESULTS AND INTERPRETATIONS

If the data collected for this study are to be useful to Kenyans they must be viewed in the context of the country's stage of development. The writer will show the major findings, as he was able to obtain from literature, public documents, questionnaires, and interviews as well as the interpretations of the results under each source or data.

A. Literature and Public Documents

The spirit of harambee and the mood of the nation to build technical institutes was expressed by President Jomo Kenyatta of Kenya in a fund-raising rally launching Kiambu Institute of Science and Technology when he said:

Our duty today is not to talk for hours but to show the world that we have a collective responsibility to bring technical education to this country.¹

At that rally alone almost seven million shillings was collected, President Kenyatta contributing sixty one thousand shillings (approximately \$8,700) and Vice President Daniel Arap Moi eight thousand shillings² (about \$1,100).

¹Address by President Jomo Kenyatta. Daily Nation, Nairobi, June 5, 1972.

²Loc. cit.

However, despite this successful fund-raising campaign most institutes have difficulty in raising the money. Nearly all the emerging institutes of technology are characterized by a lack of clear-cut plans for financing, staffing and governing. The financing of these institutes may be the most important single issue surrounding the harambee movement. With adequate funds it is possible to attract instructors from overseas and also to provide the institutes with appropriate equipment to permit the training of the technicians. Without money it is difficult to do either.

The financial concern raised by the Friends' College in Western Kenya can be seen as a typical problem facing all the other institutes:

... such an endeavor [construction of the college] will be very costly and our friends in Kenya, Western Europe and U.S.A. are being solicited for sums totalling K Pounds 410,000 (\$1,150,000) to launch and establish the programme over a five year period.³

Although the Kenyans have shown enthusiasm for the establishment of the technical institutes it will take money to bring their plans and proposals to reality.

The study by Godfrey and Mutiso⁴ showed that the people planning the constructions of the institutes had set high financial targets. Table VII made by the writer using Mutiso's figures shows that by June 1973

³East African Yearly Meeting of the Religious Society of Friends, "A Proposal for the Establishment of Friends' College in Western Kenya," Kaimosi, Kenya, 1972, p. 2.

⁴Godfrey and Mutiso, *Ibid.*, p. 6.

Table VII

Financial Targets of the Kenya Institutes of Technology

Institute	Initial Targets in Millions of Shillings	Amount Collected by certain dates in Millions of Shillings		
Abakuria	10	Not Known		
Coast	20	March	1973	1.1
Embu	3	March	1973	0.66
Gusii	17	Not Known		
Kaimosi	5.3	October	1972	0.76
Kalenjin	10	Not Known		
Kiambu Institute of Science and Technology	18	December	1972	13.7
Kimathi Institute of Technology	10	May	1973	1.7
Kirinyaga	10	December	1972	1.25
Maa	1	Not Known		
Meru	10	February	1973	0.100
Murang'a	10	September	1972	4.5
Ramogi	20	February	1973	3.0
Rift Valley	6	April	1972	1.5
Sang'alo	5	March	1973	2.0
Ukamba	30	Not Known		
Western	20	July	1972	1.0

most of the institutes were far short of their financial targets.

The projected budgets for both Kaimosi and Kiambu, the two most active institutes, show the salaries for administrators to compare quite well with the already existing institutions of higher learning in the country where the starting salary for faculty at the University of Nairobi is 1,500 Kenyan Pounds per year (approximately \$3,750.00). In its estimation of operating costs the Kaimosi College estimated that the principal of the college would be paid 4,705⁵ Kenyan Pounds in the first year of operation. The Kiambu Institute estimates that their principal will be paid 3,000⁶ Kenyan Pounds, according to Public Service Structure and Remuneration Commission of 1971 which was chaired by D. N. Ndegwa.

The amounts of financial targets of the colleges are clearly beyond the present capabilities of the Kenya Communities where these institutes are located. Beyond the initial money needed to get the colleges started it will be necessary to find money for recurrent expenses. Godfrey and Mutiso in the study cited above estimate that:

The total current expenditure at initial full capacity of the seven larger institutes... planning to open before the end of 1974 is about 33 million Shillings annually.⁷

⁵Friends' College Proposal, p. 5/14.

⁶Ad Hordyk, "Project Description of the Kiambu Institute of Science and Technology" (Kiambu, Kenya, 1973), Appendix 24.

⁷Godfrey and Mutiso, p. 6.

If the colleges are going to be operational on an ongoing basis their money donors and patrons will have to continue their financial support for a long time.

In addition to financial shortages and lack of staff the institutes are beset by the problems of inter-tribal as well as intra-tribal tensions manifested by lack of agreements on locations for building the institutes and also on the leadership. In the Coast region the Provincial Commissioner had to intervene to solve the problem of finding a site agreeable to the Coasts' ethnic groups. In the Western Province there developed intra-tribal jealousies which led to establishment of three separate institutes: Western, Kaimosi and Sang'alo. Of these three institutes, Kaimosi, which is sponsored by the Quakers, is the oldest and the best organized. The other regions whose problems have surfaced is the Central and Eastern Provinces. To paraphrase Mutiso and Godfrey, the Kiambu, Murang'a and Kimathi Institutes have institutionalized rivalries. This rivalry was clearly evidenced on December 1971 when Charles Njonjo, the Attorney General of Kenya, who is also the chairman of the Board of Trustees of the Kiambu Institute of Science and Technology is reported to have said:

To date we have raised one million Shillings and we are determined to collect at least three million during the stone-laying ceremony to defeat the Murang'a College of Technology which raised more than one million Shillings on December 4.⁸

⁸Speech by Charles Njonjo, Chairman of the Board of Trustees of Kiambu Institute of Science and Technology, Daily Nation (Nairobi, December 29, 1971).

The Ukambani Institute, which is in the Eastern region, a compromise of site had to be reached by agreeing to build it in Yatta, a semi-arid area between the two districts of Machakos and Kitui. Ironically enough, the Ukamba Agricultural Institute (one of the few institutes which label themselves as tribal) set the highest target of thirty million Shillings (see Table VII) but very little money has been collected. The writer found out that in this particular institute the politicians were jealous of the elites who were attempting to organize and plan the construction of the institute. This jealousy has adversely affected the Ukamba Institute and if not submerged, this institute will be one of the last to get started, if ever.

In all the institutes the success of any particular project seemed to depend on a corroboration between the politicians, who can help in raising funds, and the elites who will provide the necessary skills of organization and curriculum development.

Nationally there are some drawbacks which must be corrected if wastage and duplications of efforts are to be minimized. Ad Hordyk, the first principal of the Kiambu Institute of Science and Technology has been very outspoken on the lack of coordination between the seventeen proposed institutes of technology. Hordyk, who is a volunteer from Holland has made poignant observations which seem to summarize the institutes' state of confusion:

We don't know what the others are doing. They have no fixed ideas about what level or age they are going to accept their trainees, the length of their courses, the balance between

theory and practical work. I'm afraid that we are putting up buildings without thinking about what to teach, whom to teach and how to teach. We are pushing the Ministry of Education for much greater co-ordination between the institutes... So far no association of institutes has been organized... We need some guidelines urgently. We do not even know what an institute of technology is. Is it something to do technical training? At what level does it take its trainees-- the CPE, KJSE, EASCE or Higher School Certificate? Are they complementing existing technical schools? Or are they providing more sophisticated skills?⁹

One area where the government must guide the harambee movement is in fund raising. In some regions the local planners of the institutes have assessed each adult certain dues. Mutiso and Godfrey found out that in Nakuru teachers' unions authorized a 25% of the teachers' salaries deducted without the consent of the teachers: If the government does not control the fund raising or distribute the money collected in the name of harambee institutes of technology equally, then the already wide gap between the rich and poor regions will continue to grow and may be dangerous to the social order in the long run. Of the 18 million Shillings target for Kiambu Institute of Science and Technology Godfrey and Mutiso found out that "The Netherlands government is making a grant of some 6.7 million Shillings towards the total cost of Kiambu's first two phases of 17 million Shillings, while large part of the funds for Kaimosi's first phase has come from Quaker organizations in the U. S."¹⁰

⁹Bhushan Kul, "Education Notebook," Daily Nation (Nairobi, July 3, 1973).

¹⁰Godfrey and Mutiso, p. 21.

Since the technical institutes are "private" the Kenya government does not allow them to get direct financial help from foreign governments. However the Dutch government helped Kiambu through a Church organization! If there is no equity in accessibility to funds either locally or from foreign sources then some institutes are definitely doomed to failure. There seems to be a very high correlation between the region's political and civic leaders' influence and the ability to construct a technical institute. Nearly all the institutes which have succeeded or are about to succeed all have strong leadership behind them. Although there is no clear government's policy showing support and plans to take over the institutes, correspondence by permanent Secretaries in the Ministries of Economic Planning and Education, respectively, to Kiambu Institute of Science and Technology leave little doubt as to where the Kenya government stands:

Technical education is one of the areas in which this country must direct its effort in order to produce people who can be employed in the modern sector as well as giving them skills which they can utilize in gainful self-employment. The plan to establish such an institute therefore falls very neatly in our country's overall strategy for further development. . . . Needless to say, the Government will be prepared to assist at some future date if such assistance is deemed necessary and desirable. ¹¹

The Permanent Secretary's Office in the Ministry of Education also gave and unqualified support for the establishment of the Kiambu Institute:

¹¹P. Ndegwa, Letter to Kiambu Institute of Science and Technology (Nairobi, Institute's Files, February 10, 1971).

The spirit of self-help has made it possible for the country to expand primary education... and other essential services beyond what Government would have been able to afford. Government therefore welcomes and supports the current interest in various communities to set up Institutes of Technology on Self-Help basis... As and when Government has found it possible, it has taken over several projects. Institutes of Technology will be treated in the same manner. ¹²

The felt need for the establishment of the technical institutes was further explained in a confidential project evaluation of the Kiambu Institute of Science and Technology done in 1972 which showed that:

According to the Kenya Development Plan 1970-74, the demand for skilled manual workers and skilled manual foremen is 14,360 over the plan period. This demand will not be met, and this will result in a considerable backlog during the next plan period, 1975-79 when the new demand is expected to exceed that of the period 1970-74... In view of the high manpower requirements it is quite clear that with an output of, say, 300 trained persons per year the risk of overproduction is remote, even if 5-6 institutes similar to the Kiambu Institute of Science and Technology were to be established in Kenya. ¹³

Other key educators who have expressed need for technical education in Kenya include Professor F. F. Indire, Dean of the Faculty of Education, University of Nairobi, who has called for an improvement of curriculum to include technical education:

The task is for us to create the right kind of attitudes in pupils and even much more so in parents and the adult community at large so that education is seen in a new light. ¹⁴

¹²A. N. Getao, Office of Permanent Secretary, Ministry of Education, Letter to Kiambu Institute of Science and Technology (Nairobi, Institute's Files, April 25, 1972).

¹³R. B. Contant, "Confidential Project Evaluation" (Kiambu Institute of Science and Technology, January 1972), p. 8.

¹⁴Speech before a Conference of Primary Schools' Headmasters, East African Standard (Nairobi, November 1972).

Indire emphasized the concept of "Education for life not for examinations only" and said that he was convinced that the proposed harambee institutes of technology would help in bringing about a proper conception of education in Kenya.

All the reviewed literature, from books, newspapers and public documents as well as statements by leading public officials regarding the establishments of the institutes suggest that there is a felt need for building the technical institutes. However, what is not being said is the role of the institutes and how they will be governed or financed. Since traditionally there was more prestige attached to academic education it appears to this writer that there would have to be a drastic change of attitude, by the Kenyans, to accommodate the new kind of technical graduate who is needed in Kenya. In order for this change to take place people, and especially the parents, must be informed of the needs of such training and be shown a real parity of prestige and salaries, hitherto attached to academic qualifications, towards technical qualifications. The International Labor Office report, though an excellent document in many ways, does little service to eradicate the inferior status attached to technical education when it refers to technical institutes as "second chance" schools. A Pamphlet from the Kiambu Institute of Science and Technology sums up the situation of the need for curricula change as:

A sound academic education is, and always will be, a basic requirement for every person but the time has arrived when

this must be supplemented by technical, scientific or professional skills in one or more of the specialized sections of technology.¹⁵

If nothing is done to glorify manual work, bring respect and appreciation to it, then the paradox between the expressed and the real need for technical education and the contempt which people hold towards such an education will continue for a long time.

Major Results

From the public documents, newspapers, and literature the following findings were identified:

1. There is apparent need for technical institutes in Kenya.
2. There is no plan to raise the status or prestige of technical education in the country.
3. There is little governmental coordination of the institutes' plans for curriculum development, funding, staffing and control.
4. Regional rivalry was found to be present.

The lack of specific plans on how to improve the status of technical education in Kenya shows the low priority which people still attach to such an education. Regionalism was found to be a main factor as to which institutes were likely to succeed. The wealthy regions with influential leaders were ahead of others in developing their institutes. After the Kiambu Institute (the first one to start), Kaimosi, Murang'a

¹⁵Brochure on Kiambu Institute of Science and Technology (Nairobi, 1973), p. 3.

and Kisumu were seen as the next institutes to open. These institutes are located in economically wealthy areas of Kenya.

B. Questionnaire

1. Computation of the Kendall Coefficient of Concordance: W

In order to find the degree of agreement (W) among the four groups and also among the groups in the six regions in ranking the five statements in each question, appropriate statistical method had to be selected. Since the statements on the questionnaire cannot be classified by an absolute number the writer assumed that there was a continuum and that the numbers assigned to them in ranking could be interpreted as meaning "greater" or "more preferred" in importance. This kind of questionnaire would therefore be better-ranked in an ordinal scale.

According to Sidney Siegel:

The statistic most appropriate for describing the central tendency of scores in an ordinal scale is the median, since the median is not affected by changes of any scores which are above or below it as long as the number of scores above and below remains the same.¹⁶

Also since the sample was not drawn from a normally distributed population, the non-parametric procedure was considered the most appropriate. The data was collapsed into groups thus working with small Ns (N=4, 6) which are easily analyzed in the non-parametric models.

¹⁶ Siegel, p. 25.

The procedure of finding the Kendall Coefficient of Concordance (W) involves, first of all finding the ranks (using medians), the mean of the sums of ranks (R_j) and finally the sums of squares of the observed deviations from the mean of R_j . Table VIII shows the procedure for finding these statistics.

After finding the sums of the ranks, R_j , then the means of these ranks were computed by dividing the total number of the ranks of each number by the five statements in each number. Thus, the mean of question number 8, was computed as follows:

$$\begin{array}{r} 4 \\ 9 \\ 20 \\ 14 \\ 13 \\ \hline 60 \end{array} \div 5 = 12$$

A quick check of all the questions, 8 to 18, showed that the mean of the ranks of each of the numbers was 12.

