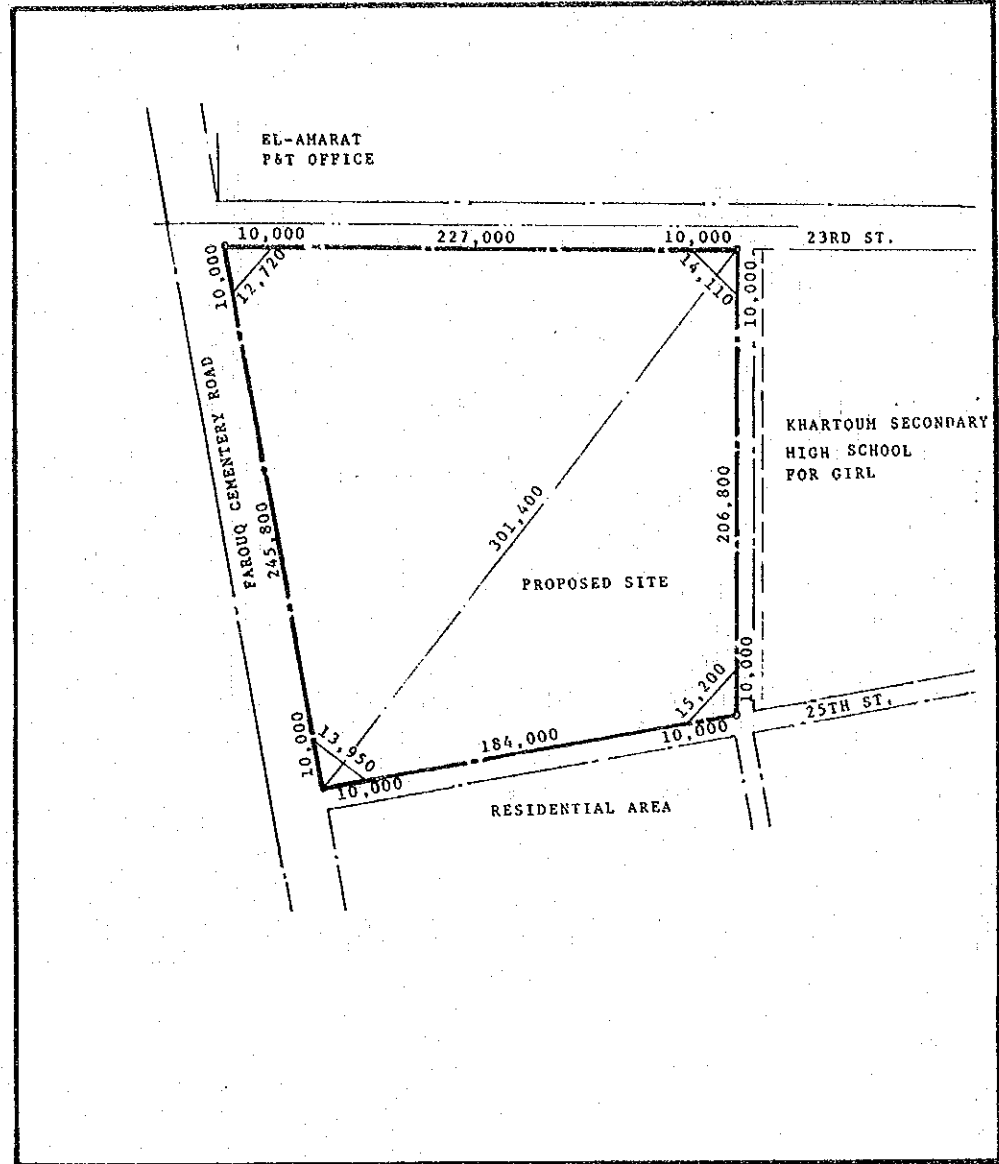
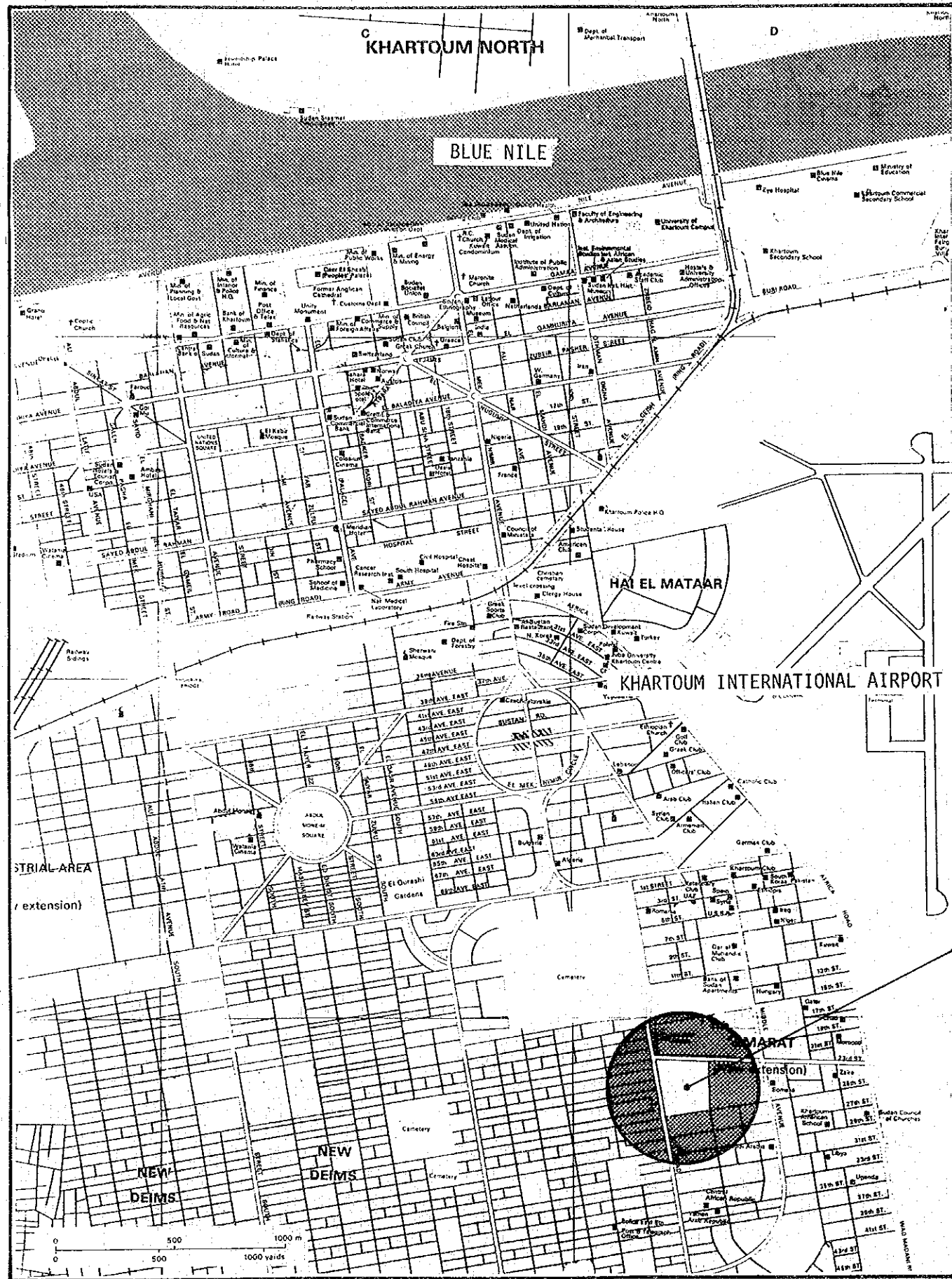


5-8 BASIC DESIGN DRAWINGS

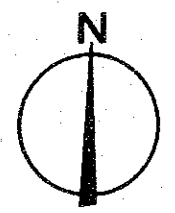
- (1) List of Drawings
 - 01 Location Map
 - 02 Site Plan
 - 03 Ground Floor Plan
 - 04 1st Floor Plan
 - 05 Elevation 1
 - 06 Elevation 2
 - 07 Section

(2) Floor Area (m²)

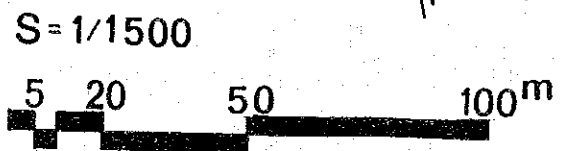
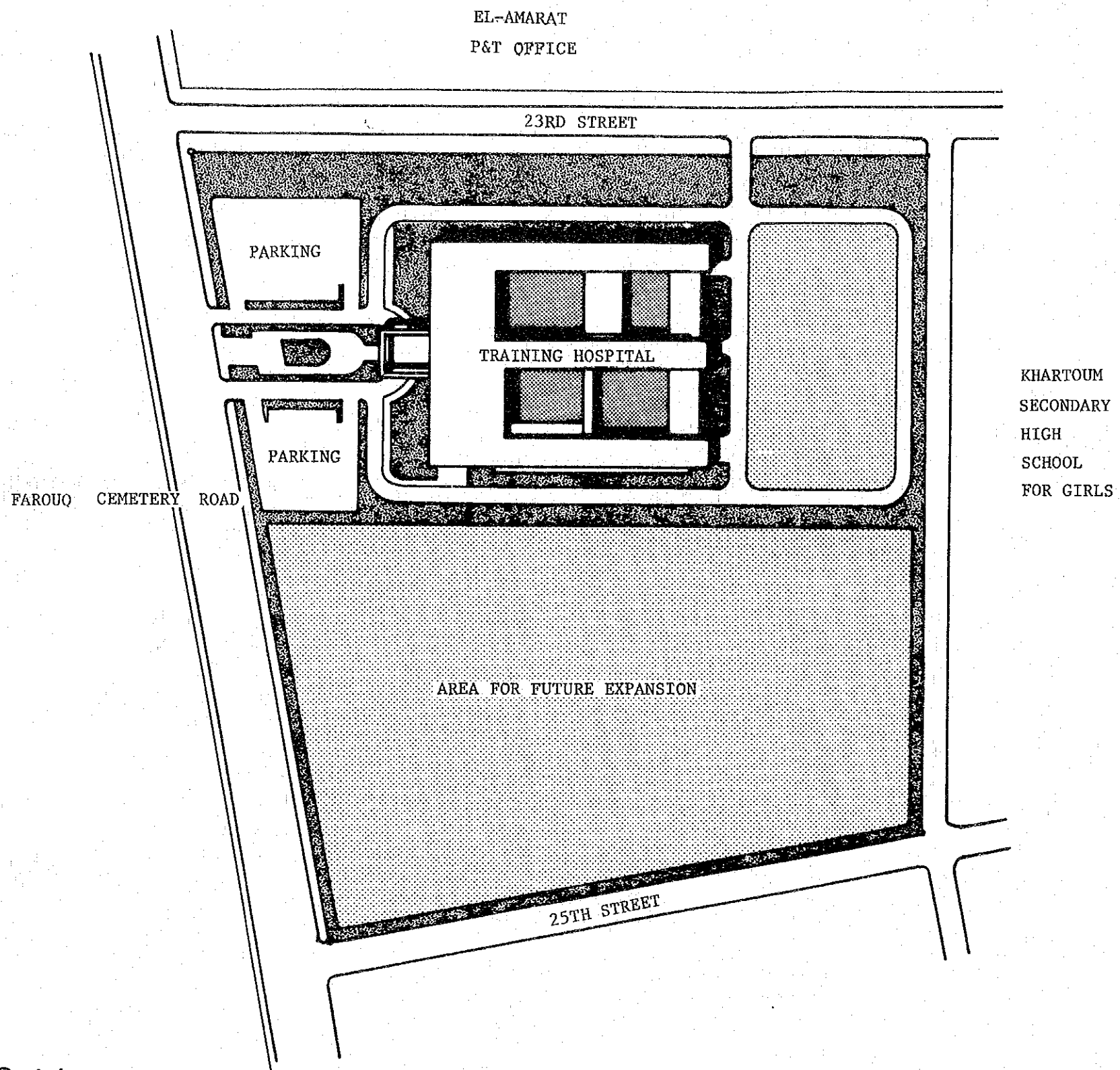
	Total	1st Phase	2nd Phase
Ground floor	3,950	2,321	1,629
1st Floor	3,330	2,121	1,209
PH	40	40	0
Ground Total	7,320	4,482	2,838



