

3) Sanitary equipment and fixtures

- The stools should be the Asian type generally used in the locality.
- Because the sanitary ceramics easily break, as much as possible used should be the type which can locally be procured.

4) Gas system

- Butane gas should be used for the laboratory and supplied from the gas tank to be newly installed.

5) Fire protection system

- As a rule, these are to be installed base on Kenya's fire-fighting standards.
- The main building is to be installed horse reels and fire extinguishers.

6) Air-conditioning system

- Nairobi is endowed with cool and low-humidity weather so that as a rule air-conditioners are unnecessary. Only those places which functionally require them should be cooled.

7) Ventilation system

- Places such as laboratories, exercise rooms and engineering rooms where harmful gasses are generated should mechanically be ventilated using ventilation fans.
- The general rooms other than the above are to be naturally ventilated.

3-3-2 Equipment Plan

(1) Equipment Plan

Plans are described below regarding each faculty and each target college.

Faculties

1) Faculty of Nursing

In the Faculty of Nursing, the British system of nursing training has been introduced. As Japan has introduced also the British system, the list of Japanese standard nursing equipment can provide a reference. It is necessary to provide the same pieces of equipment for the target colleges, with a view to eliminating difference between colleges through a unified curriculum.

For KMTc Mathare, equipment for training in emergency nursing necessary in psychiatric nursing is provided.

2) Faculty of Medical Laboratory Technology

In the Faculty of Medical Laboratory Technology, training in KMTc Nairobi has been divided, since its establishment, into clinical chemical examination, blood examination, histopathologic examination, and immune blood examination. Equipment planning must meet this situation. In KMTc Nakuru and KMTc Kakamega, the necessity of specialized training has been well understood, but there has been no sufficient training equipment, and no system of specialized training has been established. For these colleges, those pieces of equipment which facilitate the most basic training will be provided.

3) Faculty of Clinical Medicine

In the Faculty of Clinical Medicine, training is given mostly in adjacent hospitals, which is a considerable burden to these hospitals. The equipment plan is aimed at providing the function of training in each college, for the purpose of giving basic education within colleges and practical training in college clinics. The target colleges are KMTc Nairobi, KMTc Nakuru and KMTc Port Leiz.

4) Faculty of Environmental Health Science

Target colleges is KMTc Nairobi. In KMTc Nairobi, importance is laid on urban-type training in which the problem of environmental pollution is also dealt with. The equipment plan is aimed at meeting this situation.

5) Maintenance Centre & Store

At the time of re-construction the building, basic materials and equipment will be provided in the metal processing workshop, the woodworking workshop and the electric circuit workshop. In the existing workshops, importance is laid on repairs of buildings. Regarding the maintenance and management of equipment, it is necessary to establish a maintenance system, with the Faculty of Medical Engineering as the parent system.

Diploma courses whose opening is scheduled in July 1995 will include a course on building maintenance, in accordance with the Project, in addition to the courses of mechanical technology, electrical technology, hospital system, medical equipment technology, and electronic technology.

6) Transportation

There has been an eager request for jeeps for rough roads in the rainy season. Moving for the purpose of field survey and training is now rather difficult for KMTCC. Vehicle planning is therefore aimed at correcting this situation.

The list of vehicles to be provided for the target colleges is mentioned below.

KMTCC	Bus 70 Passengers	Mini Bus 25 Passengers	Micro Bus 15 Passengers	Pick-up Truck
1) Nairobi	1	2	1	1
2) Nakuru		1	1	
3) Port Reitz		1		
4) Kagamega		1		
5) Kabarnet		1		

Colleges

1) KMTCC Nairobi

KMTCC Nairobi has all the faculties that are targets of medical training (The Faculty of Dietetics belongs to KMTCC Karen).

-Faculty of Nursing

The basic principle of KMTCC mentions the unification of curriculum for the Faculty of Nursing. Common pieces of equipment will be provided for the MTCs, in line with this principle. Those colleges where a unified curriculum has already been introduced in close cooperation with KMTCC Nairobi include KMTCC Mombasa, KMTCC Kisumu, KMTCC Embu, and KMTCC Eldoret.

-Faculty of Orthopedic Technology

Practice in applying plaster casts and making prosthetic devices, corsets, crutches, etc., have been conducted only with woodworking equipment. After the construction of practical training rooms is completed, woodworking equipment, resin processing equipment, and metal processing equipment will be provided.

-Faculty of Dental Technology

Equipment will be provided so that practice in making artificial teeth, which has been difficult, can be conducted.

-Faculty of Environmental Health Science

The provision of basic pieces of equipment necessary in training regarding public health, food sanitation, and environmental health will make possible training within the campus. As the training curriculum for urban areas differs from that for rural regions, equipment plans will be formulated according to situations. Equipment planning for KMTC Nairobi will lay importance on the urban environment.

-Faculty of Radiography

Training within the campus is impossible because of few pieces of equipment worthy of mentioning. Practical training will become possible within the campus, because a portable X-ray machine is provided in KMTC Nairobi.

-Faculty of Medical Laboratory Technology

An equipment plan will be formulated for the purpose of replacing superannuated pieces of equipment in the Clinical Chemistry Laboratory, the Blood Examination Laboratory, the Histopathologic Examination Laboratory, the Immune Blood Examination Laboratory. The Faculty of Medical Laboratory Technology needs the largest number of precision instruments among the target faculties. The equipment plan will be formulated, with operation and maintenance of equipment being taken into consideration (i.e., equipment management, ensuring of expendable supplies and repairing expenses, maintenance, etc.).

-Faculty of Health Education

The purposes of the Faculty of Health Education are to spread health education among the people and to train officials in charge of health education. The faculty is indispensable in implementing the policy of PHC. Those pieces of equipment which are necessary for basic training will be provided.

-Faculty of Physiotherapy

The purpose of the Faculty of Physiotherapy is training regarding treatment technology. Equipment will be provided according to this purpose.

-Faculty of Occupational Therapy

The purpose of the Faculty of Occupational Therapy is to train human resources who give

training to psychopathic patients for rehabilitation through occupational therapy. Those pieces of equipment which are necessary for basic training will be provided in facilities to be reconstructed.

-Faculty of Clinical Medicine

In the Faculty of Clinical Medicine, practical training is given in external hospitals. The faculty cannot give training within the campus. Those pieces of equipment, by which the practical training can be carried out within the campus, will be provided. The planned colleges are KMTC Nairobi, MTC Nakuru and MTC Port Leitz.

-Faculty of Pharmacy

Equipment will be provided for training in clinical pharmacy, dispensing of medicines, medicinal herb science (herb medicines), preparation of medicines, microorganism preparations, and disinfection.

2) MTC Karen

MTC Karen is the only faculty of dietetics in KMTC. Priority will be given to the replacement of superannuated pieces of equipment.

3) MTC Mathare

MTC Mathare is the only faculty of nursing in KMTC. Equipment planning will give importance on the provision of emergency nursing equipment among those pieces of equipment which are necessary in training in psychiatric nursing.

4) MTC Nakuru

In the Faculty of Nursing, training is given in psychiatric nursing, which is not conducted in other regional colleges. Equipment of MTC Nakuru is, however, superannuated on the whole, well exceeding the service life. The medical training equipment, which are necessary for basic training for the Faculties of Nursing and Medical Laboratory Technology, will be provided.

5) MTC Kakamega

MTC kakamega has three faculties, namely, the Faculty of Nursing, the Faculty of Medical Laboratory Technology, and the Faculty of Environmental Health Science. Superannuation of equipment is considerable on the whole, beyond the service life. The medical training equipment, which are necessary for basic training for the Faculties of Nursing and Medical Laboratory Technology, will be provided.

6) MTC Port Leitz

The Faculty of Clinical Medicine of MTC Port Leitz is the only faculty of clinical medicine in the coastal region. Though it has a fine laboratory examination training room, it has little equipment. As the Faculty of Medical Laboratory Technology is planned to be transferred to MTC Port Leitz, basic equipment will be provided for the training room of MTC Port Leitz.

7) Other Colleges

The colleges mentioned below only have the faculty of nursing. These colleges will be provided with standard nursing equipment.

MTC Homa Bay

MTC Kisumu

MTC Embu

MTC Meru

MTC Muranga

MTC Thika

MTC Garissa

MTS Eldoret

MTC Kisii

MTC Machakos

MTC Nyeri

MTC Mombasa

MTC Kabarnet

(2) List of Major Equipment

1) Nairobi

Faculty of Nursing

-(Same for other 15 schools; Mombasa, Nyeri, Nakuru, Kakamega, Homa Bay, Kabarnet, Machakos, Kisumu, Embu, Meru, Muranga, Thika, Garissa, Eldoret and Kisii)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Bed for adult Bed for newborn Bedside cabinet Model(set) for nursing practice Model for blood collection and intravenous injection Model for urination guidance method practice Model for enema and anal medication practice Model for bathing practice Model for "phantom" practice Bathtub Anatomical specimen Skeleton model Cranium dissection model	Model for artificial respiration practice Cranial nerves model Muscle model Female reproductive organs model Medical examination equipment set Irrigation set Bandage dressing wagon Cardiac resuscitator Minor surgical operation equipment set Emergency wagon V T R set Overhead projector

Faculty of Orthopedic Technology

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Woodworking bench Metalworking bench Industrial sewing machines for short sewing Industrial sewing machines for long sewing Belt grinder Band saw machine Plaster cast cutter	Vacuum-forming machine Electric furnace Sealing iron Dust collector Portable drill Sets of small tools and equipment for practice

Faculty of Dental Technology

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Model for prosthetic application Dental engine Dental laser Model trimmer Resin polymerizer Ring furnace Sandblaster High-speed laser Grinder workbench	Models for training and practice Model processing workbench Polymerization workbench Casting workbench Air compressor for workbench Equipment cabinet Dental dust collector Set for small instruments for prosthodontic

Faculty of Environmental Health Science

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Balances for simple analysis Thermostat Table-top centrifuge Stereo microscope Biological microscope Incubator Rotary mill Small rotary mill Table-top autoclave Moisture gauge Distilled water maker Collny counter Electric furnace PH meter for experiment room Portable dissolved-oxygen meter Biological oxygen demand meter Chemical oxygen demand meter Portable turbidimeter Portable water-quality tester set Suspensoid measuring instrument	B O D furan bottle Polarization meter Precipitation meter Portable noise meter Portable air meter Portable dust meter Portable low-volume air sampler Audiometer Micro Kjeldahl nitrogen distiller Instrument set for training in building environmental testing Auto level Levelling rod Instrument set for training examination of water-supply & sewage system Instrument set for training in control of disease-carrying animal and vermin Drawing table

Faculty of Radiography

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Mobile X-Ray system Margen phantom for radiography training Picture quality evaluation phantom for radiography training Skeleton model Anatomical specien Upper limb model Lower limb model	Cranial bones replica model Sets of instruments for darkroom X-Ray protection gear X-Ray film shelve Equipment cabinet Portable ultrasonic diagnostic system Film loading stand

Faculty of Medical Laboratory Techonology

(Clinical Chemistry Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Colorimeter Cellulose acetate film electrophoresis system Agar immunoelectrophoresis system Isoelectric point electrophoresis system	PH meter Small instrument for clinical chemical testing Equipment cabinet

(Bacteriology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Incubator Carbon dioxide gas incubator Biological microscope	Colony counter Table-top centrifuge Equipment cabinet

(Parasitology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Biological microscope Table-top centrifuge Equipment cabinet	

(Hematology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Hemocytometer (blood cell counting chamber) Biological microscope Electrophoresis system Spectrophotometer Table-top centrifuge Hematocrit centrifuge Incubator Dry-air sterilizer Autoclave Agitator Water bath Blood coagulation meter Glucose meter	Standard hemoglobinometer Bilirubin colorimeter Colony counter Instrument set for test laboratory Thermostat Blood sugar measuring instrument Ultrasonic cleaner Beds for blood collection Refrigerator for blood storage Equipment cabinet

(Histopathology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Biological microscope Anatomical instrument set Homogenizer Syphilis diagnostic instrument set Thermostat Water bath	Magnetic stirrer Blood corpuscle pipette agitator Small instrument set for pathonatomy test laboratory Equipment cabinet

(Immuno Hematology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Agar immunity electrophoresis system Table-top centrifuge Incubator Thermostat Microscope for practice	Syphilis diagnostic test instrument set Pipette cleaner Set of small instruments for immunological blood testing Equipment cabinet

(Common-use Equipments)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Spectrophotometer Flame spectrometer Refrigerator	Autoclave Distilled water maker Sterilizer for medical treatment waste

Faculty of Health Education

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Camera Camera accessory (set)	

Faculty of Physiotherapy

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Traction unit Microwave treatment unit Low-frequency treatment unit Infrared ray treatment unit Parfin bath treatment unit Shoulder joint exerciser Wrist exerciser	Rowing exerciser Swedish bars (set) Parallel bars (set) Stairs for walking training Iron dumbbell set Equipment cabinet

Faculty of Occupational Therapy

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Sewing machine Leather craft occupational therapy set Woodworking therapy set	Metal processing occupational therapy set Workbench Equipment cabinet

Faculty of Clinical Medicine

(Basic Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Anatomical section (set) Human skeleton model Blood circulation system model Pregnancy model (set) Heart model	Muscle model (set) Model of functions of balance and hearing organs Model of hearing organs Wall chart set Equipment cabinet

(Anesthesia Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Anesthetic equipment (set) for practice Artificial respiration system for practice	

(Pediatric Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Nebulizer Pediatric diagnostic instrument set Equipment cabinet	

(Ophthalmology Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Ophthalmologic lens set Slit lamp microscope Intraocular tensiometer	Basic ophthalmological operation instrument set Equipment cabinet

(Otorhinolarungology Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Audiometer Eustachian tube function tester Otorhinolaryngological treatment chair	Otorhinolaryngological instrument set Equipment cabinet

(Plaster Casting Technicians' Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Plaster casting bench VTR set	Slide projector Overhead projector

Faculty of Pharmacy

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Drug refrigerator Draft chamber Centrifugal rotary ball mill Hot-air dryer Balance for test laboratory Balance for simple analysis Prescription cabinet Thin-layer chromatography system Disintegration tester Melting point measuring device Small instrument set for prescription Incubator High-pressure sterilizer Colony counter	Dry-heat sterilizer Spectrophotometer Flame spectrometer Turbidity meter Freezer PH meter for test laboratory Pipette cleaner Water bath Muffle furnace Rotary evaporator Table-top centrifuge Biological microscope Equipment cabinet

Faculty of Medical Engineering

(Electrical Engineering Room)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Oscilloscope	Tool set for electrical repair

(Electronic Engineering Room)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Oscilloscope	Election tool set

(Mechanical Engineering Room)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Table grinder	

(Medical Engineering Room)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Oscilloscope	

Workshop

(Section of Iron Works)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Arc welder Spot welder Drilling machine Thread cutter	Vise stand Gas brazing welder's set Tool cabinet

(Section of Wooden Works)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Planer Saw stand Boring tool (set) Router (set)	Saw teeth setting set Engraver Woodworking tool set

(Electric Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Electrical tool set	

2)M T C Karen

Faculty of Nutrition

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Food sample set	

3)M T C Mathare

Faculty of Nursing

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Model (set) for nursing practice Model for blood collection and intravenous injection Cranium dissection model	Model for artificial respiration practice Model for respirator practice

4)M T C Nakuru

Faculty of Medical Laboratory Technology

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Colorimeter Cellulose acetate film electrophoresis system PH meters for test laboratory Small instrument(set) for clinical chemical test Equipment cabinet Incubator Biological microscope Colony counter Table-top centrifuge Hemocyte counter Spectrophotometer High-pressure sterilizer Agitator Standard hemoglobinometer	Bilirubin colorimeter Thermostat Blood sugar value measurement device Hematocrit (centrifuge) Paraffin melter Histofume hood Card organizer box Syphilis examination set Water bath Set of small instruments for pathological anatomy Immunohematology instrument set Flame spectrometer

Faculty of Clinical Medicine

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Electric lamps with headband Equipment cabinet Artificial respirator for practice Nebulizer Otorhinolaryngologic mirror Pediatric examination instrument set Basic ophthalmologic operation instrument set	Otorhinolaryngologic treatment chair Otorhinolaryngologic equipment set Plaster casting bench VTR set Slide projector Overhead projector

5)MTC Kakamega

Faculty of Medical Laboratory Technology

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Colorimeter Cellulose acetate film electrophoresis system PH meters for test laboratory Set of small instruments for clinical chemical test Equipment cabinet Incubator Carbon dioxide gas incubator Colony counter Table-top centrifuge Hemocyte counter High-pressure sterilizer Glucose meter Standard hemoglobinometer Bilirubin colorimeter Thermostat	Blood sugar value measurement device Biological microscope Spectrophotometer Hematocrit (centrifuge) Dry-heat sterilizer Bed for blood collection Refrigerator for blood storage Anatomical instrument set Homogenizer Syphilis diagnostic instrument set Water bath Instrument set for pathological anatomy Instrument set for hematology Flame spectrometer Distilled water maker

7)MTC Port Reitz

Faculty of Clinical Medicine

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Anatomical section (set) Human skelton model Blood circulation system model Pregnancy model (set) Muscle model (set) Model of balance & hearing organs Model of organs of sight Wall chart set Electric lamp with headband Equipment cabinet Anesthetic machine for practice Artificial respiration system for practice Nebulizer Instrument set for pediatric examination	Ophthalmologic lens set Slit lamp Intra-ocular tensiometr Basic ophthalmologic operation instrument set Hearing acuity measurement system Eustachian tube function tester Otorhinolaryngological treatment chair Equipment set for otorhinolaryngology Equipment cabinet Plaster-casting bench VTR set Slide projector Overhead projector

3-3-3 Operation and Maintenance Costs

(1) Maintenance Expenses

The purpose of the Project is to recover the educational function and environment through the rehabilitation of existing facilities and equipment, and its implementation does not produce a great change in respect of personnel and budget.

Maintenance expenses necessary after the Project's implementation are mentioned below.

Table/Figure 3-10 Maintenance Expenses

College name	Maintenance exp. (increase)	Percentage of maintenance expenses in operating budget of 1993	Unit: Kshs./year
			Average annual growth rate of operating budget
KMTC Nairobi	4,609,000	7.5%	15%
MTC Karen	17,500	0.3%	21%
MTC Mathare	119,000	1.6%	29%
MTC Nakuru	1,418,000	7.3%	37%
MTC Kakamega	632,000	6.3%	22%

KMTC Nairobi: Kshs. 4,609,000/year

a. Building maintenance expenses Kshs. 533,000/year

Expenses necessary to maintain the buildings in good condition whose re-construction is planned in the Project are calculated as follows. These expenses are mainly for the purchasing of repairing parts and spare parts which are necessary for interior and exterior finish and repairs on the roof, electrical equipment and water piping. They are estimated as 45 Kshs./m², which is about one third of expenses for these purposes in Japan.

Rehabilitation and re-construction area 11,850 m² x 45 Kshs./m² = Kshs. 533,250/year

b. Electrical expenses Kshs. 111,000/year

Increase of electric capacity after rehabilitation and re-construction is calculated as follows.

Power rate: Kshs. 3.9/KWH

Electric capacity for equipment: approx. 50 KW

Electric capacity for pumps : approx. 15 KW (including that for Karuri)

Electric capacity for lighting appliances: approx. 30 KW

Total: approx. 95 KW

(One-hour operation per day)

95 KWH/day x Kshs. 3.9/KWH x 25 days/month = Kshs. 9,262/month

hence

Kshs. 9,262/month x 12 months/year = Kshs. 111,440/year

c. Water expenses Kshs. 117,000/year

Increase of water supply after rehabilitation and re-construction is calculated as follows.

Monthly consumption: 13 m³/day x 25 days/month = 325 m³/month

Monthly water rate : Kshs. 30/m³ x 325 m³/month = Kshs. 9,750/month

Annual water rate : Kshs. 9,750/month x 12 months/year = Kshs. 117,000/year

d. Equipment maintenance expenses ... Kshs. 3,828,000/year

Maintenance expenses for medical training equipment are divided into expenses for reagents and expendable articles in using diagnostic apparatus and examination equipment and maintenance and repairing expenses at troubleshooting and regular inspections.

In medical training equipment of the Project, films, reagents, expendable articles and repairing parts which are sufficient for one year's operation are included. After that, the following maintenance expenses become necessary.

Expenses for reagents and expendable articles.....Kshs. 3,186,240/year

-X-ray films:

100 sheets x 40 weeks x Kshs. 170 = Kshs. 680,000

-Reagents for clinical examination:

25 specimens x 40 weeks x Kshs. 440 = Kshs. 440,000

-Reagents for blood testing:

25 specimens x 40 weeks x Kshs. 440 = Kshs. 440,000

-Expendable articles for dental technology:

100 persons x 40 weeks x Kshs. 300 = Kshs. 1,200,000

-Recording paper:

4 rolls x 12 months x Kshs. 880 = Kshs. 42,240

-Vehicles:

One bus x 12 months x 4001 x Kshs. 40 = Kshs. 192,000

4 minibuses x 12 months x 1001 x Kshs.40 = Kshs.192,000

Maintenance and repairing expenses..... Kshs. 642,000/year

Maintenance and repairing expenses include those for parts replacement, repairs and maintenance. They are estimated at about 2.5% of prices of target pieces of equipment.

The Project's implementation requires additional maintenance expenses totaling about Kshs. 4,609,000 in KMTC Nairobi. Its operating budget was Kshs. 60,940,000 in 1993, showing an annual increase of 15% on the average for the last four years. The maintenance expenses required this time are about 7.5% of the operating budget for 1993, which produces no problem.

MTC Karen: Kshs. 17,500/year

a. Electrical expenses Kshs. 17,544/year

Increase is expected for rehabilitated pumps.