In order to compute the Kendall Coefficient of Concordance, the following formula developed by Siegel was used:

$$W = \frac{s}{\frac{1}{12} k^2 (N^3 - N)}$$

Where s = sum of squares of observed deviations from the mean of R_j ;

$$\text{that is, } s = \sum (R_j - \frac{\sum R_j}{N})^2$$

k = number of sets of rankings [for this study k = four or six groups]

N = number of entities or objects ranked [for this study N = five statements]

Table VIII

Ranks From the Medians* Assigned to the Five Statements of Each Number by the Four Groups (KUC, MP; KP, MV)

Statements	GROUPS				R _j **
	KUC (N=49)	MP (N=20)	KP (N=65)	MV (N=11)	
8. The major reasons for building technical institutes in Kenya are:					
a. Kenya needs technicians	1	1	1	1	4
b. lack of colleges to train school leavers	2	3	2	2	9
c. because other countries have built their institutes	5	5	5	5	20
d. there are too many foreign technicians working in Kenya	3	4	3	4	14
e. to provide graduates with skills so that they can get jobs	4	2	4	3	13
9. The institutes should admit students who:					
a. have completed high school	1	1	2	2	6
b. have completed primary education	3	4	4	1	12
c. have completed Form VI	2	2	1	3	8
d. have never been to school	5	5	5	5	20
e. secondary technical schools' graduates	4	3	3	4	14
10. When admitted to a technical institute each student should:					
a. be given bursary by the government	1	2	1	1	5
b. pay his or her own fee	5	4	5	5	19
c. be given a loan by the government and pay it back upon graduation	3	1	2	3	9
d. be given bursary by his regional or local government	2	3	3	2	10
e. be given a job in the institute to earn money for fees	4	5	4	4	17

Table VIII (Continued)

Statements	GROUPS				R _j
	KUC	MP	KP	MV	
11. The financing of the recurrent expenses for the technical institutes should be provided by:					
a. the region in which the institutes are located	2	2	2	2	8
b. the Kenya Government	1	1	1	1	4
c. money from foreign aid	5	3	3	3	14
d. money from individual donations	4	4	4	4	16
e. a loan from the bank	3	5	5	5	18
12. Teachers for the technical institutes should come from:					
a. The Nairobi and Mombasa Polytechnics	2	1	1	1	5
b. Nairobi University and the Kenyatta University College	1	2	2	2	7
c. Other African countries	3	4	4	4	15
d. England, U. S. A., or any other western country	4	3	3	3	13
e. Soviet Union, China or any other eastern country	5	5	5	5	20
13. Technical education in Kenya is supposed to:					
a. enable graduates to find jobs in the rural areas	2	4	5	4	15
b. reduce unemployment	1	2	1	3	7
c. improve the conditions in which most Africans live	5	3	3	1	12
d. reduce the number of rural-urban migration	3	5	4	5	17
e. help in creating more jobs	4	1	2	2	9

Table VIII (Continued)

Statements	GROUPS				R _j
	KUC	MP	KP	MV	
14. Technical education should be provided by:					
a. the universities	2	2	2	2	8
b. the technical institutes only	1	1	1	1	4
c. employers	3	3	3	4	13
d. military schools	4	5	5	5	19
e. foreign colleges	5	4	4	3	16
15. The technical institutes should be controlled by:					
a. the national government	1	1	1	1	4
b. each region to control its own institute	2	2	3	2	9
c. private organizations	3	4	4	4	15
d. international organizations such as the United Nations	4	3	2	3	12
e. foreign governments who give aid to Kenya	5	5	5	5	20
16. On admitting students the institutes should:					
a. admit students on tribal quota	5	5	5	2	17
b. use aptitude merit only	1	1	1	1	4
c. admit students from the region where the institute is located	3	2	3	3	11
d. admit students who can afford the tuition	4	3	4	4	15
e. give preference to the poor students	2	4	2	5	13

Table VIII (Continued)

Statements	GROUPS				R _j
	KUC	MP	KP	MV	
17. After completing high school education most students should:					
a. attend technical institutes	2	1	1	1	5
b. attend university	1	2	2	2	7
c. attend teacher training colleges	3	3	3	5	14
d. seek employment in the cities and towns	5	5	4	4	18
e. return to the rural areas and work on the farms	4	4	5	3	16
18. Once a student graduates from a technical institute he should:					
a. start his/his own business	2	3	2	2	9
b. be employed by the government	1	1	4	1	7
c. be employed by a private firm	3	2	3	3	11
d. pursue further studies in the university	4	4	5	4	17
e. stay home and do whatever he wants	5	5	1	5	16

*The ranks were assigned from Appendix C.

**R_j, equals the sums of the ranks assigned to each statement.

$\frac{1}{12} k^2 (N^3 - N)$ = maximum possible sum of squared deviations,
that is the sum s which would occur with perfect
agreement among k rankings. ¹⁸

¹⁸Siegel, p. 231.

Since the value of s (sums of squares of the observed deviations from the mean of R_j) must be known before W can be computed, Table IX shows the values of s in all the questions, applying Siegel's formula for

$$s = \sum (R_j - \frac{\sum R_j}{N})^2$$

Table IX

Values of s in Questions 8 to 18 of the Four Groups: (Maximum Possible Value for s with Total Agreement = 160)

Number	R_j	$\frac{R_j}{N}$	Difference ²
8.	4	12	$(-8)^2 = 64$
	9	12	$(-3)^2 = 9$
	20	12	$(8)^2 = 64$
	14	12	$(2)^2 = 4$
	13	12	$(1)^2 = 1$
			$s = 142$

Using the same procedure to find the value of s in the rest of the questions the following values of s were found:

- No. 9; $s = 120$
- 10; $s = 136$
- 11; $s = 136$
- 12; $s = 148$
- 13; $s = 68$
- 14; $s = 146$
- 15; $s = 146$
- 16; $s = 100$
- 17; $s = 130$
- 18; $s = 76$

After computing the value of s for all the questions (8 to 18) in the four groups, then the degree of association of how the five statements in each question were ranked was found.

Kendall's formula of the Coefficient of Concordance: W ,¹⁹ was found.

$$W = \frac{s}{\frac{1}{12} k^2 (N^3 - N)}$$

Using this formula for question 8 where $k = 4$ groups, $N = 5$ statements to be ranked, and $s = 142$, then the Coefficient of Concordance was found to be:

$$\begin{aligned} W &= \frac{142}{\frac{1}{12} (4)^2 (5^3 - 5)} \\ &= \frac{142}{160} \\ &= .89 \end{aligned}$$

Applying the same formula the value for W in all the questions, 8 to 18, for the four groups was as follows:

# 8; $W = .89$	14; $W = .91$
9; $W = .75$	15; $W = .91$
10; $W = .85$	16; $W = .63$
11; $W = .85$	17; $W = .81$
12; $W = .93$	18; $W = .48$
13; $W = .43$	

To further test the assumptions on each of the eleven questions ranked, all the respondents ($N = 145$) from the four groups were sorted

¹⁹Siegel, Loc. cit.

out (by use of computer) into six regions (excluding Nairobi extra Provincial-District since nobody marked it as their home region) in Kenya, in which they belonged. Table X shows how these six groups ranked the statements. The ranks were found from the medians in Appendix C.

The mean of the R_j was found for all the questions. For question number 8 the mean was found as follows:

$$\begin{array}{r} 6 \\ 16 \\ 30 \\ 18 \\ 20 \\ \hline 90 \end{array} \quad \frac{\cdot}{5} = 18.$$

All the questions (8 to 18) were found to have the same mean, i. e. 18.

Using the Kendall Coefficient of Concordance formula, previously discussed, with the new $k=6$ regions the s (sums of squares of the observed deviations from the mean of R_j) was found. The formula for s , as developed by Siegel²⁰ was used.

$$s = \sum (R_j - \frac{\sum R_j}{N})^2$$

Applying this formula to all questions (8 to 18) of the six regions, the value of s was found to be:

# 8; $s=296$	14; $s=344$
9; $s=334$	15; $s=266$
10; $s=322$	16; $s=344$
11; $s=286$	17; $s=334$
12; $s=328$	18; $s=284$
13; $s=190$	

²⁰Siegel, Loc. cit.

Table X

Median Ranks, Assigned to the Five Statements by the Six Regions

Statements	REGIONS						Rj
	Central (N=47)	Coast (N=25)	Eastern (N=26)	Nyanza (N=16)	Valley (N=13)	Western (N=18)	
8. The major reasons for building technical institutes in Kenya are:							
a. Kenya needs technicians	1	1	1	1	1	1	6
b. lack of colleges to train school leavers	2	2	2	4	3	3	16
c. because other countries have built their institutes	5	5	5	5	5	5	30
d. there are too many foreign technicians working in Kenya	3	3	4	2	2	4	18
e. to provide graduates with skills so that they can get jobs	4	4	3	3	4	2	20
9. The institutes should admit students who:							
a. have completed high school	1	1	2	2	1	1	8
b. have completed primary education	3	4	4	4	4	4	23
c. have completed Form VI	2	2	1	1	2	2	10
d. have never been to school	5	5	5	5	5	5	30
e. secondary technical schools' graduates	4	3	3	3	3	3	19

Table X (Continued)

Statements	REGIONS						Rj
	Central	Coast	Eastern	Nyanza	Valley	Western	
10. When admitted to a technical institute each student should:							
a. be given bursary by the government	1	2	1	1	1	1	7
b. pay his or her own fee	5	4	4	5	5	5	28
c. be given a loan by the government and pay it back upon graduation	3	1	2	2	2	2	12
d. be given bursary by his region or local government	2	3	3	3	3	3	17
e. be given a job in the institute to earn money for fees	4	5	5	4	4	4	26
11. The financing of the recurrent expenses for the technical institutes should be provided by:							
a. the region in which the institutes are located	2	2	2	2	3	2	13
b. the Kenya government	1	1	1	1	1	1	6
c. money from foreign aid	5	3	4	3	2	3	20
d. money from individual donations	4	4	3	5	5	4	25
e. a loan from the bank	3	5	5	4	4	5	26

Table X (Continued)

Statements	REGIONS					Rift Valley	Western	Rj
	Central	Coast	Eastern	Nyanza	Valley			
12. Teachers for the technical institutes should come from:								
a. The Nairobi and Mombasa Polytechnics	2	1	1	2	1	1	1	8
b. Nairobi University and the Kenyatta University College	1	2	2	1	2	2	2	10
c. Other African countries	3	3	4	4	4	4	4	22
d. England, U.S.A., or any other western country	4	4	3	3	3	3	3	20
e. Soviet Union, China or any other eastern country	5	5	5	5	5	5	5	30
13. Technical education in Kenya is supposed to:								
a. enable graduates to find jobs in the rural areas	2	4	2	3	4	5	5	20
b. reduce unemployment	1	2	1	2	1	2	2	9
c. improve the conditions in which most Africans live	5	3	5	4	2	3	3	22
d. reduce the number of rural-urban migration	3	5	4	5	5	5	4	26
e. help in creating more jobs	4	1	3	1	3	1	1	13

Table X (Continued)

Statements	REGIONS						Rf
	Central	Coast	Eastern	Nyanza	Valley	Western	
14. Technical education should be provided by:							
a. the universities	2	2	2	2	2	2	12
b. the technical institutes only	1	1	1	1	1	1	6
c. employers	3	3	3	3	3	3	18
d. military schools	4	5	5	4	5	5	28
e. foreign colleges	5	4	4	5	4	4	26
15. The technical institutes should be controlled by:							
a. the national government	1	1	1	1	1	1	6
b. each region to control its own institute	2	2	2	3	5	3	17
c. private organizations	3	4	4	4	4	5	24
d. international organizations such as the United Nations	4	3	3	2	2	2	16
e. foreign governments who give aid to Kenya	5	5	5	5	3	4	27

Table X (Continued)

Statements	REGIONS						Rj
	Central	Coast	Eastern	Nyanza	Valley	Rift	
16. On admitting students the institutes should:							
a. admit students on tribal quota	5	5	5	5	5	5	30
b. use aptitude merit only	1	1	1	1	1	1	6
c. admit students from the region where the institute is located	3	2	3	3	2	3	16
d. admit students who can afford the tuition	4	4	4	4	4	4	24
e. give preference to the poor students	2	3	2	2	3	2	14
17. After completing high schools most students should:							
a. attend technical institutes	2	1	1	1	1	1	7
b. attend university	1	2	2	2	2	2	11
c. attend teacher training colleges	3	3	3	3	3	3	18
d. seek employment in the cities and towns	5	5	4	5	4	5	28
e. return to the rural areas and work on the farms	4	4	5	4	5	4	26

Table X (Continued)

Statements	REGIONS						Rj
	Central	Coast	Eastern	Nyanza	Rift	Valley	
18. Once a student graduates from a technical institute he should:	3	3	4	4	4	3	21
a. start his/her own business	1	1	1	2	1	1	7
b. be employed by the government	2	2	3	3	3	4	17
c. be employed by a private firm	4	4	2	1	2	2	15
d. pursue further studies in the university	5	5	5	5	5	5	30
e. stay home and do whatever he wants							

Maximum possible value for s with total agreement was found to be 360. Since the value of s was known the value of W among the six regional groups was found using the same formula used to find the W among the four groups, thus:

$$W = \frac{s}{\frac{1}{12} k^2 (N^3 - N)}$$

The Coefficient of Concordance (W) among the six regions for all the questions, 8 to 18, was found to be as follows:

#	8; $W = .82$	14; $W = .96$
	9; $W = .93$	15; $W = .74$
	10; $W = .89$	16; $W = .96$
	11; $W = .73$	17; $W = .93$
	12; $W = .91$	18; $W = .79$
	13; $W = .47$	

2. Test of Significance of the Coefficient of Concordance: W .

The broad assumption which the writer held was that in both the four groups and the six groups (representing the six regions) there were significant differences which could be revealed by small coefficients of the ranks of the statements. However, looking at the coefficients of each question the coefficients are large enough to reject this assumption; at least in most of the questions. Since there were two groups, one with $K=4$ and the other with $K=6$ but both with a common $N=5$, it was decided to test both groups under two different levels of significance.

Siegel²¹ gives the two common values of the levels of

²¹Siegel, p. 8.

significance as .05 and .01.

Using the table R in the appendix²² the values of significance under the two levels in this study with K=4, or 6; and N=5, were found to be:

Table XI
Levels of Significance

Values at the .05 level of significance		
K	N	Significance
4	5	88.4
6	5	136.1

Values at the .01 level of significance		
K	N	Significance
4	5	109.3
6	5	176.1

Viewed under the two levels of significance, all the results of the six regions were statistically significant in all the questions. However, the results of the four groups were not all statistically significant. Under .05 level of significance of 88.4 (the observed *s* had to be this size or larger for the hypothesis to be rejected) the four groups were

²²Siegel, Table R of Appendix, p. 286.

lower on two questions, numbers 13 and 18, with the results of 68 and 76 respectively. When tested on the .01 level of significance of 109.3 the same group showed lower results in the same questions as well as question number 16 which had s of 100.