PROPOSED SITE
 PLOT NO. 1, BLOCK 9R EAST
 KHARTOUM, NEW EXTENSION

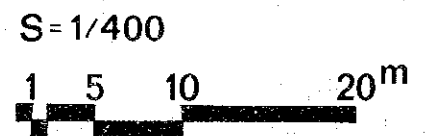
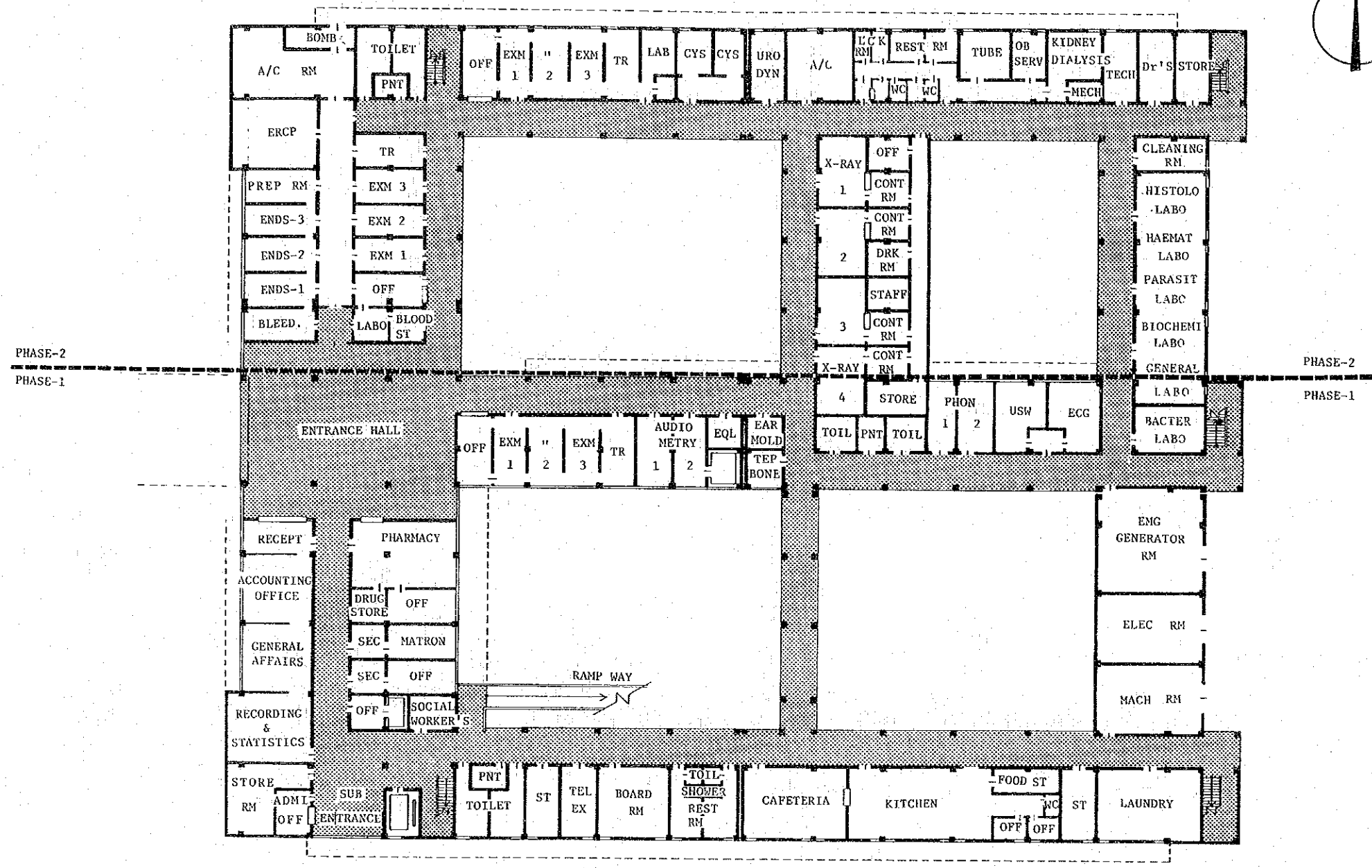
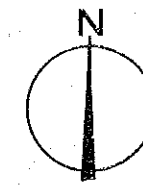


LOCATION MAP KHARTOUM TRAINING HOSPITAL 01

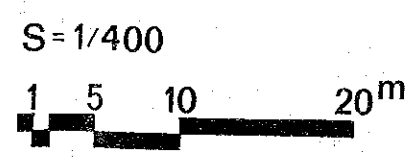
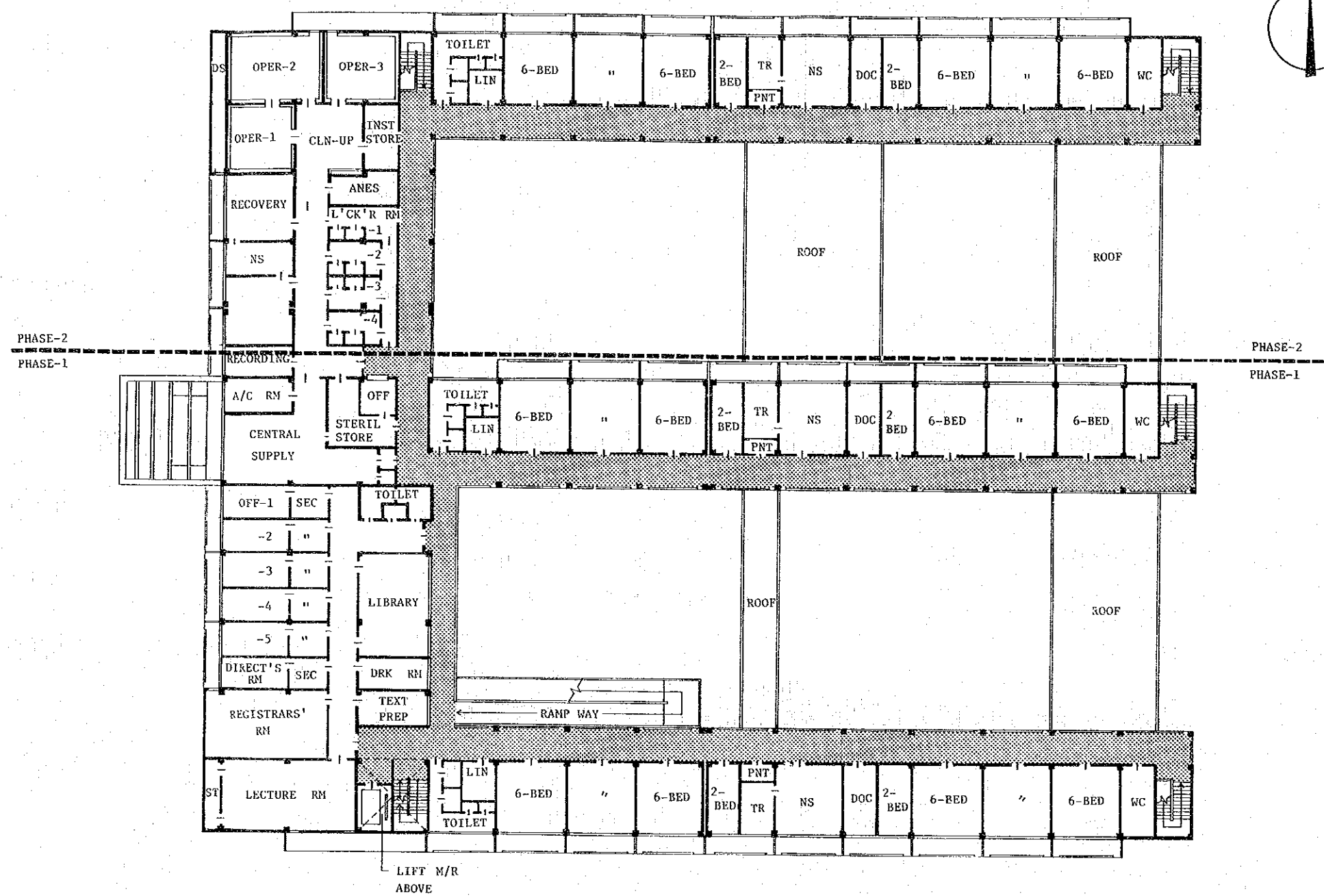
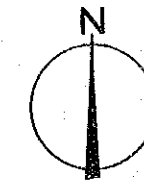