Power rate: Kshs. 3.9/KWH

Electric capacity for pumps: approx. 15 KW

(One-hour operation per day)

15 KWH/day x Kshs. 3.9/KWH x 25 days/month = Kshs. 1,462/month

hence

Kshs. 1,462/month x 12 months/year = Kshs. 17,544/year

The Project's implementation requires additional maintenance expenses totaling about Kshs. 17,500 in MTC Karen. Its operating budget was Kshs. 6,304,000 in 1993, showing an annual increase of 21% on the average for the last four years. The maintenance expenses required this time are about 0.3% of the operating budget for 1993, which produces no problem.

MTC Mathare: Kshs. 119,000/year

a. Building maintenance expenses Kshs. 119,250/year

Rehabilitation area 2,650 m² x Kshs. 45/m² = Kshs. 119,250/year

The Project's implementation requires additional maintenance expenses totaling about Kshs. 119,250 in MTC Mathare. Its operating budget was Kshs. 7,333,000 in 1993, showing an annual increase of 29% for the last four years. The maintenance expenses required this time are about 1.6% of the operating budget for 1993, which produces no problem.

MTC Nakuru: Kshs. 1,418,000/year

a. Electrical expenses Kshs. 35,100/year

Electric capacity is increased for clinical examination equipment.

Power rate: Kshs. 3.9/KWH

Electric capacity for equipment: approx. 30 KW

(One-hour operation per day)

30 KWH/day x Kshs. 3.9/KWH x 25 days/month = Kshs. 2,925/month

hence

Kshs. 2,925/month x 12 months/year = Kshs. 35,100/year

b. Equipment maintenance expenses Kshs. 1,383,000/year

Expenses for reagents and expendable articles... Kshs. 1,088,240/year

-Reagents for clinical examination:

25 specimens x 40 weeks x Kshs. 440 = Kshs. 440,000

-Reagents for blood testing:

25 specimens x 40 weeks x Kshs. 440 = Kshs. 440,000

-Recording paper:

4 rolls x 12 months x Kshs. 880 = Kshs. 42,240

-Vehicles:

2 minibuses x 12 months x 1001 x Kshs.40= Kshs.96,000

Maintenance expenses Kshs. 295,000/year

The Project's implementation requires additional maintenance expenses totaling about Kshs. 1,418,000 in MTC Nakuru. Its operating budget was Kshs. 19,482,000 in 1993, showing an annual increase of 37% on the average for the last four years. The maintenance expenses required this time are about 7.3% of the operating budget for 1993, which produces no problem.

MTC Kakamega: Kshs. 632,000/year

a. Electrical expenses Kshs. 23,400/year

Electric capacity is increased for clinical examination equipment.

Power rate: Kshs. 3.9/KWH

Electric capacity for equipment: approx. 20 KW

(One-hour operation per day)

20 KWH/day x Kshs. 3.9/KWH x 25 days/month = Kshs. 1,950/month

hence

Kshs. 1,950/month x 12 months/year = Kshs. 23,400/year

b. Equipment maintenance expenses Kshs. 609,000/year

Expenses for reagents and expendable articles... Kshs. 421,120/year

-Reagents for clinical examination:

10 specimens x 40 weeks x Kshs. 440 = Kshs. 176,000

-Reagents for blood testing:

10 specimens x 40 weeks x Kshs. 440 = Kshs. 176,000

-Recording paper:

2 rolls x 12 months x Kshs. 880 = Kshs. 21,120

-Vehicles:

1 minibus x 12 months x 1001 x Kshs. 40 = Kshs. 48,000

Maintenance and repairing expenses Kshs. 188,000/year

The Project's implementation requires additional maintenance expenses totaling about Kshs. 632,000 in MTC Kakamega. Its operating budget was Kshs. 10,007,000 in 1993, showing an annual increase of 22% on the average for the last four years. The maintenance expenses required this time are about 6.3% of the operating budget for 1993, which produces no problem.

For the other target colleges, increase of maintenance expenses need not be considered, because these colleges are provided with nursing equipment which hardly require maintenance expenses.

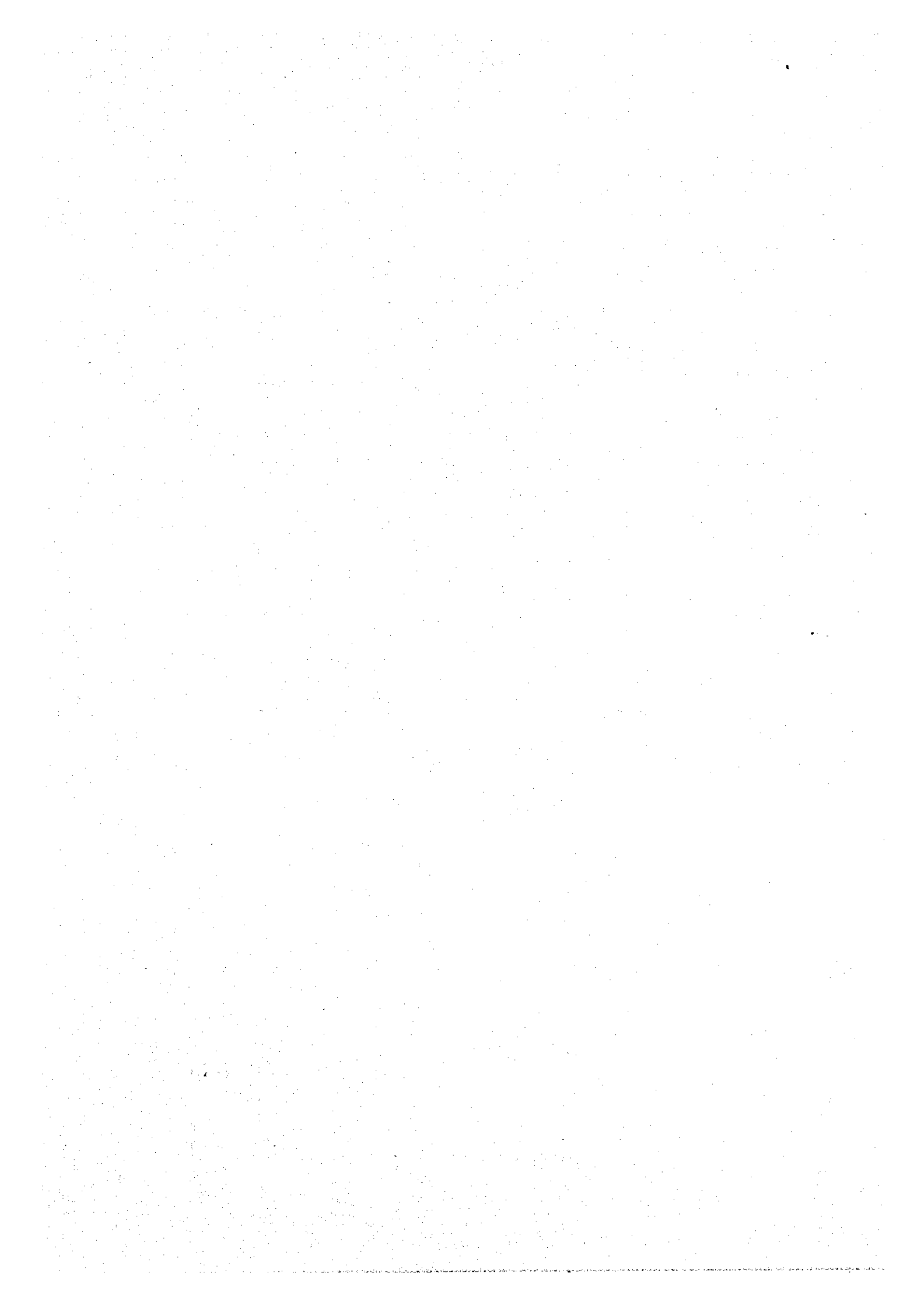
3-3-4 Basic Design Drawing

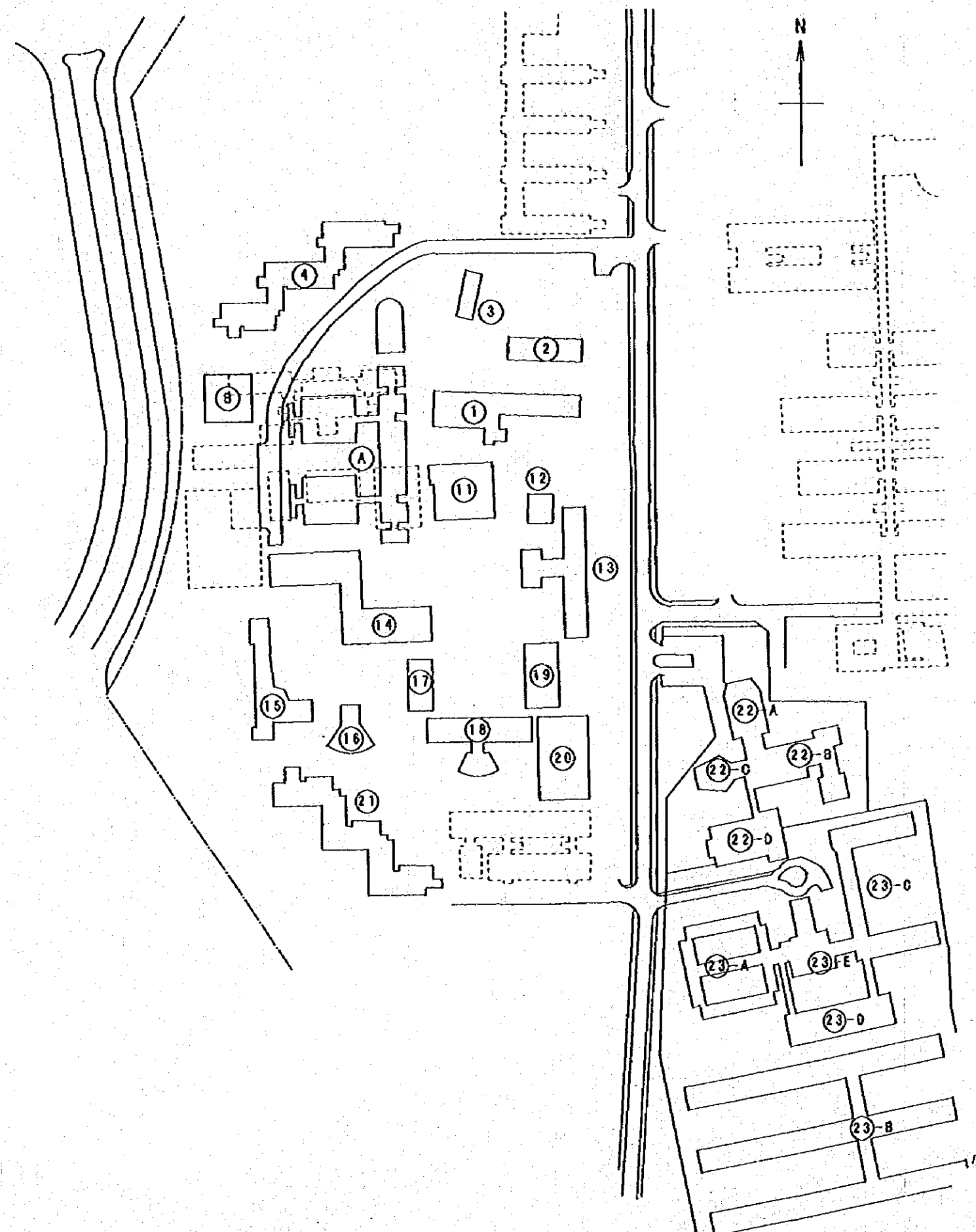
List of Basic Design Drawings

No	Name of Buildings	Name of Drawings	Scale
1		Site Plan of KMTC Nairobi	1/2000
2	KMTC Nairobi -Tuition Block	Ground Floor Plan	1/300
3	KMTC Nairobi -Tuition Block	1st Floor Plan	1/300
4	KMTC Nairobi -Tuition Block	Roof Plan	1/300
5	KMTC Nairobi -Tuition Block	Elevation	1/300
6	KMTC Nairobi -Tuition Block	Section	1/300
7	KMTC Nairobi -Maintenance Center & Store	Plan / Roof Plan	1/300
8	KMTC Nairobi -Maintenance Center & Store	Elevation/Section	1/300

Floor Area Tabulation

Name of Buildings		m ²
KMTC Nairobi -Tuition Block	Ground Floor	1,932
	1st Floor	1,760
	Total Floor Area	3,692
KMTC Nairobi -Maintenance Center & Store	Ground Floor	488
	1st Floor	290
	Total Floor Area	778



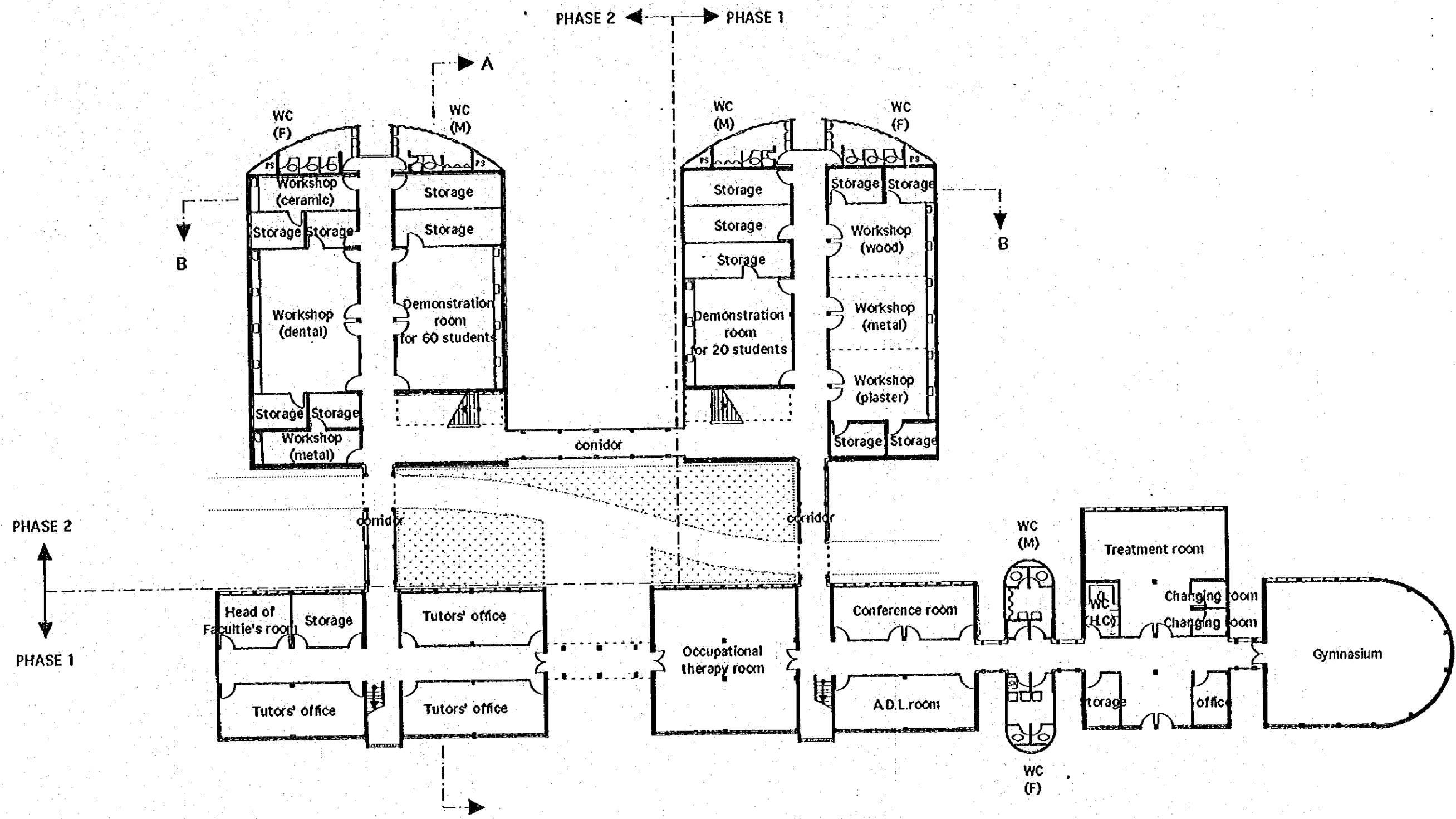


- 1) KMTc Nairobi
- ① Administration Block
 - ② Medical Clinic
 - ③ Clinical Medicine Block
 - ④ Men's Dormitory (Soweto)
 - ⑤ Orthopaedic Technology Block
 - ⑥ Canteen
 - ⑦ Dental Technology Block
 - ⑧ Store
 - ⑨ Workshop Block
 - ⑩ Physiotherapy Block
 - ⑪ Occupational Therapy Block
 - ⑫ Food Inspection Block
 - ⑬ Health Record & Information Block
 - ⑭ Classroom & Laboratory Block
 - ⑮ Men's Dormitory (Hilton)
 - ⑯ Clinical Medicine & Lecture Theatre Block
 - ⑰ Pharmacy Laboratory Block
 - ⑱ Pharmacy Block
 - ⑲ Lecture's Office Block
 - ⑳ Library
 - ㉑ Men's Dormitory (Kanu)
 - ㉒ Nursing Block
 - A Assembly Hall Block
 - B Classroom & Office Block
 - C Lecture Theatre Block
 - D Classroom & Seminar Block
 - ㉓ Women's Dormitory
 - A Merry Griffin's Block
 - B B-W, B-E Block
 - C Shah Block
 - D Recreation Block
 - E Medical Education Block
 - Ⓐ Tuition Block
 - Ⓑ Maintenance Center & Store

KMTc Nairobi	
Site Plan	SCALE 1:2000

[The page contains extremely faint and illegible text, possibly bleed-through from the reverse side of the document. The text is too light to transcribe accurately.]

[The page contains extremely faint and illegible text, likely bleed-through from the reverse side of the document. No specific content can be transcribed.]



GROUND FLOOR PLAN

KMTc Nairobi - Tuition Block	
Ground Floor Plan	SCALE 1:300
0M 2M 5M 10M 20M	

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

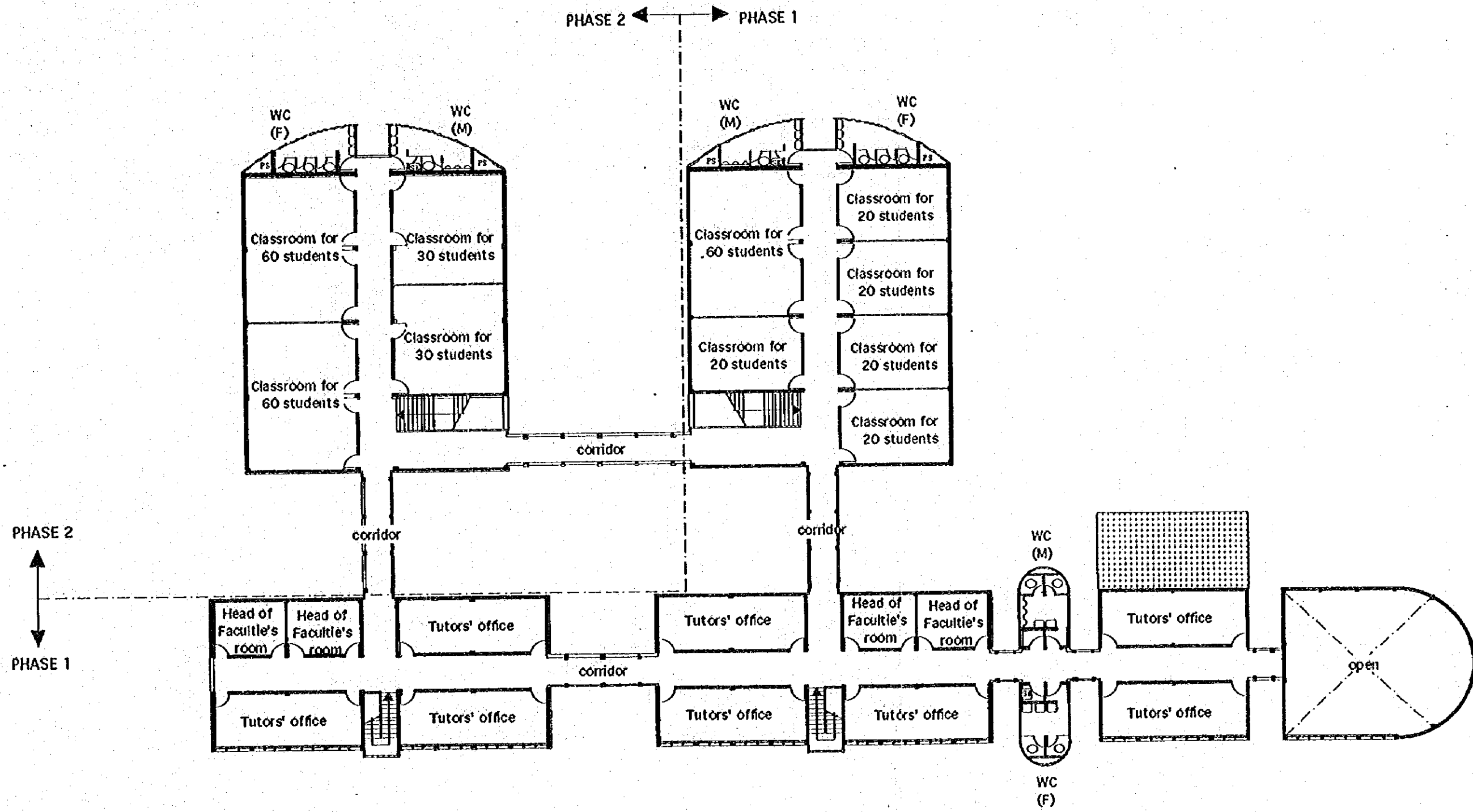
THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

THE UNIVERSITY OF CHICAGO LIBRARY
1207 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: (773) 936-3000