From these tests of significance it can be concluded that the null hypotheses (one for each question), which assumed difference was rejected in all questions by the groups representing the six regions. But the four groups rejected all the null hypotheses except those of questions number 13, 16 and 18. Interpretations of these rejections and acceptances in the contexts of the questions themselves will be discussed in the next section of this study.

3. Interpretation of W

The higher coefficients of the concordance showed strong agreements on most questions. This tendency to agree on most of the questions invalidates the assumption of differences which the writer expected to find among different ethnic groups on different issues. This high degree of agreement can be interpreted as showing that the groups essentially viewed the statements in the same way. At the .01 level of significance test all the groups from the six regions showed that they were in agreement in the way they ranked the questions. The three questions in which the four groups showed differences at the .01 level of significance are worth mentioning here. Specifically these questions had sets of possible answers to be ranked:

13. Technical education in Kenya is supposed to:
- enable graduates to find jobs in the rural areas
 - reduce unemployment
 - improve the conditions in which most Africans live
 - reduce the number of rural-urban migration
 - help in creating more jobs.
16. On admitting students the institutes should:
- admit students on tribal quota
 - use aptitude merit only
 - admit students from the regions where the institute is located
 - admit students who can afford to pay tuition-
 - give preference to the poor students
18. Once a student graduates from a technical institute he should:
- start his/her own business
 - be employed by the central government
 - be employed by a private firm
 - pursue further studies in the university
 - stay home and do whatever he/she wants

The disagreement on ranking these three questions by the four groups clearly shows a fundamental divergence on the purpose of technical education, the criteria for admission to the institutes and what the graduates should do upon graduation. This confusion is probably attributable to the fact that there is no clear and well-understood government

policy as to why the institutes are being built.

On the other hand the overwhelming agreement on all the other questions does not necessarily mean that the ways these groups agreed to rank the statements are the correct ways. All the writer can conclude from such agreements is that they could not just happen by chance, as the tests of significance have shown. However, when the harambee movement is viewed as an expression of national call to build the nation one cannot help to wonder whether the response to such a call is truly national or regional in light of the emerging regional institutes. Although the results of this questionnaire show, for the most part, that people tend to agree on how they view issues which involve the national matters, it is possible that they may be agreeing to disagree. Since there was no external criteria to use in ranking the statements it is possible for all groups to agree on the need for technical education but differ sharply on the purpose of such an education.

Looking at the individual ranks on individual statements it is easy to say which statements were favored over others. Also, by looking at percentage responses one can find out which statement was valued over another.

To show two extreme cases, Tables XII and XIII will show how specific statements were valued in percentages, showing their importance among the four groups as compared to the total sample.

The data in Table XII show a very high degree of agreement. Although the writer is aware that his sample was quite small, however

Table XII

Statements Ranked by the Majority (50%+) of Total Sample (N=145) of all Respondents as Number 1, and Compared with Similar Rank of the Four Groups. (KUC, MP, KP, MV)*

Question and Statement	All	KUC	MP	KP	MV
	N=145	N=49	N=20	N=65	N=11
	%	%	%	%	%
8a. One of the major reasons for building technical institutes is that Kenya needs technicians	65	49	85	71	64
11b. The financing of the technical institutes should be provided by the Kenya government	73	80	70	71	64
14b. Technical education should be provided by the technical institutes only	63	51	80	68	64
15a. The technical institutes should be controlled by the national government	73	86	85	72	82
16b. On admitting students the institutes should use aptitude merit only	72	76	85	71	36
17a. After completing high school education, most students should attend technical institutes	54	43	50	63	55

*KUC: Kenyatta University College
 MP : Mombasa Polytechnic
 KP : Kenya Polytechnic
 MV : Mbusyani Village

Table XIII

Statements Ranked by the Majority (50%+) of all Respondents (N=145) as Number 5 and Compared with Similar Rank of the Four Groups (KUC, MP, KP, MV)

Number and Statements	All N=145	KUC N=49	MP N=20	KP N=65	MV N=11
	%	%	%	%	%
8c. One of the major reasons for building technical institutes in Kenya is because other countries have built their institutes	78	82	70	80	64
9d. The institutes should admit students who have never been to school	86	84	80	89	82
10b. When admitted to a technical institute each student should pay his/her own fees	57	78	35	49	55
12e. Teachers for the technical institutes should come from Soviet Union, China or any eastern country	67	63	70	66	82
16a. On admitting students the institutes should admit students on tribal quota	68	71	65	74	27
18e. Once a student graduates from a technical institute he should stay home and do whatever he/she wants	82	78	85	85	82

the high degree of agreements or disagreements of these statements by the groups suggest some generalizations could be made about the study. The group's educational background seemed to play a key role in ranking the statements. For example the Kenyatta University College group places less importance on question number 8a. This group, being already in the university does not seem to show great interest on that particular question. Only 49% ranked it as their first choice. On question number 16b. regarding merit for admission to the new institutes the Mbusyani Village group with few years of education than any other group sees merit less importance for admission. Consequently only 36% ranked it as their first choice. Again 43% of the Kenyatta University College group ranks the idea of attending a technical institute on question number 17a. as their first choice.

On Table XIII the statements which were ranked fifth by the majority are shown. These data show a few interesting observations. The Kenyatta University College group is more tolerant regarding where teachers should come. Sixty three percent of this group ranked number 12e. which suggested that teachers for the technical institutes could come from eastern countries, as their fifth. All the other groups marked it with higher percentage. Mbusyani Village group showed some interesting response on question number 16a. which was suggesting tribal quota criterion for admission to the technical institutes. Only 27% of this group ranked this question fifth. This particular response could be seen as a lesson that just because some people are out in the

village does not mean that they are tribalistic. The writer expected the Kenyatta University College group to rank this question of tribal quota differently than their 71% majority ranking it as fifth. This assumption was made because of the possible liberal attitudes that could be associated with university education. But this low rank on this particular group unfortunately suggests that the university students are quite conservative and protective of their privileged position in the society. The Mbusyani Village group, on the other hand was expected to be very provincial and conservative about the status quo.

The entire sample (N=145) was composed of 86% males, 81% students, 75% of the respondents were between 20 and 29 years of age, and 63% had at least between 9 and 14 years of schooling. Since there were these majorities the variables of age, education or sex were not examined separately but rather the entire sample was analyzed collectively to see how it viewed different methods of financing, staffing, and controlling the institutes. Also the respondents were asked to assess the rationale, admissions procedures and goals for the institutes. Since it was only questions 13, 16 and 18 where there were differences in ranking different alternatives it is worth noting on how the rankings of the total sample went regarding these problems raised here.

1. Rationale for the Institutes: On question number 8 the respondents were asked to rank different possible reasons for the creation of technical institutes. Sixty four percent of the total sample

ranked "Kenya needs technicians" as the first choice. 'Lack of colleges,' 'Provision for skills' and 'too many foreign technicians working in Kenya' were ranked second, third and fourth respectively. The fifth choice was... "because other countries have built their institutes" which was so ranked by 78% of the respondents. Although it was difficult for most people to identify the exact needs, most of them felt very strongly that Kenya needs technicians.

On question number 19 and 20 the respondents were asked to state whether or not Kenya needed the new technical institutes and whether she could train her people in the existing institutes respectively.

On the question about the need for the new technical institutes 68% of the total sample (N=145) agreed that there was a need for such institutes. As for the ability of Kenya to train the required manpower in the existing institutes 50% of the total sample said this can be done. While all the groups from the six regions agreed that there was a need for these new technical institutes in Kenya, Central, Coast and Eastern regions clearly showed that the country was not able to train the required manpower in the existing institutions. The ability for the country to train in the existing institutes was ranked by these regions as, Central 43%, Coast 48% and Eastern 46%. The other three regions, Nyanza, Rift Valley and Western all showed over 50% agreement that the country was able to train her people in the existing institutions. The writer finds this division of opinion between Western Kenya regions and the rest of the country very intriguing. One could infer that people in the western

regions have more faith in what the government could do than do people in Central, Coast and the Eastern regions. Perhaps the proximity of the latter regions to Nairobi (the seat of government) has made people more dubious of the government's ability to educate her people.

When the responses to the two questions on need for the institutes and ability to train people in the existing institutes from four groups were examined it was found out that they all agreed that there is a need. Only Kenyatta University College group showed that there was less ability for the country to train the required manpower in the existing institutions by ranking it only as 40%.

The last question on the questionnaire was an open-ended question which asked the respondents to:

Briefly assess the chances of success for the new institutes of technology in Kenya.

From reading what most people wrote one gets the idea that there is an apparent need for the technical institutes in Kenya, but people seem to be very skeptical about their success. A great majority expressed concern that these institutes were too tribalistic. The major reasons which were given as probable causes for the institutes' failure were: lack of finance, lack of trained instructors and possible unemployment of the graduates. Some samples of answers to this question can be found in Appendix F.

2. Staffing: On question number twelve, 40% of the total sample

indicated as their first choice that instructors for the institutes should come from Nairobi and Mombasa Polytechnics. The Kenyan universities, other African countries and the United States were ranked second, third and fourth, respectively, as places from where to get instructors. Soviet Union, China or any other eastern country were ranked fifth by 67% of the total sample. Unfortunately neither the Nairobi nor Mombasa polytechnics is gearing its curriculum to teacher preparation. The Kenyan universities are quite academic and it will take time before they can produce graduates who will be willing to go to the institutes and work with their hands. At the moment, it appears as if the institutes will have no choice but to invite foreign nationals to come and teach.

3. Finance: Question number 10 and 11 dealt with financing of the technical education. The first question referred to students' expenses while the second one dealt with the recurrent expenses. On question number 10, 46% of the entire sample ranked "bursary by the government" as their first choice in financing the students' technical education. The last choice was the "paying of one's way" in the institutes.

On question number 11 the financing of the institutes was seen as being best done by the Kenyan national government. The regions were ranked second, money from foreign-aid third, and loans from the bank as fourth. The last choice was "money from individual donations." The responses to these two questions of financing of the institutes confirms the faith that Kenyans have on the government in financing these

harambee projects. The majority of Kenyans are poor and so it is understandable why most people cannot imagine students paying for their college education.

4. Control: Question number 15 attempted to find out as to who should control the technical institutes. Once again to express the faith in government 79% of the entire sample ranked "national government control" as their first choice. The least desirable agent to control the institutes was marked by 53% of the sample as "foreign governments who give aid to Kenya."

5. Availability of Technical Education: Question number 14 was designed to find out the preferences of institutions where technical education could be offered. Sixty three percent of the entire sample ranked "technical institutes only" as their first choice. Universities, employers, foreign colleges were ranked second, third and fourth respectively. "Military schools" were ranked by 42% of the sample as the least desirable place where to offer technical education.

It seems as if the majority of Kenyans see a university as a place for intellectual pursuit and not a place to provide technical education. Military schools have a potential to provide technical education on a more balanced national basis as opposed to the regional institutes. But the function of the army is seen as different from those of colleges and universities. The writer would venture to say that the armed forces could help tremendously in training the needed manpower, especially

when there is no conflict for them to be involved in.

Major Results: The results of the questionnaire revealed that there was more agreement on major issues among the respondents than there were disagreements. Some strong agreements were shown on:

- a. need for technical education
- b. government control of technical education and
- c. faith in finding teachers from Africa as opposed to foreign countries.

Interpretations: Most of the respondents agreed on the necessity for technical education. However on the open-ended question where the respondents were to assess the chances of success for the institutes there was a sizeable number of people who predicted the downfall of the institutes. The planners for the institutes should therefore think hard as to how these institutes will be viable in view of economic shortage of capital and lack of instructors.

C. Interviews

Of those people interviewed most of them had mixed feelings about the harambee movement to construct technical institutes. There were feelings of pessimism and of hope expressed. The often-mentioned worry about the critical shortage of technical teachers was confirmed by Mr. A. Hordyk, the principal designate (himself from Holland) of the Kiambu Institute of Science and Technology who told the writer during the interview that his institute was going to start with ten teachers,

eight of whom were to come from abroad. When asked how he thought these many institutes of technology can succeed in view of overall economic situation, Hordyk replied that "....once the institutes start running there should be as little politics as possible." He further expressed a strong belief that there should be an independent coordinator of all the institutes in order to avoid duplication of efforts and wastage of the scarce resources, both human and material.

On the staff of the Kiambu Institute of Science and Technology there was also a couple from Holland, Marrinett and Jan Oomen. When asked to explain how students will be selected to attend the institute, this couple assured the writer that students will be admitted from all over Kenya as long as they pass the aptitude test to be administered by the University of Nairobi. However the writer would like to caution the reader that such assurances have been made before, especially as far as entry to the Universities in Kenya is concerned. But the truth of the matter is that this promise of equity has not been fully realized. As long as there are more qualified students than there are places, it will always be difficult to decide fairly who is admitted and who is not. A strong competition for places in the institutes can be expected. The Kiambu Institute's case confirms this assumption:

When Kiambu Institute of Science and Technology announced that it was receiving applications to fill its first class of 125 students over 2,000 applications were received.²³

²³Speech by C. Njonjo (Chairman, Board of Trustees) at Kiambu Institute of Science and Technology on July 30, 1973 which the writer attended.

In assessing Kenya's ability to staff the institutes in general all the three Dutch volunteers interviewed at the Kiambu Institute felt that it might take ten years before the institutes are completely Africanized. The question of financing the institutes was a touchy one. When asked to tell the writer how the Kiambu Institute was being financed this Dutch team referred the writer to Joseph Koinange, Secretary of the Board of Trustees at the Kiambu Institute. Koinange, who is also the Dean of students at the University of Nairobi, was not easily accessible.

Additionally the writer interviewed Dr. D. Kiminyo of the Ministry of Education (Planning Section) and Dr. M. Godfrey of the University of Nairobi, Institute for Development Studies. Kiminyo likened the institutes of technology with the Harambee Secondary Schools which turned out to be too expensive. When the writer asked him to assess the chances of success for these institutes he asserted that in the harambee secondary schools only the good ones with good facilities, faculty, and examination results were being taken over by the government.

The interview with M. Godfrey was also very informative. Godfrey was asked a number of questions but one among them was to comment on whether or not higher education in Kenya was being democratized by the expansion of these emerging institutes. Godfrey, while acknowledging the fact that by opening more institutes more people are bound to get higher education, observed that "it would be mostly the sons and daughters of the wealthy in Kenya who would benefit from these

institutes." The social economic status is likely to play a very crucial role in the accessibility to higher education in Kenya for many years to come.

