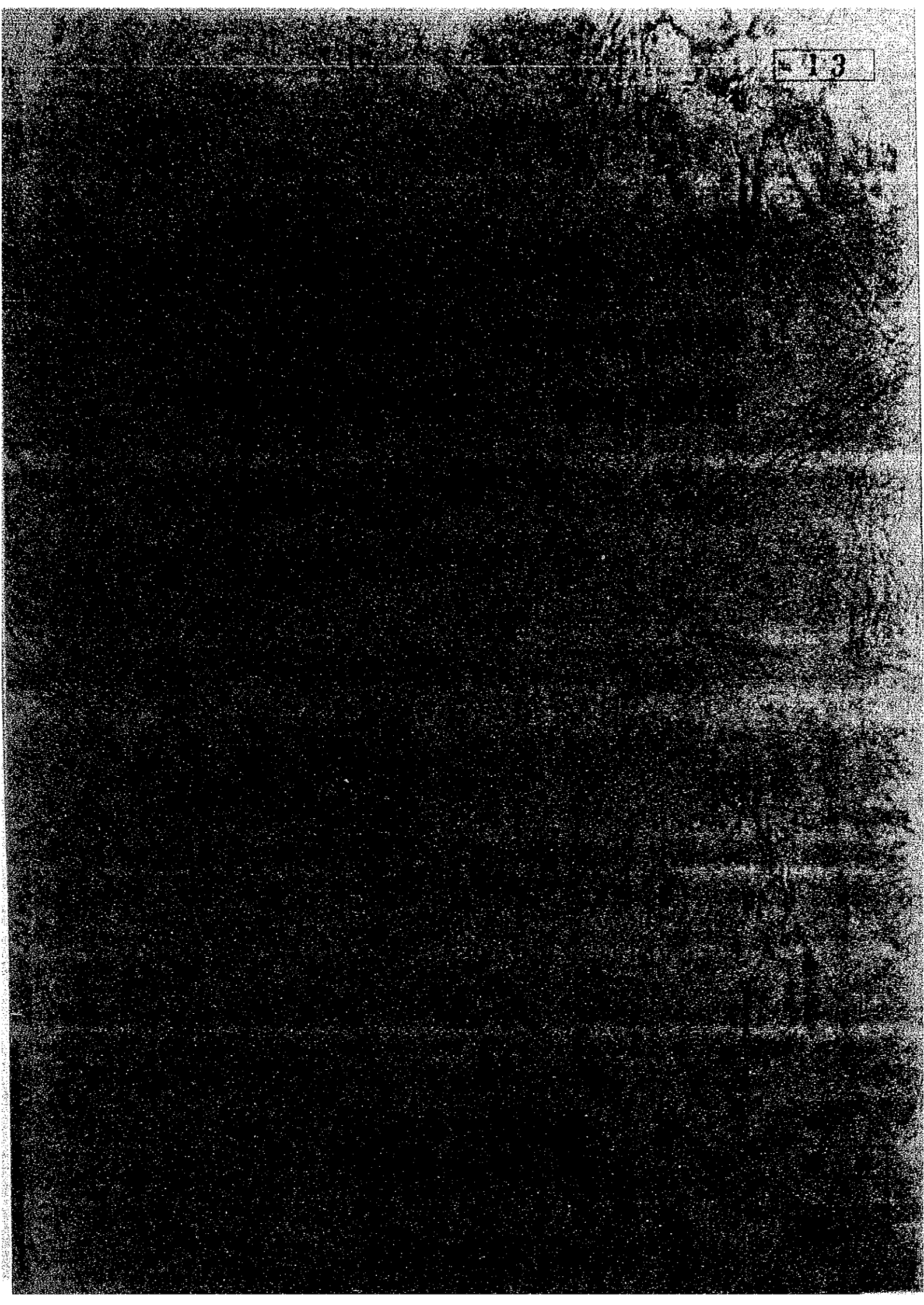


ビルマ国マンダレー教育病院計画
技術協力専門家チーム報告書別冊
収集資料集

昭和62年 4 月

国際協力事業団
医 療 協 力 部

専門家チーム収集資料

（目　次）

BRIEF OUTLINE PROPOSAL OF

NEW GENERAL HOSPITAL, MANDALAY

DEPARTMENT OF HEALTH

C O N T E N T S

PROPOSAL FOR CONSTRUCTION OF NEW MANDALAY GENERAL HOSPITAL

1. GENERAL INFORMATION

1.1 Geography and Climate

The greater portion of Burma lies in the tropic, the climate of the country has three seasons, the rain, cold and the hot.

It's boundaries encompass an area roughly in the form of a diamond, measuring 500 miles across east to west and 800 miles from north to south.

Area	:	261,228 sq.miles
States and Divisions	:	7 States & 7 Divisions
Towns	:	288
Townships	:	314
Village Tracts	:	13751
Villages	:	65327

1.2 Demography

Population :- 36.75 million,1985(Projection)
35.31 million, 1983 (Census)

Percentage distribution of population by divisions and states in 1983 was as follows:-

DIVISION	PERCENT	STATE	PERCENT
Irrawaddy	14.14	Shan	10.53
Mandalay	12.77	Rakhine	5.79
Rangoon	11.25	Mon	4.76
Pegu	10.76	Karen	3.01
Sagaing	10.92	Kachin	2.56
Magwe	9.18	Chin	1.10
Tenasserim	2.60	Kayah	0.48

Person/sq.mile : 137.47/sq.miles(1983)

Urban population : 23.95%

Rural population : 76.05%

Age Structure of the Population

AGE	RATIO(Percentage)	
0 - 14 years	38.2	1982 survey figures
15 - 59 years	54.5	
60 years and above	7.3	

General Fertility Rate : 114.7 per 1000 female population of age(15-49)

Gross Reproduction Rate: 1.8 per female(15-49)

Net Reproduction Rate : 1.6 per female(15-49)

1.3 Socio-economic Situation[1]

Gross Domestic Product

1984-85 = 54042.1 million Kyats (Current price)

The per capital national accounts for 1984-85 are as follows:

(1)	Per capita output in Kyats	2603
(2)	Per capita investment in Kyats	276
(3)	Per capita income in Kyats	1540
(4)	Per capita consumption in Kyats	1265

(1) Source: Report to the Pyithu Hluttaw, 1985-86.

2. HEALTH SITUATION, RESOURCES AND UTILIZATION

2.1 Health Service Organization

The delivery of Health Services is provided by the Department of Health, under the Ministry of Health. All categories of health care fall into three broad divisions, namely, Medical Care, Public Health Care, and Disease Control. These are supported by the Laboratory Services, the Health Statistics Section, Nutrition Project and the Bureau of Health Education. Other Section which also support the three categories of health care Occupational Health, Environmental Sanitation, Port Health and Medical Social Work. The social security medical services are affiliated to the Health Department, as also the Services of Indigenous Medicine.

2.1.1 Hospital Services Whole of Burma

As on 31st. May 1985

No.of Hospital	: 620
No.of available beds	:30326
Average number of in-patient per day	:23724
Percentage of occupancy based on available beds	: 78%
Average turnover of patients per bed per year	: 33
Average number of out-patients per day	:27824
Average duration of stay	: 8.7

2.2 Vital Statistics

(1) Crude birth rate is found to be 26.7 per 1000 population in 1982 according to household survey on morbidity, mortality and health care. The rural rate is computed as 28.3 which can be compared with the urban rate of 20.3. There was a sharp decline during last few years.

(2) According to the survey, crude death rate is 6.3 per 1000 population.(urban rate and rural rate being 5.0 and 6.6 respectively).

(3) Maternal mortality rate estimated from the survey results is found to be ranging from 0-4.6 per 1000 live births. According to vital statistics information from urban areas, the rate is 1.5 in 1980.

(4) Infant mortality rate is 40.5 per 1000 live births, the rural rate of 45.3 being higher than the urban rate of 14.7.

(5) Childhood (1-4 years) mortality rate is computed as 8.7 with its range of 6.6 to 10.8 per 1000 children (1-4 years of age). The rural and urban rates are also derived as 9.4 and 5.7 respectively.

3. INFORMATION ON PRESENT SITUATION

3.1 Mandalay division with a population of about 4.6 million constitutes 12.7% of the toal population of Burma, whereas Rangoon Division, with a population of about 3.98 million represents 11% of the total population; yet the latter has better equipped hospitals, other health facilities as well as a good ratio of number of beds per stipulated population.

3.2 Mandalay, the largest city in Burma and being situated in the Northern-central part of the country serves as a receiving centre for feferrals from the whole of Upper Burma, viz., Sagaing Division, Chin State, Kachin State, part of Magwe Division and Mandalay Division itself. A total of 13 million population resides in this area.

Estimated Population likely to use Mandalay Hospital for Referral Services (1983 Census Figures)

Sr.No.	Name of State/Division	Estimated Population
1.	Mandalay Division	4.6 million
2.	Magwe Division	3.25 million
3.	Sagaing Division	3.90 million
4.	Chin State	0.37 million
5.	Kachin State	0.91 million
	Total	13.03 million

The Rangoon General Hospital and the other 13 teaching and affiliated teaching hospitals have a total bed strength of 6150, while Mandalay General Hospital and two other teaching hospitals i.e., EENT Hospital and Workers' Hospital which is still under construction will have a combined bed stength of only 1050.

3.3 Teaching and Affiliated Teaching Hospitals

Group (1) Teaching and Affiliated Teaching Hospital in Rangoon.

(1)	Rangoon General Hospital	(1500 beds)
(2)	Central Women's Hospital	(800 beds)
(3)	Children's Hospital	(550 beds)
(4)	North Okkalapa Hospital	(250 beds)
(5)	East Rangoon Hospital	(200 beds)
(6)	West Rangoon Hospital	(200 beds)
(7)	Workers' Hospital	(200 beds)
(8)	EENT Hospital	(150 beds)
(9)	Orthopaedic Hospital	(400 beds)
(10)	Women and Children Hospital, South Okkalapa	(150 beds)
(11)	Infectious Disease Hospital	(200 beds)
(12)	Aung San TB Hospital	(300 beds)
(13)	Hospital for the Disabled, Thamaing	(50 beds)
(14)	Psychiatric Hospital	(1200 beds)
	Total beds	(6150 beds)

Group (2) Teaching and Affiliated Teaching Hospital in Mandalay.

(1)	Mandalay General Hospital	(800 beds)
(2)	EENT Hospital, Mandalay	(100 beds)
(3)	Workers' Hospital, Mandalay	(150 beds)
	Total beds	(1050 beds)

In terms of available beds per 1000 population, Rangoon Division has 2.01 beds and Mandalay Division has 0.72, which is less than half of Rangoon Division.

3.4 The Work load of existing Mandalay General Hospital

The percentage occupancy of 104% based on sanctioned beds is relatively high and shows that the hospital is overcrowded; but the average duration of stay of 8 days is a reasonable figure for a General Hospital like MGH.

The average turnover of patients per year is 42, whereas the national figure for similar hospitals is 38.

Considering the multiple factors, it is apparent that the provision of extended number of beds and of referral facilities to such areas like Mandalay will not only lessen the congestion and workload imposed on the present existing hospitals there, but will also help avoidable referrals being referred to hospitals in Rangoon.

4. BASIC CONCEPT, PLANNING POLICIES AND GUIDELINES

4.1 Concept

4.1.1 The People's Health Programme when implemented as planned would cover the majority of the population by 1990. Medical Care Division and the hospital services as the backbone and the integral part of the primary and basic health care services must be prepared

to cater the increasing demands for curative as well as referral services at all levels throughout the country.

4.1.2 To meet and provide those essential requisites and needs, as well as to attempt to provide the optimal upgraded services and the effective diagnostic facilities, primary firstline hospitals at township levels should be strengthened. These in turn should have access to and be supported by secondline hospitals of states and divisions which must likewise be backed up and supported by well equipped and staffed hospitals of national level which should be able to treat complex and serious cases those are beyond the capabilities at the lower level hospitals.

4.1.3 Geographically, two groups of such national level hospitals exists in Burma. One group is situated in Rangoon consisting of fourteen hospitals and the other is in Mandalay, comprising of only three hospitals one of which is still under construction. Apart from rendering medical care facilities and services, majority of those hospitals are centres for teaching of undergraduate and post-graduate medical students as well as nursing students.

Even though Mandalay which has a Medical School is the second largest city in Burma, the present number of teaching hospitals, available beds, teaching facilities, diagnostic tools and facilities to receive referrals are too few and unsatisfactory; the need for strengthening and upgrading is obvious.

4.2 Guideline

The proposed hospital should be equipped to serve together with the existing Mandalay General Hospital as the main referral centre for central and upper Burma, a general hospital for Mandalay and adjacent areas and also function as part of a teaching centre for medical students and nursing staff.

The administrative and functional management will be in general conformity with the present system practiced in new Rangoon General Hospital.

With the provision of observation facilities for patients not warranting admission it would minimise unnecessary admissions which would in turn permit a high rate of patient turnover in beds.

Since the practice of medicine is the best basis for the teaching and training of medical doctors, the design and facilities should meet those needs. For this reason, certain teaching facilities should be integrated as feasible as possible.

The hospital should comprise medicine, surgery, obstetrics gynaecology and prediatrics as four major service areas with supporting services and facilities. Efforts will be made to avoid breaking the services down into smaller and smaller subspecialities since this would lead to services management and staffing problems. All subspeciality services will be integrated into main discipline and function as such with special interest.

Consideration will be made to avoid or minimise noise and other pollution. Landscaping and design of the hospital will be effected so as to permit future expansion and development.

4.3 Objectives

4.3.1 To build a hospital of approximately 318 beds and to device a system to allow the facilities in the entire hospital complex to be harmonised to provide an integrated service for medical care and education.

4.3.2 To strengthen, augment and upgrade the teaching facilities of Mandalay Medical School and provide functional support in teaching. Thus one of the objectives of the planning mechanism is to design a hospital that would, with a minimal provision of basic teaching facilities would not only augment the needs for undergraduate and post-graduate teaching and training, but also will augment the service requirements.

4.3.3 To provide training facilities for nurses and midwives.

4.3.4 To serve basically as a general hospital with full facilities and complements for medicine, surgery, obstetrics-gynaecology and paediatrics. Diagnostic, auxiliary and support services and other components to facilitate such services will be provided.

4.3.5 To upgrade the quality of service through provision of appropriate and modern diagnostic facilities and to effectively be able to function as one of the principal referral hospitals in upper Burma.

5. BRIEF DESCRIPTION OF THE PROJECT

Title	:	NEW MANDALAY GENERAL HOSPITAL.
Beds	:	Approximately 318 beds.
Type of Hospital	:	A General Hospital with teaching facilities.
Location	:	Mandalay city.
Site	:	South- East Mandalay.
Area	:	72.4 acres.
Responsible organization	:	Ministry of Health.
Estimated cost	:	J¥ 5~6 billion.

6. SCOPE OF WORK AND FUNCTIONAL CONTENTS

6.1 The scope of work will roughly include all land and site cleaning, power and water supply, design and construction of all buildings and facilities for a general hospital of the proposed type as well as landscaping and equipping.

6.2 The outline of the functional contents of the hospital will roughly be grouped into:-

6.2.1 Wards for in-patients (Medicine, Surgery, Obstetrics/ gynaecology, Paediatrics)

6.2.2 Out-patient service department (including general out-patient clinic, specialist referral clinic, accident and emergency department, medical records department, patients waiting hall, dispensary, out-patient diagnostic facilities services,etc.)

6.2.3 Central diagnosis and treatment departments (including radiology department, laboratory, operation theatres, central sterile supply department, delivery suites, ICU, physio-therapy department, etc.)

6.2.4 Administration department (including various administrative offices).

6.2.5 Service department (including maintenance and repair workshops, service workshops, gas plant, supply depot, electicity and water supply, sewage and waste disposal, cooling system, communication and telephone system, transport and garages,kitchen, laundry , etc.)

6.2.5 Teaching facilities.

6.3 The total floor area is estimated to be 15000 - 19000 square meters. These are rough estimates based on prediction out of past encounters. The estimates include case load, functional unit, net area, circulation allowances, communication corridors, etc.

