

Other suggestions were made regarding the positioning of certain facilities e.g. lavatories, showers, laundry, Dispensary, drying places, Post office, notice boards, clock system, furniture, fire fighting equipment etc. and all will be incorporated in the revised Master Plan.

5. STAFF HOUSES:

Although the grant did not include staff houses, the Survey Mission was strongly requested to make provision for them within the grant. Without staff houses the attrition rate would be too high. The college which will be situated far from the main towns which have rentable houses, will not attract qualified staff in the absence of staff houses. The Survey Mission agreed to consider this issue and asked for a written request justifying the need for staff houses. The layout siting of these houses would be left to Kenya.

The Code of Regulation for Government Houses was provided. It was then agreed that staff houses would be allocated by category as follows:

- A- Principal's house
- C- Vice Principal, all teaching staff, Technicians.
- E&F- Junior Staff e.g. artisans, clerical officers and copytypists.

The provision of staff houses would be covered in the agreement between the Minister for Finance and the Japanese Embassy and will also spell out the responsibility of each government. The meeting also agreed that the number of houses required would be provided. Above all the Survey Mission was requested to consider this issue seriously since this was a problematic area. Any saving from the grant aid should be directed to staff housing as a very worthwhile investment.

6. DEMARICATION OF RESPONSIBILITY:

It was agreed that the Government of Kenya would be responsible for the provision of the following facilities.

(a) Site Works:

The Soil Survey had been carried out and the soil conservation layout of the entire farm would follow. The cost of this topographical survey would be provided. The Soil Survey Team was also asked to locate 10 hectares of good soil land for horticulture since most of the soil of the Demonstration farm was poor. The levelling of the site would only be clarified after the Master Plan was revised and agreed upon by the architects of the two sides. The Survey Mission was requested to define precisely Government of Kenya responsibility.

(b) Approach Road:

An all weather road would be built and the Road Branch of the Ministry of Works would start immediately once the submission sheets were ready.

(c) Water Supply:

This would be discussed later. Immediate action would be taken so that water would be available before construction began. The meeting was informed that the reservoir had an excess capacity but if there was excessive demand, another one would be set up under the grant aid.

The Ministry of Works Architect reported later that water for construction would come from a borehole. This was later confirmed by engineers from Ministry of Water Development who assured the meeting that water for construction would be available. His Excellency, the President would be kindly requested to allow for the use of water from his existing

borehole pending the drilling of another two boreholes. Construction would require only one hour pumping. However the cost of reducing the high concentration of fluoride in this water would be investigated. It was also suggested that water for the farm would be pumped from the river because coffee pollution would pose no problem. Within the campus, individual meters for each house would be installed by the contractor.

(d) Electricity:

The meeting was informed that, the E.A.P. & L. Co. require complete loading of each room and the company works out its distribution up to the meter and would have freedom to use any method of distribution. Once the Master Plan was provided to the said company, it would give its quotation for payment. The cost of installation up to the meter would be met by Government of Kenya while distribution within the campus would be covered by the grant aid. Each individual house will have its separate meter and this will also apply to the Tuition Complex.

(e) Telephone:

The Tuition area would have five lines and E.A.P. & T. Co. would require the Master Plan to check on the location of these five lines. The Company would also like to know the number of academic staff in order to establish the demand. The Company will lay its cables up to the distribution box, the portion which will be paid by the Government of Kenya, while the internal distribution will be covered by the grant aid.

7. DRAINAGE:

Drainage raised problems because location of some building was at the lowest points. It was felt that pumping sewage to a higher level would be too costly. The question of drainage was postponed for further detailed discussion between architects of

the two sides. It was also agreed that demarcation of responsibility between the two sides should be sorted out later. The total cost of drainage would be worked out and then these costs would be apportioned between the two governments. The oxydation Ponds drawings would be ready by March 1979.

8. WORKSHOPS:

During the discussions it was agreed that workshops will be shared between the two faculties, agriculture and engineering. Slight changes in the location and positioning of workshops were suggested and would be provided for in the revised Master Plan. The proposed equipment list for all departments would be compiled and handed to the architects of the Survey Mission. However specification of the equipment and costs would be provided later. It was suggested however that maintenance workshops should be separated from the tuition block. Other facilities, for instance, insinerator, lavatories, conference room, Assembly Hall and laboratories were discussed and suggestions made would be incorporated in the revised Master Plan.

9. APPOINTMENT OF CONSULTANTS:

It was agreed that the appointment of consultants would be clarified in the Consultant Agreement between the two Governments. A Draft Consultant Agreement was later discussed and agreed upon. It would be signed between the Ministry of Works for the Government of Kenya and Kume Architects and Engineers. It covered the method of payment to the consultants and the procedure of selecting a contractor would be agreed upon by the two governments after the exchange of note. Two methods of selection were suggested, one through tendering and the other through picking a contractor and negotiating the rates of payment directly with him. Due to the time constraint, the latter approach was considered faster to enable construction to start as scheduled. The meeting also

agreed that the Government of Kenya will own the copyright for drawings, certify that the work done was satisfactory and send Architects to Japan to vet for the drawings because the sketches would have to be approved by the Chief Architect on behalf of the Government of Kenya. The Survey Mission pointed out that for the engagement of the contractor, the standard Contract Agreement of the Government of Japan would be used and this was acceptable to the Government of Kenya.

10. TRAINING OF TEACHING STAFF:

The training of one year as shown in the implementation schedule was deemed too short and after discussion it was agreed that the training period would be amended to provide for a longer period. It was also agreed that due to high attrition rates, for every one teaching staff required three would be trained. An amendment in the agreed minutes of March 1978 provided for three Heads of Departments in the Faculty of Agriculture. The number of other teaching and non-teaching staff would remain unaltered. The Survey Mission would also be provided with the definition of duties of Senior Assistant Lecturers and Demonstrators, and also with copies of the TSC Act, TSC Code of Regulations and the salary structure. The meeting was also informed that the college would be granted a charter through the Higher Education Bill which was already under Cabinet discussion.

It was suggested during the discussions that Heads of Faculties should be appointed earlier and lecturers should also be employed before the college opens. The Ministry of Education would draw the training chart and recruitment of key people. The issue as to who the Chief Adviser would report was deferred for further discussion and clarification.

11. CURRICULUM:

The existing curriculum in similar institutions would be used until revision is finalised by the time the college opens.

Curriculum which does not exist now for new courses will also be prepared. The Survey Mission would be provided with a whole set of existing curriculum to enable the compilation of the required equipment.

12. STUDENTS:

Students would be drawn from E.A.C.E. leavers and the minimum qualifications would be specified. A copy of the 1978 career form was handed to the Survey Mission and it was agreed that the college should be included. The Government will subsidize the students and the industrial levy will also be used for the same purpose. However students will not be given allowances as in other similar institutions e.g. Egerton because they will not be government sponsored. Further discussion on this issue will be held between the Ministries of Agriculture and Education. Possibilities of providing sponsors will also be explored.

13. KINDERGARTEN:

As most of the staff will be having children, a nursery school will of necessity be provided in the campus. The responsibility of building one will be discussed later.

14. END OF MEETINGS:

The meetings ended on 21st August, 1978 but most of the information gathered by some of the members of the Survey Mission after visiting various institutions would be included in the agreed memorandum. The Survey Mission had suggested change from "agreed minutes" to memorandum.