Further, the writer interviewed Mr. H.F. Mtula, principal of the Kenya Polytechnic and Mr. Dave Williams, Ministry of Education, technical section. These two interviews were taped and later transcribed. The entire texts of these two interviews are in the Appendix G of this study. Williams argued that the technical institutes were "politically motivated" but nevertheless gave a favorable impression of the institutes. Mtula on the other hand seemed to be defending the status quo. When asked whether higher education was being democratized he retorted "education was always available to all capable Kenyans." The writer could have debated with him on this particular point but thought it might discourage him from answering further questions. The fact remains however that education in Kenya is still a privilege of a very small minority. Mtula would probably agree that thousands of capable Kenyans are turned away from attending schools and universities every year due to lack of facilities, fees or both.

In general the results of the interviews showed that government officials and some politicians tended to be optimistic about the success of the institutes. A few elders who were interviewed informally also showed enthusiasm towards the institutes. Whether the overwhelming interest which is prevailing in Kenya towards the institutes will be financially sustained and the institutes developed to meet their expected

functions it is difficult to tell at this moment.

Major Results: The consensus among the people interviewed was that there was a definite need for the institutes. Mr. Mtula of the Kenya Polytechnic was particularly supportive of the establishment of the technical institutes. On the question of rationale (see Appendix G) Mtula said that the movement to establish the institutes "was a natural process." The key findings were:

1. lack of government coordination of the institutes.
2. need for institutes
3. too much politics
4. institutes will not solve inequality of access to education.

Interpretations: Although most of the people interviewed, both formally and informally were for establishment of technical institutes, there were a few problems seen which, if not solved, could make it difficult for the institutes to succeed. Some of these were: financing, staffing and admissions procedures for the institutes.

Summary: There were some common issues in all the various sources of information for this study. First, there was expressed need for technical institutes in Kenya. Secondly, most of the respondents seemed to have faith in the government's ability to educate her people. Thirdly, there was a confusion as to how the institutes' graduates would be absorbed into employment. Lastly, the problem of inequality of

access to education because of ethnic, social, economic or geographical background was seen as persisting-even with the founding of the new institutes. From these data one can conclude that the respondents' perceptions of the factors affecting the nation's educational development are known to most Kenyans.

This study suggests that eventually these technical institutes are likely to be taken over by the national government. It can only be hoped that the government will assure a balanced development of the institutes rather than a lop-sided growth favoring a few ethnic groups.

CHAPTER V

CONCLUSIONS, IMPLICATIONS, AND ISSUES FOR FURTHER RESEARCH

A. Limitations of the Study

Before any conclusions can be drawn from this study it is important to note its limitations. There were several factors which limited the scope of this study. First, the harambee movement of constructing the technical institutes in Kenya is itself relatively new and consequently there has not been much written on it. Secondly, the writer assumed that the diversity of Kenya society, composed of more than forty tribes, makes it difficult to find a consensus on major public issues or to make a generalization about the entire population.

Thirdly, mail survey would not have only been expensive but since the questionnaire was done in English, would have yielded a very low return in a country where illiteracy is still very high. The writer's advisors at the University of Nairobi warned that some surveys done in the country yielded very low returns, making it not very meaningful. For example, the Ministry of Education sent a questionnaire to all the technical institutes organizers requesting data which would help the government plan how to coordinate the institutes' efforts. Surprisingly

enough this questionnaire, according to the writer's advisors in Nairobi, was never returned by the majority of the institutes. Fourthly, the writer felt that the lack of personal mail delivery system and inadequate transportation facilities would make it very difficult to survey population in the rural areas (in three months time) where the majority of Kenyans live. One must also exercise caution in generalizing about the Kenya's population as a result of this study since there were variety of variables which could not allow a study such as this to be error free. The settings of interviews, where some individuals were very selective of what they said, as well as volunteers helping in distributing the questionnaire, the size of samples, all these variables necessitate caution in interpretation of this study. The writer, however, feels confident that the data provided allow for the development of speculation on how the technical institutes will function.

Lastly, political considerations made the writer avoid some questions which were thought to be too sensitive. In the final analysis, time alone will help us tell whether the conclusions drawn are justified.

B. Conclusions and Implications

This study has attempted to illuminate the rationale for the emergence of technical institutes in Kenya and assess their chances of success. An historical review of school education from the colonial days to present was made. It focused on analyzing the reasons why technical education was never popular with the Africans and the drastic

change of attitude as evidenced by the construction of the harambee institutes of technology. The British government was also blamed for encouraging differential treatment for academic graduates by paying them more or attaching more prestige to such an education and viewing technical education as second class. The Africans were therefore led to aspire for academic education which would lead to white collar jobs. But now the country is desperately trying to shift the emphasis of education to a more technical curriculum.

It is apparent from the literature, as well as from the results of interviews conducted by the writer, that people in Kenya are now enthusiastic about constructing institutes of technology under the self-help spirit of harambee which seems to cut across the tribal and regional boundaries as was evidenced by overwhelming support by those interviewed.

As the preceding chapters have shown traditional education in Kenya has always been very academic, turning out graduates who had few skills. Further, the Africans viewed technical or vocational education with contempt since they saw it as a preparation for the service of the British. Over 68% of those people asked in a questionnaire whether there was a need for the institutes agreed that there was such a need. The politicians were especially very active in encouraging citizens to give their money or services, or both, to establish the institutes. The citizens in general have an unsatiable thirst for education and were sacrificing generously to this course. The result of the questionnaire

and the interview showed that people tend to agree more than they disagree regardless of ethnic or geographic origin.

The majority of the respondents seemed to have great faith in government as they expressed the idea that government should run the technical institutes. The government was also seen as the number one employer and that it should find jobs for the graduates of the institutes. The government was expected to show leadership especially in coordination of the institutes rather than just giving them verbal support.

There were three questions in which the four groups could not agree in ranking the alternatives given. These were questions number 13, 16 and 18 of the questionnaire which dealt with the purpose of technical education, admission criteria and employment prospects for the institutes' graduates, respectively. Since the six regions showed no differences in ranking these three questions, it is probable that educational background, urban as well as rural influence on the four groups was an important factor. There was a definite split between urban and rural groups in viewing the employment prospects for the institutes' graduates. The urban oriented groups saw the return of the institutes' graduates to the land as very important while the village group viewed such an idea as less important.

The open-ended question about the assessment on the success for the institutes evoked serious concerns. Some respondents saw them as too tribalistic, which they criticized as bad. Others raised some basic problems of financing, staffing and governance of the institutes.

On the open-ended question the entire sample was almost divided equally between advocates of the institutes who believe they will succeed and those who predict their downfall. If the institutes were to succeed the implications would be far reaching. The impact of change on planning and on attitudes held by the citizens towards technical education would be great.

1. Some Paradoxes:

Despite all the enthusiasm generated by the harambee spirit of constructing the technical institutes, the school system is slow in changing to accommodate the technical student in the same footing and respect as the academic counterpart. For example, of the country's more than sixty schools with higher school certificate classes, only one, Nakuru, has technical bias. It is one thing to advocate technical education, but quite another to change the well established academic schools to emphasize technical education. It even seems rather contradictory for most African nations, including Kenya, to urge the school leavers to stay on the land while in fact schools with the best facilities as well as the universities are located in or around the cities. DuBois' observation about the difficulty in bringing honor to manual labor, though originally meant for Black Americans, applies very well to Kenya's situation:

We are in a system of culture where disparity of income is such that respect for labor as labor cannot endure; where the emphasis and outlook is not what a man does but what

he is able to get for doing it; where wealth despises work and the object of wealth is to escape work, and where the ideal is power without toil.¹

The challenge for the Kenyans is to redefine the purpose of education in the context of the country's needs and train faculty whose attitudes would reflect sympathy and understanding of the country's problems. But it must be pointed out that probably one of the most obvious ironies facing African Nations is their attempt to Africanize their institutions, especially education, and at the same time expect to be recognized by their former colonial powers using the western academic standards. African universities are caught in this dilemma.

2. Some Problems facing Technical Education and Some Possible Solutions

Although a number of reports, including those ones by the Kenya government, chaired by Wamalwa and Ominde, International Labour Office, Godfrey and Mutiso cautioned the Kenyans of the rapid and unplanned expansion of technical institutes, there are seventeen such institutes planned or are already built. Political rivalries have played a very important role in Kenya almost to the point of making any public policy or planning impossible. This has been the case since most of the politicians who are pushing for these institutes are also government officials. It must be remembered that the government calls these institutes private and so the question of which private institute is to be supported by

¹William E. D. DuBois, The Education of Black People, edited by Herbert Aptheker, (University of Massachusetts Press, 1973), p. 74.

government officials becomes an academic one.

In the final analysis there are basic economic problems facing the developing countries which education alone cannot solve. Foster has argued that simply by changing school curriculum and producing more technicians will not solve the economic problems:

It would seem that technical or vocational education is the cart rather than the horse in initial stages of economic growth.²

This analogy explains the faith held by many Kenyans. If technical education is to be successful jobs must be created simultaneously with the expansion of technical education. A technocrat cannot function in a vacuum. The country must be able to afford opportunities where the technical education can be done in as much real-life situation as possible. One of the reasons for the success of the American technical education was the cooperatives and agricultural extensions under the land-grant colleges. At this stage of her development, Kenya does not have the resources to have such elaborate system of technical education as did the United States in the late nineteenth century. According to Foster:

It is easier to expand schooling than it is to expand employment opportunities in the exchange economy.³

The government of Kenya has already raised the expectations of many young people who want to join the technical institutes. However,

²Philip Foster, Education and Social Change in Ghana (The University of Chicago, 1965), p. 294.

³Ibid., p. 296.

if these expectations are not satisfied, and according to Mwendwa, the Minister for Labour, all of them will not be satisfied, then unemployment of disillusioned technocrats will follow.

Although a few institutes such as Kaimosi and Kiambu have explicit purposes of preparing students for self-employment the majority of the respondents ranked the prospect of self employment upon graduation very low. This, once again, shows the dependency on government for employment. Mutiso and Godfrey argued that the needed manpower could be trained in only about six institutes. If all the seventeen institutes of technology were to be operational in a few years time it is possible the technical fields would be saturated with technical graduates in probably ten years. However, this study found out that the lack of clearly defined purposes for most institutes, methods of financing especially for long range planning, ways of acquiring faculty would all make it extremely difficult for all the seventeen institutes to succeed.

Most Africans who are pushing for technology are probably not aware of its consequences. The western industrialized nations have suffered many side effects such as pollution of the air and water. Small farmers have been forced out of business to give way to automated mechanized farming. Family life has changed drastically as many couples have joined the labor force.

If Kenya were to allow automation to set in, there would be many similar repercussions affecting the entire society. One obvious implication for technical education would be the rapid rate of change which the

country must offer if her graduates' knowledge would not be obsolete prior to graduation. The graduates of such institutes would probably have to be retrained quite often as their jobs would continuously be taken by the machines.

This study concludes that there are at least four ways in which Kenya could bring prestige to technical education: (i) raise the status of the polytechnics (e. g. Nairobi and Mombasa) and gradually of the technical institutes, similar to what Britain has done with her polytechnics, to university level where degrees could be offered. This change would no doubt be resisted by the conservative elements associated with the university who would view it as eroding their prestige, (ii) technical institutes' and polytechnics' graduates be paid same salary as the university graduates (iii) spread out the polytechnics as well as the new universities to the rural areas rather than continue concentrating them in the urban centers where they become detached from the society they are meant to serve, and (iv) make a deliberate effort to educate the masses regarding the importance of technical education. This could be done through adult education programs as well as in the primary and secondary schools.

Until such a time that these changes have taken place, technical education will be implemented half-heartedly and probably its importance will continue to be relegated to the background in Kenya's educational priorities.

The tracking system which exists in Kenya where technical schools are separate from academic ones can only reinforce the "we" and "they" idea between students in the two tracks. If and when resources permit, this writer would recommend a comprehensive type of schooling where students will attend schools together and select what they want to learn rather than be sorted and channelled into separate tracks. Such a system would require large sums of money and the economy must be capable in absorbing the graduates. The emphasis under a comprehensive system would be on career, skills, and general education.

C. Issues for Further Research

On December 12, 1973 the Kenya government waived school fees for the first four grades of primary school. This decision is seen as a way to universal primary education which the government has expressed as an important goal towards development. This study has shown clearly that the people, as well as the government of Kenya expect the government to continue financing education. The Friends' College proposal reports:

Our government is making great strides in education and currently spends approximately 40% of its budget on this and we are rapidly moving to universal primary education.⁴

Although education takes a large portion of the national budget, no study has shown conclusively the justification for this expenditure.

⁴Friends' College, p. 1.

It is true that most of what education does or does not do for the human development cannot be measured purely in monetary terms, but more and more critics of education want to see the accountability and rates of returns. As Kenya government expands its aid towards universal primary education and eventually to secondary and post-secondary education a study needs to be done to show the best educational programs for the country in which to invest the scarce public funds. Most of the money that is being collected to construct the harambee institutes will go into the construction of buildings in which education will, supposedly, take place. The concept of schooling itself might not be necessary. No one has entertained the idea of providing post-secondary education in the villages where the majority of Kenyans live. Rather, schools are seen as the only proper place to educate people. This is quite a departure from the traditional African process of education. It would probably be useful to study the circumstances under which the western education can be synthesized with the African way of life.

Another area in which further study is needed is the analysis of the meaning of harambee spirit as it relates to education. While harambee is seen as a national motto, the regional institutes some of which are fiercely competing with each other, suggest this movement may not be truly national after all. The writer heard several times one of the institutes jokingly being referred to as an "institute for advanced tribalism." The inequality of educational opportunity based on geography or ethnicity, which still exists in Kenya is certainly not

in keeping with the citizens' expectations of the true spirit of harambee. It has been said by some that Kenya will guarantee equality of education regardless of the place of birth but not regardless of the place of residence.

Kenya, though relatively a young nation has made a remarkable progress in education in the first decade of her independence. With this progress came some problems, such as unemployment, disappointments for not getting expected jobs and so on. As Kenya faces the future she must proceed cautiously. It is particularly essential that intelligent decisions regarding the expansion of technical education be made based on knowledge. The unplanned growth of the technical institutes could create more problems in the long run than they would solve. Hopefully, with good planning and insights, Kenyans will continue to develop their educational system with equity and the minimum of wastage of her scarce resources.



APPENDICES

APPENDIX A

COVER LETTER TO QUESTIONNAIRE

Dear Friend:

I would like to request your help in completing the attached self-administered questionnaire. The information which you provide will be part of my doctoral study of the Post-Secondary Technical Institutes in Kenya.

Please read the directions carefully and answer all the questions as truthfully and accurately as you can. I would like to assure you in advance that all your answers to this questionnaire will be treated confidentially.

The results of this questionnaire will be presented in an anonymous and statistical form. I therefore suggest that you do not sign your name.

Thank you for your cooperation.

Sincerely yours,

Stephen N. Mutunga
Stephen Ngui Mutunga
Doctoral Student in Education
Claremont Graduate School and
University Center
Claremont, California, U.S.A.