6.4 Options for distribution of beds

6.4.1	Medical Department	78
6.4.2	Surgical Department	78
6.4.3	Obstetrics/gynaecology Department	78
6.4.4	Paediatrics Department	78
6.4.5	Intensive Care Unit	4
6.4.6	Cardiac beds for all patients attached to medical ward or other convient area	2

7. DESCRIPTION OF INDIVIDUAL PATIENT WARDS AND SERVICE DEPARTMENT

7.1 Patient Wards

Medicine Department

All medical conditions including those related diseases attributable to subspecialities will be admitted to this department. Breaking the services down into smaller subspecialities will be avoided. Provisional deployment for the ward is 78 beds.

Surgery Department

All surgical conditions including those conditions attributable to subsurgical specialities will be admitted to this ward. Provisional deployment of beds is 78.

Paediatrics Department

All children under 12 years of age with medical or surgical conditions will provisionally be admitted into this ward of 78 beds.

Obstetrics and Gynaecology Department

The provisional total beds for these conditions will be 78; the division of beds for each type of service will be made as necessary.

Intensive Care Unit

The scope of this unit is functionally related to all the Clinical Departments. There should be four beds for the critically ill patients. This would made the number of intensive care beds just over 1% of the total bed strength which is about the scale of provision in most of the modern hospitals.

Day/ Observation Beds

About 8 observation/day beds are to be allocated close to out-patient/accident and emergency department. These would be used to house patients recovering from certain diagnostic or therapeutic procedures, not requiring admission or for those patients needing observation before being admitted to the wards or discharged as required; this would facilitate to relieve or minimise congestion in the wards.

Out-patient Service Department

The out-patient services department is to be sited as an integral part of the main hospital, so as to enable the patients to have easy access to the diagnostic and therapeutic facilities of the hospital. The medical records department, dispensary and patients waiting room should be incorporated.

Specialist Referral Clinics

These clinics will be held in or in close proximity of the out-patient departments for those cases referred from other hospitals and health centres.

Accident and Emergency Department

The Accident and Emergency Department will provide a 24 hours service. At night, when the main hospital theatres are closed, the services will include emergency surgery on those cases requiring surgical intervention.

Ideally this department should have:-

- good road access for vehicles.
- good reception and documentation facilities.
- spacious examination cubicles or areas.
- a spacious and well equipped resuscitation room.
- access to operating threatres and treatment room.
- access to intensive care unit.
- access to observation beds.
- access to emergency diagnostic facilities.
- circulation space to allow free flow of patient.

7.2 Diagnostic and Treatment Facilities

Physiotherapy Department

A physiotherapy department should be provided and it should render service to both in and out-patients.

Operating Theatre

Operating theatre suites either single or in group as necessary or convenient, adapted to the need of individual services should be made available. Ideally a minimum of four operating rooms should be provided in the main theatres with an extra-room for septic and unclean cases.

For emergency and certain accidents there should be a clean theatre and another theatre for minor surgery attached to A and E departments.

Diagnostic Radiology

The radiological equipment installed should be conducive to the needs of a modern hospital of such functional requirements. Even though ultra-sophistication is not needed, the facilities should include equipment to study chest, orthopaedic, gastro-intestinal, neuro, cardiovascular, urology, ultrasound, dark-room equipments and power stabilizing mechamisms. Detailed equipment list and the details of the scope of function is omitted in this paper.

Diagnostic Laboratories

The laboratories would perform routine diagnostic tests for the hospital patients and also will develop a wider national referral capability that will complement the work of the present Mandalay Hospital. Since it will have to bear the extended services there is a scope for the development of tissue typing techniques, immunology,

histochemistry, toxicology and hormone assay which in conjunction with available services of existing hospital would augment the diagnostic and therapeutic potential and the quality of service there.

Basically it should necessarily consists the following: -

Histopathology Division

This division includes diagnostic histopathology, cytology, histochemistry, cytogenetic immunopathology and tissue culture.

Chemical Pathology Division

Metabolic, lipids and enzyme, immunoprotein and hormone assay will be incorporated into this division.

Haematology Division

Will include anaemia, haemolytic diseases, haemorrhagic diseases and white cell disorders laboratory.

Microbiology Division

Microbiology, serology and mycology units will be part of the division.

Emergency Laboratory and Blood Issue Section

24 hours emergency service with appropriate basic facilities.

Mortuary and post-mortem

The design for the mortuary and post mortem rooms should include accommodation for teaching as well as for forensic post-mortem procedures. Air conditioning or cold storage for eight bodies should be provided.

Blood Bank

Since the location of this hospital is quite a distant from the existing blood bank at the Mandalay General Hospital, certain facilities will have to be provided for blood receiving, storage and cross matching for emergencies even though a storage and issue section would be attached to the laboratories.

7.3 Medical Support Services

Central Sterile Supply Department (CSSD)

The aim of the CSSD is to provide a centralised service with high standards and good quality control to provide sterile packs of instruments and dressings to the operating theatres and other areas which need them. The department should operate on an industrial work flow pattern. The CSSD and the users should hold about three days reserve supply at all times of each type of pack used. Issue would normally be made on a ' top-up ' basis to agreed stock holding level.

Pharmaecutical Services

The department will be responsible for the manufacture of sterile products, certain intravenous fluids and some drugs specially needed by the hospital other than those patented supplies. It will also be a distributing centre for the dispensaries.

Medical Records

A unified medical records system will be developed and is to be sited where most patients make their first contact with the hospital; preferably at the out-patient department.

Biomedical Engineering Workshop

Since the success or otherwise of the function of the electronics and biomedical electrical equipment assisted diagnostic and therapeutic procedures will depend to a large extent on whether those equipment, are in good functional status, the ability to maintain and repair these is the major factor that would decide the outcome of the results. Thus a purpose-built accommodation with repair facilities for servicing and repair of those becomes a necessity.

7.4 General Support Services

Central Administration

Except to provide a purpose built accommodation, no elaborate facilities are required.

Catering

The present practice regarding the method of provision of food for patients will generally be followed. Food will be produced in bulk and transported to wards in insulated trolleys. Plating will be done in the wards and containers would be returned unwashed to the kitchen. There should be storage facilities within the kitchen buildings for fresh, frozen and dry goods as well as an area for making up special diets.

Laundry

A central laundry similar to the one used for New Rangoon General Hospital should be provided.

Central Stores

A purpose-built central stores with enough space for a hospital of 300 bed and a reserve capacity for one month should be built.

Works Department

It should have the capacity to maintain, to an acceptable standard, the buildings, roads ,

plant and equipment of the whole complex. It should include an electrical workshop, a carpentry shop, plumbing, paint, mechanical and maintenance workshops. A garage and vehicle maintenance workshop could be incorporated into the whole system.

Water Supply

Since piping of water supply has not reached the chosen site, an underground tapping or other suitable source must be sought. A purification plant should be installed also.

Power Supply

The electricity needed for use in the hospital can be obtained from the available power source of the area. A stabilizer and transformer as installed in the New Rangoon General Hospital with a back-up emergency generator of about 300 kw is needed.

Other requirements

The facilities installed in New Rangoon General Hospital for cooling system, waste disposal system, sewage disposal and treatment plant, communication and telephone, transport, etc., are in principle, applicable for this proposed hospital with modifications wherever necessary.

8. MEDICAL EQUIPMENT, INSTRUMENTS AND PRIORITIES

The list of equipment described in the basic design report for the General Hospital construction project Report No. 21 of March 1981 by JICA is basic. In that report, equipment as well as the number of each for Internal medicine, Surgery, operating room,

emergency, anaesthesia and recovery, gynaecology, delivery, paediatrics, ward I, ward II, central sterile supply, pharmacy, radiology, clinical laboratory 1,2,3,4,5,6, blood bank, autopsy room and conference rooms has been mentioned.

In practice, these equipment supplies are not sufficient or are deficient for even certain basic functions needed for the patients or intended tasks. Thus taking these factors as a basis, actual requirements of the type of each equipment and the number required should be discussed between the experts of each side.

9. OTHER FACILITIES

Library.

Rest rooms for medical officers, para medical technicians, nurses.

Conference rooms.

Recreation room.

Hospital canteen.

Residential facilities for various levels of staff.

Office equipment.

10. TEACHING FACILITIES

The Institute of Medicine in Mandalay is planned to receive 200 new students each year. Since the duration of training is seven years, total student population of the Institute at anyone time will range from 1400 - 1800 ; of which 800 - 1000 will be paraclinical and clinical students attached to hospitals.

Available general beds for teaching is about 1050 at present. With the addition of 320 beds it is hoped that the present shortage in student bed ratio will improve.

The required facilities for post and undergraduate medical students and nurses.

Gymnasium

Auditorium

Lecture rooms

Research library

Reference library

Clinical side rooms

Teaching aids

Communication and audio system

Staff rooms

Laboratories/ Practical demonstration rooms

Tutorial cum seminar rooms attached to individual department.

Students common rooms

Clinical side rooms

11. MANAGEMENT PLAN OF HOSPITAL

Organogran (Attached)

12. RECRUITING

Recruiting of all categories of staff will be effected by redeployment of existing personnel or by appointing additional staff as required.

13. TOTAL FLOOR AREA REQUIRED FOR THE WHOLE OF THE HOSPITAL COMPLEX (See Annex rough floor plan)

GROUND FLOOR

a)	Auditorium	800	M^2
b)	Rehabilitation	400	"
c)	X-ray room	776	"
d)	Out-patient department	2000	"
e)	Storage	307	"
f)	Canteen	307	"
g)	Pharmacy	192	"
h)	Entrance hall and reception	300	"
i)	Morgue	230	"
j)	Laundry	345	"
k)	Kitchen	400	"
l)	Central laboratory	792	"
m)	Out-patient laboratory	120	"
n)	Emergency	400	"
o)	Ward-Gynaecology	1836	"

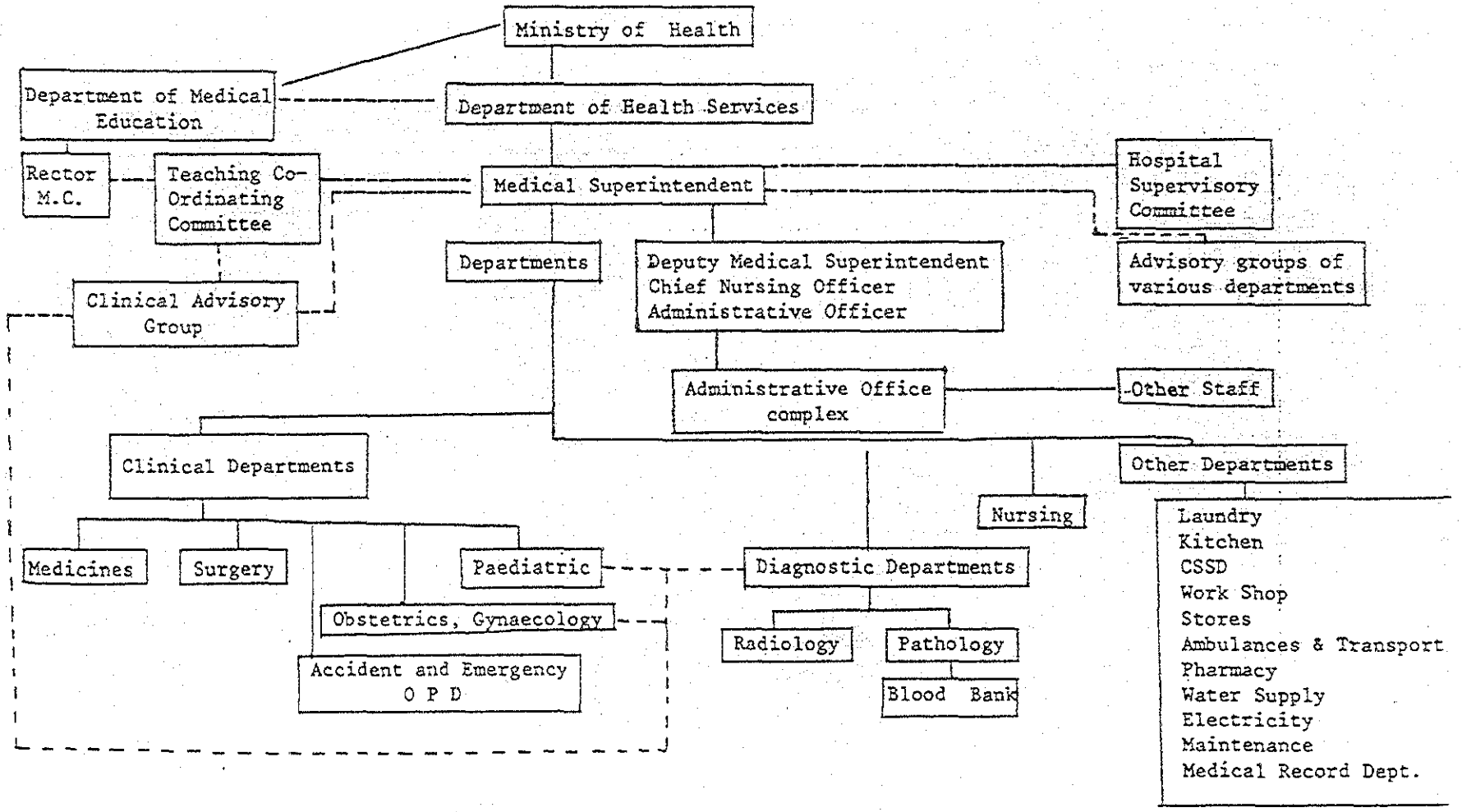
p)	Pediatrics	1836 M^2
q)	Play room for children	153 "
r)	Delivery	448 "

FIRST FLOOR

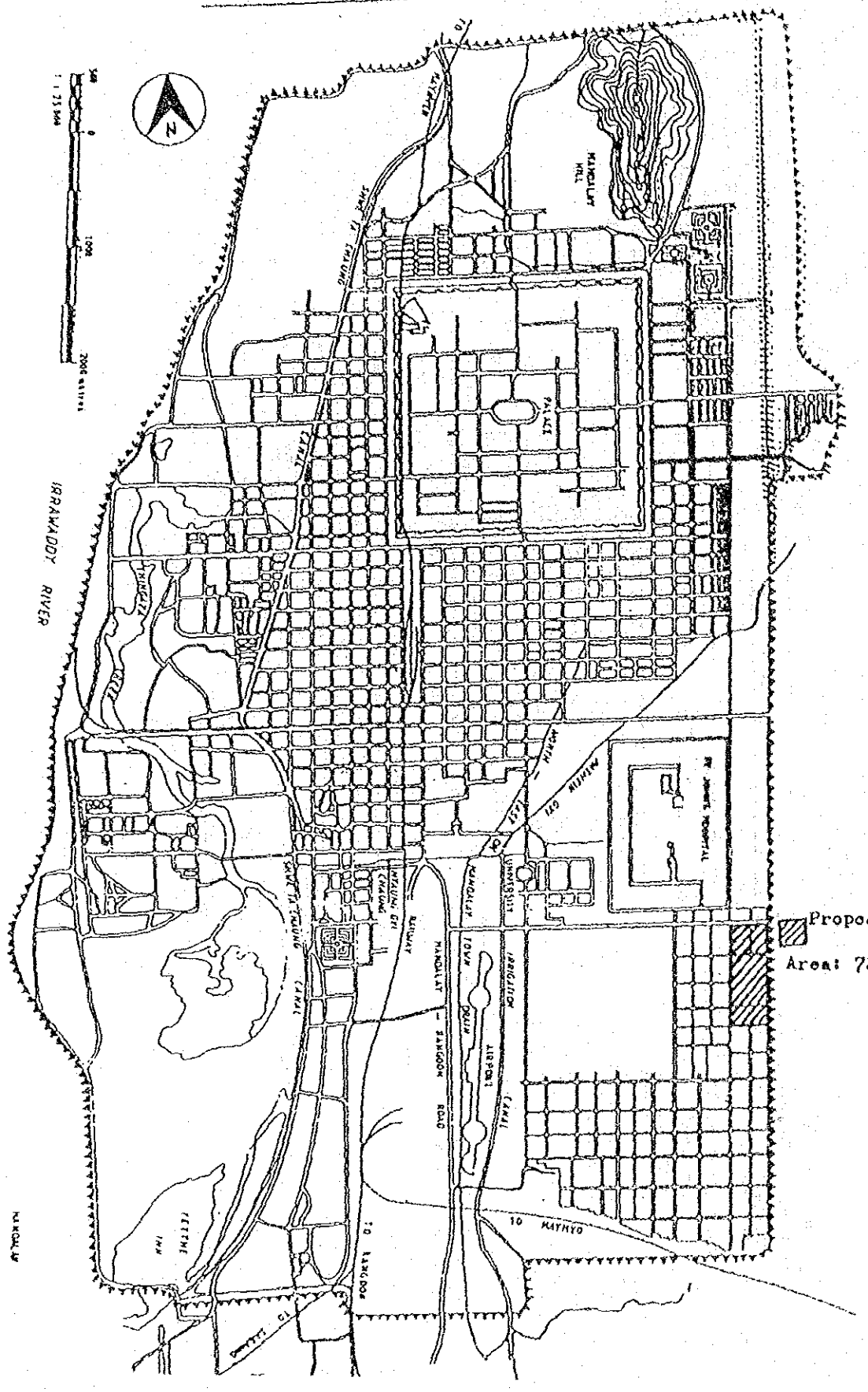
s)	Administration	900 "
t)	Operation	950 "
u)	CSSD	200 "
v)	ICU	415 "
w)	Ward - Surgery	1836 "
x)	Internal medicine	1836 "
y)	Corridor connecting	360 "
	TOTAL	18319 "

All calculations are based on Burmese standards and on the international norms as well as the statistical predictions from past experience in the building design methodology of recently built institutions.