Signed.....

J.H. WAIRAGU

S.D.S. Ministry of Education

Signed.....

Prof. T. Uenosono

Head of Mission and Professor
of Electronic Engineering,
University of Kyoto.

8 モンバサポリテク及びモンバサ港における調査概要

JAPANESE DELEGATION ON JOMO KENYATTA COLLEGE OF
AGRICULTURE AND TECHNOLOGY

Report of the visit by Civil Engineering Group to Mombasa
Polytechnic on 18th August, 1978 and Kenya Ports Authority on
19th August, 1978:

The delegation included the following: -

Prof. Dr. Uenosono	- Leader of the delegation
Prof. Dr. Nakagawa	- Member, Civil Engineer
Mr. Ogiwara	- Member, JICA
Mr. M. M. Nganga	- Official Escort

1. The purpose of the visit was two-fold.
 - i. To gain more insight of Technical Education in Kenya.
 - ii. To inspect the Ports Authority handling facilities in order for the delegation to be satisfied that the goods for JKCAT Project will be handled without problem.
- 1.1 The delegation left Nairobi on 18th August, 1978 on flight KQ 573 at 10.00 hours. On arrival at Mombasa Airport the delegation was met by Mr. P. King'ori, Principal, Mombasa Polytechnic.
- 1.1.1 We arrived at Mombasa Polytechnic at about 1130 hours and had a brief discussion in Principal's office lasting about half an hour. The Principal, accompanied by members of staff, Mr. Punnoose and Mr. Kaseme, conducted a tour of Polytechnic facilities. The delegation visited library, catering service facilities and Building

and Civil Engineering facilities. At 1300 hours we adjourned for lunch.

- 1.2 The delegation resumed the conducted tour of Polytechnic's other remaining facilities at 1430 hours. We visited Mechanical and Electrical Engineering facilities. The tour continued until 1530 hours when we returned to Principal's office for further discussion.
- 1.3 In all, the delegation observed that Mombasa Polytechnic is under extensive physical expansion. The delegation was informed that this expansion is financed by West German Government. In addition to the physical expansion and development, the government of West Germany is also providing facilities for further training of the Mombasa Polytechnic Staff.
 - 1.3.1 The Principal emphasised that, training of staff is very essential for the whole Mombasa Polytechnic development. He advised that every effort should be made to ensure that training component is included in the programme of Jomo Kenyatta College of Agriculture and Technology. This training should start immediately to prepare staff ready to start work when the Buildings are completed.
 - 1.3.2 The Japanese delegation wanted to know the difference between Ordinary Diploma and Technician Part III offered at Mombasa Polytechnic. The delegation was informed that Mombasa and Kenya Polytechnic offer the same course, use the same syllabus and students take the same examination. There is a close liaison between the two Polytechnics. Therefore

the standard is exactly the same. The explanation advanced by the Kenya Polytechnic on this matter equally apply for Mombasa Polytechnic.

- 1.3.3 The delegation also wanted to know what is the salary or wages for Ordinary Diploma holder and Technician Part II and Part III certificate holders. Will the graduate of the new college get the same salary?

It was explained that, under present scheme of service, Ordinary Diploma holders and Technician Part II certificate holders start at the bottom of Job Group G. Technician Part III certificate holders start at the bottom of Job Group H. They were shown a copy of Ndegwa Commission report which explains the salary for various job groups for different cadres. After further exchange of views, the delegation requested that they be provided with:-

- i. The Scheme of Service which explains salary scale and terms of service for various job groups.
- ii. The Technician apprentice scheme pamphlet from Directorate of Industrial Training to show them how the Technician training is carried out. The meeting closed at 1700 hours.

- 1.3.4 Prof. Dr. Uenosono left by air at 2100 hours for Nairobi. The other two members were left behind so that they may visit Kenya Ports Authority on Saturday 19th August, 1978.

2. REPORT OF THE VISIT TO THE KENYA PORTS AUTHORITY MOMBASA ON SATURDAY 19TH AUGUST, 1978

- 2.1 The purpose of this visit was to find out information related to

clearing of machines and equipment when they start arriving from Japan. The other aspect of this visit was to inspect the ports facility so as to satisfy themselves that the port is capable of handling heavy machinery including containers.

2.1.1 The Principal, Mombasa Polytechnic introduced the delegation to the Managing Director of the Kenya Ports Authority, Mr. Gituma. He welcomed the delegation and said they should feel free to ask any question they wished to know in relation to cargo handling.

Mr. Ng'ang'a explained that, this is a part of Japanese delegation who are in Kenya in a 3rd survey mission. The purpose of this mission is to survey all the possible ways which would facilitate the completion of Jomo Kenyatta College of Agriculture and Technology. In particular the delegation would like to see what facilities available for cargo handling and clearing in the port.

2.1.2 The Director in his reply explained among other things that:-

- i. The Port operates on commercial principles and therefore goods are removed from the ship and placed in the carrier of the customers choice.
- ii. The Ports Authority will charge handling service charges.
- iii. It is customers' responsibility to clear all the customs formalities to facilitate faster clearing of the goods from the port.
- iv. If the goods are not cleared and the Port Authority stores them, storage charges will be required. At this point,

the Public Relations Officer took over to conduct the delegation to the port.

2.2 The delegation toured the ports and saw that facilities exist for both bulk handling and "container" handling. After the tour, the delegation was satisfied that there will be no problem in handling the equipment in the port.

There was no need now to visit YNK Shipping line office as previously proposed.

2.2.1 It was felt however that some clarification regarding custom duties, and sales tax is required to facilitate faster clearance of machines and equipment when they start arriving from Japan. This clarification should be given top priority as equipment for the construction of the project should start early next year and in any case before any construction work commences.

3. In conclusion, many thanks to Mr. P. King'ori, Principal, Mombasa Polytechnic who had made such wonderful arrangement and also for accompanying the delegation each day they were in Mombasa and stayed with them until they retired to their hotel.

3.1 Thanks should also be extended to the Managing Director of Kenya Ports Authority for his kind welcome of the delegation and for his kind permission for the delegation to visit the Ports facilities.

3.2 The delegation returned to Nairobi on Sunday 20th August, 1978 on flight No. KQ 774 and arrived in Nairobi at 1215 hours.

Prepared by M. M. Ng'ang'a

21. 8. 78 /

9. AGREED MINUTES (18th March, 1978)

AGREED MINUTES OF DISCUSSION ON THE JOMO KENYATTA
COLLEGE OF AGRICULTURE AND TECHNOLOGY BETWEEN
THE GOVERNMENT OF KENYA WORKING GROUP AND THE
PRELIMINARY SURVEY TEAM DISPATCHED TO KENYA BY THE
GOVERNMENT OF JAPAN

The preliminary Survey Team on the Jomo Kenyatta College of Agriculture and Technology was dispatched to Kenya from 10th to 18th March, 1978 by the Government of Japan with a view to discussing the various points related to the construction of the said College with the representatives of the Government of Kenya. The Japanese Team was headed by Prof. C. Uenosono, Kyoto University, whereas the Kenyan team was headed by Mr. J. H. Wairagu, Deputy Secretary, Ministry of Education. Having completed a series of meetings and site visits, both sides agreed on the following points:-