APPENDIX B

INSTRUCTION TO THE RESPONDENTS

Please make a mark on the line that best describes you:

1. AGE: Under 19 _____

20-29 _____

30-39 _____

40-49 _____

50-59 _____

2. SEX: FEMALE _____

MALE _____

3. EDUCATION: How many years of schooling have you completed:

_____ 5-8

_____ 9-12

_____ 13-14

_____ 15-17

_____ Over 17

4. Occupation _____

5. Are you a Parent? _____ Yes; _____ No

6. Region _____

7. Are you a student? _____ Yes; _____ No.

On the scale of 1-5, with "1" being your first choice and "5" your last, please rank order the following statements by placing your choices on the provided short lines preceding each statement:

8. The major reasons for building technical institutes in Kenya are:
- a. Kenya needs technicians
 - b. lack of colleges to train school leavers
 - c. because other countries have built their institutes
 - d. there are too many foreign technicians working in Kenya
 - e. to provide graduates with skills so that they can get jobs
9. The institutes should admit students who:
- a. have completed high school
 - b. have completed primary education
 - c. have completed Form VI
 - d. have never been to school
 - e. secondary technical schools' graduates
10. When admitted to a technical institute each student should:
- a. be given bursary by the government
 - b. pay his or her own fees
 - c. be given a loan by the government and pay it back upon graduation
 - d. be given bursary by his regional or local government
 - e. be given a job in the institute to earn money for fees
11. The financing of the recurrent expenses for the technical institutes should be provided by:
- a. the region in which the institutes are located
 - b. the Kenya Government
 - c. money from foreign aid
 - d. money from individual donations
 - e. a loan from the bank

12. Teachers for the technical institutes should come from:
- a. The Nairobi and Mombasa Polytechnics
 - b. Nairobi University and the Kenyatta University College
 - c. Other African countries
 - d. England, U.S.A., or any other western country.
 - e. Soviet Union, China or any other eastern country.
13. Technical education in Kenya is supposed to:
- a. enable graduates to find jobs in the rural areas
 - b. reduce unemployment
 - c. improve the conditions in which most Africans live
 - d. reduce the number of rural-urban migration
 - e. help in creating more jobs
14. Technical education should be provided by:
- a. the universities
 - b. the technical institutes only
 - c. employers
 - d. military schools
 - e. foreign colleges
15. The technical institutes should be controlled by:
- a. the national government
 - b. each region to control its own institute
 - c. private organizations
 - d. international organizations such as the United Nations
 - e. foreign governments who give aid to Kenya
16. On admitting students the institutes should:
- a. admit students on tribal quota
 - b. use aptitude merit only
 - c. admit students from the region where the institute is located
 - d. admit students who can afford the tuition
 - e. give preference to the poor students

17. After completing high school education most students should:

- a. attend technical institutes
- b. attend university
- c. attend teacher training colleges
- d. seek employment in cities and towns
- e. return to the rural areas and work in the farms

18. Once a student graduates from a technical institute he should:

- a. start his/her own business
- b. be employed by the government
- c. be employed by a private firm
- d. pursue further studies in the university
- e. stay home and do whatever he wants

Respond to the following questions by a YES or NO answer.

19. Do you think Kenya needs these many emerging institutes of

technology? YES _____; NO _____.

20. Could Kenya train enough technicians in the existing institutions

of higher learning? YES _____; NO _____.

21. Briefly assess the chances of success for the new institutes of

technology in Kenya. Use the back of this sheet for your answer.

APPENDIX C

The Ranked Responses of the Four Groups Compared with the Total Sample

	KUC (N=49)		MP (N=20)		KP (N=65)		MV (N=11)		Total (N=145)	
	Median	Rank	Median	Rank	Median	Rank	Median	Rank	Median	Rank
8. The major reason for building technical institutes in Kenya are:										
a. Kenya needs technicians	1.538	1	1.088	1	1.207	1	1.286	1	1.271	1
b. lack of colleges to train school leavers	2.694	2	3.000	3	2.737	2	2.625	2	2.765	2
c. because other countries have built their institutes	4.887	5	4.786	5	4.875	5	4.714	5	4.858	5
d. there are too many foreign technicians working in Kenya	3.143	3	3.300	4	3.133	3	3.583	4	3.217	4
e. to provide graduates with skills so that they can get jobs	3.182	4		2	3.174	4	2.750	3	3.122	3

	KUC (N=49)	MP (N=20)	KP (N=65)	MV (N=11)	Total = 145
	Median Rank	Median Rank	Median Rank	Median Rank	Median Rank

9. The institutes should admit students who:

a. have completed high school	1	2,071	1	2,304	2	2,143	2	2,105	1
b. have completed primary education	3	3,300	4	3,687	4	1,833	3	3,375	4
c. have completed Form VI	2	2,500	2	1,963	1	2,625	3	2,164	2
d. have never been to school	5	4,875	5	4,940	5	4,889	5	4,915	5
e. secondary technical schools' graduates	4	2,667	3	2,825	3	3,250	4	3,077	3

10. When admitted to a technical institute each student should:

a. be given bursary by the government	1	2,500	2	1,632	1	1,375	1	1,681	1
b. pay his or her own fee	5	3,500	4	4,469	5	4,583	5	4,627	5
c. be given a loan by the government and pay it back after graduation	3	2,000	1	2,219	2	2,875	3	2,484	2
d. be given bursary by his regional or local government	2	3,250	3	2,720	3	2,286	2	2,662	3
e. be given a job in the institute to earn money for fees	3	1,07	4	4,368	4	3,333	4	3,865	4

KUC (N=49) MP (N=20) KP (=65) MV (N=11) Total = 145

Median Rank Median Rank Median Rank Median Rank Median Rank

11. The financing of the recurrent expenses for the technical institutes should be provided by:

a. the region in which the institutes are located	2	2.278	2	2.529	2	2.000	2	2.344	2
b. The Kenya government	1	1.214	1	1.207	1	1.286	1	1.184	1
c. money from foreign aid	5	3.125	3	3.231	3	3.750	3	3.625	3
d. money from individual donations	4	4.000	4	3.841	4	3.400	4	3.843	5
e. a loan from the bank	3	4.167	5	4.028	5	4.000	5	3.803	4

12. Teachers for the technical institutes should come from:

a. The Nairobi and Mombasa Polytechnics	1.889	2	1.333	1	1.684	1	1.417	1	1.774	1
b. Nairobi University and the Kenyatta University College	1.407	1	2.500	2	1.939	2	2.125	2	1.825	2
c. Other African countries	3.086	3	3.400	4	3.526	4	3.312	4	3.267	3
d. England, U.S.A. or any other western country	3.926	4	3.000	3	3.087	3	3.083	3	3.508	4
e. Soviet Union, China or any other eastern country	4.710	5	4.786	5	4.744	5	4.889	5	4.753	5

	KUC (N=49)	MP (N=20)	KP (N=65)	MV (N=11)	Total = 145
	Median Rank	Median Rank	Median Rank	Median Rank	Median Rank

13. Technical education in Kenya is supposed to:

- a. enable graduates to find jobs in the rural areas
- b. reduce unemployment
- c. improve the conditions in which most Africans live
- d. reduce the number of rural-urban migration
- e. help in creating more jobs

3.000	2	3.500	4	3.679	5	3.750	4	3.452	4
2.083	1	2.125	2	1.542	1	3.125	3	2.000	1
3.678	5	3.000	3	3.182	3	1.917	1	3.304	3
3.182	3	4.000	5	3.635	4	3.875	5	3.615	5
3.250	4	2.100	1	2.435	2	3.000	2	2.523	2

14. Technical education should be provided by:

- a. the universities
- b. the technical institutes only
- c. employers
- d. military schools
- e. foreign colleges

1.640	2	2.071	2	1.973	2	2.000	2	1.892	2
1.480	1	1.125	1	1.239	1	1.571	1	1.288	1
3.125	3	3.167	3	3.143	3	3.333	4	3.147	3
4.250	4	4.500	5	4.365	5	4.050	5	4.320	5
4.458	5	4.214	4	4.075	4	3.312	3	4.155	4

	KUC (N=49)	MP (N=20)	KP (N=65)	MV (N=11)	Total = 145
	Median Rank	Median Rank	Median Rank	Median Rank	Median Rank

15. The technical institutes should be controlled by:

a. the national government	1	1	1	1	1	1.130	1
b. each region to control its own institute	2	2	3	2	2	2.446	2
c. private organizations	3	3	4	4	4	3.585	5
d. international organizations such as the United Nations	4	3	2	3	3	3.182	3
e. foreign government which give aid to Kenya	5	5	5	5	5	4.558	4

16. On admitting students the institutes should:

a. admit students on tribal quota	5	5	5	2	2	4.768	5
b. use aptitude merit only	1	1	1	2	1	1.197	1
c. admit students from the region where the institute is located	3	2	3	3	3	2.988	3
d. admit students who can afford the tuition	4	3	4	4	4	3.443	4
e. give preference to the poor students	2	4	2	3	5	2.884	2

	KUC (N=49)	MP (N=29)	KP (N=65)	MV (N=11)	Total = 145
Median Rank	Median Rank	Median Rank	Median Rank	Median Rank	Median Rank

17. After completing high school education most students should:

a. attend technical institutes	1. 667	2. 1.500	1. 1.293	1. 1.417	1. 1.429
b. attend university	1. 1.480	1. 2.278	2. 1.946	2. 2.333	2. 1.913
c. attend teacher training college	3. 034	3. 3.167	3. 2.923	3. 4.812	5. 2.982
d. seek employment in the cities and towns	4. 734	5. 3.857	5. 4.645	4. 4.063	4. 4.379
e. return to the rural areas and work on the farms	4. 000	4. 4.214	4. 4.834	5. 2.800	3. 4.426

18. Once a student graduates from a technical institute he should:

a. start his/her own business	2. 867	2. 3.100	3. 1.963	2. 2.000	2. 3.161
b. be employed by the government	1. 1.480	1. 1.900	1. 2.937	4. 1.625	1. 4.1795
c. be employed by a private firm	2. 886	3. 2.611	2. 2.417	2. 2.875	3. 2.836
d. pursue further studies in the university	3. 187	4. 3.250	4. 4.909	5. 3.125	4. 2.792
e. stay home and do whatever he wants	4. 855	5. 4.912	5. 1.137	1. 4.889	5. 4.891

APPENDIX D

Medians and Ranks of the Six Regions

	CENTRAL (N=47)		COAST (N=25)		EASTERN (N=26)		NYANZA (N=16)		RIFT VALLEY (N=13)		WESTERN (N=18)	
	Median	Rank	Median	Rank	Median	Rank	Median	Rank	Median	Rank	Median	Rank
8.	1	1.538	1	1.125	1	1.265	1	1.167	1	1.150	1	1.250
	2	2.750	2	3.000	2	2.318	2	3.100	4	2.800	3	2.750
	3	4.882	5	4.806	5	4.688	5	4.929	5	5.000	5	4.857
	4	3.143	3	3.001	3	3.654	4	2.750	2	2.429	2	3.500
	5	3.150	4	3.062	4	3.500	3	3.071	3	3.400	4	2.500
9.	1	1.925	1	2.000	1	2.278	2	2.500	2	2.143	1	2.250
	2	2.923	3	3.312	4	3.500	4	3.773	4	3.062	4	3.600
	3	2.281	2	2.812	2	1.800	1	1.944	1	2.571	2	2.250
	4	4.897	5	4.905	5	4.935	5	4.967	5	4.909	5	4.900
	5	3.579	4	2.714	3	3.071	3	2.700	3	2.875	3	3.000
10.	1	1.625	1	2.417	2	1.900	1	1.750	1	1.222	1	1.250
	2	4.847	5	4.000	4	3.500	4	4.700	5	4.778	5	4.600
	3	2.875	3	1.800	1	2.611	2	2.167	2	2.375	2	2.300
	4	2.476	2	3.250	3	2.833	3	2.333	3	2.571	3	2.667
	5	3.154	4	4.200	5	4.735	5	3.000	4	4.000	4	3.750
11.	1	2.229	2	2.292	2	2.200	2	2.750	2	2.875	3	2.500
	2	1.135	1	1.158	1	1.367	1	1.115	1	1.042	1	1.400
	3	4.364	5	3.187	3	3.643	4	3.167	3	2.429	2	3.250
	4	3.842	4	3.923	4	3.583	3	4.100	5	4.850	5	3.278
	5	3.316	3	4.143	5	4.500	5	3.750	4	3.600	4	4.214

CENTRAL (N=47)		COAST (N=25)		EASTERN (N=26)		NYANZA (N=16)		RIFT VALLEY (N=13)		WESTERN (N=18)	
Median	Rank	Median	Rank	Median	Rank	Median	Rank	Median	Rank	Median	Rank
1.904	2	1.462	1	1.429	1	2.100	2	1.667	1	1.833	1
1.404	1	2.350	2	2.929	2	2.062	1	2.086	2	1.750	2
3.091	3	3.808	3	3.417	4	3.333	4	3.750	4	3.500	4
3.920	4	3.333	4	3.357	3	3.100	3	2.875	3	3.000	3
4.690	5	4.806	5	4.909	5	4.611	5	4.688	6	4.682	5
3.050	2	3.600	4	3.100	2	3.500	3	3.667	4	4.300	5
2.094	1	2.125	2	1.312	1	2.700	2	1.429	1	2.667	2
3.714	5	3.083	3	3.625	5	3.501	4	2.000	2	3.100	3
3.091	3	3.958	5	3.500	4	3.667	5	3.857	5	3.700	4
3.250	4	2.000	1	3.300	3	2.125	1	2.750	3	1.900	1
1.646	2	2.059	2	1.967	2	2.071	2	1.889	2	1.955	2
1.479	1	1.125	1	1.265	1	1.389	1	1.150	1	1.250	1
3.135	3	3.154	3	3.167	3	2.929	3	3.400	3	3.167	3
4.240	4	4.437	5	4.318	5	4.167	4	4.778	5	4.125	5
4.455	5	4.333	4	4.100	4	4.500	5	3.750	4	3.643	4
1.073	1	1.125	1	1.150	1	1.300	1	1.150	1	1.143	1
2.259	2	2.250	2	2.722	2	2.357	3	4.250	5	3.500	3
3.275	3	3.583	4	3.375	4	3.875	4	4.083	4	3.833	5
3.571	4	3.417	3	3.250	3	2.333	2	2.400	2	2.700	2
4.766	5	4.667	5	4.633	5	4.000	5	3.429	3	3.750	4