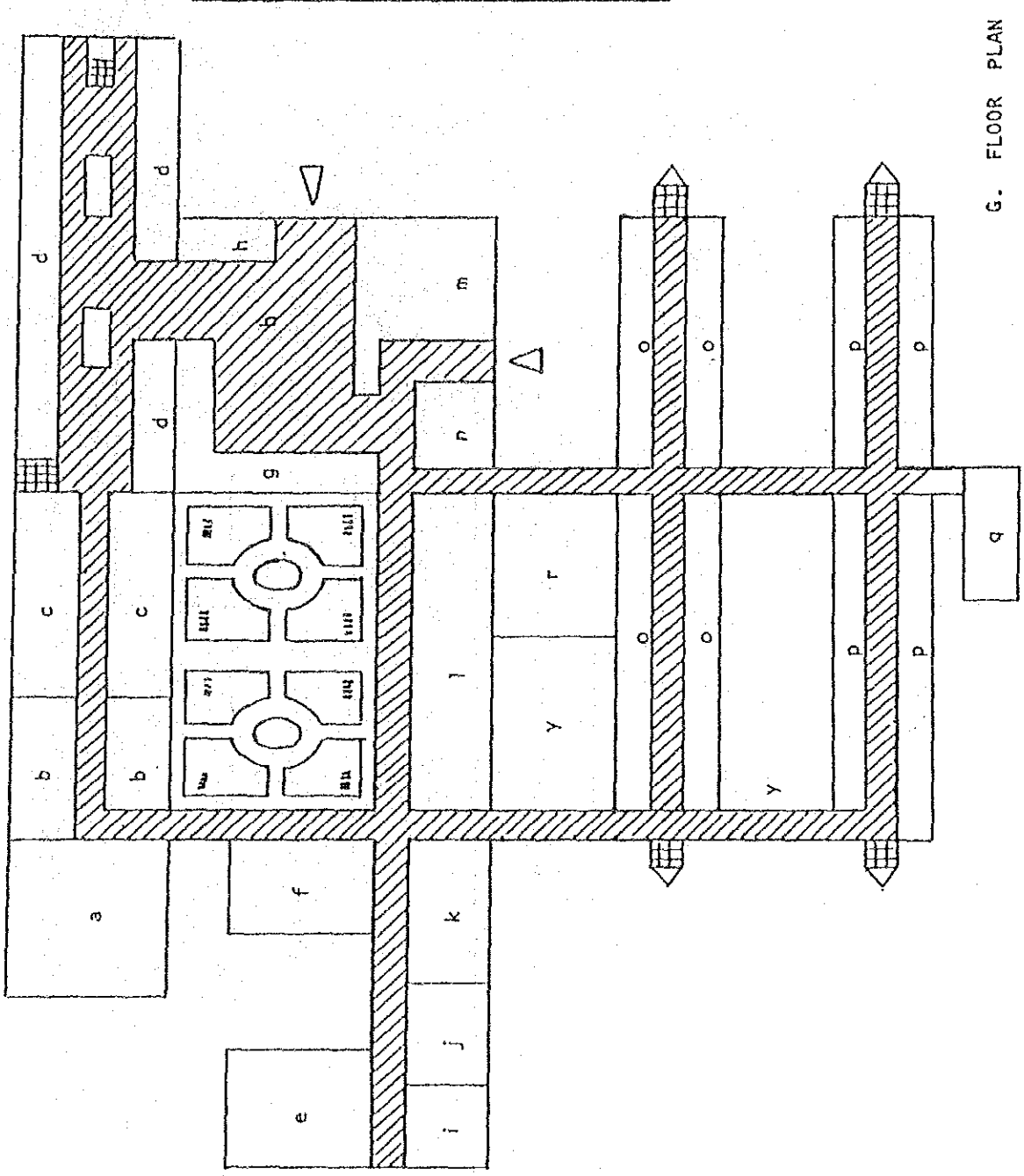
Proposed Organogram



MANDALAY TOWN MAP



ROUGH FLOOR PLAN OF PROPOSED HOSPITAL



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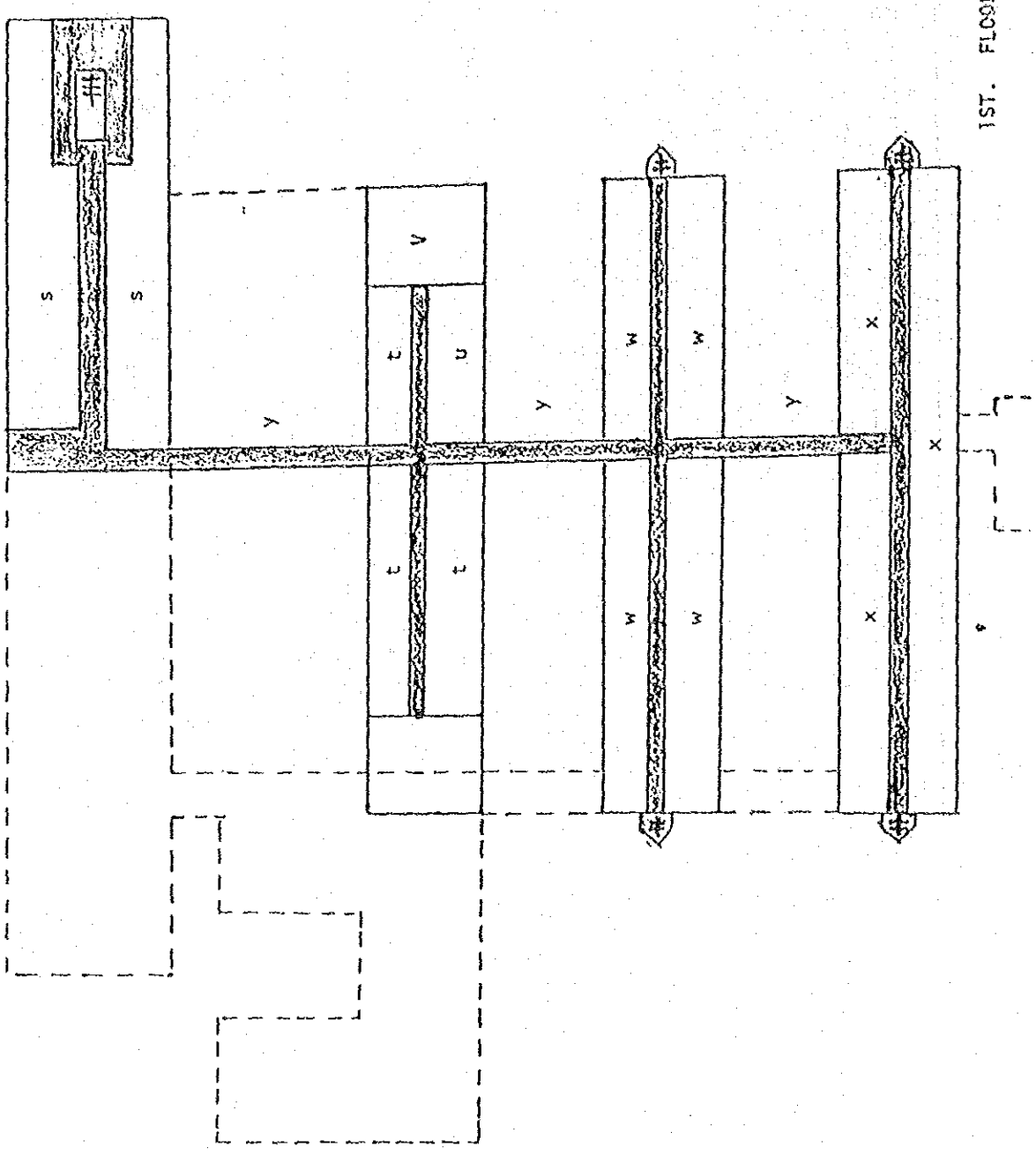
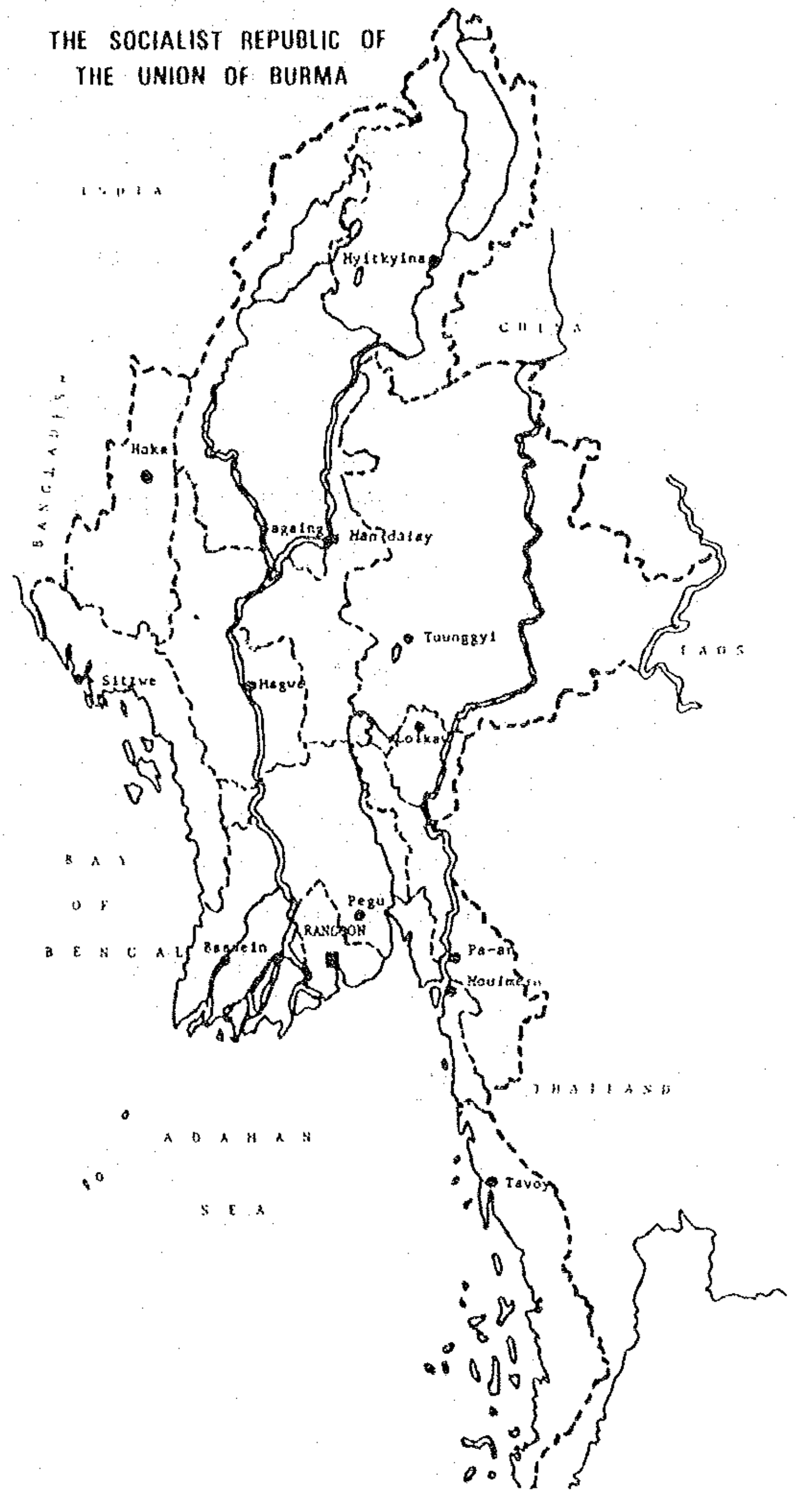


PROPOSAL

NEW GENERAL HOSPITAL MANDALAY

DEPARTMENT OF HEALTH

JUNE 1985


THE SOCIALIST REPUBLIC OF
THE UNION OF BURMA
Myitkyina
CHINA
Hoka
Mandalay
Taunggyi
LAOS
Sittwe
Magwe
Loikaw
BAY
OF
BENGAL
Pegu
Pa-an
THAILAND
Tavoy
SEA

CONTENTS

LIST OF ANNEXURES

PROPOSAL FOR CONSTRUCTION OF NEW MANDALAY GENERAL HOSPITAL

1. GENERAL INFORMATION

1.1 Geography and Climate

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General Fertility Rate : 114.7 per 1000 female population of age (15-49)

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1.3 Socio-economic Situation(1)

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(1) Source: Report to the Pyithu Hluttaw, 1985-86.

2. HEALTH AND HEALTH RELATED INFORMATION

2.1 National Health Policy

The National Plan for the Economic Development of Burma has the following health sector policies on the basis of the Health Policy Guidelines laid down by the Burma Socialist Programme Party:-

(1) To raise the health standards of the working people and to provide efficient treatment for all diseases within the country.

(2) To give priority to preventive measures.

(3) To narrow the gap between rural and urban areas in the availability of health services.

(4) To achieve progressive improvement in health facilities with more cooperation from the public.

(5) To bring about extension and improvements of social welfare services, including that of health which are commensurate with the economic progress of the country.

(6) To establish more hospitals, preventive and health centre; to extend curative, preventive and disease eradication programmes, to improve rural water supply and to sink more tube wells.

2.2 Health Planning Machinery

The framework of the Medium-term national health plan is provided by the long-term national plan for the socio-economic

development of Burma which covers the 20 year period from 1974-75 / 1993-94 comprising five medium term four-year plans.

2.3 Hospital Care Sector

(a) Objectives:- Provision of adequate and essential medical care for prevailing diseases and injuries in order to prevent or reduce the loss of production potentials of the citizens.

(b) Strategies:-

1. Expansion of total bed strength for hospital care to alleviate the shortage as population increase;
2. Improvement of the quality of hospital care services;
3. Development of an equitable communication and referral system;
4. Development of special care services dealing with emergency health problems.

3. HEALTH SITUATION, RESOURCES AND UTILIZATION

3.1 Health Service Organization

The delivery of Health Services is provided by the Department of Health, under the Ministry of Health. All categories of health care fall into three broad divisions, namely, Medical Care, Public Health Care, and Disease Control. These are supported by the Laboratory Services, the Health Statistics Section, Nutrition Project and the Bureau of Health Education. Other Section which also support the three categories of health care are Occupational Health, Environmental Sanitation, Port Health and Medical Social Work. The social security medical services are affiliated to the Health Department, as also the Services of Indigenous Medicine.

3.1.1 Hospital Services Whole of Burma

As on 31st. May 1985

No. of Hospital	: 620
No. of available beds	: 30326
Average number of in-patient per day	: 23724
Percentage of occupancy based on available beds	: 78%
Average turnover of patients per bed per year	: 33
Average duration of stay	: 8.7
Average number of out-patients per day	: 27824

3.2 Vital Statistics

(1) Crude birth rate is found to be 26.7 per 1000 population in 1982 according to household survey on morbidity, mortality and health care. The rural rate is computed as

28.3 which can be compared with the urban rate of 20.3. There was a sharp decline during last few years.