- I. In order to facilitate the construction of the College, the Government of Kenya has established the Kenyatta College Implementation Committee. The Committee will be responsible for the co-ordination of actions of the organs within the Government of Kenya as well as liaison on behalf of the Government of Kenya, with the Government of Japan, through the Embassy of Japan in Kenya. The Committee will be composed of:-

1. Mr. J. H. Wairagu - Chairman, Deputy Secretary
Ministry of Education
2. Mr. P. W. Muthoka - Under Secretary,
Ministry of Education
3. Mr. E. A. Wangai - Senior Education Officer,
Technical Education,
Ministry of Education
(Alternate Vice-Chairman)
4. Mr. S. Ndirangu - Education Officer -
Planning Unit, Ministry
of Education
5. Mr. E. A. A. Luchemo - Education Officer, Facilities
Unit Ministry of Education
6. Mr. Mbiyu Kariuki - Education Officer, Technical
Assistance Unit, Ministry of
Education

7. Mr. G. M. Ndotto - Assistant Secretary, External Aid Division, Ministry of Finance and Planning
8. Mr. P. Kanyue - Head of Education Group, Ministry of Works
9. Mr. G. O. Ogola - Manpower Development Officer, Ministry of Agriculture
10. Dr. P. T. Obwaka - Principal, Egerton College
11. Mr. D. B. Shah - Head of Electrical Engineering Department, Kenya Polytechnic
12. Mr. W. Kirkwood - Head of Mechanical Engineering Department, Kenya Polytechnic
13. Mr. M. M. Nganga - Head of Building & Civil Engineering Department, Kenya Polytechnic
14. Miss M. W. Mundara - Head of Institutional Management, Kenya Polytechnic
15. Interested Parties

2. The Government of Kenya will take necessary measures to enable the Government of Japan to initiate steps to construct the College. The College site has already been offered by H. E. Mzee Jomo Kenyatta, the President of the Republic of Kenya for the sole use of the College. The site has an area of about 200 hectares, and is located at Juja in Gatundu area. The Government of Kenya will ensure the free access to the site by the people concerned with this project from March, 1978. The Government of Kenya will complete and provide the results of the topographical survey and site investigation* to the Government of Japan by the end of June, 1978. The necessary levelling and clearing of the site should be completed by November, 1978 so that the construction works can be started from December, 1978.

3. The Government of Japan will consider the Master Plan⁺ of the

FOOT NOTE

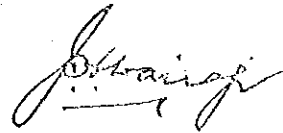
1. *Site investigation includes soil tests surveying of physical features of the site, available services, related existing infrastructure and the environmental conditions.
2. ⁺Master plan implies both academic and physical development plan.

College and financing the construction and equipment of such parts of the plan as will be agreed between the two governments.

4. The organisation of the College will be as shown in Appendix A.
5. The Government of Kenya will consider sponsorship system(s) for the students of the College in a forward looking manner so that the maximum use of the College facilities as well as its teaching staff may be attained.
6. The education period and certificate level of specific courses of the College will be as shown in Appendix B.
7. The number of students, teachers and staff in terms of courses and Departments of the College will be as shown in Appendix C.
8. The utilisation plan of the site will be as attached hereto.
9. As a matter of principle, training of lecturers and staff is crucial to the whole project and in this connection prompt measures should be considered by both Governments.

上之園親佐

.....
C. UENOSONO,
PROFESSOR OF ELECTRICAL
ENGINEERING,
KYOTO UNIVERSITY,
LEADER OF SURVEY TEAM
OF THE GOVERNMENT
OF JAPAN



.....
J. H. WAIRAGU,
DEPUTY SECRETARY,
MINISTRY OF EDUCATION,
LEADER OF KENYAN TEAM
FOR THE GOVERNMENT
OF KENYA

18th March, 1978

APPENDIX B

As already illustrated in Appendix A, the College will initially have two faculties with various Departments as shown below

Faculty	Departments/Courses offered	Duration in years	Certificate/Diploma	
1. Faculty of Agriculture	A. Department of Horticulture	3	Diploma in Horticulture	
	B. Department of Agricultural Engineering	3	Diploma in Agricultural Engineering	
	C. Department of Food Processing	4	Diploma in Food Processing	
2. Faculty of Engineering	A. Mechanical Engineering Department			
	i) Agricultural Machinery Engineering	4	) Technician Certificate
	ii) Motor Vehicle Engineering	4		
	iii) Construction Plant	4		
) Part II & III by East African Examinations Council
	B. Building & Civil Engineering Department			
	i) Irrigation Engineering	4	) Technician Certificate
	ii) Construction Technician	4		
	iii) Architectural Technician	4		
) Part II & III by East African Examinations Council
	C. Electrical Engineering Department			
	i) Electrical Engineering	4 $\frac{1}{4}$	) Technician Certificate
ii) Electronic Engineering	4 $\frac{1}{4}$	) Part II & III by East African Examinations Council	

As illustrated in the organisation chart Appendix A, the College will initially have two faculties with various Departments as shown below

1. FACULTY OF AGRICULTURE

Department	Course Offered	No. of Technicians Required	No. of Lecturers Required	No. of Students	Secretary and Typist	Subordinate Staff
A) Department of Horticulture	Horticulture	5	1* 7	90	1+3	3
B) Department of Agricultural Engineering	Agricultural Engineering	7	9	108		
C) Department of Food Processing	Food Processing	6	9	80		1
D) Demonstration Farm +		2 drivers 4 artisans			1	30

- FOOT NOTES

- 1) 1* Means one Dean of Faculty
- 2) 1+ Means one Head of Department
- 3) + Means Service Department and Service Staff

2. FACULTY OF ENGINEERING

Department	Courses Offered	No. of Technicians Required	No. of Lecturers required	No. of Students	Secretary and Typist	Subordinate Staff
A) Mechanical Engineering Department	i) Agricultural Machinery Engineering	3	I* I+		1 1	3
	ii) Motor Vehicle Engineering	3	6	48		
	iii) Construction Plant	3	6	52	1	
B) Building Engineering Department	i) Irrigation Engineering	3	I+ 8	64	1	4
	ii) Construction Technician	2	8	64	1	
	iii) Architectural Technician	1	6	48		
C) Electrical Engineering Department	i) Electrical Engineering	3	I+ 8	60	1	2
	ii) Electronic Engineering	2	7	60		

FOOT NOTES I) I* Means one Dean of Faculty
I+ Means one Head of Department

10. PROJECT BRIEF (1977)

T H E
J O M O K E N Y A T T A T E C H N I C A L
C O L L E G E
P R O J E C T B R I E F

Ministry of Education
NAIROBI

1977

GENERAL

I. Introduction :

The achievements scored by the people of Kenya in all spheres of human endeavour and development have been recognized around the world as truly outstanding. Kenya's political freedom and stability are unique on the Continent of Africa.

Since Independence in 1963, few development objectives have had higher priority rating, among the people of Kenya, than the expansion and improvement of education and training. From the outset, education had two vital roles to play in the development of the nation. First, it was to provide the knowledge and skills required to meet the expanding needs of a relatively sophisticated economy and relieve Kenya's dependence on expatriate manpower as quickly as possible. Second, the Kenya society saw basic education as an important end in itself and as a powerful force for effecting social change, promoting national unity, and enriching the quality of life of the people. These national goals have been shared by everybody largely because the people have seen education as the key to individual achievement and in particular as the major qualification for a well paid job.

