BASIC DESIGN
FOR
THE UNIVERSITY TEACHING HOSPITAL
NEONATAL AND PAEDIATRIC SURGICAL CENTRE
IN
THE REPUBLIC OF ZAMBIA

MARCH 1981

JAPAN INTERNATIONAL COOPERATION AGENCY

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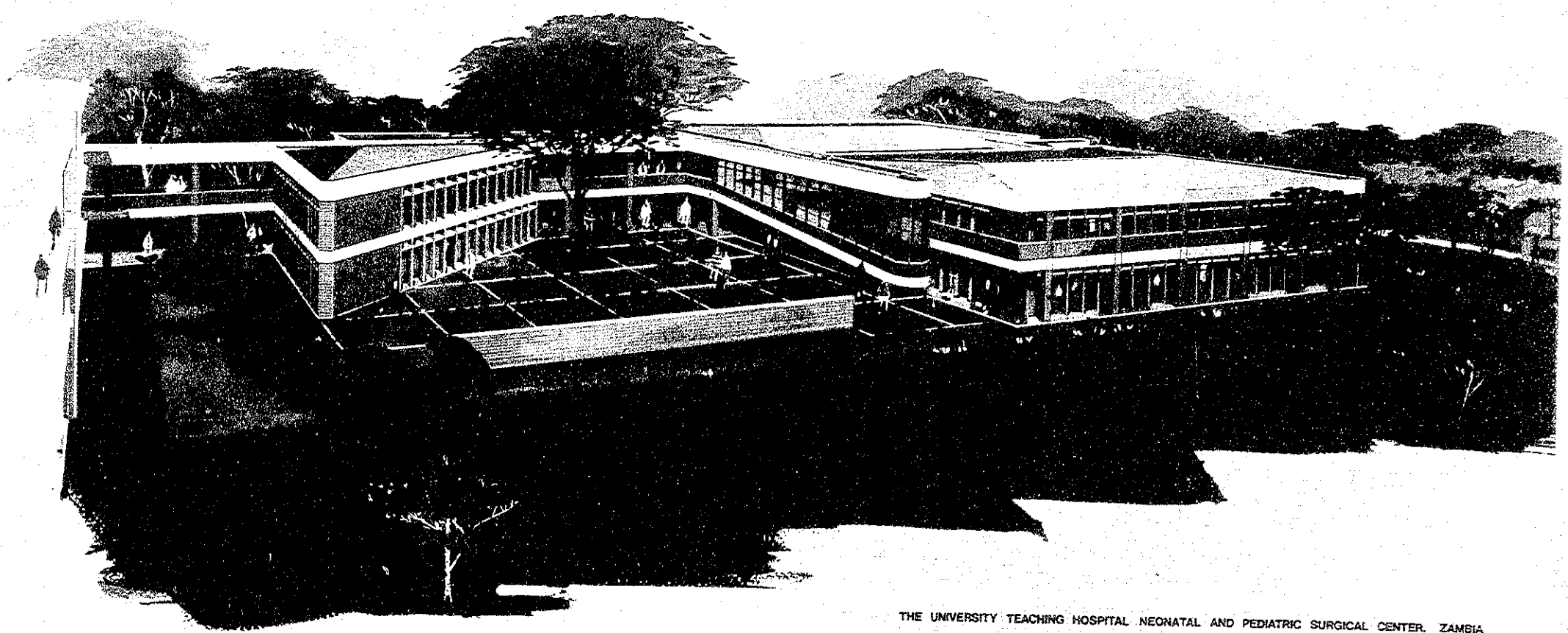


THE UNIVERSITY TEACHING HOSPITAL NEONATAL AND PEDIATRIC SURGICAL CENTER, ZAMBIA

PREFACE

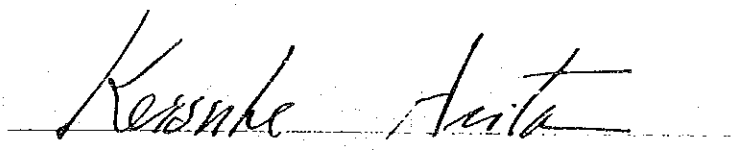
In response to a request of the Government of the Republic of Zambia, the Japanese Government decided to conduct a survey on the Basic Design for the Paediatric Surgical Centre Project of Zambia University and entrusted the Japan International Cooperation Agency with the survey. The J.I.C.A. sent to Zambia a survey team headed by Dr. Keijiro Suruga from 25th of October to 18th of November, 1980.

The team had discussions with the officials concerned of the Government of Zambia and conducted a field survey. After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the Republic of Zambia for their close cooperation extended to the team.

March, 1981



Keisuke Arita

President

Japan International Cooperation Agency

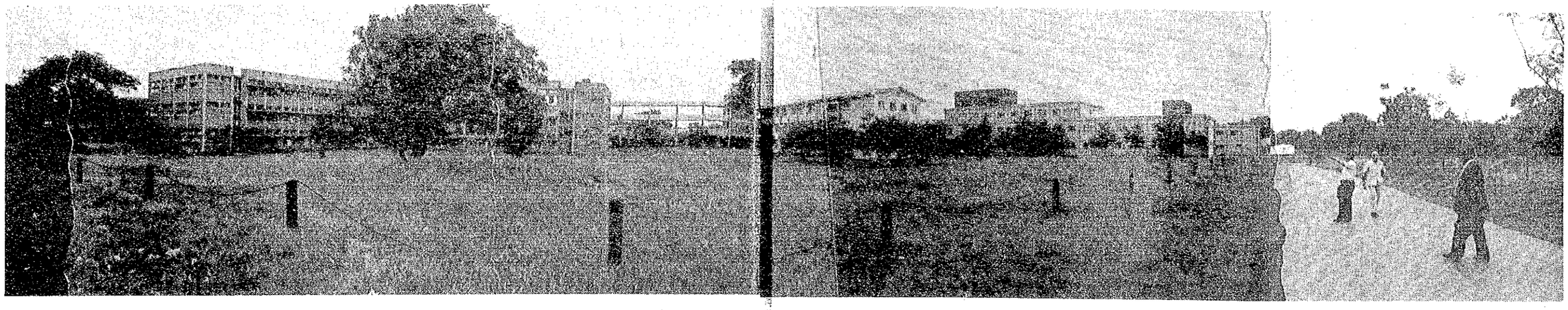


photo A: Project Site
View from East

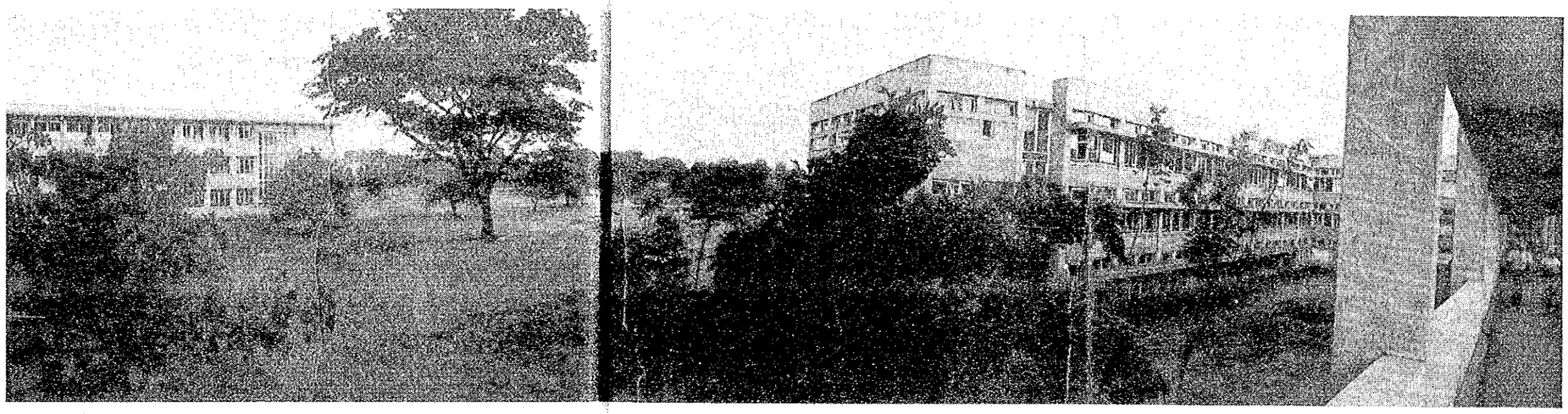


photo B: Project Site
View from East-Street of UTH

VIEW OF SITE

SUMMARY

Backgrounds of the Centre

Since establishing the School of Medicine in the University of Zambia, in 1970, the Government of Zambia has been exerting its efforts on trainning health manpower as a link of the National Health and Medical development programme. However, due to the financial conditions the National Development plans has been postponed and the National Health and Medical Development programme has been affected.

The University Teaching Hospital, the largest teaching hospital, as well as general hospital, having 1,200 beds in Zambia, does not offer sufficient medical care for all paediatric patients. And also there is no sufficient number of doctors and nurses. This contributes to the high infant mortality rate. It is most urgent therefore that the medical training facilities for post and under graduates of the School of Medicine are expanded and also the health manpower will be trained to achieve real Zambianization on the medical field.

In view of the circumstances, the Government of Zambia has requested the Government of Japan for technical cooperation in training health manpower. As a result of Preliminary surveys executed by the Japan International Cooperation Agency for serveral times in the past, a programme was made for Medical Cooperation in the form of a "Project System" with the Premature and paediatric Surgery of the School of Medicine, University of Zambia. Furthermore, strong requests have been made to the Government of Japan to cooperate in the construction of the Centre in the manner of grant aid, as a promoting base of the Medical cooperation.

Construction Site

The proposed site for the Centre is to be constructed at a corner of the University Teaching Hospital. The UTH site is a slow slant toward west having a size of 300 meters from east to west and 1,000 meters from south to north, and the site has been developed based on the UTH master plan prepared in 1972. The infra-structures such as road, electricity, water supply and drainage and steam have already been completed. The site is suitable for the Centre construction in views of the surroundings, infra-structures, climate and soil conditions.

Design Concept

Since the Centre is defined as the Paediatric Centre in Zambia located in the UTH site, functional connection with the existing facilities of the UTH is regarded to be very important. However, the centre will be self-contained and deemed to be functionally independent.
The Centre is designed to meet the future growth and change of facilities resulting from the improvements of medical level and therapeutic methods. That is, the diagnostic and treatment as the pathological laboratory and the operating theatre suite are centralized and divided from the Ward building.

Facility Size

The facility size of the Centre is as follows:
Total beds 134, total floor area approx. 4,200 sq.meters (45,200 sq.ft.), per bed total floor area approx. 30 sq.meters (323 sq.ft.), with each building being 2-storey high.

Facility Contents

The Centre building consists of four departments, such as Administration department, Out-Patient department, Central Diagnostic and Treatment department and the Ward.

- Out-Patient Department

  Two Consultation rooms, Treatment room and waiting hall.

- Administration Department

  Administration office, reception, pharmacy, staff rooms, doctors rooms, junior doctor's room, nursing office, library and night duty rooms are arranged.

- Central Diagnostics and Treatment Department

  The diagnostics department to be placed in the ground floor, and Operation Theatre Suite to be placed in the 1st floor.
  The diagnostics department are the X-Ray unit, the physical examination laboratory, surgical pathology laboratory, emergency test laboratory, autopsy, staff room and lecture theatre. The treatment department are the operating theatre suites, theatre sterile supply unit, recovery, procedure room and staff room.

- Ward

  The ground floor is Ward-Paediatrics having 58 beds including 4 isolation beds and the 1st floor is Ward-Premature having 76 beds including the Neonatal Intensive Care Unit and 4 isolation beds. Nurse station, breast feeding room, lecture theatre, sluice room, visitors/mothers waiting room and milk room will be placed in each ward.

Medical equipment provided for this project and that provided under the Japanese Technical Cooperation Programme shall be used at the Centre after its completion. Equipment of low maintenance expenses and easy to maintain are mainly provided. Among those necessary in the pathological laboratory, X-ray room, etc, the equipment with high maintenance expenses are limited to those with high efficiency for transfer of technology or medical performances.

Construction Schedule

The period required for the detail design is estimated to be 6 months, for the tendering and contract award 2 moths, and for the construction 20 months.

Evaluation of the Project

The construction of the proposed Centre will assist to improve the medical services in the paediatric field specially newborn infants and paediatric surgery, as the basic centre for the Japanese Medical Cooperation and in future will take the leading role as a national paediatric centre in Zambia. The Centre construction will also be a contributing factor to enhance the National Development Plan and stimulate the Zambia Construction Companies.

Suggestions

Toward the prompt realization of the Centre construction and for the smooth management of the Centre, the close cooperation in the construction on the part of the Zambia side and the establishment of the management system toward the Centre opening are essential factors. In other words, highest consideration should be taken in the completion of leveling and reclamation of the Centre area, the provisions of necessary infra-structures, such as electricity, water, sewer and road, also, the sufficient budget allocation for the maintenance and the management of facilities and equipment and the securing of personnel for the Centre that is doctors, nurses and technicians.

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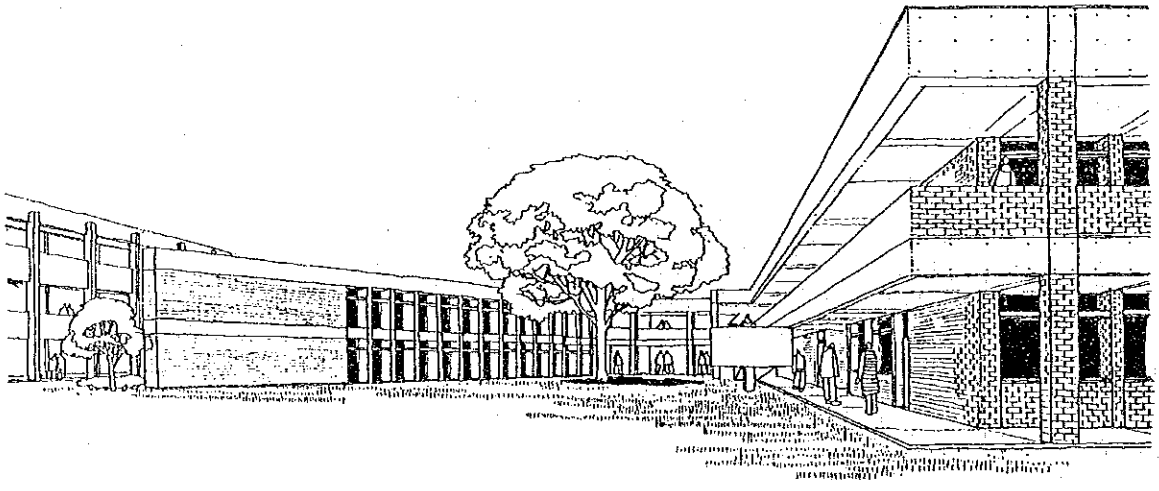

Chapter 1. Objectives of the Survey

Since establishing the School of Medicine in the University of Zambia, in 1970, the Government of Zambia has been exerting its effort on trainning health manpower as a link of the National Health and Medical development programme. However, due to the financial conditions the National Development plans have been postponed and the National Health and Medical Development programme has been affected.

In the health situation, there were 79 hospitals, 675 health centres with the total number of 19,400 beds throughout Zambia in 1975. By the Third National Development Plan, these numbers are projected to be increased to 117 hospitals, 1,175 health centres with the total number of beds amounting to 29,350 by the end of 1983. The statistics clarified this, as being 480 beds per 100,000 of the population compared with the figure of 1,042 beds for the same number of population in Japan.

The University Teaching Hospital, although the largest teaching and general hospital in Zambia with 1,200 beds, can not be a facility of sufficient medical care for all paediatric patients. And also there is not fussicient number of doctors and nurses which contributes to the high infant mortality rate. It is most urgent that the medical trainning facilities for post and under graduates of the School of Medicine are expanded and also the health manpower will be trainned to achieve real Zambianization on the medical field.

Under the above circumstances, the Government of Zambia has requested the Government of Japan for technical cooperation in trainning health manpower. As the result of Preliminary surveys executed by the Japan International Cooperation Agency for the serveral times in the past, a programme was made for Medical Cooperation in the form of a "Project System" with the Premature and paediatric Surgery of the School of Medicine, University of Zambia. And strong requests have been made to the Government of Japan to cooperate in the construction of the Centre in the manner of grantaid, as a promoting base of the Medical cooperation.
In response to the request the Japanese Government dispatched twice the Survey teams* starting from October, 1980.

The objectives of the survey are to find out the background of the Centre and to collect and analyze the data and statistics concerning the Centre. From the result, the basic design including plans and construction schedule of the proposed Centre will be arranged.

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* Kume Architects-Engineers participated in the survey teams.

Fig. 2-1

Population/Doctor and Population/Hospital beds Ratios by Province

(December, 1977)

Province	Population 1977 (estimate) ('000)	No. of hospitals	No. of doctors*	Population per doctor ('000)	No. of beds and cots	Beds and cots per 1,000 people
Central	471	6	31	15.2	980	2.1
Copperbelt	1,242	17	123	5.8	3,770	3.0
Eastern	621	8	21	29.6	1,510	2.4
Luapula	354	6	15	23.6	770	2.2
Lusaka	626	4	208	3.0	2,190	3.5
Northern	619	8	25	24.8	1,190	1.9
North-Western	279	10	18	15.5	1,220	4.4
Southern	581	12	40	14.5	1,760	3.0
Western	509	11	25	20.4	1,370	2.7
Total	5,302	82	596	8.9	14,760	2.8

* Including 78 mine doctors. Excluding: dentists, military doctors and estimated fifty private doctors in the urban districts and about six doctors of the Flying Doctor Service.

Fig. 2-2

Accessibility to Existing Hospitals

Province	Percentage of population within 30 km radius of existing hospitals
Central (including Lusaka)	66.8
Copperbelt	97.6
Eastern	48.2
Luapula	34.9
Northern	29.1
North-Western	50.4
Southern	59.4
Western	46.0
Total: Zambia	59.0

It is observed that while the line-of-rail provinces have better averages than the national average of 59.0 per cent, the non-line-of-rail provinces are below theaverage, Luapula and Northern provinces being at the bottom. In the case of the latter province, the ratio is particularly low because of the vastness of its territory and low population density.