(2) According to the survey, crude death rate is 6.3 per 1000 population. (urban rate and rural rate being 5.0 and 6.6 respectively).

(3) Maternal mortality rate estimated from the survey results is found to be ranging from 0 - 4.6 per 1000 live births. According to vital statistics information from urban areas, the rate is 1.5 in 1980.

(4) Infant mortality rate is 40.5 per 1000 live births, the rural rate of 45.3 being higher than the urban rate of 14.7.

(5) Childhood (1-4 years) mortality rate is computed as 8.7 with its range of 6.6 to 10.8 per 1000 children (1-4 years of age). The rural and urban rates are also derived as 9.4 and 5.7 respectively.

3.3 Epidemiological Information

3.3.1 Morbidity and mortality patterns

(1) Leading causes of death in 158 towns in 1980 were in the order of the following causes:-

CAUSES OF MORTALITY	PERCENT
Senility without mention of psychosis	7.0
Diseases of the heart	4.5
Pneumonia	4.2
Intestinal infectious diseases	2.8
T.B. (all forms)	2.2
Certain conditions originating in the perinatal period	1.7
Cancer (all forms)	1.6
Accidents	0.8
Bronchitis, emphysema and asthma	1.04
Signs, symptoms and ill-defined condition	17.5

(2) Single leading causes of deaths treated in (435) Township Hospitals in 1981 were in the order of the following:-

CAUSES OF MORTALITY	PERCENT
Malaria	13.1
Pneumonia	10.3
Ill-defined intestinal infections	6.9
Pulmonary tuberculosis	4.8
Pyrexia of unknown origin	4.2
Toxic effects of substances chiefly non-medical as to source	3.3
Other diseases of digestive system	3.2
Tetanus	3.1
Other diseases of respiratory system	2.7
Other protein calorie malnutrition	2.1

(3) Single leading causes of out-patient morbidity from all out-patient departments in each of three seasons (Summer, Rainy, Winter) for 1981 based on 10% samples were in the order of the following:-

CAUSES OF MORBIDITY	NO.OF CASES	PERCENT
Pyrexia of unknown origin	1794	8.3
Ill-defined intestinal infections	1373	6.3
Supervision of pregnancy puerperium	1201	5.5
Other and unspecified anaemias	1181	5.5
Bronchitis, chronic and unspecified emphysema and asthma	1014	4.7
Malaria	994	4.6
Pulmonary tuberculosis	700	3.2
Debility unspecified	673	3.1
Other helminthiasis	646	3.0
Infections of skin and subcutaneous tissue	622	2.9
All other causes	11451	52.9
	21649	100.0

(4) Based on 10% samples of in-patients of 435 township Hospitals in 1981, single leading causes of morbidity were as follows:-

CAUSES OF MORBIDITY	NO.OF CASES	PERCENT	AVERAGE DURATION OF STAY (DAYS)
Malaria	110775	14.5	6.3
Normal delivery	59589	7.8	4.9
Ill-defined intestinal infections	49907	6.5	4.5
Pyrexia of unknown origin	32392	4.2	6.7
Unspecified abortion	28106	3.7	4.3
Pneumonia	19220	2.5	5.6
Certain traumatic complication and unspecified injuries	18244	2.4	6.9
Other diseases of respiratory system	17986	2.4	9.1
Other diseases of digestive system	16650	2.2	8.1
Bronchitis, chronic & unspecified emphysema and asthma	15315	2.0	8.4

4. INFORMATION ON PRESENT SITUATION

4.1 Mandalay division with a population of about 4.6 million constitutes 12.7% of the total population of Burma, whereas Rangoon Division, with a population of about 3.98 million represents 11% of the total population; yet the latter has better equipped hospitals, other health facilities as well as a good ratio of number of beds per stipulated population.

4.2 Mandalay, the largest city in Burma and being situated in the northern-central part of the country serves as a receiving centre for referrals from the whole of Upper Burma, viz., Sagaing Division, Chin State, Kachin State, part of Magwe Division and Mandalay Division itself. A total of 13 million population resides in this area.

Estimated Population likely to use Mandalay Hospital for Referral Services. (1983 Census Figures)

Sr.No.	Name of State/Division	Estimated Population
1.	Mandalay Division	4.60 million
2.	Magwe Division	3.25 million
3.	Sagaing Division	3.90 million
4.	Chin State	0.37 million
5.	Kachin State	0.91 million
	Total	13.03 million

The Rangoon General Hospital and the other 13 teaching and affiliated teaching hospitals have a total bed strength of 6150, while Mandalay General Hospital and two other teaching hospitals i.e., EENT Hospital and Workers' Hospital which is still under construction will have a combined bed strength of of only 1050.

4.3 Teaching and Affiliated Teaching Hospitals

Group (1) Teaching and Affiliated Teaching Hospitals in Rangoon.

(1)	Rangoon General Hospital	(1500 beds)
(2)	Central Women's Hospital	(800 beds)
(3)	Children's Hospital	(550 beds)
(4)	North Okkalapa Hospital	(250 beds)
(5)	East Rangoon Hospital	(200 beds)
(6)	West Rangoon Hospital	(200 beds)
(7)	Workers' Hospital	(200 beds)
(8)	EENT Hospital	(150 beds)
(9)	Orthopaedic Hospital	(400 beds)
(10)	Woman and Children Hospital, South Okkalapa	(150 beds)
(11)	Infectious Disease Hospital	(200 beds)
(12)	Aung San TB Hospital	(300 beds)
(13)	Hospital for the Disabled, Thamaing	(50 beds)
(14)	Psychiatric Hospital	(1200 beds)
	Total beds	(6150 beds)

Group (2) Teaching and Affiliated Teaching Hospitals in Mandalay.

(1)	Mandalay General Hospital	(800 beds)
(2)	EENT Hospital, Mandalay	(100 beds)
(3)	Workers' Hospital, Mandalay	(150 beds)
	Total beds	(1050 beds)

In terms of available beds per 1000 population, Rangoon Division has 2.01 beds and Mandalay Division has 0.72, which is less than half of Rangoon Division.

4.4 The Work load of existing Mandalay General Hospital

The percentage occupancy of 104% based on sanctioned beds is relatively high and shows that the hospital is overcrowded; but the average duration of stay of 8 days is a reasonable figure

for a General Hospital like MGH.

The average turnover of patients per year is 42, whereas the national figure for similar hospitals is 38.

Considering the multiple factors, it is apparent that the provision of extended number of beds and of referral facilities to such areas like Mandalay will not only lessen the congestion and workload imposed on the present existing hospitals there, but will also help avoidable referrals being referred to hospitals in Rangoon.

5. BASIC CONCEPT, PLANNING POLICIES AND GUIDELINES

5.1 Concept

5.1.1 The People's Health Programme when implemented as planned would cover the majority of the population by 1990. Medical Care Division and the hospital services as the backbone and the integral part of the primary and basic health care services must be prepared to cater the increasing demands for curative as well as referral services at all levels throughout the country.

5.1.2 To meet and provide those essential requisites and needs, as well as to attempt to provide the optimal upgraded services and the effective diagnostic facilities, primary firstline hospitals at township levels should be strengthened. These in turn should have access to and be supported by secondline hospitals of states and divisions which must likewise be backed up and supported by well equipped and staffed hospitals of national level which should be able to treat complex and serious cases those are beyond the capabilities at the lower level hospitals.

5.1.3 Geographically, two groups of such national level hospitals exists in Burma. One group is situated in Rangoon consisting of fourteen hospitals and the other is in Mandalay, comprising of only three hospitals one of which is still under construction. Apart from rendering medical care facilities and services, majority of those hospitals are centres for teaching of undergraduate and post-graduate medical students as well as nursing students.
Even though Mandalay which has a Medical School is the second largest city in Burma, the present number of teaching hospitals, available beds, teaching facilities, diagnostic tools and facilities to receive referrals are

too few and unsatisfactory; the need for strengthening and upgrading is obvious.

5.2 Guideline

The proposed hospital should be equipped to serve together with the existing Mandalay General Hospital as the main referral centre for central and upper Burma, a general hospital for Mandalay and adjacent areas and also function as part of a teaching centre for medical students and nursing staff.

The administrative and functional management will be in general conformity with the present system practiced in new Rangoon General Hospital.

With the provision of observation facilities for patients not warranting admission it wound minimise unnecessary admissions which would in turn permit a high rate of patient turnover in beds.

Since the practice of medicine is the best basis for the teaching and training of medical doctors, the design and facilities should meet those needs. For this reason, certain teaching facilities should be integrated as feasible as possible.

The hospital should comprise medicine, surgery, obstetric-gynaecology and prediatrics as four major service areas with supporting services and facilities. Efforts will be made to avoid breaking the services down into smaller and smaller subspecialities since this would lead to services, management and staffing problems. All subspeciality services will be integrated into main discipline and function as such with special interest.

Consideration will be made to avoid or minimise noise and other pollution. Landscaping and design of the hospital will be effected so as to permit future expansion and development.

5.3 Objectives

5.3.1 To build a hospital of approximately 318 beds and to device a system to allow the facilities in the entire hospital

complex to be harmonised to provide an integrated service for medical care and education.

5.3.2 To strengthen, augment and upgrade the teaching facilities of Mandalay Medical School and provide functional support in teaching. Thus one of the objectives of the planning mechanism is to design a hospital that would, with a minimal provision of basic teaching facilities would not only augment the needs for undergraduate and post-graduate teaching and training, but also will augment the service requirements.

5.3.3 To provide training facilities for nurses and midwives.

5.3.4 To serve basically as a general hospital with full facilities and complements for medicine, surgery, obstetrics-gynaecology and paediatrics. Diagnostic, auxiliary and support services and other components to facilitate such services will be provided.

5.3.5 To upgrade the quality of service through provision of appropriate and modern diagnostic facilities and to effectively be able to function as one of the principal referral hospitals in upper Burma.

6. BRIEF DESCRIPTION OF THE PROJECT

Title	: NEW MANDALAY GENERAL HOSPITAL.
Beds	: Approximately 318 beds.
Type of Hospital	: A General Hospital with teaching facilities.
Location	: Mandalay city.
Site	: South-East Mandalay.
Area	: 72.4 acres.
Responsible organization	: Ministry of Health.

7. SCOPE OF WORK AND FUNCTIONAL CONTENTS

7.1 The scope of work will roughly include all land and site cleaning, power and water supply, design and construction of all buildings and facilities for a general hospital of the proposed type as well as landscaping and equipping.

7.2 The outline of the functional contents of the hospital will roughly be grouped into:-

7.2.1 Wards for in-patients (Medicine, Surgery, Obstetrics/ gynaecology, Paediatrics)

7.2.2 Out-patient service department (including general out-patient clinic, specialist referral clinic, accident and emergency department, medical records department, patients waiting hall, dispensary, out-patient diagnostic facilities services, etc.)

7.2.3 Central diagnosis and treatment departments (including radiology department, laboratory, operation theatres, central sterile supply department, delivery suites, ICU, physiotherapy department, etc.)

7.2.4 Administration department (including various administrative offices).

7.2.5 Service department (including maintenance and repair workshops, service workshops, gas plant, supply depot, electicity and water supply, sewage and waste disposal, cooling system, communication and telephone system, transport and garages kitchen, laundry, etc.)

7.2.6 Teaching facilities.

7.3 The total floor area is estimated to be 15000 - 19000 square meters. These are rough estimates based on prediction out of past encounters. The estimates include case load, functional unit, net area, circulation allowances, communication corridors, etc.

7.4 Options for distribution of beds

7.4.1	Medical Department	78
7.4.2	Surgical Department	78
7.4.3	Obstetrics/gynaecology Department	78
7.4.4	Paediatrics Department	78
7.4.5	Intensive Care Unit	4
7.4.6	Cardiac beds for all patients attached to medical ward or other convient area	2

8. DESCRIPTION OF INDIVIDUAL PATIENT WARDS AND SERVICE DEPARTMENTS

8.1 Patient Wards

Medicine Department

All medical conditions including those related to diseases attributable to subspecialities will be admitted to this department. Breaking the services down into smaller subspecialities will be avoided. Provisional deployment for the ward is 78 beds.

Surgery Department

All surgical conditions including those conditions attributable to subsurgical specialities will be admitted to this ward. Provisional deployment of beds is 78.

Paediatrics Department

All children under 12 years of age with medical or surgical conditions will provisionally be admitted into this ward of 78 beds.

Obstetrics and Gynaecology Department

The provisional total beds for these conditions will be 78; the division of beds for each type of service will be made as necessary.

Intensive Care Unit

The scope of this unit is functionally related to all the Clinical Departments. There should be four beds for the critically ill patients. This would made the number of intensive care beds just over 1% of the total bed strength which is about the scale of provision in most of the modern hospitals.

Day/Observation Beds

About 8 observation/day beds are to be allocated close to out-patient/accident and emergency department. These would be used to house patients recovering from certain diagnostic or therapeutic procedures, not requiring admission or for those patients needing observation before being admitted to the wards or discharged as required; this would facilitate to relieve or minimise congestion in the wards.

Out-patient Service Department

The out-patient services department is to be sited as an integral part of the main hospital, so as to enable the patients to have easy access to the diagnostic and therapeutic facilities of the hospital. The medical records department, dispensary and patients waiting room should be incorporated.

Specialist Referral Clinics

These clinics will be held in or in close proximity of the out-patient departments for those cases referred from other hospitals and health centres.

Accident and Emergency Department

The Accident and Emergency Department will provide a 24 hours service. At night, when the main hospital theatres are closed, the services will include emergency surgery on those cases requiring surgical intervention.

Ideally this department should have:-

- good road access for vehicles.
- good reception and documentation facilities.
- spacious examination cubicles or areas.
- a spacious and well equipped resuscitation room.
- access to operating threatres and treatment room.
- access to intensive care unit.

- access to observation beds.
- access to emergency diagnostic facilities.
- circulation space to allow free flow of patient.

8.2 Diagnostic and Treatment Facilities

Physiotherapy Department

A physiotherapy department should be provided and it should render service to both in and out-patients.

Operating Theatre

Operating theatre suites either single or in group as necessary or convenient, adapted to the need of individual services should be made available. Ideally a minimum of four operating rooms should be provided in the main th eatres with an extra-room for spptic and unclean cases.

For emergency and certain accidents there should be a clean theatre and another theatre for minor surgery attached to A and E departments.

Diagnostic Radiology

The radiological equipment installed should be conducive to the needs of a modern hospital of such functional requirements. Even though ultra-sophistication is not needed, the facilities should include equipment to study chest, ort opaedic, gastro-intestinal, neuro, cardiovascular, urology, ultrasound, dark-room equipments and power stabilizing mechamisms. Detailed equipment list and the details of the scope of function is omitted in this paper.

Diagnostic Laboratories

The laboratories would perform routine diagnostic tests for the hospital patients and also will develop a wider national referral capability that will complement the work of the present Mandalay Hospital. Since it will have to bear the extended services there is a scope for the development of tissue typing

techniques, immunology, histochemistry, toxlology and hormone assay which in conjunction with available services of existing hospital would augment the diagnostic and therapeutic potential and the quality of service there.

Basically it should necessarily consists the following:-

Histopathology Division

This division includes diagnostic histopathology, cytology, histochemistry, cytogenetic immunopathology and tissue culture.

Chemical Pathology Division

Metabolic, lipids and enzyme, immunoprotein and hormone assay will be incorporated into this division.

Haematology Division

Will include anaemia, haemolytic diseases, haemorrhagic diseases and white cell disorders laboratory.

Microbiology Division

Microbiology, serology and mycology units will be part of the division.

Emergency Laboratory and Blood Issue Section

24 hours emergency service with appropriate basic facilities.

Mortuary and post-mortem

The design for the mortuary and post mortem rooms should include accommodation for teaching as well as for forensic post-mortem procedures. Air conditioning or cold storage for eight bodies should be provided.

Blood Bank

Since the location of this hospital is quite a distant from the existing blood bank at the Mandalay General

Hospital, certain facilties will have to be provided for blood receiving, storage and cross matching for emergencies even though a storage and issue section would be attached to the laboratories.