By the late 1960s, the severe Kenyan manpower shortages had been largely dealt with especially in the public sector. It was also evident that a strong attitude had been established that formal education automatically led to high wage-employment in the modern urbanised sector of the economy - an attitude that unfortunately has now led to an increasing level of unemployment while there are still areas that require technical and professional skills.

The powerful social and political support for education, however, has led to allocation of a large and growing proportion of the resources that are available, to education and has stimulated the extraordinary level of community commitment reflected in the 'Harambee' self-help movement. Kenya's success with locally supported 'Harambee' schools that receive little or no Government aid is unmatched by any other African country. The spirit of 'harambee' has permanently and firmly been established and cannot be dimmed.

Thus, the Kenya education and training sector, responding to heavy social demand, has developed rapidly since independence: primary school enrolment has increased from 892,000 in 1963 to 3,000,000 in 1977 - a growth of 236.3% in 14 years; secondary school enrolment has increased tenfold from 30,100 in 1963 to over 300,000 in 1977 - a growth of 896.7%.

Many factors have contributed to Kenya's phenomenal success.

Principal among these is the wise leadership of His Excellency the President Mzee Jomo Kenyatta; the pragmatic approach to problems adopted by his Government which has consistently refused to opt for easy and short-sighted solutions - and the ethic of hard work and self-help demonstrated by Kenyans in all their development efforts.

As explained earlier, the great strides that have been made in the field of academic education have, in themselves, bred an enormous problem of contradiction with serious implication for the country. On one hand the problem of joblessness is growing while on the other the country is experiencing a serious shortage of skilled and professional manpower. Thousands of academically qualified primary and secondary school pupils continue to leave school without any employable skills. Their chances of attaining gainful employment or self-employment are virtually non-existent.

Kenya has only nine secondary technical schools for boys and two Polytechnic schools. The latter offer business studies, building and civil engineering, mechanical and electrical engineering, printing, accountancy, institutional management and general studies at technician level. There is one Agricultural College and three Agricultural Institutes offering courses geared to production of agricultural technicians and extension workers. There is a faculty of agriculture at the University of Nairobi for professional agriculturists which is due for expansion soon. But the greatest need to-day is for qualified technicians in agriculture for rapid development of agriculture - the prime mover of Kenya's economy.

Kenya has now evaluated its present education system, defined a new set of educational goals and formulated a specific programme of action for achieving those goals. Chief among the reforms to be instituted almost immediately is the complete change of the curriculum inherited from the colonial era which was prominently academic and scholarly. The new curriculum will be practical-orientated, with emphasis on (a) craft, technical and vocational training, (b) exposure to productive labour, (c) mathematical and scientific skills.

From the foregoing description of the educational background, the concern of Kenya people for the future of the products of their education system cannot be overemphasized. It is precisely because of shortage of technically skilled manpower in the midst of unemployable but academically qualified youth, that support is now sought for the establishment of the proposed JOMO KENYATTA TECHNICAL COLLEGE.

2. Objectives of the College:

- a) To provide young Kenyans with technical skills and abilities necessary in making them useful citizens;
- b) To prepare young Kenyans for productive employment or self-employment especially in the rural areas;
- c) To train young Kenyans to fill the manpower gaps and to ensure rapid development of the national economy;
- d) To re-orientate the attitude of youths of Kenya towards productive manual labour which is not only honourable but very rewarding.

3. Priority Status of the College Within the Education Sector:

The Kenya Development Plan 1974-78 makes provisions for major advances in education and in particular, practical education. Paragraph 3.40 of the Plan states: "The education system will be oriented more towards technical and vocational training in the kinds of employment that are in demand." This College will, in a significant way, contribute towards realization of the objectives of the Plan. In addition, the National Committee on Educational Objectives and Policies (N. C. E. O. P.) has now produced a Report which, inter alia, forcefully emphasises the need for practical education and skill training. It recommends, among other things -

- a) the technicalisation of the general secondary school curriculum through the application of vocational criteria by introduction of such subjects as technical drawing, engineering sciences, agricultural sciences and economics into the programmes of all secondary schools;
- b) the removal of the demarcation between secondary academic and secondary technical education and to make secondary education increasingly scientific, prevocational and craft-orientated;
- c) the re-assessment of the industrial and technical education curriculum in secondary and high schools with a view to converting these schools into post-school technical training system;
- d) the encouragement and making provision for planned expansion of the village polytechnics programme.

It is, therefore, clearly evident that financial and manpower constraints are the only factors that will inhibit the fulfillment

of the objectives set by the Development Plan and the N. C. E. O. P. A schedule is enclosed as an appendix to this Brief showing the additional requirements and supply of trained manpower during the period 1972-1978 and the resultant deficit in 1978. The careers shown are only those that will be catered for, hopefully, in the proposed college.

4. The Courses to be Offered:

The College will offer the following courses:-

a) Agriculture -

- i) Crop Production including Horticulture
- ii) Animal Production
- iii) Farm Management and Agricultural Extension
- iv) Agricultural Mechanics with emphasis on Irrigation Systems
- v) Home Economics
- vi) Food Processing - blanching, drying, pasteurising, compression, solvent extraction, pickling, canning, freezing etc.

b) Mechanical Engineering -

- i) Motor Vehicle Engineering
- ii) Agricultural Engineering
- iii) Construction Plant Engineering

c) Electrical Engineering -

- i) Electrical Craft level
- ii) Electronic Craft level
- iii) Electrical Installation Technician level
- iv) Electronic Technician level

d) Civil Engineering -

- i) Construction Technician
- ii) Carpentry and Joinery
- iii) Plumbing & Pipe fitting

(NB: In future, as the College expands, more courses could be mounted to cover cabinet making, wood working machines, masonry, concrete technology, highway engineering, painting and decorating, structural design, draughting (architectural), land surveying, plastering, etc.)

5. Student Enrolment and Minimum Entry Requirement:

It is proposed that the College should have a student population of 720 distributed as follows:-

a) Agricultural & Food Processing Courses	.....	300
b) Mechanical Engineering Courses	.....	150
c) Electrical Engineering Courses	.....	120
d) Civil Engineering Courses	.....	150
		<u>720</u>
		=====

The minimum entry requirement for all courses will be possession of an East African Certificate of Education (EACE) with Credits in Mathematics and Science Subjects.

All students in Engineering Departments will undergo a 4-year training course through two phases without a break, namely, craft training then technician training. This is essential because practically all the entrants will have received little or no training in crafts or pre-vocational skills while at secondary schools. The courses in Agricultural Department will be geared to producing Agricultural Technical Assistants after two years.