Chapter 2. Background of the Centre

2-1 Health and Medical Situation

Health Facilities

In 1977 there were eighty-two hospitals and 665 health centres which included fifteen mobile clinics and seventeen flying doctor clinics. The number of doctors in the country was 596. This excludes army doctors, private practitioners, flying doctors, as well as dentists. The total number of hospital beds and cots was estimated to be 14,760. The provincial distribution of existing health facilities is discussed below:

Hospitals

Fig. 2-1 shows a comparative analysis of hospital services between the various provinces. It is observed that while the national population/doctor ratio is 8,900 people per doctor, Eastern, Northern, Luapula and Western provinces are all considerably higher than the national ratio. The corresponding ratio works out to 29,600, 24,800, 23,600 and 20,400 people per doctor respectively for the four provinces.

On the other hand, the two urbanised provinces of Lusaka and Copperbelt are better served with 3,000 and 5,800 people per doctor in that order. The two latter provinces, in real terms, enjoy a much better health service level if private practitioners are included.

In relation to hospital beds, the majority of the provinces are fairly close to the national population/bed ratio of 2.8 beds per thousand people. The only exception is Northern Province, which is slightly below the average, and North-Western Province, which is well over the national average.

Number of Hospitals is shown in Fig. 2-6.

Accessibility to Hospitals

In the final analysis, the effectiveness of a service depends on whether such a service is physically within easy access of the population. An estimated 59.0 per cent of the population in this country live within 30 km radius of the existing hospitals, the assamption being that this radius is within a reasonably convenient driving distance for a patient to be taken to hospital. Fig. 2-2 shows the health/accessibility situation as it oxists in the various provinces of the country.

Medical Staff Workload

Workload in terms of bed/doctor and bed/nurses ratios provides an indication of the relative medical staffing situation in the various Provinces. Fig. 2-3 shows that workload in terms of those selected parameters is comparatively much lighter in Lusaka, Central and Copperbelt provinces than in the rest of the country. This means that hospitals in these provinces are more adequately staffed than the other remaining provinces. On the other hand, Eastern, North-Western and Western provinces stand out as the most inadequately staffed, in that order.

Fig. 2-3

Health Services-Hospital Bed: Staff Ratio by Province

(December, 1977)

Provinces	Beds and cots per doctor	Beds and cots per primary nursing staff*	Beds and cots per nursing staff
Central	31.6	14.8	4.5
Copperbelt	17.7	6.3	2.2
Eastern	71.9	24.6	6.8
Luapula	51.3	15.2	4.9
Lusaka	10.5	10.4	4.3
Northern	47.6	17.5	5.1
North-Western	67.7	17.6	5.0
Southern	44.0	16.1	3.9
Western	54.8	18.6	7.5
Total: Zambia	24.8	11.4	3.7

* Includes matrons, sisters, registered nurses and registered midwives

Fig. 2-4

Population/Health Centre Staff Ratio by Province

(December, 1977)

Province	Number of health centres*	Number of qualified health centre staff°	Population per staff member
Central	71	177	2,600
Copperbelt	122	460	2,600
Eastern	69	136	4,500
Luapula	70	101	3,500
Lusaka	40	163	3,900
Northern	67	120	5,100
North-Western	70	110	2,500
Southern	83	193	3,000
Western	73	113	4,400
Total: Zambia	665	1,573	3,300

* Rural Health Centres, Urban Health Centres, Mines and Industrial Clinics and Flying Doctor Service (FDS) Clinics. Excluding military, para-military and and police clinics and leprosaria.

° Excluding dressers, servants, etc. Excluding staff of leprosaria and FDS clinics.

Health Centres

The total number of health centres in the country is 665. This includes urban health centres, rural health centres, mobile clinics, and flying doctor clinics, etc. The qualified staff working in these health centres is estimated to be 1,573. Fig. 2-4 gives the provincial breakdown of the figures which show that apart from Eastern, Northern and Western Provinces, the rest of the provinces are very close to national health centre medical staff: population ratio of 1:3,300. However, the ratio of 1:5,100 for Northern Province is twice as much as that of North-Western, Central of Copperbelt.

Existing Health Manpower

The efficient and smooth functioning of the health system depends largelly on the timely availability of appropriately trained manpower in adequate numbers. The health manpower of various categories and levels is needed, but not enough at present. The situation with regard to health manpower, as doctors, nurses, medical assistants and dental surgeous, at the end of 1977 is shown in Fig. 2-5.

During the Second National Development Plan (SNDP) period, 2,600 posts of both professional and para-medical staff were Zambianised: ninety of these were doctors, dentists, pharmacists and radiographers: another 2,250 were registered and enrolled nurses and midwives; and the bulk of the remainder were medical assistants and health inspectors.

The first doctors trained at the University of Zambia graduated in 1973, and during the SNDP period, the total number of graduates was ninety-eight. This number included forty-four foreign trainned students.

The number of trainees in the Registered and Enrolled Nurses courses during 1977 were 600 and 1,000 respectively. Training facilities for Registered and Enrolled Midwives were fully utilised. However, the establishment of a Post-Basic School for Public Health Nurses, Administrators and Tutors materialised only towards the end of the plan period. The number of trainees for each of the medical and para-medical fields was a little below target.

At the end of the SNDP; Zambians actually formed only 14 per cent of doctors, 48 per cent of administrators, registered nurses and midwives in the country, but at lower levels, almost all posts of enrolled nurses and midwives and medical assistants were held by nationals.

The Ministry has continued to suffer from the worldwide shortage of medical personnel. The position has become worse as recruitment on the world market has become difficult, because of very high competitive salaries offered elsewhere. While the training of nationals will no doubt alleviate the problem, it will be long before the country can produce enough local personnel. In the meantime, recruitment on the world market will continue.

Fig. 2-5 Manpower Requirements: 1979-83

(Government+Mission+Mine)

Category of staff	Strength 1977	Additional TNDP requirement	Estimated output in TNDP	Shortfall
1. Doctors	596	464	170	294
2. Dentists	17	74	-	74
3. Pharmacists	40	66	-	66
	653	604	170	434
4. Nursing staff				
(a) Educators General (Reg. Nursing Tutors)	32	120	80	40
(b) Public Health Nurses	10	180	90	90
(c) Nursing administrators	40	120	40	80
(d) Midwifery Tutors	10	36	20	16
(e) State Registered Nurses/ Midwives	1,740	2,170	1,610	560
(f) Zambia Enrolled Nurses/ Midwives	2,540	5,275	4,760	515
	4,372	7,901	6,600	1,301
5. Medical assistants	1,030	1,050	375	675
6. Public health inspectors	115	64	60	4
7. Physiotherapists	23	75	30	45
8. Health assistants	415	480	320	160
9. Laboratory technicians	132	74	60	14
10. Laboratory assistants	83	150	60	90
11. Radiographers	72	35	75	+40
12. X-ray assistants	58	92	25	67
13. Dental technicians	10	35	10	25
14. Dental assistants	26	164	125	39
15. Pharmacy technicians (dispensers)	31	140	100	40
	1,995	2,359	1,240	1,119
Total	7,020	10,864	8,010	2,854

In 1977, there were 518 doctors and 12,875 beds/cots in the seventy-one hospitals run by the Ministry of Health and churches, giving an average of one doctor for twenty-five beds/cots. The breakdown of this average, by type of hospital, shows that in Central Hospitals-University Teaching Hospital in Lusaka, Ndola and Kitwe-there was one doctor for nine beds/cots; in Special Hospital (Chainama, Liteta, Arthur Davison) there was one doctor for forty beds/cots; in general hospitals, there was one doctor for 30.1 beds/cots; whilst in rural hospitals, there was one doctor for seventy-eight beds/cots. An even more disquieting feature of the uneven distribution in the rural areas was that in Government district hospitals there was one doctor for 104 beds/cots.

In regard to professional personnel, the Government and church hospitals had insufficient numbers of matrons and sisters (120); indeed, several district and rural hospitals had neither a matron nor a sister. The number of public health and community nurses was so small that almost all worked in maternal and child health clinics (MCH) and public health at provincial level. Registered nurses and midwives in Government and church hospitals numbered about 1,410 giving an average of one registered nurse/midwife to nine beds, which is considered to be quite inadequate. The country also experienced a severe shortage of para-medical staff (laboratory technicians, dispensers, dental technicians, health inspectors, etc.). As a matter of fact, several hospitals have been carrying on without any laboratory or pharmacy technician or radiographer.

Under the category of medical auxiliaries also, there was all-round shortage. In 1977, there were 980 medical assistants serving in Government and church hospitals and health centres. Each health centre had, on average, only one medical assistant, though the work-load warranted two or three. Moreover, some rural health centres had no medical assistant at all. Likewise, the number of enrolled nurses and midwives was not only inadequate but unevenly distributed, owing to such factors as lack of accommodation, marital situation of female workers, etc. Of the 1,990 enrolled nurses and midwives in Government and church units, 1,420 were in hospitals and only 570 in rural and urban health centres. The position in regard to other auxiliary personnel like health assistants, dental assistants, laboratory assistants and X-ray assistants was no better.

The staff position as described above has created a paradoxical situation-the existing health facilities in terms of number of institutions are by no means adequate in relation to the country's requirements. Yet there is no adequate staff to man even the existing number of health institutions.

Fig. 2-6

Numbre of Hospitals

Province	Lusaka	Central	Copper-belt	Eastern	Luapula	Northern	North Western	Southern	Western
Central H.	1	–	2	–	–	–	–	–	–
General H.	–	1	–	1	1	2	1	2	1
District H.	–	2	2	2	1	5	3	3	4
Rural H.	2	3	7	5	4	1	6	7	6
Health Centre	53	78	114	84	82	77	85	88	77
Special H.	1 Mental	–	1 child	–	–	–	–	–	–
Mine H.	–	–	5	–	–	–	–	–	–
(Office of P.M.O.)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Total	57	84	161	92	88	85	95	100	88

Fig. 2-7

Hospital Establishments and Health Personnel

Units

Country or area	Hospital establishments				Health personnel						
	Year	Total	Beds	Population per bed	Year	Physicians	Population per physician	Dentists	Pharmacists	Nursing personnel	Midwifery personnel
AFRICA											
Algeria	1976	...	44 592	387	1976	3 475	4 942	643	705	...	1 848
Angola	1972	347	18 011	522	1973	383	15 404	...	87	3 115	284
Benin	1976	361	4 394	727	1976	93	55 555	10	34	[1] 1 032	243
Botswana	1976	21	2 137	528	1974	63	10 476	5	7	[1] 460	([P] ...)
Burundi	1975	...	4 489	857	1974	81	45 432	6	11	590	89
Cape Verde	1977	23	640	516	1977	43	7 750	2	6	148	...
Central African Empire	1975	...	3 351	...	1976	[1] 102	...	[1] 1	[1] 5	[1] 510	[1] 131
Chad	1976	43	3 349	1 248	1976	[1] 100	...	[1] 5	8	[1] 854	[1] 81
Comoros	1972	[1] 30	[1] 612	458	1973	21	13 810	3	3	148	20
Congo	1976	121	6 912	201	1976	[1] 190	...	[1] 4	[1] 25	[1] 1 734	[1] 152
Djibouti	1976	11	1 014	107	1976	55	1 964	4	6	252	4
Egypt	1976	1 539	78 994	479	1976	[4] 31 920	...	[4] 4 204	[4] 11 256	[4] 33 081	[4] 2 370
Equat. Guinea	1967	16	1 637	171	1975	5	62 000	...	...	248	2
Ethiopia	1976	84	8 623	[5] 277	1976	340	93 966	[1] 7	[1] 32	1 117	104
Gabon	1975	[1] 41	[1] 4 046	132	1971	96	8 208	4	15	823	99
Gambia	1976	15	661	771	1976	41	13 500	5	2	[1] 137	84
Ghana	1976	264	15 881	648	1976	1 011	10 310	60	519	11 932	2 546
Guinea	1976	[1] 314	[1] 7 650	588	1976	277	15 100	[1] 21	[10] 159	1 533	394
Guinea-Bissau	1976	[1] 9	[1] 1 056	481	1976	74	7 571	2	2	292	70
Ivory Coast	1975	...	8 346	589	1975	321	15 234	[1] 21	[1] 45	2 859	453
Kenya	1976	65	17 896	773	1974	[4,9] 1 242	...	...	[4] 202	[4] 11 932	[4] 6 356
Lesotho	1976	84	2 198	652	1976	59	20 570	4	4	[1] 342	...
Liberia	1973	41	2 527	652	1974	142	11 761	13	7	1 387	234
Libyan Arab Jamahiriya	1976	55	12 241	200	1976	2 558	938	219	508	9 063	1 145
Madagascar	1976	886	19 781	417	1976	767	10 337	[1] 93	[1] 141	2 252	1 010
Malawi	1977	324	9 617	576	1975	104	48 462	7	4	1 155	...
Mali	1976	[1] 200	[1] 4 177	1 426	1976	144	58 400	12	18	1 923	157
Mauritania	1976	[1] 9	[1] 567	...	1976	[10] 71	...	4	5	560	[10] 20
Mauritius	1976	33	3 229	271	1976	340	2 900	37	55	[1] 1 394	[1] 335
Morocco	1976	132	24 080	739	1976	1 606	11 143	145	535	[1] 10 467	146
Mozambique	1972	[10] 588	[10] 11 041	772	1971	510	16 392	14	140	1 777	467
Namibia	1973	66	6 905	97	...	...	...	...	...	...	...
Niger	1974	56	3 734	1 200	1976	110	47 300	6	8	575	70
Nigeria	1975	...	53 889	1 168	1975	[10] 4 248	14 814	168	[10] 1 482	[10] 19 607	[10] 19 335
Réunion	1972	21	3 886	181	1975	296	1 666	77	143	2 029	77
Rwanda	1976	272	8 383	510	1976	109	42 900	3	10	268	527
St. Helena	1976	1	54	94	1976	3	1 666	1	—	26	3
Sao Tome, Principe	1976	[1] 11	[1] 530	160	1973	12	6 666	...	...	63	6
Senegal	1976	[1] 43	[1] 6 025	853	1976	311	17 066	37	90	3 080	380
Seychelles	1975	[1] 7	[1] 300	200	1975	21	2 857	3	1	34	100
Sierra Leone	1972	28	2 837	927	1970	149	17 114	12	7	708	276
Somalia	1972	...	5 163	569	1973	193	15 544	4	21	...	...
South Africa	1973	788	156 245	152	1973	12 060	2 016	1 767	4 761	[4] 53 835	[4] 28 399
Southern Rhodesia	1974	253	19 285	816	1976	[4] 919	...	[4] 152	[4] 316	[4] 4 697	[4] 2 083
Sudan	1976	151	17 324	932	1976	1 652	9 488	[4] 186	526	12 826	6 164
Swaziland	1976	33	1 717	294	1976	54	10 000	3	8	530	370
Togo	1977	61	3 438	684	1977	128	23 500	5	26	880	517
Tunisia	1976	121	13 430	428	1976	1 196	4 675	189	[1] 276	[1] 5 357	[1] 308
Uganda	1975	420	18 156	636	1977	436	24 700	[1] 38	[1] 14	2 800	2 379
United Republic of Cameroon	1976	347	16 734	390	1977	477	15 820	19	93	3 533	[10] 1 805
United Republic of Tanzania											
Tanganyika	1975	2 144	24 711	619	1975	797	18 482	28	36	4 465	910
Zanzibar	1967	15	875	400	1967	43	8 140	2	3	[1] 217	[1] 25
Upper Volta	1971	[1] 148	[1] 4 675	1 174	1976	108	57 130	7	11	1 193	98
Western Sahara	1972	5	262	344	1971	53	943	3	4	39	8
Zaire	1973	...	72 090	327	1973	818	28 802	22	13	9 285	1 235
Zambia	1975	748	19 901	250	1975	[1] 472	...	[1] 28	[1] 126	[1,9] 2 490	([P] ...)
Japan	1976	[11] 8 379	[11] 1184737	95	1976	133 416	845	43 336	79 242	391 950	26 804

SOURCE: United Nations, Statistical Yearbook 1978, P.895

Children's clinics, which were started in 1967, have under the supervision of an MCH specialist and supporting staff increased progressively to over 1,000 by 1976, nearly half of which is being carreid out in villages. The activities of this programme have now been extended to include children up to fourteen years. These activities include immunisation against communicable diseases, regular weight assessment and detection of malnutrition, provision of health and nutrition education to mothers, distribution of food supplements, and treatment of minor ailments. In 1976, more than 40 per cent of all children under five years of age were reported to have attended the clinics at least once.

The ante-natal care campaign for expectant mothers has also produced tangible results, and in 1976, around 200,000 expectant mothers were reported as attending ante-natal clinics. This figure represents more than 75 per cent of total pregnancies during that year.

Deliveries of babies in hospitals and health centres bear out the increasing awareness of the need for medical care in child-birth. It is now estimated that about 43 per cent of total births in Zambia are in hospitals and health centres. Post-natal clinics, however, are not well attended in the rural areas, and this calls for the necessary campaign for stressing the need for post-natal care.

The School Medical Service was incorporated in 1973 into the Maternal and Child Health Service and provides for screening and medical examination of school entrants, vaccination of pupils who have not been previously vaccinated, and medical treatment for children discovered to have any disease or disability. Although this service is still in its infancy in most provinces (it existed for many years in Lusaka and Copperbelt provinces), an increasing number of children are examined each year.

A serious problem in children is the prevalence of malnutrition and so diverse campaigns were started aimed at educating parents to recognise this problem. An FAO/UNDP project for the study of food consumption and nutritional status in sample surveys has shown that, as expected, protein calorie deficiency is by far the most prevalent. In 1974, a project was started in conjunction with the World Food Programme, to supply and distribute vitamin enriched milk powder to all children attending children's clinics who are found to be underweight. This project is still continuing.

The general objectives for the improvement of health services were spelt out in the Ten-Year National Health Plan 1971 - 80 and in the UNIP Manifesto "National Policies for the Next Decade 1974 - 84". As stated in these documents, the Party and Government's objectives aim at improving and expanding health services to cover all areas in the Republic and in doing so, continue to make the health services efficient and freely available to all people in Zambia. Further, an integrated programme of health work, especially in the rural areas, will be carried out through a network comprising basic health care, personal health services at the primary level and environmental health and sanitary facilities. These stated general objectives remain valid for the TNDP. However the strategy for the TNDP will be suitably adapted in the light of various constraints in financial, manpower and material requirements experienced in the SNDP and which may be expected to continue during the TNDP period. The objectives and strategy of the TNDP are summarised as follows:

- Continued development of an effective and integrated national health care system.

- Development of basic health services in rural areas, priority being given to those areas where no such facilities exist.

- Attainment of higher levels of Zambianisation through expanded training programmes. During the TNDP, the distribution of health workers will be carefully examined.

- Movement towards complete integration and expansion of prevent and curative services.

- Provision of health protection to an increasing number of mothers, infants, school children and certain vulnerable categories of workers.

