

BASIC DESIGN STUDY  
ON  
THE CONSTRUCTION PROJECT  
OF  
THE NURSE CAMPUS IN KATHMANDU  
THE KINGDOM OF NEPAL

JULY, 1984

JAPAN INTERNATIONAL COOPERATION AGENCY

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## PREFACE

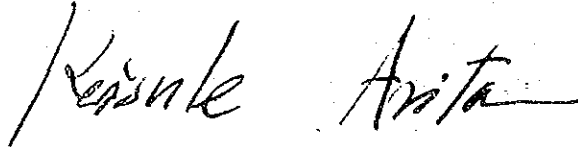
In response to the request of His Majesty's Government of Nepal, the Government of Japan decided to conduct a survey on the Nurse Campus Construction Project and entrusted the survey to the Japan International Cooperation Agency (JICA). The JICA sent to Nepal a survey team headed by Ms. Akiko Itoh, Director, National Centre for Nursing Education and Research, Ministry of Health and Welfare from 18th March to 11th April, 1984.

The team had discussions with the officials concerned of the Government of Nepal 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 His Majesty's Government of Nepal for their close cooperation extended to the team.

July, 1984

A handwritten signature in black ink, appearing to read 'Keisuke Arita', written in a cursive style.

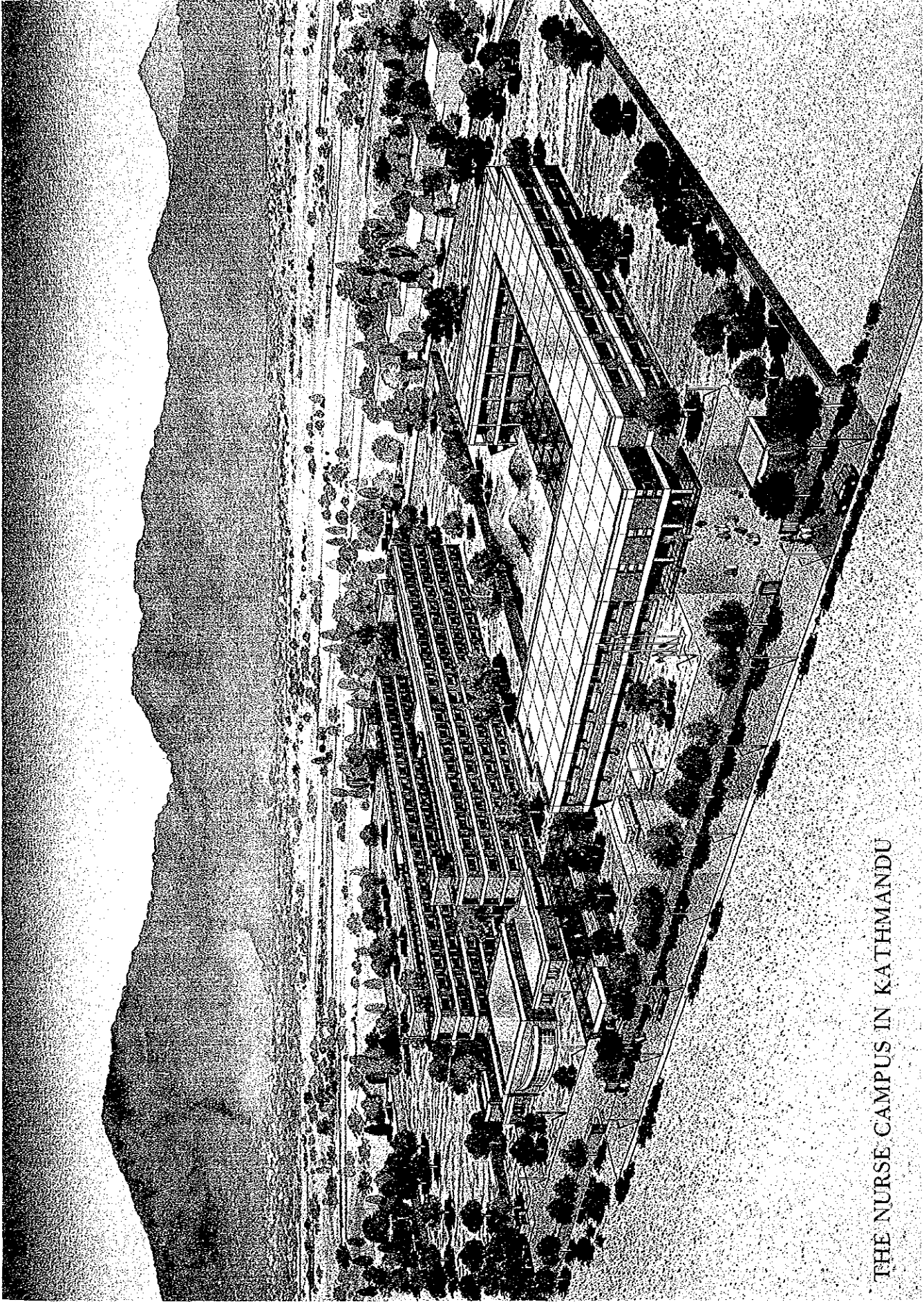
Keisuke Arita

President

Japan International Cooperation Agency



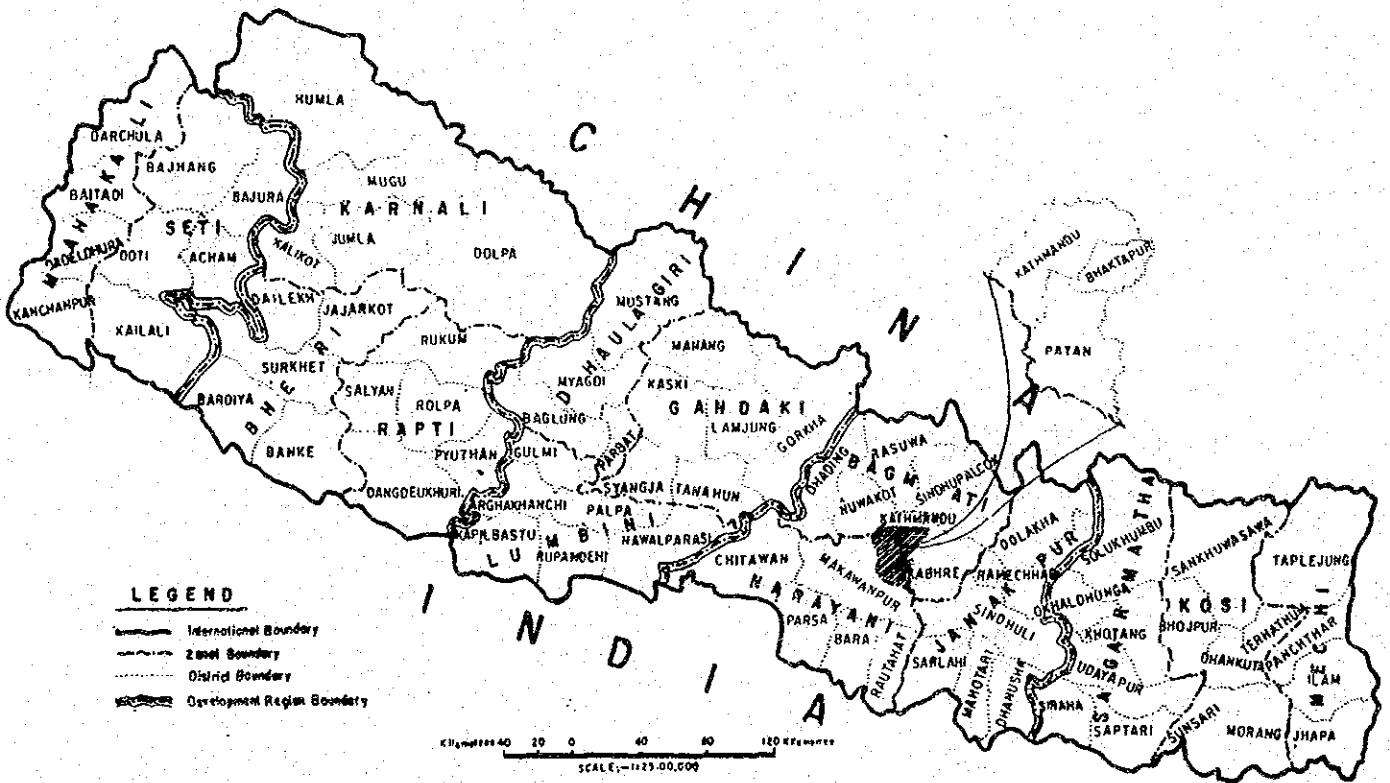
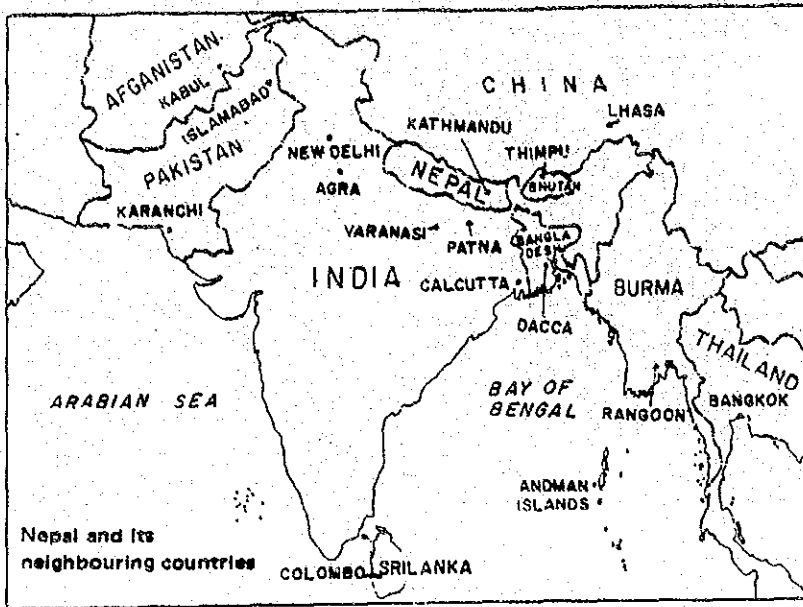