SITE PLAN
KHARTOUM TRAINING HOSPITAL

02

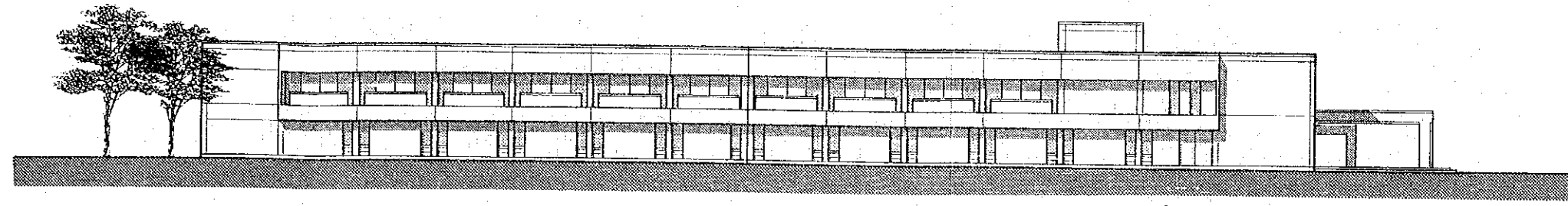


GROUND FLOOR PLAN
KHARTOUM TRAINING HOSPITAL **03**

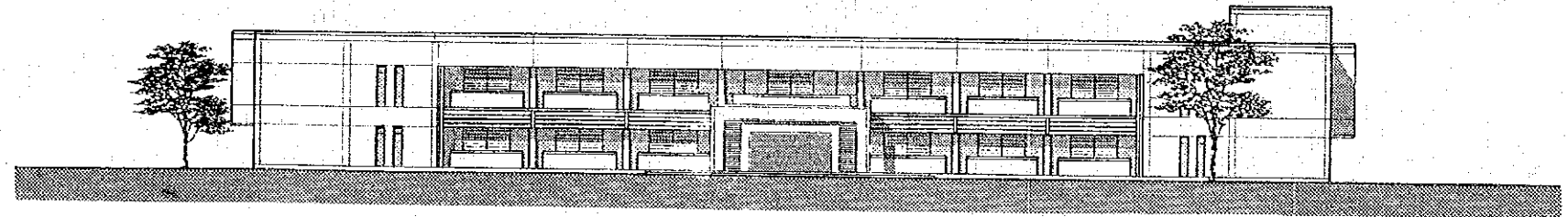


FIRST FLOOR PLAN
KHARTOUM TRAINING HOSPITAL

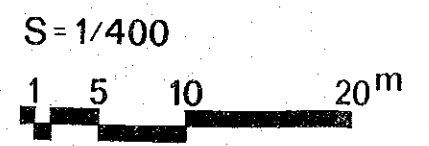
04



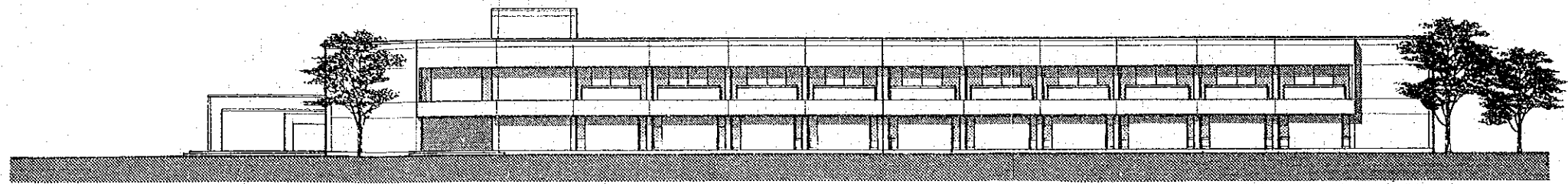
NORTH ELEVATION



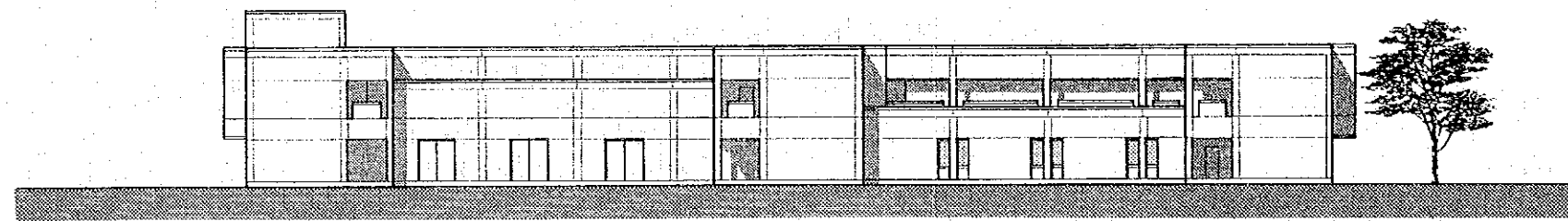
WEST ELEVATION



ELEVATION
KHARTOUM TRAINING HOSPITAL **05**



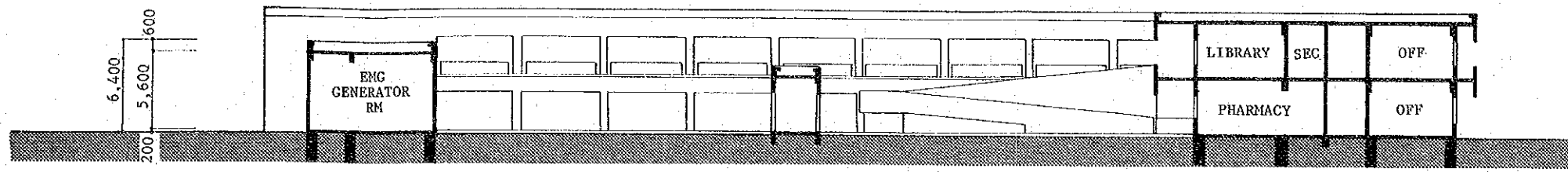
SOUTH ELEVATION



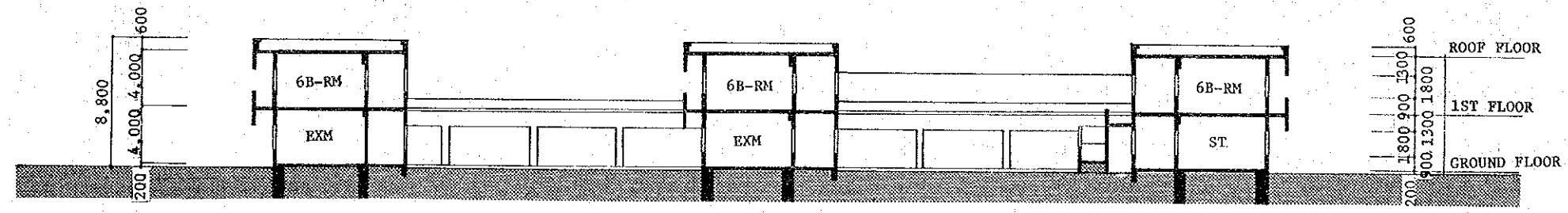
EAST ELEVATION

S=1/400
1 5 10 20^m

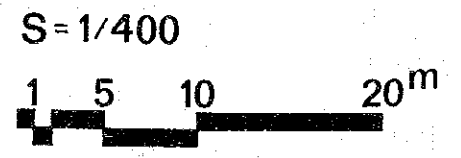
ELEVATION
KHARTOUM TRAINING HOSPITAL **06**



W-E SECTION



S-N SECTION



SECTION 07
KHARTOUM TRAINING HOSPITAL

CHAPTER 6

PROJECT EXECUTION SYSTEM

6-1 EXECUTION BODY OF THE PROJECT

6-1-1 Implementing Organization

The organization is headed by the Ministry of Health, and assisted by the consultant doctor group.

However, the Ministry of Construction and Public Works will act as an advisor and help as occasion arises.

Implementing organization of the project is indicated in following organization chart.

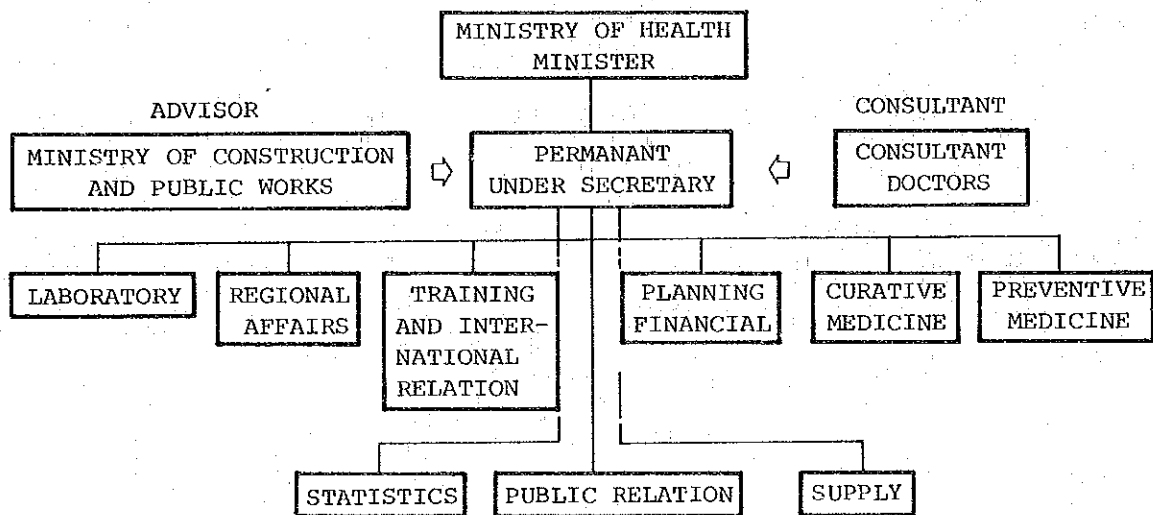


Fig. 6-1 Project Implementing Organization Chart

The hospital will be operated under the management by the Ministry of Health after the completion of construction, as regards maintenance control during and after the construction, advices or proffer of experts will be given by the Ministry of Construction and Public Works, and the budget will be borne by the Ministry of Health.

After the conclusion of Exchange of Notes between Sudanese and Japanese Government, Ministry of Finance will release special budget for the project even at midway in the financial year. And after Signing and Exchange of Notes the Ministry of Health will act as client for detail design, consulting service, tender and order of construction work contract.

6-2 CONSTRUCTION WORK PROGRAMME

Construction period shall be 15 months for the first phase, and 17 months for the second phase, installation of medical equipment is included in the second phase.

Prior to commencement of works, services for water, sewage and electric supply to the proposed site should be completed by Sudanese side responsibility.

And also during the construction period, payment of custom duties and previous measures to provide fuel (at contractor's own expence), should be considered for construction works.

The proposed site is in levelled condition (little lower than front road elevation), and generous to provide sufficient space for construction material storage and batcher plant installation within the site area.

After the completion of Japanese side construction work and prior to exterior work with Sudanese side responsibility, general ground should be filled according to circumstances.

(1) Contract System

Successive to conclusion of Exchange of Notes between Sudanese and Japanese Government as regard to grant-aid for the construction of the Training Hospital, Sudanese Government will select the Japanese Consultant, after that, execution of detail design work will be commenced.