- Decentralisation of basic health services.

- Nutritional well-being of the population, with particular reference to vulnerable groups.

2-2 UTH Master Plan

The University Teaching Hospital in Lusaka has its origin in a World Health Report prepared by Professor W. J. E. Jessop and Dr. J. M. Vine, reference AFR/E & T/12 dated 31st May 1966, which recommended upgrading Lusaka Central Hospital sited on Stands 4738 and 3541 into a Teaching Hospital, concurrently with the construction elsewhere in Lusaka of a General Hospital to cater for the service load of a rapidly growing city.

When the development of the University Teaching Hospital is completed this hospital will be the principal hospital of reference in Zambia. It will be the Hospital where all medical students receive their clinical training and it will, through the medium of the Medical School and its association with the University of Zambia, be the principal centre of medical research in the country.
It will provide facilities for the practical training of nurses, radiographers, physiotherapists, orthopaedic technicians etc., for whom it is planned to establish training schools adjacent to the Hospital.

Because of this background, the Zambian government requested preparation of general plan to "WATKINS GRAY WOODGATE INTERNATIONAL" (Chartered Architects) through the Ministry of Health and Ministry of Works and Supply. The plan was presented to the government as "UTH Master Planning Report" together with "Brian Colguhoun" (Engineering Partner) in June, 1967.

Along with the Master plan, the construction work has been executed within the territory of the Ministry of Works during the period of 1967 through December, 1971, and the staff of the School of Medicine within the University of Zambia have been appointed.
The Master plan prepared in 1967 have been modified twice during the period making the medical requirements more precise to set out the lines of future development in some detail.

The overall construction phase is divided into 12 phases as shown below, and at this moment, due to recent financial difficulty, the construction is being stopped as of the phase VI.

		To be commissioned
Phase I	Two Ward Blocks, completed and commissioned	1971
Phase II	Kitchen; Cafeteria; Library (temporary accommodation); Stores; Daily Paid Staff; some Streets; Post Mortem Department and Mortuary; a block of Laboratories (ultimately part of the Clinical Sciences block) for temporary use as Routine Laboratory	1972
Phase III	X-ray; School of Radiography: Cardiology; Operating Theatres; Intensive Care Ward; Burns Unit; Staff Changing Room; Interns Accommodation	1972
Phase IV	Professorial Departments linked to Ward Blocks in Phase I	1972
Phase V	Consultative Outpatients Clinics; Routine Laboratory; Accident and Emergency Department; Admission Unit; Observation and Admission Ward; Central Medical Records; Pharmacy	1974
Phase VI	Hospital Administration; Occupational Therapy and Physiotherapy Department	1973
Phase VII	Clinical Sciences Block (second stage development)	1975
Phase X	Paediatric Ward Block	1975

Phases for completion post-1975, and described in Section 3 are as follows:-

Phase VIII Ward Block

Phase IX Clinical Sciences Block (third stage development to complete)

For dividing of the construction, refer to Appendix-C, UTH Master Plan.

The following outlines the overall plan:

- The hospital is to be given its function by the two streets running East-West and South-North.

- The east street is the inpatient street, with the new maternity block and wards that were then in existence closing the street at the north end, with future wards closing the street at the south end, and with the new ward blocks (Phase 1 of the main Hospital development) located to the east of the street with the Professorial departments (Phase IV of the main Hospital) located between the ward blocks. The site for the future Radiotherapy Department, which will serve both in and out-patients, also lies to the east of the east street.

- Between the east and west streets lie the main diagnostic and treatment departments, the Hospital Administration and the Service Departments. To the north, Physical Medicine with Hospital Administration over (Phase VI of the main Hospital) and Interns Block and Staff Lavatories and Changing Rooms flanked by the northern of the east-west streets (part of Phase III). In the centre of the main Hospital lies the X-ray Department at ground floor level with Operating Theatres above and Intensive Card Wards adjacent, flanked by the southern east-west street. South of this street lies the service area of the Hospital (mainly Phase III of the main Hospital development) comprising Kitchen and Cafeteria, Stores and Delivery/Disposal Area and Service Yard.

- The west street is the outpatient street to be flanked to the west by the entire Outpatient Department (Phase V of the main Hospital development) comprising Main Entrance and Accident and Emergency at ground floor level and with two floors of Clinic accommodation over. To the north of this group of buildings space is reserved for the future new Paediatric Wards (Phase X of the main Hospital development) and Psychiatric Day-Ward and Clinic, and to the south is the area of the Medical School accommodation (one block constructed in Phase II of the main Hospital development, the remainder in Phases VII and IX).

- The streets are designed as open routes for pedestrians and trolleys between departments, and most departments are planned with allowance for expansion.

- The integrity of this planning philosophy has been maintained throughout the modifications to the Master Plan made since 1967, and is maintained in all the future planning described in this Report.

- The overall size of a Hospital can be briefly expressed in terms of the number of beds in the wards, by reference to the size of the Out-patient Department in terms of clinic accommodation, and in the case of a Teaching Hospital, by reference to the number of medical students in training in the Hospital at any one time, and from these facts other relevant figures can be deduced.

Chapter 3. Outline of the Centre

3-1 Objectives of the Centre

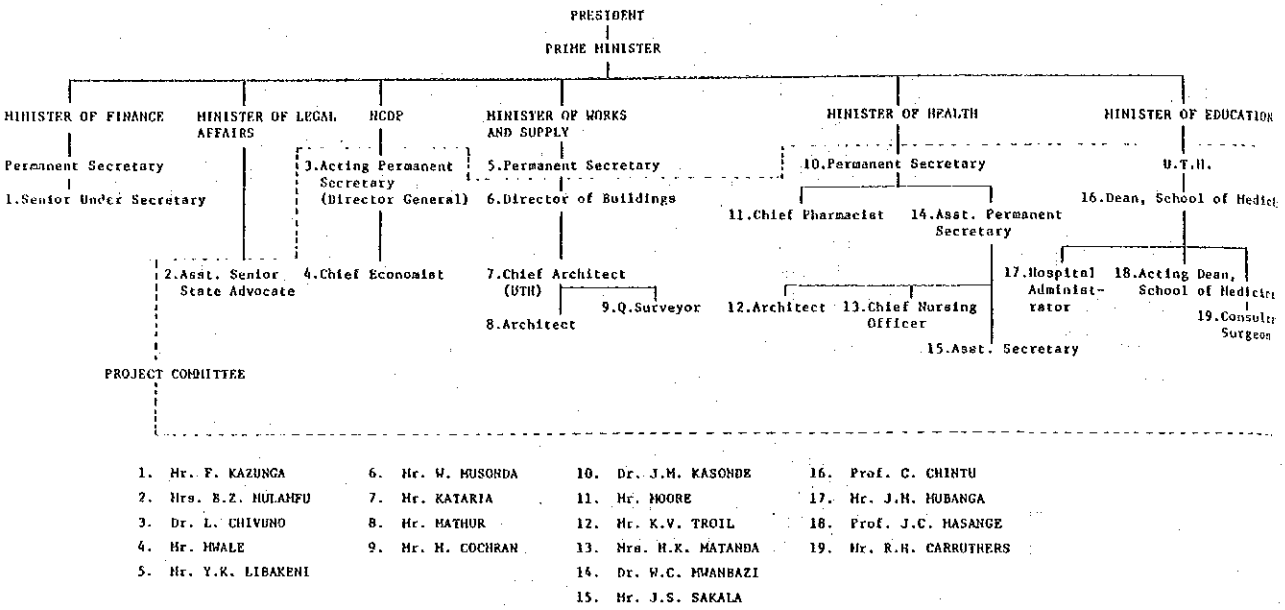
The proposed Centre which consists of a unit of the University Teaching Hospital is designated as the Neonatal and Paediatric Centre having independent functions.
In other words, the Centre will have a role of being an advanced medical level and training centre for the care of newborn infants and premature babies as a wing of University Teaching Hospital, which is the only teaching hospital in Zambia as well as the only general hospital in capital city Lusaka.

The management of the Centre will be executed in accordance with the mutual agreement between School of Medicine, University of Zambia and the Ministry of Health, and from the standpoint of medical education Zambian health manpower, such as doctors, nurses and other medical personnel will be highly expected to be developped.

As for the function of the Centre, the Centre is to contribute in speedy care for extraordinary newborn babies from the adjacent Obsteric Ward of the UTH, as well as giving advanced medical care to critical newborn infants and paediatrics filtered and referred from the Out-patients Department of the existing old Paediatric Ward.

As from the location of the Centre the Centre will be characterized to have functional connection and maintain adequate conformity with the existing facilities of the UTH consisting of building complex combined with the East street and West street, which total to 700 meters.

Fig. 3-2 Organization of Centre Committee



1. Mr. F. KAZUNGA
2. Mrs. B.Z. MULAMFU
3. Dr. L. CHIVUNO
4. Mr. MWALE
5. Mr. Y.K. LIBAKENI
6. Mr. W. MUSONDA
7. Mr. KATARIA
8. Mr. MATHUR
9. Mr. M. COCHRAN
10. Dr. J.M. KASONDE
11. Mr. MOORE
12. Mr. K.V. TROIL
13. Mrs. M.K. MATANDA
14. Dr. W.C. MWANBAZI
15. Mr. J.S. SAKALA
16. Prof. C. CHINTU
17. Mr. J.M. MUBANGA
18. Prof. J.C. MASANGE
19. Mr. R.M. CARRUTHERS

3-2 Centre Construction Execution Committee

The Centre Construction Execution Committee consists of the Director of Medical Services in the Ministry of Health as a chairman, the Building Branch in the Ministry of Works and Supply and specialist members covering both of the hardware and software fields of the U.T.H.

The Comittee, is an interministerial organization and the representative of the Government of Zambia for this Project.

The competent authority of the Centre construction is the Ministry of Health. However, the construction to be carried out by the Zambia side is executed by the Building Branch in the Ministry of Works and Supply within the budget of the Ministry of Health upon application of the UTH committee.

- Chairman — Dr. J.M. Kasonde
  Permanent Secretary, Director of Medical Services
  MINISTRY OF HEALTH
- Member — Dr. W.C. Mwanbazi
  Assistant Director of Medical Services
  MINISTRY OF HEALTH
- Member — Mr. J.S. Sakala
  Assistant Secretary
  MINISTRY OF HEALTH
- Member — Dr. C. Chintu (M.D., L.M.C.C., F.R.C.P. (C))
  Dean, School of Medicine
  Head, Department of Paediatrics, School of Medicine
  UTH
- Member — Dr. J.C. Masange (M.B., CH.B., F.R.C.S. (C))
  Assistant Dean, School of Medicine
  UTH
- Member — Mr. R.H. Carruthers (F.R.C.S.)
  Consultant Surgeon
  UTH
- Member — Mr. Kataria
  Architect (UTH), Building Branch
  Ministry of Works and Supply
  Architect authory for the Project of MOH especially UTH developping project. An advisen to the MOH for the Project.

The National Commission for Development Planning (NCDP) is responsible for the government of Zambia to government agreement for the Japanese grant aid programme.


CITY of LUSAKA
UTH SITE
STREET NAMES INDEX
AMENITIES INDEX
CHAKUNKULA
CHAMBA VALLEY
KAUNDA SQUARE
CHUDLEIGH
MWAMBULA
SHIKOSWE
KALINGALINGA
KABULONGA
CHILENJE
ROMA
CHIWALA MABWE
CHIKONKOTO
LUBURMA
KAMWALA
CHIBOLYA
NAMUNUNGA
MULOBELA
CHINIKA
ULANDA
CHUNGA
LUSAKA
LIBALA
EDUCATION
HEALTH
HIGH COMMISSIONS
MUNICIPALITY
POLICE STATION
RELIGION
SOCIAL
SPORT
GENERAL
GOVERNMENT
EMBASSIES

Chapter 4. Construction Site

4-1 Site Location

The Zambia University Teaching Hospital (UTH) is situated next to the University of Zambia Ridgeway campus, about 4 kilometers east of the center of Lusaka City (the South latitude 15°25', East Longitude 28°17', 1,280 m above the sea level), which is the capital of the Republic of Zambia.
The site is surrounded by governmental offices and high class residents, or in the midst of quiet circumstance.

4-2 Surroundings of the Site

The UTH site is a slow slant toward west having a size of 300 meters from east to west and 1,000 meters from south to north.
The ground is being adjusted based on the master plan submitted by Watkins Gray Woodgate International (Zambia) in 1972, and work up to the Phase VI of the Development Plan has been completed.

4-3 Soil Condition of the Site

The ground is tight red clay (lateritic soil) and soil bearing stress of 22.0 ton/m^2 - 17.5 ton/m^2 was used when the UTH existing buildings were constructed. After observing the site for 1 meter down from the surface, the adoption of this figure seems to be no problem.

4-4 Existing Infra-Structure

The Infra-Structure in the UTH site such as roads, water supply, drainage, steam, electricity, telephone, etc. have been gradually developped according to the master plan of the UTH. When constructing the center, the infra-structures can be connected to the UTH main along with the said development schedule.

Site Reclamation

Development of the site and site landscaping plans are designed to match with the overall UTH plan.

Approach Roads

Around the UTH site, there are Nationalist Road at the west side, Independence Avenue at the north side, Manenekela Road at east side and all these roads are paved bearing no problem with large size vehicles.
The precinct roads are being adjusted in line with the UTH overall plan and these roads will be efficient for construction of the center.

Water Supply

There exists a storage water tower (15,000 m^3/day) at the north end of the UTH site. City water is supplied to the tower and distributed to each facility. The main pipe is buried in the site in a loop form and water can be taken into the center easily from the east side.
Supply pressure of the city water is 2.8 kg/cm^2. A bypass pipe is also installed for direct supply without going through the tower for the case of the pressure drop.

Drainage

Waste water from all buildings is gathered and then led to the manhole of the Burma Road from the south-east end of the site. The water then is lead to the common Council sewer on Burma Road. Accordingly, there is no need of septic tank for buildings in the site.
The drainage from the centre can be easily connected to the existing drainage running through the east side.

Steam

At present, steam is supplied from two copper boilers each of oil burning and coal burning system in the Boiler house, through steam & condensate mains on the air or underground. The steam is to serve for air-conditioning, hot water supply, laundry, kitchen and medical use.
For the centre, steam supply can be arranged from the branched point for the Radiotherapy department (future plan) taken from the East Street underground pipe.

Electricity Supply

There is a piping network around the site, in which high-tension voltage cable for 11,000V is supplied from the Central Electricity Corporation. The power is introduced and transformed by several sub-stations and supplied to the switch room of each building.
In addition, there are two diesel generators for the UTH facilities in the site, each having the capacity of 525 KVA and 125 KVA.
For the centre use, there is an underground cable of the special high voltage at the East Street, and supply of the power can be easily realized.

Telephone

There is a telephone switchboard room at the north side of visitors entrance and 20 service lines are introduced. Electronic switchboard and cross-bar switchboard systems are installed and they are connected to telephone outlets in each facilities through underground wiring.

4-5 Climate and Geographical Conditions

The Republic of Zambia is situated in the East Africa, slightly south of the centre of the continent, from 9° to 18° of the south latitude and from 23° to 34° of the East Longitude. Most part of the land is a tableland of 1,000m - 1,350m above the sea level and the weather is generally pleasant. Weather conditions are important factors in designing buildings and facilities such as living space setting, building shape determination and building material selection.

Enough consideration must be given to setting proper internal temperature and humidity, drainage system for concentrated rainfall during the rainy season, protection and insulation from strong sunshine, ventilation planning utilizing regional wind to the full extent, and countermeasures for thunderbolt fall, to make up construction plans having pleasant space utilization as well as superior economy, safety and functionability.

Temperature and Humidity

The Lusaka area is under a pleasant temperature condition of average 19.7°C with little change throughout the year. Humidity is also in a pleasant condition of annual average 64.6%.

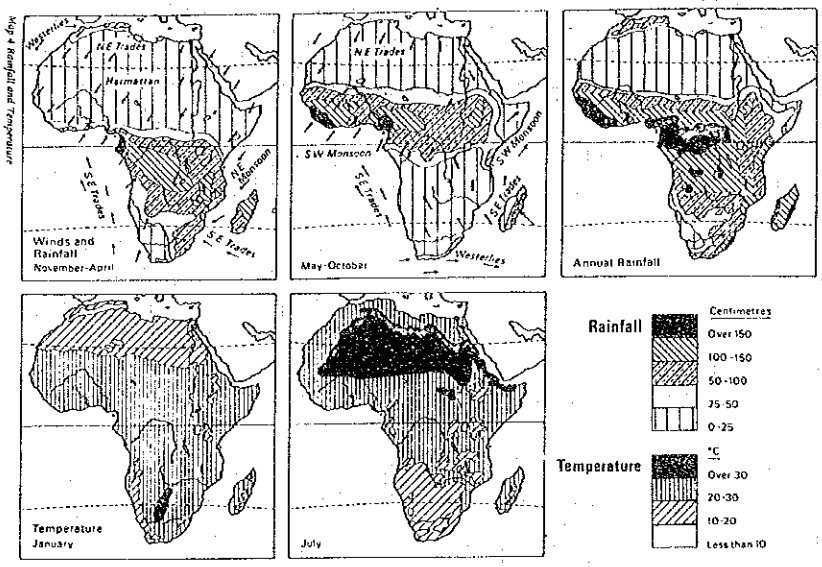
(1)	Annual average temperature	19.7°C
(2)	Annual highest average temperature	26.3°C
(3)	Annual lowest average temperature	14.7°C
(4)	Highest atmospheric temperature	38.3°C
(5)	Lowest atmospheric temperature	3.9°C
(6)	Months in which the monthly average of temperature is higher than the annual average	September - March
(7)	Annual average humidity	64.6%
(8)	Months in which the monthly average of humidity is higher than the annual average	December - June

Wind and Wind Direction

Lusaka is influenced by monsoons and trade winds.
Influenced by the prevailing east wind from north-east to south-east during part (87%) of the months from April to September, in many months the average wind speed exceeds 10 meters/sec. During the period from October to March, the wind direction changes from north-west to south-east.
Also, sometime a strong wind blows before a squall during rainy season.
When designing, wind pressure as high as maximum 30 m/sec. must be considered.
The plan is made to adopt natural ventilation fully by opening south and north sides of buildings in consideration of the wind direction for reducing the inside temperature.

Rainfall

The Lusaka area has two such as rainy season from November through March and dry season from May through September. The dry season can be divided to cool dry season, having high temperature average of 22.8°C and low average of 9.9°C, and the latter half which is a warmer dry season having high average of 26.1°C and low average of 16.6°C. It seems that the rainfall in the rainy season is excessive to the extent that drainage no longer is operable. Therefore, in planning the construction processes, work on soil during the rainy season must be avoided and enough consideration must be given to the rain water drainage system, drainage routing and installation floor level setting.