6. Staff Requirements:

There will be a minimum of 42 teachers and 28 workshop/laboratory demonstrators arrived at as follows:-

<u>Department</u>	<u>Course</u>	<u>Enrolment</u>	<u>No. of classes</u>	<u>No. of Teachers</u>	<u>No. of Demonstrators</u>
<u>Agriculture</u>	Crop Production	50	2	3	2
	Animal Production	50	2	3	2
	Farm Management	50	2	3	2
	Agricultural Mechanics	25	1	2	1
	Home Economics	25	1	1	1
	Food Processing	<u>100</u>	<u>4</u>	<u>6</u>	<u>4</u>
		<u>300</u>	<u>12</u>	<u>18</u>	<u>12</u>
<u>Mechanical Engineering</u>	Motor Vehicle	50	2	3	2
	Agricultural	50	2	3	2
	Construction Plant	<u>50</u>	<u>2</u>	<u>3</u>	<u>2</u>
		<u>150</u>	<u>6</u>	<u>9</u>	<u>6</u>

<u>Department</u>	<u>Course</u>	<u>Enrolment</u>	<u>No. of Classes</u>	<u>No. of Teachers</u>	<u>No. of Demon- strators</u>
<u>Electrical Engineering</u>	Electrical	60	2	3	2
	Electronic	60	2	3	2
		<u>120</u>	<u>4</u>	<u>6</u>	<u>4</u>
<u>Civil Engineering</u>	Construction	50	2	3	2
	Carpentry etc	50	2	3	2
	Plumbing etc	50	2	3	2
		<u>150</u>	<u>6</u>	<u>9</u>	<u>6</u>
TOTAL		720	28	42	28

Since majority of the teachers will be expatriate, a staff development programme will be initiated through technical assistance and local sponsorship to the Kenya Technical Teachers' College.

Benefits and Justification:

The College, once in operation, will contribute significantly to other efforts being made to reduce the deficit in skilled technical manpower requirements of Kenya. The products of the college will not only secure employment in the formal sector of economy but will also be capable of self-employment in the rural areas and thus help to accelerate development where the majority of Kenya population lives.

Through diversification of courses to be offered and the high level of skill training to be given over a course-period of four years, the problems of unemployment, over-dependence on expatriate skill, underdevelopment in the rural areas and inefficient production practice in the agricultural sector will be progressively reduced.

The College will also in a pioneering way set the pace for small scale industries in the rural sector as well as bring about integration of developmental activities at district level.

One further benefit which will be realized through the products of the College is the development of an effective organizational and managerial capacity for rural agricultural development and thus help to speed up implementation of rural programmes.

B: THE PROJECT:

1. The Site of the College:

The site of the College is located at Mutomo in Gatundu Division of Kiambu District, about 30 miles North of Nairobi, the Capital City of the Republic of Kenya. There is an all-weather road from the capital to the site.

A 30-acre site for the College has been made available by His Excellency the President Mzee Jomo Kenyatta, Patron of the College and Member of Parliament for Gatundu. More land would be available if needed. It has been established by agricultural experts that the agricultural course and the agricultural engineering course together would require about 240 acres.

2. Structures:

Details of Space Requirements are as under:-

<u>Agriculture -</u>		<u>M²</u>
12 Classrooms	@ 24m ²	288
2 Biological Laboratories	@ 81m ²	162
1 Chemical Laboratory	@ 81m ²	81
2 Home Economics Workshops	@ 81m ²	162
1 Farm Machinery Workshop	@ 400m ²	400
Greenhouses		2,000
1 Food Processing Laboratory		162
2 Science Laboratories	@ 81m ²	162
Bulk Storage Facility		48
Cooling & Refrigeration		8
Deep Freezing		

(Miscellaneous farm buildings to be located in the 240-acre farm will include: dairy, calfpens, machinery shed, implements store, poultry houses, piggery & stores for feeds and grains)

<u>Mechanical Engineering -</u>	<u>M²</u>
Mechanical shops including office and demonstration rooms	775
Motor Vehicle Engineering shops including office and demonstration rooms	775
Mechanical Science Laboratory	100
Internal Combustion Engine Laboratory	150
Elementary fluids/thermodynamics laboratory	150
4 classrooms @ 35m ²	140
Drawing office	60
Departmental offices	50
Staff room	55
Agricultural Engineering Workshops	400
Agricultural Machinery hard standing	400
Mobile Plant Engineering Workshop	400;
Working Area for Agricultural Machinery and Mobile Plant	25
<u>Electrical Engineering -</u>	
6 Classrooms	180
1 Workshop	90
1 Installation shop	90
3 Laboratories	225
Stores, offices, workspace for staff	195
<u>Civil Engineering -</u>	
<u>Construction Technician:</u>	
3 Classrooms/Drawing rooms	294
Building Science Laboratory	168
Concrete Laboratory	168
Soil Mechanic Laboratory	168
<u>Carpentry and Joinery</u>	
Joinery shop including stores & offices	160
Woodworking shop including stores and offices	160
3 Classrooms/Drawing rooms	294

<u>Plumbing including pipe fitting:</u>	<u>M²</u>
Plumbing workshop including stores and offices	200
Welding shop	123
3 Classrooms/Drawing rooms	294

Common Facilities :

Space calculation is based on overall population of students and staff when the College is fully operational.

		<u>M²</u>
Library	720x0.8	576
Dormitories	720x8.0	5,760
Kitchen and Dining Halls	720x0.47	338.4
Communal Accommodation	720x1.65	1,188
Academic Staff Workroom	720x0.69	496.8
Administrative Accommodation	720x0.44	316.8
Storage facilities		40
Lecture Theatre/Assembly Hall	1000x1.0	1,000
Non-teaching staff	720x0.5	360
Laundry		30
Dispensary		30

Recreational facilities will be required as follows:-

- 1 Football pitch with athletics running track
- 3 Netball pitches
- 2 Basketball pitches
- 2 Volleyball pitches
- 2 Lawn tennis courts
- 1 Swimming pool
- 1 Hockey pitch
- 1 Boxing ring
- 1 Grand piano

It should be noted that -

- a) the space given above does not include circulation area,
- b) all laboratories should have built-in shelves with six stainless steel/porcelain sinks per laboratory,
- c) each laboratory will require fixed glassal chalkboard,
- d) all classrooms/drawing rooms will need built-in lockers,
- e) dormitory space is based on shared rooms with built-in working desks and built-in cupboards.

Infra-structures

- Access roads and pathways
- Water supply and distribution system
- Electricity supply
- Telephone service

3. Equipment Lists -

The list of equipment will be drawn up as soon as the curricula and syllabi are finalized and the task could be accomplished fast by consultants. (see Para 4 below)

4. Technical Assistance/Professional Services:

The Ministry of Works will be responsible for preparation of architectural designs and working drawings as well as rendering the service of a quantity surveyor and project supervision. However, in order to accelerate the implementation of this project, consultancy services should be necessary in the preparation of a Master Plan embracing everything that will go into making the College fully operational i. e.

- a) Architect's Brief,
- b) Equipment List,
- c) Implementation Schedule,
- d) Course Scheme of Work,
- e) Project Cost Estimates.

5. Project Cost:

It is estimated that the whole project will cost approximately US\$ 10 million (K£4, 2 million) allocated broadly as under:-

- Buildings	.....	US\$ 6.5 m	(K£ 2.73 m)
- Equipment	.....	US\$ 3.0 m	(K£ 1.26 m)
- Contingencies	.....	US \$ 0.5 m	(K£0.21 m)
		<hr/>	
		US\$ 10.0 m	(K£ 4.20 m)
		<hr/>	

(NB: US\$ 1 = Ksh. 8.40 = K£ 0.42)

6. Conclusion:

The establishment of this project is a mammoth task. However, the people of Kenya have demonstrated over the years that they are not only capable but they also have the will to make enormous sacrifices to improve their lot.

The corner-stone of Kenya's progress has been, and still is, our national philosophy and motto, HARAMBEE. Self-help, in spirit and action is an expression and constituent part of HARAMBEE. In Kenya, self-help is an unique experience; a national institution.