	CENTRAL (N=47)		COAST (N=25)		EASTERN (N=26)		NYANZA (N=16)		RIFT VALLEY (N=13)		WESTERN (N=18)	
	Median	Rank	Median	Rank	Median	Rank	Median	Rank	Median	Rank	Median	Rank
16.	4.809	5	4.719	5	4.778	5	4.885	5	4.688	5	4.600	5
	1.171	1	1.068	1	1.222	1	1.300	1	1.150	1	1.500	1
	3.036	3	2.583	2	3.071	3	3.071	3	2.750	2	3.250	3
	3.594	4	3.556	4	3.278	4	3.250	4	3.375	4	3.333	4
	2.719	2	3.333	3	3.000	2	2.300	2	2.875	3	3.000	2
17.	1.632	2	1.667	1	1.184	1	1.389	1	1.312	1	1.400	1
	1.479	1	2.222	2	2.227	2	1.750	2	1.800	2	2.071	2
	3.037	3	3.107	3	2.731	3	3.000	3	3.000	3	2.944	3
	4.717	5	4.219	5	4.250	4	4.501	5	4.000	4	4.808	5
	4.028	4	4.111	4	4.571	5	4.500	4	4.850	5	4.000	4
18.	2.846	3	3.062	3	3.571	4	3.500	4	3.500	4	2.251	3
	1.533	1	1.846	1	1.955	1	2.167	2	1.429	1	1.929	1
	2.861	2	2.636	2	2.864	3	2.833	3	2.600	3	3.214	4
	3.062	4	3.375	4	2.786	2	2.000	1	2.571	2	2.500	2
	4.865	5	4.905	5	4.818	5	4.885	5	4.727	5	4.900	5

APPENDIX E

Groups Responses and the Mean Ranks

	1st	2nd	3rd	4th	5th	Mean	Rank	1st	2nd	3rd	4th	5th	Mean	Rank		
KUC (N=49)																
8. a.	24	13	12	10	0	1.755	1	12.	a.	14	27	3	2	3	2.041	2
b.	9	12	18	9	1	2.612	3	b.	27	14	2	4	2	2	1.776	1
c.	3	0	1	5	40	4.612	5	c.	3	1	35	6	4	4	3.143	3
d.	4	16	7	18	4	3.041	4	d.	3	4	6	27	9	9	3.714	4
e.	9	8	11	17	4	2.980	2	e.	2	3	3	10	31	31	4.327	5
9. a.	17	20	10	1	1	1.959	1	13.	a.	9	10	11	11	8	2.980	2
b.	12	6	15	16	0	2.714	3	b.	14	18	7	9	1	1	2.286	1
c.	11	18	13	6	1	2.347	2	c.	8	5	10	8	18	18	3.469	5
d.	0	2	1	5	41	4.735	5	d.	8	9	11	10	11	11	3.143	4
e.	9	3	10	21	6	3.245	4	e.	10	7	10	11	11	11	3.122	3
10. a.	23	12	9	3	2	1.959	1	14.	a.	21	25	1	2	0	1.673	2
b.	2	0	4	5	38	4.571	5	b.	25	18	4	1	1	1	1.673	1
c.	11	9	12	15	2	2.755	3	c.	3	4	28	8	6	6	3.204	3
d.	3	22	10	13	1	2.735	2	d.	0	0	5	26	18	18	4.265	5
e.	10	6	14	13	6	2.980	4	e.	0	2	11	12	24	24	4.184	4
11. a.	6	25	9	5	4	2.510	2	15.	a.	42	6	1	0	0	1.163	1
b.	39	6	1	2	1	1.367	1	b.	3	28	11	6	1	1	2.469	2
c.	0	7	8	11	23	4.020	5	c.	1	7	21	10	10	10	3.429	4
d.	2	5	11	20	11	3.763	4	d.	3	7	13	22	4	4	3.347	3
e.	2	6	20	11	10	3.429	3	e.	0	1	3	11	34	34	4.592	5

	1st	2nd	3rd	4th	5th	Mean	Rank		1st	2nd	3rd	4th	5th	Mean	Rank
16. a.	1	7	0	6	35	4.367	5	9. a.	6	7	6	1	0	2.100	1
b.	37	8	2	1	1	1.388	1	b.	3	3	5	9	0	3.000	4
c.	5	12	14	17	1	2.939	3	c.	4	6	3	5	2	2.750	3
d.	1	6	16	16	10	3.571	4	d.	0	2	0	2	16	4.600	5
e.	5	16	17	8	3	2.755	2	e.	7	2	6	3	2	2.550	2
17. a.	21	21	6	1	0	1.735	1	10. a.	5	5	5	5	0	2.500	2
b.	25	12	7	3	2	1.878	2	b.	6	3	1	3	7	3.100	3
c.	0	9	29	11	0	3.041	3	c.	8	4	6	1	1	2.150	1
d.	0	0	2	15	32	4.612	5	d.	0	7	4	8	1	3.150	4
e.	3	7	5	19	15	3.735	4	e.	1	1	5	3	10	4.000	5
18. a.	11	8	15	14	1	2.714	2	11. a.	3	9	4	2	2	2.550	2
b.	25	15	7	2	0	1.714	1	b.	14	5	1	0	0	1.350	1
c.	1	18	18	10	2	2.878	3	c.	2	3	8	2	5	3.250	3
d.	11	8	8	14	8	3.000	4	d.	1	0	4	10	5	3.900	4
e.	2	0	1	8	38	4.633	5	e.	0	3	3	6	8	3.950	5
8. a.	17	2	0	1	0	1.250	1	12. a.	12	3	3	2	0	1.750	1
b.	1	4	10	2	3	3.100	3	b.	2	8	5	5	0	2.250	2
c.	1	1	0	4	14	4.450	5	c.	0	1	10	3	6	3.700	4
d.	0	6	5	7	2	3.250	4	d.	6	3	2	9	0	2.700	3
e.	1	7	5	6	1	2.950	2	e.	0	5	0	1	14	4.200	5

MP (N=20)

Question No. 19 (KUC)

19. Is there need for institutes? Yes 54%; No 46%
20. Can Kenya train technicians in present institutions? Yes 41%; No 59%

	1st	2nd	3rd	4th	5th	Mean	Rank	1st	2nd	3rd	4th	5th	Mean	Rank			
13. a.	1	3	6	4	6	3.550	4	17. a.	10	5	4	1	0	1.800	1		
b.	5	8	6	0	1	2.200	1	b.	3	9	4	0	3	2.550	2		
c.	5	3	4	4	4	2.950	3	c.	1	13	9	5	2	3.200	3		
d.	2	1	2	10	5	3.750	5	d.	4	2	0	7	7	3.550	4		
e.	7	5	2	2	4	2.550	2	e.	2	1	2	7	8	3.900	5		
14. a.	2	14	3	1	0	2.150	2	18. a.	4	3	5	8	0	2.850	2		
b.	16	4	0	0	0	1.200	1	b.	6	11	2	1	0	2.050	1		
c.	2	2	9	5	2	3.150	3	c.	4	5	9	2	0	2.450	3		
d.	0	0	3	7	10	4.350	5	d.	6	1	4	6	3	2.950	4		
e.	0	0	3	7	8	4.150	4	e.	0	0	0	3	17	4.850	5		
15. a.	17	3	0	0	0	1.150	1	<u>KP (N=65)</u>									
b.	2	13	1	3	1	2.400	2	8. a.	46	15	2	1	1	1.400	1		
c.	0	2	7	4	7	3.800	4	b.	8	20	19	16	2	2.754	2		
d.	1	2	6	9	2	3.450	3	c.	0	1	6	6	52	4.677	5		
e.	0	0	6	4	10	4.200	5	d.	5	18	15	25	2	3.015	3		
16. a.	1	1	3	2	13	4.250	5	e.	6	11	23	17	8	3.154	4		
b.	17	2	1	0	0	1.200	1	<u>Question No. 19 (MP)</u>									
c.	0	11	5	1	3	2.800	2	19. Is there need for institutes?	Yes	60%	No	40%					
d.	1	5	4	8	2	3.250	3	20. Can Kenya train technicians in present institutions?	Yes	50%	No	50%					
e.	1	1	7	9	2	3.500	4										

19. Is there need for institutes? Yes 60%; No 40%

20. Can Kenya train technicians in present institutions? Yes 50%; No 50%

	1st	2nd	3rd	4th	5th	Mean	Rank	1st	2nd	3rd	4th	5th	Mean	Rank	
9: a.	14	23	21	5	2	2.354	2	14. a.	15	37	6	4	3	2.123	2
b.	12	6	7	40	0	3.154	4	b.	44	15	2	2	2	1.508	1
c.	20	27	15	3	0	2.015	1	c.	5	5	35	13	7	3.185	3
d.	1	1	1	4	58	4.800	5	d.	0	6	4	26	29	4.200	5
e.	18	8	20	13	6	2.708	3	e.	1	2	18	20	24	3.985	4
10: a.	30	19	7	8	1	1.938	1	15. a.	47	11	3	2	2	1.477	1
b.	4	18	5	16	32	3.985	4	b.	5	20	14	13	13	3.138	3
c.	21	16	17	11	0	2.277	2	c.	2	7	17	23	16	3.677	4
d.	8	19	25	11	2	2.692	3	d.	10	23	11	16	5	2.738	2
e.	2	3	11	19	30	4.108	5	e.	1	4	20	11	29	3.969	5
11: a.	8	24	17	10	6	2.723	2	16. a.	2	5	3	7	48	4.446	5
b.	46	12	4	2	1	1.462	1	b.	46	11	4	3	1	1.492	1
c.	4	19	13	13	16	3.277	3	c.	2	19	19	24	1	3.046	3
d.	5	5	15	22	18	3.662	4	d.	4	12	21	19	9	3.262	4
e.	2	5	16	18	24	3.877	5	e.	11	18	18	12	6	2.754	2
12: a.	29	19	9	7	1	1.954	1	17. a.	41	19	3	2	0	1.477	1
b.	18	33	5	5	4	2.138	2	b.	20	28	13	2	2	2.046	2
c.	2	6	24	19	14	3.569	4	c.	2	14	39	9	1	2.892	3
d.	14	5	23	21	2	2.877	3	d.	0	1	8	32	23	4.215	4
13: a.	6	11	13	14	21	3.508	4	18. a.	12	10	6	33	4	3.108	4
b.	32	12	13	2	6	2.046	1	b.	20	27	12	4	2	2.092	1
c.	14	11	11	12	17	3.108	3	c.	4	18	24	16	3	2.938	3
d.	2	8	19	26	10	3.523	5	d.	27	6	20	10	2	2.292	2
e.	11	23	9	11	11	2.815	2	e.	2	4	2	2	55	4.600	5

19. Is there need for institutes? Yes 79%; No 21%

20. Can Kenya train technicians in present institutions? Yes 54%; No 46%

	1st	2nd	3rd	4th	5th	Mean	Rank	1st	2nd	3rd	4th	5th	Mean	Rank
<u>MV (N=11)</u>														
8. a.	7	3	0	1	0	1.545	1	3	0	1	4	3	3.364	4
b.	2	3	4	1	1	2.636	2	2	1	4	4	0	2.909	2
c/	0	0	2	2	7	4.455	5	3	1	3	1	3	3.000	3
d.	1	1	3	6	0	3.273	4	0	3	2	2	4	3.636	5
e.	1	4	2	1	3	3.091	3	3	6	1	0	1	2.091	1
9. a.	1	7	3	0	0	2.182	1	2	7	1	1	0	2.091	2
b.	6	0	1	4	0	2.273	2	7	0	3	0	1	1.909	1
c.	1	4	4	1	1	2.727	3	0	3	3	1	4	3.545	4
d.	0	0	0	2	9	4.818	5	1	1	0	5	4	3.909	5
e.	3	0	3	4	1	3.000	4	2	0	4	3	2	3.273	3
10. a.	8	0	2	1	0	1.636	1	9	1	0	1	0	1.364	1
b.	0	0	1	4	6	4.455	5	1	4	3	0	3	3.000	3
c.	2	2	4	1	2	2.909	3	0	1	4	4	2	3.636	4
d.	0	7	1	3	0	2.636	2	0	4	3	2	2	2.000	2
e.	1	2	3	2	3	3.364	4	1	1	1	4	4	3.818	5
11. a.	4	3	1	3	0	2.273	2	3	2	1	2	3	3.000	3
b.	7	3	0	1	0	1.545	1	4	3	4	0	0	2.000	1
c.	0	2	3	2	4	3.727	3	2	2	2	5	0	2.909	2
d.	0	1	5	2	3	3.636	4	0	2	3	2	4	3.727	5
e.	0	2	2	3	4	3.818	5	2	2	1	2	4	3.364	4
12. a.	3	4	1	2	1	2.455	2	6	5	0	0	0	1.455	1
b.	6	5	0	0	0	1.455	1	3	3	4	0	1	2.364	2
c.	0	2	6	2	1	3.182	4	1	3	5	2	0	2.727	3
d.	2	0	4	5	0	3.091	3	0	0	1	8	2	4.091	4
e.	0	0	0	2	9	4.818	5	1	0	1	1	8	4.364	5

	1st	2nd	3rd	4th	5th	Mean	Rank	1st	2nd	3rd	4th	5th	Mean	Rank	
18. a.	5	1	2	2	1	2.364	2	21	61	31	20	12	2.593	2	
b.	5	4	1	1	0	1.818	1	106	26	6	5	2	1.421	1	
c.	0	4	4	2	1	3.000	4	6	31	32	28	48	3.559	3	
d.	1	2	4	4	0	3.000	3	8	11	35	54	37	3.697	4	
e.	0	0	0	2	9	4.818	5	4	16	41	38	46	3.731	5	
All Sample (N=145)															
8. a.	94	33	14	3	1	1.510	1	58	53	16	13	5	1.993	1	
b.	20	39	51	28	7	2.745	2	53	60	12	14	6	2.034	2	
c.	4	2	9	17	113	4.607	5	5	10	75	30	25	3.414	4	
d.	10	41	30	56	8	3.076	4	25	12	35	62	11	3.152	3	
e.	17	30	41	41	16	3.062	3	4	10	8	26	97	4.393	5	
9. a.	38	57	40	7	3	2.172	1	19	24	31	33	38	3.324	4	
b.	33	15	28	69	0	2.917	4	53	39	30	15	8	2.214	1	
c.	36	55	35	15	4	2.283	2	30	20	28	25	42	3.200	3	
d.	1	5	2	13	124	4.752	5	12	21	34	48	30	3.434	5	
e.	37	13	39	41	15	2.890	3	31	41	22	24	27	2.828	2	
10. a.	66	36	23	17	3	2.000	1	40	83	11	8	3	1.972	2	
b.	12	11	11	28	83	4.097	5	92	37	9	3	4	1.552	1	
c.	42	31	39	28	5	2.469	2	10	14	75	27	19	3.214	3	
d.	11	55	40	35	4	2.766	3	1	7	12	64	61	4.221	5	
e.	14	12	33	37	49	3.655	4	3	4	38	42	58	4.021	4	

Question No. 19 (MV)

19. Is there need for institutes? Yes 91%; No 9%
 20. Can Kenya train technicians in present institutions? Yes 73%; No 27%

	1st	2nd	3rd	4th	5th	Median	Rank
15. a.	115	21	4	3	2	1.317	1
b.	11	65	29	22	18	2.800	2
c.	3	17	49	41	35	3.607	4
d.	14	36	33	49	13	3.076	3
e.	2	6	30	30	77	4.200	5
16. a.	7	15	7	17	99	4.283	5
b.	104	24	11	4	2	1.455	1
c.	9	44	40	47	5	2.966	3
d.	6	25	44	45	25	3.400	4
e.	19	37	43	31	15	2.903	2
17. a.	78	50	13	4	0	1.607	4
b.	51	52	29	5	8	2.083	2
c.	4	29	82	27	3	2.972	3
d.	4	3	11	62	65	4.248	5
e.	8	11	10	47	69	4.090	4
18. a.	32	22	28	57	6	2.883	4
b.	56	56	22	8	3	1.938	1
c.	9	45	55	30	6	2.855	3
d.	45	17	36	34	13	2.676	2
e.	4	4	3	15	119	4.662	5

19. Is there need for institutes? Yes 68% No 32%

20. Can Kenya train technicians in present institutions?
Yes 50% No 50%

APPENDIX F

Some Answers to the Open-Ended Question #21

The writer found the answers to the open-ended question to be thought-provoking and some of them very imaginative. A small sample of answers from each of the four groups is listed below. The respondents were asked to:

Briefly assess the chances of success for the new institutes of technology in Kenya.