THE NURSE CAMPUS IN KATHMANDU

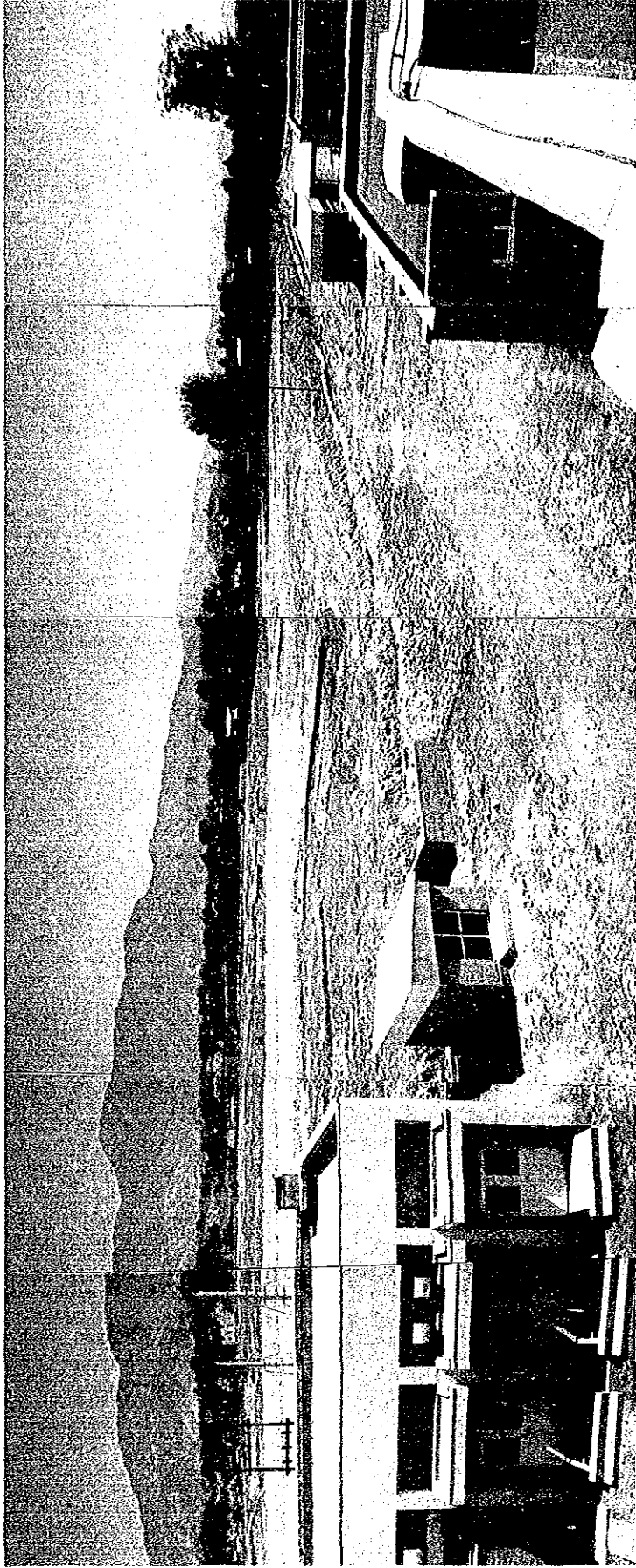
PERSPECTIVE





MAP OF NEPAL





PROPOSED CONSTRUCTION SITE



## **SUMMARY**





## SUMMARY

His Majesty's Government of Nepal has requested the Government of Japan to extend grant aid for the construction of a new nurse campus in order to train nursing personnel to improve the national health and medical services in the Kingdom of Nepal. In response to the request of His Majesty's Government of Nepal, the Government of Japan dispatched, through Japan International Cooperation Agency, the Basic Design Study Team in March, 1984 to confirm the request and to study the appropriateness of the grant aid.

His Majesty's Government of Nepal has been executing six five-year development plans since 1955. The Sixth Plan, covering the years from 1980 to 1985, sets the following objectives:

1. to increase production in order to solve unemployment and under-employment,
2. to increase productive employment opportunities from the viewpoint of the effective utilization of manpower and equitable distribution of national income and production, and
3. to meet the minimum needs of the people such as the provision of food, drinking water, basic health services and education.

The priority in health services among the above-mentioned objectives are basic health services for the people, the population control, the increase of health manpower, and the diffusion of health education. These priority points are based on the Long-Term Health Plan (1975-1990) made by the Ministry of Health. In accordance with the Long-Term Health Plan, plans have been drawn to build the necessary medical facilities and to produce health manpower, in order to establish basic health services before the end of 1990. Although the plan is in progress, Nepal is still facing many problems in improving its medical and health conditions. In order to solve these problems, the training of health manpower with adequate knowledge and ability is an urgent necessity of the country.

The annual expenditure of His Majesty's Government of Nepal during the 1982/1983 fiscal year was estimated to be 9,187.2 Million RS (Nepalese Rupees). The budget for development was 6,958.8 Million RS. 52.1 percent of the budget for development depends on foreign assistance. Foreign assistance plays a very important role in promoting development projects.

The Institute of Medicine, Tribhuvan University, which is the only national university in the country, takes charge of training health manpower in Nepal. Since Tribhuvan University Teaching Hospital has been constructed under Japanese grant aid and started to train medical doctors in the country, there is an urgent need to increase the quality and quantity of nursing personnel. Lack of nursing personnel in many medical institutions results in insufficient health services. Although the improvement of nursing education is expected, the number of staff nurses is not enough due to the shortage of domestic nurse training facilities.

Therefore His Majesty's Government of Nepal planned to relocate and to expand the Mahaboudha Nurse Campus, which is located at the Bir Hospital complex, to Tribhuvan University Teaching Hospital site and has requested the Japanese government to extend the necessary grant aid for the project. Thus this project aims the relocation and expansion of the Mahaboudha Nurse Campus, the new nurse campus will be maintained and operated basically with the existing administration system, current instructors, and training plans. The existing educational equipment of the Mahaboudha Nurse Campus are planned to be used at the new campus to the extent as it is possible.

The annual operation cost of the proposed Nurse Campus is estimated at approximately 2,500,000.— RS (Nepalese Rupees). The Nepalese explain that the cost will be budgeted based on the current Mahaboudha Nurse Campus budget and it will be adjusted taking into account the expansion.

The conditions on nature, economics, the proposed site, construction situation and existing similar facilities have been surveyed, in consideration of the request made by the Nepalese. Subsequent to the analysis in Japan, appropriate facilities and equipment have been planned for the project.

- \* Capacity: The Academic and Administrative Building for both Certificate Level which is a three year nurse education course with 80 students each year and Bachelor Level which is a two year course with 40 students each year. A Student Dormitory for 280 students.
  
- \* Buildings: Academic and Administrative Building  
2—story reinforced concrete building with a total floor area of 2,607.6 square meters.  
Student Dormitory  
4—story reinforced concrete building with a total floor area of 3,654.1 square meters.  
Others (including Guard houses)  
1—story reinforced concrete building with a total floor area of 70.0 square meters.

Local construction method will be adopted and materials will be procured locally as much as possible to reduce the construction cost. Selection and use of equipment are also planned taking into account easy maintenance and cost efficiency. The construction period will be 14 months.

Construction of the proposed Nurse Campus is highly needed and will contribute to the improvement of the quality of the Nepalese health and medical conditions and will increase the health manpower. Eventually this will improve the people's welfare and will help them to obtain more stable economic conditions.

The Construction Project of the Nurse Campus is considered significant, therefore it is expected that the grant aid will be extended by the Japanese Government. Upon the Nurse Campus' completion, in order to provide the effective education, it is suggested that the followings should be done: improve the curriculum and education items; research the appropriate stationing of nurses, and establish nursing regulations.



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**CHAPTER 1**  
**INTRODUCTION**





## CHAPTER 1 INTRODUCTION

Development and economical advancement are urgent concerns of the Kingdom of Nepal. Therefore His Majesty's Government of Nepal is presently executing the Sixth Plan from 1980 to 1985.

The priority of health services in the Sixth Plan are the provisions of basic health services for the people, the control of population growth, the increase of health manpower, and the diffusion of health education. These priorities are based on the Long-Term Health Plan (1975-1990) established by the Ministry of Health. The Long-Term Health Plan aims to provide necessary medical facilities and health manpower in order to establish basic health services before the end of 1990. The most urgent necessity is to train health manpower.

The construction of Tribhuvan University Teaching Hospital has been completed and the training of medical doctors has been started. At present both quantitative and qualitative expansion of nursing personnel is urgently needed and nurse training must be furthered. However nurse training facilities in the country are inadequate and the training of nursing personnel is insufficient. There are many problems to be solved within the constraints of a limited national budget.

Therefore, His Majesty's Government of Nepal has requested the Government of Japan to extend grant aid for the construction project of the new nurse campus. In response to the request of His Majesty's Government of Nepal, the Government of Japan sent, through Japan International Cooperation Agency, the Basic Design Study Team in March 1984.

The team discussed with the Nepalese the content of the request and the project, surveyed the actual condition of medical and health services, nurse training, the implementation organization and construction situation. The Basic Design Study Report has been made based upon the survey in Nepal and subsequent analysis in Japan.



**CHAPTER 2**  
**BACKGROUND OF THE PROJECT**



## CHAPTER 2 BACKGROUND OF THE PROJECT

### 2-1 Sixth Plan

His Majesty's Government of Nepal is presently executing the Sixth Plan (1980-1985). Three main objectives are as follows:

1. to increase production in order to solve the problems of poverty, unemployment and under-employment,
2. to increase productive employment opportunities from the viewpoint of the effective utilization of manpower and equitable distribution of national income and production, and
3. to meet the minimum needs of the people such as the provision of food, drinking water, basic health services, and education.

In order to achieve these objectives, detailed plans have been drawn up in the fields of agriculture, commerce and industry, communication and transportation, and public services including health services.

#### The Health Plan in the Sixth Plan

The objectives are to provide basic health services, to control population growth, and to improve the nutrition level and environmental sanitation, based upon the premise that the existence of healthy manpower is the foundation stone of a nation.

The Health Plan has established the following programs:

1. Promotion and integration of community health
2. Construction of health posts
3. Improvement of preventive health service
4. Construction of district hospitals to increase diagnostic efficiency
5. Diffusion of family planning and improvement of nutrition levels
6. Miscellaneous

The health targets of the Sixth and Fifth (1975-1980) five-year plan are shown below:

Table 2-1 Health Targets of the Sixth Five-Year Plan

Health Indicator	Per	End of 5th Plan	End of 6th Plan
Crude Birth Rate	1,000	42	40
Crude Death Rate	1,000	19	17
Total Fertility Rate	Women	6.3	5.8
Average Life Span		45 years	48 years
— Male		47.5 years	50 years
— Female		44.5 years	47 years
Infant Mortality Rate	1,000	150	130
Hospital		73	98
Beds		2,586	4,020
Population per bed		5,515	3,983
Health Post		583	1,050
Population per Health Post		24,462	15,238
Health Centre		26	
Ayurvedic Clinic		85	135
Doctor		442	712
Population per Doctor		32,267	22,486
Nurse		455	719
Middle Level Health Manpower		2,678	5,192
Village Health Worker		1,522	2,772

(Source: Health Manpower in Nepal, Ministry of Health/IOM, 1982)

## 2-2 Health Conditions

94 percent of the total working population of the Kingdom of Nepal engages in farming (Economic Survey, 1982-83). Total agricultural production is 60 percent of the gross domestic product (GDP) of the country (15,510 Million RS/25,466 Million RS - 1980/81 statistics). The economic growth of the country depends on agriculture. However, the greater portion of the country is mountainous and covered with forests. There remains little scope to expand the amount of arable land. The growth rate of agriculture production is low. Consequently the growth rate of the gross domestic product is also low.

Nepal faces many health problems. The population of those under 15 years of age constitutes 42 percent of the total population and health services and education are highly needed. The pace of road construction is very slow because of the country's mountainous topography. The fact inhibits the diffusion of health services to rural areas. The lack of medical personnel, the concentration of medical personnel in cities as well as the lack of medical equipment and medicines are obstacles to the development of medical services. The improvement of environmental sanitation is also a problem which must be solved urgently. The municipal water supply reaches only 9 percent of the entire population and 2 percent of those living in rural areas where many people may even share rooms with domestic cattle. These factors represent the major causes of infectious diseases, parasitic infestation and skin infections.

Both the crude birth rate 42/1,000 and the crude death rate 19/1,000 are high and average life expectancy is low (45 years old). The population growth rate is as high as 2.7 percent. The high ratio of child population compared to working population is also one of the causes of economical weakness. Poverty and food shortages result in malnutrition and the high incidence of disease.

The crude birth rate is high and the infant mortality rate is also high (150/1,000). Insufficient material and child welfare services in the country cause the high rate of infant death. There are many cases of diphtheria, pertussis, tetanus, measles, poliomyelitis, and tuberculosis which can be prevented by immunization during childhood. Malnutrition is a problem common to all children. On top of these problems, the low literacy rate is another obstacle for educating the people about public health and hygiene. The illiteracy rate is estimated to be 80 percent. That of women is estimated to be much higher than that of men judging from school attendance records.

Among infectious diseases, dysentery, malaria, tuberculosis, leprosy, measles, poliomyelitis and rabies are still often observed. Malaria was brought under control during the 1970's but recently it has broken out again. Smallpox has been eradicated since 1977 in the Kingdom of Nepal.

The Kingdom of Nepal is promoting prevention projects for malaria, leprosy and tuberculosis and a national campaign for immunization for diphtheria, poliomyelitis, and BCG for children. In rural areas there still exist traditional healers to cure patients because people still believe that diseases are caused by some spiritual phenomenon. Since 1974 the government has been trying to change people's beliefs about the cause of diseases by teaching those

healers first aid and basic principles of hygiene.