We have no doubt that our friends in Japan recognize our efforts and will join hands with us in solving the critical problems that face us. The fruits of such an association will be a living testimonial to the high goals which can be achieved among people of goodwill.

7. Annexes

A - Additional Requirements and supply of Trained Manpower 1972-78

B - Destinations of School Leavers.

ADDITIONAL REQUIREMENTS AND SUPPLY OF TRAINED MANPOWER, 1972-1978

	Number of Personnel 1972	Number of Additional Staff required 1972-1978	Number of Additional Supplied 1972-1978	Cumulative Surplus (+) or Deficit (-)
Physical Science Technicians	535	328-379	260	(-)(68-119)
Draughtsmen	463	342-392	130	(-)(212-262)
Engineering Technicians	3, 513	3, 389-3, 759	2, 300	(-)(1, 089-1, 459)
Agricultural Instructors & Extension Workers	2, 240	1, 752-1, 989	1, 300	(-)(452-689)
Other Qualified workers in Agriculture	929	634-728	430	(-)(204-298)
Veterinary Assistants	123	230	170	(-)(60)
Machinists, Tool-makers & Machine-tool operators	530	590-660	560	(-)(30-100)
Machine-tool Operators	1, 058	1, 200-1, 300	120	(-)(1, 080-1, 180)
Machinery Fitters and Machine Assemblers	471	560-620	330	(-)(230-290)
Motor Vehicle Mechanics	3, 050	2, 800-3, 200	1, 600	(-)(1, 200-1, 600)
Mechanics Repairmen (except Agricultural Machinery) (General)	861	1, 000-1, 100	350	(-)(650-750)
Mechanics Repairmen (Agricultural Machinery)	196	170-180	80	(-)(90-100)
Electrical and Electronics Fitters	537	420-480	290	(-)(130-190)
Electricians, General	652	500-570	330	(-)(170-240)
Other Electrical Workers	531	540-600	360	(-)(180-240)
Plumbers and Pipe Fitters	246	270-290	120	(-)(150-170)
Welders and Flame Cutters	642	850-930	150	(-)(700-780)
Sheet-metal and Structural Metal Workers	410	590-740	120	(-)(470-620)
Stonemasons and Bricklayers	1, 565	1, 500-1, 600	200	(-)(1, 300-1, 400)
Carpenters and Joiners	1, 488	1, 500-1, 600	260	(-)(1, 240-1, 340)

PROJECTED ANNUAL OUTPUT OF STUDENTS LEAVING SCHOOL AT DIFFERENT LEVELS OF EDUCATION

DESTINATION OF SCHOOL LEAVERS	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Standard VI Primary	74,000	70,000	91,000	119,000	166,000	200,000	415,000	322,000	260,000	219,000	105,000	190,000
Form 1 & 2 Unaided	15,200	17,300	18,400	19,700	20,900	22,300	23,900	25,800	27,600	29,800	32,400	35,300
Form 4 Unaided	12,900	15,200	16,600	18,100	19,100	20,000	20,300	21,600	21,900	22,200	23,200	24,500
Form 3 & 4 Unaided	12,500	15,000	16,400	19,400	21,300	23,400	25,700	23,300	31,200	34,300	37,700	41,500
Secondary Technical	1,000	800	900	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Form 6	1,500	2,000	2,200	2,300	2,400	2,500	2,500	2,500	2,500	2,600	2,600	2,700
University Graduates (including teachers)	900	1,200	1,700	1,600	1,700	1,400	1,500	1,500	1,600	1,600	1,700	1,700

Footnote: The projections have been made by the secretariat of the National Committee on Education Objectives and Policies. Assumptions and methods of projections will be explained in full in another context.

1.1. PROJECT BRIEF (1978)
SECOND DRAFT

T H E
J O M O K E N Y A T T A C O L L E G E
O F A G R I C U L T U R E A N D
T E C H N O L O G Y

PROJECT BRIEF - SECOND DRAFT

Ministry of Education
NAIRCBI.

1978

GENERAL

1. Introduction:

The achievements scored by the people of Kenya in all spheres of human endeavour and development have been recognized around the world as truly outstanding. Kenya's political freedom and stability are unique on the Continent of Africa.

Since Independence in 1963, few development objectives have had higher priority rating, among the people of Kenya, than the expansion and improvement of education and training. From the outset, education has two vital roles to play in the development of the nation. First, it was to provide the knowledge and skills required to meet the expanding needs of a relatively sophisticated economy and relieve Kenya's dependence on expatriate manpower as quickly as possible. Second, the Kenya society saw basic education as important end in itself and as a powerful force for effecting social change, promoting national unity, and enriching the quality of life of the people. These national goals have been shared by everybody largely because the people have seen education as the key to individual achievement and in particular as the major qualification for a well paid job.

By the late 1960s, the severe Kenyan-manpower shortages had been largely ~~dealt~~^{dealt} with especially in the public sector. It was also evident that a strong attitude had been established that formal education automatically led to high wage-employment in the modern urbanised sector of the economy - an attitude that unfortunately has now led to an increasing level of unemployment while there are still areas that require technical and professional skills.

The powerful social and political support for education, however, has led to allocation of a large and growing proportion of the resources that are available, to education and has stimulated the extraordinary level of community commitment reflected in the 'Harambee' self-help movement. Kenya's success with locally supported 'Harambee' schools that receive little or no Government aid is unmatched by any

other African country. The spirit of 'Harambee' has permanently and firmly been established and cannot be dimmed.

Thus, the Kenya education and training sector, responding to heavy social demand, has developed rapidly since Independence: primary school enrolment has increased from 892,000 in 1963 to 3,060,000 in 1977 - a growth of 236.3% in 14 years; secondary school enrolment has increased tenfold from 30,100 in 1963 to over 300,000 in 1977 - a growth of 896.7%.

Many factors have contributed to Kenya's phenomenal success. Principal among these is the wise leadership of His Excellency the President Mzee Jomo Kenyatta; the pragmatic approach to problems adopted by his Government which has consistently refused to opt for easy and short-sighted solutions - and the ethic of hard work and self-help demonstrated by Kenyans in all their development efforts.

As explained earlier, the great strides that have been made in the field of academic education have, in themselves, bred an enormous problem of contradiction with serious implication for the country. On one hand the problem of joblessness is growing while on the other the country is experiencing a serious shortage of skilled and professional manpower. Thousands of academically qualified primary and secondary school pupils continue to leave school without any employable skills. Their chances of attaining gainful employment or self-employment are virtually non-existent.

Kenya has only thirteen secondary technical schools for boys and two Polytechnics. The latter offer business studies, building and civil engineering, mechanical, electrical and agricultural engineering, printing, accountancy, institutional management and general studies at technician level. There is one Agricultural College and three Agricultural Institutes offering courses geared to production of agricultural technicians and extension workers. There is a faculty of agriculture at the University of Nairobi for professional agriculturists which is due for expansion soon. But the greatest need

to-day is for qualified technicians in agriculture for rapid development of agriculture - the prime mover of Kenya's economy.

Kenya has now evaluated its present education system, defined a new set of educational goals and formulated a specific programme of action for achieving those goals. Chief among the reforms to be instituted almost immediately is the complete change of the curriculum inherited from the colonial era which was prominently academic and scholarly. The new curriculum will be practical-orientated, with emphasis on :-

- a) craft, technical and vocational training,
- b) exposure to productive labour,
- c) mathematical and scientific skills.