8.3 Medical Support Services

Central Sterile Supply Department (CSSD)

The aim of the CSSD is to provide a centralised service with high standards and good quality control to provide sterile packs of instruments and dressings to the operating theatres and other areas which need them. The department should operate on an industrial work flow pattern. The CSSD and the users should hold about three days reserve supply at all times of each type of pack used. Issues would normally be made on a 'top-up' basis to agreed stock holding level.

Pharmaecutical Services

The department will be responsible for the manufacture of sterile products, certain intravenous fluids and some drugs specially needed by the hospital other than those patented supplies. It will also be a distributing centre for the dispensaries.

Medical Records

A unified medical records system will be developed and is to be sited where most patients make their first contact with the hospital;preferably at the out-patient department.

Biomedical Engineering Workshop

Since the success or otherwise of the functions of the electronics and biomedical electrical equipment assisted diagnostic and therapeutic procedures will depend to a large extent on whether those equipment, are in good functional status, the

ability to maintain and repair these is the major factor that would decide the outcome of the results. Thus a purpose-built accommodation with repair facilities for servicing and repair of those becomes a necessity.

8.4 General Support Services

Central Administration

Except to provide a prupose built accommodation, no elaborate facilities are required.

Catering

The present practice regarding the method of provision of food for patients will generally be followed. Food will be produced in bulk and transported to wards in insulated trolleys. Plating will be done in the wards and containers would be returned unwashed to the kitchen. There should be storage facilities within the kitchen buildings for fresh, frozen and dry goods as well as an area for making up special diets.

Laundry

A central laundry similar to the one used for New Rangoon General Hospital should be provided.

Central Stores

A purpose-built central stores with enough space for a hospital of 300 bed and a reserve capacity for one month should be built.

Works Department

It should have the capacity to maintain, to an acceptable standard, the buildings, roads, plant and equipment of the whole complex. It should include an electrical workshop, a carpentry shop, plumbing, paint, mechanical and maintenance workshops. A garage and vehicle maintenance workshop could be incorporated into the whole system.

Water Supply

Since piping of water supply has not reached the chosen site, an underground tapping or other suitable source must be sought. A purification plant should be installed also.

Power Supply

The electricity needed for use in the hospital can be obtained from the available power source of the area. A stabilizer and transformer as installed in the New Rangoon General Hospital with a back-up emergency generator of about 300 kw is needed.

Other requirements

The facilities installed in New Rangoon General Hospital for cooling system, waste disposal system, sewage disposal and treatement plant, communication and telephone, transport etc. are in principle, applicable for this proposed hospital with modifications wherever necessary.

9. MEDICAL EQUIPMENT, INSTRUMENTS AND PRIORITIES

The list of equipment described in the basic design report for the General Hospital construction project Report No. 21 of March 1981 by JICA is basic. In that report, equipment as well as the number of each for Internal medicine, Surgery, operating room, emergency, anaesthesia and recovery, gynaecology, delivery, paediatrics, ward I, ward II, central sterile supply, pharmacy, radiology, clinical laboratory 1, 2, 3, 4, 5, 6, blood bank, autopsy room and conference rooms has been mentioned.

In practice, these equipment supplied are not sufficient or are deficient for even certain basic functions needed for the patients or intended tasks. Thus taking these factors as a basis, actual requirements of the type of each equipment and the number required should be discussed between the experts of each side.

10. OTHER FACILITIES

Library.

Rest rooms for medical officers, para medical technicians, nurses.

Conference rooms.

Recreation room.

Hospital canteen.

Residential facilities for various levels of staff.

Office equipment.

11. TEACHING FACILITIES

The Institute of Medicine in Mandalay is planned to receive 200 new students each year. Since the duration of training is seven years, total student population of the Institute at anyone time will range from 1400 - 1800; of which 800 - 1000 will be paraclinical and clinical students attached to hospitals.

Available general beds for teaching is about 1050 at present. With the addition of 320 beds it is hoped that the present shortage in student bed ratio will improve.

The required facilities for post and undergraduate medical students and nurses.

Gymnasium

Auditorium

Lecture rooms

Research facilities

Reference library

Clinical side rooms

Teaching aids

Communication and audio system

Staff rooms

Laboratories/Practical demonstration rooms

Tutorial cum seminar rooms attached to individual department.

Students common rooms

Clinical side rooms.

12. MANAGEMENT PLAN OF HOSPITAL

Organogram (Attached)

13. RECRUITING

Recruiting of all categories of staff will be effected by redeployment of existing personnel or by appointing additional staff as required.

14. TOTAL FLOOR AREA REQUIRED FOR THE WHOLE OF THE HOSPITAL COMPLEX

(See Annex rough floor plan)

GROUND FLOOR			
a)	Auditorium	800	M^2
b)	Rehabilitation	400	"
c)	X-ray room	776	"
d)	Out-patient department	2000	"
e)	Storage	307	"
f)	Canteen	307	"
g)	Pharmacy	192	"
h)	Entrance hall and reception	300	"
i)	Morgue	230	"
j)	Laundry	345	"
k)	Kitchen	400	"
l)	Central laboratory	792	"
m)	Out-patient laboratory	120	"
n)	Emergency	400	"
o)	Ward - Gynaecology	1836	"
p)	Pediatrics	1836	"
q)	Play room for children	153	"
r)	Delivery	448	"
FIRST FLOOR			
s)	Administration	900	"
t)	Operation	950	"
u)	CSSD	200	"
v)	ICU	415	"
w)	Ward - Surgery	1836	"
x)	Internal medicine	1836	"
y)	Corridor connecting	360	"
	TOTAL :	18319	"

All calculations are based on Burmese standards and on the international norms as well as the statistical predictions from past experience in the building design methodology of recently built institutions.

15. Essential Room, Space, Facility and Service Requirements for Various Depts.

15.1 Basic Medicine and Surgery Wards

Single bed rooms
Double bed rooms
Four bed room or bay
Multi bedded rooms
Waiting room for relatives and visitors
Doctor's room
Sister's room
Treatment room
Dressing room
Nurses room
Bath room and toilet
Clean utility room
Clean supply room
Dirty utility room
Trolley bay
Equipment store room
Duet and shute
Linen storage
Pantry

15.2 Maternity Department

Ante-natal

Waiting space
Sanitary facilities
Mothercraft and instruction room
Equipment stores
Registration and records office
Consulting, examination rooms
Clean utility room
Dirty utility room
Doctor's office
Sisters and nurses room
Staff sanitary facilities
Pram shelter

Maternity ward

As in surgical and medical wards plus

Milk kitchen
Nurseries
Sanitary facilities
Midwives station

Labour suite

First stage room
Delivery room
Sink room
Linen bay or cupboards
Clean utility room
Trolley space
Duty rooms

Operation Theatre Suite (If required)

Theatre
Anaesthetic room

15.3 Out patient Department

Basic Accomodation

Patient area
Staff base
Clean utility area
Staff room
Equipment store
Dirty utility/sluice room
Trolley bay
Toilet facilities
Treatment room
Examination room
Plaster room

Additional Accomodation

Laboratory/Clinical room
Communication
Functional unit - intensive therapy unit

15.4 Accident and Emergency Department

Departmental Accomodation

Entrance for stretcher patients
Entrance for Ambulant patients
Reception and discharge
Trolley and wheel chair store area
Waiting area, main and sub waiting
Toilet facilities
Interview room
Staff facilities and accomodation
Resuscitation room
Exam and treatment room

Clean utility and dirty utility rooms
Sluice and test room
Plaster room

Minor operating theatre suite and plaster room

Operating theatre
Anaesthetic room
Scrub-up and gowning area
Sink and disposal
Sterile supply room
Changing room for theatre staff
Storage
Plaster room storage
Sub waiting space

Preparation, recovery and short stay unit

Bed areas
Sluice and disposal
Clean utility area
Nurses' station
Pantry
Toilet facilities
Storage

Orthopaedic and Fracture Clinic

Consulting room
Examination and treatment cubicle
Plaster room stores
Subwaiting space
Storage

Additional Accomodation

Diagnostic X ray unit
Laboratory
Teaching room
Student's room

15.5 Opearating Department

Basic Accomodation

Theatre Suites and Related Rooms

Entrance and station
Reception/transfer area
Changing rooms (and sanitary facilities)

Rest room
Office for theatre incharge
Office for theatre sisters (where appropriate)
Scrub-up and gowning area
Theatre preparation room
Anaesthetic room
Operating theatre
Exit lobby
Disposal and cleaning area
Disposal corridor
Stores
Store for mobile X ray with dark room
Recovery area
Ancilliary rooms (clean and dirty utility)
for recovery room and reception/transfer area
Cleaner's room(s)

Theatre sterile supply unit (for department with no CSSD)

Receiving and cleaning area
Examination and storing area
Packing area
Sterilising area (including servicing area)
Storage for clean and sterile goods
Loading area
Delivery area

Sterile Store (where no TSSU is provided)

Storage for clean and sterile goods
Loading area

Additional Accomodation

Theatres for specialised branches for surgery
Monitoring rooms
Trolley store or waiting space
Laboratory
Anaesthetist's office
Endoscopy room
Plaster room
Workshop (Surgical and anaesthetic)
Room for cleaning and sterilising bulky equipment

15.6 Central Sterile Supply Department

Basic Accomodation

Trolley unloading bay
Clean-up, washing and drying room
Glove room
Syringe and instrument room
Bulk store
Linen store
Supervisor's office
Work, packing and autoclave room
Sterile store
Trolley loading bay
Lockers and toilet

Additional Accomodation

Rest room
Office
Bulk store
Cleaner's room
Autoclave for cleanup room

15.7 Pharmacy Department

Basic Accomodation

Dispensing Section

Dispensing area
Ante-room or bay
Out patient waiting and service area
Service area

Manufacturing Section

Bulk preparation room
Laboratory
Work-up

Sterile products Section

Work-up
Preparation room
Autoclave area
Inspection, labelling and storage
Aseptic room

Stores

Goods reception
External goods entrance
Store keeper's office
Goods receiving store
Returnable empties store
Dressing Store
Main drug store
Security store for dangerous drugs, poisons and drugs liable to misuse
Container store
Flammable store
Cool store

Staff

Chief pharmacists office
Deputy cheif pharmacists office
Combined technical information and seminar room
Clerk's office
Staff lavatories

Switchgear room

Additional Accomodation

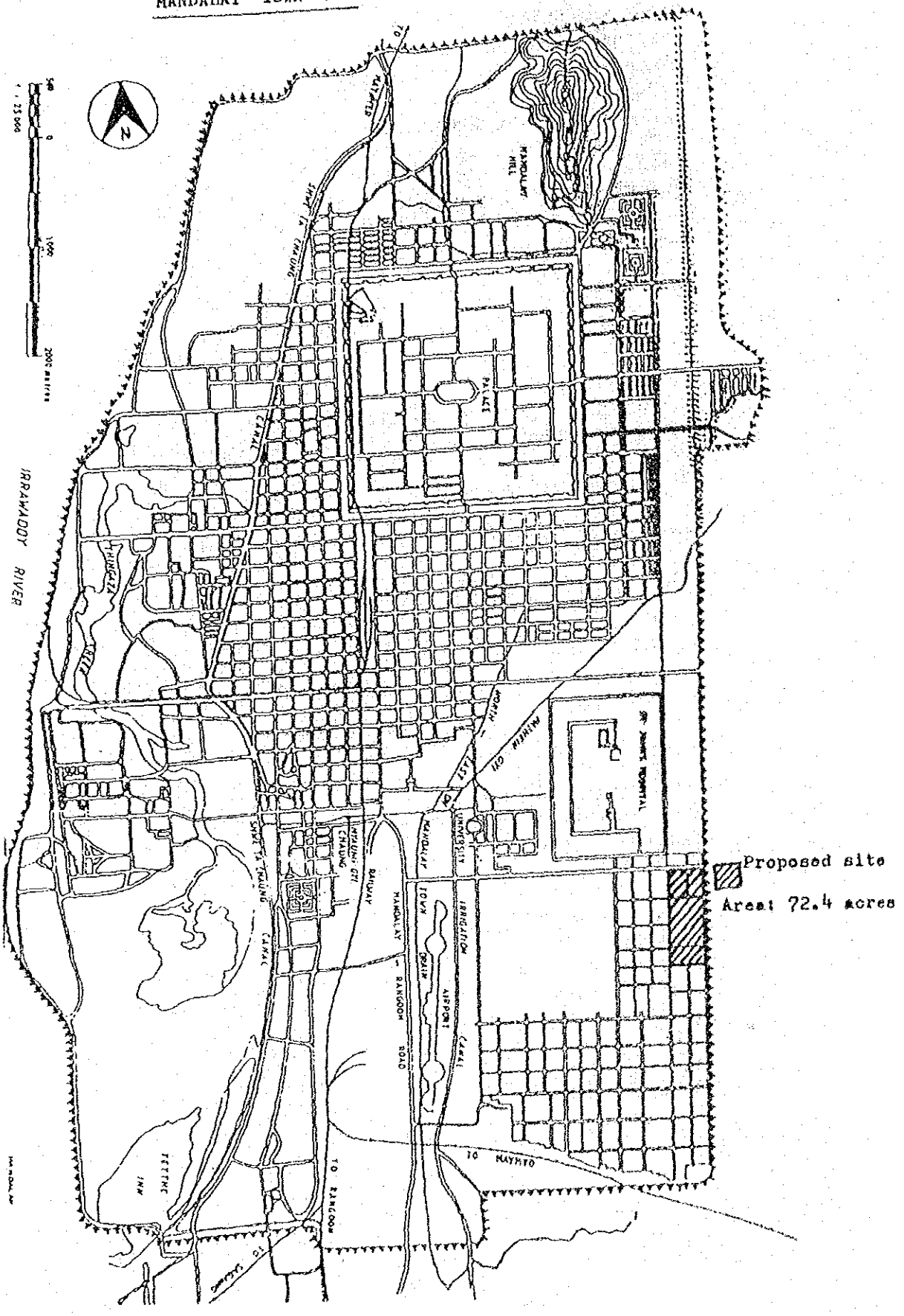
Staff room
Cylinder store

15.8 Kitchen Department

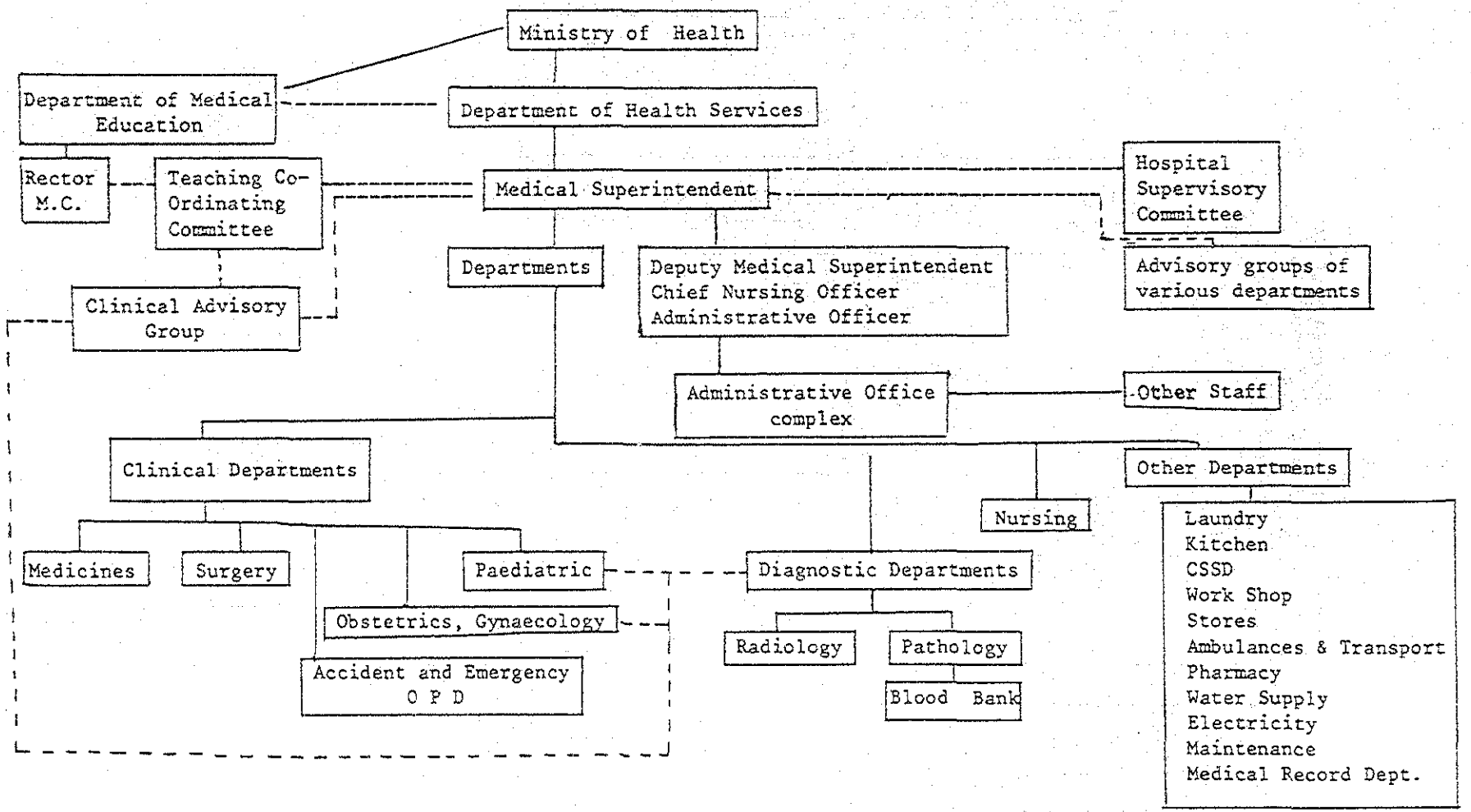
Basic Accomodation

Bulk store - dry goods
Bulk stores - other (cold)
Butcher's shop (cold)
Diet store
Day-to-day store
Vegetable store
Diet bay
Preparation area
Larder (cold)
Trolley park
Cooking rooms
Trolley wash
Central wash-up