ZONE OF EARTHQUAKE

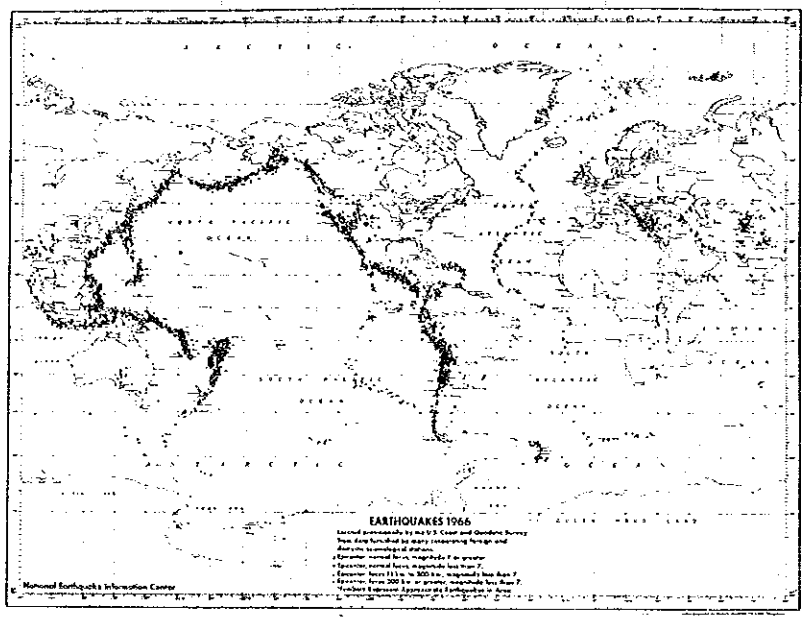


Fig. 4-5 Climate Conditions

(1) Annual average rainfall	836 mm
(2) Maximum rainfall in the record	1,271 mm/year 547.4 mm/month 95.3 mm/day
(3) Minimum rainfall in the record	440 mm/year 0 mm/month
(4) Average rainy days per year	71 days (1 mm or more)
(5) Months having 10 or more rainy days	from November till March

Sunshine

Fig. 4-5 shows the Sun path diagram in Lusaka City. The sunshine in Lusaka is very atrong and during the months from May through October, it shines for about 9 hours a day, which drops down to 5 hours in the rainy season. Consideration is required for adjustment of sunshine using ownings, eaves or louvers and selection of heat receiving materials at the wall and roof. Also consideration must given to the sunshine at the northern part from the sunshine time zone and screening of windows at the north side is important.
The sunshine amount is almost the same to the east and west side wall in the morning and late afternoon, however in the afternoon, the time is overlapped with the peak of temperature rise and this makes it inevitable that the heat given to the west side wall is kept to the minimum. If an opening has to be made in the west side wall, measures should be taken to cope with the radiation.

Earthquake

As shown in the work earthquake distribution diagram, Zambia is outside of the earthquake zone. There is no record of earthquake in the continent inside, and no consideration is needed on this subject.

Thunderstorm

In the rainy season, thunderbolt accompanying squall occurs often and much damages are caused by thunderbolt falls. Therefore, measures against thunderbolt falls must be taken up sufficiently.

Chapter 5. Basic Planning

5-1 Basic Principles

Based on the understanding that the Centre is the Neonatal and Paediatric Surgical Centre in Zambia and the project site is within the University Teaching Hospital Campus in Lusaka, the Centre will be functionally connected to the existing facilities of the UTH having independent functions.
The Centre is designed to meet the future growth and change of facility resulting from the improvements of medical level and therapeutic methods. That is, the diagnostic and treatment unit are centralized and located apart from the ward building.
Among various factors decisive of building arrangements, the followings are considered to be of most importance.

Natural Conditions Radiation, Wind direction, Temperature, Sight etc.

The building is planned to adopt natural conditions and special consideration is made for the natural ventilation and the solar control.

Hospital Function

When rooms having close function with each other as a hospital are placed in the same block, benifits of smooth movements of people, goods and information can be expected.

Relations with existing facilities of UTH

Special related facilities for the Centre in the UTH are as follows.

- Maternity Unit 2 floor
- Premature Baby Unit 1 floor

Construction Period

The limitation of construction period mainly restricts the number of floors. The provision of basement floor is not advantageous when considering the cost and construction period. As for the construction cost, it will be more benificial to stack identical floors.

Taking the above items into consideration, the followings are choosen as basic principles of the hospital design.

1. The Centre should be of east-west axis with openings on the north and south sides.
2. The Centre should be composed of three blocks such as, Out-Patient & Administration Dept., Central Diagnostic & Education Dept. and Ward.
3. The Centre should be of 2-storey high.
4. The Centre has an indenpent Garden.

5-2 Building Arrangement Planning

The site for the Centre is located northern east of the new hospital complex of the UTH and has a little inclined hooked shape of approximately 100 meters to east-west and about 60 - 100 meters to north-south. There exists an East-Street which penetrate UTH facilities from south to north, the entrance of the Centre will be connected to this street.

The major facilities to be constructed are divided into following three blocks.

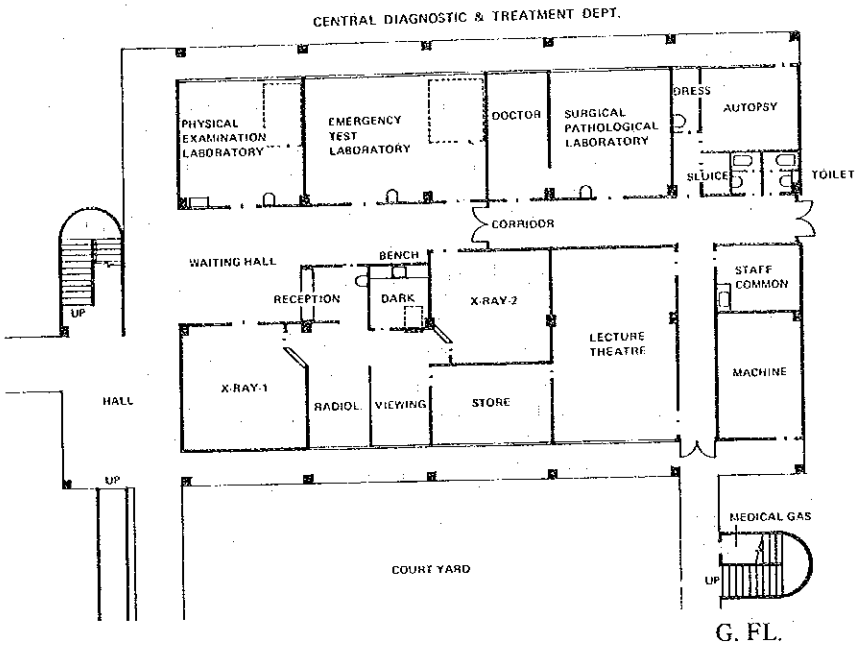
Block-1	Out-Patient & Administration Department
Block-2	Central Diagnostic & Treatment Department
Block-3	Ward

Each building is 2-story high, and all facilities are connected by corridors and slope is also provided in the vertical connection.

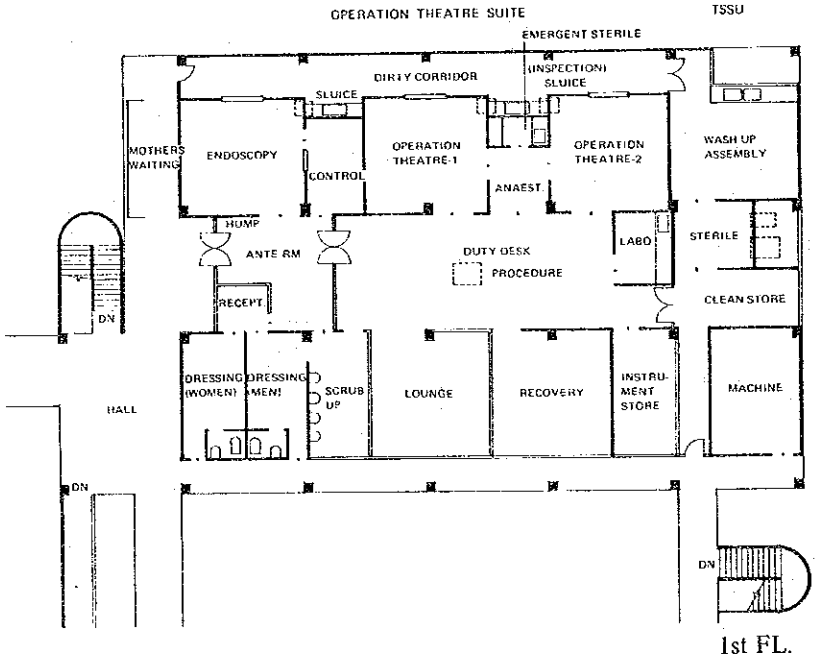
5-3 Facility Floor Area

The floor area of each department are as follows.

DEPARTMENT			FLOOR AREA	FLOOR AREA PERCENTAGE
A. OUT-PATIENT & ADMINISTRATION				
Out-Patient Dept.			226 m^2	
Administration			356 m^2	
SUB-TOTAL (A)			582 m^2	13.9%
B. CENTRAL DIAGNOSTIC & TREATMENT DEPT.				
X-Ray Unit		2 Rms.	186 m^2	(Including Waiting Hall)
Phisiological Laboratory			40 m^2	
Pathological Laboratory			128 m^2	
Conferrence		1 Rm.	57 m^2	
Operation Theatre Unit		3 Rms.	567 m^2	
SUB TOTAL (B)			1,028 m^2	24.5%
C. WARD				
Premature	1 unit	Beds		
Paediatric Surgery	1 unit	Beds		
SUB TOTAL (C)	2 units	Beds	1,260 m^2	30.0%
D. CORRIDORS · SLOPE			1,344.5m^2	31.6%
TOTAL (A) - (D)			4,214.5m^2	100.0%


CENTRAL DIAGNOSTIC & TREATMENT DEPT.
PHYSICAL EXAMINATION LABORATORY
EMERGENCY TEST LABORATORY
DOCTOR
SURGICAL PATHOLOGICAL LABORATORY
DRESS
AUTOPSY
SLUICE
TOILET
CORRIDOR
WAITING HALL
BENCH
RECEPTION
DARK
X-RAY-2
STAFF COMMON
UP
LECTURE THEATRE
MACHINE
X-RAY-1
RADIOL
VIEWING
STORE
HALL
UP
MEDICAL GAS
COURT YARD
UP

G. FL.


OPERATION THEATRE SUITE
TSSU
EMERGENT STERILE
DIRTY CORRIDOR
(INSPECTION) SLUICE
SLUICE
MOTHERS WAITING
ENDOSCOPY
CONTROL
OPERATION THEATRE-1
OPERATION THEATRE-2
WASH UP ASSEMBLY
ANAEST.
HUMP
ANTE RM
DUTY DESK
PROCEDURE
LABO
STERILE
RECEPT.
CLEAN STORE
DN
DRESSING (WOMEN)
DRESSING (MEN)
SCRUB UP
LOUNGE
RECOVERY
INSTRU-MENT STORE
MACHINE
HALL
DN
DN

1st FL.

5-4 Facility Planning

The facilities planned to compose the Centre concerned are as follows.

Out-Patient Department

Out patients are limited to reserved patients and approach the consultation room on the ground floor from the East-Street. There are Reception · dispensary, two Consultation rooms and waiting hall. The division has tight relations with the X-ray Dept., Physical Examination room and Emergency Test rooms, meaning that these units are closely placed.

Administration Department

Staff rooms on the Ground floor and Doctor's rooms, library and Night duty's rooms on the 1st floor are connected to the East-Street.

Central Diagnostic & Treatment Department

The department consists of diagnostic units on the ground floor and operation theatre units on the first floor.

X-Ray Unit

The unit consists of a reception room, waiting area, X-ray photography rooms and control room (2 sets), a radiologist's room, a dark room, a film reading room and storage for films and materials.

Physical Examination Room

The room consists of a reception room, a technicians' room and electro-encephalograph room.

Emergency Test Room

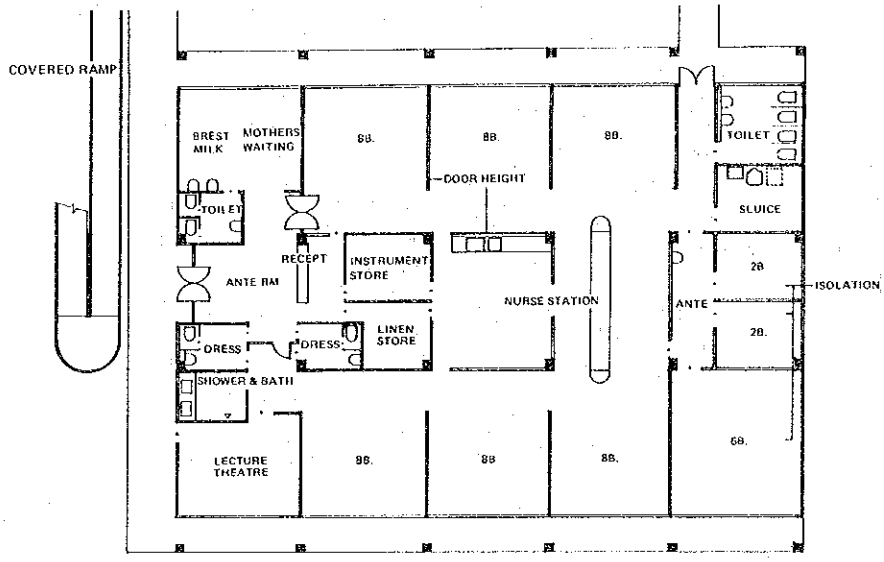
The room consists of general laboratory and cold room.
The autopsy unit is located in the place so that it will not attract public attention.

Lecture Theatre

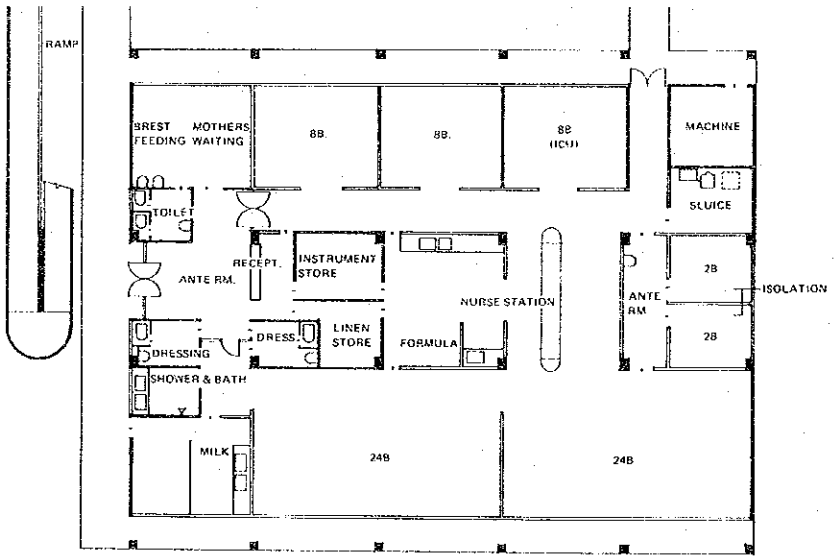
The lecture theatre will be provided for the training space for post and under-graduates and residents.
The location is convinient for using teaching materials such as X-ray photo films, specimen and autopsy.

Operation Theatre Unit

The unit is located near by the theatre sterile supply unit (TSSU).
Among three theatres, one for infections patients, Endoscopy and Angiographic is placed near the entrance.
A patient brought through the entrance is carried through the procedure room, the " semi-clean zone, to an anaesthetic room and then to an operating theatre.


COVERED RAMP
BREST MILK
MOTHERS WAITING
6B.
8B.
8B.
TOILET
DOOR HEIGHT
SLUICE
TOILET
RECEPT
INSTRUMENT STORE
ANTE RM
NURSE STATION
2B
ISOLATION
ANTE
2B.
DRESS
DRESS
LINEN STORE
SHOWER & BATH
LECTURE THEATRE
8B.
8B
8B.
6B.
WARD-PAEDIATRICS 58 BEDS

G. FL


RAMP
BREST FEEDING
MOTHERS WAITING
8B.
8B.
8B (ICU)
MACHINE
SLUICE
TOILET
RECEPT.
INSTRUMENT STORE
ANTE RM.
NURSE STATION
2B
ISOLATION
ANTE RM
2B
DRESS
DRESS
LINEN STORE
FORMULA
DRESSING
SHOWER & BATH
MILK
24B
24B
WARD-PREMATURE 76 BEDS
TOTAL 134 BEDS

1st FL.

Doctors, nurses and students come into dressing room and are lead to the procedure room.
Dirty waste operation materials is carried out from a back side of the theatre and taken through the "dirty corridor" to a theatre sterile supply unit.
TSSU is located next to the operating theatre unit to enable direct supply of sterile material to the procedure room of operating theatre. TSSU consists of wash-up and assembling room, a sterilizing room, and sterile material hold.

Ward

The ward building is of two-storey high with an east-west axis, and houses Paediatric Surgery on the ground floor and Premature on the 1st floor to make close relations with Operation theatre Unit. Each nursing unit is housed with a nurses' station in the centre, with bed rooms with low-rise partitions and glass-screen partitions in the south and north and also with isolation rooms in the east. The improvement of overall efficiency can be attained by reducing the walking distance and obtaining the better observability by placing the nurses' station in the midst of groups of sick beds.
Nearby the entrance, a dressing room, breast feeding room and a waiting space for mothers will be provided. Also, for the control of in-out movements the entrance and office room are put close together.
In the air-conditioning system, mechanical conditioning is planned in the Premature Ward, however in the Paediatric ward the improvement of indoor environment can be attained by introducing natural ventilation by taking enough ceiling hight and space.

5-5 External Work Planning

Architecture from its nature increases its value when its environment is improved. This also is valid in a hospital, especially influential to the patients' mental aspects.

In the surroundings of the Centre buildings and in the court yards, lawns and trees should be turfed and planted to improve better environment of the Centre by utilizing existing plants and trees.

5-6 Material Planning

The main building materials are selected to be locally available as possible. However, most of the materials in Zambia will be imported and in this project most of materials will be procured abroad. Portland Cement, fine and coarse aggregates and Brick are mainly locally available.