(2) Construction Planning

The proposed site situates near the centre of Khartoum city, therefore process with no environmental pollution such as noise insulation, dust proofing and hazard prevention should be considered.

It should be taken into consideration in working programme that the first portion will be handed over to Sudanese side after the completion of the first phase construction.

(3) Supervising Schedule

Viewed from the scope of construction, a resident supervisor as consultant will be placed throughout the construction period in Khartoum.

Besides, corresponding to progress of construction, necessary expert will also be dispatched to the site for required inspection.

6-3 SCOPE OF WORKS

As for respective construction scope for Sudanese and Japanese side which are stated in the Minutes of Discussion are rearranged herein into classified construction items.

6-3-1 Infrastructure

(1) Site Preparation

Sudanese side : • Clearance and levelling of the projected site.

(2) Electricity

Sudanese side : • Renovation of existing substation in the premises.

• Installation of 11 kV primary circuit with circuit breaker exclusively for the hospital.

Japanese side : • Receiving and distribution of power from the said substation.

(3) Water Supply

Sudanese side : • Branch plumbing work from city water main pipe to Japanese side gate valve in the premises.

Japanese side : • Plumbing work succeeding to the above mentioned piping.

(4) Drainage

Sudanese side : • Joining work from terminal catch basin in the premises to city main sewer pipe and storm water drain basin.

Japanese side : • Plumbing work from the building to terminal catch basin near boundary line of the premises.

(5) Telephone

Sudanese side : • Supply and wiring of the telephone city line to the telephone exchanger in the projected building.

Japanese side : • Installation of telephone exchanger apparatus, telephone sets and wiring of cable succeeding to the above mentioned connection.

(6) Others

Sudanese side : • Provide adequate area for temporary facilities, electricity, water, telephone and storm drainage necessary for the construction work.

• Previous supply of fuel for the construction work.

Item (1), (2), (3), and (6) of Sudanese side works shall be completed prior to commencement of the construction work.

6-3-2 Buildings

Sudanese side : • Construction work of buildings which are not cited in the Basic Design Study Report.

Japanese side : • Construction work of buildings which are cited in the Basic Design Study Report.

6-3-3 Exterior Work

Sudanese side : • Landscape scheme such as periphery fence and planting, passages in the premises and exterior lighting.

Japanese side : • Exterior work in the courtyard (excluding planting).

6-3-4 Furnitures and Furnishings

Sudanese side : • General furniture, carpet, curtain and other furnishings.

6-3-5 Medical Equipment

Japanese side : • All medical apparatus which are mentioned in the medical equipment list.

6-3-6 Transportation of Materials

- Sudanese side :
- Assurance of prompt unloading and custom clearance in the Sudan for imported materials and equipment for the construction.
 - Exemption of Japanese nationals concerned from customs duties, internal taxes and other fiscal levies which may be imposed in the Sudan on the occasion of the supply of materials, equipment and services for construction.
- Japanese side :
- Payment for packing, loading, shipping, marine transportation, unloading, insurance and inland transportation fee for the construction materials and equipment.

6-4 CONSTRUCTION SCHEDULE

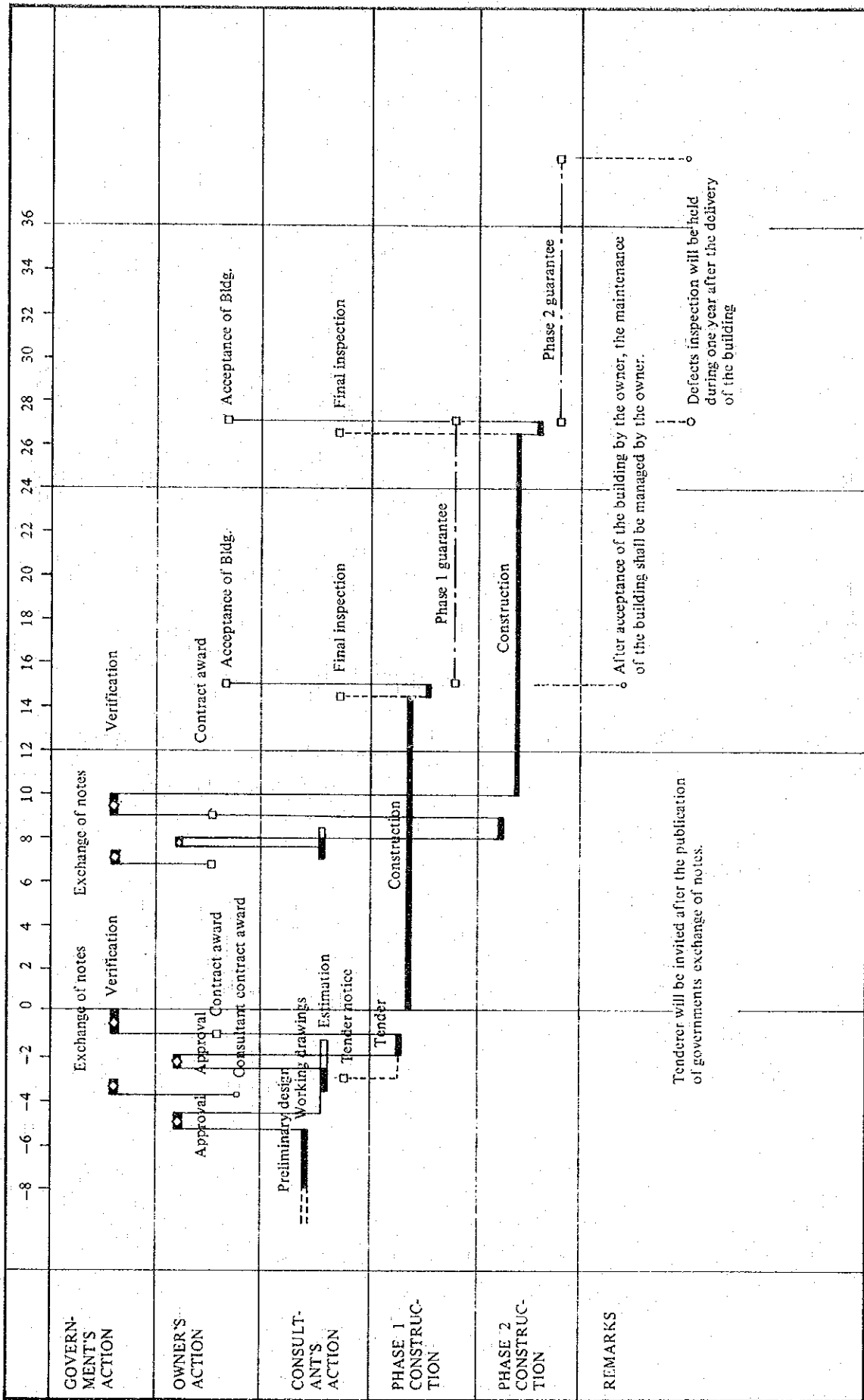


Fig. 6-2

6-5 TRANSPORTATION AND LABOR PROCUREMENT

6-5-1 Marine Transportation

As stated above, applicable materials and equipment should be procured locally as much as possible, but almost all of those articles must be imported from Japan as present situation. Therefore minute schedule must be planned because transportation schedule from Japan will take remarkable weight on total construction process.

6-5-2 Inland Transportation

All imported articles to be applied for the project will be unloaded at Port Sudan which is sole outport of Sudan. After the custom is cleared by Sudanese side, ca. 1,200 km inland transportation from Port Sudan to Khartoum will succeed. Intermediate road had been finished its paving work in 1980, since truck conveyance became principal transportation measure to Khartoum.

Before opening of traffic by the road, freight congestions were observed at Port Sudan, but traffics are flowing smoothly at present.

Whereas railway service is not regular because of freight car shortage, and also poor in conveying capacity, hence railway service will not suit as conveying measures for the project.

There are many local truck transporting firms and their capacities are rather high. Between Port Sudan and Khartoum, 25 to 50 ton capacity trailer is running both ways 3 or 4 times per month.