With regard to public health, the government has promoted maternal and child welfare and family planning since 1956. The Sixth Plan includes a plan to raise nutritional levels. With regard to health services, the government has built hospitals and health posts and continuously trains the necessary health manpower. The government is trying to establish an education system to train health personnel. Up to now it has depended on foreign institutions for this training. The health improvement plans were included in the Sixth Plan to improve the aforementioned inadequate medical services and health conditions.

The health improvement plans constitute a part of the Long-Term Health Plan (from 1975 to 1990) established by the Ministry of Health.



## 2-3 Long-Term Health Plan

In order to improve the level of medical and health services, to prepare healthy manpower for the overall development of the country, to control the birth rate and death rate by providing additional health facilities, and altogether to raise the life expectancy of the people, the following policies have been promulgated in the Long-Term Health Plan:

1. Develop basic health facilities by providing preventive and general medical services for people in rural areas who constitute 96 percent of the total population.
2. Control undesired population growth in order to further overall national development and promote family planning.
3. Establish at least one 15-bed hospital in each of 75 districts.
4. Integrate all projects concerning basic health services.
5. Study the effectiveness of Ayurvedic medicine and raise the supply level of these medicines.
6. Train additional technical health manpower efficiently and utilize existing health manpower properly.
7. Improve medical administration system in order to provide health services.
8. Coordinate and control existing private and mission hospitals under the authority of His Majesty's Government of Nepal itself (by the end of 1990).
9. Seek the people's cooperation in health services.
10. Improve environmental hygiene, nutrition, and education.
11. Raise the production level and quality of medicine.
12. Introduce a fee system gradually to replace existing free medical services.

Priorities are as follows:

1. Develop basic health services in rural areas.
2. Intensify family planning and maternity and child welfare service to control the undesirable rate of population growth.
3. Train health manpower within the country.
4. Control and eradicate infectious diseases.
5. Promote education on health, nutrition and environmental hygiene.
6. Extend and improve hospital services.

The construction of 99 hospitals with 4,665 beds, and 1,462 health posts has been planned by 1990 in order to achieve the goal envisaged in the Long-Term Health Plan. The following table shows the required number of health personnel for these institutions.

Table 2-2 Estimated Technical Personnel at the End of Seventh Five Year Plan

	End of Seventh Five Year Plan
1. Doctor	928
2. Dental Doctor	137
3. Nurse	1,433
4. A.N.M. *	2,538
5. Health Inspector	1,775
6. H.A./H.A. ** A.H.W. ***	2,725
7. Radiographer	153
8. Pharmacist	165
9. Lab. Technician	342
10. Physiotherapist	64
11. Health Educator	120
12. Health Data Collection Officer	121
13. Medical Record Officer	146
14. Homeopathy Doctor (KABIRAJ)	310
15. Sanitarian	110
16. Village Health Workers	3,500

\* ANM = Auxiliary Nurse Midwife

\*\* HA = Health Assistant

\*\*\* AHW = Auxiliary Health Worker

(Source: Long-Term Health Plan, Ministry of Health, 1976)

The following table clarifies a situation of the supply of the doctors, nurses and beds as of 1990 in comparison with the present data of several other countries, subject to that the Long-Term Health Plan will be accomplished then. It is based on the number of the doctors, nurses (including ANM's) and beds stated before, and the Nepal's estimated population i.e. 18.588 thousand calculated on trial from the statistic population i.e. 15,022,839 as of 1982. 1982.

Name of Country	Per 10,000 pop.			No. of Nurses	Population (in thousand)	No. of Beds
	No. of Nurses	No. of Doctors	No. of Beds			
Indonesia	1980 2.5	1980 0.9	1940 6.7	1951 40,616	1980 147 490	1981 102,374
Malaysia	19.2	1977 1.37	1973 36.6	1976 25,805	1980 13,435	1970 27,927
Philippines	1982 1.8	1982 1.45	18.3	1982 9,075	1980 48,098	1981 88,070
Singapore	1982 30.5	1982 9.5	39.7	1982 7,534	1980 2,413	1981 9,822
Thailand	4.4	1981 1.5	16.2	1981 19,599	1980 44,278	1981 71,966
Japan	1981 44.0	1982 14.2	1982 118.1	1982 518,097	1980 116,916	1980 1,401,999
Nepal 1978/79	0.99	0.3	1.9	*1 1,357	13,700	2,547
Nepal 1990 (Estimated)	2.14	0.57	2.5	*1 3,971	18,588	4,665

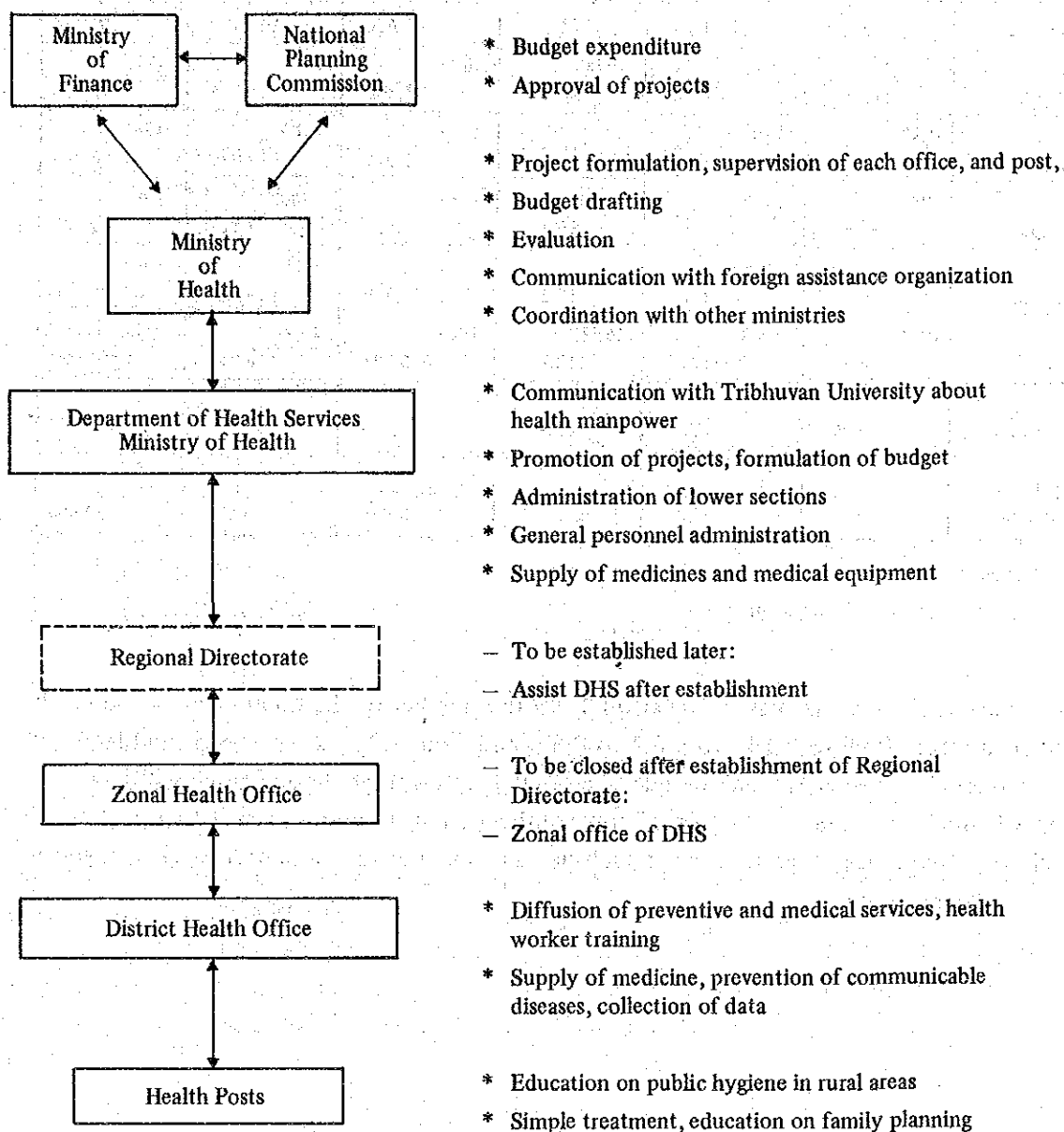
\*1 Include ANM

(Source: Seamic Health Statistics, 1983)

The above table forecasts that in Nepal till 1990 the number of the doctors, nurses and beds will go up from 0.99 to 2.14, from 0.3 to 0.57, and from 1.9 to 2.5 each per population of ten thousand respectively, and describes as well that most of those figures will have put Nepal behind any data in the past of the South-east Asian nations even if they will be all realized. This means that to expand facilities and manpower is a matter of great urgency and importance there.

## 2-4 Health Services Organization Chart

The following system has been organized in order to accomplish the objectives of the Long-Term Health Plan:



(Source: Long-Term Health Plan, Ministry of Health, 1976)

Fig. 2-1 Health Services Organization Chart

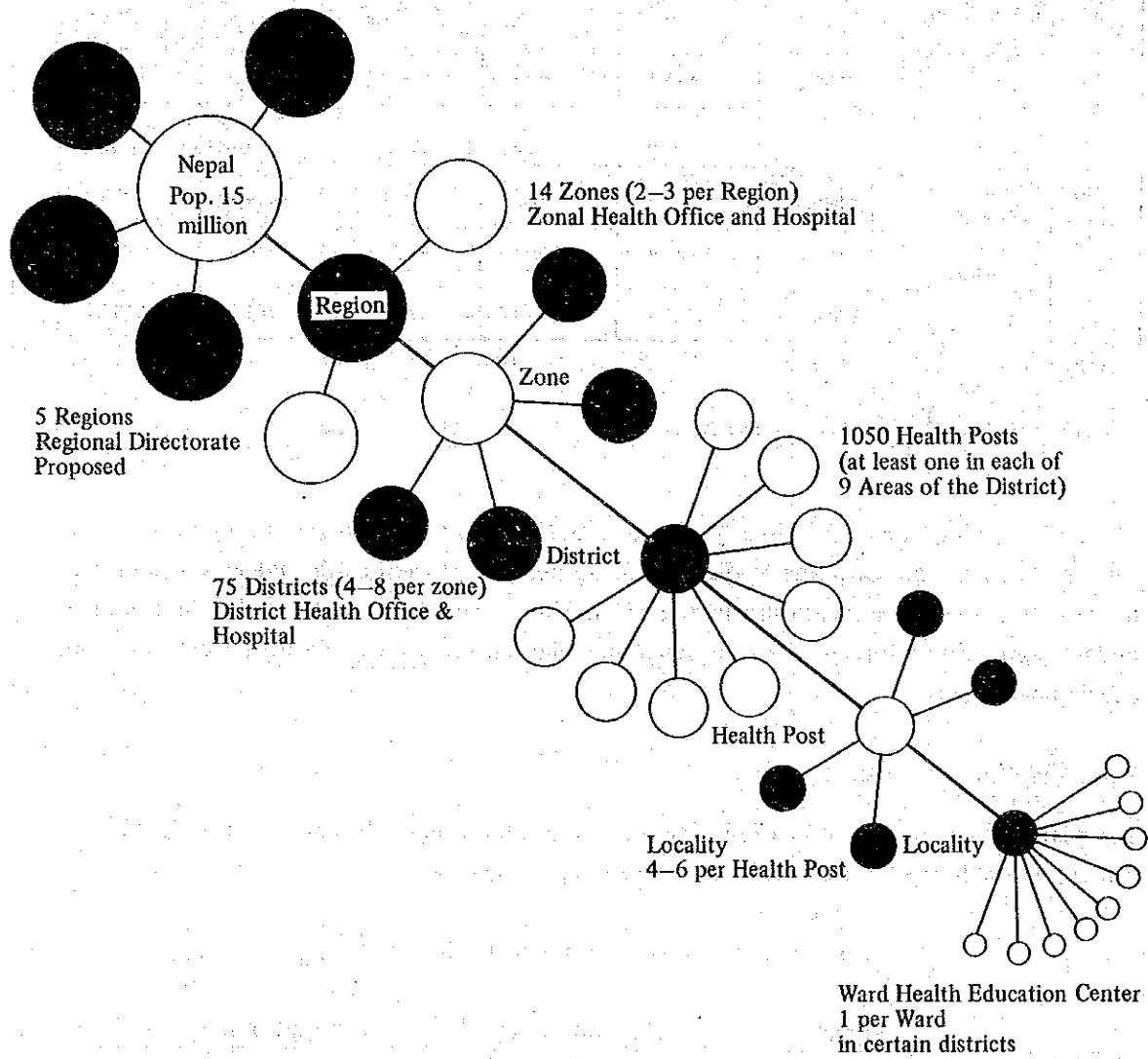


Fig. 2-2 Health and Medical Composition Diagram in Nepal

## 2-5 Budget of ministry of Health (Expenditure)

Table 2-4 Budget of Ministry of Health

		(In Million RS)					
		1977/78 Actual	1978/79 ←	1979/80 ←	1980/81 ←	1981/82 ←	1982/83 Estimate
(A) Health	Regular Expenditure	41.5	52.2	57.7	65.2	80.5	123.4
	Development Expenditure	96.3	98.5	72.2	97.8	152.8	285.5
	Total	137.8	150.7	129.9	163.0	233.3	408.9
	Foreign Aids		46.9	29.6	47.6	Disbursement	
(B) Nepal	Regular Expenditure	886.9	1,041.7	1,162.1	1,361.2	1,634.4	2,228.4
	Development Expenditure	1,808.0	1,978.8	2,308.6	2,731.1	3,726.9	6,958.8
	Total	2,674.9	3,020.5	3,470.7	4,092.3	5,361.3	9,187.2
(A)/(B) x 100		5.15	4.98	3.74	3.98	4.35	4.45