Structural Material

The main structure is reinforced concrete, and the walls are of brick or concrete block construction.

External Finish

Roofs are flat with a waterproof layer and corrugate slate covering.
Exterior walls are of brick-facing.
Sashes are of standard steel.
Doors are mainly wooden, and door frames are of standard steel.

Interior Finish

Interior finish is planned according to the objectives of each provided room.
Basically, floors are of vinyl tiles and polished terrazo, walls are of paint finish on mortar base and ceiling are of accoustic panels or paint finish on asbestos sheet.
In the Operating theatre unit, floors are of vinyl sheets, walls of semi-porcelain tile finish, and ceiling of accoustic panels.

5-7 Structural Planning

The country of Zambia is located out of any seismic zone in the world. Thus, the seismic force can be neglected from the design.
Whereas, concerning the wind pressure to be taken into, the wind velocity is considered to be set to 30 meters per second.
The column and beam frames of the main buildings are of the reinforced concrete structure and partitions are of concrete block construction or brick construction.

Structural Design

The structural design will be carried out to the British Standard Code, and partially Japanese standards.
Under the 30 cm thick top soil lies a layer of hard laterite and that bearing strength of foundation bed is expected 20 tons/m^2 - 25 tons/m^2, therefore for the building foundation the individual footing is adopted for the Centre.

Live Load

The live loads of principle rooms are shown below;

Room	Floor Slab (unit: Kg/m^2)
Bed Room	204
Corridor, Hall	408
Operation theatre	204
Office	255
Lecture theatre (fixed chairs)	408
Lecture theatre	510

Structural Materials and Construction Methods

The types of structural materials to be used will be determined by size, structure and usage of the building, the local supplying capability of the materials, the construction methods, the transportation conditions from other countries, price and so on.
For the construction method, the local construction method will be mainly adopted.

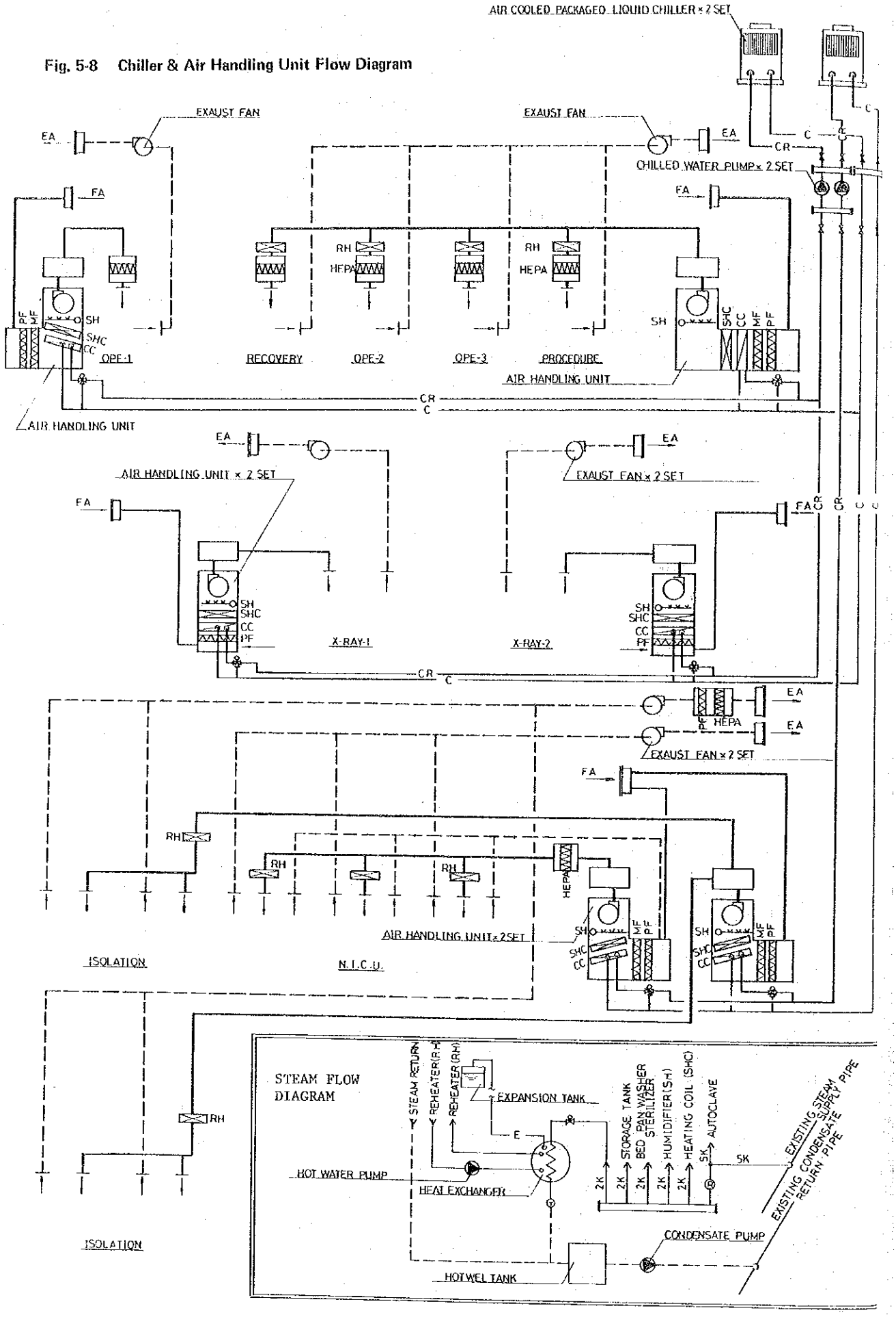
Concrete

A batching plant will be provided at the construction site to weigh and mix the concrete materials. It is considered suitable to use the concrete with the 4-week strength at 210 Kg/cm^2 (21 N/mm^2).
Fine aggregate and coarse aggreates are available in local supply.

Steel Bars

The deformed steel bar will be high yield steel bar (fy=410 N/mm^2), and round steel bar will be mild steel bar (fy=250 N/mm^2). Those will be proceured from south Africa.

Fig. 5-8 Chiller & Air Handling Unit Flow Diagram



The room air-conditioned will be limitted to the Operating theatre unit, the Premature ward and the X-ray unit.
In the premature ward, the heating unit will be provided for warming at night when the temperature falls.
Although a stress will be given to natural ventilation, mechanically forced ventilation will be provided to the areas where natural ventilation is difficult and odors are produced.

Design Conditions

In the area surrounding the city of Lusaka, the temperature varies from 3.8°C to 35.7°C annually and the average is 19.9°C. The humidity is 63.0% on the average.
The indoor temperature and humidity conditions are planned as follows.

Room	Temperature	Humidity
Operating Theatre (OT-1, OT-2)	24 - 26°C	50 - 60%
NICU	25 - 27°C	"
Isolation	"	"
Operating Theatre (Endoscopy)	24 - 26°C	"
Recovery Room	"	"
X-Ray Room	25 - 27°C	"

System of Air Conditioning

Operating Theatre (OT-1, OT-2): Central System of Air Conditioning by the total exterior fresh air system

NICU : Central Air Conditioning system

Isolation : Central Air Conditioning system by the total exterior fresh air.

Operating Theatre (Endoscopy) : Individual Air Conditioning system by the total exterior fresh air.

X-ray Room : Package type individual Air Conditioning system

In rooms to require clean air as operating theatres, HFPA filter units are set in supply outlets of operating theatres.

As a source of chilled water, units of air-cooled packaged liquid chillers are placed and as a source of hot water, steams are used.

Steam Piping

Steam supply at a pressure 100 p.s.i.g. (7 Kg/cm^2) from existing steam pipes will be provided to the autoclave and other necessary facilities required. A condensation water is planned to be collected and connected to the existing condensate mains.

Estimated steam volume to be used are as follows.

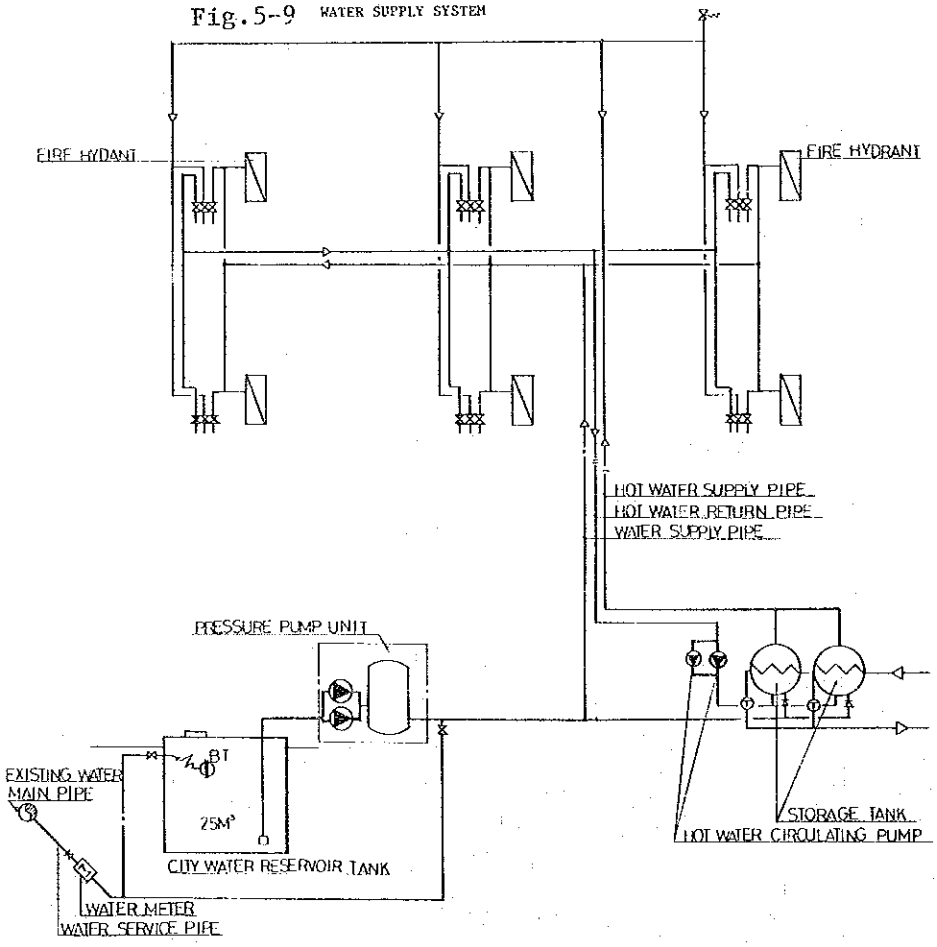
Steam for Air Conditioning	:	450 Kb/H.
Steam for Hot-water supply	:	100 Kg/H.
Steam for Medical Equipment	:	100 Kg/H.
Total		650 Kg/H.

New boiler with the capacity of 2,800 Kg/H. will be installed untill September 1981, and the total boiler capacity of UTH will be 5,300 Kg/H.

Ventilating System

For individual ventilation, mechanical ventilating fans are provided in places where heat, odors, or gasses are produced.

Fig.5-9 WATER SUPPLY SYSTEM



5-9 Plumbing and Sanitary System Planning

Water Supply System

Water will be supplied to the necessary facilities by automatic pressure pump from the reservoir-tank ($25m^3$ capacity) that will be branched from the existing water mains in the UTH.

Drainage System

Sewage, miscellaneous drainage, and rain-water drainage are invidually planned and connected to the existing sewer reticulations in the U.T.H. Septic tank is not necessary to be installed, because existing sewage, miscellaneous drainage of the UTH are treated by Lusaka city treatment systems.

Hot Water Supply System

Hot water is provided to the Operating theatres, shower room and other necessary spaces and the heat sourse is planned to be electric.

Sanitary Facilities

Sanitary facilities in the Centre are planned to be in accordance with the facility planning.

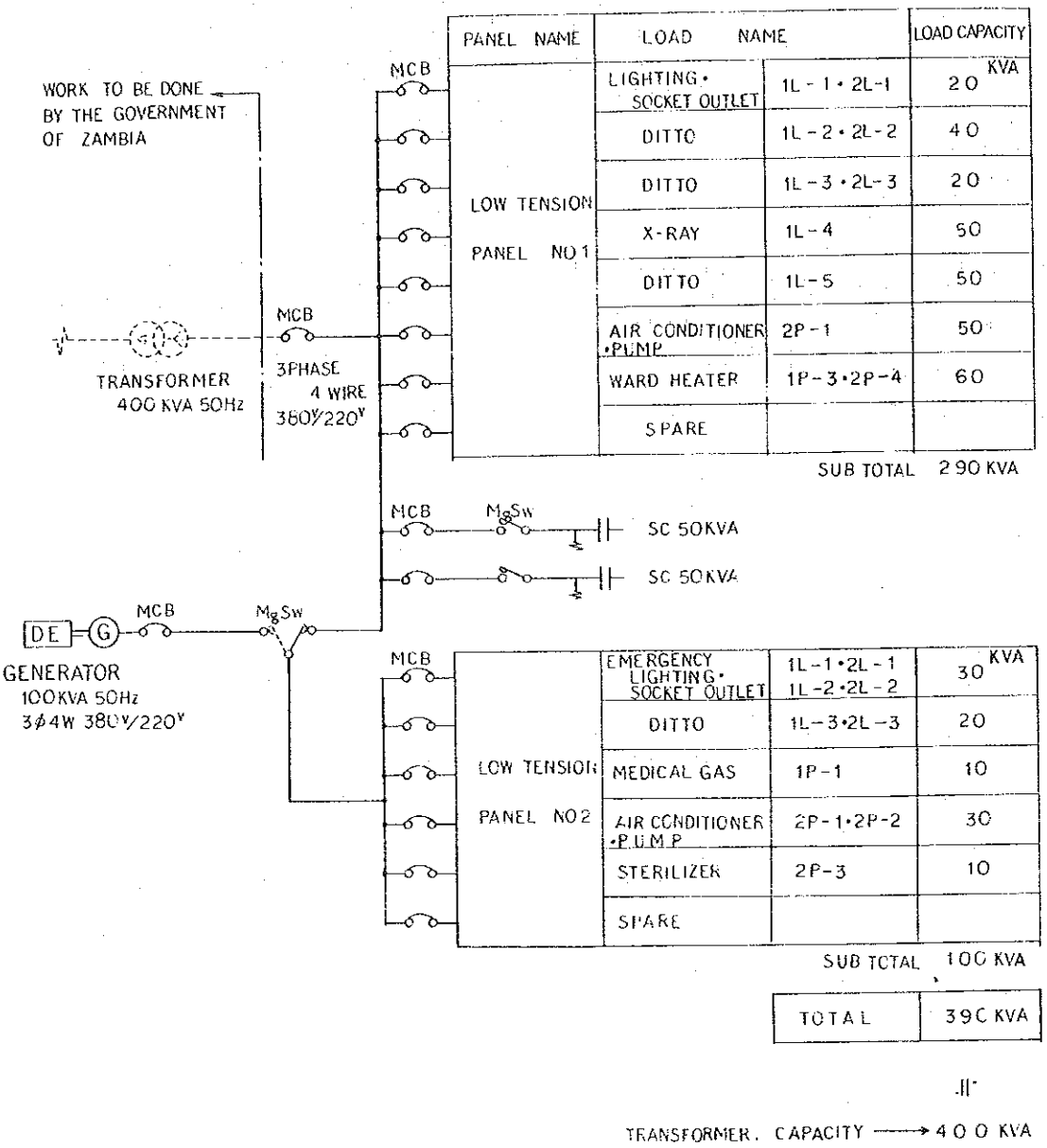
Fire Extinguishing Facilities

Indoors and outdoors fire hydrants are provided on each floor of the building to cope with every possibility of fire.

Medical Gas Facilities

Medical gas piping of Oxygen, Compressed Air, and Vaccum will be provided.
In case of emergency, alarms and shut-off valves are set at nurses' stations.

Fig. 5-10 Electrical Skelton Diagram



PANEL NAME	LOAD NAME		LOAD CAPACITY
LOW TENSION PANEL NO1	LIGHTING・SOCKET OUTLET	1L-1・2L-1	20 KVA
	DITTO	1L-2・2L-2	40
	DITTO	1L-3・2L-3	20
	X-RAY	1L-4	50
	DITTO	1L-5	50
	AIR CONDITIONER・PUMP	2P-1	50
	WARD HEATER	1P-3・2P-4	60
	SPARE		
		SUB TOTAL	290 KVA

LOW TENSION PANEL NO2	EMERGENCY LIGHTING・SOCKET OUTLET	1L-1・2L-1 1L-2・2L-2	30 KVA
	DITTO	1L-3・2L-3	20
	MEDICAL GAS	1P-1	10
	AIR CONDITIONER・PUMP	2P-1・2P-2	30
	STERILIZER	2P-3	10
	SPARE		
		SUB TOTAL	100 KVA

TOTAL	390 KVA

5-10 Electricity System Planning

Power Supply System

The power line of 3 phase, 4 lines, 380 V/220V, 50 Hz is to be drawn underground to the machine room of the building from the Sub-station at the project site.
Approximately 400 KVA capacity is estimated for the Centre. Sub-station work including transformers and power lines to the main panel in the electricity room of the building are done by Zambian side.

Generator

As emergency power supply one generator with capacity of 100 KVA is set in the sub-station. In case of emergency the generator will supply electricity to lighting, medical equipment and air conditioning facilities in the Operating theatre unit and Theatre sterile supply unit, refrigerators of Central Diagnostics department and incubators of Ward.

Main Power Line

Main power lines in separate circuits are drawn from the main panel in the electricity room to every control boards or distribution boards in other machinery rooms.
The voltage is as follows.

Power Load	3 phase 3 lines 380V
Lighting Socket Load	3 phase 4 lines 380V/230V

The lines from the main panel to the air-conditioning facilities are also planned.

Lighting System

The conduit system is taken in the secondary lines from the distribution board to the lighting equipment and switches and sockets. To reduce the running expenses, the room lighting is divided so that switching can be done in small divisions, and as for lighting in halls and corridors, thinned switching is planned. The ground terminals are set where medical equipment are installed in the Operating theatres and X-ray rooms.

Lighting Fixtures

For the running cost reduction, fluorescent tubes are mainly planned and according to requirements white glow lamps and ultra-violet lamps are used. In front of Operating theatres, X-ray rooms and dark rooms in operation indicating lamps and three-color lamps are planned.