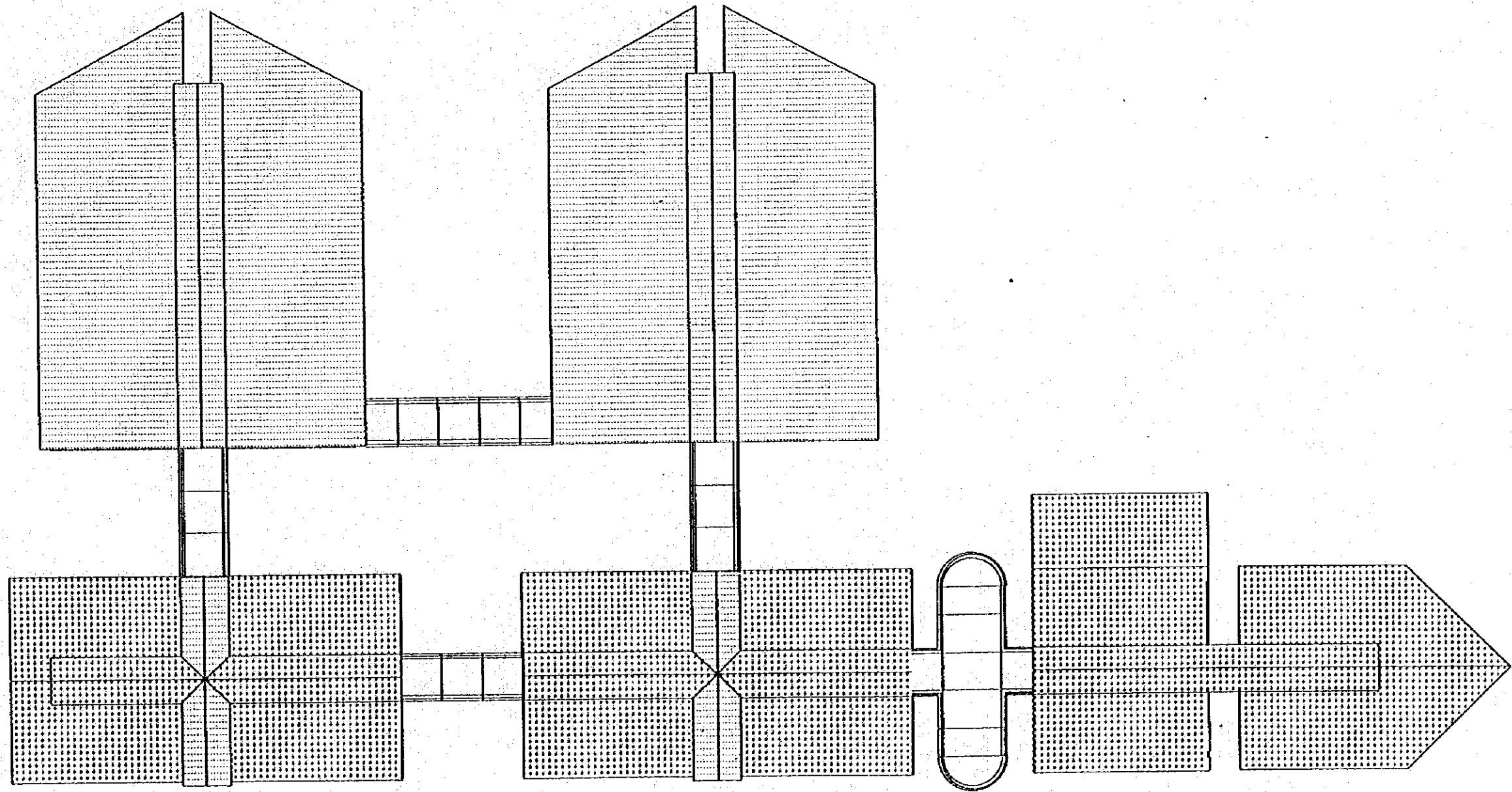


FIRST FLOOR PLAN

KMITC Nairobi - Tuition Block	
First Floor Plan	SCALE 1:300
0M 2M 5M 10M 20M	

THE UNIVERSITY OF CHICAGO

[The page contains extremely faint and illegible text, likely bleed-through from the reverse side of the document. The text is arranged in several columns and paragraphs, but the characters are too light to be transcribed accurately.]



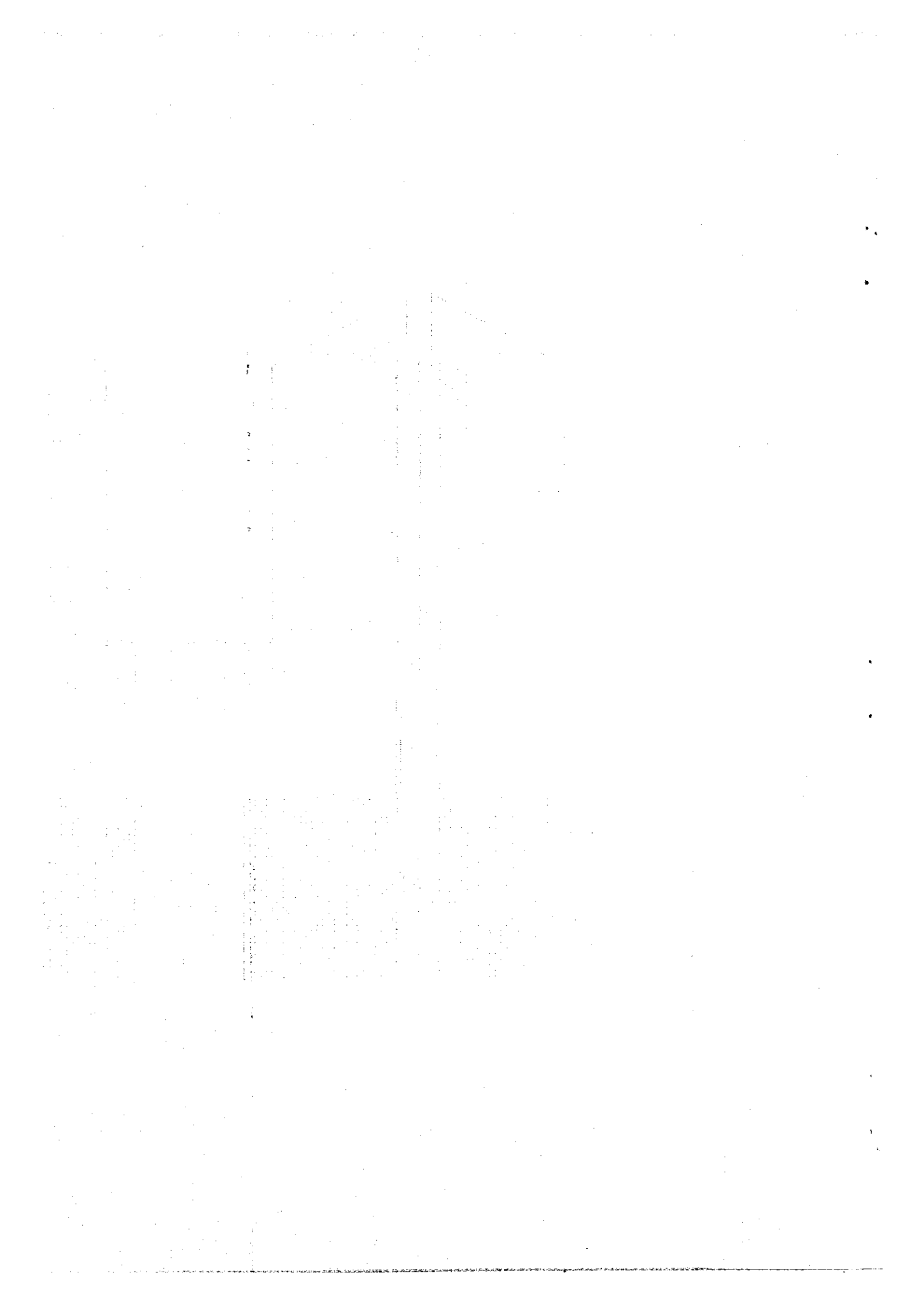
ROOF PLAN

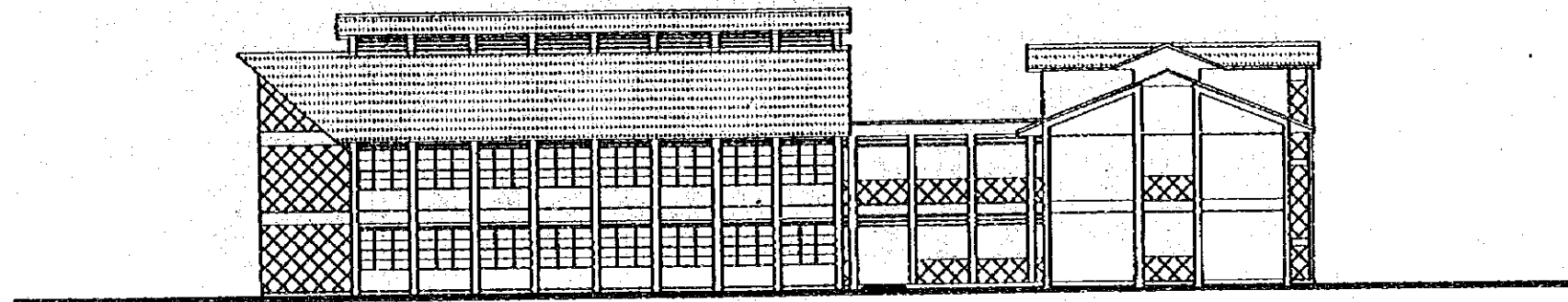
KMTc Nairobi - Tuition Block	
Roof Plan	SCALE 1:300
0M 2M 5M 10M 20M	

THE UNIVERSITY OF CHICAGO LIBRARY
1215 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: 773-936-3300
WWW.CHICAGO.LIBRARY.EDU

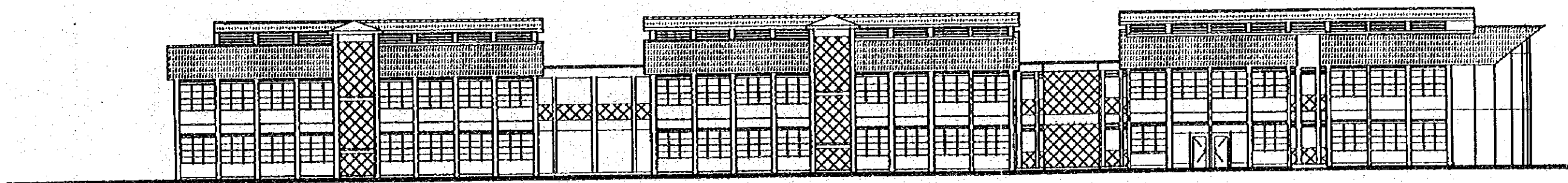
THE UNIVERSITY OF CHICAGO LIBRARY
1215 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: 773-936-3300
WWW.CHICAGO.LIBRARY.EDU

THE UNIVERSITY OF CHICAGO LIBRARY
1215 EAST 58TH STREET
CHICAGO, ILLINOIS 60637
TEL: 773-936-3300
WWW.CHICAGO.LIBRARY.EDU





SOUTH ELEVATION



EAST ELEVATION

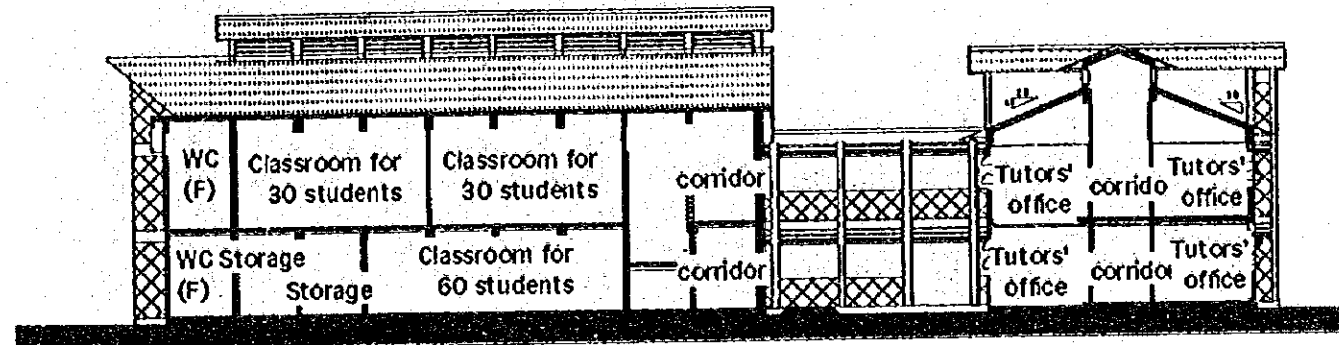
KMTN Nairobi - Tuition Block	
Elevations	SCALE 1:300
0M 2M 5M 10M 20M	

[Faint, illegible text covering the majority of the page]

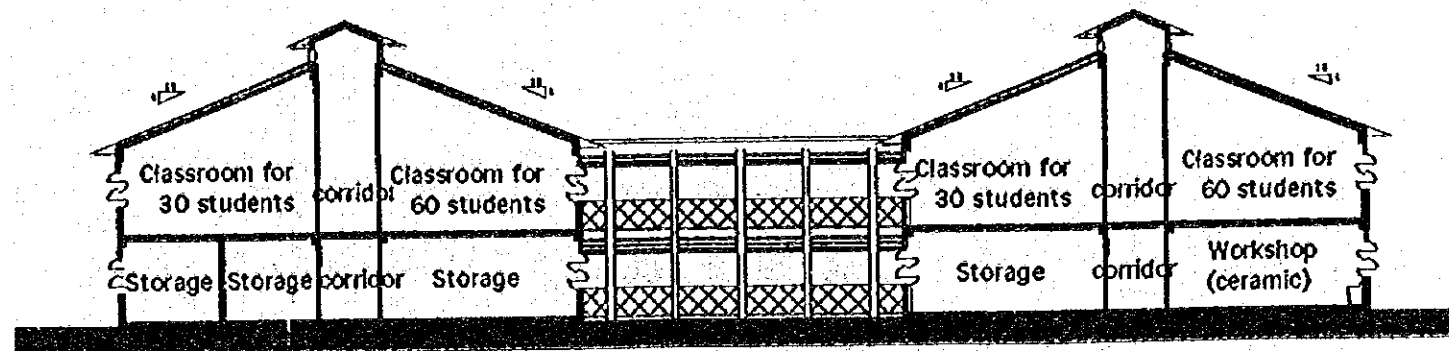
[Faint, illegible text in the lower middle section]

[Faint, illegible text at the bottom of the page]





A-A SECTION



B-B SECTION

KMITC Nairobi - Tuition Block	
Sections	SCALE 1:300
0M 2M 5M 10M 20M	

解 (1) 因为 $f(x)$ 是奇函数, 所以 $f(x) + f(-x) = 0$. 又因为 $f(x)$ 是增函数, 所以 $f(x) > f(-x)$. 因此 $f(x) > 0$. 又因为 $f(x)$ 是奇函数, 所以 $f(x) < f(-x)$. 因此 $f(x) < 0$. 因此 $f(x) = 0$.

解 (2) 因为 $f(x)$ 是奇函数, 所以 $f(x) = -f(-x)$. 又因为 $f(x)$ 是增函数, 所以 $f(x) > f(-x)$. 因此 $f(x) > 0$. 又因为 $f(x)$ 是奇函数, 所以 $f(x) < f(-x)$. 因此 $f(x) < 0$. 因此 $f(x) = 0$.

解 (3) 因为 $f(x)$ 是奇函数, 所以 $f(x) = -f(-x)$. 又因为 $f(x)$ 是增函数, 所以 $f(x) > f(-x)$. 因此 $f(x) > 0$. 又因为 $f(x)$ 是奇函数, 所以 $f(x) < f(-x)$. 因此 $f(x) < 0$. 因此 $f(x) = 0$.

解 (4) 因为 $f(x)$ 是奇函数, 所以 $f(x) = -f(-x)$. 又因为 $f(x)$ 是增函数, 所以 $f(x) > f(-x)$. 因此 $f(x) > 0$. 又因为 $f(x)$ 是奇函数, 所以 $f(x) < f(-x)$. 因此 $f(x) < 0$. 因此 $f(x) = 0$.

解 (5) 因为 $f(x)$ 是奇函数, 所以 $f(x) = -f(-x)$. 又因为 $f(x)$ 是增函数, 所以 $f(x) > f(-x)$. 因此 $f(x) > 0$. 又因为 $f(x)$ 是奇函数, 所以 $f(x) < f(-x)$. 因此 $f(x) < 0$. 因此 $f(x) = 0$.

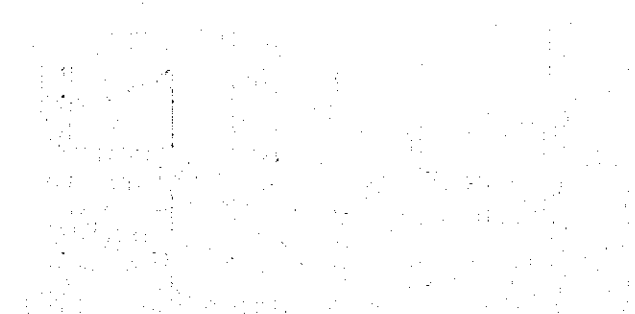


图 1

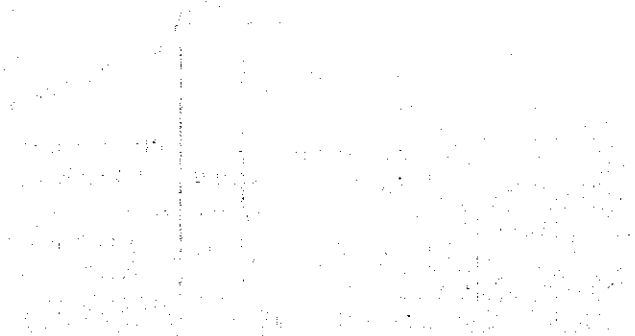
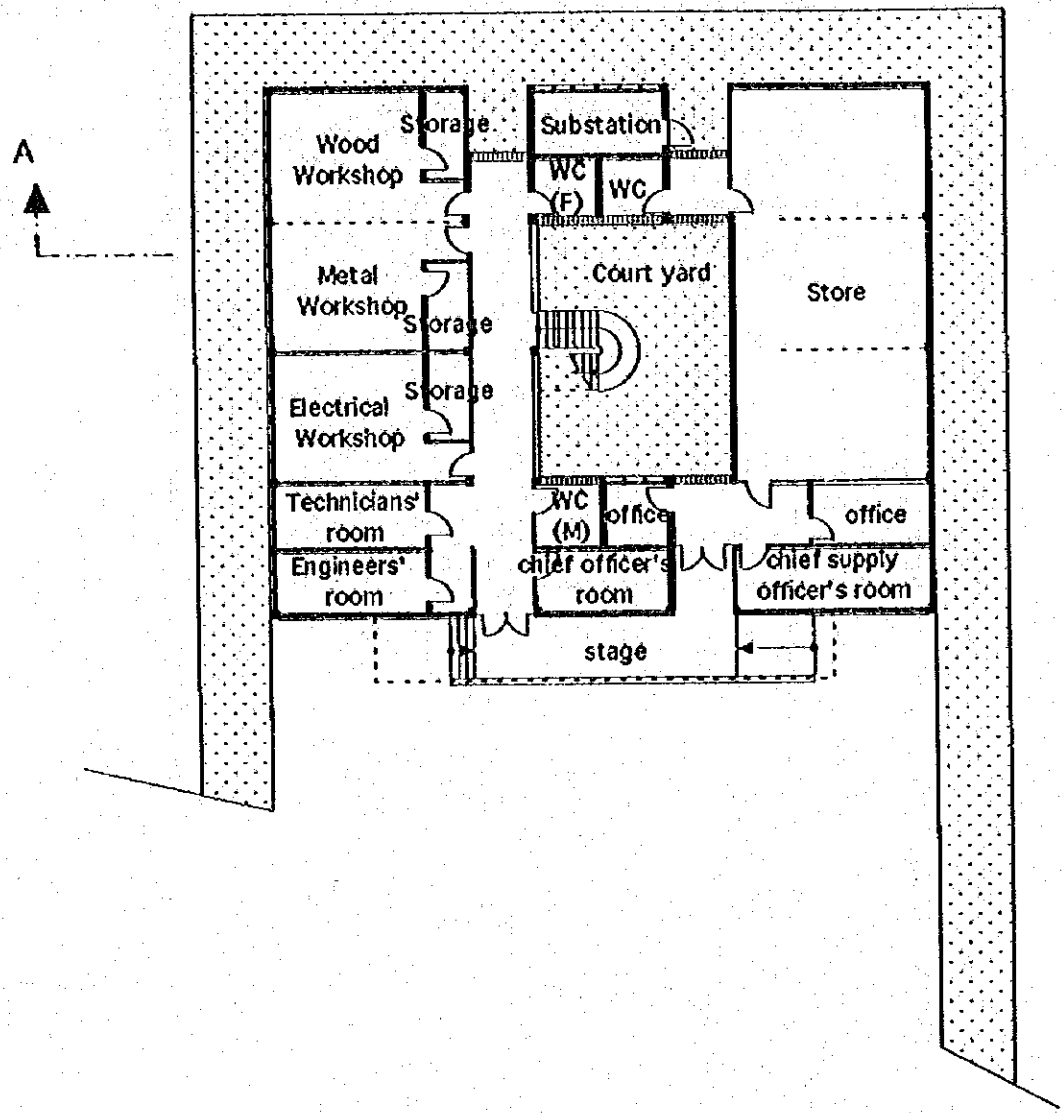
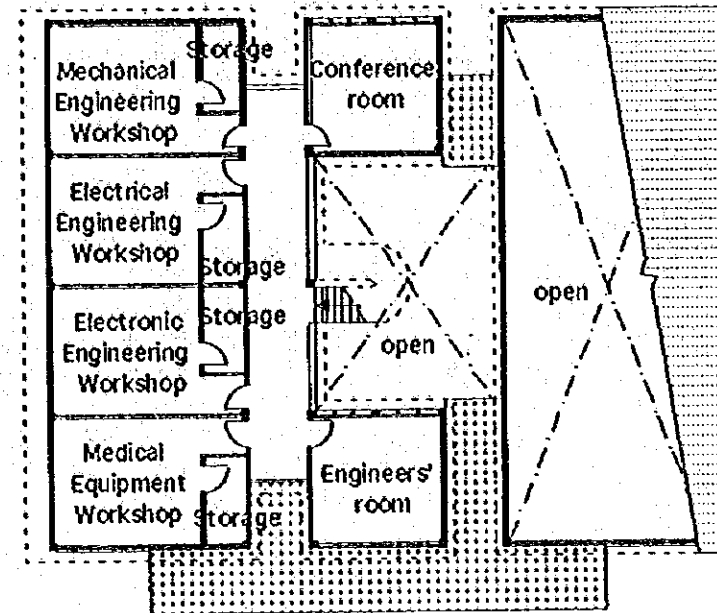


图 2

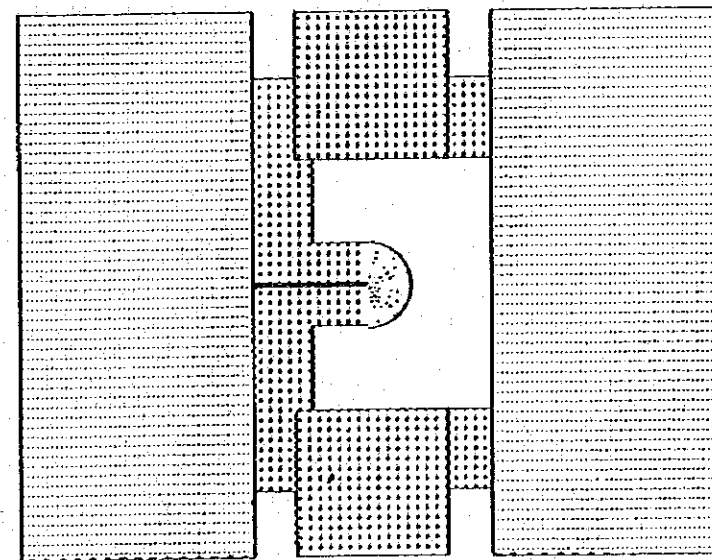
[The page contains extremely faint and illegible text, likely bleed-through from the reverse side of the document. The text is too light to transcribe accurately.]