The institutes are bound to succeed but government intervention is needed in the decision of curriculum to prevent these institutes producing third rate graduates. Tribalism should be minimized to the lowest as much as possible and here too I will say that Regionalism should also be prevented. With government aid the colleges will flourish, but it is now a high time that more emerging colleges were suppressed or made to affiliate themselves to the ones already flourishing.

If the institutes are to be controlled and be financed by the government, they have all the chances of success. That is, if the courses taken in the different colleges or institutes are harmonized there are all the chances of success since Kenya needs technicians in many fields. Failure of success would result if there is duplication of skills learned, in which case it would cause unemployment in the future. The government should help both financially and in providing teachers, so that standards are maintained.

The chances of success of such institutes will depend on how they are run and who controls them. If they are left under the responsibility of the regions where they are built, they will be basically tribalistic and hence political arenas for

some groups. They may reduce the sense of nationhood. The intake will also play a major role if only the sons of the rich and the well-known citizens will be admitted to them this will in fact be a source of crises and dissent from all corners of the country.

These institutes are going to be a total failure unless more thought is put on their organization and planning.

On self-help basis they will lack the capital to run them. They may get built alright. What we lack most in Kenya is not technicians. We lack widespread literacy. We should educate the people generally first.

With proper management of finances I don't see why these institutes of technology should fail. The country needs technicians and therefore enrollment will be available and in excess. The courses themselves would be very valuable to students as they will open the way for them to securing employment.

Institutes of technology haven't got far yet in Kenya. They are just starting. But it is possible that one, two or three are likely to succeed but a great many of them, I'm sure, will fail because there are still some tribal barriers together with lack of funds among the people. But if the Kenya government can assure any chances of 'take over' then I'm sure there will be some reasonable success once they have been started.

While it is not precisely easy to assess the outcome of this phenomenal plunge into joint effort of establishing new institutes of technology, I feel that their chances of success will be a function of such factors as--availability of qualified staff, control and regulation of the curricula, the nature/standard of initial pupillage, and finally the attitude that they will create in the society after producing assessable fruit.

The new institutes of technology are a great good project in our country. However I am not impressed by the number of these institutes which seem to lay their foundations on provincial or district basis. The government, I feel, must get involved so as to arrange for good planning of the institutes. It is better to have a few institutes which are better run with each being assigned to a particular section in our technical weakness. These are very expensive institutes to build and manage. Where can a province or district get all the money from? How is it to arrange for the contractors,

the importing of building materials and the like. The government must come in, or else at first we rejoice while in the long-run we shall have masses of these 'trained technicians' lying in the countryside. So I can only see their success to be in the short run only.

These institutes will, considering the present status, succeed. But if the present move is altered, then the probability is 50-50. On the other hand, some institutes may succeed and other may not, or some will succeed quickly and others will take a long time before they are ready.

The emerging institutes of technology could help in training technicians which are mostly needed in Kenya. The problem is that they are now tending to be tribalistic and also political, hence might not come up as expected.

The chances of success of these institutes will depend very much on the policy taken by the government as regards the administration and upkeep. Further it is vitally important that the students be convinced that education in a university and other institutes of higher learning is not all. They must learn that there is dignity in working with their own hands. Above all the success of the institutes will depend on the capital that is available to begin and keep them up. Here the country may have to resort to loans from outside countries.

The new technical institutes will meet a certain kind of success. In this case by the word 'success', I mean, it will reach a certain stage. To begin with we have very many school leavers who hardly have anything to do immediately after they finish or complete their 'O' levels even 'A' levels. These people have only a certificate of education which doesn't mean much in present day Kenya. Hence these technicals can train students in many fields after which the students can be self-reliant. Moreover, the institutions are not merely a place where students acquire book learning and as such their success is more of a possibility than a failure.

The colleges of technology have very few or modest chances of success. There are too many and built on tribal basis. They have become arenas of tribal animosity. The government does not want to intervene nor has it planned their future. The government does not seem to be interested in students who might come from these colleges. It is unlikely

that the government will be able to support the colleges after they are completed. This will result in reliance on economic aid from other countries, and eventual neo-colonialism!

Most of these institutes are based on political basis and to a certain extent, there is a bit of tribalism in various institutes. So unless, when they start being used, they will be controlled by one central unifying power, for example the central government, some of them might not be successful.

There are quite a number of them. If coordination among them is encouraged so that they don't have to do the same technical subjects i. e. taught here and there, the chance of success is enhanced. They then will help in eliminating the selection of students on tribal or regional basis.

The success of the new institutes of technology in Kenya is very limited. This is so because first of all Kenya doesn't have the skilled manpower and economy to help raise these institutes of technology nor does it have the equipment needed for practical technical work. Again these institutes are being started on some sort of tribal basis, and some tribes don't have enough income yet. It means that every tribe is trying to build one for their own good and not for national development which we are fighting for. So their success is not on the very bright side. Their success needs great thought and plan.

If the curriculum and training is not uniform the colleges will only produce more people who have some form of training but no employment. There is difficulty in deciding on curriculum to be followed. For them to succeed they will need foreign experts as teachers although they may not best train people to meet the needs of Kenya. Kenya is not all that industrialized to need hundreds of technicians in the next few years. On short term basis one is driven to think they will not succeed but it is most likely that such institutes will be useful when Kenya becomes more industrialized.

Most of the institutes are doomed to fail with the present system of the 'bright' men controlling finance-(corruption). Secondly, there is too much tribalistic tendencies in these projects--even where to locate the institutes themselves. One could say these institutes could easily become like the Harambee Secondary Schools when they started. A few will

survive where the leaders organizing the meetings to raise funds are very influential both here and abroad. It will take time for them to stand on a firm footing in this country.

The many mushrooming colleges of technology are more likely to fail than succeed in the end. My reason for this attitude falls largely on the fact that these colleges are the result of jealousy and spirit of competition. No area likes to feel inferior and so when one region starts up its college, the other regions, in this case rival colleges take up pursuit and start their own colleges. It is not often that the jealous attitude leads to success and hence my wonder as to whether these colleges will stand to see success. Again, it seems as if the objectives of these colleges are vague if there are any. They seem to mushroom just for the heck of mushrooming--perhaps its best to wait for a few years and see how well they fare. But again, I think that the election of these colleges was well meant in the beginning--but people got muddled up in the middle. All the same, best wishes on their success. It would be bad if they fail.

APPENDIX G

Text of the Interview with Mr. Dave Williams of the Ministry of Education - Inspectorate Section (Technical)

August 28, 1973

MUTUNGA: Mr. Williams, could you please tell me briefly of the most recent progress and or changes which have taken place in Kenya regarding technical education?

WILLIAMS: In about 1961 the technical secondary schools were doing two-year course. This proved to be inadequate and there was a commission, ILO (International Labor Organization) commission came over here to have a look at the program and they recommended continuation with the two-year program plus a two-year program at the NIVTC (National Industrial Vocational Training Center). However the NIVTC did not have the facilities to handle their side of it so then the ministry of education decided to do a two-year academic course plus a one year practical making it three years in all. So this was effective then from 1965 to about 1972. A lot of these graduates had difficulty when it came to employment. They would go to an employer and he would say what is your standard of education and they would say, Form Three and immediately the employer thought, well, these people have not quite made it or they had not received the full measure. So they had extreme difficulty in getting employment. So then it was decided for the technical secondary schools to do a four-year course and this was implemented with effect from 1972. We previously operated in the City and Guilds Course and it was 155 the Mechanical Engineering, 181 the Electrical Engineering and 375 in Automotives. These examinations were withdrawn and they were replaced by what is called the Basic Engineering Course number 820. This changed the emphasis completely on the examination of technical education. Whereas previously we had a final examination, this 820 consists of three parts of A, B, and C and in each part there are three-faced tests to be carried out. Then

these tests are assessed and the over all assessment is evaluated on the nine-face tests. These tests have been taken over by East African Examinations Council together with the academic examinations. When we were running a three-year course there was no testing of the academic program. So with the effect from 1974 the East African Examination Council will be taking over all the examinations in the technical schools. We will have six subjects:

English language, Mathematics, Kiswahili,
Engineering Science, General Studies and
Technical Drawing.

Each of these will count for one credit and then on the practical side we will have basic engineering theory, and basic engineering practical both counting one credit each. That is the position up to date.

MUTUNGA: So you are saying that the examinations will be taken by East African Examination Council. Will this Council have any dealings with the British examiners?

WILLIAMS: No, none whatsoever. They have been taken over in East Africa and we are working on the curriculum and syllabuses modifying them to the local needs. That means that when the students leave the technical secondary schools they will have sound academic knowledge and good engineering. I might add too that we do, in one school, a basic building course which is a parallel course with engineering.

MUTUNGA: Do you have secretarial courses in the technical schools?

WILLIAMS: Not in the technical schools at the present time. This is carried out in a number of secondary schools. Business education courses are offered in about thirty or forty secondary schools where they teach principles of accounting, commerce, short-hand and type-writing.

MUTUNGA: What exactly Mr. Williams are you going to do to bridge the gap between theory and practical aspects of technical education. Will there be facilities out in the industries for the youngsters to be able to relate theory work to practical?

WILLIAMS: There is one thing in our technical schools and that is a sort of train vocational course and when the students leave us a number of them, actually about three hundred

students per year, are recruited by the NIVTC which acts as an agent for the employers and they then proceed on what is normally a five-year apprenticeship. The students who have completed the technical school successfully are given two-years credit and enter the apprenticeship at the third year and are paid a salary of a third year apprentice. When they are at the NIVTC they start out first of all with a twelve week induction course to get them into a particular standard and then they spend the rest of the time with the employer and then come back to the NIVTC at frequent intervals for theoretical training and eventually come out as fully trained craftsmen.

There is one other source. It may not be possible for some of the small employers to recruit through the NIVTC. They may recruit the apprentice themselves in which case they can sponsor him to the polytechnic and then he can continue his training there while he is working. They have a sandwich course, where one would probably do six weeks on the job, and six weeks at the polytechnic and later it is one day a week at the polytechnic and then one can get further certification there.

The other thing, also at the polytechnic, is that in certain of these mechanical, electrical and building trades they can proceed to a higher national certificates or diplomas and with that they could obtain entrance to the University and do a degree course.

MUTUNGA: Mr. Williams I would now like to ask you some questions regarding the emerging technical institutes in Kenya. I would appreciate it very much if you could give me your honest and frank opinions on the following questions:

Do you see any need for the mushrooming of the technical institutes in Kenya?

WILLIAMS: Yes, I definitely see a need because the educational system as it is structured at the present time has a considerable bias towards academic education. The job opportunities which are rising are not confined to these academic skills. The economy of the country is diversifying in so many directions as you go into industrial area in Nairobi and possibly Kisumu you can see the job opportunities rising in areas which we had not dreamed of or even thought of a number of years ago. So many different products are coming on the market and different

industries. I am sure therefore the range of skills being demanded these days are quite extensive.

MUTUNGA: Very good. The next question will be this: In your view how do you think these technical institutes will be financed?

WILLIAMS: This actually is going to be one of the most intractable problems of the lot. It is possible I think for us to get the finance for capital development either from local or overseas sources but the fees for this structure is going to be an enormous burden upon the local people. In one of the institutes this question was brought up at an early stage on the planning and they looked at it very hard and they could see that the gross operating cost per student, per place, per annum would work out at about six thousand shillings. Obviously this would be too much money for most students to raise. So, what they did was to purchase a coffee farm which is on an adjacent site and the proceeds from that farm will come into the pool and help in reducing the fees. The other way in which they plan to reduce the costs is to get volunteers from overseas in the teaching positions. By these two factors this particular institute has been able to reduce the fees from a gross of three hundred pounds per annum to one hundred and fifty pounds per annum which is a thousand shillings per student per term which is still, I think, far too high for the local person to meet. I have approached this question with them and they are contemplating now purchasing further another farm. This question of finance is really the crux of the whole matter.

MUTUNGA: The next question Mr. Williams has to do with the criteria for admission. Who do you think should be admitted into these new institutes?

WILLIAMS: Well, again this is a very difficult question. I think the level of admission in most of them would be at "O" level (high school graduates) because if they want to move into a higher level of courses then that would be essential particularly if it comes to the solving of unemployment. This will need a person who has fairly good standard of academic education, who can then link it with practical skills. One other thing also is that there is, I think, a great need for people at the supervisory level. I am thinking actually of the building trades because it is possible for them to obtain C.P.E. people (Certificate of

Primary Education), not directly from school because they would of course be too young, but as they get older they are available for employment. This category of people would need people to direct them. A number of these supervisory personnel would of course come from our own technical schools but I don't think our graduates will meet the whole demand.

MUTUNGA: Another question which is somewhat related to that one is about regionalism. I know this is a touchy question in this country. I have talked and listened to a lot of people in this country about it but I would still like your views on it.

Do you think that there should be a quota of admissions to uplift some of the areas where they don't have a fair representation in the institutions of higher learning? Exactly how should the institutes select students in terms of regions or tribes, if you want to use that term?

WILLIAMS: These are Harambee Projects (Self-Help Projects) and as such of course the government does not have any involvement in them; it is the same as in Harambee Schools. Until they are viable institutions then the government does not normally come in to assist them. It seems very unfair really that the poorer districts should be left out, quite wrong really, because until they do get something in there and they do raise the standard of the people in these areas then they will not be able to innovate anything themselves. But with the government policy such as it is no government assistance until it is a viable project.