Illumination of main rooms are planned as follows;

Room	Illumination Dengity
Offices, Rest Rooms for Doctors and Nurses, Nurses' Station	200 lx
Indoor-Dispensaries, X-ray Room, Control Room	300 lx
Laboratories, Consultation Room, Operating theatres	500 lx
Ward-Premature, Breast feading Room, Milk Room	200 lx
Ward-Paediatric	100 lx
Lobby Hall, Corridors, Waiting hall, Ward corridors, Machine Room, Storage	50 lx

Telephone System

Telephone wiring from existing telephone exchange room of the UTH and installing of telephone terminals is planned. And from the terminals telephone conduits work to the telephone outlets is planned. Telephone outlets are planned to meet future removals and extensions.
Japanese side work is telephone wiring to the hand-hall 10 meters apart from the Building and telephone conduit lines to the telephone exchange room and installing telephone equipment work is for Zambian side.

Battery Type Clock

Battery type clocks are set in main rooms.
Operating type clocks are set in the Operating theatres.

Interphone Facility

Individual interphones are provided between Operating theatres and procedure room, between X-ray rooms and control rooms.

Fire Alarm Facility

Warning push buttors are provided in needed places on each floor of the building and indiated on the indiation panel installed at Reception counter. Alarm bells are provided to notify the breakout of fire to doctors and nurses.

Lighting Arrester

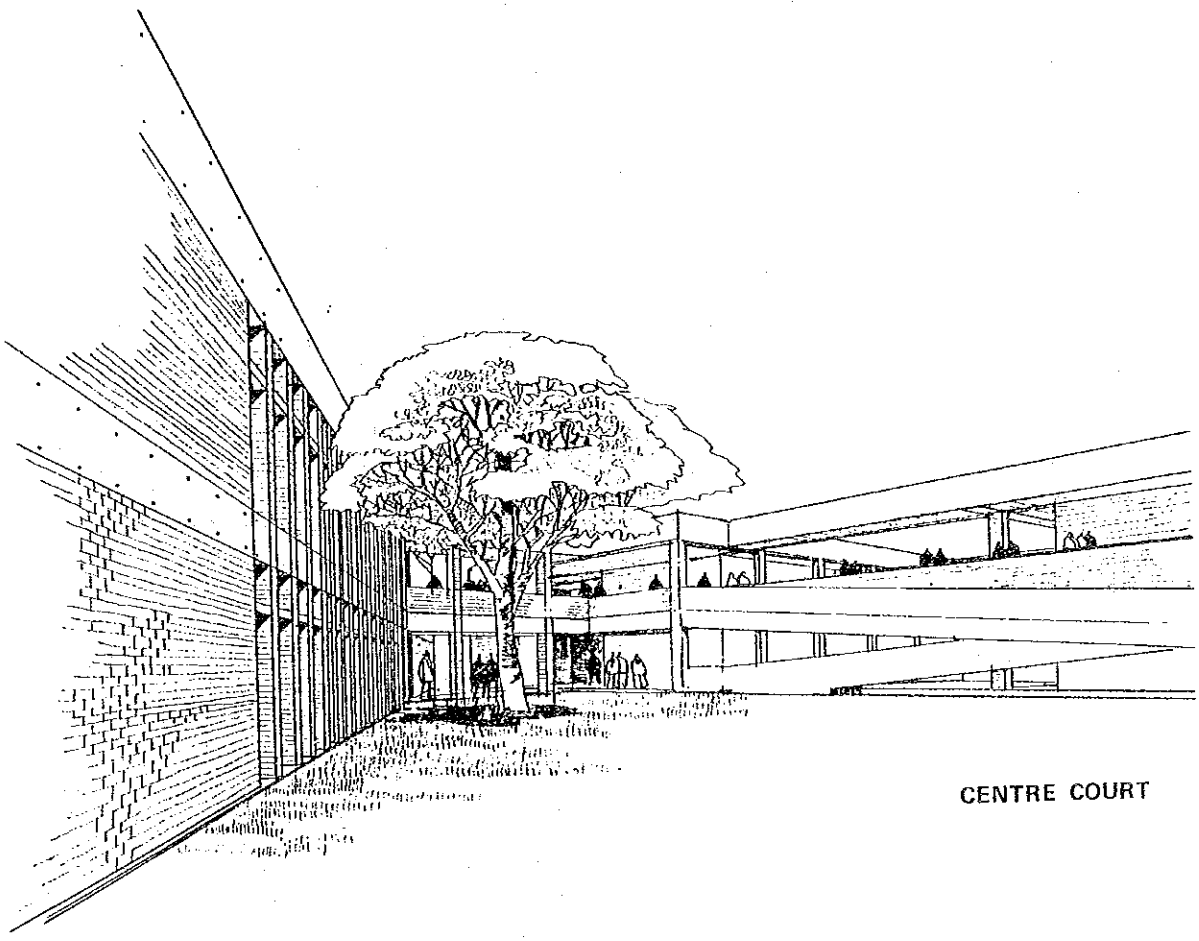
A lightning arrester is installed on top of the building.

5-11 Protection from Damage

As measures to cope with natural disasters, the prevention of disasters by a stormy rain is planned. In the land reclamation and leveling the shape and amount of reclamation have been carefully decided and the discharge route of the rain-water should be thoronghly planned.

As a danger unique to a hospital, measures are taken to prevent the cross-infections. In the architectural planning, the dirty zone is spatially isolated. The clean zone is also highly isolated as in the Operating Theatre Unit and N.I.C.U.
The air-conditioning facilities are planned to prevent the air-borne infections.

As difficulties common to developing countries, the unstableness of power and water supply is taken into consideration. In hospitals, a sudden power failure or water shortage may lead to disasters.
To cope with such situations supporting facilities are provided in the supply system.



5-12 Medical Equipment

A list of medical equipment essential for the Centre is shown in the Appendix-B.
Consideration taken in the selection of medical equipment are the points of existing medical conditions of Zambia and particularly the University Teaching Hospital.

Based upon above consideration, the following principles in the selection have been decided;

1. Following the policy of the Japanese technical cooperation programme to Zambia, the medical equipment will be provided taking into consideration effectiveness of transfer of technology.

2. Common use of medical equipment will be fully planned with existing equipment of the UTH, particularly for Central Diagnostic & treatment.

3. Treatment targets are for Paediatric Surgery and Premature babies, so the medical equipment will cope with specific figures and physique of Prematures and Paediatrics.

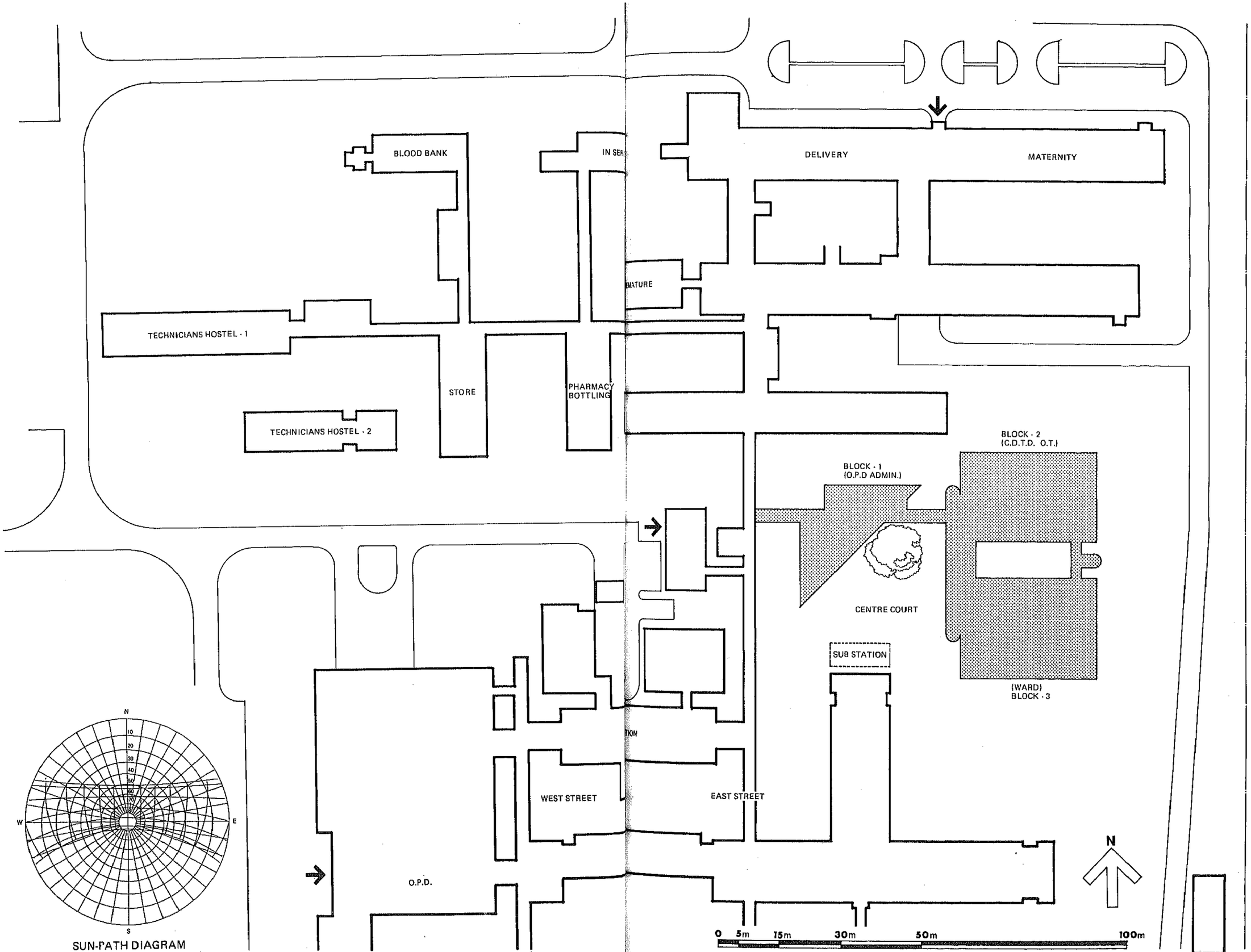
4. The equipment requiring expensive running costs are avoided as possible and those with easy maintenance are mainly selected.

5. In the Pathological laboratories and the X-ray diagnostic unit, the medical equipment requiring expensive running costs but needed for the improvements in the medical education and the medical services are selected depending on the performances.

The after care services are considered important. The maintenance system of Zambia for periodical inspection and successive supply of spare parts should be fulfilled and also guarantee conditions for equipment will be considered in the contract conditions for the supplying makers.
To operate the equipment according to the initial purpose, it is needed to transfer maintenance technology to Zambia counterparts and to confirm the operation conditions periodically after the completion of the Centre.
For the implementation of the above, it is necessary for Zambia side to prepare a technology receiving system with close cooperation with Japanese technical cooperation programme to carry out the technology transfer intentionally, and to attain enough spare parts.

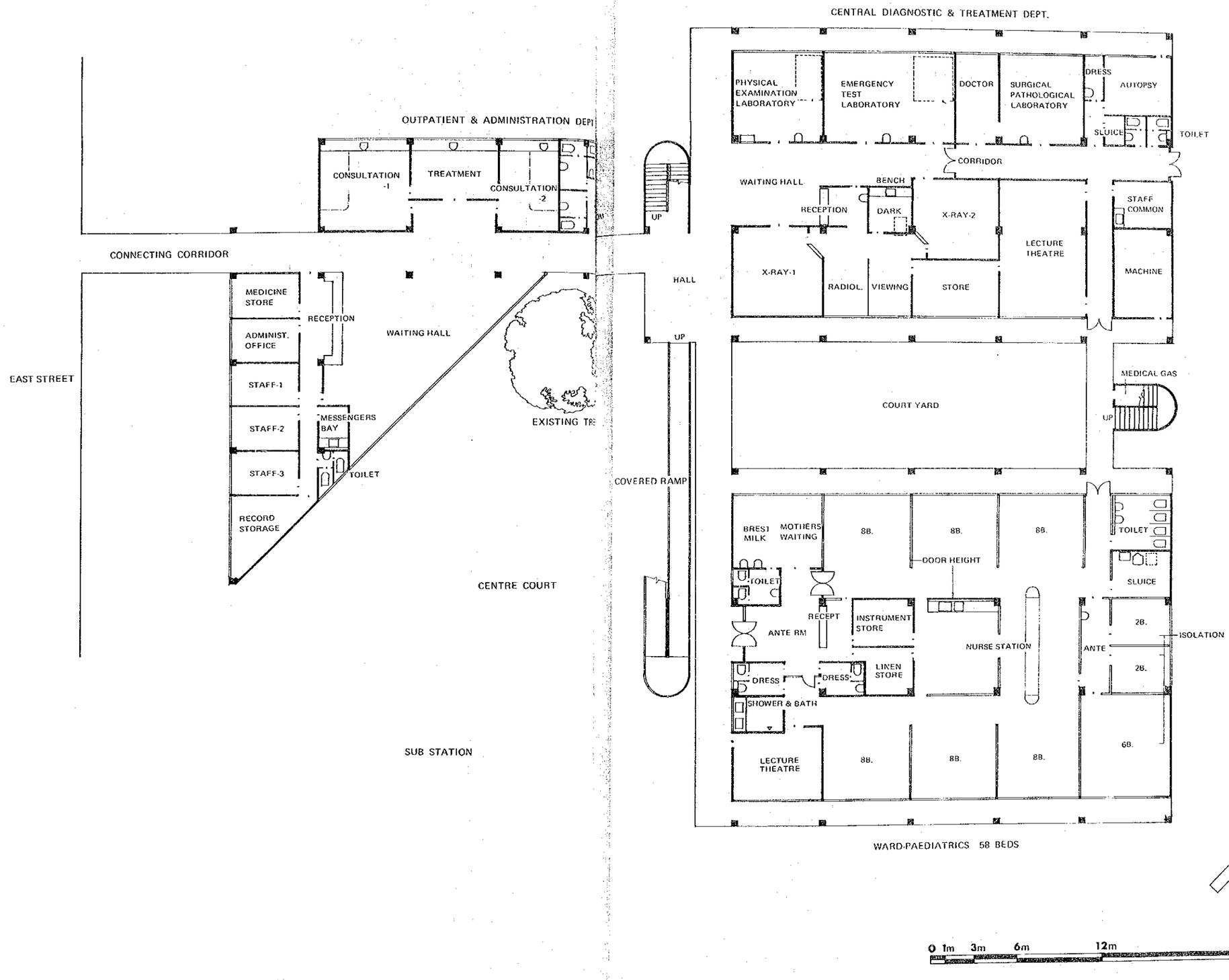
List of Drawings

01	SITE PLAN
02	GROUND FLOOR PLAN
03	FIRST FLOOR PLAN
04	ELEVATION & SECTION
05	WATER SUPPLY SYSTEM
06	DRAINAGE SYSTEM
07	STEAM SUPPLY SYSTEM
08	ELECTRICAL SYSTEM