(Source: Economic Survey, Ministry of Finance, 1982 - 83)

The health budget for 81/82 fiscal year was 233.3 Million RS which was 4.35 percent of the total national budget of 5,361.3 Million RS. 65 percent of the health budget was allocated toward development expenditure in the Sixth Plan. About one half of the development budget comes from foreign aids. Foreign aids play an important role in the promotion of development plans.

### \* Accomplishment of the Sixth Plan

The plan will be completed in 1985. The official mid-term report has not yet been published, but approximate figures are as follows: (unofficial data)

Table 2-5 Accomplishment of the Sixth Plan

	Target	Data on survey	Accomplishment rate
Hospital	98	75+16 (under construction)	92%
Bed	4,020	2,849 + 490 ( " )	83%
Health Post	1,050	745 + 109 ( " )	81%
Doctor	712	668	94%
Nurse	719	525 + 68 (graduates in 1984)	82%

As the accomplishment rate for the number of nurses is lower than the number of Doctors, the training of nurses is an urgent necessity.

## 2-6 The Outline of Health Services

### 2-6-1 The Outline of Health and Medical Personnel and Medical Facilities

The present regional distribution of health manpower, medical facilities under the administration of the Ministry of Health is as follows:

Table 2-6 Health Manpower and Medical Facilities

Region	Eastern			Central			Western			Mid-West			Far-West			Total		
	SP	FP	MP	SP	FP	MP	SP	FP	MP	SP	FP	MP	SP	FP	MP	SP	FP	MP
<b>1. Health Manpower *1</b>																		
Doctors	85	68	65	542	403	339	83	65	57	36	25	20	23	20	16	769	581	497
Nurses	82	60	48	476	411	368	93	80	74	43	38	27	10	9	8	704	598	525
Senior Nurses (PHN)	7	5	3	28	23	22	4	4	2	1	1	-	-	-	-	40	33	27
ANM	320	316	277	508	451	332	332	325	296	183	182	82	100	99	49	1,469	1,430	1,155
SAHW	154	149	144	255	240	216	164	160	150	129	123	102	75	74	66	777	746	678
AHW	282	268	257	473	405	384	278	245	238	167	116	110	94	66	63	1,294	1,100	1,052
Gazetted Pharmacist																48	34	29
Non-Gaz. Pharmacist	5	4	4	46	38	38	4	4	4	3	2	2	-	-	-	58	48	48
Radio Grapher	15	12	12	48	37	35	11	10	9	5	3	2	6	3	3	85	65	61
Lab-Technician	16	11	11	37	29	29	21	14	14	5	2	2	5	2	2	84	58	58
Population *2	3,708,923			4,909,357			3,128,859			1,955,611			1,320,089			15,022,839		
<b>2. Medical Facilities</b>																		
No. of Hospitals*3		15			25			13			6			6				65 (Excluding 10 Special Hospitals)
No. of Beds *3		390			1,904			265			125			165				2,849
No. of Health Posts																		745
<b>3. Per 10,000 POP.</b>																		
No. of Nurses		0.14 (0.88)			0.79 (1.47)			0.24 (1.19)			0.14 (0.56)			0.06 (0.43)				0.37 (1.14) ( ) Includes No. of ANM
No. of Doctors		0.18			0.69			0.18			0.10			0.12				0.33
No. of Beds		1.05			3.88			0.85			0.64			1.25				1.90

Remarks SP: Sanctioned Post  
FP: Filled Post  
MP: Manned Post

Sources \*1 Health Manpower in Nepal  
Ministry of Health/Institute of Medicine, 1982  
\*2 Population Distribution 1981 / General Bureau of Statistics  
\*3 Distribution of Beds in the Zonal Hospital of Nepal

The data show that:

- (1) Medical facilities and health manpower including doctors and nurses, are concentrated in the Central Region where the Capital, Kathmandu, is located.
- (2) Distribution of facilities and manpower is quite small in Far-West Region and Mid-West Region where it is yet to be developed.

#### 2-6-2 Outline of the Health and Medical Treatment Activities in Hospitals

The survey of Hospitals and Health Posts etc. have been made as a part of field survey to ascertain the actual activities of the health manpower and medical facilities mentioned above. The outline activities from the viewpoint of nurse services observed through survey of Bir Hospital will be shown below.

Bir Hospital is located in the center of Kathmandu, a general hospital and the largest scale in Nepal, which has 300 beds. An extension of facilities is planned for the near future including the use of hospital ground which will be vacant after the movement of the Mahaboudha Nurse Campus. There is a plan to increase the number of beds to 450 by the year 1990. The female ward is completely distinguished from the male ward. Both the internal ward and surgery ward are large wards of compartment style with about 6 beds, a nurse station in the center for supervision, 6 beds for ICU section; 2 beds for ICU, 2 beds for CCU, 1 bed for asepsis room, and 1 bed for the royal family.

The staff consists of 107 doctors, 173 nursing personnels (1 matron, 2 sub-matrons, 13 ward sisters, 97 nurses, 29 ANM's, 31 AHW's), 79 paramedical staff, 43 clerks, 29 cooks etc., and 279 janitors, which totals 710. ANM's and AHW's who were originally trained for regional health services are working as nursing personnels because of the lack of nurse.

There are no inpatient charges for bed, meals, regular medical supply, X-ray, etc., but there are 15 private wards (50 RS/day) and 2 wards for 2 patients (20 RS/day) which require payment. The number of inpatients is 10,599 per year (about 30/day) outpatients are 184,190 per year (500-600/day). Meals are given 3 times a day. There are an average of 8 major operations and 20 minor operations per day. The annual budget of this hospital of 1982/1983 is 11,074,000 RS.

Major items are:

personnel expenses	6,806,000.RS
meal expense	1,200,000.RS
medication cost	600,000.RS
office fuel and light expenses	950,000.RS

The nurses work in 3 shifts:

day shift	8:00-14.00 (6 hours)
evening shift	14:00-20.00 (6 hours)
night shift	20:00- 8.00 (12 hours).



The rotation is: a week night shift (Sunday – Saturday), a day off, a week late shift (Monday – Sunday), a day off and 2 weeks day shift (days off during this 2 weeks). This pattern repeats. Working hours per week average 46 hours and 30 minutes. The nurses working for the hospital under the Ministry of Health receive 23 vacation days a year. In addition, they are given 6 days for emergency leave, and 12 days for sick leave by the regulation. (It is little different in the Ministry of Education and Culture, UMN). That also have national holidays, so there is ample vacation for nurses.

The routine work of the day shift nurses in the ward is:

8:00: taking over the report from the night shift. (using a clinical chart.)

10:00: examining vital signs, medication, meals.

12:00: giving antibiotics

14:00: injections

(Nurses also assist the round visits of doctors).

There are also routine treatment in the ICU of Bir Hospital. The nurse makes the service record in detail, regarding time of medication and method of treatment for critical sections such as ICU, but it is not usually in the regular wards. It may be because of the shortage of nurses.

There are many patients who bring their food from home instead of taking hospital meals. Family members attend bedsides of the patients day and night. The hospital is short of medical supplies, so doctors only write the prescriptions and the members of the patients family buy the medicine in the pharmacy and doctors treat the patient with it. The hospital is also short of medical instruments and in many cases some patients must wait while the instruments are used in the another section. Nurses who assist doctors in the outpatient department are too busy because of too many patients.

These are just some of the activities and problems in this large, central hospital. It is also assumed that sufficient treatment is needed at local district hospitals of 15–25 beds.

## 2-7 Training of Health Manpower

The Institute of Medicine, Tribhuvan University, in consultation with the Ministry of Health, is in charge of training of health manpower in the Long-Term Health Plan established by the Ministry of Health.

Tribhuvan University is the only institution of higher education in Nepal established in 1959. It is under the authority of the Ministry of Education and Culture and has ten institutes. The total number of students is 53,578 in 1982/83 (estimate)

Table 2-7 Number of Students in Higher Level of Education

(In Number)

Educational Institute	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83 Estimate
1. Education	4,884	6,198	6,178	2,826	3,870	4,294
2. Medicine	1,869	1,717	1,753	1,293	1,163	1,330
3. Forestry	207	286	283	277	412	314
4. Agriculture and Animal Husbandry	608	874	1,094	1,040	914	1,294
5. Engineering	1,549	1,673	1,584	1,504	1,491	1,532
6. Applied Science, Technology and Science	2,136	2,786	3,467	4,043	6,903	6,723
7. Humanities and Social Science	8,604	10,854	15,186	15,715	21,496	21,999
8. Management	3,977	5,242	7,374	9,182	11,307	12,285
9. Law	1,228	1,966	2,478	2,066	3,214	3,074
10. Sanskrit	341	346	466	504	586	733

(Source: Tribhuvan University)

## 2-8 Outline of Training of Health Manpower

The Institute of Medicine, Tribhuvan University has the following program to train health manpower.

Table 2-8 Training Program of the Institute of Medicine

Training Programme	Prerequisite	Duration of Training	Posts
1. ANM	8 yrs School	2 Years	ANM
2. CMA	SLC	1 Year	AHW
3. Certificate in General Medicine	SLC	2½ Years	HA
	SLC + AHW	2½ Years	HA
	CMA	2 Years	HA
4. Certificate in Health Laboratory	SLC	2½ Years	Lab Technician
5. Certificate in Pharmacy	SLC	2½ Years	Pharmacy Asst.
6. Certificate in Radiography	SLC	2½ Years	Radiographer
7. Certificate in Nursing	SLC	3 Years	Staff Nurse
	SLC + ANM	3 Years	Staff Nurse
8. Certificate in General and Tradition Medicine	SLC	3 Years	Kaviraj
9. SAHW	AHW	3 months	SAHW
10. MBBS	Certificate in Medicine	4 + 1 Years	Medical Officer
11. BN	Certificate in Nursing	2 Years	Sister/Senior PHN

Remark: Abbreviations are explained on later pages.

## 2--9 Current Training Programs

### (1) Training of Assistant Nurse Midwife (ANM)

Qualification:	Women between the age of 16 and 25 and who have completed secondary education
Period of training:	2 years
Quality of education:	Education focused on community nursing. Graduates are expected to be Health Post workers.
Quality of service:	Community health activities, family planning, midwifery, maternal and child health guidance, nutrition guidance, training of traditional birth attendants.