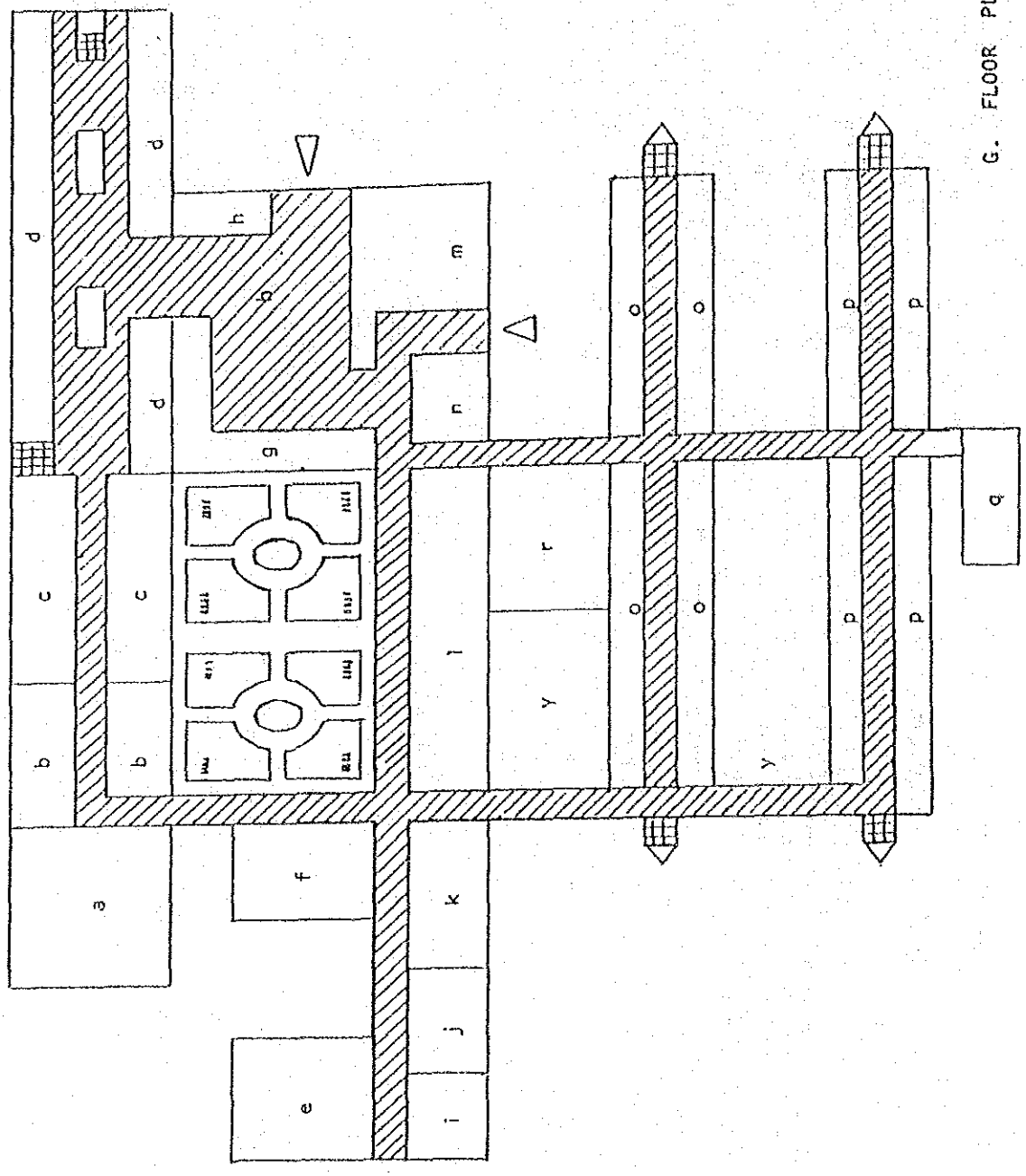
MANDALAY TOWN MAP



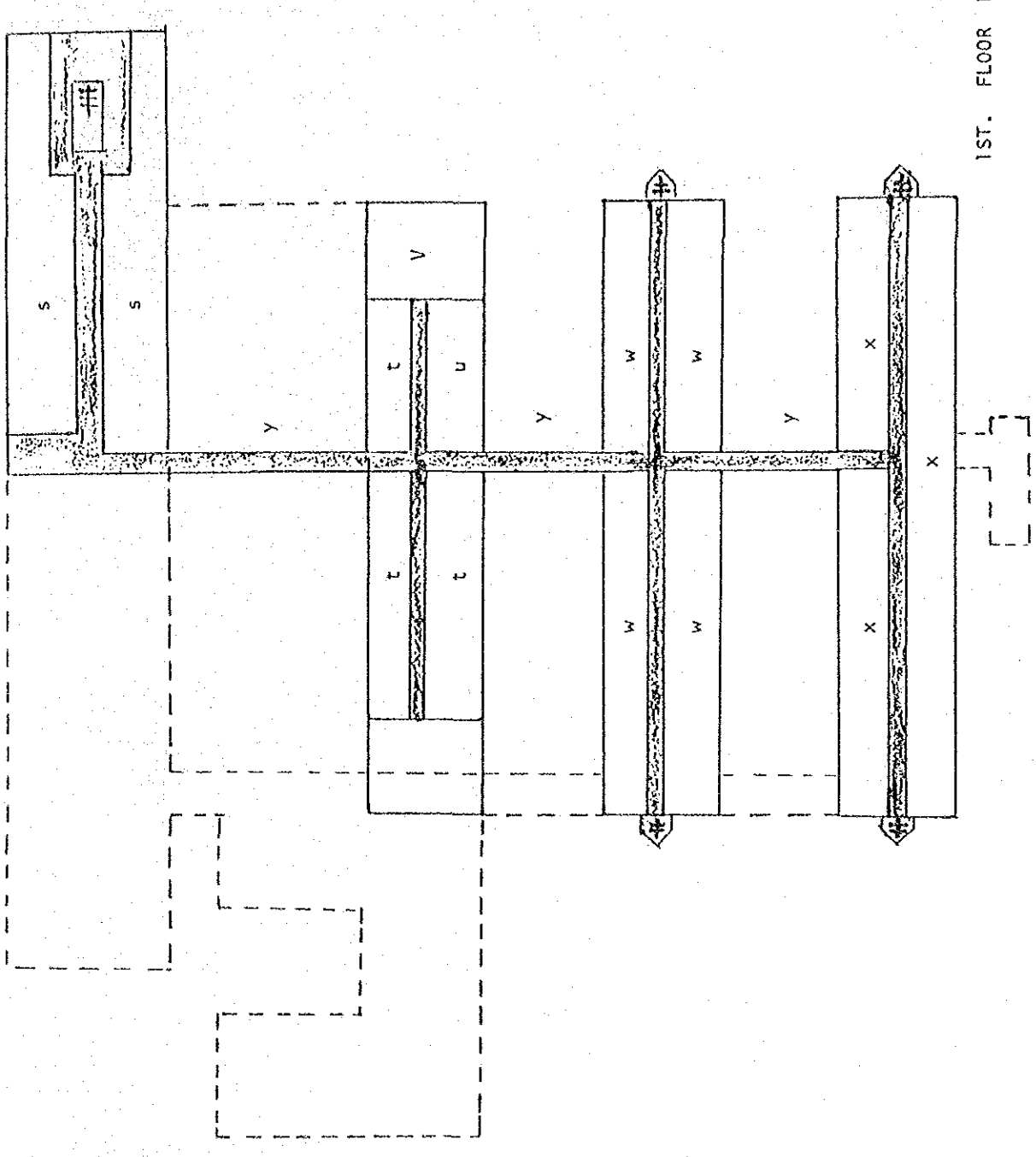
Proposed Organogram



ROUGH FLOOR PLAN OF PROPOSED HOSPITAL



ROUGH FLOOR PLAN OF PROPOSED HOSPITAL



MINISTRY OF HEALTH

DEPARTMENT OF HEALTH

BURMA

HEALTH INFORMATION BOOKLET

1985

Rangoon,
August, 1985.

Health Information Service,
Department of Health,
Ministry of Health

PREFACE

This booklet is the third in a series of publication under the title of " Health Information Booklet" . The first booklet was published in 1975 and the second in 1981.

The present publication, like the previous ones contains a wide range of up-dated demographic and general health information and it is hoped that the booklet will be a valuable ready reference for health personnel at different levels of health service organization.

Suggestion for the improvement of the Booklet, regarding either to it's content or format are welcome. Health Information Service will be very grateful if errors or discrepancies which this Booklet may contain are brought to it's notice.

Kyi Soe
Assistant Director
Health Statistics Division
Department of Health.

9 August 1985.

CONTENTS

TABLE .1.1. UNION POPULATION - 1983 (CENSUS FIGURES)

SR. NO.	DIVISION/STATE	NO. OF TOWNSHIPS	POPULATION		
			MALE	FEMALE	TOTAL
1.	Kachin State	18	448703	455279	903982
2.	Kayah State	6	85945	82410	168355
3.	Karen State	7	523380	534125	1057505
4.	Chin State	9	179048	189937	368985
5.	Sagaing Division	38	1882275	1973716	3855991
6.	Mon State	10	832980	849061	1682041
7.	Tenasserim Division	10	461062	456566	917628
8.	Pegu Division	28	1888105	1912135	3800240
9.	Magwe Division	25	1588321	1652782	3241103
10.	Mandalay Division	29	2257958	2322965	4580923
11.	Rakhine State	17	1011826	1034065	2045891
12.	Rangoon Division	39	2002532	1971250	3973782
13.	Shan State	52	1858418	1860288	3718706
14.	Irrawaddy Division	26	2487284	2503773	4991057
	TOTAL	314	17507837	17798352	35306189
	Burmese citizens abroad at the time of census	...	5704	2012	7716
	GRAND TOTAL	314	17513541	17800364	35313905

Rate of Natural Increase 1983 = 2.02 percent.
Source:- Immigration & Manpower Department, Ministry of Home Affairs.

TABLE 1.2. CENSUS POPULATION 1973 and 1983, FOR RANGOON DIVISION.

(Figure in 1000)

SR. NO.	TOWNSHIP	1973 (C.F.)	1983 (C.F.)
1.	Kamayut	67.2	75.2
2.	Kyauktada	37.7	37.6
3.	Kemmendine	64.3	69.9
4.	Sanchaung	66.5	68.8
5.	Seikkan	7.7	5.2
6.	Seikkyi (Kanaungto)	12.5	15.3
7.	Tamwe	106.7	119.9
8.	South Okkalapa	149.4	183.2
9.	Dagon	35.6	35.5
10.	Dallah	43.4	54.1
11.	Dawbon	37.4	49.8
12.	Pabedan	40.7	41.9
13.	Pazundaung	34.7	38.8
14.	Bahan	85.7	102.0
15.	Botataung	44.0	49.1
16.	Mingalataungnyunt	96.3	110.5
17.	Mingaladon	90.5	124.8
18.	Mayangon	108.8	152.6
19.	North Okkalapa	155.3	190.9
20.	Yankin	68.8	82.7
21.	Latha	31.6	308.5
22.	Lanmadaw	42.7	41.7
23.	Hlaing	131.6	172.0
24.	Thaketa	145.9	193.1
25.	Thingangyun	141.3	193.9
26.	Ahlone	46.6	51.8
27.	Insein	162.5	221.5
28.	Co Co Island	0.8	1.0
29.	Kyauktan	90.5	115.1
30.	Kungyangone	68.4	89.9
31.	Kawhmu	73.1	95.0
32.	Kayan	104.4	131.4
33.	Twante	151.3	189.7
34.	Taikkyi	139.3	170.7
35.	Htantabin	76.7	97.4
36.	Hmawbi	95.7	129.2
37.	Hlegu	140.8	198.0
38.	Syriam	90.3	113.2
39.	Thongwa	100.4	128.4
	TOTAL	3187.1	3973.7

Source:- Immigration & Manpower Department, Ministry of Home Affairs.

UNION OF BURMA

TABLE 1.3. ESTIMATES ON POPULATION GROWTH (1974-75 to 1983-84)

SR. NO.	YEAR	TOTAL POPULATION (THOUSAND)	ANNUAL GROWTH RATE
1.	1974-75	29778	2.05
2.	1975-76	30389	2.05
3.	1976-77	31009	2.04
4.	1977-78	31642	2.04
5.	1978-79	32284	2.03
6.	1979-80	32939	2.03
7.	1980-81	33608	2.03
8.	1981-82	34287	2.02
9.	1982-83	34976	2.01
10.	1983-84	35680	2.01

Source:- Report to the Pyithu Hluttaw, 1984-85.

TABLE 1.4. UNION OF BURMA ESTIMATED POPULATION BY AGE AND SEX (1973-74 to 1983-84)

(In thousand)

SR. NO.	AGE	1973-74	1979-80	1980-81	1981-82	1982-83	1983-84
1.	0 - 14 years	12170	12918	13028	13138	13247	13356
	1. Male	6122	6488	6543	6597	6650	6703
	2. Female	6048	6430	6485	6541	6597	6653
2.	15 - 59 years	15278	17953	18443	18947	19457	19983
	1. Male	7550	8881	9125	9376	9629	9891
	2. Female	7728	9072	9318	9571	9828	10092
3.	60 years and above	1731	2068	2137	2202	2272	2341
	1. Male	829	981	1012	1041	1073	1104
	2. Female	902	1087	1125	1161	1199	1237
4.	TOTAL	29179	32939	33608	34287	34976	35680
	1. Male	14501	16350	16680	17014	17352	17698
	2. Female	14678	16589	16928	17273	17624	17982

Source:- Report to the Pyithu Hluttaw, 1984-85.

UNION OF BURMA

TABLE .1.5. STRUCTURAL CHANGES BY AGE GROUP IN POPULATION

(Percentage)

SR. NO.	AGE	1973-74	1983-84
1.	0 - 14 years	41.71	37.43
	1. Male	42.22	37.87
	2. Female	41.20	37.00
2.	15 - 59 years	52.36	56.01
	1. Male	52.07	55.89
	2. Female	52.65	56.12
3.	60 years and above	5.93	6.56
	1. Male	5.71	6.24
	2. Female	6.15	6.88
4.	TOTAL	100.00	100.00
	1. Male	100.00	100.00
	2. Female	100.00	100.00

Source:- Report to the Pyithu Hluttaw, 1984-85.