This is important if we have to minimise the number of unemployable.

From the foregoing description of the educational background, the concern of Kenya people for the future of the products of their education system cannot be overemphasized. It is precisely because of shortage of technically skilled manpower in the midst of unemployable but academically qualified youth, that support is now sought for the establishment of the proposed JOMO KENYATTA COLLEGE OF AGRICULTURE AND TECHNOLOGY.

HIGHLIGHTS OF POINTS OF UNDERSTANDING BETWEEN SURVEY TEAM
FROM JAPAN AND KENYA WORKING GROUP ON GROUNDING J. K. C. A. T.

2.0 Introduction

As a result of the first Project Brief submitted to the Japanese Government by the Kenya Government a preliminary survey team was sent from Japan to Kenya.

The team met several times with Kenya's working group. The team also visited a number of educational establishments in Kenya from where several observations were made.

Discussions held between the Japanese Survey team and the Kenya Government representatives had an insight of Kenya Education and training system and particularly in the fields of technical and agricultural training.

A number of major points regarding the College were raised. The purpose of this note is to highlight areas on which basic understanding was reached.

2.1.1 The Name:

The College will be known as "JOMO KENYATTA COLLEGE OF AGRICULTURE AND TECHNOLOGY".

2.1.2. Objectives:

For ease of reference below are objectives of the College:

- a) To provide young Kenyans with technical skills and abilities necessary in making them useful citizens;
- b) To prepare young Kenyans for productive employment or self-employment especially in the rural areas;
- c) To train young Kenyans to fill the manpower gaps and to ensure rapid development of the national economy;
- d) To re-orientate the attitude of youths in Kenya towards productive activities.

2.1.3. Status of the College:

Jomo Kenyatta College of Agriculture and Technology will be

- b) Building and Civil Engineering Section Covering:
 - i) Irrigation Engineering;
 - ii) Construction technicians;
 - iii) Architectural technicians.
- c) Electrical Engineering Section Covering:
 - i) Electrical installation technician;
 - ii) Electronic Engineering

2.1.6. Students' Requirement:

Minimum entry requirement will be East African Certificate of Education ('O' Level) that is, after 11th year of education initially, but will also eventually accommodate the East African Advanced Certificate of Education ('A' Level) that is, after 13th year of education.

2.1.7. Curriculum:

The curriculum will be flexible enough to fit in the programme of training manpower in relevant fields. It will contain sufficient practical element as well as academic element in order to achieve college objectives mentioned in (2.1.2.) above.

2.1.8. Practical Training:

Although both academic and practical training will be institutional, the college will endeavour to attach students to appropriate organisations for work experience in cases where financial resources do not allow for provision of facilities necessary for such training and where provision of such facilities is considered uneconomical.

2.1.9. Staff Training and Development:

Whereas it is understood that in the areas where local personnel will not be available, Japanese Technical Assistance will be expected initially, it is however appreciated that the college will not be staffed wholly by Japanese personnel.

The Kenya Government will continue to make every effort in intensifying staff development programme to train technical staff.

It is therefore agreed that as soon as the Memorandum of Understanding is signed immediate action be taken to train local staff at all levels as both counterparts and for topping-up the available Technical Assistance.

2.1.10. Place of College in Education Structure:

The College will be under the Ministry of Education, but all the interested parties including the Ministry of Agriculture will be represented in the Academic Board.

The placing of the College under the Ministry of Education is necessary if the College is to properly fit totally within existing education structure.

2.1.11. The number of estimated staff required when the College is fully operational are shown on Table 1.

3.0 Priority Status of the College Within the Education Sector:

3.1.1. The Kenya Development Plan 1974-78 makes provisions for major advances in education and in particular, practical education. Paragraph 3.40 of the Plan states "The education system will be oriented more towards technical and vocational training in the kinds of employment that are in demand." This College will, in a significant way, contribute towards realization of the objectives of the Plan. In addition, the National Committee on Educational Objectives and Policies (N.C.E.O.P.) has now produced a Report which, inter alia, forcefully emphasises the need for practical education and skill training. It recommends, among other things -

- a) the technicalization of the general secondary school curriculum through the application of vocational criteria by introduction of such subjects as technical drawing, engineering sciences, agricultural sciences and economics into the programmes of all secondary schools;
- b) the removal of the demarcation between secondary academic and secondary technical education; and to make secondary education increasingly scientific, prevocational and craft-orientated;
- c) the re-assessment of the industrial and technical education curriculum in secondary and high schools with a view to converting these schools into post-school technical training system;
- d) the encouragement and making provision of planned expansion of the village polytechnics programme.

It is therefore, clearly evident that financial and manpower constraints are the only factors that will inhibit the fulfillment of the objectives set by the Development Plan and

and the N. C. E. O. P. A schedule is enclosed as an appendix to this Brief showing the additional requirements and supply of trained manpower during the period 1972-1973 and the resultant deficit in 1978.

The careers shown are only those that will be catered for, hopefully, in the proposed college.

4.0 Benefit and Justification:

As indicated in the points of understanding it will be seen that the college will have several advantages. Because of high practical element in the courses to be offered in the proposed college it will contribute significantly to other efforts being made to reduce the deficit in skilled technical manpower requirement of Kenya. The products of this college is expected to secure employment in formal as well as in informal sector of the economy.

Because of the diversifications of courses to be offered and the high level of practical component to be given over a course-period of four years, the problem of unemployment, over-dependence on expatriate skill, underdevelopment in rural areas and inefficient production practices in agricultural sector will be greatly reduced. This is in keeping with Kenya's social economic needs.

Because of self-reliance which will be generated by the kind of training the college will offer, the products will assist greatly in the pioneering the setting up of small scale industries in the rural sector.

Graduates from this college will also enhance the development of an effective organization and managerial capacity of rural agriculture programmes.

5.0 THE PROJECT:

5.1.1. The Site of the College:

The site of the college is located at Juja in Gatundu Division of Kiambu District, about 20 miles North of Nairobi, the

Capital City of the Republic of Kenya. There is an all-weather road from the capital to the site, electricity and telephone facilities.

A site of more than 100 hectares for the college has been made available by His Excellency the President Mzee Jomo Kenyatta, Patron of the College and Member of Parliament for Gatundu. More land would be available if needed for commercial farming. It has been established by agricultural experts that the agricultural courses and the agricultural engineering course together would require about 100 hectares.