The current lack of teachers is in a serious condition, so the training of nurses to be future teachers is important.

### The Comparison with the Sixth Plan

(Data in 1982. Following items are the same: A--present number, B--increase number, C--estimated attrition number, D--final total number, E--required number on the Sixth Plan, and F--shortage)

A	B	C	D	E	F
1430	300	110	1620	1638	18

Measures under consideration by the Nepalese: Although ANM's ought to be stationed at Health Posts, some of them work at hospitals because of the shortage of nurses. Increasing the number of nurses will make it possible to send ANM's back to their proper posts. To increase the number of Health Post workers, a plan has been devised to build dormitories on each campus for students from the surrounding rural areas.

### (2) Training of Auxiliary Health Worker (AHW)

#### (The CMA PROGRAM)

Qualification:	Successful applicants of the SLC Test. Both men and Women, but more men are required than women. Applicants may take this Test upon completion of 10 years of education.
Period of training:	1 year
Training school:	3 (Surkhet, Pokhara, Tansen)

Place of employment after graduation: Health Post

Quality of Service: Administration of Community Health and Health Post, medical treatment, home visit, hygiene guidance.

Because of deficits, the conduct of practical training has been hampered.

#### The Comparison with the Sixth Plan

A	B	C	D	E	F
1100	468	307	1261	2091	830

Measures under consideration by the Nepalese: To send back AHW's stationed at hospitals to Health Posts. Establishment of an entrance examination system to reduce the number of students who leave school without completing the course. To station one person at each Health Post instead of two as a tentative measure.

#### (3) Training of Health Assistance (HA)

Qualification: Successful applicants of the SLC Test

Period of training: Two and half years but 2 years for AHW

Training school: 2

Place of employment after graduation: Health Post

Quality of Service: A person responsible for Health Post

There is a remarkable tendency to leave the job after employment to take part in MBBS training.

#### The Comparison with the Sixth Plan

A	B	C	D	E	F
746	517	224	1039	1223	184

Measures under consideration by the Nepalese: To limit transfer to the MBBS Course by the establishment of examination system.  
To increase the capacities of campuses.  
To qualify people who have completed SAHW education (which is not conducted regularly) for responsible Health Post persons.

#### (4) Training of Lab Technician (Non-Gazetted I)

Qualification: Successful applicants of the SLC Test

Training school: IOM Central Campus

Place of employment after graduation: Hospitals, Health lab, clinics

The manpower shortage will be solved by completion of Tribhuban University Teaching Hospital. It is possible to promote Lab. Assistants to Lab technician at the Central Health Lab. There is a senior post as a Medical Technologist but there is no training program for this position available in Nepal.

#### The Comparison with the Sixth Plan

A	B	C	D	E	F
81	57	27	111	184	73

Measures under consideration by the Nepalese: To transfer surplus Lab. Assistants (NG II) to the post of Lab Technician. To postpone the plan to station one Lab technician at each hospital with 15 beds.

#### (5) Training of Pharmacy Assit. (PA)

Qualification: Successful applicants of the SLC Test

Training school: IOM Central Campus

Place of employment after graduation: Hospitals

The program of education depends mainly on the practical training at hospitals. The training program is presently receiving support from the Soviet Union. There is a senior post as a Gazetted Pharmacist, but education abroad is required. (Increase of staff is difficult because of the limited number of stipend available.) There are problems in the employment situation due to the delay in the construction of hospitals. The shortage of PA will be solved by the short period training of HA/SAHW/AHW.

#### The Comparison with the Sixth Plan

A	B	C	D	E	F
48	43	20	71	81	10

(6) Training of Radiographer (NG)

Qualification: Successful applicants of the SLC Test

Training school: IOM Central Campus

Place of employment after graduation: Hospitals

A high ratio of graduates leave their jobs. On the other hand, due to the shortage of personnel, posts in rural areas are unfilled. There is a senior post as a Senior Radiographer but educational facilities to train such an individual are unavailable.

The Comparison with the Sixth Plan

A	B	C	D	E	F
46	24	9	61	79	18

Measures under consideration by the Nepalese: To increase the capacity of Campus  
To improve entrance examination system

(7) Training of Kaviraj (NG I) – Traditional Medicine –

Qualification: Successful applicants of SLC Test

Training school: IOM Ayurved Campus

Place of employment after graduation: District Clinic, etc.

There is a senior post as a Chief Kaviraj but education in India is required. There is a lower post as Vaidyas (NG II), but at present there is no training program available for this position.

The Comparison with the Sixth Plan

A	B	C	D	E	F
111	39	22	128	143	15

Measure under consideration by the Nepalese: To institute an entrance examination to reduce the number of students who leave school without completing the course.

(8) Training of Medical Officer (Gaz III Doctor) – MBBS COURSE –

Qualification: Those who have received the certificate in medicine and have three years of practical experience

Training school: IOM Central Campus

Place of Employment after graduation: Hospitals mainly affiliated with the Ministry of Health, and IOM.

Quality of service: Doctor at hospital, or Educator at IOM.

Three groups (22, 22, and 28) have received education at IOM by now and the initial group will graduate in 1984. There are many potential applicants. When Tribhuvan University Teaching Hospital is completed the number of students will be increased to cope with the shortage of doctors. 50 students at 1 grade projected. IOM has set up a stipend fund to support education abroad. Improvement of working conditions for doctors is planned to prevent them from leaving the country.

(9) Training of Staff Nurse (Certificate in Nursing) – NGI –

Qualification: Females who have successfully completed the SLC Test, Division II, and who are between the ages of 16 and 35, or candidates qualified for ANM, have more than 3 years experience and have passed SLC Test Division III.

Period of training: 3 years

Training school: Mahaboudha Nurse Campus (109 Students) UMN Nurse Campus (68), Biratnagar Nurse Campus (50)

Place of employment after graduation: Hospitals mainly under the administration of the Ministry of Health, and IOM.

Post after graduation: Nurse or Asst. Instructor

The Comparison with the Sixth Plan

A	B	C	D	E	F
477	282	170	589	901	312

Measures under consideration by the Nepalese: To increase the number of students at each Campus  
To establish campuses in each region, including one in Pokhara. To shorten the educational period (from 3 to 2 years) for those who are qualified for ANM  
To institute an entrance examination system to prevent students from leaving school, etc.

(10) Training of Senior Nurse (Bachelor in Nursing)

Qualification: Certificate in Nursing, and 3 years practical experience

Period of training: 2 years

Training school: Mahaboudha Nurse Campus



Place of employment after graduation: Hospitals, Participation in projects of the Ministry of Health, and IOM

Post after graduation: Sister, Senior Public Health Nurse, etc.

#### The Comparison with the Sixth Plan

A	B	C	D	E	F
33	28	17	44	92	48

Measure under consideration by the Nepalese: To open the training course regularly instead of irregularly as at present.

Thus, health manpower is lacking in each field. Increasing school capacity by the construction of new educational facilities by means of self-reliant effort or support from other countries, transferring surplus personnel to other fields or to additional posts, reconsideration of the Five-year Plan and so on will solve this shortage. Above all, the large number of positions that are vacant is a crucial problem. This shortage has a negative influence on the work of health service personnel, for example, especially ANM's.

Medical doctor education in the country is being facilitated since the completion of Tribhuvan University Teaching Hospital, but to improve medical care and to increase health manpower, the most pressing need is to train nurses.

## 2-10 Outline of Nursing Education

### 2-10-1 A History of Nursing Education

#### (1) Education for Certificate in Nursing

From 1933 to 1972, every field of education for health manpower was under the control of the Ministry of Health. In 1956, the first national nursing school was established at Surendra Bhaban, Lalitpur. It was moved to Chetrapati, Kathmaudu in 1959. In 1966, it was moved again to the site of Bir Hospital in Kathmandu, which is the predecessor of the present Mahaboudha Nurse Campus. In 1958, UMN (United Mission to Nepal) established a nursing school in Patan. The Trained Nurse Association started an accreditation system for nurses in 1962. This became the Nepal Nursing Council and those who passed the examination of the Nepal Nursing Council were licensed as nurses.

In 1972, the Institute of Medicine, Tribhuvan University under the Ministry of Education and Culture assumed this function. Since then, IOM has been in charge of education of health manpower. Both Mahaboudha Nurse Campus and UNM Nurse Campus are parts of the IOM. After receiving 3 years of nursing education, graduates are licensed to be staff nurses. This curriculum is referred to as the "Certificate Level Course". Mahaboudha Nurse Campus and UMN Nurse Campus have the same curriculum. The UMN Nurse Campus is operated through the sponsorship of the United Mission to Nepal which provides visiting teachers, etc.

In addition to those schools, Biratnagar Campus was established in 1982. Now, nursing education for the Certificate Level Course is provided by 3 schools. IOM plans to establish a new school in Pokhara.

#### (2) Education for Bachelor in Nursing Degree

This high level course has been established for the purpose of educating students to be nursing instructors and senior nurses promoting the health and medical care plan in Nepal. This course is being offered to graduates of the Certificate Level Course possessing more than 3 years of practical experience. Offered since 1976 at Mahaboudha Nurse Campus, this curriculum is referred to as the "Bachelor Level Course".

#### (3) Education for ANM

The ANM training system is different from the nurse training system. Malaria eradication was an important concern of medical care in Nepal. With the development of the Malaria Eradication Project, the necessity of regional health and medical service has been stressed. Advised by nursing specialists from other countries, the training of female rural health care workers began in Hetauda. This was the beginning of the ANM training in Nepal. This training is intended for health manpower in regional areas, and the main subjects are midwifery, health and hygiene, family planning, nutrition guidance and simple medical care.

The school was moved to Bharatpur in 1963. The second ANM training school was established in Biratnagar in 1965 and was raised to the status of a nursing school as previously described. ANM training schools were established in Nepalganj in 1967, Tansen in 1973 and in Kathmandu in 1974. This school, however, was closed in 1979. thus, ANM training is presently offered at 3 schools.

#### 2-10-2 The Present Situation of Nursing Education

There are two levels of nurse training in Nepal not including the ANM training the main purpose of which is to train personnel for Health Posts:

- 1) Certificate Level Course mainly intended to train staff nurses in hospitals.
- 2) Bachelor Level Course mainly intended to train senior nurses (for instance, sisters and matrons) who occupy posts of responsibility in hospitals and lecturers of nursing training.

These training courses are offered at the following Campuses.

Table 2-9 Outline of Nursing School

Name of Nursing School	Number of Student	Character	No. of Teachers
1. Mahaboudha Campus (Central Region)	109 Certificate Level 32 Bachelor Level	University	45
2. UMN Nursing Programme (Central Region)	68 Certificate Level	University	15
3. Biratnagar Campus (Eastern Region)	50 Certificate Level	University	29

Biratnagar Campus was established in 1982 and the initial graduates will receive their certificates in 1985.

Each year approximately 90 nursing trainees enrolled at the 3 campuses and 15 candidates for the Bachelor degree.

## 2-11 Necessity for Nurse Training

### 2-11-1 Necessity for Qualitative Development

The nurse is an expert with knowledge of various disciplines and techniques which can be applied to medical care. Nurses are in charge of a wide range of tasks in the field of health and medical care. Nursing is needed to assist people in the prevention of disease, promotion of health, and recovery from disease at different levels of human health, with expert knowledge and techniques. Nursing is vital to maintaining health and every aspect of medical care.

With changes in society, health needs have changed and diversified. Nurses must meet present health needs by developing knowledge, techniques, professional consciousness, and attitudes. To meet these needs, the current trend in worldwide nursing training is to train both nursing specialists (to furnish specialized medical care) and nursing generalists (to provide general nursing). In order to train of senior nurses, either as specialists or generalists, a high level of education is necessary. Continuing education has been emphasized for working nurses who intend to make a career in nursing education. For that purpose, the Bachelor Level Course was established in Nepal in 1976.

This course aims at the training of:

- 1) Nurses to assume posts of responsibility in hospitals.
- 2) Nurse administrators at each regional Health Office.
- 3) Nurses in charge of family planning, maternal, and child care, and other projects.
- 4) Senior Nurses in charge of nurse training at IOM.