TABLE 1.5(a) POPULATION PROJECTIONS 1983-1991

No.	Divisions	1983	1984			1985			1986			1987		
			Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
1	Rangoon	3973782	4057629	423616	3634013	4143245	432554	3710691	4230667	441681	3788986	4319934	451001	3868933
2	Mandalay	4580923	4677580	488339	4189241	4776277	498643	4277634	4877057	509164	4367893	4979963	519908	4460055
3	Sagaing	3855991	3937352	411059	3526293	4020431	419732	3600699	4105262	428589	3676673	4191883	437632	3754251
4	Magwe	3241103	3309490	345510	2963980	3379321	352801	3026520	3450624	360245	3090379	3523432	367846	3155586
5	Pegu	3800240	3880425	405116	3475309	3962302	413664	3548638	4045907	422392	3623515	4131275	431305	3699970
6	Tenassarim	917628	936990	97821	839169	956760	99885	856875	976948	101993	874955	997562	104145	893417
7	Irrawaddy	4991057	5096368	532060	4564308	5203902	543287	4660615	5313704	554750	4758954	5425823	566455	4859368
8	Rahkine	2045891	2089059	218097	1870962	2133138	222699	1910439	2178148	227398	1950750	2224107	232196	1991911
9	Mon	1682041	1717532	179310	1538222	1753772	183093	1570679	1790777	186957	1603820	1828562	190901	1637661
10	Chin	368905	376771	39334	337437	384720	40164	344556	392838	41012	351826	401127	41877	359250
11	Kachin	903952	923056	96367	826689	942533	98400	844133	962420	100476	861944	982727	102596	880131
12	Shan	3718706	3797171	396424	3400747	3877291	404789	3472502	3959102	413330	3545772	4042639	422051	3620588
13	Kayah	158355	171907	17947	153960	175535	18325	157210	179238	18712	160526	183020	19107	163913
14	Karen	1057505	1079818	112733	967085	1102603	115111	987492	1125667	117540	1008327	1149623	120020	1029603
		35306189	36051150	3763740	32287410	36811829	3843154	32968675	37588558	3924245	33664313	38381677	4007047	34374630

No.	Divisions	1987	1988			1989			1990			1991		
			Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
1	Rangoon	4304734	4391679	1051807	3339872	4480391	1073053	3407338	4570895	1094729	3476166	4663227	1116842	3546385
2	Mandalay	4967429	5062070	1212509	3850161	5164936	1237002	3927934	5269267	1261989	4007278	5375706	1287481	4088225
3	Sagaing	4177122	4261501	1020629	3240872	4347583	1041246	3306337	4435405	1062279	3373126	4525000	1083737	3441263
4	Magwe	3511027	3581349	857876	2724073	3654305	875205	2779100	3728122	892885	2835237	3803430	910921	2892509
5	Pegu	4116729	4199887	1005872	3194015	4284725	1026191	3258534	4371276	1046920	3324356	4459576	1068068	3391508
6	Tenassarim	994049	1014129	242883	771246	1034615	247790	786825	1055514	252795	802719	1076835	257902	818933
7	Irrawaddy	5406719	5515935	1321066	4194869	5627357	1347751	4279606	5741029	1374976	4366053	5856998	1402751	4454247
8	Rahkine	2216276	2261044	541520	1719524	2306717	552458	1754259	2353313	563618	1789695	2400850	575003	1825847
9	Mon	1822124	1858931	445213	1413718	1896481	454207	1442274	1934790	463382	1471408	1973873	472742	1501131
10	Chin	399715	407789	97665	310124	416026	99638	316388	424430	101650	322780	433003	103704	329299
11	Kachin	979967	999948	239972	759976	1019229	244105	775124	1039817	249036	790781	1060822	254066	806756
12	Shan	4030405	4109779	984292	3125487	4192796	1004174	3188622	4277491	1024459	3253032	4363896	1045153	3318743
13	Kayah	182376	186000	44561	141439	189818	45461	144357	193653	46379	147274	197564	47316	150248
14	Karen	1145575	1168716	279907	888809	1192324	285561	906763	1216409	291329	925080	1240981	297214	943767
		35246537	39019117	9345078	29674039	39807303	9533849	30273454	40611411	9726432	30884979	41431761	9922906	31508855
			0	0	0	0	0	0	0	0	0	0	0	0

5(a)

UNION OF BURMA

TABLE 2.1. VITAL STATISTICS RATES FOR 1940 TO 1980
(for selected townships only)

PERIOD	LIVE BIRTHS		DEATHS		INFANT MORTALITY	
	NUMBER	CRUDE RATE PER 1000 POPULATION	NUMBER	CRUDE RATE PER 1000 POPULATION	NUMBER	RATE PER 1000 LIVE BIRTHS
1940	51763	36.6	55798	39.5	14116	272.7
1950	47030	39.6	55616	46.8	14297	304.0
1955	77987	36.6	44152	20.7	13716	175.9
1960	86206	42.3	40668	20.0	12807	148.6
1965	135958	41.3	53991	16.4	15640	115.0
1970	183427	37.6	50494	10.4	10228	55.8
1971	195007	39.2	54338	10.9	11258	57.7
1972	191998	38.0	54864	10.9	11322	59.0
1973	187003	22.5	57740	9.5	9835	49.9
1974	198016	34.1	60822	10.5	9769	49.3
1975	185413	29.7	63052	10.1	9614	51.9
1976	176111	28.2	60938	9.8	8669	49.2
1977	162826	27.2	54589	9.1	8278	50.8
1978	181848	27.0	57614	8.6	8356	46.0
1979	191221	27.8	59530	8.6	8837	46.2
1980	184378	26.9	55462	8.1	8110	44.0

TABLE 2.2 INFANT DEATHS AND INFANT MORTALITY RATE BY AGE AND SEX DURING 1980

(Rate per 1,000 live births)

AGE GROUP OF INFANTS	INFANT DEATHS			INFANT MORTALITY RATE		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Total under one year	8110	4418	3692	44.0	46.8	41.0
Under 1 day	265	146	119	1.4	1.5	1.3
1 - 6 days	2255	1295	960	12.2	13.7	10.7
7 - 27 days	1868	1015	853	10.1	10.8	9.5
Total under 28 days	4388	2456	1932	23.8	26.0	21.5
28 days and under 3 months	1176	660	516	6.4	7.0	5.7
3 - 5 months	1058	548	510	5.7	5.8	5.7
6 - 8 months	782	393	389	4.2	4.2	4.3
9 - 11 months	581	297	284	3.2	3.1	3.2
Not stated	125	64	61	0.7	0.7	0.7

VITAL STATISTICS REGISTRATION

TABLE 2.3. PERSONS CERTIFYING CAUSES OF DEATH & THEIR PERCENTAGE FOR 146 TOWNS DURING 1980

SR. NO.	TYPE OF CERTIFIER	DEATHS	
		NUMBER	PERCENTAGE
1.	Registered doctor	21893	39.47
2.	Medical registrar	13688	24.68
3.	Other registered doctor not in attendance	7660	13.81
4.	Other persons	12221	22.04
	GRAND TOTAL	55462	100.00

TABLE 2.4. FERTILITY RATES BY AGE 1971 AND 1978

AGE GROUP	(1971) AGE SPECIFIC FERTILITY RATE	(1971) GROSS REPRO-DUCTION RATE	(1971) NET REPRO-DUCTION RATE	(1978)* AGE SPECIFIC FERTILITY RATE	(1978)* GROSS REPOR-DUCTION RATE	(1978)* NET REPOR-DUCTION RATE
15 - 19	79.44	.21525	.18566	50.01	.12349	.11256
20 - 24	246.42	.59620	.50781	189.10	.46674	.42121
25 - 29	276.63	.62515	.52484	207.80	.50772	.45210
30 - 34	225.69	.55785	.45993	149.18	.36579	.32052
35 - 39	196.20	.43480	.34948	96.86	.23810	.20505
40 - 44	77.21	.15855	.12340	44.66	.11145	.09398
45 - 49	9.35	.01755	.01318	7.75	.01874	.01539
		2.60535	2.20430		1.83203	1.62081

1. General Fertility Rate = $\frac{\text{No.of life births in 1 year}}{\text{No.of women in age group (15 - 49 years)}} \times 1000$

2. Gross Reproduction Rate

It is the sum of age-specific fertility rates calculated from female births for each single year of age. If the age-specific rates are not available for single years of life but only for age-groups, each such rate should first be multiplied by the No.of years covered by the age group before being added. A rate of 1 would indicate that on the basis of current fertility and without any mortality, the present generation of childbearing women would maintain itself exactly.

3. Net Reproduction Rate

It is obtained by multiplying the female specific fertility rates of each age by the proportion of female survivors to that age in a life-table and adding up the products. A net production of 1, indicates that on the basis of the current fertility and female mortality, the present female generation is exactly maintaining itself.

* NOTE:- General Fertility Rate = 114.69, Gross Reproduction Rate = 1.83, Net Reproduction Rate = 1.62.

TABLE 2.5. AGE SPECIFIC DEATH RATE FOR 164 TOWNS DURING 1975 AND 158 TOWNS DURING 1980

(Rate per 1000 population in each age group)

AGE GROUP	AGE SPECIFIC DEATH RATE (A S D R) 1975	AGE SPECIFIC DEATH RATE (A S D R) 1980
Under 1 year	51.2	36.2
1 - 4 years	13.1	7.5
5 - 9 "	4.4	2.5
10 - 14 "	1.7	1.3
15 - 19 "	2.4	1.9
20 - 24 "	2.9	2.9
25 - 29 "	3.6	3.3
30 - 34 "	4.2	3.7
35 - 39 "	5.9	3.9
40 - 44 "	8.1	6.3
45 - 49 "	10.4	8.7
50 - 54 "	14.2	12.0
55 - 59 "	18.5	17.4
60 - 64 "	28.7	26.4
65 - 69 "	36.8	37.0
70 - 74 "	58.3	52.4
75 - 79 "	91.2	90.0
80 - 84 "	132.5	137.4
85 + over	220.2	215.3

TABLE 2.6. ABRIDGED LIVE TABLE FOR BURMA (URBAN)

SR. NO.	AGE GROUP	EXPECTATION OF LIFE IN YEARS									
		1921-193'		1954		1965		1971		1979	
		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
1.	0 - 1	30.6	31.0	40.8	43.8	47.1	50.0	55.9	59.1	59.3	64.0
2.	1 - 4	38.6	37.8	49.8	51.6	54.2	56.3	59.0	61.9	60.8	65.3
3.	5 - 9	42.6	40.7	49.1	50.3	53.4	56.1	57.8	61.1	59.0	63.8
4.	10 - 14	39.6	37.2	45.5	47.0	49.5	52.4	53.8	57.2	54.9	59.6
5.	15 - 19	35.8	33.4	41.1	42.6	45.1	47.9	49.3	52.7	50.3	55.0
6.	20 - 24	32.5	30.4	36.8	38.3	40.7	43.5	44.9	48.2	45.9	50.5
7.	25 - 29	29.4	28.0	32.8	34.5	36.5	39.6	40.5	43.9	41.5	46.1
8.	30 - 34	26.3	25.8	28.6	30.7	32.5	35.6	36.1	39.5	37.3	41.8
9.	35 - 39	23.4	23.6	24.9	27.3	28.6	31.5	31.9	35.3	33.0	37.5
10.	40 - 44	20.9	21.7	21.1	23.7	25.0	27.4	28.0	31.3	28.9	33.3
11.	45 - 49	18.5	19.0	17.7	22.3	21.6	24.7	24.2	27.3	24.9	29.1
12.	50 - 54	16.0	16.6	14.1	18.8	18.5	2 .0	20.6	23.2	21.3	25.1
13.	55 - 59	13.5	14.2	13.7	15.9	15.6	1 .4	17.3	19.4	17.9	21.3
14.	60 - 64	11.0	11.6	10.6	12.4	12.3	14.1	14.2	15.9	14.6	17.6
15.	65 - 69	8.7	9.2	...	...	9.9	11.4	11.5	12.7	11.8	14.3
16.	70 - 74	6.5	6.8	6.3	7.3	7.3	8.8	8.9	9.8	9.2	11.2
17.	75 - 79	4.7	5.0	...	...	5.0	6.5	6.8	7.9	6.9	8.6
18.	80 - 84	3.3	3.5	3.0	3.7	2.0	4.3	4.7	4.8	5.0	6.5
19.	85 +	2.3	2.4	...	...	1.8	2.0	2.4	2.5	3.8	5.3

Source:- Vital Statistics Report.

VITAL STATISTICS REGISTRATION

TABLE 2.7 LIVE BIRTHS AND PROPORTIONAL LIVE-BIRTH RATE BY PLACE OF OCCURRENCE AND SEX IN EXTENDED RANGOON DURING 1980.

SR. NO.	PLACE OF OCCURRENCE	LIVE - BIRTHS			PROPORTIONAL LIVE-BIRTH RATE		
		TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
	T O T A L	61266	31170	30096	100.0	100.0	100.0
1.	Kamayut	2843	1444	1399	4.6	4.6	4.7
2.	Kyauktada	870	437	433	1.4	1.4	1.4
3.	Kemmendine	1873	960	913	3.0	3.1	3.0
4.	Sanchaung	1381	704	677	2.2	2.3	2.3
5.	Seikkan(Port Area)	21	11	10	0.03	0.04	0.03
6.	Seikkyi/Kanaungto	520	269	251	0.8	0.9	0.8
7.	Tamwe	2841	1479	1362	4.6	4.7	4.5
8.	South Okkalapa	4591	2301	2290	7.5	7.4	7.6
9.	Dagon	753	379	374	1.2	1.2	1.2
10.	Dallah	1764	853	911	2.9	2.7	3.0
11.	Dawbon	1350	693	657	2.2	2.2	2.2
12.	Pabedan	923	440	483	1.5	1.4	1.6
13.	Pazundaung	937	473	464	1.5	1.5	1.5
14.	Bahan	2185	1126	1059	3.6	3.6	3.5
15.	Botataung	1210	611	599	2.0	2.0	2.0
16.	Hingala Taungnyunt	2615	1337	1287	4.3	4.3	4.3
17.	Mingaladon	3420	1770	1650	5.6	5.7	5.5
18.	Mayangone	3016	1545	1471	4.9	5.0	4.9
19.	North Okkalapa	4943	2499	2444	8.1	8.0	8.1
20.	Yankin	1736	893	843	2.8	2.9	2.8
21.	Latha	616	322	294	1.0	1.0	1.0
22.	Lanmadaw	1087	555	532	1.8	1.8	1.8
23.	Hlaing	3148	1623	1525	5.1	5.2	5.1
24.	Thaketa	5955	3047	2908	9.7	9.8	9.7
25.	Thingangyun	4555	2317	2238	7.4	7.4	7.4
26.	Ahlone	1274	649	625	2.1	2.1	2.1
27.	Insein	4711	2368	2343	7.7	7.6	7.8
	Not stated	128	65	63	0.2	0.2	0.2

TABLE 2.8 DISTRIBUTION OF LIVE BIRTHS BY INSTITUTION 1979 AND 1980

SR. NO.	INSTITUTION	1979				1980			
		RANGOON	PERCENT	(158) Towns	PERCENT	RANGOON	PERCENT	(146) Towns	PERCENT
1.	Home Delivery	27267	44.4	120154	62.8	20674	33.7	106480	57.7
2.	Government Hospital	31140	50.8	67549	35.3	36921	60.3	72743	39.5
3.	Private Hospital or Nursing Home	2901	4.7	3356	1.8	3654	6.0	5092	2.8
4.	Elsewhere	56	0.1	162	0.1	17	0.03	63	0.03
	TOTAL	61364	100.0	191221	100.0	61266	100.0	184378	100.0

TABLE 2.9 DISTRIBUTION OF LIVE BIRTHS BY ATTENDANT, 1979 AND 1980.

SR. NO.	ATTENDANT	1979				1980			
		RANGOON	PERCENT	(158) Towns	PERCENT	RANGOON	PERCENT	(146) Towns	PERCENT
1.	Doctor	38363	62.5	74772	39.1	39809	65.0	72413	39.3
2.	Registered Midwife or Nurse	18970	30.9	87905	46.0	17656	28.8	85375	46.3
3.	Indigenous Midwife	3951	6.5	13575	7.1	3783	6.2	7580	4.1
4.	Other	80	0.1	14969	7.8	18	0.02	19010	10.3
	TOTAL	61364	100.0	191221	100.0	61266	100.0	184378	100.0

TABLE 2.10. SEASONAL DISTRIBUTION OF BIRTHS(LIVE + STILL) EXPERIENCED IN THE HOSPITALS IN RANGOON HEALTH DIVISION, 1979.