GROUND FLOOR PLAN



FIRST FLOOR PLAN



ROOF PLAN

KMTC Nairobi - Maintenance Center	
Plans	SCALE 1:300

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

Additionally, it highlights the need for regular audits to identify any discrepancies or errors. By conducting these checks frequently, potential issues can be caught early, preventing them from escalating into larger problems.

The document also touches upon the role of technology in streamlining record-keeping processes. Modern software solutions can automate many tasks, reducing the risk of human error and saving valuable time.

Conclusion

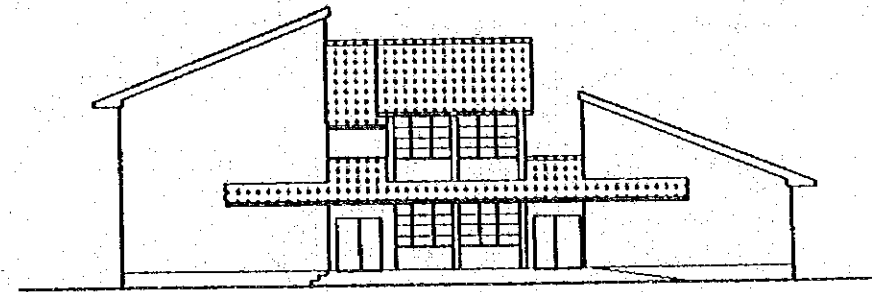
In conclusion, effective record-keeping is essential for the success of any business. It provides a clear and concise overview of financial performance, enabling informed decision-making. By adhering to the principles outlined in this document, organizations can ensure their records are accurate, reliable, and easy to access.

Remember, the key to successful record-keeping is consistency and attention to detail. Regular updates and thorough reviews are crucial for maintaining the integrity of the data.

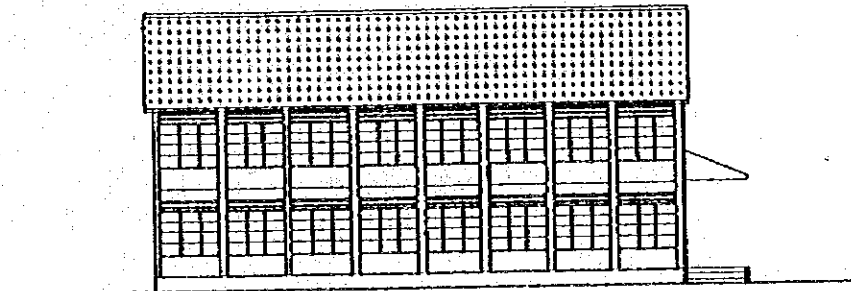
We encourage all stakeholders to take responsibility for their own records and to work together to ensure the highest standards of accuracy and transparency.

Appendix

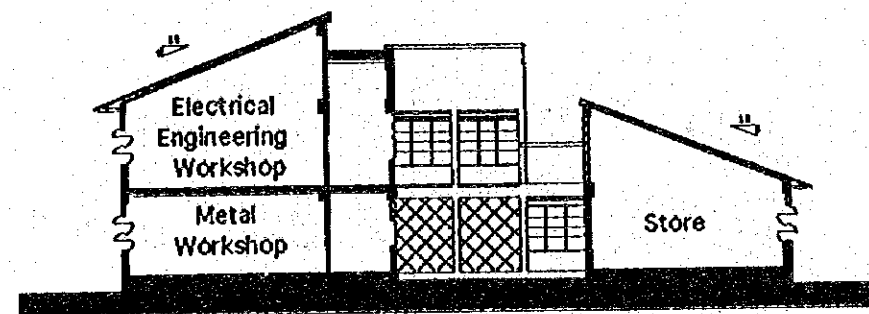
Item ID	Description	Quantity	Unit Price	Total Value
001	Office Supplies	50	\$2.00	\$100.00
002	Travel Expenses	1	\$150.00	\$150.00
003	Equipment Purchase	1	\$500.00	\$500.00
004	Professional Fees	2	\$75.00	\$150.00
005	Utilities	1	\$30.00	\$30.00
006	Insurance	1	\$120.00	\$120.00
007	Marketing Campaign	1	\$200.00	\$200.00
008	Research & Development	1	\$300.00	\$300.00
009	Legal Services	1	\$180.00	\$180.00
010	IT Support	1	\$90.00	\$90.00



EAST ELEVATION



SOUTH ELEVATION



A-A SECTION

KMTc Nairobi - Maintenance Center	
Elevations and Sections	SCALE 1:300
0M 2M 5M 10M 20M	

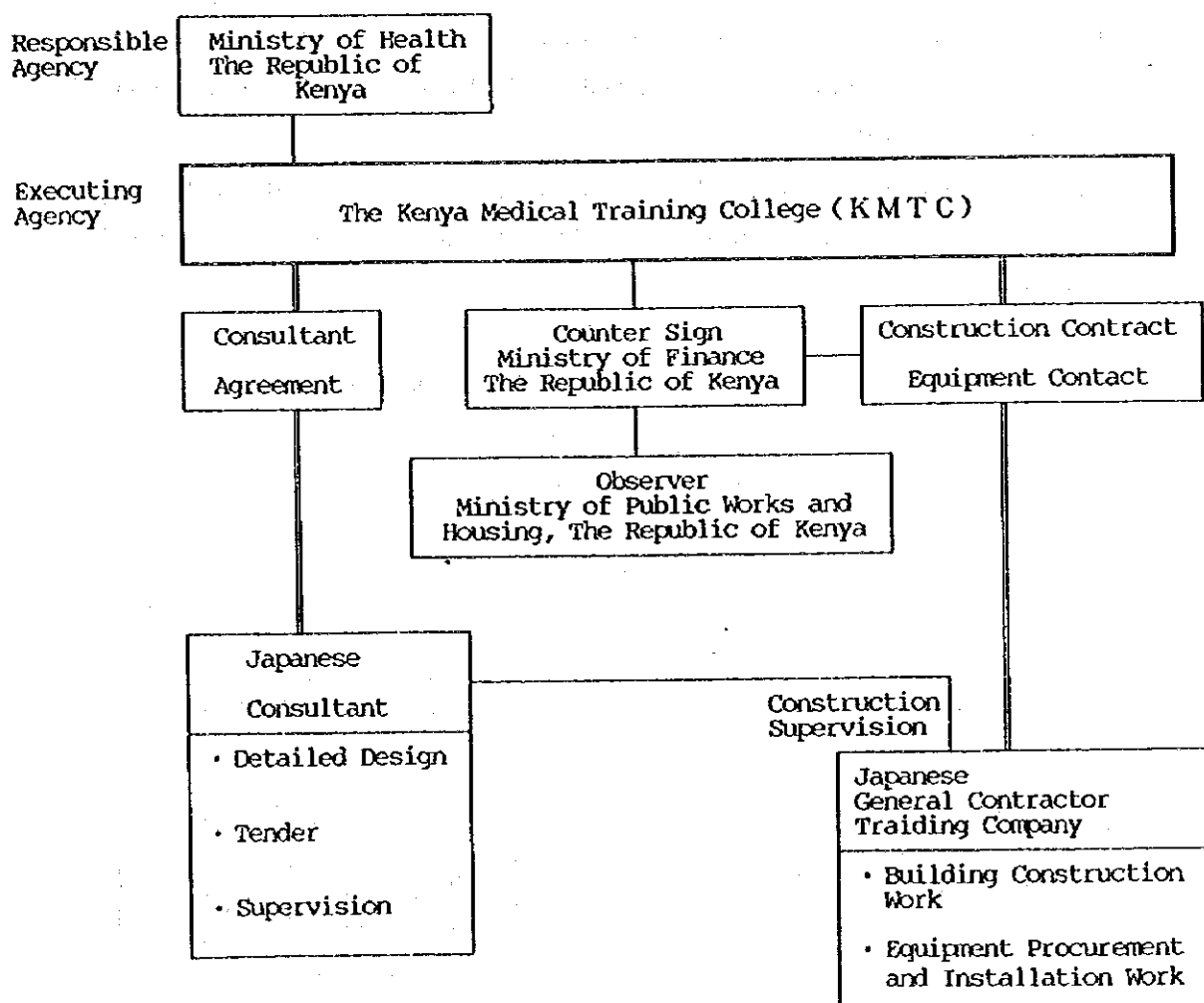
3-4 Implementation Plan for Urgent Rehabilitation Plan

3-4-1 Construction Conditions

(1) Implementation System

The Project is implemented under the grant aid assistance of the Government of Japan, after the Exchange of Notes (E/N) is signed concerning the Project, by the Governments of Japan and the Republic of Kenya after Cabinet determination. The implementation system of the Project is given below.

Table/Figure 3-11 Organization for Project Implementation



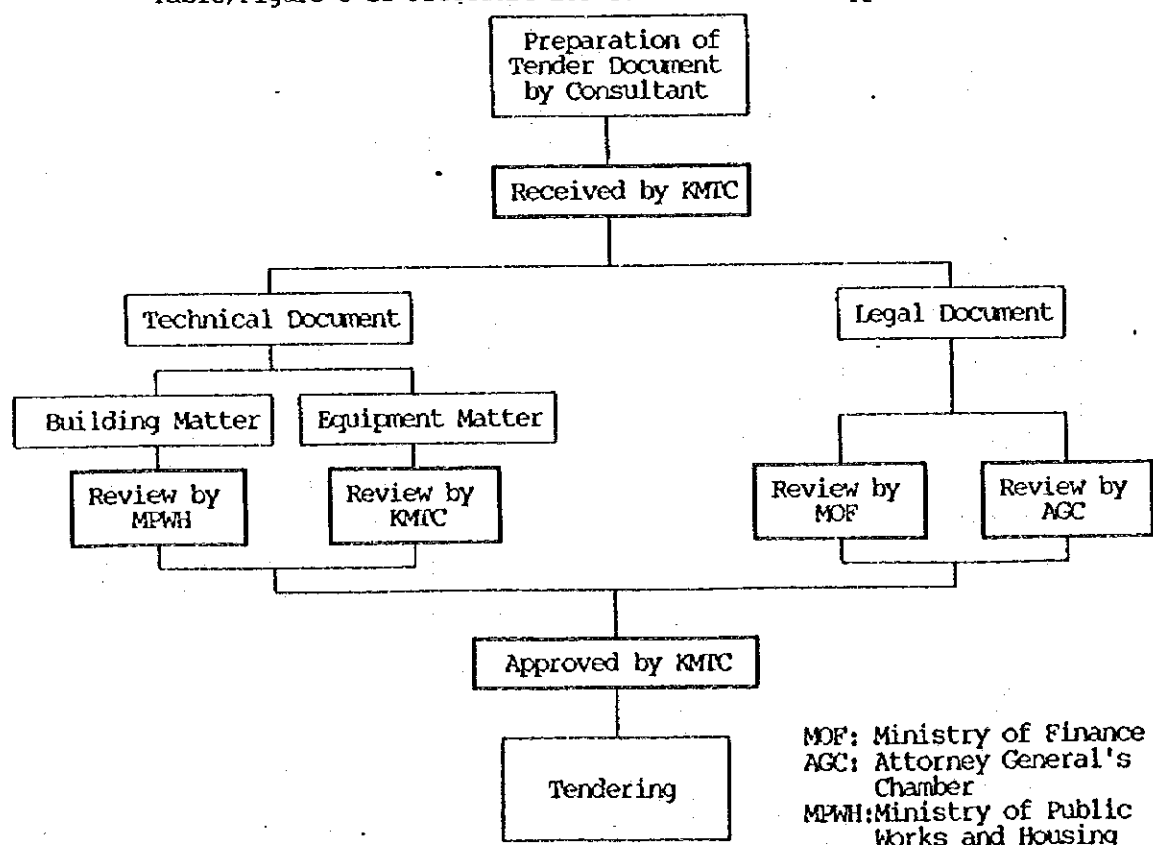
The Ministry of Health will remain the agency of the Republic of Kenya responsible for the implementation of the Project, even after the enforcement of the KMTC Act 1990. The executing agency is KMTC, which became independent on September 2, 1992. KMTC, therefore, will be in charge of coordination with other relevant Ministries and Agencies as necessary, in addition to taking budgetary measures for activities and for future operations carried out by the Government of Kenya.

The Kenyan Ministry of Finance (MOF) is the counter-signer of the construction contract for the Project, and at the same time, is the Kenyan organization which has signed the E/N.

In Kenya, order and approval of designs for government-related facilities are performed by the Ministry of Public Works and Housing (MPWH). These, however, will be done by KMTC, which has become independent, and MPWH will assist it in doing so. Examination of the contents of bidding documents (detailed design drawings, specifications, etc.) and examination of construction work will be conducted by MPWH upon request from KMTC, and KMTC will make approval.

Contract-related documents in bidding documents will be examined by MOF and Attorney General's Chamber (AGC), upon request from KMTC, and KMTC will make approval. These procedures are illustrated below.

Table/Figure 3-12 Procedure for Tender Document Approval



(2) Consultant

After the E/N is signed, KMTC concludes a consultant contract with a consultant firm, which is a Japanese legal person, regarding detailed designing and construction management, and receives authentication of the contract from the Japanese government. For smooth implementation of the Project, it is important that a consultant contract be concluded as soon as possible after the signing of the E/N. The consultant firm prepares a document of detailed designing, based on the basic design study report, upon consultation with KMTC after the conclusion of the contract, and receives approval from KMTC. Bidding and construction management will be conducted, based on the document of detailed designing.

(3) Contractor

Engineering work relevant to the Project includes construction work pertaining to rehabilitation and re-construction of the existing facilities, and equipment work pertaining to procurement and installation of equipment. A contractor will be appointed from among qualified Japanese legal persons through open competitive bids with restriction on bidders' qualifications.

KMTC will conclude a contract on construction work with the successful bidder, and receive authentication of the contract on engineering work from the Japanese government.

After that, the contractor initiates engineering work at once, and carries out engineering work in accordance with the contract.

(4) Local Consultants, Constructors and Dispatched Technical Experts

Preparing detailed design drawings for rehabilitation and re-construction requires detailed surveying of the existing facilities. It is therefore effective for detailed design drawings to be prepared not only in Japan but also in Kenya simultaneously. For this purpose, employing local consultants is effective, and it is necessary to send a resident Japanese engineer.

In construction work relevant to the Project, technical experts will be dispatched from Japan etc. to be engaged in technical guidance and construction management regarding that work which requires high quality (e.g., waterproofing). Regarding equipment work, engineers of local agents will be able to meet the needs. However, it is necessary to dispatch technical experts from Japan etc. for giving guidance in installation work of physiotherapy equipment and explanation of uses of the equipment for X-ray, Medical Laboratory etc. for smooth implementation of the Project.

3-4-2 Implementation Method

(1) Construction Conditions

Constructors in Kenya include foreign affiliates and domestic constructors. Foreign affiliates refer to those corporations which are active in large projects, being assisted by

foreign organizations such as the World Bank and OECF. Domestic constructors are classified into Indian enterprises and Kenyan enterprises. It can be said that Indian enterprises play a leading role in the construction industry of Kenya. The same is applied to the industry of supplying large construction materials. In Kenya, business practices have succeeded to those of the United Kingdom, and contracts on engineering work are generally concluded, based on specifications and bills of quantities (BQ).

Recent labor conditions in Kenya are characterized by the fact that the total working population is too large, but most of these people are unskilled workers, with skilled workers being insufficient in both quality and quantity. Capability of skilled workers in Kenya is considered 1/3 or 1/4 of Japanese workers in terms of standard quantities of labor and materials per unit.

Capabilities of engineers and foremen in local construction companies (regarding understanding of drawings, quality control, and process management) have advanced gradually as they work as subcontractors of Japanese and foreign constructors. It is, however, necessary to employ them, in the implementation of the Project, under adequate guidance from Japanese Engineers.

(2) Considerations in Executing Construction Work

The Project includes a wide range of rehabilitation work. Special considerations required in rehabilitation are mentioned below.

1) Construction work is often carried out by using existing facilities and near those facilities which are in service. It is therefore necessary to pay attention to paths of flow of users (students, school personnel, etc.), and detailed process management is necessary for this purpose.

2) As construction sites are in living spaces for students and school personnel, measures are necessary for protecting not only the students but also the workers concerned from accidents.

3) The removal of finishing material, piping, and equipment needs to be carried out after careful study of procedure, in order to prevent reckless demolition of existing facilities. It is also necessary to give the workers clear and accurate instructions, after confirmation of the range of demolition and an adequate study of the method of demolition. Adequate curing is required so that no damage will be caused by demolition work.

4) Most of rehabilitation work needs skilled workers. It is necessary therefore to effectively employ Kenyan skilled workers, who are insufficient in number, and to formulate a labor plan which includes the reception of skilled workers from abroad.

3-4-3 Construction and Supervisory Plan

(1) Detailed Design and Major Services

In accordance with the grant aid assistance system of the Government of Japan, KMTC concludes a consultant agreement with a consultant firm, which is a Japanese legal person. For smooth execution of activities, the consultant organizes a project execution team which consistently conducts execution designing and supervisory activities, in line with the objectives of the basic design.

The purpose of supervisory activities is to ascertain whether construction work is carried out in accordance with drawings and specifications or not, and to ensure quality by giving guidance and advice as well as carrying out coordination during execution, from a fair standpoint, with a view to ensuring proper performance of the contents of the construction contract. Main activities are mentioned below.

1) Cooperation Concerning Bidding and Contract

For deciding contractors for construction work and equipment work, the consultant prepare tender documents, and conduct activities pertaining to bidding, which include advertisement of bidding, acceptance of application for bidding, examination of qualifications, holding of an interpretation meeting for bidding, distribution of bidding documents, acceptance of responses to bidding, and evaluation of bidding results. The consultant give advice to KMTC about conclusion of a construction contract with the successful bidder.

2) Guidance, Advice and Coordination for Contractor

The consultant gives guidance and advice, and conduct coordination for the contractor, upon study of the execution process, executing plan, procurement plan for construction materials, plan for equipment procurement and installation, etc.

3) Examination and Approval of Construction Drawings and Work Drawings

The consultant examines construction drawings, work drawings, and other papers presented by the contractor, and approve them, after giving necessary instructions.

4) Confirmation and Approval of Construction Materials and Medical Training Equipment

The consultant confirms conformity between the construction contract and construction materials and medical training equipment which the contractor is to procure, and approve the adoption of them.

5) Inspection of Construction Work

The consultant attends, where necessary, inspections and tests in factories where construction parts and medical training equipment are manufactured, and ascertain that quality

and performance are ensured.

6) Reporting of Progress of Construction Work

The consultant is kept informed on the execution process and conditions in the construction site, and report the progress of construction work to the organizations concerned.

7) Inspection of Construction Work and Trial Run

The consultant inspect construction work and ancillary facilities as well as installation of medical training equipment, attend trial runs of these, ascertain that performances entered in the contract on engineering work are satisfied, and issue a certificate of completion of inspection.

8) Training in Operation of Facilities and Medical Training Equipment

Some pieces of equipment require a basic knowledge of operation and maintenance. Training is necessary for Kenyan operators and repairmen to acquire operational techniques for these pieces of equipment during the period of installation, adjustment and trial runs. The contractor formulates a training plan, for which the consultant give advice and guidance.