It is intended to improve the overall quality of nursing and the health level of the people by the stationing of senior nurses to each region. By increasing the number of nurses at the Certificate Level, the staffing of basic nursing posts will be assured. In addition, the quality of nursing will be raised by training more Senior Nurses.

### 2-11-2 Necessity of Quantitative Development

As of 1982, 525 nurses were actually stationed at Manned Post out of a total of 704 Sanctioned Post. The required number of sanctioned posts by the end of the Sixth Plan is to be 719. This number is derived from the Plan's target to increase hospitals from 73 to 98 and beds from 2,568 to 4,020 and other related programs. The following table shows the standard number of nurses proposed for the various size of hospitals.

Table 2-10 Standard Number of Nurses for Various Size of Hospitals

Size of Hospital	Number of Nurses				Total
	GAZ I	GAZ II	GAZ III	NG I	
Rank	MATRON		SISTER	STAFF	
Status	MATRON		SISTER	STAFF	
15 Beds Hospital	—	—	—	1 ( 1)	1 ( 1)
25	—	—	—	1 ( 1)	1 ( 1)
50	—	1 (—)	3 ( 1)	9 ( 5)	13 ( 6)
100	—	1 ( 1)	4 ( 2)	24 (16)	26 ( 19)
150	—	1 ( 1)	6 ( 6)	43 (43)	50 ( 50)
200	—	1 ( 1)	8 ( 8)	45 (45)	54 ( 54)
300	1 ( 1)	2 ( 2)	13 (12)	98 (90)	114 (105)

Note: Numbers in parenthesis were estimated in 1982 at the Health Manpower Planning Workshop.  
(Source: Health Manpower in Nepal, Ministry of Health/IOM, 1982)

Except in the case of some small hospitals, the Plan expects the stationing of 1 nurse per 3 hospital beds. It is necessary to increase the manpower schedule numbers in order to provide enough nurses at hospitals with 15 to 25 beds and with three nursing shifts a day.

Taking into account the shortage of nurses in Nepal, the numbers in parenthesis in the table are reasonable target numbers. According to the Long-Term Health Plan, an estimated 1,433 nurses will be needed in 1990. 4,665 beds are planned to be set up by them after the basic equipping of hospitals down to the district level. On the other hand, approximately 725 qualified nurses will actually be working in 1990 if nurse training continues at the present rate, and assuming an attrition rate of 10 percent. This estimate falls short of the number of nurses needed, assuming a 70 percent completion rate of the Seventh Plan caused by the delay of the Sixth Plan. This number will be  $1,433 \times 0.7 = 1,003$ .

### 2-11-3 Details of Request

To alleviate the shortage of nurses, IOM plans to:

- (1) establish new schools; and
- (2) increase the capacity of existing schools.

Concerning plan (1), Biratnagar ANM training school was raised to the status of Certificate Level Campus. The establishment of a new school with a capacity of 40 students in Pokhara in the western region of the country is also planned.

On the other hand, concerning plan (2), the capacities of the Mahaboudha Nurse Campus and UMN Nurse Campus have been increased to their practical limit. Besides, the facilities of both schools were not originally designed as nursing schools. The Mahaboudha Nurse Campus is located on a part of the site of Bir Hospital, which is the biggest hospital in Nepal and is

administered by the Ministry of Health. This school is divided into 3 buildings: The administrative office in a three-story brick building (including some classrooms and a library); the teaching staff's office on the second floor of a three-story brick building (the first two floors are used by Bir Hospital and Others); and a dormitory housed in a five-story brick building (including a demonstration room and a classroom).

Entrances to each building are heavily crowded because they are used as emergency entrance and in-patient's and visitor's entrance as well. There is no room for expansion of the present Campus. Bir Hospital is now planning an expansion of the hospital onto the area presently occupied by the Mahaboudha Nurse Campus. The Tribhuvan University Teaching Hospital is to be completed under the authority of the Ministry of Education and Culture and in-patients will be accepted in the near future. At that time clinical practice will take place mainly at Tribhuvan University Teaching Hospital.

In view of this situation, IOM is planning to relocate the Mahaboudha Nurse Campus to the site of the Teaching Hospital and to expand the campus. His Majesty's Government of Nepal has requested the Government of Japan to extend grant aid for the facilities and equipment.

Therefore, this project concerns the relocation and expansion of the Mahaboudha Nurse Campus. The administrative system, faculty, and the curriculum are intended to be developed on the basis of the present campus. The existing equipment, furniture, and furnishing that are usable will be transferred to the new Campus.

**CHAPTER 3**  
**OUTLINE OF THE PROJECT**





## CHAPTER 3 OUTLINE OF THE PROJECT

### 3-1 Objectives

1. The objectives of this project is to establish a Nurse Campus at the site of the Tribhuvan University Teaching Hospital, Maharajgunj, in order to meet the growing need for fully trained nursing personnel in Nepal.
2. This project aims to relocate and expand the Mahaboudha Nurse Campus which is presently located at the Bir Hospital Complex. The nursing school will be under the administration and management of the Institute of Medicine, Teibhuvan University.
3. Annually, the Nurse Campus will admit about 80 students for the Certificate Level Course, for a duration of 3 years and about 40 students for the Bachelor Level Course, for a duration of 2 years.

The Bachelor Level Course will offer courses in specialized fields of nursing, such as:

1. Pediatric Nursing
2. Medical-Surgical (Adult) Nursing
3. Community Health Nursing
4. Others

In addition to the training activities outlined above, the nursing school will carry out research activities on nursing education and nursing services.

### 3-2 Plans for Student Recruitment

#### 3-2-1 Certificate Level Course

At present, the Mahaboudha Nurse Campus can accommodate 40 freshmen students each year. This project, however, aims to increase this number to 80 students. The need for such an increase has already been stated above. In order to make this project truly effective, however, it is necessary to consider whether or not it is possible to recruit 80 students per year.

##### 1. Admissions Requirements

Applicants will be eligible for admission to the nursing school if they fulfill either one of the two criteria shown below:

- (1) Women, 16 to 35 years of age, who have completed 10 years of primary and secondary education, and who have achieved scores ranked within or higher than Division 2 on the SLC (School Leaving Certificate) Test. (Students who pass the SLC Test are ranked into these Divisions, 1, 2, or 3 on the basis of their scores).
- (2) Qualified ANM's who have 3 years or more of practical experience, who have passed SLC Test, and who have received recommendations from the Ministry of Health.

##### 2. Student Recruitment

Procedures for the recruitment and selection of students are as follows:

For the recruitment of students fulfilling criterion (1), the IOM will place advertisements once a year in the newspapers, on the radio, and on posters, etc. Applications received from ANM's fulfilling criterion (2) via the institutions to which they respectively belong (mostly regional hospitals or health posts of the Ministry of Health), will be selected by the Ministry of Health, which will prepare a summarized list to be submitted to the IOM. All student admissions will be determined by the IOM. Students fulfilling criterion (2) will account for 1/4 - 1/3 of the freshman class. The IOM will also be responsible for the allocation of students to the 3 domestic schools. No entrance examinations will be held.

##### 3. Stipend and Tuition

Students fulfilling criterion (1) will receive a monthly allowance of 200 RS for 10 months of each year. Students fulfilling criterion (2) will continue to receive salaries from their respective institutions until graduation. Certificate Level Course students must pay 252 RS per year as tuition.

##### 4. Obligation after graduation

Nurses have to work in such medical facilities as hospitals at least three years after graduation.

### 5. Outline of Primary and Secondary Education

The figures below show an outline of primary and secondary education in Nepal:

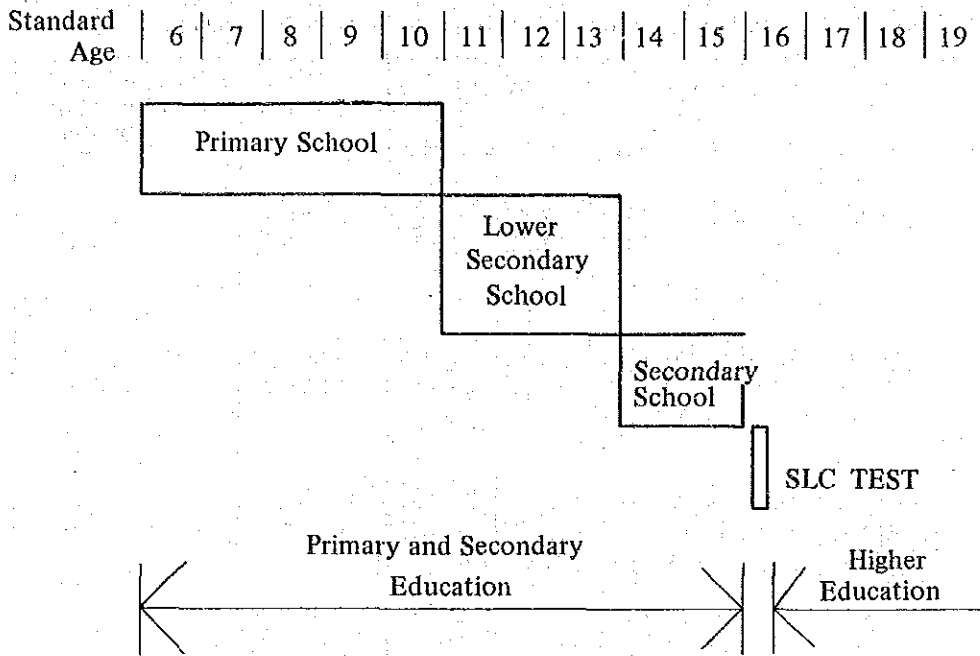


Fig. 3-1 Outline of Primary and Secondary Education

The table below shows the Ministry of Education and Culture statistics for 1982 relating to the total number of school children and the number of female school children receiving primary education in Nepal.

Table 3-1 Student Enrollment by Grade in Primary Education

Region	1st	2nd	3rd	4th	5th	Total	Female School Children Ratio by Region
Eastern Total	154,894	74,508	63,746	48,097	38,340	379,585	30.8 %
Female	50,835 (33%)	23,263 (31%)	19,531 (30%)	13,632 (28%)	9,823 (26%)	117,084	
Central Total	191,145	86,051	70,913	55,243	43,305	446,657	26.6%
Female	52,899 (28%)	23,927 (28%)	17,588 (25%)	14,126 (26%)	10,455 (24%)	118,995	
Western Total	170,465	78,106	62,444	45,533	34,307	390,855	32.1%
Female	60,562 (36%)	25,925 (33%)	18,341 (29%)	12,577 (28%)	8,362 (24%)	125,767	
Mid Western Total	72,074	31,396	23,434	16,721	12,796	156,421	21.8%
Female	17,619 (24%)	6,309 (20%)	5,300 (22%)	2,977 (18%)	2,021 (16%)	34,226	
Far West Total	46,954	18,332	14,590	12,002	9,302	101,180	14.1%
Female	7,954 (17%)	2,417 (13%)	1,716 (12%)	1,264 (11%)	1,016 (11%)	14,367	
Total Total	635,562	288,393	235,127	177,596	138,050	1,474,728	27.8%
Female	189,869 (30%)	81,841 (28%)	62,476 (26%)	44,576 (25%)	31,677 (23%)	410,439	
Female School Children Ratio by Grade	29.8%	28.3%	26.5%	25.0%	22.9%		

(Source: Statistics issued by Ministry of Education and Culture, 1982)

## Secondary Education

Table 3-2 Student Enrollment by Grade in Secondary Education

Grade Region	6th	7th	8th	9th	10th	Total	Female School Children Ratio by Region
Eastern Total	29,393	26,112	21,047	16,396	12,881	105,829	21.6%
Female	6,999 (24%)	6,193 (24%)	4,084 (19%)	3,298 (20%)	2,374 (18%)	22,948	
Central Total	34,539	28,362	23,816	19,887	17,203	123,807	22.8%
Female	8,353 (24%)	6,370 (22%)	5,360 (22%)	4,330 (22%)	3,905 (23%)	28,318	
Western Total	27,073	21,680	15,969	12,764	10,179	87,665	20.6%
Female	6,400 (24%)	4,410 (20%)	3,113 (19%)	2,551 (20%)	1,654 (16%)	18,128	
Mid Western Total	9,808	7,734	5,062	4,009	2,939	29,552	16.2%
Female	1,705 (17%)	1,281 (17%)	810 (16%)	587 (15%)	416 (14%)	4,799	
Far West Total	8,551	5,471	3,616	2,580	2,086	22,304	7.8%
Female	633 ( 7%)	463 ( 8%)	276 ( 8%)	230 ( 9%)	143 ( 7%)	1,745	
Total Female	109,364 24,090	89,359 18,717	69,510 13,643	55,636 10,996	45,258 8,492	369,127 75,938	20.5%
Female School Children Ratio by Grade	22.0%	20.9%	19.6%	19.7%	18.7%		

(Source: Statistics issued by Ministry of Education and Culture, 1982)

The percentage of female school children in each grade is lower in those regions, Far West, and Mid Western which are less developed. The percentage of female school children is higher in the lower grades. The total number of school children is also higher in the lower grades. This is explained by the Nepalese side as being due to an increasing interest in education on the part of the Nepalese people.