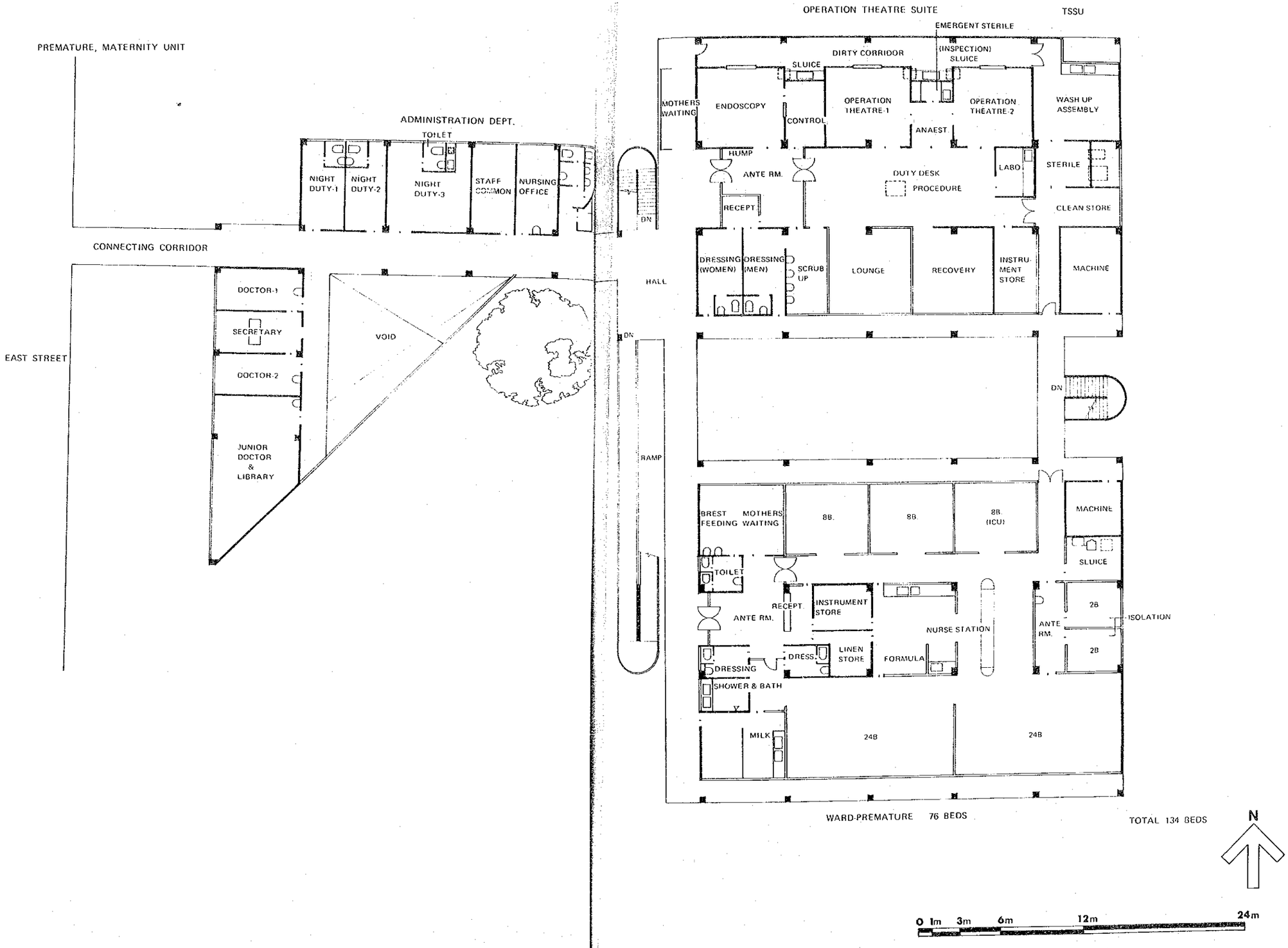


SUN-PATH DIAGRAM

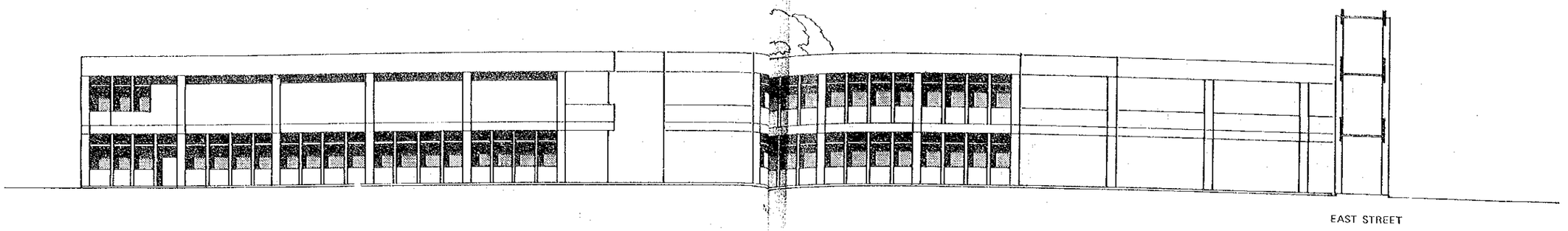
01 SITE PLAN

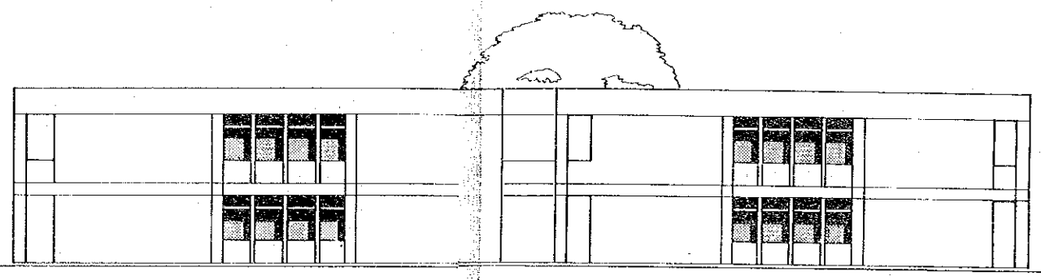


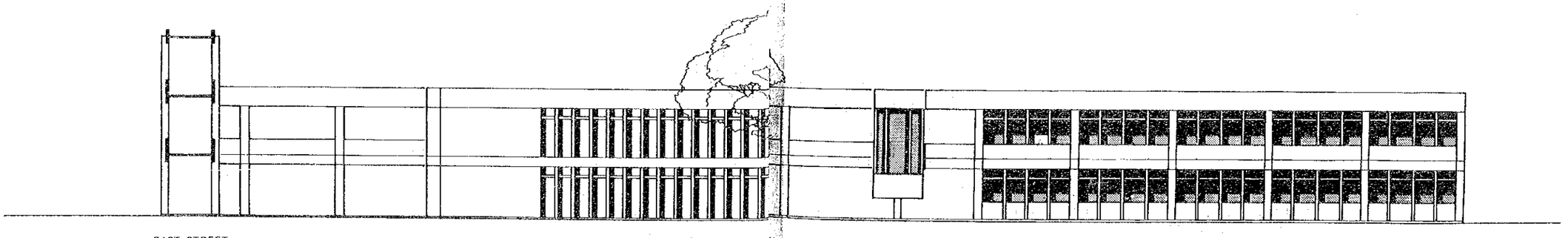
02 GROUND FLOOR PLAN



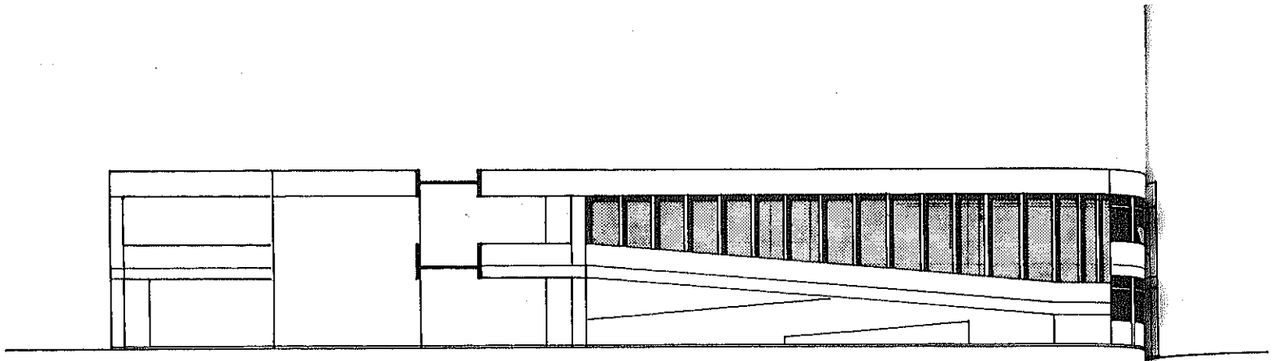
03 FIRST FLOOR PLAN



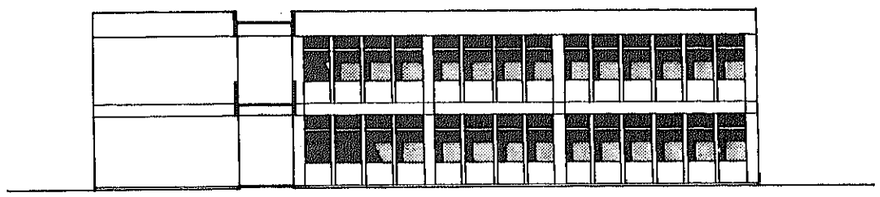




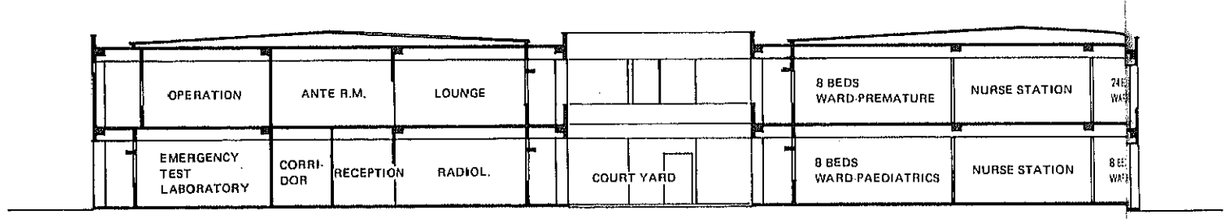
0 1m 3m 6m 12m 24m



WEST ELEVATION



WEST ELEVATION (ADMINISTRATION DEPT.)