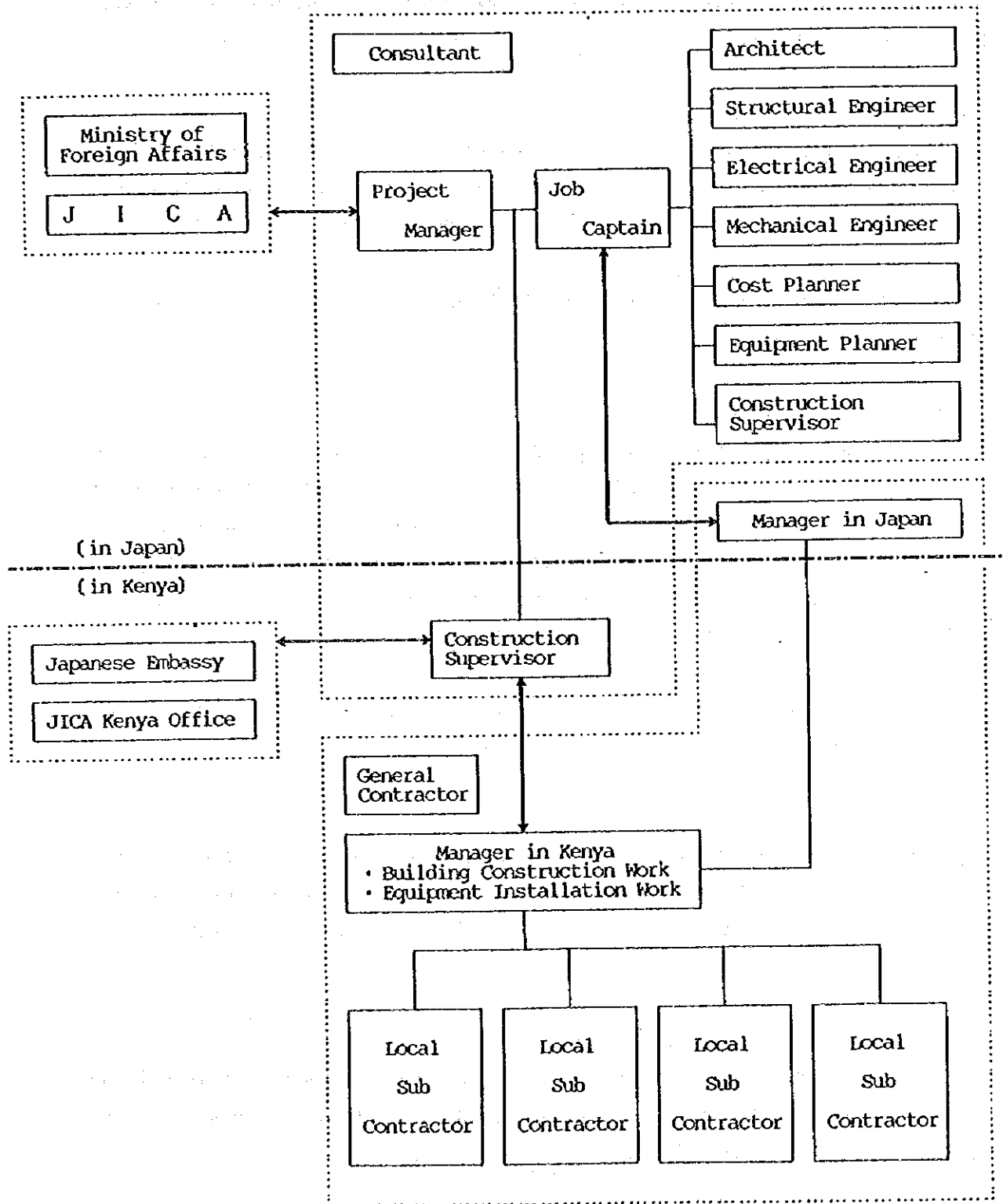
(2) Supervisory System

The consultant dispatches one resident supervisor to the Republic of Kenya for the execution of the above-mentioned services, in due consideration of the contents of engineering work pertaining to the Project.

In addition, the consultant dispatches the necessary number of technical experts of the fields concerned, in order to engage them in inspection, instruction and coordination. In Japan, too, the consultant appoints technical experts of the fields concerned, and establishes liaison with people in the construction sites and a backup system. The consultant also holds regular meetings in Japan, checks execution drawings, manages the construction process, and attends factory inspections. The consultant reports the progress of the Project, payment procedures, transfer upon completion, etc., to the relevant organizations of the Government of Japan.

The following chart shows the supervisory system in Japan and Kenya.

Table/Figure 3-13 Organization for Construction Supervision



3-4-4 Procurement Plan

(1) Construction work

This plan involves the rehabilitation and re-construction of KMTC. Consequently, the materials and equipment, that is reliable and easy to maintain, are procured. The following points are being considered.

1) Procurement of local materials

For easy repair, maintenance and management following completion of the facilities, materials and equipment should be self-maintaining as much as possible. However, confirmation of quality and quantity should be carried out as not to interfere with the process of construction.

Moreover, imported items that can be obtained locally are also regarded as local products, and should be self-maintaining.

2) Procurement of imported materials

Materials and equipment which are impossible to obtain locally, inferior in quality or are in inadequate supply should be imported from Japan. In such cases, contractors of this project should contact KMTC regarding imports and customs in order to ensure smooth handling.

Even though locally manufactured materials and equipment may be of good quality and offer good reliability, the cost of importing should be examined. Taking Japanese pricing, packaging, transportation and insurance into consideration, it may still work out to be cheaper than locally available products.

If the difference is small, local products should be considered since any repairs, maintenance and management can be carried out on-the-spot.

3) Transportation

Materials and equipment imported from Japan should be transported by sea to Mombasa, and then by truck inland to the planned construction site. There is a possibility that some materials and equipment may be damaged due to shock, humidity and high temperatures and this must be taken into consideration.

(2) Procurement of Construction Materials

According to the procurement policy mentioned above, the procurement of materials and equipment in Kenya and from Japan is shown in the following table (remarks in the table show the present state of local materials and equipment):

Table 3-14 List of Major Construction Materials Procurement Plan

Classification	Material	Procurement in Kenya	Procurement from Japan	Remarks
Reinforced concrete works	Portland cement	O		Portland cement produced in Mombasa and Nairobi satisfies the British Standard (hereinafter referred to as the BS standard) and the Kenya Standard. There is no problem in using it.
	Fine aggregate	O		Insufficient quality and quantity, and high price
	Coarse aggregate	O		Insufficient quality and quantity, and very high price due to control of the use of dynamite.
	Concrete	O		Careful management of quality and schedule is necessary because of insufficient quality and quantity of aggregate, as mentioned above.
	Reinforcing bar	O		Reinforcing bars are classified into Hot Rolled Mild Steel Bars and Hot Rolled High Yield Steel Deformed Bars, according to the BS standard. There is no problem in their quality.
	Mold	O		Opportunity of re-use is somewhat small.
Structural steel works	Shape steel, steel plates	O		Lightweight steel shapes (angles, round pipes, square pipes, channels, Z-shapes, etc.) are produced locally. Heavy steel shapes are imported from the South African Republic and other countries, which raises prices of these considerably. It is necessary to ensure stocks of these, from the viewpoint of schedule management.
Masonry Works	Concrete blocks	O		Concrete blocks are produced in accordance with the BS standard, but they vary widely in strength because of inadequate management in respect of curing periods, etc. These cannot be used for bearing walls.
	Bricks	O		A large factory named Kenya Clay Products Ltd. has been in operation in the suburbs of Nairobi for several years, producing considerable improvement in variety, accuracy and output of bricks.
Waterproofing works	Asphalt waterproofing		O	Asphalt waterproofing material is produced locally only by two companies, and these companies have not made effort for quality improvement. They have insufficient knowledge of waterproofing techniques, which cannot be relied upon.
	Membrane waterproofing	O		Good results have been produced in permeating membrane waterproofing such as Bandex waterproofing.

Classification	Material	Procurement in Kenya	Procurement from Japan	Remarks
Waterproofing works	Sealing materials		O	Most of sealing materials on the market were produced several years ago, and their quality is not satisfactory.
Stone works	Marble	O		Some makers produce marble and granite, but Nairobi stone is popular.
	Terrazzo	O		Terrazzo blocks are produced for flooring, and various combinations are available according to order. Cast-in-place terrazzo is a more popular method, which is inexpensive and produces no technical problem.
Tile works	Ceramic tiles	O		Dimensional accuracy is lower than that of those tiles of Japanese make, with limited varieties. But tiles of local make are used, with maintenance and management being taken into consideration. High-grade tiles are imported from Italy. Mosaic tiles are not available locally.
	Porcelain tiles	O		
Carpentry	Timber	O		Recently RAI PLY Corporation and other companies can provide high-quality carpentry materials. Waterproof plywood is also available.
	Glued laminated timber	O		
	Plywood	O		
Roofing works	Tiles	O		Roof tiles, which are durable enough, are produced locally in large quantities.
	Bent sheets	O		Recently a large factory of Gal Sheet Corporation has been in operation. The baking paint on galvanized steel sheets are imported from the South African Republic, Japan, etc., and bending them. These are not only sold in Kenya but also exported to neighboring countries.
	Chipboards	O		Domestic chipboards are inferior in quality to Japanese chipboards, but they are widely used as insulation material.
Metal works	Lightweight steel ceiling bed	O		Wooden beds are generally used. Metal beds include the suspension system using aluminum T-bars.
	Checker plates		O	Not available locally.
	Stainless steel plates	O		These are all imports, but available in Kenya.
	Gratings	O		No ready-made gratings as those of Japanese make are available. Generally, round steel bars are welded to flat bars and processed, and then galvanized.

Classification	Material	Procurement in Kenya	Procurement from Japan	Remarks
Metal works	Aluminum top beams Aluminum expansion joints		○ ○	Those top beams and expansion joints which completely prevent permeation of rain water are not available locally.
Plaster works	Cement mortar	○		Base plastering and intermediate plastering are not conducted with trowels, unlike in Japan, but carried out by throwing. Only finish coating is carried out with trowels. The fact that poor preparations sometimes result in exfoliation must be taken into consideration.
Wooden doors and windows works	Hinged doors Double sliding doors Wooden frames	○ ○ ○		These are somewhat inferior in quality, but local products are used, from the viewpoint of maintenance and management. Warp is apt to occur due to insufficient drying of wood.
Steel doors and windows works	Aluminum doors and windows		○	Aluminum doors and windows of domestic make are limited in variety of casement material and inferior in air-tightness and water-tightness.
	Steel doors and windows	○	○	Window frames of domestic make are used in classrooms, for easier maintenance and management, though they are somewhat inferior in performance. Door frames of flush doors and large openings are Procurement from Japan, for ensuring sufficient strength.
	Jalousies	○		Though aluminum and galvanized steelalousies are available, steelalousies are used, for ensuring durability.
	Stainless steel doors and windows		○	Not available.
Fittings	Hinges Locks and knobs Door checks	○ ○ ○		Those of domestic make are inferior in quality. Imports which are good for use are available in Kenya. However adoption of a master key system is impossible.
Painting works	Interior paint Exterior paint	○ ○		Local products are available, which are good in both quality and quantity.
Glass works	Ordinary plane glass Heat absorbing glass Glass blocks Heat reflection glass	○ ○ ○ ○		These are all imports, which are expensive, but available in Kenya. Special kinds of glass require longer periods of delivery.
Interior finish works	Plastic tiles	○		These are locally available, but not used, because people wash floors, which is apt to produce exfoliation of tiles.
	Long vinyl sheets	○		These are locally available, though somewhat rigid. There is no problem in welding method.

Classification	Material	Procurement in Kenya	Procurement from Japan	Remarks
Interior finish works	Plaster boards		O	Not available locally.
	Rock wool acoustic boards	O		Imports are available.
Landscaping works	Pavement (asphalt concrete)	O		Locally available.
	Interlocking blocks	O		These are widely used, without problem in strength.
	Drain basins	O		No ready-made products. The cast-in-place method is adopted.
Electrical works	Panels		O	Imports
	Lighting appliances	O	O	As common lighting appliances, domestic products are used.
	Switchboards		O	Imports
	Fire alarms		O	Imports
	Electric wiring	O	O	Domestic products are used.
Mechanical works	Water tanks	O	O	Local products are mainly made of steel panels. FRP tanks are Procurement from Japan and/or local.
	Pumps		O	Imports
	Sanitary fixtures	O	O	Some toilet stools are of domestic made. Faucets are imports.
	Kitchen equipments	O	O	Stainless steel sinks are of domestic made. Gas ranges and refrigerators are imports.
	Hose reels	O		Imports are available in Kenya.
	Dry risers	O		Imports are available in Kenya.
	Steel pipes, PVC pipes	O	O	Steel pipes are Procurement from Japan, because those domestically made in accordance with the BS standard have a unstable in quality. PVC pipes are imports produced in accordance with the BS standard and available in Kenya.
	Fans	O	O	Some fans are of domestic made.

(3) Medical Training Equipment Work

In order to minimize the number of repairs to medical training equipment as much as possible, it is important to obtain products from companies within Kenya that have an established maintenance system. As a general rule, the same manufacturer's products should be obtained for multiple units. This is so we keep replacement parts and expendable supplies to a minimum for easy maintenance. At KMTC, training has been carried out using European medical training equipment, which has developed a certain familiarity with European products and—to a certain degree—has established a distribution route.

Based on the above points, the following methods are being implemented in Kenya for the supplying of medical training equipment.

1) Utilizing local manufacturers

There are 2 companies in Kenya which deal comprehensively with medical training equipment. One of these can provide maintenance for clinical/medical equipment. This is also the distributor for 8 Japanese companies and some staff have received training on maintenance techniques in Japan. The other company has a thorough knowledge of clinical test equipment and is an agency for British companies, etc. We think that both companies can provide maintenance for third-party countries' and Japanese-made medical training equipment to some degree. However, they also deal with cheap Asian products of inferior quality, so it is necessary to pay close attention to quality when ordering (especially with products made with stainless materials). Moreover, some educational training equipment for the environmental sanitation department need to be locally produced, so it is necessary to obtain these from local traders.

2) Utilizing European manufacturers and traders

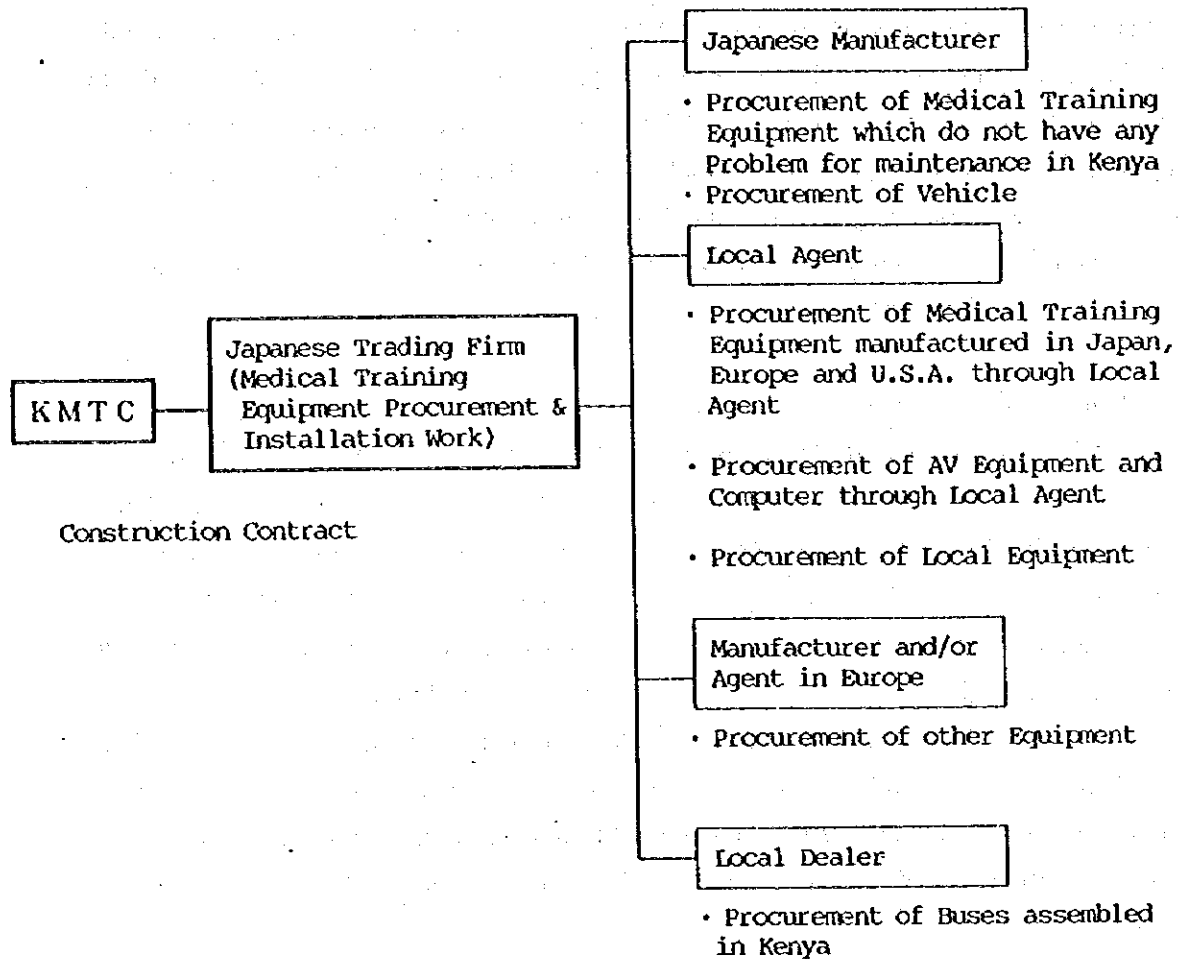
There are two European medical equipment companies which do not have agencies in Kenya. One company permits regular travel by their technicians. The other's office is in South Africa and services all of eastern Africa. Generally speaking, most traders in Kenya adopted the latter. In either case, the necessary steps for repairs, etc. are carried out. On the other hand, some Japanese products are contracted with traders of European medical equipment.

3) Procurement of vehicles

Japanese auto manufacturers produce big buses to meet local needs (such as reinforced frames to withstand local road conditions) in Kenya. Also, other vehicles produced locally are better in that replacement parts are relatively cheaper than that of imported cars, and can often be dealt with quickly. However, local prices are 2 to 3 times more expensive than Japan. Therefore, we order them from Japan except big buses.

The following chart shows the ordering procedure mentioned above.

Table/Figure 3-15 Ordering Procedure Flow Chart



3.4-5 Implementation Schedule

(1) Phasing

In accordance with the scale and construction period etc., it is desirable that the Project will be implemented in 2 phases as follows.

Phase 1

1) Facility Plan

KMTC Nairobi

Target facility	Planning items	Planning area
KMTC Nairobi	Re-construction of elevated water tank	
Tuition block	Re-construction of Faculty of Orthopedic Technology, Physiotherapy, Occupational Therapy	RC 2-story 2,792mf
Maintenance centre and Store	Re-construction of workshop, store for training equipment, power house	RC 2-story 778mf
(Karuri college)	Installation of new water pump	

2) Equipment Plan

Target facility	Equipment items
KMTC Nairobi	Basic medical training equipment relating to following Faculties ; Faculty of Clinical Medicine, Orthopedic Technology, Physiotherapy, Occupational Therapy, Health Education, Medical Engineering, Workshop Vehicle
MTC Nakuru, Kakamega, Kabarnet Port Reitz	Vehicle

Phase 2

1) Facility Plan

KMTC Nairobi

Target facility	Planning items	Planning area
KMTC Nairobi	Re-construction of elevated water tank	
Tuition block	Re-construction of Faculty of Dental Technology, Clinical Medicine	RC 2-story 900m ²
Classroom & Lab.	Rehabilitaion for roof, wall, interior	RC 3-story 3,104m ²
Clinical Medicine Lecture Theatre	Rehabilitaion for roof, wall, interior	RC 1-story 243m ²
Pharmacy Lab.	Rehabilitaion for roof, wall, interior	RC 2-story 384m ²
Pharmacy	Rehabilitaion for roof, wall, interior	RC 2-story 664m ²
Faculty of Nursing -A Assembly Hall -B Classroom & Off -C Lecture Theatre	Rehabilitaion for roof, wall, interior	RC 2-story 500m ² RC 2-story 1,400m ² RC 2-story 500m ²

MTC Karen

Target facility	Planning items	Planning area
MTC Karen	Re-construction of water reservoir	

MTC Matare

Target facility	Planning items	Planning area
MTC Karen	Re-construction of water reservoir	
Dormitory, Classroom Canteen	Rehabilitaion for roof, wall, interior As for 1-3 floor, water section only	RC 4-story 2,447m ²

2) Equipment Plan

Target facility	Equipment items
KMTC Nairobi	Basic medical training equipment relating to following Faculties ; Faculty of Nursing, Medical Laboratory Technology, Environmental Health Science, Dental Technology, Radiography, Pharmacy
MTC Karen	Basic medical training equipment for Faculty of Nutrition
MTC Nakuru	Basic medical training equipment relating to following Faculties ; Faculty of Nursing, Medical Laboratory Technology, Clinical Medicine
MTC Kakamega	Basic medical training equipment relating to following Faculties ; Faculty of Nursing, Medical Laboratory Technology
MTC Port Reitz	Basic medical training equipment relating to Faculty of Clinical Medicine
MTC Kabarnet, Mathare, Mombasa, Nyeri, Hona Bay, Machakos, Kisumu, Embu, Meru, Muranga, Garissa, Eldoret, Thika, Kisii	Basic medical training equipment relating to Faculty of Nursing

(2) Implementation schedule

The implementation schedule following conclusion of the Exchange of Notes (N/E) of the Project is illustrated in the next page. It is divided into 3 stages: 1 detailed design through the consultant, 2 assistance in tenders by the consultant 3, construction work by the contractor and supervisory services by the consultant.

1) Detailed design

KMTC and a Japanese consultant company concluded an agreement on the detailed design and supervisory services for this project. The verification of this agreement was received from the Japanese government. At a later date, the consultants will prepare documents on the detailed design in accordance with the results of the Basic Design Study Report. Following discussions with KMTC, a tender documents will be prepared, and approval from KMTC will be obtained.

The estimated terms necessary for the detailed design are 3 months for the first phase and 4 months for the second phase.