6.0 STRUCTURES:

6.1.1 Details of Space Requirements are as under:

<u>Agriculture Department</u>	<u>M²</u>
12 Classrooms @ 24m ²	288
2 Biological Laboratories @ 81m ²	162
1 Chemical Laboratory @ 81m ²	81
2 Home Economics Workshops @ 81m ²	162
1 Farm Machinery Workshops @ 400m ²	400
Greenhouses	2,000
1 Food Processing Laboratory	162
2 Science Laboratories @ 81m ²	162
Bulk Storage Facility	48
Cooling & Refrigeration	8
Deep Freezing	

(miscellaneous farm buildings to be located in the 100 hectares farm will include: dairy, calfpens, machinery, shed, implements store, poultry, houses, piggery & stores for feeds and grains)

6.1.2. Engineering Department:

<u>Mechanical Engineering Section:</u>	<u>M²</u>
Mechanical shops including office and demonstration rooms	775
Motor Vehicle Engineering shops including office and demonstration rooms	775
Mechanical Science Laboratory	100
Internal Combustion Engine Laboratory	150
Elementary fluids/thermodynamics Laboratory	150
4 Classrooms @ 35m ²	140
Drawing Office	60

6.1.2. (contd)

Departmental offices	50
Staff Room	55
Agricultural Engineering Workshops	400
Agricultural Machinery hard standing	400
Mobile Plant Engineering Workshop	400
Workshop Area for Agricultural Machinery and Mobile Plant	11 hectares

6.1.3. Building and Civil Engineering Section

<u>Irrigation Engineering</u>	M ²
Hydraulic Laboratory	168
Plumbing workshop including stores and offices	200
Welding shop	123
3 Classrooms/Drawing rooms	294
<u>Construction Technician:</u>	
3 Classrooms/Drawing rooms	294
Building Science Laboratory	168
Concrete Laboratory	168
Soil Mechanic Laboratory	168
Joinery shop including stores & offices	160
Woodworking shop including stores & offices	160
3 classrooms	294
1 Draughting office	100
1 Survey Stores	100

6.1.4. Electrical Engineering Section

6 Classrooms	180
1 Workshop	90
1 Installation shop	90
3 Laboratories	225
Stores, offices, workspace for staff	195

6.1.5. Common Facilities

M²

Space calculation is based on overall population of students and staff when the college is fully operational.

Library	720x0.8	576
Dormitories	720x8.0	5,760
Kitchen & Dining Halls	720x0.47	338.4
Communal Accommodation	720x1.65	1,188
Academic Staff Workroom	720x0.69	496.8
Administrative Accommodation	720x0.44	
Storage facilities		40
Lecture Theatre /Assembly Hall	100x1.0	1,000
Non-teaching staff	720x0.5	360
Laundry		30
Dispensary		30
Teaching staff housing	83 units	
Non-teaching staff housing	77 units	

6.1.6. Recreational facilities will be required as follows:

- 1 Football pitch with athletics running track
- 3 Netball pitches
- 2 Basketball pitches
- 2 Volleyball pitches
- 2 Lawn Tennis courts
- 1 Swimming pool
- 1 Hockey pitch
- 1 Boxing ring

It should be noted that:

- a) that space given above does not include circulation area;
- b) all laboratories should have built-in shelves with six stainless steel/porcelain sinks per laboratory;

- c) each laboratory will require fixed glassal chalkboard;
- d) all classrooms/drawing rooms will need built-in lockers;
- e) dormitory space is based on shared rooms with built-in working desks and built-in cupboards.

Infra-structures:

- Access roads and pathways
- Water supply and distribution system
- Electricity supply
- Telephone service

6.1.7 Equipment Lists:

The list of equipment will be drawn up as soon as the curricula and syllabi are finalized and the task could be accomplished fast by consultants. (see paragraph 6.1.8 below)

6.1.8 Technical Assistance/Professional Service:

The Ministry of Works will be responsible for preparation of architectural designs and working drawings as well as rendering the service of a quantity surveyor and project supervision. However, in order to accelerate the implementation of this project, consultancy services should be necessary in the preparation of a Master Plan embracing everything that will go into making the College fully operational i. e.

- a) Architect's Brief,
- b) Equipment List,
- c) Implementation Schedule,
- d) Course Scheme of Work,
- e) Project Cost Estimates.

6.1.9 Project Cost:

It is estimated that the whole project will cost approximately US\$ 10 million (K£4.2 million) allocated broadly as under:-

- Buildings	US\$ 6.5 m	(K£2.73 m)
- Equipment	US\$ 3.0 m	(K£1.26 m)
- Contingencies	US\$ 0.5 m	(K£0.21 m)
	<hr/>	
	US\$ 10.0 m	(K£4.20 m)
	<hr/>	

(NB: US\$ 1 = Ksh. 8.40 = K£ 0.42)

CONCLUSION

The establishment of this project is a mammoth task. However, the people of Kenya have demonstrated over the years that they are not only capable but they also have the will to make enormous sacrifices to improve their lot.

The corner-stone of Kenya 's progress has been, and still is, our national philosophy and motto, HARAMBEE. Self-help, in spirit and action is an expression and constituent part of HARAMBEE. In Kenya, self-help is an unique experience; a national institution.

We have no doubt that our friends in Japan recognize our efforts and will join hands with us in solving the critical problems that face us. The fruits of such an association will be a living testimonial to the high goals which can be achieved among people of goodwill.

Annexes

- A - Additional Requirements and supply of Trained Manpower 1972-78
- B - Destinations of School Leavers.

PROJECTED ANNUAL OUTPUT OF STUDENTS LEAVING SCHOOL AT DIFFERENT LEVELS OF EDUCATION

Destination of School Leavers	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
Std. VII Primary	74000	70000	91000	119000	166000	208000	415000	322000	260000	219000	185000	190000
Form 1 & 2 Unaided	13200	17300	19400	19700	20900	22300	23900	25800	27600	29800	32400	35300
Form 4 Aided	12900	15200	16600	18100	19100	20000	20300	21600	21900	22200	23800	24500
Form 3 & 4 Unaided	12500	15000	16400	19400	21300	23400	25700	28300	31200	34300	37700	41500
Secondary Technica!	1000	800	900	1000	1000	1000	1000	1000	1000	1000	1000	1000
Form 6	1500	2000	2200	2300	2400	2500	2500	2500	2500	2600	2600	2700
University Graduates (including teachers)	900	1200	1700	1600	1700	1400	1500	1500	1600	1600	1700	1700

Footnote The projections have been made by the secretariat of the National Committee on Education Objectives and Policies. Assumptions and methods of projections will be explained in full in another context.

ADDITIONAL REQUIREMENTS AND SUPPLY OF TRAINED MANPOWER, 1972-78

	Number of Personnel 1972	Number of Additional Staff required 1972-78	Number of Additional Supplied 1972-78	Cumulative Surplus (+) or Deficit (-)
Physical Science Technicians	585	328-379	260	(-)(68-119)
Draughtsmen	463	342-392	130	(-)(212-262)
Engineering Technicians	3513	3389-3759	2300	(-)(1089-1459)
Agricultural Instructors & Extension Workers	2240	1752-1989	1300	(-)(452-689)
Other Qualified workers in Agriculture	929	634-728	430	(-)(204-298)
Veterinary Assistants	123	230	170	(-)(60)
Machinists, tool-makers & Machine tool operators	530	590-660	560	(-)(30-100)
Machine-tool Operators	1058	1200-1300	120	(-)(1080-1180)
Machinery Fitter & Machine Assemblers	471	560-620	330	(-)(230-290)
Motor Vehicle Mechanics	3050	2800-3200	1600	(-)(1,200-1600)
Mechanics Repairmen (except Agricultural Machiner /) (General)	361	170-190	80	(-)(90-100)
Electrical & Electronics Fitters	327	420-480	290	(-)(130-190)
Electricians, General	652	500-570	330	(-)(170-240)
Other Electrical Workers	531	540-600	360	(-)(180-240)
Plumbers and Pipe Fitters	246	270-290	120	(-)(150-170)
Welders & Flame Cutters	642	850-930	150	(-)(700-780)
Sheet-metal & Structural Metal Workers	410	590-740	120	(-)(470-620)
Stonemasons and Bricklayers	1565	1500-1600	200	(-)(1300-1400)

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