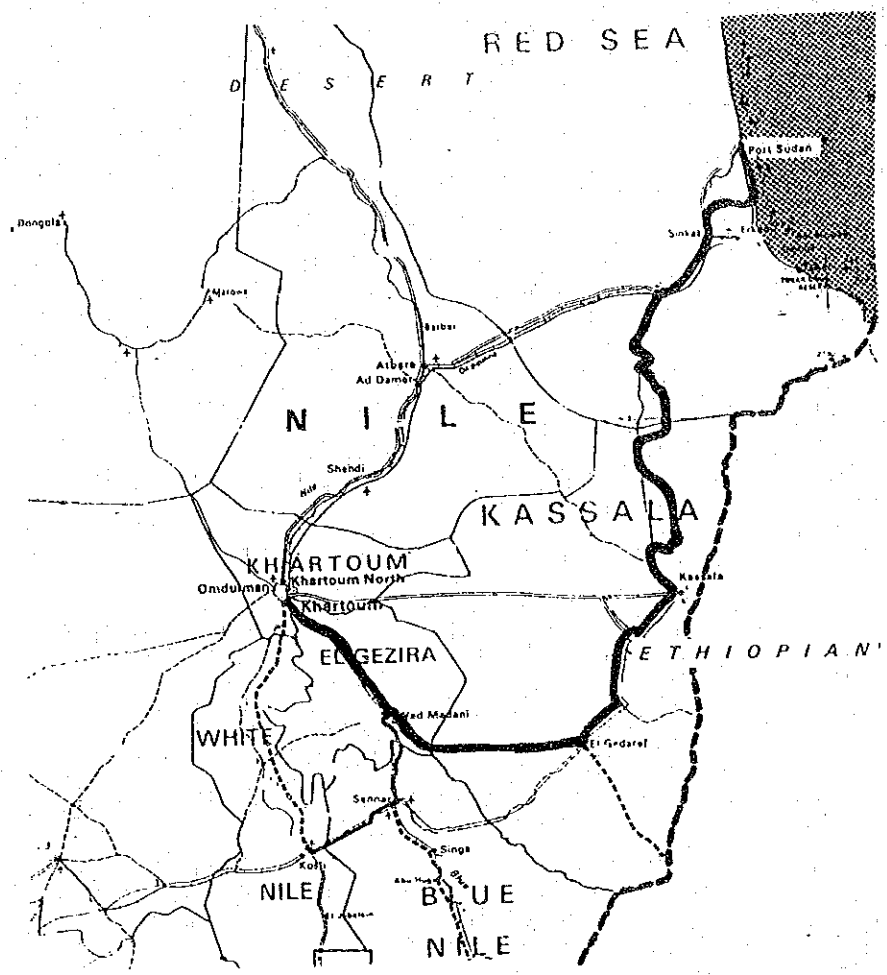
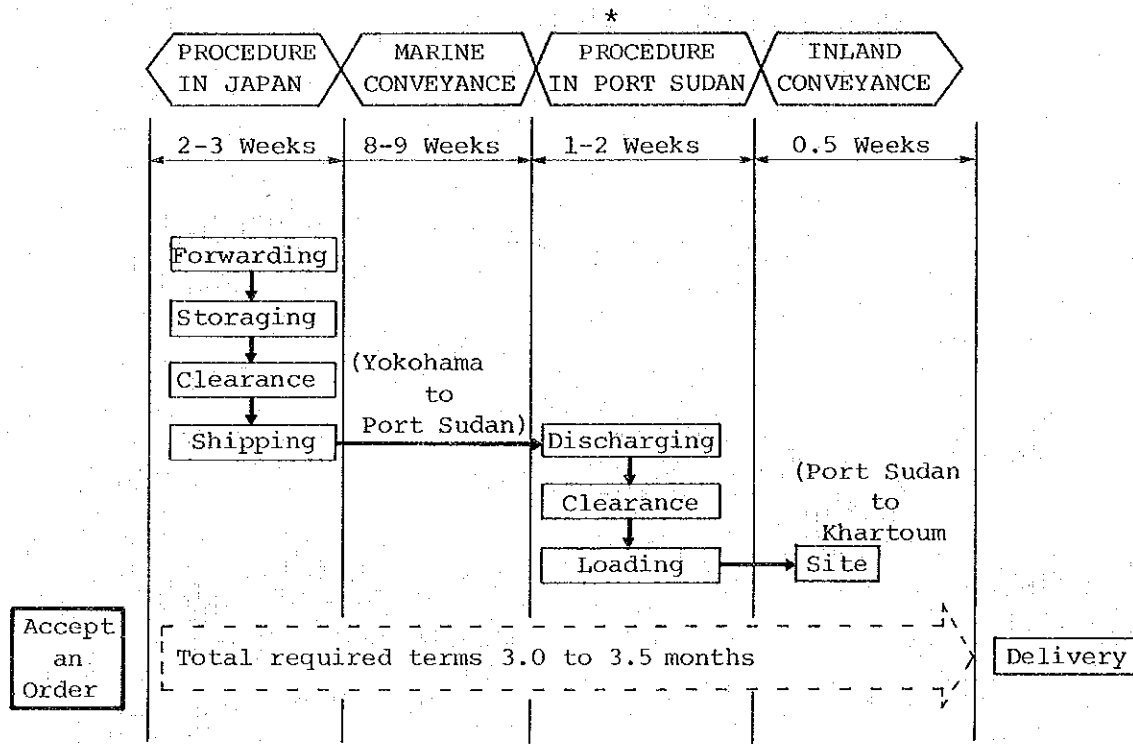


Fig. 6-3 Transportation Route between Port Sudan and Khartoum

6-5-3 Terms of Conveyance

Conveying days from Japan to Khartoum, involving material shipping, clearance and carrying into the site, will need 3 to 3.5 months. Conveying chart and necessary terms are shown as follows, but preparation of documents and procedure etc. should be regarded fully for smooth progress. And also for clearance at Port Sudan, full cooperation by Sudanese concerning authorities is required.



*Terms are assumed by such procedure that after necessary procedures had been finished, discharge articles directly on truck by mother ship crane not by way of bonded warehouse.

Fig. 6-4 Conveying Chart

6-5-4 Labor Procurement

Although skilled laborer in Sudan is rather in scarcity, but labor power abounds generally. Labor cost per 1 laborer varies widely with their expertness degree, but relatively cheap. As regard to specific work, technical advisor should be dispatched from Japan, but at the execution of the project, practical employment of local labor power will fully be possible.

6-6 MAINTENANCE AND MANAGEMENT PROGRAMME

In order to operate the facilities smoothly and efficiently, analysis of necessary operating cost for future should be needed.

Outgoing expenses for facility operation are labor cost, material cost (drugs, diagnosis material and medical expendable) and running expenses (power, water, fuel and exchangeable parts).

Following operating costs are assumed as of July, 1982.

(1) Labor Cost

	Annual Expenses (LS/pers.)	Number of Staff (pers.)	Total Expenses (LS)
Doctors: Sen. Consultant	6,500	11	71,500
"	5,000	3	15,000
Jun. Consultant	4,000	6	24,000
Other Doctors	3,000	31	93,000
Nurses : Head nurse	3,000	10	30,000
Other nurses	1,500	80	120,000
Others :	2,500	60	150,000
		Total	503,500

(2) Material Cost

	Unit Price (LS)	Nos. of Annual Pati- ent (pers.)	Total Expenses (LS)
Drugs : Out-patient	4	54,000	216,000
In-patient	8	43,800	350,400
Others :			154,000
		Total	720,400

(3) Maintenance cost of the building which consists running expenses based on unit cost by survey and projected scale of the hospital is assumed as follows:

Items	Annual Total Expenses (LS)
Electricity	61,875
Generator fuel	45,160
City water	2,450
Gas	4,440
Expendables	
Exchangeable parts	9,700
Sum	123,625
Others (10% of above expense)	12,362

Grand Total (1) + (2) + (3) 1,359,887 LS/year

Note: Conversion Rate
of Currency (as of July 1982)
US \$ 1.0 = LS 0.8883
US \$ 1.0 = Yen 245

The transition of budget for the Ministry of Health is shown on following table. From the table the budget of 1982/83 can be assumed as ca. 62,517,000 LS.

The above mentioned running cost becomes 2.2% of the total budget.

Year	Development Expenditure Min. of Health	Recurrent Expenditure		Total
		Min. of Health	Provinces	
1970/71	1,470,000 (9.6%)	7,910,000 (51.4%)	6,000,000 (39.0%)	15,380,532
1971/72	1,650,000 (9.9%)	9,030,000 (54.1%)	6,000,000 (36.0%)	16,679,902
1972/73	2,213,000 (12.4%)	9,631,000 (54.0%)	6,000,000 (33.6%)	17,844,010
1973/74	2,417,000 (12.4%)	11,023,000 (56.7%)	6,000,000 (30.9%)	19,440,416
1974/75	3,053,000 (13.7%)	4,771,000 (21.4%)	14,522,000 (65.0%)	22,345,137
1975/76	1,500,000 (5.6%)	6,820,000 (25.5%)	18,400,000 (68.9%)	26,720,000
1976/77	2,250,000 (6.0%)	8,540,000 (22.8%)	26,720,000 (71.2%)	37,510,000
1977/78	3,760,000 (10.5%)	10,390,000 (29.1%)	21,560,000 (60.4%)	35,710,000
1978/79	1,550,000 (3.6%)	12,150,000 (28.5%)	29,000,000 (67.9%)	42,700,000

Table 6-1 Transition of Government Health Budget (1970 ~ 1979)

CHAPTER 7

EVALUATION OF THE PROJECT

7-1 EVALUATION OF THE PROJECT

As stated above, establishment of the Training Hospital is acutely needed, and its construction is urgent problem in Sudan. To evaluate usability and propriety of the project to Sudanese society, as all of Sudanese medical service and education are provided by national expenses and Training Hospital is nonprofitable facilities to yield direct returns; applying economical analysis and indicate by currency term for evaluation method will be considered inaptitude. But principal features of social and economical benefit which will be originated from the project are estimated as follows:

- (1) In most important disciplines in Sudan, such as Gastroenterology, ENT and Urology, the project will contribute to not merely quantitative increase of medical facilities, but quality improvement of medical service in the form of nationwide rearrangement of doctors, resultantly effects of the grant-aid project can be extended nationwide in Sudan.
- (2) Specialty doctors for disciplines excluding above 3 are also in shortage, though priority will be lower. Training Hospitals for other disciplines are to be constructed and operated successively in the future. At those situation, the softwares which are developed and operated with practical training, management and operation of medical service in this Training Hospital will be anticipated useful sufficiently; the project is effective not only for 3 disciplines but for grade improvement of entire medical service in Sudan.
- (3) Sudanese trading balance is in large excess of imports, with quantity of foreign debt, foreign currency is in shortage. But considering the grade of Sudanese medical service, amount of budget for doctor studying abroad can never be reduced.

When the Training Hospital is established, and at least review of studying abroad budget by national expense will be possible, the effect of the project to Sudanese economical stability will be able to be reckoned.

- (4) Not for the direct target of the project, in view of social scope, those serious patients of 3 disciplines diseases who had to go overseas hospital or had to endure in domestic low grade medical facilities, would be able to receive high grade diagnosis and treatment easily in the country, the fact will soothe health unrest of nation and also it may contribute to upgrading public welfare obviously.

As related above, the project of the Training Hospital is inferred significant not only for medical service but for standpoint of national economy and state side view.

An extension of grant-aid for establishment of the Training Hospital by the Government of Japan involves sufficient relevance and the contribution of aid would be evaluated high.

CHAPTER 8

CONCLUSION

8-1 CONCLUSION

Inferred by basic design survey and analysis on such as recent medical aspect, disease composition, doctor education and training etc. in Sudan, the Training Hospital establishment for 3 disciplines of Gastroenterology, ENT and Urology is highly necessitated. Proposed site provides optimum environment, traffic condition, site configuration and prepared situation of basic facilities etc. for the Hospital construction in Khartoum City. For structure of building, refer to facility details, structural and provision programme, and working schedule; 2 storied reinforced concrete structure with ca. 7,300 M² of floor area will be adequate for proposed scale and details. As related in previous items, usability and propriety of the project to society is quite high, grant-aid by the Government of Japan involves sufficient relevance.

APPENDIX

1. MEMBERS OF THE STUDY TEAM

The Study Team was organized with the following 7 members, headed by Dr. Toyokazu Tsuda, Ministry of Health and Welfare.