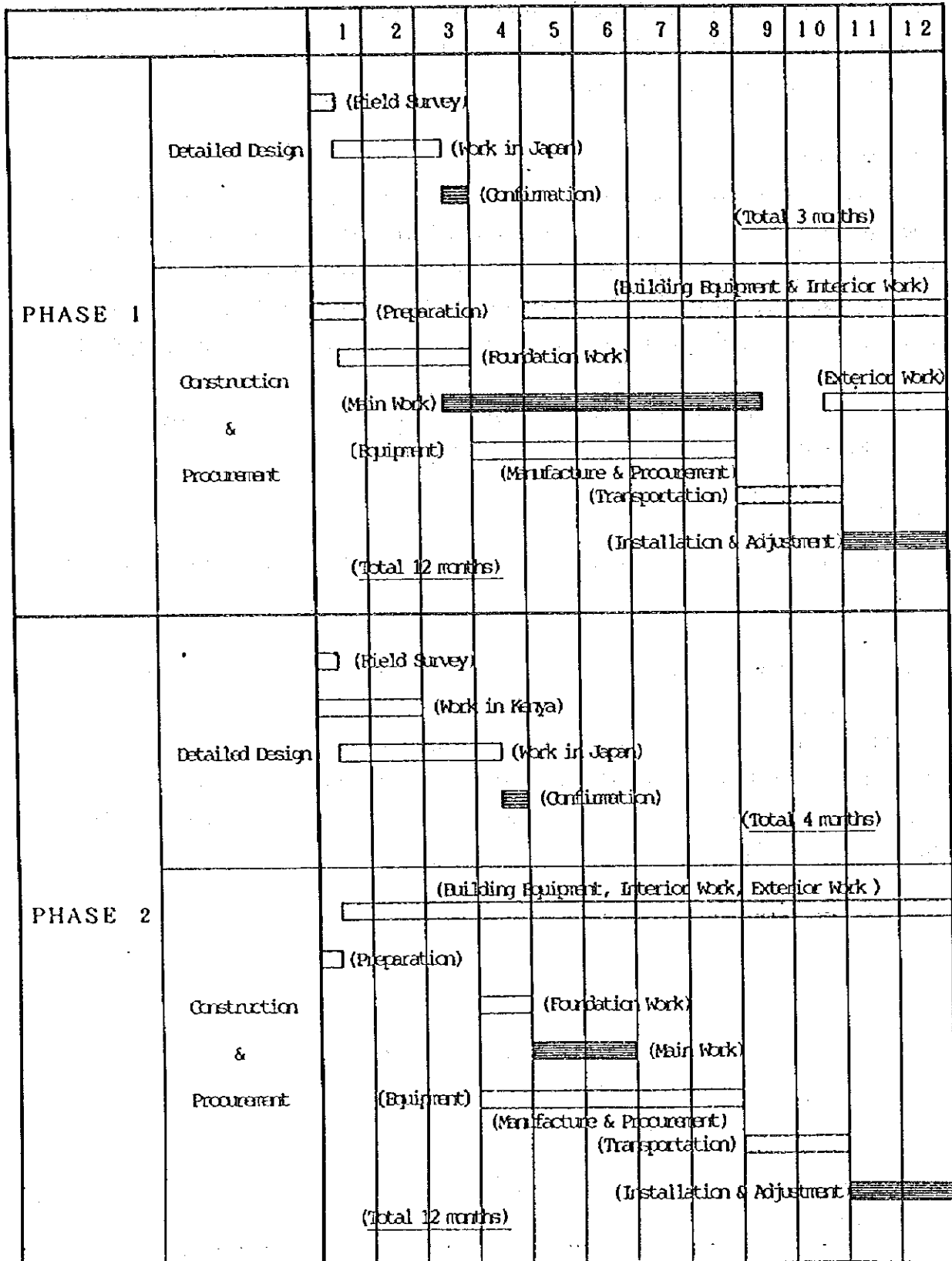
2) The tender

The estimated terms necessary for the tender are 2 months for both the first and second phases.

3) Construction work (construction work by the contractor, and supervision by the consultant)

After the construction contract is finalized, verification is obtained from the Japanese government, and then construction work can begin. Consultants carry out construction supervision. The estimated terms necessary for the construction work are 12 months for both the first and second phases.

Table/Figure 3-16 Implementation Schedule



3-4-6 Scope of the Work

(1) Scope of Works

So that construction will be implemented smoothly, it is necessary to specify the scope of construction works between the Japanese and Kenyan sides. Facilities and equipment used in the facilities are the responsibility of Japan. Others matters such as upgrading the infrastructure and effective implementation following completion of the facilities are Kenya's obligation.

The contents of this are as follows.

Table/Figure 3-17 Scope of Construction Works

Works to be born by Japanese side	Works to be born by Kenyan side
<ol style="list-style-type: none"> 1. Building construction Framing works, Finishing works, Installation works of standard fix furnitures. 2. Works for electrical system, Power and main wiring system, Lighting and socket outlet system, Telephone and communication system, Lightning protection system, and Fire alarm system 3. Plumbing and air conditioning facilities Water supply facilities, Drainage facilities, Sanitary fixtures, Fire protection facilities, Gas facilities, Air conditioning and Ventilation facilities 4. Works for Specified facilities Substation system (only for KMTC Nairobi), Well (only for MTC Karen) 5. Outer works Outdoor drainage facilities, Outdoor lighting fixture within the Project site 6. Medical training equipment installation works Procurement and installation of medical training equipment 	<ol style="list-style-type: none"> 1. Preparation of Construction site for building and its readjustment, Demolishing of existing buildings, Construction of temporary workshop and canteen, Replacement of piping 2. Outer works Gardening, Tree planting, Pavement works for road, Construction of out site road 3. Demolition of power house and replacement of cabling facilities, Rehabilitation of PBX (only for KMTC Nairobi) 4. Lead-in works for each infrastructure Lead-in works for electricity, water supply, telephone, drainage 5. Furniture and utensiles Curtain, blind, ordinary furnitures 6. Others Application of permission for construction works of buildings and other necessary procedures

* Rehabilitation works are shown in "3-3-1 Rehabilitation and Re-construction Plan".

Other important matters which the Kenya side should take responsibility in are as follows.

- 1) Exemption of all taxes related to this project;
- 2) Taking responsibility of service charges in issuing B/A and A/P.
- 3) Guarantee prompt inloading of materials and equipment at port, tax exemptions, customs procedures, and securing prompt domestic transportation;
- 4) In accordance with the verified contract, to provide accommodations for Japanese persons who are staying in Kenya to carry out delivery of equipment and materials and to carry out business, and to provide all the necessary conveniences upon entering Kenya;
- 5) In accordance with the verified contract, to provide tax exemptions for Japanese persons who carry out delivery of equipment and materials as their daily business, and to provide all the necessary conveniences upon entering Kenya;
- 6) Take the necessary budgetary measures through grants in order to carry out effective operation, maintenance and management of equipment furnished and facilities built.
- 7) Take responsibility for expenses required, through grants, for things other than supplies.

(2) Approximate Project Expenses

The breakdown of expenses to be borne by the Government of Kenya is estimated as follows:

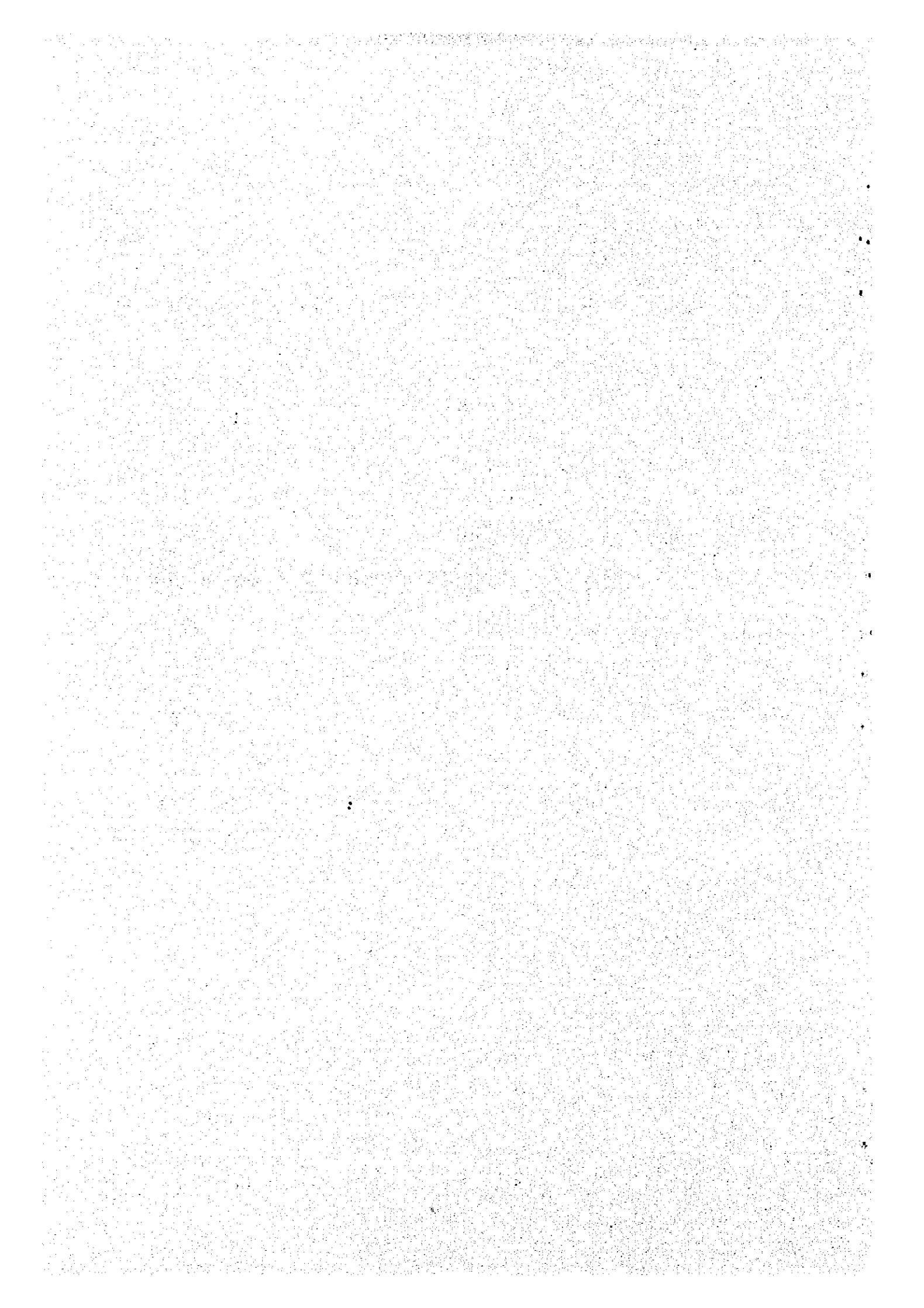
1) Expenses borne by the Kenya	13.81 million kshs. (about 29 million yen)
a. Demolition of existing building and site clearance	5.86 million kshs.
b. Infraestructure work	
· Electricity	2.23 million kshs.
· Water	1.02 million kshs.
· Sewage	0.35 million kshs.
c. Furniture and fixture work	4.35 million kshs.
<hr/>	
Total	13.81 million kshs.

2) Estimate Conditions

- a. Time : March 1995
- b. Exchange rate : 1 US dollar = 97.00 yen; 1 ksh = 2.13 yen
- c. Construction period : The construction period is to consist of two (2) phases. The periods required for detailed design and construction work are as shown in the implementation shcedule.
- d. Miscellaneous : The Project is to be executed in compliance with Japan's grant aid system.

Chapter 4

Project Evaluation and Conclusion



CHAPTER 4 PROJECT EVALUATION AND CONCLUSION

4-1 Expected Results of the Project

It is expected that the implementation of the project will produce the following results in terms of qualitative improvement in health care manpower development in Kenya, as well as in education and training of medical professionals in the country.

Present state and problems	Measures to be taken under the project	Expected results and improvements
Most of the KMTC's existing facilities are now 20 to 30 years old. Due to budgetary strains, however, their maintenance and operation is not carried out properly, which is aggravating these facilities' superannuation and is also working to further worsen the educational environment in the country.	The work to rehabilitate, re-construct the existing facilities will be started for the purpose of recovering the educational functions for which KMTC is intended.	It will become possible to recover such functions by recovering the roofs' waterproofness and the functions of the fixtures, the water supply equipment and the electrical equipment to their state.
At the KMTC, education and training, which is one of the most important functions of any medical training institute, is not conducted properly due to the superannuation of the medical training equipment and a shortage of such equipment. The college is dependent on public hospitals for most of the medical educational resources.	Those items of equipment for use in nursing education which are relatively easy to maintain and manage will be procured nationwide. (The same type of medical training equipment will be procured for each of the faculty of nursing.) On the other hand, medical training equipment will be procured for all the faculties of the KMTC Nairobi and for those faculties of its branch schools which are in urgent need of such equipment. Moreover, vehicles needed to transport students to training sites will also be procured.	In the case of the faculties of nursing, the use of the same educational level differentials between regions. The improvement in the quality and performance of medical training equipment will also contribute to the enhancement of the level of medical education in the country and at the same time will make it possible to offer more efficient medical education and training. As a result, it will become possible to improve the skills of medical professionals who are to play a key role in regional health care.
As a result of the enforcement of the KMTC Law, the KMTC, which has become an independent semi-national institute only recently, does not have a well-organized facility/equipment maintenance and operation system yet. For this reason, it is imperative for the college to establish a viable facility/equipment maintenance and operation system.	A maintenance center & store will be established within the KMTC Nairobi so that the college may perform a facility/equipment maintenance and operation function that covers all its schools. Such a function will be conducive to the establishment of a viable maintenance and operation system. Basic items of equipment for use in maintenance and operation will be procured concurrently with the construction of the planned facilities.	It will become possible for the KMTC to establish a viable independent maintenance and operation system, which in turn will make it possible to take prompt maintenance steps, including minor repairs of facilities, painting of interior and exterior walls and mending of minor equipment breakdowns.

4-2 Verification of the Appropriateness of the Project

1) It has been found that KMTC facilities, which were constructed several decades ago, have structural defects, leaking in roofs, and insufficient building functions (few toilets are available). The Project's implementation makes it possible to recover the original function for education through rehabilitations on facilities and the re-construction of superannuated buildings. Specifically, it becomes possible to give lectures even in rainy weather. This results in improvement of the contents and levels of education, and capability of medical workers of Kenya will be improved as well.

2) The provision of medical training equipment makes possible basic teaching practice, which has not been conducted because of insufficient equipment. Thus far, students have been dispatched to neighboring teaching hospitals, without having received sufficient training in KMTC. This has been a burden on these hospitals. The Project's implementation will lighten the burden on the teaching hospitals, by educating students through efficient use of the medical training equipment and facilities, and make it possible for students to receive sufficient training outside Medical Training College.

3) Many of the graduates of KMTC (90% of the medical workers in Kenya have been educated in KMTC) are playing a very important role, supporting medical services in their respective regions. Improving the level of KMTC students, therefore, produces improvement of primary health care for the people of Kenya, which in turn improves medical services for them.

4) The main objective of the project is to rehabilitate the college's existing facilities. The implementation of the project is therefore expected to restore the college's existing facilities and equipment to their former state. The KMTC has plans to establish its own maintenance and operation system. Under the project, a maintenance center will be established within the KMTC Nairobi as an institution to support the KMTC's efforts to this end. This will make it possible for the KMTC to implement a comprehensive maintenance and operation program through its maintenance center, which will be conducive to the establishment of a viable maintenance and operation system.

4-3 Recommendations

As stated earlier, the project is expected to produce many beneficial effects. It is expected to meet the basic human needs of the people of Kenya. It was concluded, therefore, that it is appropriate to implement the project under the Government of Japan's grant aid cooperation. The followings are recommended so that the project may be implemented smoothly and effectively.

1) Quick Going Through the Agreement and Approval Formalities During Project Implementation

Since the project is going to be implemented under the Government of Japan's grant aid cooperation, there are time limitations to its implementation. For this reason, the Government of Kenya needs to quickly follow the procedures for the signing of the Exchange of Notes, the signing of the consultant agreement, the approval of the detail design drawings prepared based on the contents of this basic design study report and the conclusion of the construction contract.

2) Smooth Execution of the Government of Kenya's Share of the Work

The basic design study team has already explained the Government of Japan's grant aid cooperation system to the representatives of the Government of Kenya. It is necessary for the Government of Kenya to make timely budgetary appropriations for the execution of its share of the work to be done under the project within the framework of the Government of Kenya's fiscal year. It is necessary that the approval of the ground leveling work and the application for building permission be obtained and the work to provide electricity, telephone service and city water for use in the construction work be completed prior to the start of the Government of Japan's share of the work and that the work to supply electricity and city water for use in the college's facilities be completed at least 2 months prior to the completion of the construction work for the smooth execution of the inspection of the facilities and equipment and the trial run of the equipment at the time of completion of the construction work.

3) Establishment of a Viable Maintenance and Operation System

The KMTC, which became an independent semi-national institution upon enforcement of the KMTC Act, is in the process of conducting the preparatory work for the establishment of a viable maintenance and operation system that covers all its 24 colleges. The Government of Kenya is however, required to provide strong support to the KMTC in its efforts to secure budgetary appropriations and human resources required for the establishment of such a system.

4) Continuous Execution of the Rehabilitation Work through Utilization of the Maintenance Centre

The implementation of the project does not mean the completion of the work to repair the KMTC's all existing facilities and to improve its medical training equipment. It is necessary that the KMTC continue relatively slight the works for example the painting work of interior and exterior walls of the existing facilities, the doors and windows work, the furniture work and the work to produce and repair medical training equipment on its own initiative making effective use of the maintenance centre and store to be established within its KMTC Nairobi under the project.

5) Making Effective Use of the Equipment Provided

It is desirable that upon completion of the project, Japanese experts be sent to the KMTC under the Government of Japan's technical cooperation for the improvement of the method of medical training at KMTC and making each of these items of equipment perform its function fully. It is recommendable to save the fund for the purpose of replacement and/or major repair of the medical training equipment, which will be provided under the Project.

6) Formulation of New Comprehensive Educational Program

In connection with the KMTC Act 1990, it is imperative for the KMTC to formulate a new comprehensive educational program aimed at improving its educational functions. Such educational program will include the evaluation of the details of the college's present educational program, the improvement of each faculty's curriculum, the formulation and evaluation of new educational policies. The project is expected to improve the country's educational environment to some extent. In this context, it is desirable that Japanese experts be dispatched to the KMTC under the Government of Japan's technical cooperation for the improvement of the quality of education and training and the method of operation at KMTC in order to supplement the college's efforts to grow on its own.

7) Establishment of Monitoring System

It is necessary to establish a monitoring system which covers the following, under the control of KMTC and the Ministry of Health, regarding the operation of KMTC as an independent organization.

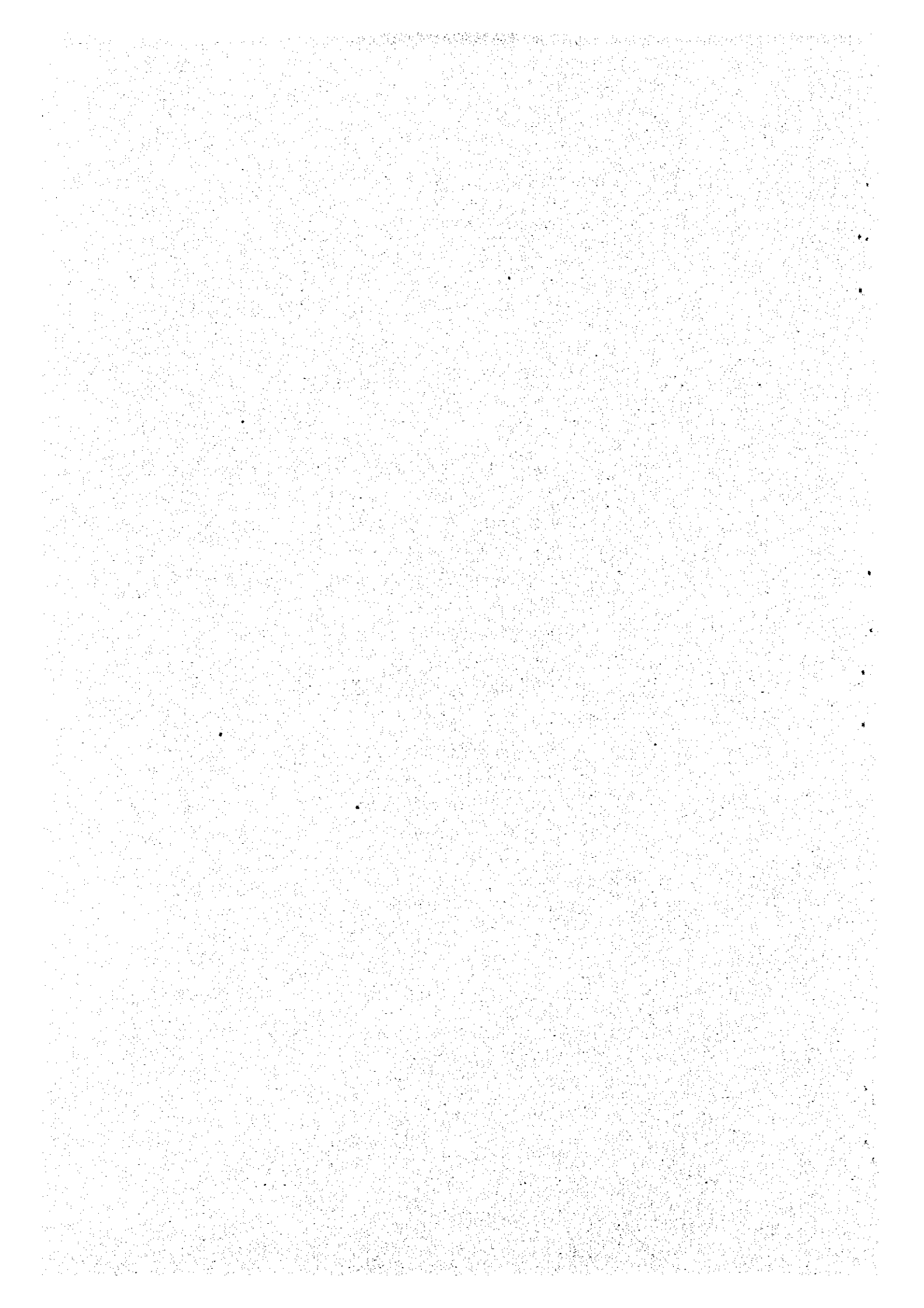
- a. Change of numbers of incoming students and graduates
- b. Positions held by graduates
- c. Change of numbers of school personnel
- d. Financial plan and results
- e. Numbers of successful applicants for relevant national examinations
- f. Indicators necessary for an independent organization to run a school

8) Formulation of KMTC Master Plan

For targets of the Project, three colleges have been selected from among 23 KMTC colleges (KMTC Karuri is regarded as part of KMTC Nairobi), because rehabilitation of facilities is most urgently necessary in these colleges. The other colleges have almost the same administrative systems as these three colleges, and the Preliminary Study Team has reported superannuation of facilities in these colleges other than the three colleges. Although rehabilitation is planned in the Project for the three colleges only, it would be urgently necessary to formulate a master plan (a rehabilitation and improvement plan) which covers all KMTC colleges for the purpose of smooth implementation of further Rehabilitation Plan.