MUTUNGA: The next question Mr. Williams deals with employment. Will there be enough jobs for the technical institutes graduates? Can you foresee a possibility of saturating the market? An example is the American system where they trained a lot of engineers for Aerospace Industry and now these people are being laid off.

WILLIAMS: I think actually what they should do is that each particular institute which is planned should look at the job opportunities at its own area. Although they will recruit nationally, I do feel that each institute should look at the job opportunities in its own area and then from there decide which courses should be taught.

For example we take the coast and to a certain extent Kisumu and find out that there are certain activities stirred up and such as fishing which need to be generated. We could start with the modern boat building techniques. The second thing, if we could get money from an outside agent, would be to buy small engines for these boats and train our people in the operation and maintenance of these boats. The next thing after we catch the fish from the sea would be marketing and refrigeration.

The other area in which I think there is a good demand is bookkeeping and accountancy. Even at a comparatively low level. A lot of times you hear companies in the developing countries complain about mismanagement but I dare say it is not so much mismanagement as the people being put in the positions where they do not possess certain skills.

The other areas, such as horticulture could be developed. There are vast markets in Europe due to the seasonal factors.

MUTUNGA: Do you think generating more jobs in the local areas would sort of stop the migration of labor to the cities?

WILLIAMS: This is one of the factors which should be looked at very closely. There is also danger when you provide a person with skills which are marketable in urban areas that he will migrate because he thinks he will get a higher salary. Many of these skills as I said before we should look at the job opportunities which exist in the area of the institute and cater for those.

MUTUNGA: Another question which I would like to ask you is more philosophical in terms of how available the higher education is to our people. Will these technical institutes bring higher learning to the lowly folks?

WILLIAMS: I myself would see this as an attempt to raise the standard of living of the people by providing jobs, providing the boost of the economy, bringing money in and this automatically will then involve a demand for higher education. Further education will contribute in the secondary sense to that.

MUTUNGA: The next question will deal with the role of the government as far as these institutes of technology are concerned.

What role should or would the national government play in maintaining the institutes of technology?

WILLIAMS: This is a difficult question for it of course depends on the amount of finance available for this kind of education. My own feeling is that there would have to be teachers in the first instance. Then as the economy develops and the GNP (Gross National Product) increases then they can assess the possibility of taking over certain facets of the expenditures. That would depend entirely upon the growth of the economy.

MUTUNGA: That is my last question and I would like to thank you very kindly for taking time out from your busy schedule to talk with me on my study of the emerging technical institutes in Kenya.

Text of the Interview with Mr. H. F. Mtula - Principal
of the Kenya Polytechnic

August 29, 1973

MUTUNGA: Mr. Mtula, I would like you to tell me very briefly about the Curriculum of the Kenya Polytechnic.

MTULA: We have about ten departments in the Kenya Polytechnics. One of these ten departments is actually a service department and we call it here a general studies department. As a service department it provides general or liberal education to all the students who come to Kenya Polytechnic for any form of technical training. Every student must pass through this department which gives them general education on their own government, parliamentary system, management techniques, reporting, and all aspects of general education that are relevant to their work.

The other department is not quite our department here but we accommodated it here and it is the hotel training school which was started here by the government of Kenya in conjunction with the government of Switzerland to train management personnel for our International Hotels. This department will soon be moving out when the new school is built on a separate site. Then we are left with our eight teaching departments, and again out of these eight teaching departments one is on the way out and that is the technical teacher training department which was started here about five years ago to train teachers for our secondary technical schools. Since its inception some moves have taken place which are now going to lead the establishment of a completely separate technical college for the whole country. So, our own teaching departments here are going to be seven. These are mechanical engineering department, electrical engineering department, science department, business studies department, printing department and institutional management department, and building and civil engineering department. These are our seven teaching departments.

I would like to point out here that even if these new colleges are put up (Harambee Institutes of Technology); we will still retain the functions of the technical teacher training

departments towards our own staff development here so that we will still continue to have eight teaching departments at the Kenya Polytechnic plus the general studies department which is the service department. This is the set up that we have here.

MUTUNGA: Could you please tell me who are the kind of people (students) who come here and how long do they stay in the Kenya Polytechnic?

MTULA: Well, we have all kinds of people coming here in terms of age although in terms of academic standards the majority of our students here are post-secondary students. They come through employers. I would like to point out that right from the time the Polytechnic was started there was an understanding that it would work very closely with industry and this understanding has been maintained so that the actual recruitment of students is done by industry into their own various firms and then the industry apply to us for various courses that they would like these students to come to. This is the general procedure in most of the departments here. In fact mechanical, electrical, building and civil engineering, printing... these are all, so to speak... departments that are confined to sponsored students by industry. There isn't much difference here actually because instead of us going out to recruit students in open market employers recruit students and then they bring them to us for training. The only open departments are the business studies department where they take professional courses in accountancy as well as secretarial courses in short-hand and typing. Here students apply to us directly and pay fees and then they are trained, go out and look for employment and quite a number of them find employment.

The other two departments that I mentioned here: One is Institutional Management. Institutional Management is presently occupied by majority of students who are sponsored by the ministry of education for the two-year diploma course and then they are posted out to various institutions to look after the welfare of students in those particular institutions. The technical teacher training department has also got sponsored students by the government through bursary schemes. Otherwise students in all the other departments are from firms or quasi government departments and some government departments also send students here.

MUTUNGA: Does the Polytechnic certify the students or do you have any outside examiners to give certificates to the graduates?

MTULA: Traditionally we started on a number of City and Guild examinations and these are being now localized into the East African Examination Council so that I would say that we offer courses on three broad fronts now. There are certain courses that we certify here as a Polytechnic. There are also certain courses that are examined by the East African Examination Council and therefore they get the East African Examination Council Certificate, and there are few courses that are still on City and Guild lines and they get the City and Guild certificates. I would also like to mention that in Secretarial courses we still have Pitman's Examinations here, so that we have got external examinations combining East African Examination Council, City and Guilds and other bodies like Pitmans and our own internal examinations here which meet our own local certificates.

MUTUNGA: Well, thank you very much Mr. Mtula for the brief history of the Curriculum of the Kenya Polytechnic. Now I would like to move on to the other part of my study dealing with the institutes which, no doubt you are aware, are developing all over the country. Almost in every region there is one coming up; and this is going to supplement my doctoral study and particularly with the questionnaires which I have passed on to your staff and your students. These will rather be your own remarks and views since you are not in any way a policy-making body here as far as these questions are concerned. So I would like to ask you about six questions and you can give me brief answers as to how you perceive the whole question of technical institutes developing in the country. The first one is rather philosophical and general in a way:

Why the technical institutes? Is there a need in your view for these emerging technical institutes in the country?

MTULA: Mr. Mutunga, this question why technical institutes has popped up from time and again and I have been a little surprised here in Kenya because all sorts of references have been made to these institutes. Some people say mushrooming institutes, some people say this or that and yet to the best of my knowledge development of colleges of technology is obviously a natural trend in quite a number of

countries. Even in the developed countries they have quite a number of technical colleges or colleges of technology and yet when it comes to an effort we have been making here in Kenya to have some of these colleges established people seem to be asking why!, why!, as if we are in a completely new world which is unknown to everybody and this really surprises me! I think there is a need for these colleges like it has been experienced in quite a number of developed countries. We are moving into a rapidly developing technological world and we in Kenya cannot be kept behind and so we must also prepare. Whereas our preparation might be at the grass roots right now I cannot see a reason why people should be asking why! Why colleges?.. (laughter) and as a Kenyan you surprise me when you ask why colleges!

MUTUNGA: It is a strange phenomenon that is puzzling a lot of people that all of a sudden the colleges are being built. Maybe the question should be the dynamics behind them or the grass roots preparation as you mentioned. It is quite a phenomenon.

MTULA: I guess what I would agree with you here is that whereas in other countries it has been the responsibility of the various governments to provide the facilities, here in Kenya I think the public has overtaken the government in trying to lead the way for the government and at least to point out the necessity for these institutes and the government is no doubt appreciative of this move. This is a very encouraging support. The only difference between Kenya and another country is that this movement has started from Harambee* spirit of the public instead of the government coming up and telling people we are putting up colleges. The public is coming up and saying we want this and they are contributing towards these colleges.

MUTUNGA: The next question that follows that one is the question of financing. How in your view do you think the technical institutes will be financed? I know this is a very difficult question but I am curious to know how you would go about suggesting or even analyzing the financing of the technical institutes in the country?

*Self-help concept.

MTULA: Well, as you know already quite a number of these institutes have massive organizations behind them and they have various ways of collecting their finances. In fact some of them have set very high targets for these particular institutes. You will agree with me that a million pounds is quite a lot of money and that started in a modest scale this should go quite a long way toward providing equipment initially and the remaining problem will be on the recurrent costs of running these particular institutes.

Of course any assistance perhaps would be welcome to these institutes from any organizations and any bodies. At present it depends on members contributing. These members also have various activities throughout the year that are directed towards raising funds for these particular organizations. There is no doubt that any external aid would be welcome but a point that has to be made clear here is that all external aids to any vunction or bodies in Kenya must be channeled through the Kenya government. I have no doubt that if any donors approach the government with any intention to assist in these particular institutes this would be most welcome so that in the areas of the recurrent costs I think a lot of effort would still have to be directed towards raising funds. The obvious fact is that people get to a point of no return when they have contributed and they feel that they cannot contribute any more and I can only hope that people will not get to that point before some sort of policy decision is made by the government and a declaration is made as to which areas the government will come in to assist these particular institutions.

MUTUNGA: O. K., very good, lets move on to the next question which has to do with the criteria for admission of the students. Who should be admitted to the new institutes? Should there be a quota system, maybe on regional basis?

MTULA: I think right at the moment it is very difficult to decide, I mean to philosophize as to who should be admitted into these particular colleges. As you already know these are colleges that are built by efforts originating locally but spreading to national level and it would really be a matter for these particular colleges to decide who they are going to admit and the form these admissions are going to take. But I would like to think that even a much more important question at this particular stage is the place of these colleges in our own educational system. It is only when

this question is decided as a matter of national policy so that these colleges are integrated within our own educational structure, particularly technical educational system that one could probably come up with a clear picture of at what level they should admit the students and what kind of students they should admit. At that time of course when there is a lot of assistance coming from the government or from national organizations one would also venture to suggest the possibility of giving the institutes national outlook instead of giving them local outlook which is going to be the case when more of the effort directed toward maintaining them is generated locally. So, when it is determined that these institutes are going to be either post-secondary then obviously they will admit post-secondary students or when it is decided that within our educational structure they are fitted somewhere between senior and junior secondary educational system then that will determine the kind of students they should admit.

MUTUNGA:

The next question which is rather disturbing to many people even in many other countries is the question of employment. I am reminded of a case in the United States where they put a lot of effort in training engineers for defense and aircraft industry and all of a sudden many of these scientists are being laid off because there are no jobs since many programs have been discontinued and so the country has a lot of trained people without jobs. I am just wondering if there is any way to look in the future. Do you think it is possible to saturate the market, that is to have too many technicians without jobs?

MTULA:

This is the point which has been raised by a number of people. In a way I think it is genuine but as far as we are concerned here Mr. Mutunga, I think that the case of the United States is an extreme one just like the case of other developed countries. At present we are so short of manpower in various technical fields which are already in operation, that even filling that shortage alone requires some deliberate kind of crash program for additional institutes to provide manpower for these shortages. There is also another area which people generally do not consider here and that is the area that generates further economic development. I mean when we talk of employment or the manpower surveys that have taken place we are only probably considering the existing industries but we are not taking into account the fact that these kinds of training

can generate development of some other unseen or unpredicted industries which are likely to add the growth of the economy in general. So, for the moment without even arguing for the benefit of education for its own sake, I would like to think that this point of fear about employment should not be pushed too much for it only helps to discourage the people who are really doing wonderful work. Let us get these colleges in operation. Let them produce the people, let them fill the market like the United States and so on and let us at that stage talk about what else we can do but not at this state when the people are not just there!

MUTUNGA: The next question deals with the whole concept of higher educational structure in the country. Do you think that these technical institutes are going to make higher education easily accessible to the common man? In other words are we liberalizing our education to the point where we can make it available to more people than ever before?

MTULA: I like this phrase, "common man"! (laughter) I don't quite understand what you mean! Well, to the best of my knowledge education in Kenya has been available to any capable person whether he is common or uncommon. I don't know the opposite of the phrase "common man." But I know that our education here has not been restricted to any section of the community. There is a lot of talk about certain privileged classes and so on but I don't think examinations have got any regard for a class or people, examinations are examinations.

Our government has done quite a lot to assist even people who cannot manage financially to get their children to schools, through bursary systems and I would like to think therefore that education has been available to anybody in Kenya who is interested in getting education. As to making it more available to more people that is certainly yes. The more institutions you have the more people. Mark you I am now using the word people in general but not identifying some as being common or uncommon! So these institutes will definitely offer more facilities to more people. At present we have only two polytechnics in the country and these two institutions cannot even meet the needs of the existing firms and industries and I would like to imagine that the more institutions we have the more people will have the chance to benefit from education.

MUTUNGA: Well, that is encouraging to hear. The last question Mr. Mtula is dealing with the role of the government. What role should or will the Kenya government play in maintaining the institutes of technology?

MTULA: I am not in a position to talk about the role of the government or even what the government should be doing because this is a policy matter where I cannot claim any right to express my opinion. But as a citizen and a somebody who is an educationist I could only give my personal views on what I probably think the government should be doing and I am aware the government is already thinking along the same lines in quite a number of ways. I think the immediate thing that we need done is to have a Central Coordinating Body to look into the activities of all these colleges so that:

- (a) the body can assist in their planning and
- (b) the body can also assist in setting target for them, and this target will mean widely the sort of quality of education they are going to provide and also the sort of final qualification they are going to get. For there is always that danger that if you have so many of these institutions following whatever courses they would like to follow you never know what kind of product and quality they are likely to produce. But if they were given guidance and some sort of level to which they must aim you might be able to at least maintain some standard.

The government must now determine where these institutes are going to fit within the general educational structure of the country. In my opinion this is very important, even more important than starting by setting the standards and setting the targets and so on, because it is only when they know where they fit in that this will automatically control at what level they are going to recruit and how far they are going to go with their training schemes. At what level, would naturally mean that they would know what the feeders into the colleges are going to be and how high they would also know where or what other openings are there for their graduates for further education. Once this is determined, and I feel this is extremely important, the next step will be of course direct government assistance where it will be done. I cannot see the government running away from this in the future because as I said colleges and institutes of technology are natural developments in all developed countries.

I cannot imagine that Kenya will be exceptional and that the Kenya government will not be in a position to see to the needs of these colleges and include them in her budgetary system.

* MUTUNGA: Thank you very much Mr. Mtula for the time you have allowed me to interview you and for sharing your ideas of the emerging institutes of technology with me.

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