MONTHS	YEAR 1979	PERCENT
January	2789	8.2
February	2420	7.1
March	2727	8.0
April	2779	8.2
May	2864	8.4
June	2901	8.5
July	2940	8.7
August	3103	9.1
September	3120	9.2
October	2819	8.3
November	2771	8.2
December	2750	8.1
TOTAL	33983	100.0

VITAL STATISTICS REGISTRATION

TABLE 2.11. LEADING CAUSES OF DEATHS BY SEX (158 URBAN TOWNS) 1979

SR. NO.	MORTALITY LIST NUMBER	CAUSE OF DEATH	NUMBER OF DEATHS					
			MALE	PERCENT	FEMALE	PERCENT	TOTAL	PERCENT
1.	465	Senility without mention of psychosis	3841	12.0	4143	15.1	7984	13.4
2.	251,26,27,28	Diseases of the heart	2601	8.1	2647	9.6	5248	8.8
3.	321	Pneumonia	2640	8.3	2526	9.2	5166	8.7
4.	01	Intestinal infectious diseases	2124	6.6	1691	6.1	3815	6.4
5.	02	Tuberculosis (all forms)	2096	6.5	1326	4.8	3422	5.8
6.	45	Certain conditions originating in the perinatal period	1328	4.2	986	3.6	2314	3.9
7.	08 - 17	Cancer (all forms)	1242	3.9	970	3.5	2212	3.7
8.	E 47 - E 53	Accidents	1404	4.4	463	1.7	1867	3.1
9.	323	Bronchitis, emphysema and asthma	652	2.0	620	2.3	1272	2.1
		All other causes	14080	44.0	12150	44.1	26230	44.1
		TOTAL CAUSES	32008	100.0	27522	100.0	59530	100.0

Table (3.1). No. of Hospitals by Type of Speciality and Sanctioned bed Strength, 1985

Sr. No.	Division/State		Specialist Hospital	Gen:Hosp. with Specialist Services	200 Bedded Hospital	150 Bedded Hospital	100 Bedded Hospital	50 Bedded Hospital	25 Bedded Hospital	16 Bedded Hospital	Station Hospital	TOTAL	REMARKS
		CODE NO	1	2	3	4	5	6	7	8	9		
1.	Rangoon Division	01	10	7	-	1	1	4	7	5	16	51	
2.	Sagaing Division	02	-	1	-	-	3	3	5	27	38	77	
3.	Mandalay Division	03	3	1	-	-	5	5	3	14	35	66	
4.	Magwe Division	04	-	2	-	-	3	3	4	16	26	54	
5.	Pegu Division	05	-	1	-	2	1	4	6	14	31	59	
6.	Tenasserim Div.	06	-	1	-	-	1	-	1	11	8	22	
7.	Irrawaddy Div.	07	-	1	-	-	4	5	5	10	38	63	
8.	Mon State	08	-	1	-	-	1	-	-	8	10	20	
9.	Rakhine State	09	-	1	-	-	2	-	1	13	19	36	
10.	Chin State	10	-	1	-	-	-	3	2	3	9	18	
11.	Kachin State	11	2	1	-	1	-	5	2	9	15	35	
12.	Shan State	12	2	2	1	1	5	1	8	35	32	87	
13.	Kayah State	13	-	1	-	-	-	-	4	2	8	15	
14.	Karen State	14	-	1	-	-	1	-	5	-	10	17	
	TOTAL		17	22	1	5	27	33	53	167	295	620	

TABLE 3.3. Hospital Performance Indices by Administrative Division and State for the Year 1981

Sr. No.	DIVISION AND STATE	Population (in thousand)	Percentage Distribution	Population Density per sq. miles	Total No.of Hospitals	Available Beds	Available Beds per 1000 Population	Daily use of Hospitals Beds per 100,000 Population *	Hospital Admissions	Admissions per 1000 Population
1.	Rangoon Division	3876	11.0	987.02	47	6512	1.68	158.90	226625	58.47
2.	Pegu Division	3825	10.9	251.42	51	2706	0.71	49.81	90407	23.64
3.	Irrawaddy Division	4981	14.2	367.14	47	2843	0.57	40.52	87682	17.60
4.	Tenasserim Division	875	2.5	52.29	20	805	0.92	67.31	25893	29.59
5.	Mandalay Division	4464	12.7	312.37	50	3712	0.83	61.39	119642	26.80
6.	Magwe Division	3195	9.1	184.63	42	1599	0.50	38.35	53140	16.63
7.	Sagaing Division	3797	10.8	103.95	61	1779	0.47	37.07	60673	15.98
8.	Mon State	1599	4.6	336.78	18	1344	0.84	56.02	51133	31.98
9.	Rakhine State	2083	5.9	147.53	28	1987	0.52	53.96	41343	19.85
10.	Karen State	1057	3.0	90.10	15	687	0.65	57.75	26101	24.69
11.	Shan State	3873	11.0	64.38	74	4049	1.05	84.42	129841	33.52
12.	Kayah State	155	0.5	34.25	13	446	2.88	211.74	16765	108.16
13.	Chin State	402	1.2	28.9	16	682	1.70	201.79	18296	45.51
14.	Kachin State	911	2.6	26.49	32	1338	1.47	105.30	44457	48.80
	TOTAL	35094	100.0	134.38	514	29580	0.84	67.76	991998	28.27

* $\frac{\text{Total patient days in year} \times 100{,}000}{\text{No.of days in year} \times \text{Population at risk}}$

TABLE 3.3.- Hospital Performance Indices by Administrative Division and State for the Year 1981(Contd.)

Sr. No.	DIVISION AND STATE	Discharges and Deaths	Discharges & Deaths per 1000 Population	Total No.of Patient Days	Patients Days per 1000 Population	Out-patient Attendances	Out-patient Attendances per 1000 Population	No. of Births in Hospitals	No. of Surgical Operations	Surgical Operations per 1000 Population
1.	Rangoon Division	209292	54.0	2247906	579.96	1735151	447.67	35488	68680	17.72
2.	Pegu Division	90264	23.60	695291	181.78	1124268	293.93	6105	20182	5.28
3.	Irrawaddy Division	87360	17.54	736585	147.88	947926	190.31	6716	17083	3.43
4.	Tenasserim Division	25745	29.42	214969	245.68	296159	338.47	2422	5829	6.66
5.	Mandalay Division	121921	27.31	1000181	224.05	1168929	261.86	11421	25564	5.73
6.	Magwe Division	52703	16.50	447226	139.98	837390	262.09	4596	11373	3.56
7.	Sagaing Division	60272	15.87	513764	136.77	820766	216.16	3408	10265	2.70
8.	Mon State	51184	32.01	326914	204.45	364101	227.71	4856	9323	5.83
9.	Rakhine State	40420	19.40	314381	150.93	555559	266.71	3034	9599	4.61
10.	Karen State	26128	24.72	222769	210.76	274792	259.97	1505	5355	5.07
11.	Shan State	132232	34.14	1193346	308.12	1277249	329.78	10462	21392	5.52
12.	Kayah State	16637	107.34	119790	772.84	117115	755.58	709	1568	10.12
13.	Chin State	13045	44.89	296085	736.53	324935	808.30	435	3635	9.04
14.	Kachin State	43824	48.11	350135	384.34	531726	583.67	2604	7637	8.38
	TOTAL	976027	27.81	8679342	247.32	10376066	295.66	93761	217485	6.20

Table 4.1.4. PERCENT DISTRIBUTION OF DISCHARGES AND DEATHS FROM (441) HOSPITALS BY AGE GROUP, 1979.

AGE GROUP	DISCHARGES AND DEATHS	PERCENT	DEATHS ONLY	PERCENT
1	38909	4.4	3023	10.7
1 - 4	70927	8.2	4186	14.8
5 - 14	102399	11.7	3748	13.2
15 - 24	205951	23.6	4323	15.3
25 - 34	176975	20.3	3270	11.6
35 - 44	115525	13.2	3242	11.4
45 - 54	76742	8.8	2845	10.1
55 - 64	50654	5.8	2093	7.4
65 - 74	27089	3.1	1218	4.3
75 Years & over	8476	0.9	342	1.2
TOTAL	873647 *	100.0	28290	100.0

* Excluding unknown age.

Table 4.1.2. PERCENT DISTRIBUTION OF DISCHARGES AND DEATHS FROM (450) HOSPITALS BY AGE GROUP, 1980.

AGE GROUP	DISCHARGES & DEATHS	PERCENT	DEATHS ONLY	PERCENT
< 1	47829	5.2	4831	15.0
1 - 4	79608	8.5	4937	15.4
5 - 14	112954	12.1	4094	12.7
15 - 24	214903	23.1	4349	13.5
25 - 34	194077	20.8	4064	12.7
35 - 44	115188	12.4	2754	8.6
45 - 54	79107	8.5	3145	9.8
55 - 64	50705	5.5	2197	6.8
65 - 74	27490	2.9	1219	3.8
75 years & Over	9604	1.0	542	1.7
TOTAL	931465*	100.0	32132*	100.0

* Excluding unknown age.

Table 4.1.3. PERCENT DISTRIBUTION OF DISCHARGES AND DEATHS FROM (435) HOSPITALS BY AGE GROUP, 1981

Age Group	Discharges & Deaths	Percent	Deaths Only	Percent
1 Yr.	40684	5.3	3555	15.0
1 - 4 Yrs.	61115	8.0	3878	16.4
5 - 14 Yrs.	87112	11.4	2993	12.6
15 - 24 Yrs.	18058	23.7	2993	12.6
25 - 34 Yrs	165203	21.6	2885	12.2
35 - 44 Yrs.	93990	12.3	2597	10.9
45 - 54 Yrs	63707	8.4	1736	7.3
55 - 64 Yrs.	40527	5.3	1627	6.8
65 - 74 Yrs.	21946	2.9	1125	4.7
75 Yrs	8449	1.1	347	1.5
TOTAL	763319*	100.0	23736	100.0

* Excluding unknown age.

Table 4.2.1. SINGLE LEADING CAUSES OF MORBIDITY TREATED IN (441) HOSPITALS FOR THE YEAR 1979

BASIC LIST	CAUSE GROUP	CASES				AVERAGE DURATION OF STAY
		MALE	FEMALE	TOTAL	PERCENT	
052	Malaria	86865	51048	137913	15.7	5.7
016	Ill-defined intestinal infections	37807	29813	67620	7.7	4.4
410	Normal delivery	-	51073	51073	5.8	5.1
460	Pyrexia of unknown origin	17649	15153	32802	3.8	6.3
551	Certain traumatic complications & unspecified injuries	19955	7843	27798	3.2	7.6
383	Unspecified abortion	-	27088	27088	3.2	4.7
323	Bronchitis, chronic & unspecified emphysema & asthma	11352	10022	21374	2.4	8.3
321	Pneumonia	11758	9515	21273	2.4	5.6
349	Other diseases of the digestive system	11390	7412	18802	2.2	8.4
341	Ulcer of stomach & duodenum	10313	7754	18067	2.0	9.1
420	Infections of skin & subcutaneous tissue	10466	6880	17346	1.9	9.3
020	Pulmonary tuberculosis	10022	6499	16521	1.9	22.6
011	Typhoid fever	7577	5131	12708	1.5	10.1
531	Toxic effects of substances chiefly non medicinal as to source	8210	4295	12505	1.4	5.2
076	Other helminthiasis	5094	7260	12354	1.4	5.1
	All other causes	193421	188200	381621	43.5	-
	GRAND TOTAL	441879	434986	876865	100.0	-

Table 4.2.2. SINGLE LEADING CAUSES OF MORBIDITY TREATED IN (450) HOSPITALS FOR THE YEAR 1980.

BASIC LIST	CAUSE GROUP	CASES				AVERAGE DURATION OF STAY
		MALE	FEMALE	TOTAL	PERCENT	
052	Malaria	84782	53671	138453	14.8	6.0
016	Ill-defined intestinal infections	43669	36196	79865	8.5	4.4
410	Normal delivery	-	64611	64611	6.9	4.7
460	Pyrexia of unknown origin	21302	17745	39047	4.2	6.9
383	Unspecified abortion	-	30675	30675	3.3	4.4
551	Certain traumatic complications & unspecified injuries	15459	7383	22842	2.4	7.5
323	Bronchitis, chronic and unspecified, emphysema and asthma	11851	10632	22483	2.4	8.9
321	Pneumonia	10760	9694	20454	2.2	5.2
328	Other diseases of Respiratory system	10811	9309	20120	2.2	8.6
349	Other diseases of the digestive system	11530	6934	18464	1.9	8.5
420	Infections of skin and subcutaneous tissue	10901	6831	17732	1.9	8.6
020	Pulmonary tuberculosis	10593	6869	17462	1.9	26.9
341	Ulcer of stomach and duodenum	9244	7165	16409	1.7	9.9
531	Toxic effects of substances chiefly non medicinal as to source	9527	5521	15048	1.6	4.7
011	Typhoid fever	7665	5470	13135	1.4	10.6
	ALL OTHER CAUSES	196481	202755	399236	42.7	-
	GRAND TOTAL	454575	481461	936036	100.0	-

Table 4.2.3. SINGLE LEADING CAUSES OF MORRIDITY TREATED IN (435) HOSPITALS FOR THE YEAR, 1981

Basic List	Cause Group	C A S E S				Average Duration of Stay
		Male	Female	Total	Percent	
052	Malaria	71471	39304	110775	14.5	6.3
410	Normal delivery	-	59589	59589	7.8	4.9
016	Ill-defined intestinal infections	27714	22193	49907	6.5	4.5
460	Pyrexia of unknown origin	17481	14911	32392	4.2	6.7
383	Unspecified abortion	-	28106	28106	3.7	4.3
321	Pneumonia	10603	8617	19220	2.5	5.6
551	Certain traumatic complications and unspecified injuries	12712	5532	18244	2.4	6.9
328	Other diseases of respiratory system	8819	9167	17986	2.4	9.1
349	Other diseases of the digestive system	10109	6541	16650	2.2	8.1
323	Bronchitis, chronic and unspecified emphysema and Asthma	7787	7528	15315	2.0	8.4
341	Ulcer of stomach and duodenum	8191	6698	14889	2.0	9.2
020	Pulmonary tuberculosis	8482	6037	14519	1.9	25.7
420	Infections of skin and subcutaneous tissue	8236	5677	13913	1.8	9.5
531	Toxic effects of substances chiefly non-medicinal as to source	8314	4690	13004	1.7	4.7
491	Other intracranial injuries	8033	2648	10681	1.4	6.9
	All other causes	159772	168997	328769	43.0	-
	GRAND TOTAL	367724	396235	763959	100.0	-

Table 4.2.3(a) Single Leading Causes of Morbidity Treated in (479) Hospitals for the Year 1982

BASIC LIST	CAUSE GROUP	CASES				AVERAGE DURATION OF STAY
		MALE	FEMALE	TOTAL	PERCENT	
052	Malaria	8585	47381	125966	14.5	6.4
410	Normal Delivery	-	62464	62464	7.2	4.6
016	Ill-defined Intestinal Infections	31107	25913	57020	6.6	4.5
383	Unspecified abortion	-	33295	33295	3.8	4.4
460	Pyrexia of unknown origin	13282	11509	24791	2.9	6.8
328	Others diseases of Respiratory System	12354	10374	22728	2.6	8.9
321	Pneumonia	10609	9834	20443	2.4	5.6
551	Certain traumatic complications and unspecified injuries	14612	5775	20387	2.4	8.3
349	Other diseases of the digestive system	10443	7590	18033	2.1	8.1
323	Bronchitis, chronic and unspecified, emphysema and Asthma	8892	8587	17479	2.0	7.9
341	Ucer of stomach and duodenum	9238	7631	16869	1.9	9.6
020	Pulmonary tuberculosis	10166	6676	16842	1.9	26.0
420	Infections of skin and subcutaneous tissue	9446	5886	15332	1.7	9.8
046	Viral hepatitis	9432	5111	14543	1.7	10.5
491	Other intracranial injuries,	9667	2728	12395	1.4	6.6
	All other causes	187141	202279	389420	44.9	-
	GRAND TOTAL	414974	453033	868007	100.0	-