Appendixes

- 1. Names of the Members of the Basic Design Study Team**
- 2. Survey Schedule**
- 3. List of Major People Interviewed**
- 4. Minutes of Discussions**
- 5. Site Plan of the KMTTC's Existing Facilities**
- 6. Soil Exploration Data**
- 7. Basic Design for Excluded Rehabilitation Plan**
 - 7-1 Design Policy**
 - 7-2 Study and Examination on Design Criteria**
 - 7-3 Basic Design**
 - 7-4 Equipment Plan**
 - 7-5 Maintenance Expenses**
 - 7-6 Basic Design Drawing**



1. Names of the Members of the Basic Design Study Team

(List of the Members of the Basic Design Study Team)

Charge	Name	Position/Organization
Leader/ superintendent	Mr. KASAI, Akira	Special Technical Assistant to the President, JICA
Medical education specialist	Ms. ASAKURA, Masako	Assistant Professor, St. Mary's Junior College of Nursing
Coordinator	Ms. INAMI, Junko	First Basic Design Study Div., Grant Aid Study & Design Dept., JICA
Project manager/ architectural planner I	Mr. NAKAJIMA, Mamoru	Nihon Sekkei, Inc.
Architectural planer II/ estimator	Mr. IKAWA, Masahiro	Nihon Sekkei, Inc.
Facilities planner	Mr. OKADA, Motohiro	Nihon Sekkei, Inc.
Equipment planner/ maintenance & operation planner	Mr. TATENO, Katsuo	Nihon Sekkei, Inc.

(List of the Members of the Explanation Team of the Draft Report)

Charge	Name	Position/Organization
Leader/ superintendent	Mr. KASAI, Akira	Special Technical Assistant to the President, JICA
Coordinator	Ms. INAMI, Junko	First Basic Design Study Div., Grant Aid Study & Design Dept., JICA
Project manager/ architectural planner I	Mr. NAKAJIMA, Mamoru	Nihon Sekkei, Inc.
Equipment planner/ maintenance & operation planner	Mr. TATENO, Katsuo	Nihon Sekkei, Inc.
Architectural Designer I	Mr. IKAWA, Masahiro	Nihon Sekkei, Inc. (Supporting Staff)
Architectural Designer II	Mr. TOMINAGA, Naoki	Nihon Sekkei, Inc. (Supporting Staff)

2. Survey Schedule

(Basic Design Study) (August 30 to October 13, 1994)

No.	Date	Place	Activity
1	August 30 (Tues.)	Departure from Narita Arrival in Paris	Travel
2	Aug. 31 (Wed.)	Departure from Paris	
3	Sept. 1 (Thur.)	Arrival in Nairobi	Courtesy visits to JICA office, Japanese embassy in Kenya, MOH
4	Sept. 2 (Fri.)	Nairobi	Discussion and investigation at KMTC, Nairobi
5	Sept. 3 (Sat.)	Nairobi - Nakuru	Discussion and investigation at KMTC, Nakuru
6	Sept. 4 (Sun.)	Nakuru - Nyeri	
7	Sept. 5 (Mon.)	Nyeri - Nairobi	Discussion and investigation at KMTC, Nyeri
8	Sept. 6, (Tues.)	Nairobi	Discussions and investigation at KMTC, Mathare, KMTC, Karen, and investigation Discussions at MOW, MOF
9	Sept. 7 (Wed.)	Nairobi	Discussion on minutes of discussion at KMTC, Nairobi
10	Sept. 8 (Thur.)	Nairobi	Discussion on minutes of discussion at KMTC, Nairobi Desiccation at MOW
11	Sept. 9 (Fri.)	Nairobi	Discussion on minutes of discussion at KMTC, Nairobi Signing of minutes of discussion at MOH
12	Sept. 10 (Sat.)	Nairobi	Investigation of construction/equipment situation
13	Sept. 11 (Sun.)	Nairobi	Sorting out of collected data and team discussion
14	Sept. 12 (Mon.)	Nairobi	Interim report to JICA, discussion and investigation at KMTC, Nairobi
15	Sept. 13 (Tues.)	Nairobi	Discussion and investigation at KMTC, Nairobi
16	Sept. 14 (Wed.)	Nairobi	Discussion and investigation at KMTC, Nairobi
17	Sept. 15 (Thur.)	Nairobi	Discussion and investigation at KMTC, Nairobi Discussion and investigation at KMTC, Karuri
18	Sept. 16 (Fri.)	Nairobi	Discussions and investigation at KMTC, Mathare, KMTC, Karen
19	Sept. 17 (Sat.)	Nairobi	Investigation of construction/equipment situation Investigation at KMTC, Nairobi
20	Sept. 18 (Sun.)	Nairobi - Kabarnet	Sorting out of collected data and team discussion
21	Sept. 19 (Mon.)	Kabarnet	Discussion and investigation at KMTC, Kabarnet

22	Sept. 20 (Tues.)	Kabarnet - Eldoret - Kakamega	Discussion at KMTC, Kabarnet, inspection of KMTC, Eldoret, discussion at KMTC, Kakamega
23	Sept. 21 (Wed.)	Kakamega	Discussion and investigation at KMTC, Kakamega
24	Sept. 22 (Thur.)	Kakamega - Homa Bay	Transit, team discussion
25	Sept. 23 (Fri.)	Homa Bay	Discussion and investigation at KMTC, Homa Bay
26	Sept. 24 (Sat.)	Homa Bay - Narokku	Transit
27	Sept. 25 (Sun.)	Narokku - Nakuru/ Nairobi	Sorting out of collected data, team discussion
28	Sept. 26 (Mon.)	Nakuru - Nairobi	(Nakuru) Discussion and investigation at KMTC, Nakuru (Nairobi) Interim report to JICA, discussion with local organization to do contract surveying/ geological research Nairobi - Nakuru
29	Sept. 27 (Tues.)	Nakuru	Discussion and investigation at KMTC, Nakuru
30	Sept. 28 (Wed.)	Nakuru - Nyeri	Discussion and investigation at KMTC, Nakuru
31	Sept. 29 (Thur.)	Nyeri	Discussion and investigation at KMTC, Nyeri
32	Sept. 30 (Fri.)	Nyeri - Nairobi	Transit, team discussion
33	Oct. 1 (Sat.)	Nairobi - Mombasa	Transit, discussion at KMTC, Mombasa
34	Oct. 2 (Sun.)	Mombasa	Sorting out of collected data, team discussion
35	Oct. 3 (Mon.)	Mombasa	Discussion and investigation at KMTC, Mombasa Investigation of equipment installed in KMTC, Meru portoreitsu
36	Oct. 4 (Tues.)	Mombasa Mombasa - Nairobi	Discussion and investigation at KMTC, Mombasa Inspection of KMTC, Meru mortoreitsu
37	Oct. 5 (Wed.)	Nairobi	Discussion and investigation at KMTC, Nairobi Investigation of construction/equipment situation
38	Oct. 6 (Thur.)	Nairobi	Discussion and investigation at KMTC, Nairobi Contract surveying/geological research ordered. Investigation of construction/equipment situation Report to Japanese embassy
39	Oct. 7 (Fri.)	Nairobi	Report to JICA, inspection of KEMRI, NYS Report to KMTC, Nairobi
40	Oct. 8 (Sat.)	Nairobi	Investigation of construction/ equipment situation
41	Oct. 9 (Sun.)	Nairobi	Sorting out of collected data, team discussion
42	Oct. 10 (Mon.)	Nairobi	Investigation of construction/equipment situation
43	Oct. 11 (Tues.)	- London	Investigation of construction/ equipment situation
44	Oct. 12 (Wed.)	London	
45	Oct. 13 (Thur.)	Narita	Return to Japan

(Draft Report Explanation) (March 8 to March 19, 1995)

No.	Date	Place	Activity
1	Mar. 8 (Wed.)	Departure from Narita Arrival in Paris	Travel
2	Mar. 9 (Thur.)	Departure from Paris	
3	Mar. 10 (Fri.)	Arrival in Nairobi	Courtesy visits to JICA Office, Japanese Embassy in Kenya
4	Mar. 11 (Sat.)	Nairobi	Discussion at KMTC
5	Mar. 12 (Sun.)	Nairobi	Team Discussion
6	Mar. 13 (Mon.)	Nairobi	Courtesy visits to MOF Discussion at KMTC
7	Mar. 14 (Tues.)	Nairobi	Courtesy visits to MOH Discussion at Japanese Embassy Discussion at KMTC
8	Mar. 15 (Wed.)	Nairobi	Discussion at KMTC Investigation of the site
9	Mar. 16 (Thur.)	Nairobi	Signing of minutes of discussion at MOH Interim report to Japanese Embassy
10	Mar. 17 (Fri.)	Departure from Nairobi	Interim report to JICA Office Investigation of the site
11	Mar. 18 (Sat.)	Arrival in Paris Departure from Paris	
12	Mar. 19 (Sun.)	Arrival in Narita	

3. List of Major People Interviewed

1) Japanese Embassy in Kenya

Mr. Shinsuke HORIUCHI	Ambassador extraordinary and Plenipotentiary
Mr. Masahiko HORIE	Councilor
Mr. Kiyoshi SAKAI	First Secretary

2) JICA in Kenya

Mr. Toshikazu NAGASHIMA	Resident Representative
Mr. Sumio AOKI	Deputy Resident Representative
Mr. Koji MAKINO	Staff
Mr. Ken FUJIE	Staff

3) Ministry of Health : M. O. H.

Ambassador D. D. Afande	Permanant Secretary
Dr. D. L. MAKHANU	Acting Permanent Secretary
Dr. MWANZIA	Director, Medical Services
Mr. I. J. SLINEY	Senior Health Planner
Mr. B. N. N. KIRRUTI	Donor Agencies Coordinator
Dr. R. A. SHUWARZ	Director, Development Solutions for Afirica, Ltd.
Dr.S. GUILD	Development Solutions for Afirica, Ltd.

4) Kenya Medical Training College Nairobi : KMTC Nairobi

Mr. W. K. A. BOIT	Principal
Mr. M. M. MATI	Deputy Principal
Mr. M. WAGATHARIA	Registrar
Mr. J. I. OBIYE	Personnel Dept.
Mr. J. J. O. OMBYO	Finance & Accis. Dept.
Mr. P. TUNKNO	Pharmacy
Mr. E. I. CHEGE	Environmental Health Science
Mr. D. A. BWONYA	Radiography
Mr. L. M. MUNENE	Health Education
Mr. P. K. TUN	Medical Engineering
Mr. J. M. MWAMISI	Medical Education
Mr. V. W. SITATI	Medical Laboratory Science
Mr. S. JISE	Clinical Medicine
Mr. F. W. SITUMA	Dental Technology
Mr. W. O. OCHANDA	Orthopeidc Technology

Mr. R. G. KIVANGULI	Occupational Therapy
Mr. G. M. KILONZO	Physiotherapy
Ms. A. BWLKA	Nursing
Mr. F. N. MWANGI	Community Oral Health
Mr. G. DIANGA	Maintenance Coordinator

5) Medical Training College Karuri : MTC Karuri

Mr. G. SHIKUKS	Principal
Mr. N. J. ONGERI	Executive Office

6) Medical Training College Mathare : MTC Mathare

Mr. E. O. ONJORO	Principal
Mr. J. A. WASWA	Deputy Principal

7) Medical Training College Karen : MTC Karen

Ms. M.W. KINYUA	Principal
Mr. H. GETABU	Executive Officer
Ms. E. W. WAIHENYA	Lecturer

8) Medical Training College Kabarnet : MTC Kabarnet

Mr. M. TOTICH	Principal
Mr. G. OBILA	Deputy Principal
Ms. R. NGETICH	Nursing
Mr. R. KIMITEI	Personnel Dept.

9) Medical Training College Eldoret : MTC Eldoret

Mr. R. A. OBIERO	Principal
Mr. B. O. OPANDE	Deputy Principal
Mr. B. W. WJUE	Deputy Principal
Mr. E. A. O. MULUSA	Executive Officer

10) Medical Training College Kakamega : MTC Kakamega

Mr. P. O. RABURU	D. C. Kakamega
Dr. G. OKUMU	MOH Kakamega
Dr. I. B. AMIRA	Provincial Public Health Officer
Mr. J. A. BOSILU	District Public Health Officer
Ms. G. SHIKUKU	Principal Tutor

Mr. T. OBAIRE	Deputy Principal Tutor
Mr. S. WAFURA	Deputy Principal Tutor
Mr. D. LUMWAJI	Executive Officer
Mr. J. WANYONYI	Executive Officer
Mr. J. M. LSANANYI	Executive Officer
Mr. R. WARUKANO	Project Manager Kenya Finland Primary Health Care Program

11) Medical Training College Homa Bay : MTC Homa Bay

Dr. S. A. OCHOLA	MOH Homa Bay
Mr. L. B. OTEMBA	Principal Tutor
Mr. C. A. OYUGI	Deputy Principal Tutor
Mr. P. O. AYUAYA	Executive Officer

12) Medical Training College Nakuru : MTC Nakuru

Mr. B. K. WAMBUA	Principal
Mr. E. K. A. TEGET	Deputy Principal Tutor
Mr. J. K. TORORG	Environmental Health Science
Mr. S. K. KIPRONU	Medical Laboratory Science
Mr. L. E. OSEE	Executive Officer

13) Medical Training College Nyeri : MTC Nyeri

Mr. J. N. KINGORI	Provincial Public Health Officer
Mr. M. M. WAHJAD	District Public Health Officer
Mr. V. NGANGA	Principal Tutor
Mr. L. W. NJUGU	Deputy Principal Tutor
Mr. J. W. GAKUYA	Environmental Health Science
Mr. E. N. KAMUNYA	Medical Laboratory Technology
Mr. W. B. KANYINSE	Executive Officer

14) Medical Training College Mombasa : MTC Mombasa

Ms. N. THYAKA	Principal
Ms. E. AMBANI	Nursing
Mr. F. M. MBUGUA	Executive Officer

15) Ministry of Finance (MOF)

Mr. E. I. MANASSEH	Financial Secretary
Mr. MACHARIA	Under Secretary
Mr. LAVUNA	Japanese Desk

16) Ministry of Public Works & Housing (MPWH)

Mr. P. O. SIKA	Chief Superintending Architect
Mr. P. S. WASIKE	Group Leader
Mr. J. A. LINTUNN	Drinage Section
Mr. S. OCHIENG	Assistant Director, Water Development

17) World Bank (WB)

Mr. KALAMA	Hospital Secretary
Mr. MULUSA	Operation Officer

4. Minutes of Discussions
(For Basic Design Study)

MINUTES OF DISCUSSIONS
ON
BASIC DESIGN STUDY
ON
THE PROJECT
FOR
THE REHABILITATION AND IMPROVEMENT
OF
THE KENYA MEDICAL TRAINING COLLEGE (KMTC)
IN
THE REPUBLIC OF KENYA

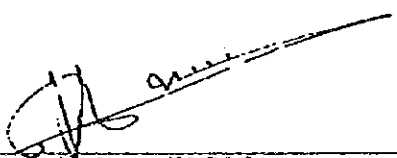
Based on the results of the Preliminary Study as per agreed minutes of discussions, the Government of Japan decided for the Japan International Cooperation Agency (JICA) to conduct a basic design study on the Project for the Rehabilitation and Improvement of the Kenya Medical Training College (hereinafter referred to as "the Project").

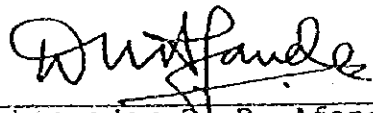
JICA sent to the Republic of Kenya the Basic Design Study Team (hereinafter referred to as "the Team"), headed by Mr. Akira KASAI, Special Technical Assistant to the President, JICA, and is scheduled to stay in the country from September 2 to October 10, 1994.

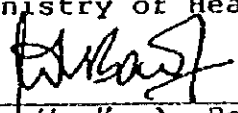
The Team held discussions with the officials concerned of the Government of Kenya and conducted field surveys at the study area.

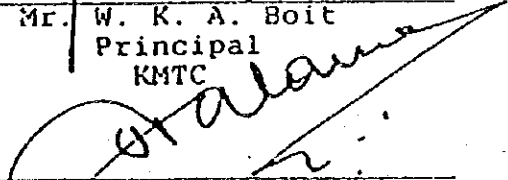
In the course of discussions and field surveys, both parties have confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Nairobi, September 9, 1994


Mr. Akira KASAI
Leader
Basic Design Study Team
JICA


Ambassador D. D. Afande
Permanent Secretary
Ministry of Health


Mr. W. K. A. Boit
Principal
KMTC


Mr. J. B. S. Halake
Financial Secretary
Ministry of Finance

ATTACHMENT

1. Project Title

The title of the Project is;
"The Project for the Rehabilitation and Improvement of the Kenya Medical Training College".

2. Objective of the Project

The objective of the Project is to cooperate with KMTC to improve the educational environment through rehabilitation and improvement of physical facilities, and provision of training equipments.

3. Executing and Responsible Agencies of the Project

- (a) KMTC is the executing agency of the Project.
- (b) The Ministry of Health is the responsible agency of the Project.

4. Items requested by the Government of Kenya

After discussions with the Team, the following items, based on the preliminary planning figures, were finally requested by the Kenyan side to make them be the objectives of the Study in order to recover the basic training function of KMTC;

- (a) Rehabilitation of physical facilities of the following schools;

- KMTC Nairobi (inclusive Karuri)
- MTC Karen
- MTC Mathare
- MTC Mombasa
- MTC Nyeri
- MTC Nakuru
- MTC Kakamega
- MTC Homa Bay
- MTC Kabarnet

- (b) Provision of training equipments for the following;
All faculties of KMTC Nairobi, MTC Karen, and MTC Mathare

- All faculties / all schools of training for health personnel (Nursing and Clinical Medicine) of MTCs
- Faculty of Medical Laboratory Technology of MTC Nakuru and MTC Kakamega

- (c) Provision of appropriate means of transportation for 9 institutions mentioned above (a).

D. M. P. K. S.

Both sides have confirmed that the final scope of the Project will be finalized within the financial capacity of the Japanese side, based on a careful evaluation of the results of the Study.

5. Issues in connection with the Study of MTC Kabarnet

- (a) The Kenyan side strongly requested that MTC Kabarnet should be included in the Study.
- (b) Both sides have finally agreed that the Japanese side will make only the "Tuition block" (the physical facility for administration office, classrooms, and etc.) the objective of the Study, among several facilities which constitute a compound of MTC Kabarnet.
- (c) The Kenyan side by itself shall complete the construction of physical facilities including a canteen and dormitories other than the "Tuition block", by the time when the construction of the "Tuition block" will be completed by the Japanese side.
- (d) Before an approval of the Project by the Cabinet of the Government of Japan, The Kenyan side shall settle a unpaid payment imposed by the contract made between MTC Kabarnet and the contractor, and if any, shall take all necessary measures to solve any problems related to the contract .
- (e) The Kenyan side shall allocate an adequate fund for capacity and maintenance, as per No.6.
- (f) The Kenyan side shall extend the lease period of a part of Baringo district development institute, tentatively now used as teaching facilities, by the time when the construction of the "Tuition block" will be completed by the Japanese side.
- (g) The Kenyan side shall give the Japanese side all necessary information related to the construction of MTC Kabarnet, which has been acquired so far.
The Japanese side can entirely design the "Tuition" with its standard, despite of the existing design.

6. Capacity and Maintenance System

- (a) Both sides have confirmed the necessity to establish a comprehensive in-house capacity and maintenance system at KMTC Nairobi.
- (b) KMTC will work out the concrete plan of the establishment of the capacity and maintenance system for the physical facilities and training equipments related to the Project at satisfactory levels, and assure the provision of adequate funds for capacity and maintenance to the

Project in the recurrent budget, at the latest by the time when the Team comes to Kenya to explain the contents of the draft final report.

7. Japanese Grant Aid system

- (a) KMTC has understood the system of Japanese grant aid system explained by the team.
- (b) The Kenyan side will take necessary measures, described in ANNEX for the smooth implementation of the Project, on condition that the Japanese grant aid is extended to the Project.

8. Tentative Schedule of the Study

- (a) The Study Team will proceed to further studies in Kenya until October 10, 1994.
- (b) JICA will prepare the draft final report of the Project and make it available to the Government of Kenya before the Team is dispatched to Kenya for discussion around January, 1995.
- (c) In case that the contents of the draft report is accepted in principle by the Kenyan side, JICA will complete the final report and send it to the Government of Kenya by April, 1995.

9. Other Relevant Issues

The Kenyan side stated that KMTC would embark on the revision of curricula to incorporate the current issues of AIDS / population / family planning, accordingly.