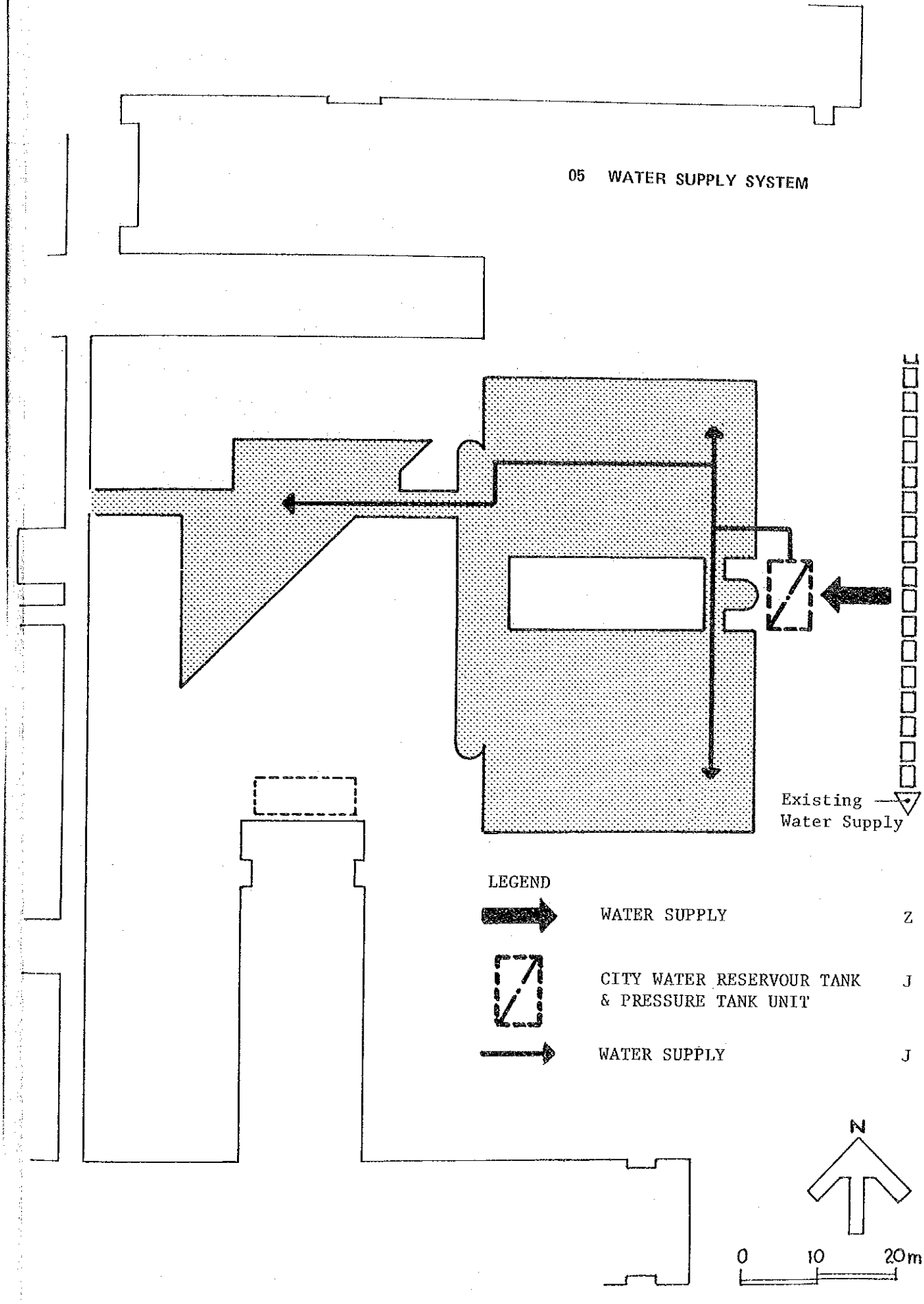


SECTION

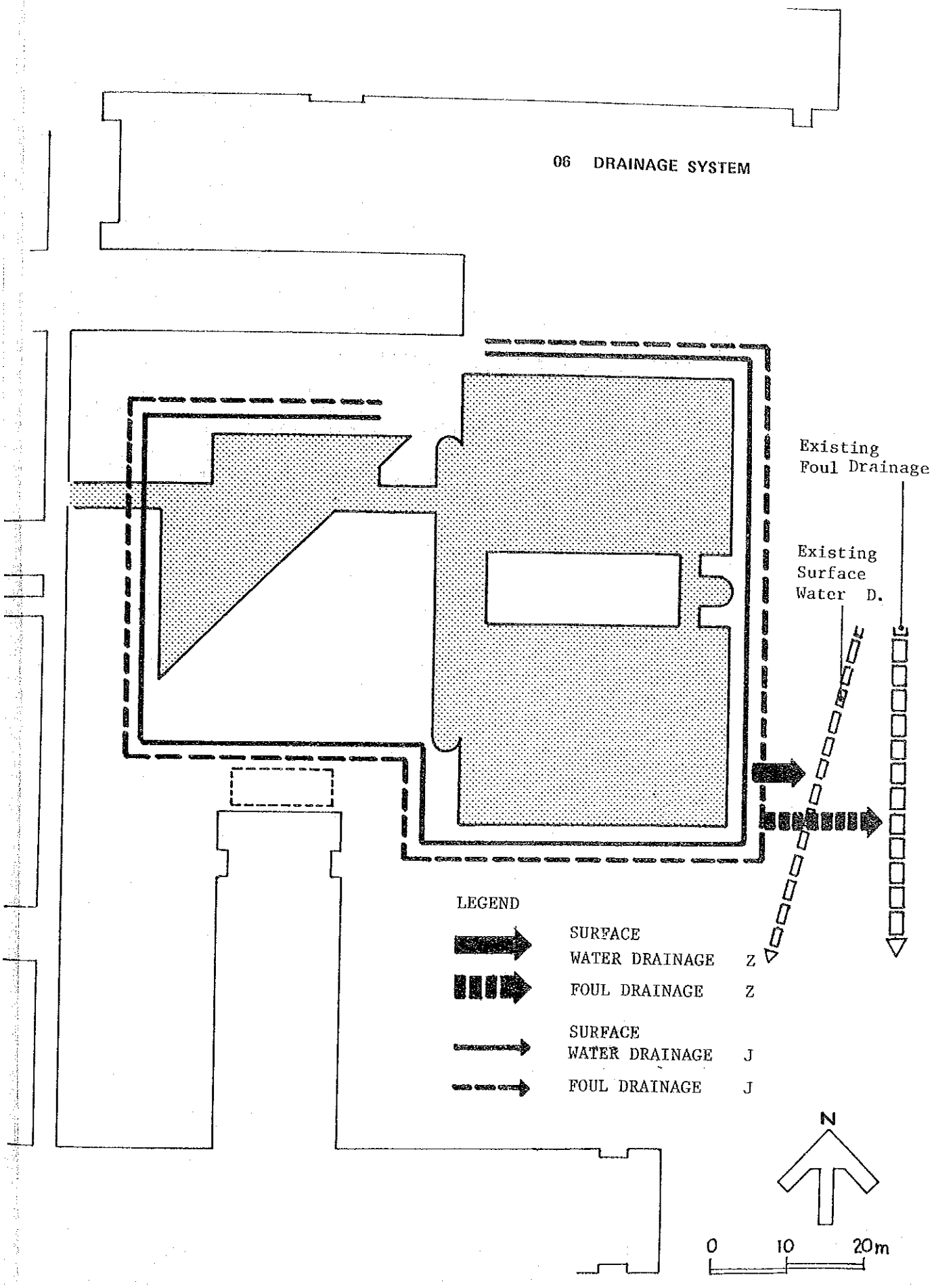
0 1m 3m 6m 12m 24m

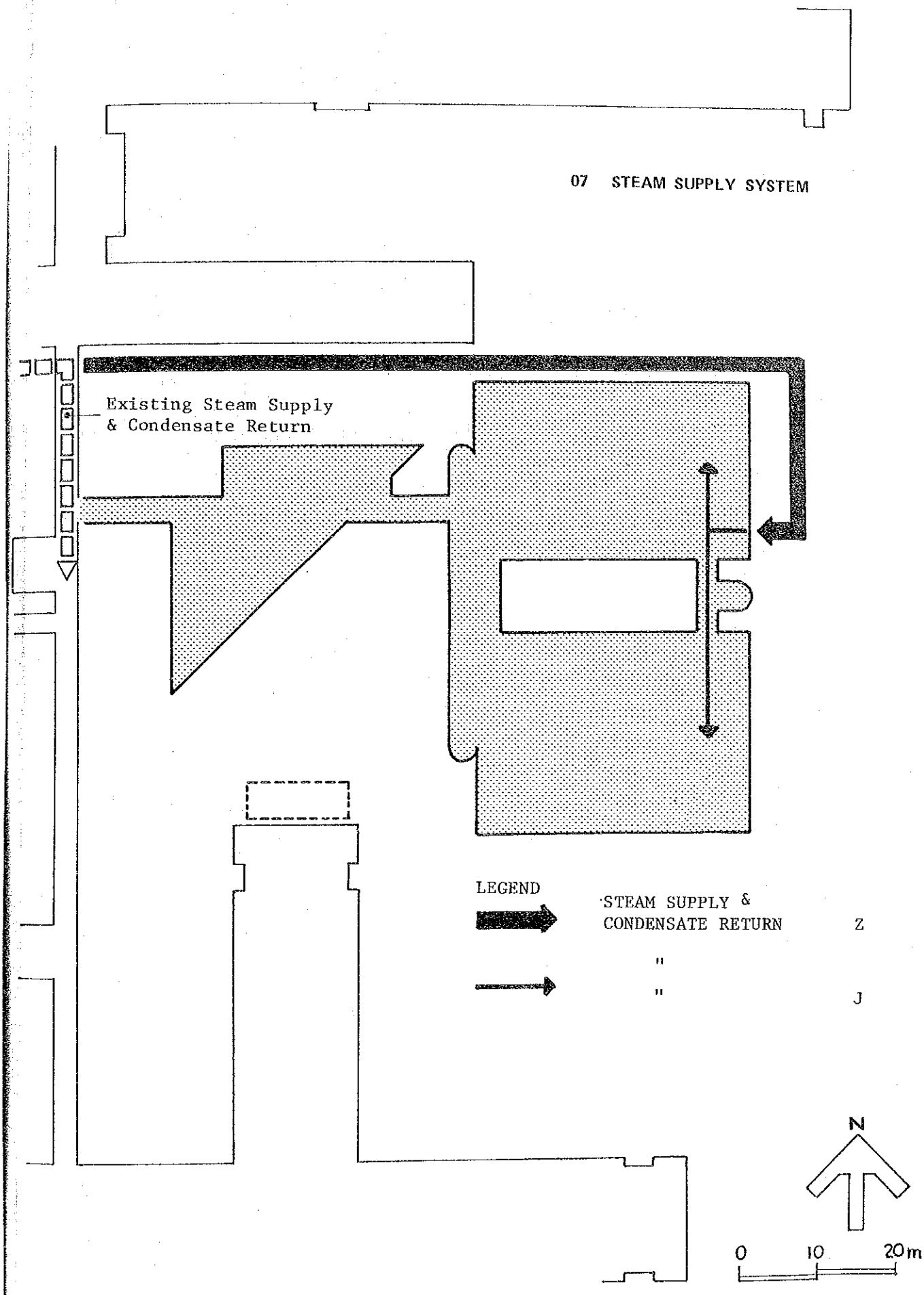
04-2 ELEVATION & SECTION

05 WATER SUPPLY SYSTEM

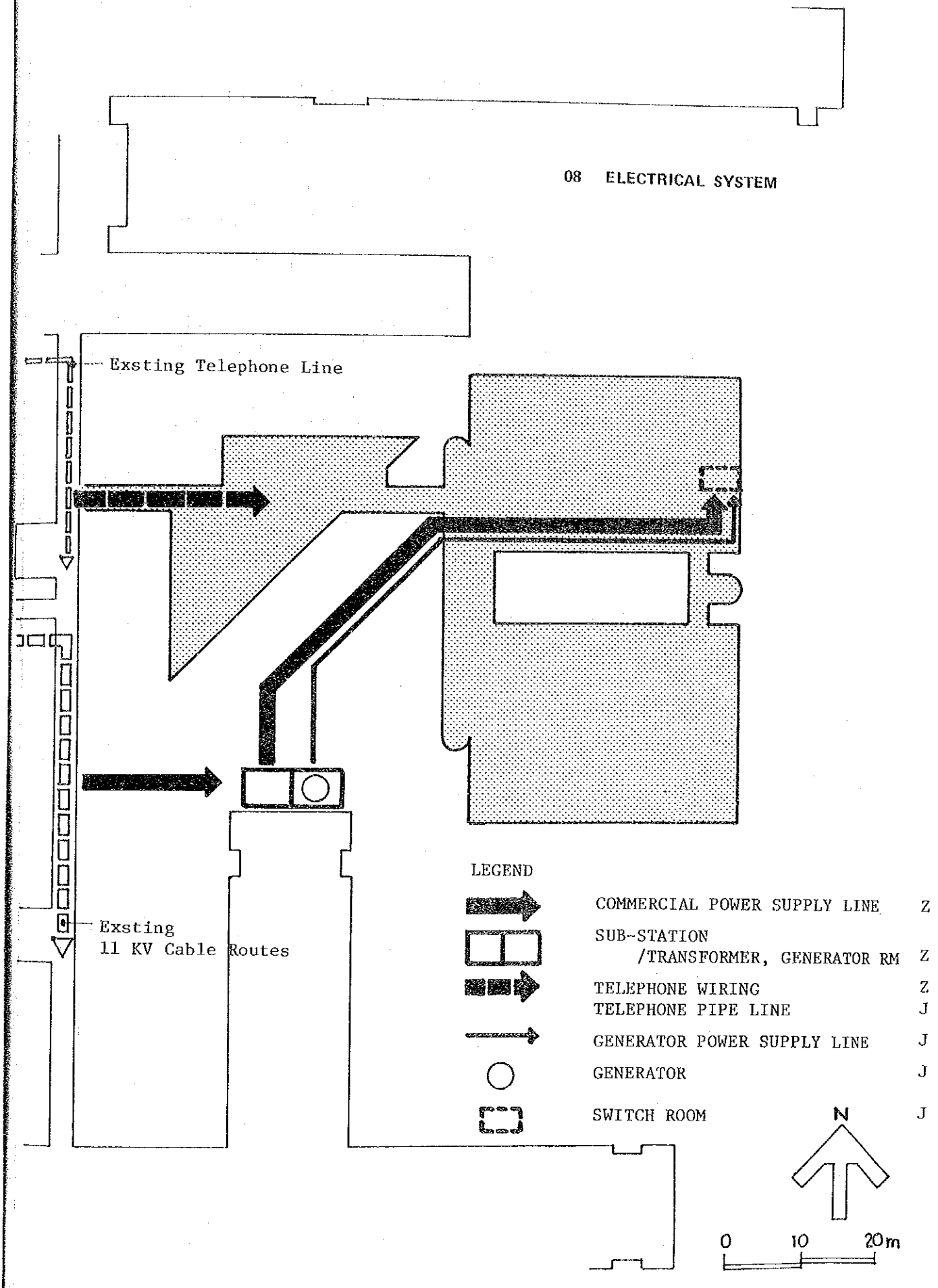


06 DRAINAGE SYSTEM




07 STEAM SUPPLY SYSTEM
Existing Steam Supply
& Condensate Return
LEGEND
STEAM SUPPLY &
CONDENSATE RETURN
Z
"
"
J
N
0
10
20m

08 ELECTRICAL SYSTEM



Chapter 7. Demarcation of Construction

Though the scope of works for both parties are also stated in the Agreed Minutes of Discussions, the demarcation of each work will be summarized below. ("Z" denotes Zambia while "J" denotes Japan)

A. Fundamental Work

1) Site Work

"Z"	Prepare the project site before the start of Construction such as removing existing building and site reclamation, and Provide scope necessary for such construction, as temporary office, working area, stock yards and others.

2) Water Supply, Drainage, Steam Supply and Electricity

"Z"	Provide water supply and steam supply to the Centre
"Z"	Provide drainage system from the Centre
"J"	Water supply, Drainage and Steam Supply piping within the Centre
"Z"	Electrical Power main line to the building. Installing substations with transformer and shed for generator.

3) Telephone Facilities

"Z"	Leading-in of the telephone trunk line to the Centre
"J"	Wiring and condiuts line within the Centre

4) Others

"Z"	Temporary water supply, electricity and telephone services during construction

B. Facilities & Exterior Work

1) Facilities

"J"	Construction of Centre facilities

2) Exterior Work

"Z"	Exterior work and Landscaping

3) Medical Equipment

"J"	Installation of Medical equipment

4) Transportation of Materials

"J" Packing of materials and equipment to be exported from Japan, insurance charges; loading onto vessels at port of Japan and marine transportation and inland transportation to Zambia boundary,

"Z" Taking various necessary procedures in obtaining the permissions and exemptions of the customs duties and taxes from the respective authorities of the Government of Zambia and Inland Transportation in Zambia,

5) Others

"Z" Exempt Japanese nationals concerned from customs duties, internal taxes and other fiscal levies which may be imposed in Zambia on the occasion of the supply of goods and services for construction.

"Z" Provide and accord necessary permission, licences and other authorization required for carrying out the Project.

Chapter 8. Design and Construction Schedule

The preparation work for working drawings for the Centre under the Japanese grant program will commence following the conclusion of the exchange of notes between both governments.
The schedule consists of three phases, detailed design, tendering and Construction.

Detailed Design

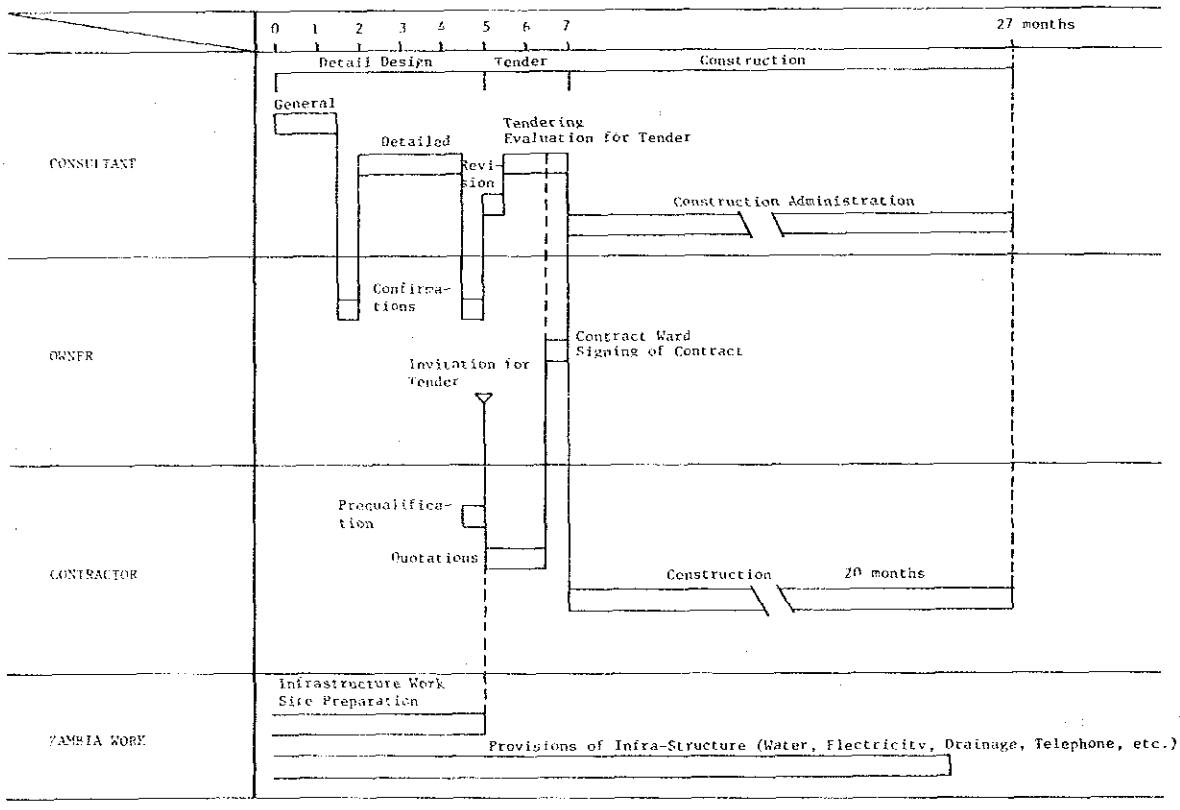
About six months will be required for the project.
The tender documents will be prepared based on the Basic design report. During this phase confirmations will be made to the Zambia side in three stages, preliminary, intermediary, and final stage.

Tendering

About two months will be required for this project.
The Pre-qualification for the contractors, the Tender invitation, the Tenderer evaluation and the award of the contract are the main actions within this period.

Construction

About twenty months will be required for the construction including the installation of medical equipment, expecting procured materials will be in good condition.



Chapter 9. Evaluation of the Project

The Construction of the proposed Centre is evaluated to be effective and urgent as a government assistance in the following points.

Medical Staff Training

The realization of a well-equipped teaching hospital will enable the post and under-graduates training. This will be effective in the training of medical staff and also will be a turning point to provide the opportunity for the doctors to practise the higher level clinical service.

Basic Centre for Medical Cooperation

Japanese medical cooperation has been started from February 1980 in accordance with the Record of Discussions as the Technical Cooperation Programme. The Centre is designed to meet the demand for the basic centre of the medical cooperation field. The Centre will make a role both for paediatric medical centre in Zambia and the basic centre for the Japanese medical cooperation.

Development of Medical Services

The establishment of the health facilities for the paediatric is the urgent matters, as the majority of the population is infant and the premature, newborn and paediatric death rates are high in Zambia.
The Centre will make a leading role to the growing paediatric field, and also encourages other medical field to enhance the standard of medical services.

Contribution to Economic Policies

The Centre construction will contribute to the development of the Ten-year National Health Plan in Zambia, and also will be beneficial by introducing more jobs by strongly stimulating the Zambian construction industries.

Chapter 10. Suggestions

The following points are suggested to the government of Zambia for the purpose of early completion of the Centre and its smooth operation:

1. Prior to the construction of the Centre, infra-structure works such as the water supply, drainage, setting of sub-stations and introduction of electricity and telephone wiring should be completed according to the schedule of the construction.

2. During the construction period engineers and technicians who will be responsible for the maintenance of the building, the operation of accomodated devices and the handling of medical equipment should be appointed and trained, so that they will have a thorough knowledge of devices and equipment in the Centre.

3. Administration personnel should thoroughly be notified of the design proposals, so that adequate system will be established for the smooth operation of facilities.

4. Following the completion of the Centre, a system for periodical inspections and successive maintenance by the experts should be established to check breakdown in and to supply spare parts and consumables to the medical equipment such as central diagnostics, examination equipment and X-ray apparatus and also installed machines such as air-conditioning unit and generators.

Sufficient amount of budget should be allocated and training programme for the centre personnel should be established to proceed above mentioned items concerning the maintenance and the management of the Centre.

Chapter 11. Dispatch of the Survey Team

For the planning and design of the Centre concerned, survey teams have been dispatched for the Basic Design Survey and the Final Survey.

11-1 Members of the Survey Team

Basic Design Survey Team (October 1980)

	Name	Field of Activities
· Leader	Dr. Keijiro Suruga	Team Leader Professor Pediatric Surgery Juntendo University
· Member	Mr. Yasuyoshi Komizo	Economic Cooperation Second Economic Cooperation Division Economic Cooperation Bureau Ministry of Foreign Affairs
· "	Dr. Toshihiko Yamada	Clinical Pathology Associate Professor Yamanashi Medical University
· "	Mr. Katsuhiko Ohshima	Coordination Social Development Cooperation Department Japan International Cooperation Agency
· "	Mr. Kazuo Ishihara	Architectural Design Director Kume Architects-Engineers
· "	Mr. Nobuo Horie	Facility Design Architect Kume Architects-Engineers
· "	Mr. Yasuaki Kawabe	Structural Design Architect Kume Architects-Engineers
· "	Mr. Kyoichi Izawa	Medical Equipment Director Medical Care Juridical Corporation Showa-Kai
· "	Mr. Shunji Nagata	Cost Estimation Engineer Kume Architects-Engineers

Final Survey Team (February 1981)

	Name	Field of Activities
· Leader	Dr. Keijiro Suruga	Team Leader Professor Pediatric Surgery Juntendo University
· Member	Mr. Katsuhiko Ohshima	Coordination Social Development Cooperation Department Japan International Cooperation Agency
· "	Mr. Kazuo Ishihara	Architectural Design Director Kume Architects-Engineers
· "	Mr. Yasuaki Kawabe	Structural Design Architect Kume Architects-Engineers

11-2 Japanese Officials in Zambia

Embassy of Japan in Zambia

Mr. Hajime Nishinomiya	Ambassador Extraodinary and Plenipotentiary
Mr. Kunio Kamoshida	Counselor
Mr. Masayoshi Kusuda	First Secretary
Mr. Itaru Hyuga	Second Secretary

11-3 Zambia Authorities Concerned

Ministry of Health

Dr. J.M. Kasonde	Permanent Secretary Director of Medical Services
Dr. W.C. Mwanbazi	Assist. Permanent Secretary
Mr. J.S. Sakala	Coordinator, Asst. Secretary, Development
Mr. Kwut Von Troil	Architect
Mr. R. Jonsson	Health Planner
Mrs. H.K. Kakanda	Chief Nursing Officer
Mrs. M. Muluma	Chief Nursing Officer
Mr. Chali	Assist. Secretary, Finance
Mr. Leach	Buying Office
Mr. Moore	Chief Pharmacist
Dr. Nyayua	M.C.H.S

Ministry of Works & Supply

Mr. Y.K. Libakent	Permanent Secretary
Mr. W. Musonda	Director of Buildings
Mr. P. Patak	Chief Architect
Mr. Kataria	Chief Architect, UTH
Mr. Mathur	Architect
Mr. M. Cochran	Quantity Surveyor
Mr. Chibuye	M.S.D.

University Teaching Hospital

Prof. C. Chintu	Dean, School of Medicine
Prof. J.C. Masange	Assist. Dean
Mr. R.H. Carruthers	Consultant Surgeon
Mr. Kaliki	Account Sect.
Mr. J.M. Mubanga	Hospital Administrator

National Commission for Development Planning

Dr. L. Chivuno	Acting Permanent Secretary & Director General
Mr. E.E.W. Mbewe	
Mr. Mwale	Chief Economist

Ministry of Finance

Mr. F. Kazunga	Senior Urder Secretary
Mr. M.C. Kabaghe	

Ministry of Legal Affairs

Mrs. B.Z. Mulamfu	Assist. Senior State Advocate

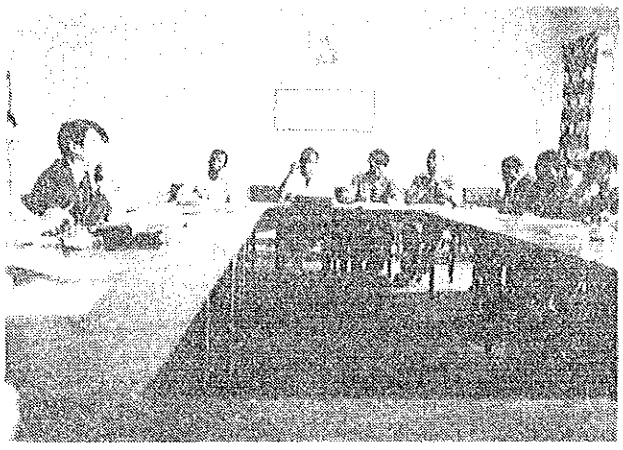
City Council

Dr. C. Chanda	Medical Officer of Health

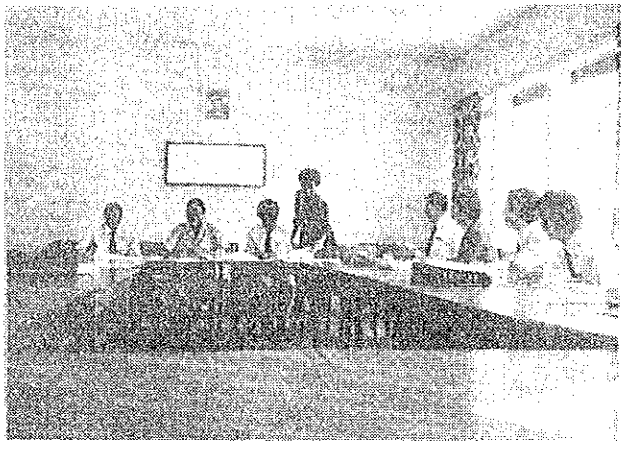
Ministry of Foreign Affairs

Mr. M.C. Shisholeka	Director of International Division

Discussion at Ministry of Health
Date : Oct. 27 '80
Place: Ministry of Health



Discussion at Joint Meeting
Date : Oct. 28 '80
Place: UTH Committee Room



Discussion at Joint Meeting
Date : Oct. 30 '80
Place: UTH Committee Room

Signing of Agreed Minutes
Date : Oct. 31 '80
Place: UTH Committee Room

11-4 Circumstances of the Discussions

The survey team had a series of meetings in Zambia, and field survey necessary for estalishing basic design and for discussion on basic policies related to the Centre construction project with the Zambian authorities related to the Project.

As the result of mutual understanding, the project team is to be called "The University Teaching Hospital Neonatal and Paediatric Surgical Centre". The following points have mutually been agreed upon as the basic policy for the centre:

- Following the policy of Japanese Technical Cooperation Programme to Zambia, the Centre will be functionally defined as the teaching centre to post and under-graduates at the University Teaching Hospital.
- The Centre will be functionally connected to the existing facilities of the University Teaching Hospital.
- The main role of the Centre is care of newborn infants (particularly premature babies), paediatric Surgery and basic paediatric trainning based on the above two specialities which are important ones in the paediatric fields.
- The function of the Centre will be to improve neonatal and paediatric surgical work in Zambia and will be beneficial both for saving lives of many sick small infants who need intensive care and a high level of medical technology and for promotion of child health.
- Medical Equipment will be provided taking into consideration maintenance costs, durability and effectiveness for transfer of technology.

The survey team has signed on the document which outlined the above basic policies in the form of "Agreed Minutes", performed further investigation based on the Minutes, prepared a plan and received some requirements at final joint meeting.