Dr. Toyokazu TSUDA	Team leader	Director, Dept. of Medical Care, Ministry of Health and Welfare
Norio SHIMOMURA	Project Coordinator	Japan International Cooperation Agency (JICA)
Shotaro HAYASHIYA	Project Architect	Yamashita Architects & Engineers Inc.
Mineo NAGAOKA	Architect	"
Seishi ASAKURA	Elec. Engineer	"
Katsuo SATOH	Mech. Engineer	"
Kohzo NAKATANI	Medical Equipment Specialist	"

2. SURVEY SCHEDULE

2-1 Survey Schedule

Date	Detail of Survey
1st day May 6 (Thu)	Left Narita (Messrs. Tsuda, Shimomura, Hayashiya, Nagaoka, Nakatani)
2nd day May 7 (Fri)	Arrived at Amsterdam
3rd day May 8 (Sat)	Arrived at Khartoum
4th day May 9 (Sun)	Visited Japanese Embassy Surveyed the facilities at KHARTOUM HOSPITAL
5th day May 10 (Mon)	Surveyed the facilities at EL SHAB HOSPITAL, MILITARY HOSPITAL, RADIATION & ISOTOPE CENTRE
6th day May 11 (Tue)	Courtesy call on Ministry of Health Explained and discussed with the Consultant Doctors
7th day May 12 (Wed)	Discussed with the Consultant Doctors
8th day May 13 (Thu)	Ditto (Messrs. Asakura, Satoh arrived at Khartoum)
9th day May 14 (Fri)	Data collection and adjustment
10th day May 15 (Sat)	Discussed with the Consultant Doctors, Investigation of the Proposed Site
11th day May 16 (Sun)	Exchange signature on Minutes of Discussion
12th day May 17 (Mon)	Surveyed SOBA UNIV. HOSPITAL Visited Ministry of Health, Ministry of Construction and Public Works, and Japanese Embassy
13th day May 18 (Tue)	Surveyed construction conditions in the city (Messrs. Tsuda, Shimomura, Nakatani left Khartoum for Japan)
14th day May 19 (Wed)	Discussion of survey results at MOCPW.
15th day May 20 (Thu)	Surveyed infrastructure
16th day May 21 (Fri)	Data Collection
17th day May 22 (Sat)	Surveyed construction conditions in the city
18th day May 23 (Sun)	Ditto
19th day May 24 (Mon)	Discussion at Soil Investigation Institute of Khartoum Univ. Reporting of survey results to Japanese Embassy and MOH.
20th day May 25 (Tue)	Data Collection
21st day May 26 (Wed)	Messrs. Hayashiya, Nagaoka, Asakura and Satoh left Khartoum

2-2 Members of Sudanese Side

1 Ministry of Health

Mr. SHAKIR MUSA (Permanent Under Secretary)
Mr. OMAR AL BAGIR (Director of Planning & Finance)

2. Consultant Doctors

Dr. ZAKIELDEN AHMED (Senior Consultant Gastroenterologist)
Dr. AHMED NAGIB (" ")
Dr. ABUELGASIM ELHADI (Senior E.N.T. Consultant)
Dr. OSMAN AWADALLA (Senior Consultant Urologist)

3. Ministry of Construction and Public Works

Mr. MAHMOULD OSMAN BURHAM (Under Secretary)
Mr. MOHAMED EL AMIN SAID (Director, Municipal Engineering Dep.)
Mr. MOHAMED EL BAGHIR AHMED (Chief Architect)
ABDEL AZIZ
Mr. ISHAG AMIR (Acting Chief Q.S.)
Mr. AHMED ABBAS EL HAG (Structural Engineer)
Mr. SULIMAN HASHIM (Electrical Engineer)
Mr. ABDEL KHALIG ATTALLA (Mechanical Engineer)
Mr. SALAHEL DIN SALIH (Sanitary Engineer)

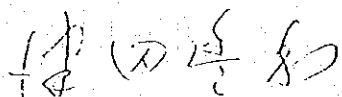
3. MINUTES OF DISCUSSIONS

In response to the request by the Government of the Democratic Republic of the Sudan, the Government of Japan has sent, through the Japan International Cooperation Agency which is an official agency implementing the technical cooperation of the Government of Japan, a team headed by Dr. Toyokazu Tsuda, Director, Department of Medical Care, Institute of Hospital Administration, Ministry of Health and Welfare, to conduct a basic design survey on the construction of Khartoum Training Hospital (hereinafter called as "the Project") for 23 days from May 6, 1982.

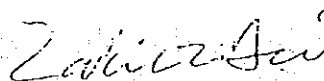
The team had a series of discussions and exchanged views with consultant doctors of the Government of the Sudan.

Both parties have agreed to recommend to their respective Government and the authorities concerned to examine the result of the study attached herewith toward the realization of the Project.

10 MAY, 1982



Dr. Toyokazu Tsuda
Head, Japanese Study Team



Dr. Zakieldin Ahmed
Senior Gastroenterologist
Ministry of Health
SUDAN

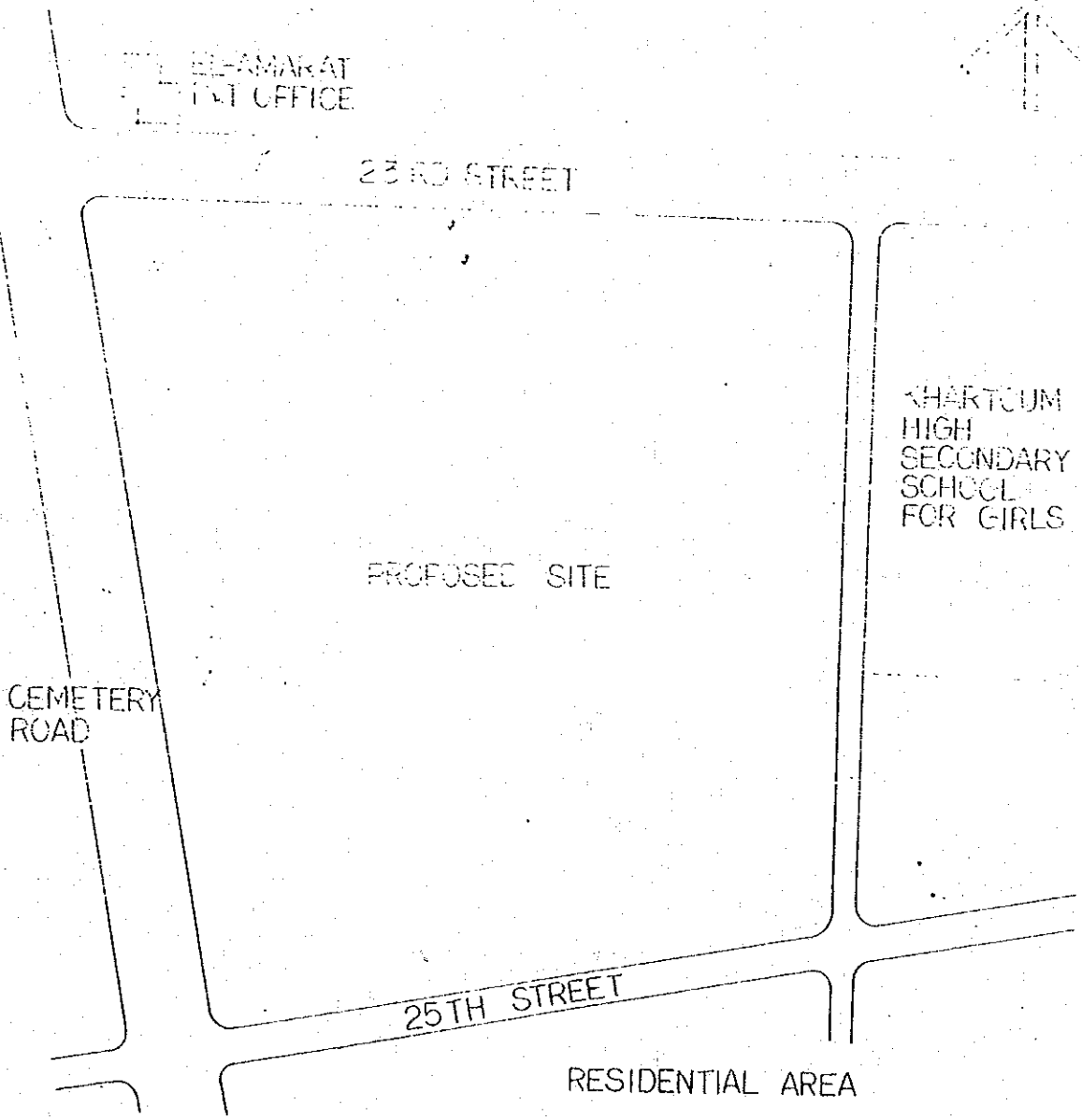
ATTACHMENT

1. The objective of the Project is to provide necessary building, facilities and equipment for the establishment of the Training Hospital in Khartoum (hereinafter called as "the Hospital").
2. The Hospital will cater for the specialities of Gastroenterology, Urology and E.N.T. Surgery and will have wards of 120 beds. It will be of a high standard to meet the requirement of treatment and post-graduates training.
3. The Sudanese side has assured the Japanese Study Team that the Hospital will be completely run and administrated by Sudanese personnel and that the Ministry of Health will bear running expenses and recruit various personnel of the Hospital. No technical assistance will be needed for running of the Hospital from Japanese side.
4. The proposed site of the Project is the land acquired by the Government of the Sudan at Amarat area in Khartoum. The Project site is shown in Annex I.
5. The Japanese Study Team will convey to the Government of Japan the desire of the Government of the Sudan that the former takes necessary measure to cooperate in implementing the Project and provides the building and other items as listed in Annex II within the scope of Japanese economic cooperation in grant form.
6. The Government of the Sudan will take necessary measures on condition that the grant assistance by the Government of Japan is extended to the Project:
 - (1) to provide data and information necessary for the design and the construction
 - (2) to secure land necessary for the construction
 - (3) to clear, fill and level the Project Site as needed before the start of the construction
 - (4) to construct and prepare the access road to the Project Site, as needed
 - (5) to provide other items listed in Annex III

- (6) to ensure prompt unloading and customs clearance in the Sudan of imported materials and equipment for the construction and also to facilitate the internal transportation for them
- (7) to exempt Japanese nationals concerned from customs duties, internal taxes and other fiscal levies which may be imposed in the Sudan on the occasion of the supply of materials and services for construction
- (8) to provide and accord necessary permissions, licences and other authorization required for carrying out the Project

Annex I

Proposed Site of the Project



SCALE 1/2000

Annex II

Items required by the Government of the Sudan whose cost will be borne by the Government of Japan.

1. Building and Facilities

A. Outpatient Department

- (1) Gastroenterology Section
- (2) E.N.T. Section
- (3) Urology Section
- (4) Diagnostic X-Ray Section
- (5) Laboratory Section
- (6) Blood Bank Section
- (7) Physiological Examination Section
- (8) Pharmacy Section
- (9) Recording and Statistics Section
- (10) Emergency Section

B. Training Unit Department

C. Operation Theatre Department

D. Administrative Department

E. Service Department

F. Wards (120 beds)

G. Autopsy Room

2. Medical Equipment and Instrument

- (1) Equipment for Gastroenterology Section
- (2) Equipment for E.N.T. Section
- (3) Equipment for Urology Section
- (4) X-Ray System
- (5) Laboratory Instrument
- (6) Physiological Examination Instrument

- (7) Equipment for Pharmacy Section
- (8) Equipment for Operation Theatre Section
- (9) Equipment for Emergency Section
- (10) Equipment for Autopsy Room
- (11) Equipment for Ward Section
- (12) Equipment for Service Section
- (13) Others

Annex III

Items whose cost will be borne by the Government of the Sudan.