10. Technical Cooperation

The Kenyan side has strongly expressed their wishes for the immediate implementation of Japanese technical cooperation in capacity building which has been officially submitted, mainly for the following reasons;

- (a) to execute the Project most effectively
- (b) to secure the sustainability of the Project
- (c) to help KMTC to establish a comprehensive in-house capacity and maintenance system at KMTC Nairobi, which is mentioned No.5 above.
- (d) to help KMTC to develop manpower training, and teaching aids and materials.

ANNEX

NECESSARY MEASURES TAKEN BY THE GOVERNMENT OF KENYA
ON CONDITION THAT JAPANESE GRANT AID IS EXTENDED

1. To provide data and information necessary for the Project
2. To provide the land for temporary site office, waterhouse and stock yard during the implementation period
3. To undertake incidental external works such as gardening, and making gates within and around the sites
4. To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the sites
5. To bear commissions to the Japanese foreign exchange bank for the banking services based on the Banking Arrangement
6. To ensure prompt unloading and custom clearance at the port of disembarkation in Kenya and prompt internal transportation of the products provided under the Grant Aid
7. To exempt taxes including V.A.T.(value added tax), training levy and other fiscal levies for purchase and import of the Products provided under the Grant Aid
8. To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Kenya with respect to the supply of the products and the services under the verified contracts
9. To accord Japanese nationals whose services may be required in connection with the supply of products and the services under the verified contracts such facilities as may be necessary for their entry into Kenya and stay therein for the execution of the Project
10. To maintain and use properly and effectively the physical facilities rehabilitated and the training equipment purchased under the Grant Aid
11. To bear all the expenses other than those to be borne by the Grant Aid, necessary for rehabilitation and improvement of the physical facilities as well as for the transportation and installation of the training equipment

(For Draft Report Explanation)

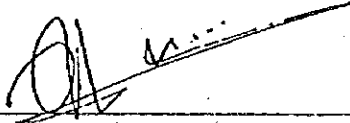
MINUTES OF DISCUSSIONS
ON
BASIC DESIGN STUDY
ON
THE PROJECT
FOR
THE REHABILITATION AND IMPROVEMENT
OF
THE KENYA MEDICAL TRAINING COLLEGE (KMTC)
IN
THE REPUBLIC OF KENYA
(CONSULTATION ON THE DRAFT REPORT)


In August and September 1994, Japan International Cooperation Agency (JICA) dispatched Basic Design Study Team on the Project for the Rehabilitation and Improvement of the Kenya Medical Training College (hereinafter referred to as "the Project") to the Republic of Kenya, and through discussions, field surveys, and technical examination of the results in Japan, JICA has prepared the draft report of the study.

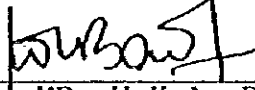
In order to explain and to consult with the concerned of the Government of Kenya on the final components of the Project, JICA sent to Kenya a study team, which is headed by Mr. Akira KASAI, Special Technical Assistant to the President, JICA, and scheduled to stay in the country from March 10 to 17, 1995.

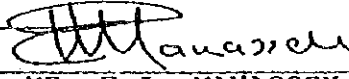
As a result of discussions, both sides finally confirmed the items described on the attached sheets.

Nairobi, March 16, 1995


MR. AKIRA KASAI
Leader,
Basic Design Study
Draft Report Explanation Team,
JICA


MR. D. L. MAKHANU
Acting Permanent Secretary
Ministry of Health


MR. W.K.A. BOIT
Principal
KMTC


MR. E.I. MANASSEH
Financial Secretary
Ministry of Finance

ATTACHMENT

1. COMPONENTS OF THE DRAFT REPORT

The Government of Kenya has agreed and accepted in principle the components of the draft report proposed and explained by the Team.

2. COMPONENTS OF THE PROJECT

After discussions with the Team, the items described in ANNEX I have been finally requested by the Kenyan side as the components of the Project.

The Kenyan side has strongly expressed their wishes for the implementation of those which are not included as the components of the Project out of the objectives of basic design in the draft report.

3. JAPAN'S GRANT AID SYSTEM

3-1 The Kenyan side has understood the system of Japan's Grant Aid explained by the Team and described in ANNEX II .

3-2 The Kenyan side will take necessary measures described in ANNEX III and the draft report for the smooth implementation of the Project on condition that the Japanese Grant Aid is extended to the Project.

However, as for the tax exemptions described in 7. and 8. of ANNEX III , the Kenyan side strongly requested to frame the contents as described below so as to comply with Kenyan Law governing tax exemptions. The Team will convey the request to the Government of Japan.

Contents of 7. 8. of ANNEX III proposed by the Kenyan side;

(a) To exempt products imported or purchased solely for project use under the Grant Aid, from customs duties, V.A.T. (value added tax) and any other fiscal charges provided the products are imported or purchased prior to clearance through customs,

(b) To exempt the non-resident contractors and sub-contractors and their non-resident personnel solely in Kenya for the purpose of the Project, from income tax and V.A.T. in respect of their earnings and services respectively, rendered under the Project,

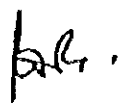
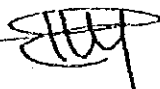
(c) To exempt the non-resident Japanese nationals solely in Kenya for the purpose of working under the Project, from

income tax and V.A.T. in respect of their earnings and services respectively, rendered under the Project,

(d) To exempt personnel and household effects of the non-resident Japanese nationals solely in Kenya for the purpose of working under the Project, from customs duties and V.A.T., provided the said effects are imported or purchased within the first three months of first arrival in the country.

4. FURTHER SCHEDULE OF THE STUDY

The Team will make the final report in accordance with the confirmed items, and send it to the Government of Kenya around June, 1995.



ANNEX I
THE ITEMS FINALLY REQUESTED BY THE GOVERNMENT OF KENYA
AS THE COMPONENTS OF THE PROJECT

1. Rehabilitation of the following physical facilities;

1-1. KMTC Nairobi;

- (a) Classroom & Laboratory Block for the Faculty of Environmental Health Sciences, Radiography, and Medical Laboratory Technology,
- (b) Lecture Theatre Block for the Faculty of Clinical Medicine
- (c) Laboratory Block for the Faculty of Pharmacy
- (d) Laboratory & Classroom Block of the Faculty of Pharmacy
- (e) Following Block for the Faculty of Nursing
 - Assembly Hall Block
 - Classroom & Office Block
 - Lecture Theatre Block
- (f) Water Tank, Pump
- (g) Pump of MTC Karuri

1-2. KMTC Karen

- (a) Cooking Equipment for Practical Use
- (b) Well
- (c) Water Tank, Pump

1-3. KMTC Mathare

- (a) Dormitory & Classroom
- (b) Water Tank, Pump

2. Reconstruction of the following physical facilities of KMTC Nairobi;

2-1. Tuition Block of following faculties;

- Faculty of Orthopedic Technology
- Faculty of Dental Technology.
- Faculty of Physiotherapy
- Faculty of Occupational Therapy
- Faculty of Clinical Medicine

2-2. Maintenance Centre & Store

3. Procurement of Training Equipment for the following MTCs

1) Nairobi

A : Faculty of Nursing

(17 schools including Nairobi, Mombasa, Nyeri, Nakuru, Kakamega, Homa Bay, Kabarnet, Machakos, Kisumu, Embu, Meru, Muranga, Thika, Garissa, Eldoret and Kisii)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Beds for adults Beds for newborns Bedside cabinets Model(set)for nursing practice Model for blood collection and intravenous injection Model for urination guidance method practice Model for enema and anal medication practice Model for bathing practice Model for "phantom" practice Bathtub Anatomical specimen Skeleton model Cranium dissection model	Model for artificial respiration practice Cranial nerves model Muscle model Female reproductive organs model Medical examination equipment set Irrigaton set Bandage dressing wagon Cardiac resuscitator Minor surgical operation equipment set Emergency wagon V T R set Overhead projector

B : Faculty of Orthopedic Technology

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Woodworking benches Metalworking benches Industrial sewing machines for short sewing Industrial sewing machines for long sewing Belt grinder Band saw machine Plaster cast cutter	Vacuum-forming machine Electric furnace Sealing irons Dust collector Portable drills Sets of small tools and equipment for practice

C : Faculty of Dental Technology

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Model for prosthetic application Dental engines Dental lasers Model trimmers Resin polymerizers Ring furnaces Sandblasters High-speed lasers Grinder workbenches	Models for training and practice Model processing workbenches Polymerization workbenches Casting workbenches Air compressor for workbenches Equipment cabinets Dental dust collectors Set for small instruments for prosthodontics

D : Faculty of Environmental Health Science

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Balances for simple analysis Thermostats Table-top centrifuges Stereo microscopes Biological microscopes Incubators Rotary mill Small rotary mill Table-top autoclave Moisture gauge Distilled water maker Collin counter electric furnace pH meters for experiment room Portable dissolved-oxygen meters Biological oxygen demand meters Chemical oxygen demand meter Portable turbidimeters Portable water-quality tester sets Suspensoid measuring instruments	Incubator bottle for BOD testing Polarimeters Precipitation meters Portable sound level meter Portable minianemeter Portable dust monitor Portable low-volume air samplers Audiometer Micro Kjeldahl nitrogen distiller Instrument sets for training in building environmental testing Auto levels Levelling rods Instrument sets for training examination of water-supply & sewage systems Instrument sets for training in control of disease-carrying animals and vermin Drawing tables

E : Faculty of Radiography

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Mobile X-Ray system Margen phantom for radiography training Picture quality evaluation phantom for radiography training Skeleton model Anatomical specimen Upper limb model Lower limb model	Cranial bones replica models Sets of instruments for darkroom X-Ray protection gear X-Ray film shelves Equipment cabinets Portable ultrasonic diagnostic systems Film loading stand

G : Faculty of Medical Laboratory Technology

G A (Clinical Chemistry Sections)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Colorimeters Cellulose acetate film electrophoresis systems Agar immunoelectrophoresis systems Isoelectric point electrophoresis systems	PH meters Small instrument for clinical chemical testing Equipment cabinet

[Handwritten signatures and initials]

G B (Bacteriology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Incubators Carbon dioxide gas incubator Biological microscopes	Colony counters Table-top centrifuges Equipment cabinet

G C (Parasitology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Biological microscopes Table-top centrifuges Equipment cabinet	

G D (Hematology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Hemocytometers(blood cell counting chambers) Biological microscopes Electrophoresis systems Table-top centrifuges Hematocrit centrifuges Incubator Dry-air sterilizer Autoclave Agitator Water bath Blood coagulation meter Glucose meter	Standard hemoglobinometers Bilirubin colorimeters Colony counters Instrument set for test laboratory Thermostat Blood sugar measuring instruments Ultrasonic cleaners Beds for blood collection Refrigerator for blood storage Equipments cabinets Hematocrit

G E (Histopathology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Biological microscopes Anatomical instrument sets Homogenizers Syphilis diagnostic instrument set Thermostat Water bath	Magnetic stirrers Blood corpuscle pipette agitator Small instrument set for pathonanatomy test laboratory Equipment cabinets

[Handwritten signature]

[Handwritten initials]

[Handwritten number]

[Handwritten number]

G F (Immuno Hematology Section)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Agar immunity electrophoresis systems Table-top centrifuges Incubator Thermostat Microscopes for practice	VDRL set Pipette cleaners Set of small instruments for immunological blood testing Equipment cabinets

G G (Common-use Equipment)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Spectrophotometers Flame spectrometers Refrigerators	Autoclaves Distilled water maker Sterilizer for medical treatment waste

H : Faculty of Health Education

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Camera Camera accessory(set)	

I : Faculty of Physiotherapy

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Traction units Microwave treatment units Low-frequency treatment units Infrared ray treatment units Parfin bath treatment units Shoulder joint exercisers Wrist exercisers	Rowing exercisers Swedish bars(sets) Parallel bars(sets) Stairs for walking training Iron dumbbell set Equipment cabinets

J : Faculty of Occupational Therapy

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Sewing machines Leather craft occupational therapy sets Woodworking therapy sets	Metal processing occupational therapy sets Workbenches Equipment cabinets

K : Faculty of Clinical Medicine

K A (Basic Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Anatomical section(set) Human skeleton model Blood circulation system model Pregnancy model(set) Heart model	Muscle model(set) Model of functions of balance and hearing organs Model of hearing organs wall chart set(30 charts) Equipment cabinets

K B (Anesthesia Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Anesthetic equipment (set) for practice Artificial respiration system for practice	

K C (Pediatric Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Nebulizers Pediatric diagnostic instrument set Equipment cabinets	

K D (Ophthalmology Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Ophthalmologic lens sets Slit lamp microscopes Intraocular tensiometers	Basic ophthalmological operation instrument set Equipment cabinets

K E (ENT Course)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Audiometer Eustachian tube function tester Otorhinolaryngological treatment chair	Otorhinolaryngological instrument set Equipment cabinets

K F (Plaster Casting Technicians' Course)

MAJOR EQUIPMENT NAMES		MAJOR EQUIPMENT NAMES	
Plaster casting bench V T R set		Slide projector Overhead projector	

L : Faculty of Pharmacy

MAJOR EQUIPMENT NAMES		MAJOR EQUIPMENT NAMES	
Drug refrigerators Draft chamber Centrifugal rotary ball mills Hot-air dryer Balances for test laboratory Balances for simple analysis Prescription cabinets Thin-layer chromatography systems Disintegration testers Melting point measuring device Small instrument set for prescriptions Incubator High-pressure sterilizer Colony counter		Dry-heat sterilizer Spectrophotometer Flame spectrometer Turbidity meter Freezer pH meter for test laboratory Pipette cleaner Water bath Muffle furnace Rotary evaporator Table-top centrifuge Biological microscope Equipment cabinets	

Q : Faculty of Medical Engineering

Q A (Electrical Engineering Room)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Oscilloscope		Tool set for electrical repairs	

Q B (Electronic Engineering Room)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Oscilloscope		Election tool set	

Q C (Mechanical Engineering Room)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Table grinder			

OD (Medical Engineering Room)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Oscilloscope			

OE (Hospital Engineering)

R : Maintenance Centre

RA (Section of Iron Works)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Arc welder Spot welder Drilling machine Thread cutter		Vise stand Gas brazing welder's set Tool cabinet	

RB (Section of Wooden Works)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Planer Saw stand Boring tool(set) Router(set)		Saw teeth setting set Engraver Woodworking tool set	

RC (Electric Section)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Electrical tool sets			

2) MTC Karen

V : Faculty of Nutrition

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Food sample set			

3) MTC Mathare

A : (Faculty of Nursing)

MAJOR EQUIPMENT NAMES	No	MAJOR EQUIPMENT NAMES	No
Model (set) for nursing practice Model for blood collection and intravenous injection Cranium dissection model		Model for artificial respiration practice Model for respirator practice	

4) M T C Nakuru

G : (Faculty of Medical Laboratory Technology)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Colorimeters Cellulose acetate film electrophoresis systems pH meters for test laboratory Small instrument(set) for clinical chemical tests Equipment cabinet Incubators Biological microscopes Colony counters Table-top centrifuges Equipment cabinets Blood cell counters Spectrophotometers High-pressure sterilizer Agitator	Standard hemoglobinometers Bilirubin colorimeters Blood sugar value measurement devices Hematocrit (centrifuge) Parafin bath Histofume hood Card filing boxes Syphilis examination set Water bath Set of small instruments for pathological anatomy Fluorescent microscope Immunohematology instrument set Flame spectrometers

K : (Faculty of Clinical Medicine)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Electric lamps with headbands Equipment cabinets Artificial respirator for practice Nebulizers Otorhinolaryngologic mirrors Pediatric examination instrument set Basic ophthalmologic operation instrument set	Otorhinolaryngologic treatment chair Otorhinolaryngologic equipment set Plaster casting bench V T R set Slide projector Overhead projector

AD

5) M T C Kakamega

G : (Faculty of Medical Laboratory Technology)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Colorimeters Cellulose acetate film electrophoresis systems pH meters for test laboratory Set of small instruments for clinical chemical tests Equipment cabinets Incubators Carbon dioxide gas incubator Colony counters Table-top centrifuges Hemocyte counters Biological microscopes Spectrophotometers Hematocrit (centrifuge) Dry-heat sterilizers High-pressure sterilizer Glucose meter	Standard hemoglobinometers Bilirubin colorimeters Colony counters Thermostats Blood sugar value measurement devices Beds for blood collection Refrigerator for blood storage Anatomical instrument sets Homogenizers Syphilis diagnostic instrument set Water bath Instrument set for pathological anatomy Fluorescent microscope Instrument set for hematology Flame spectrometers Distilled water makers

6) M T C Port Reitz

K : (Faculty of Clinical Medicine)

MAJOR EQUIPMENT NAMES	MAJOR EQUIPMENT NAMES
Anatomical section(set) Human skeleton model Blood circulation system model Pregnancy model(set) Muscle model(set) Model of balance & hearing organs Model of organs of sight Wall chart set Electric lamps with headbands Equipment cabinets Nebulizers Instrument set for pediatric examination Ophthalmologic lens set	Slit lamps Intra-ocular tensiometers Basic ophthalmologic operation instrument set Hearing acuity measurement system Eustachian tube function tester Otorhinolaryngological treatment chair Equipment set for otorhinolaryngology Equipment cabinet VFR set Slide projector Overhead projector

4. Procurement of transportation for the following MTCs.

MTC Nairobi	Q' ty
Mini Bus (25~30 persons)	2
Big Bus (70~80 persons)	1
Pick up car (4WD)	1
Micro Bus(15 persons)	1

MTC Nakuru

Mini Bus (25~30 persons)	1
Micro Bus(15 persons)	1

MTC Port Reitz

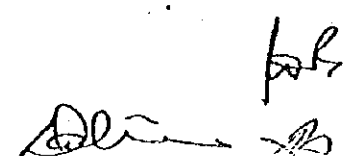
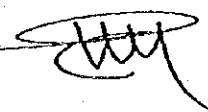
Mini Bus (25~30 persons)	1
--------------------------	---

MTC Kakamega

Mini Bus (25~30 persons)	1
--------------------------	---

MTC Kabarnet

Mini Bus (25~30 persons)	1
--------------------------	---



ANNEXII

Japan's Grant Aid

1. Japan's Grant Aid Procedures

The Japan's Grant Aid Program is executed through the following procedures.

- (1) Application (Request made by a recipient country)
- Study (Basic Design Study conducted by JICA)
- Appraisal & Approval (Appraisal by the Government of Japan and Approval by Cabinet.)
- Implementation (The Notes exchanged between the Government of Japan and the recipient country.)

- (2) At the First step, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid.

If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

At the second step, JICA conducts the study (Basic Design Study), using (a) Japanese consulting firm(s).

At the third step, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

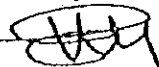
At the fourth step, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Government of Japan and the recipient country.

2. Basic Design Study

(1) Content of the study

The aim of the Basic Design Study (hereinafter referred to as "the Study") conducted by JICA on a requested project (hereinafter referred to as "the Project") is to provide a basic document necessary for the appraisal of the Project by the Japanese Government. The contents of the Study are as follows:

- 1) Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.



- 2) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid scheme from a technical, social and economic point of view.
- 3) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
- 4) Preparation of a basic design of the Project
- 5) Estimation of costs of the Project

The contents of the original request are not necessarily approved in their initial form as the contents of the grant aid project. The basic design of the Project is confirmed considering the guidelines of Japan's Grant Aid scheme.

The Government of Japan requests the Government of recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organization of the recipient country through the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consultant firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is (are) recommended by JICA to the recipient country to also work on Project's implementation after the Exchange of Notes, in order to maintain technical consistency and also avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

(1) What is Grant Aid ?

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc) for economic and social development of the country under principals in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(2) Exchange of Note (E/N)

The Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objective of the project, Period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(3) "The period of the Grant" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as Exchange of Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and financial payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the grant aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(4) The Grant is used properly and exclusively for the purchase of products. Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, grant aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(5) Necessity of the "Verification".

The government of the recipient country or its designated authority will conclude contracts in Japanese yen with Japanese nationals.

Those contracts shall be verified by the Government of Japan. The "verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertaking required of the Government of recipient country.

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

- 1) To secure land necessary for the sites of the Project and clear, level and reclaim the land prior to commencement of the construction.
- 2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the site.
- 3) To secure buildings prior to the procurement in case the installation of the equipment.
- 4) To ensure all the expenses and prompt execution for unloading, customs

clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.

- 5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
- 6) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

(7) "Proper Use"

The recipient country is required to maintain and use the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance

(8) "Re-Export", "Conversion"

The products purchased under the Grant should not be re-exported from the recipient country or converted for other uses.

(9) Banking Arrangement (B/A)

- 1) The government of the recipient country or its designated authority should open an account in the name of Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank") The Government of Japan will execute the Grant Aid by making payments in Japanese Yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.
- 2) The payment will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the government of the recipient country or its designated authority.

ANNEX III

NECESSARY MEASURES TAKEN BY THE GOVERNMENT OF KENYA
ON CONDITION THAT JAPANESE GRANT AID IS EXTENDED

1. To provide data and information necessary for the Project
2. To provide the land for temporary site office, warehouse and stock yard during the implementation period
3. To undertake incidental external works such as gardening, and making gates within and around the sites
4. To provide facilities for distribution of electricity, water supply and drainage and other incidental facilities outside the sites
5. To bear comissions to the Japanese foreign exchange bank for the banking services based on the Banking Arrangement
6. To ensure prompt unloading and custom clearance at the port of disembarkation in Kenya and prompt internal transportation of the products provided under the Grant Aid
7. To exempt taxes including V.A.T.(value added tax), training levy and other fiscal levies for purchase and import of the products provided under the Grant Aid
8. To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Kenya with respect to the supply of the products and the services under the verified contracts
9. To accord Japanese nationals whose services may be required in connection with the supply of products and the services under the verified contracts such facilities as may be necessary for their entry into Kenya and stay therein for the execution of the Project
10. To maintain and use properly and effectively the physical facilities rehabilitated and the training equipments purchased under the Grant Aid
11. To bear all the expenses other than those to be borne by the Grant Aid, necessary for rehabilitation and improvement of the physical facilities as well as for the transportation and installation of the training equipments