The Sixth Plan aims to establish more schools, so that 75 percent of all children of school age can receive primary school education, 40 percent can receive lower secondary school education, and 30 percent can receive secondary school education. It is expected that as more educational institutions are constructed, the number of female school children will increase in proportion to the increase in the total number of school children, and that the percentage of female school attendance will increase.

## 6. Outline of the SLC Test

The academic year in primary and secondary schools, with the exception of those in some mountainous regions, begins in December and ends in November. And usually, the SLC Test, for those who have completed 10 years of education, is held between January and March of the following year by the Controller of Examinations, the Ministry of Education and Culture. The freshman class of the higher educational institution are selected on the basis of the results of the SLC Test, and the new academic year starts in July.

The past results of the SLC Test are shown below:

Table 3-3 Result of SLC Test

Year	Applicant	Success	Success Rate
1979	63,989	18,789	29.36%
1980	72,819	15,608	21.40%
1981	79,968	13,337	16.60%
1982	* 80,600	unofficial data	
1983	*103,069	unofficial data	

\* includes repeat applicants

(Source: Education Statistical Report of Nepal)

The number of applicants is increasing year by year. The subjects tested are mathematics, English, Nepalese, social studies, health, Panchayat, etc., and students who achieve passing scores are classified into three groups.

SCORE	100% $\geq$ DIVISION 1 $\geq$ 60%
	60% > DIVISION 2 $\geq$ 45%
	45% > DIVISION 3 $\geq$ 35%

Official data relating to the number of students in each Division are unavailable, but unofficial data indicate that 75 percent of students with passing scores are ranked within Division, 1 or 2.

### Possibility of Student Recruitment

From the above data, the following estimates can be made: In the SLC Tests for the 1983 school year (held in March, 1984), there were 103,000 applicants, of which 20.5 percent were female. An estimated 22% of these students achieved passing scores, (averaged over a 3 year period) and of these students, 75% are ranked within Division 1 or 2. Thus, there will be approximately  $103,000 \times 0.205 \times 0.22 \times 0.75 = 3,500$  female applicants eligible for admission to the nursing schools.

IOM plans for the admission of students are as follows:

Proposed Project:	80 students
UMN Nurse Campus:	30 students
Biratnagar Nurse Campus:	30 students
Pokhara Nurse Campus:	40 students (planned)
*Total:	180 students

If 2/3 of these are students fulfilling criterion (1), mentioned before, 120 students will be admitted in this manner. This figure amounts to 3.4% of the 3,500 female students eligible for admission. According to Japanese statistics, there were 726,518 female students graduated high school in 1982, while the total number of students enrolled in 3-year nursing schools were 16,673, which amounts to 2.29 percent of the number of female graduate students. If students enrolled in 2-year nursing schools are included, the total figure becomes 34,756 and the percentage is 4.78 percent.

#### Considerations Based on IOM Recruitment Results

Table 3-4 Recruitment Result of Nurse Campus

Applicants	Remarks
1981 233	Includes recommendation list from the Ministry of Health. Includes applicants for Biratnagar Nurse Campus.
1982 105	Total number of applicants for Mahaboudha Nurse Campus and UMN Nurse Campus.
1983 112	Does not include applicants for Biratnagar Nurse Campus.

In addition to the above considerations, the fact that; (1) at present, the number of occupations open to women are limited, (2) a stipend (200 RS / month x 10 months / year) is provided, (3) dormitory for respective students is available, and (4) opportunities for employment are abundant, all lead to the conclusion that, at present potential applicants are not lacking and that the recruitment of students is certainly possible.

#### 3-2-2 Bachelor Level Course

##### 1. Admission Requirements

Nurses who have had over 3 years of practical experience as a staff nurse or assistant instructor after graduation from the Certificate Level Course, and whose necessity has been recognized by the institution to which they belong.

## 2. Stipend and Tuition

Their respective institutions shall continue to pay their salaries for the duration of their studies. In other words, the students enrolled in this course are considered to be work-study students. Students must pay 312 RS yearly as tuition. After graduation, the students will return to their respective institutions.

## 3. Past Results

At present, this course is available only at the Mahaboudha Nurse Campus. The results up to the present are shown below.

Table 3-5 Past Result of Bachelor Level Course

Course	1976	77	78	79	80	81	82	83	84	85
Midwifery	<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">10</div> <div style="margin-right: 5px;">Suspended</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">Joint lecture</div> </div> <div style="display: flex; align-items: center; justify-content: center; margin-top: 5px;"> <div style="margin-right: 5px;">No. of</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">20</div> <div style="margin-right: 5px;">Students</div> </div>									
Community Health Nursing	<div style="display: flex; align-items: center; justify-content: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px;">15</div> </div> <div style="display: flex; align-items: center; justify-content: center; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px;">15</div> </div>									
Medical-Surgical (Adult) Nursing	<div style="display: flex; align-items: center; justify-content: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px;">16</div> </div>									
Pediatric Nursing	<div style="display: flex; align-items: center; justify-content: center; margin-top: 10px;"> <div style="border: 1px dashed black; padding: 2px; margin-right: 10px;">Planned</div> </div>									

The midwifery course was established in 1976, but the class was temporarily interrupted for reasons such as lack of teaching staff. Subsequently, the community health and adult nursing courses were programed.

## 4. Student Capacity

The freshmen class will be composed of 40 students, and 2 courses will be held at all times. Therefore a single course will be composed of 20 students. Besides pediatric nursing, adult nursing, and community health nursing, the establishment of courses in orthopedic nursing, psychiatric nursing, ophthalmologic nursing, and nursing education are being planned. The types of courses to be established will be decided by the IOM and the Ministry of Health, should resognize a need for them. These courses are a part of the



continuing education demanded of the nursing profession, and are intended to enhance the quality of nursing personnel by providing opportunities for re-education, and, in the long run, to raise the level of health and medical care in Nepal.

### 3-3 Plans for The Recruitment of Teaching Staff

Administration, operation, and education in the Nurse Campus will be based on the organization of the present Mahaboudha Nurse Campus.

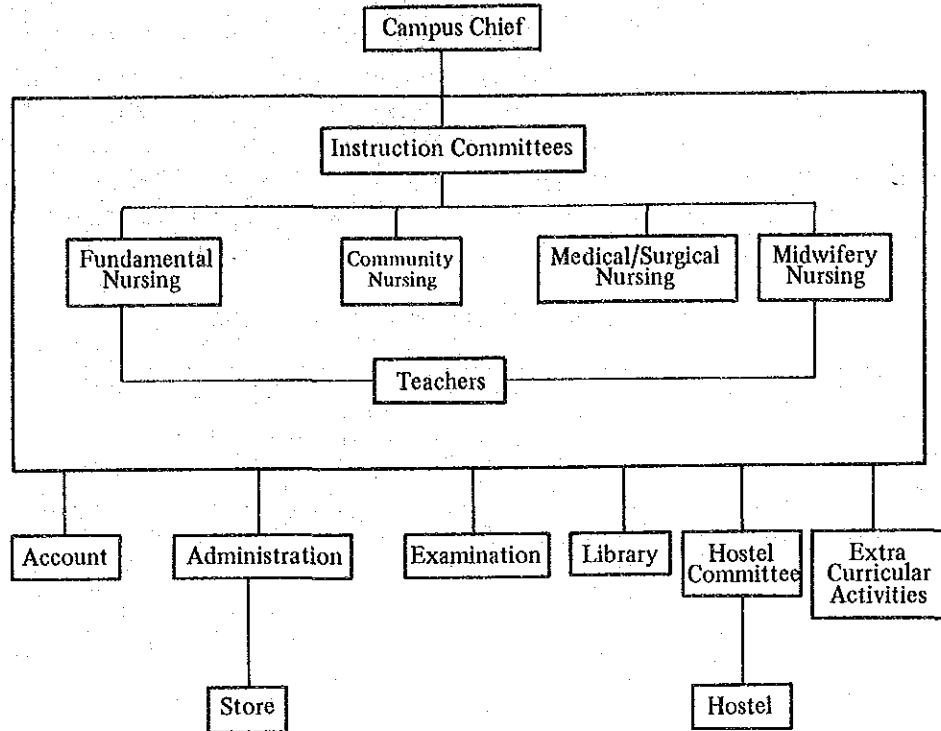


Fig. 3-2 Organization Chart of the Nurse Campus

The staff will consist of the following members:

A. Campus Chief (appointed from the Teaching Staff)		C. Non-Teaching	
B. Teaching		1. Administrator	1
1. Professor	1	2. Administrative Assistant	5
2. Reader	4	3. Accountant (Including Asst.)	4
3. Lecturer	21	4. Typist	2
4. Assistant Lecturer	11	5. Store Keeper	2
5. Instructor	4	6. Other (Driver, Peon, Watchman etc.);	15
6. Deputy Instructor	3	7. Cook	8
7. Asst. Instructor	2	8. Kitchen Cleaner	9
		9. Sweepor	4
Sub Total	46	Sub Total	50

Table 3-6 Staff Composition for the Nurse Campus

At present, the teaching staff consists of 43 members, however, there are only 38 full-time members, of whom 9 are overseas at present, but 1 Professor and 2 Readers will be added to the staff by the time the campus is established. The fields of specialization of the members of the full-time teaching staff are listed below:

Specialized Subjects		General Education Subjects	
Community Health Nursing	13	English	1
Midwifery	8	Nepalese	1
Medical-Surgical (Adult) Nursing	55	Introduction to Nepal	1
Psychiatric Nursing	1		
Pediatric Nursing	2		
Fundamentals of Nursing	4		
Nursing (General)	2		
Other Subjects	5		
Unknown	1		

Table 3-7 Number of Teaching Staff by Specialization

\*A single member of the staff will take charge of several subjects, thus the figures shown above do not match the actual number of teachers. This table also includes the fields of specialization of those staff members who are overseas at present.

The degrees held by members of the full-time teaching staff are:

Master of Science	13 (3)
Master of Arts	5
Bachelor of Science	17 (4)
Certificate Degree	3 (2)

Figures in parenthesis indicate the number of teachers who are overseas at present.

### 3-4 Curriculum

#### 3-4-1 Certificate Level Course

The figures below show the planned curriculum for the Certificate Level Course. The curriculum currently in use at Mahaboudha Nurse Campus will continue to be used.