1. Water supply mains to the Project Site
2. External drainage from the Project Site and sewage treatment facilities
3. Electrical power main line to the Project Site
4. Telephone lines and equipment
5. Exterior Facilities and Landscaping
6. Provision of space necessary for such construction as temporary office, working area, stock yards and others
7. Furniture, carpet, curtains and other furnishings
8. Maintenance and Operation cost and expenses

4. WEATHER CONDITIONS IN KHARTOUM

ITEM \ MONTH		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEM. (°C)	MEAN MINI. TEMP.	15.7	17.1	20.3	23.5	26.6	27.1	25.5	24.7	25.5	25.2	21.0	17.0
	MEAN MAX. TEMP.	31.1	33.4	37.0	40.1	42.0	41.4	38.1	36.4	38.5	39.2	35.2	31.0
	MEAN VALUE	23.4	25.3	28.7	31.8	34.3	34.3	31.2	30.5	32.0	32.2	28.1	24.4
RATE OF SUNSHINE (%)		91	90	85	85	79	71	67	70	75	85	93	91
RELATIVE HUMIDITY (%)		28	23	19	18	20	29	46	55	44	29	28	31
PRECIPITATION (mm/month)		-	-	-	-	4	5	46	75	25	5	1	-
WIND	VELOCITY (KM/h)	16.1	16.6	17.7	14.5	11.3	14.5	14.5	12.9	12.9	11.3	14.5	16.1
	DIRECTION	N	N	N	N	SSW	SSW	SSW	S	SSW	N	N	N

(SUDAN METEOROLOGICAL DEPARTMENT, KHARTOUM STATION 1951 ~ 1980 AVERAGE)

Table 4-1 Weather Conditions in Khartoum

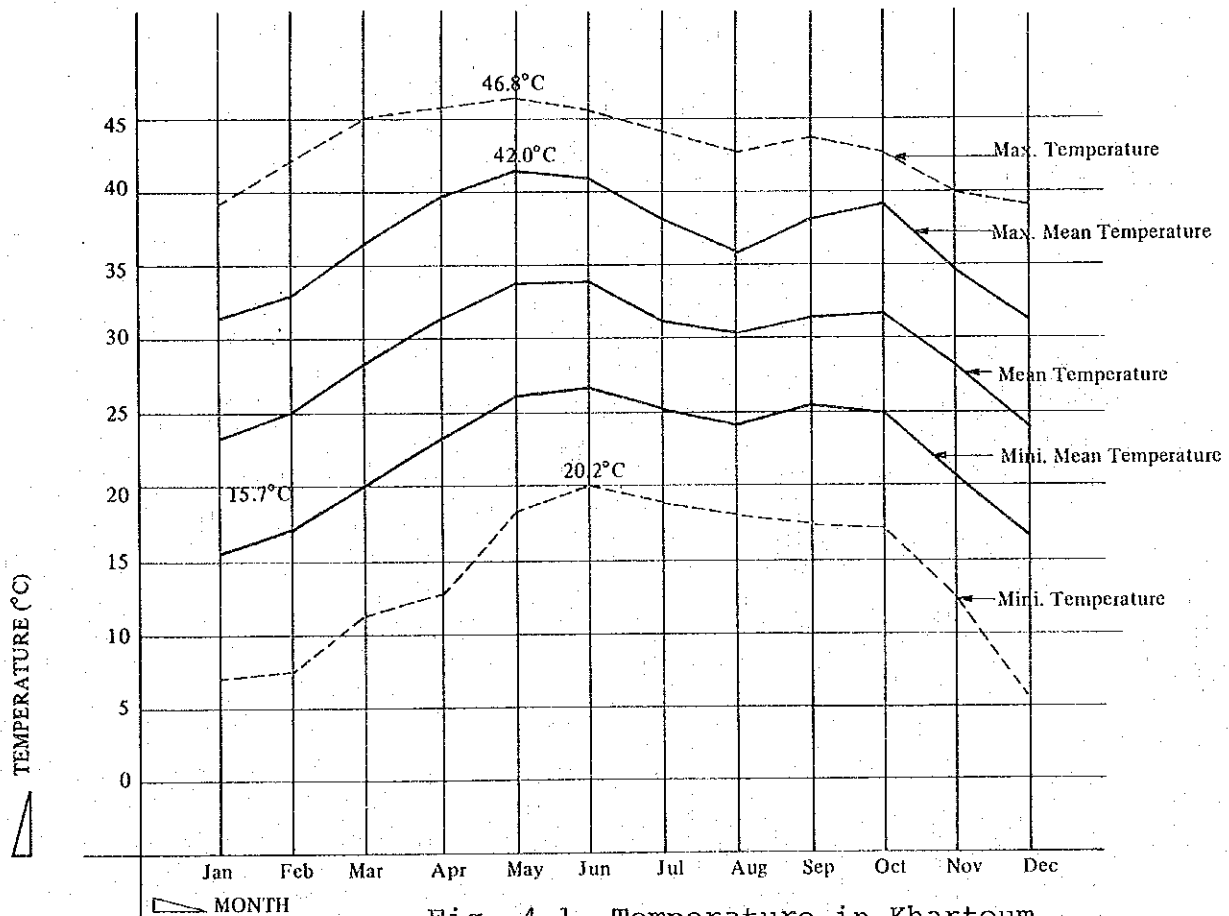
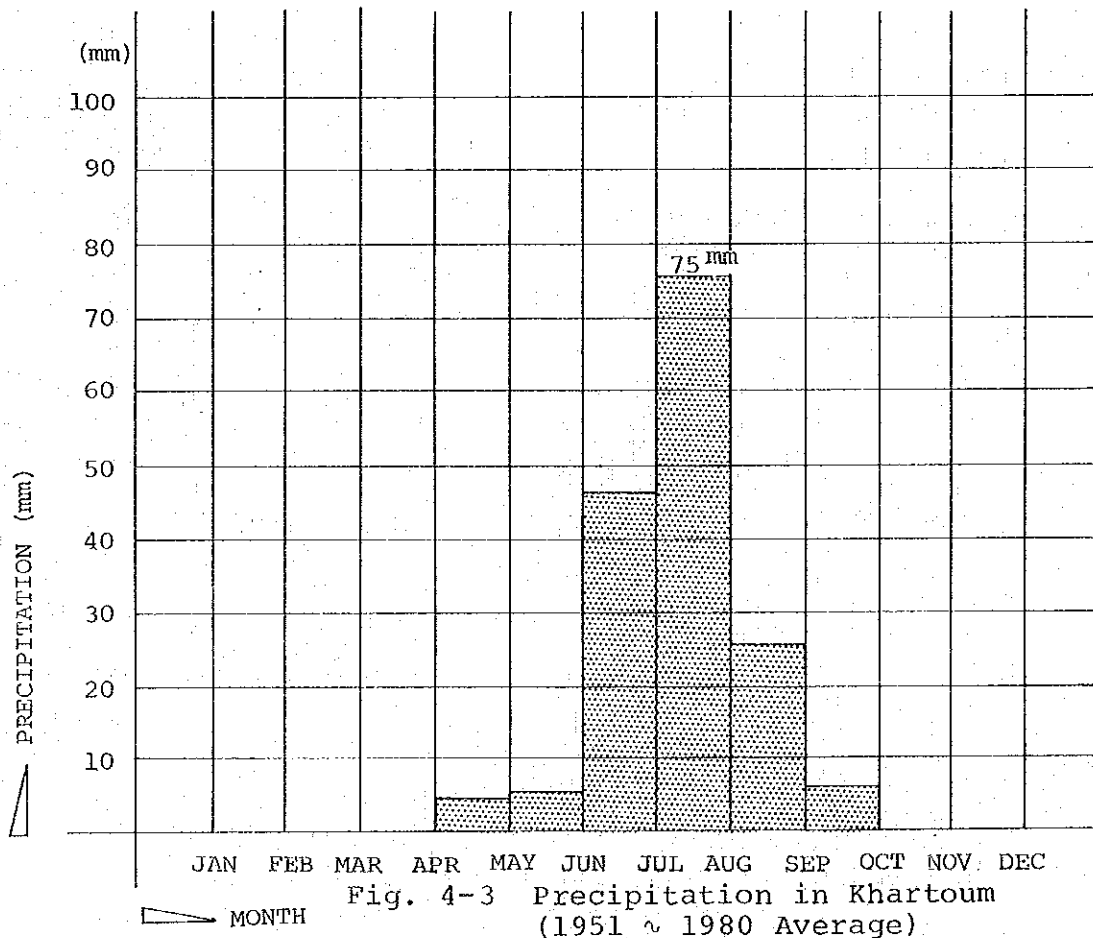
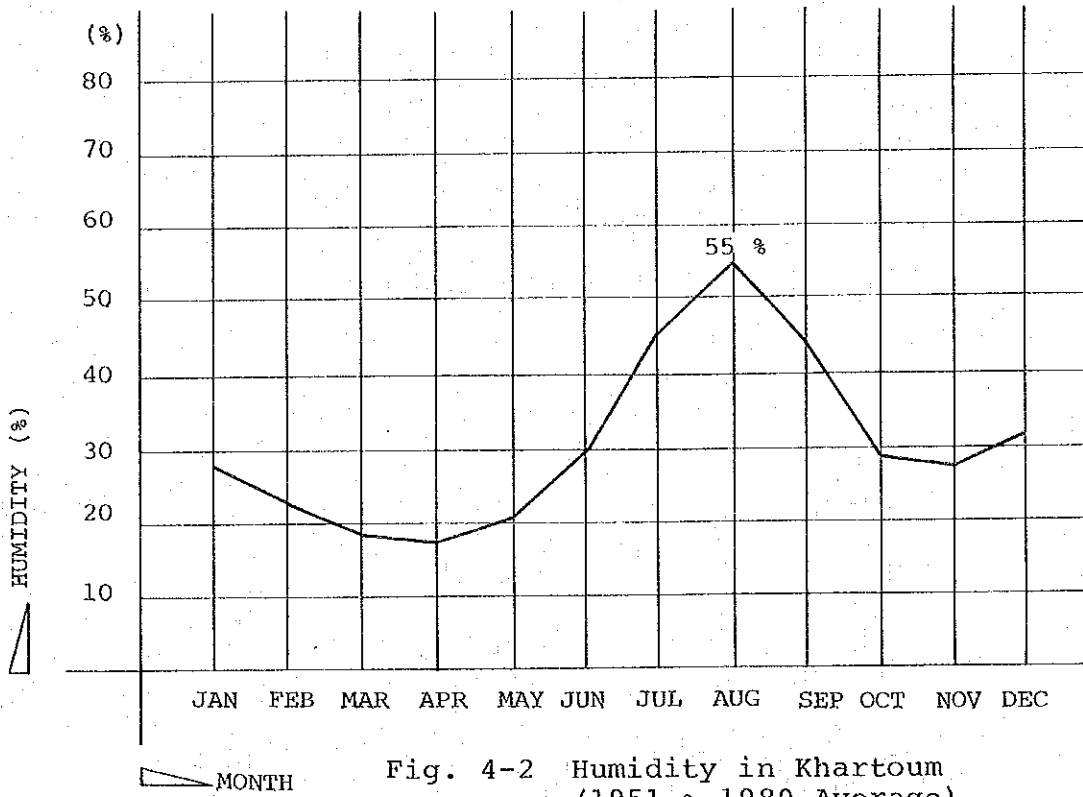


Fig. 4-1 Temperature in Khartoum (1951 ~ 1980 Average)



5. ECONOMICAL SITUATION

As regard to Sudanese economical situation, concerning data for the construction programme are disclosed herein. Principal export and import articles are as following Tables; i.e. Table 5-1 and 5-2. Exporting articles are raw cotton etc. as primary products, whereas importing articles range to all commodities, therefore excess of imports exists at present. Especially, almost all industrial products must be imported at recent situation.

ITEMS	VALUE IN LS. MILLION					1980 (%)
	1976	1977	1978	1979	1980	
COTTON	97.8	131.6	104.9	151.3	115.4	(42.5)
GROUNDNUTS	39.0	28.8	20.7	10.0	5.9	(2.2)
SESAME	17.3	18.3	19.2	6.3	24.9	(9.2)
GUM ARABIC	11.2	13.5	14.8	18.7	18.3	(6.7)
CAKE AND MEAL	5.1	7.8	6.7	7.3	13.5	(5.0)
OTHERS	22.6	30.2	36.0	39.1	93.3	(34.4)
TOTAL	193.0	230.2	202.3	232.7	271.3	

Table 5-1 Main Export Products
(Source: Sudan Guide, 1980)

ITEMS	VALUE IN LS. MILLION					1980 (%)
	1976	1977	1978	1979	1980	
Sugar	21.9	13.4	18.9	20.5	117.6	(14.9)
Tea	3.9	6.6	17.4	6.2	10.9	(1.4)
Coffee	2.1	1.7	-	1.6	5.6	(0.7)
Other Foodstuffs	17.3	14.1	18.6	31.5	58.1	(7.4)
Drinks and Tobacco	5.3	6.1	7.0	3.2	5.5	(0.7)
Petroleum Products and Crude Materials	31.9	45.6	50.8	73.2	173.0	(21.9)
Chemicals	33.5	32.7	41.6	48.8	70.4	(8.9)
Manufactured Goods	50.0	62.9	88.3	93.8	133.9	(17.0)
Machinery Equipment	110.6	125.6	112.0	100.8	128.1	(16.3)
Transport Equipment	43.0	39.6	57.5	71.0	54.6	(6.9)
Textiles	12.9	28.2	37.4	26.7	30.5	(3.9)
Total	341.4	376.5	449.5	477.3	788.2	(100.0)

Table 5-2 Main Import Products
(Source: Sudan Guide, 1980)

Besides, GNP per 1 person is 320 US dollars by statistics of the World Bank, and belongs slow developing group in worldly view with other African countries. Transitions of consumer's price indices are shown in Table 5-3, it discloses considerably high inflation of 20 to 30% annual increase of index.

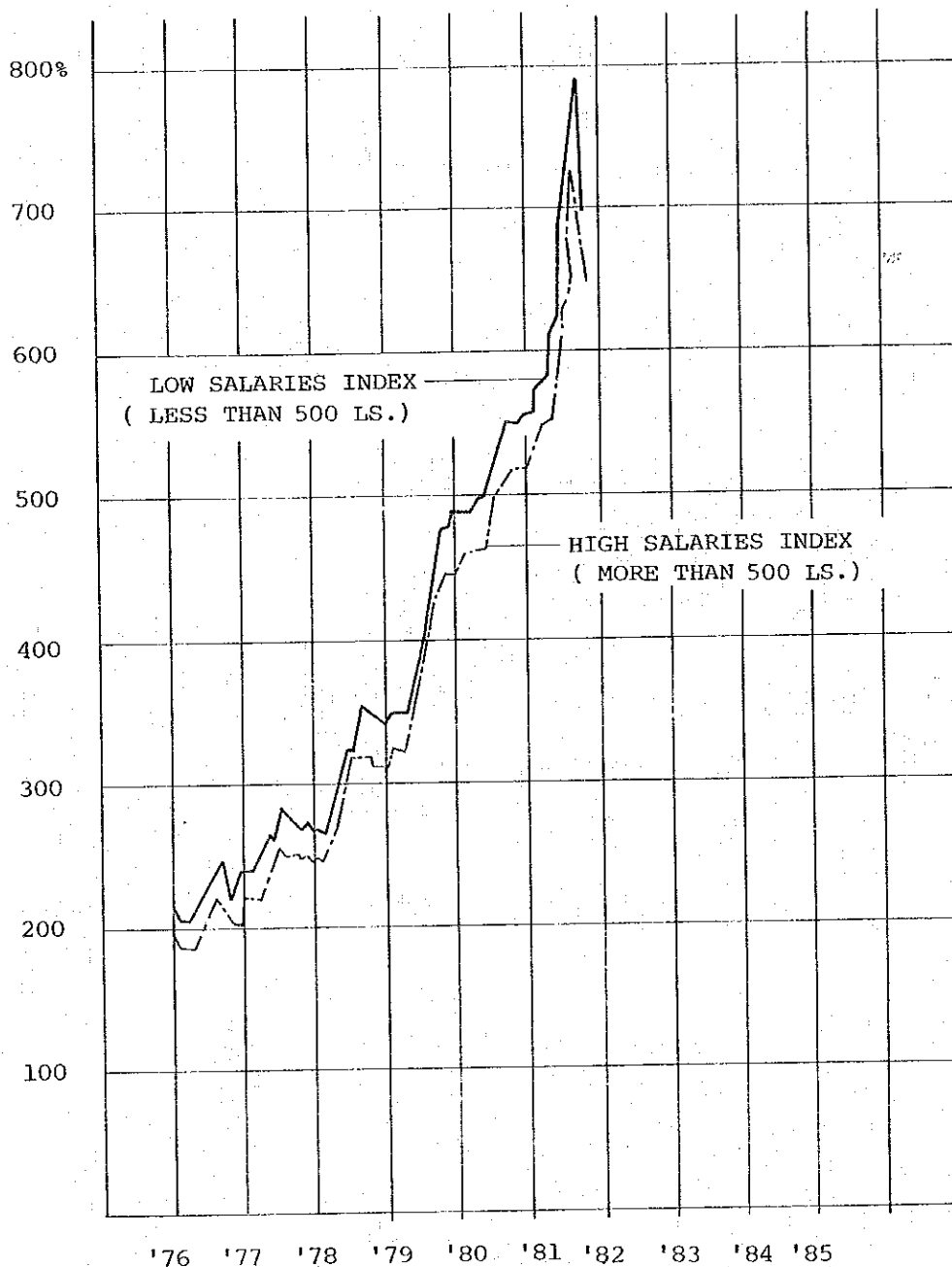


Table 5-3 Consumer's Price Indices (Base 1970 = 100)
(Source: Dept. of Statistics, Sudan)

6. BORING DATA OF PROPOSED SITE

KHARTOUM TRAINING HOSPITAL
 JAPAN INTERNATIONAL COOPERATION AGENCY
 AMARAT - KHARTOUM


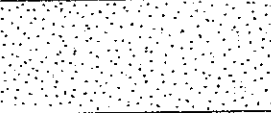
Date: 9.6.1982

BOREHOLE NO: 1 SHEET NO. 1

Depth (m)	Soil profile	Sample	Soil Description	Atterberg Limit			S L %	N M C %	γ bulk Mg/m ³	γ dry Mg/m ³	S.G.	Shear Strength		SPT Blows/ft.	Remarks
				L.L.%	PL %	P.I						C KN/m ²	φ (deg.)		
2.00		*	Dark brownish sandy clay with limestone concretion.	31	17	14	19							70	Water table was struck at a depth of 12.00 m below GL.
3.00			Pale brownish silty fine sand with limestone concretion.	NON	PLASTIC		18	1.55	1.31			106.95	18		
4.00		⊗	Pale brownish clayey silt with limestone concretion.	NON	PLASTIC								53		
6.00		*	Pale brownish clayey silty fine sand with limestone concretion & traces of mica.	32	25	7	19						>50	Per penetration	
7.00			Brownish reddish sandy clayey silt with limestone concretion.	48	32	16	19	1.69	1.19			55.2	22		
10.00		⊗	Dark brownish sandy clayey silt with limestone concretion.	48	33	15	20						43		
		*	Dark brownish to greyish silty fine sand with limestone concretions & traces of mica.	NON	PLASTIC								11		

KHARTOUM TRAINING HOSPITAL
 JAPAN INTERNATIONAL COOPERATION AGENCY
 AMARAT - KHARTOUM

BOREHOLE NO: 1 SHEET NO. 2 Date: 9.6.1982

Depth (m)	Soil profile	Sample	Soil Description	Atterberg Limit			S L %	N M C %	γ bulk Mg/m ³	γ dry Mg/m ³	S.G.	Shear Strength		SPT Blows/ft.	Remarks
				L.L.%	PL %	PI						C KN/m ²	φ (deg.)		
15.00															
20.00			Dark brownish to greyish medium sand.												

7. LIST OF COLLECTED DATA

	Title of Data	Source
1	Annual Statistical Report 1978	Ministry of Health
2	Post Graduate Courses Offered by The Faculty of Medicine	University of Khartoum
3	Report on Case Studies of Health Care Facilities in the D.R. of the Sudan	World Health Organization
4	Regulation of Buildings	The Khartoum Municipal Council
5	General Conditions of Contract and Building Specifications	Ministry of Const. & Public Works
6	Meteorological Data During Past 30 Years	Meteorological Department
7	Sudan Guide 1980	Plannings & Management Consultancy
8	Sudan Guide 1981	Ditto
9	Sudan	Nick Worrall Quartet Books Ltd., London
10	Sudan Now Apr. 1982 issue	The Sudanese Government
11	Sudan Now May, 1982 issue	Ditto
12	The Oxford Map of Sudan	Oxford Univ. Press

JICA