Table 3-8 Curriculum for Certificate Level Course

Year	General Subject		Technical Subject			Total hour
	Subject	hour	Subject	Theory hour	Clinical hour	
1st Year	English Nepali Introducing Nepal Applied Sciences	180	Microbiology Pharmacology Human Biology Community Health Nursing Fundamental of Nursing	90		1,260
		180		90		
		90		90		
		90		90	180	
		540		540	180	
				720		
2nd Year	Fundamental of Social Psychology	180	Nutrition Nursing Care of Adult Community Health Nursing	90		1,260
				270	270	
				180	270	
		180		540	540	
				1,080		
3rd Year			Ward Management Nursing Care of Hospital Children Community Health Nursing Midwifery	180	180	1,260
				90	90	
				90	90	
				270	270	
				630	630	
				1,260		
Total		720		1,710	1,350	3,780
				3,060		

Principal hospitals to be used for clinical practice are: Tribhuvan University Teaching Hospital (300 beds), Bir Hospital (300 beds), Kanti Pediatrics Hospital (50 beds), and Tekhu (Infections Disease) Hospital (100 beds).

Remarks: Japanese nursing schools regulations require that the number of beds available for clinical practice should be at least equal the number of students.

Total formal study hours are approximately equal to those of Japanese nursing schools, which are 3,375 hours for a 3-year course.

The characteristics of the curriculum reflect the existing medical situation in Nepal, that is, (1) adult diseases such as heart disease, cerebral vascular disease, and hypertension, are a few, and diseases are primarily parasitic infestation and infections in nature, (2) specialization into fields such as ophthalmology, otolaryngology, and urology presently is not progressing, especially in regional hospitals, (3) in general, highly technological or complex therapies are not used, and (4), highly specialized therapeutic units such as the ICU and CCU have only recently been introduced. Thus, little lecture time is allotted to adult

nursing, while a great deal of time is allotted to subjects such as community health nursing, which are essential in Nepal. Furthermore, since there is no postgraduate education course in midwifery, a great deal of time is allotted to maternal health nursing as well. The academic year begins in the first month of the Vikram calendar (i.e., mid-July), and classes are held 5 hours a day (60-minute lecture periods), 6 days a week. Saturdays are holidays. Lecture schedules are the same for all three years. The first 8 weeks of the school year are devoted primarily to classroom lectures. For example, theory in nursing will be taught in regular classrooms in the morning, while practical trainings will be performed in the demonstration rooms during the afternoon. Then, during the intermediate period (30 weeks), classroom training and clinical training will alternate one week at a time. A clinical training group will consist of 20 to 30 students. After returning from clinical practice, much time is allotted for group discussions using seminar rooms. 2 weeks of review and 2 weeks of examinations will be held during the last month of each school year. Students at the UMN Nurse Campus will take their examinations at the Nurse Campus also. The school year will not be divided into semesters. Since summer vacation is two weeks and winter vacation last one month, and Dasein holidays last four weeks, 1,260 study hours must be completed in 42 weeks.

### 3-4-2 Bachelor Level Course

The Bachelor Level Course offers courses in the following specialized fields:

1. Pediatric Nursing
2. Medical-Surgical (adult) Nursing
3. Community Health Nursing
4. Others (Midwifery, General Nursing, Orthopedic Nursing, Psychiatric Nursing, Nursing Education, Ophthalmologic Nursing, etc.)

The current curriculum for the Community Health Nursing Course is shown below:

Table 3-9 Current Curriculum for Bachelor Level Course (Community Health Nursing)

The first year	Hour	The second year	Hour
1. Community Health I	120	1. Community Health II	80
2. Maternal Health I	65	2. Maternal Health II	75
3. Child Health I	65	3. Child Health II	60
4. Administration I	60	4. Administration II	70
5. Teaching I	60	5. Teaching II	70
6. Applied Research	80	6. Primary Health Care	45
7. Developing Health Services of Nepal	50	7. Community Resources	45
8. Special Programmes	60	8. Community Practice II	545
9. Social Service Applied to Nursing	55		
10. Community Practice I	280		
<b>Subtotal</b>	<b>895</b>		<b>990</b>
<b>Total</b>			<b>1,885</b>

The following subjects will be included in all other courses currently planned:

Administration I, Teaching I, Applied Research, Developing Health Services of Nepal, Special Programmes, Social Services Applied to Nursing. These subjects will be taught in the form of joint lectures.

### 3-5 Procurement of Operating Budget

Trends in the educational budget of Nepal are shown below;

Table 3-10 Educational Budget of Nepal

	(In million RS)					
	1977/78 Actual	1978/79 ←	1979/80 ←	1980/81 ←	1981/82 ←	1982/83 Estimate
Regular Expenditure	69.1	80.8	82.5	98.6	106.8	132.0
Development Expenditure	201.2	234.5	248.1	285.6	412.3	689.4
Total	270.3	315.3	330.6	384.2	519.1	821.4

If the results of the 81/82 fiscal year are taken as representative 519.1 Million RS, that is, 9.68 percent of the national budget (5,361.3 Million Rs), were spent on education. Of this amount, about 79 percent were used as funds for the development of the Sixth Plan. The total expenditure of Tribhuvan University for the 1982/1983 fiscal year, including programs involving foreign aid, 356.2 Million RS. Of this amount, the expenditure of the IOM was 17.5 Million RS. The budgets for the 3 nursing schools operated by the IOM are outlined below:

Table 3-11 Current Budget for Nursing School

	Budget	No. of Students		No. of Teachers
		Certificate	Bachelor	
Mahaboudha Campus	1,510,000 RS	109	32	45
UMN Nursing Programme	1,000,000	68		15
Biratnagar Campus	609,000	50		29

These figures usually show an increase of 10% each year.

The table below shows the itemized expenditure of the Mahaboudha Nurse Campus (Sanctioned)

Table 3-12 Itemized Expenditure of Mahaboudha Nurse Campus

Item	In thousand RS	Remarks
<b>EXPENDITURE</b>		
Personnel Expenses	1,164	including Overtime Allowance, Travel Expense
Electricity and Water Expense	30	
Repair and Maintenance	16	
Stamp and Telephone	6	
Transportation	61	
Advertisement	4	
Conducting Examination	5	
Printing and Stationary	15	
Books and Journals	18	
Tools and Equipment	5	
Stipend	166	
Student Welfare	60	
Others	48	
<b>INCOME</b>	<b>88</b>	
<b>Actual Expenditure</b>	<b>1,510</b>	

The status, and salary of the teaching staff are shown below:

Table 3-13 Status, Salary of Teaching Staff

Rank	Status	Basic Salary/Month	Annual Increment	Term of Increment
Special	Professor	1825 RS	75 RS	4 Years
GAZ I	Reader	1500	50	11
GAZ II	Lecturer	1095	30	14
GAZ III	Asst.	875	25	16
	Lecturer			
NG	Instructor	650	20	15
	Deputy Instructor			
	Asst. Instructor			



The budget will be drafted by the Nurse Campus and will be accepted the procedure shown below:

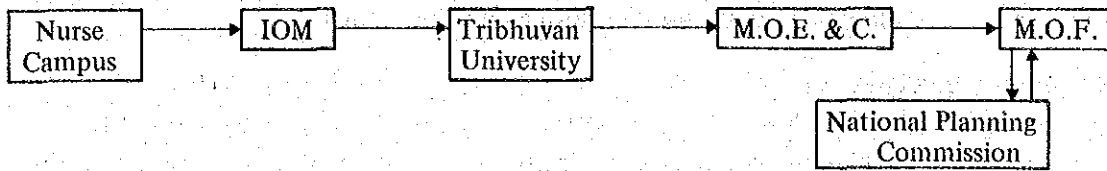


Fig. 3-3 Budget Acquisition Procedure for the Nurse Campus

Since the request to relocate and expand Mahaboudha Nurse Campus has been made and authorized by the Nepalese, maintenance and operating expenses after its completion will be based on the present budget, with necessary alterations corresponding to its increased size.

### 3-6 Employment after Graduation

Unemployment is a grave problem now confronting Nepal. Consequently, one of the chief aims of the current plan is to enhance employment opportunities in different regions as well as to ensure equal employment opportunities throughout the country.

Furthermore, to provide equal opportunities for women is to provide vocational and technical education and to develop new jobs. This project must further these aims. However, concentration of the population and educational institutions in urban areas has resulted in the appearance of unemployment among educated workers in urban areas from about 1981. This project must not exacerbate this phenomenon.

#### 3-6-1 Employers for Graduates

Certificate Level Course graduates of this Campus will be mainly employed by:

1. the Ministry of Health as staff nurses at hospitals
2. the Ministry of Education and Culture as staff nurses at Tribhuvan University Teaching Hospital or teaching staff at IOM
3. Others as staff nurses at other public & private hospitals

Recent employment statistics for graduates the Mahaboudha Nurse Campus and the UMN Nurse Campus are shown below (Certificate Level Course):

#### Mahaboudha Nurse Campus

Table 3-14 Recent Employment Statistics

Year	No. of Graduates	Employer		
		MOEC		MOH and Others
		Teaching Hospital	IOM	
1982	33	12	5	16
1983	32	11	5	16

#### UMN Nurse Campus

Table 3-15 Recent Employment Statistics

Year	No. of Graduate	Employer			
		MOH	Others	UMN Hospitals	Outside of Nepal
1982	27	9	4	13	1
1983	25	10	—	15	—

For the Mahaboudha Nurse Campus graduates in 1982 and '83, the completion of Tribhuvan University Teaching Hospital created a special situation: that is, a large number of nurses had to be employed in order to fully staff the hospital. For this reason, the figures shown above differ from the usual pattern of employment; that is, the completion of the Teaching Hospital diminished the supply of nurses to hospitals under the Ministry of Health's jurisdiction.

The existing number of nurses plus the number of nurses to be trained in the future, amounts to an estimated nursing population of 900 in the year 1990, taking into consideration the attrition rate is 10 percent. The number of nurses for the year 1990 required by the Long-Term Health Plan, is 1433. Even if the achievement rate for this plan is 70 percent,  $1433 \times 0.70 = 1,003$  nurses which are needed. Thus the demand will far exceed the supply and there is no fear of surplus of nurses.

### 3-6-2 Employment Requirements

In order to receive permanent employment with a hospital under Ministry of Health's jurisdiction, graduates must pass the PSC (Public Service Commission) Test. In order to receive permanent employment at Tribhuvan University Teaching Hospital, graduates must pass the Service Examination of Tribhuvan University. There is no nationwide testing system for nursing accreditation.

3-6-3 Promotion System

The promotion system is outlined below:

Table 3-16 Promotion System

Rank	Level	Nurses Graduated Certificate Level Course	Nurses Graduated Bachelor Level Course	Status in Nursing Field	Status in Nursing Education	
Special Class	12				Professor	
GAZ-I	11		Years ◇ 5			
	10	○		○	Matron	Reader
GAZ-II	9	⊙	◇ 4	⊙		
	8	○	◇ 3	○		Lecturer
GAZ-III	7	⊙	◇ 4	⊙		
	6	○	◇ 4	○	Sister	Assistant Lecturer
Non Gazette	5	⊙	◇ 4	⊙		Instructor
	4	○	◇ 4	△	Staff Nurse	Deputy Instructor
	3	△				Asst. Instructor
	2					
	1					

- △ Status at Starting Point
- ⊙ Promotion due to Recommendation of Promotion Committee
- Promotion due to Performance Evaluation
- ◇ Figures (within diamonds) Specify Years of Experience Required for Promotion

(Source: Long-Term Health Plan, Ministry of Health, 1976)

The promotion system shown above was established in the Long-Term Health Plan for health & medical service personnels by the Ministry of Health. For the IOM, which is under the authority of the Ministry of Education and Culture, there are 4 ranks of Gazetted Officer, which includes the status of professor. However, salaries for each rank are approximately equivalent in both the Ministry of Health and the IOM. The promotion system outlined above was established in order to prevent the brain drain of medical personnel including nurses and to provide an incentive for continued employment and industriousness.

### 3-7 Necessary Facilities

The facilities needed for the project described in the report are as follows:

#### 1. Academic and Administrative block

##### (1) Academic block

For Lecture

##### 1) Classroom for Certificate Level 3

(one room for each grade). Each room has a capacity of 80 student, one of them is equipped with a dark curtain and a screen for OHP (over-head-projector).

##### 2) Classroom for Bachelor Level 2

Both rooms have a capacity of 40 students, one of them equipped with a dark curtain and a screen for OHP.

##### \*Utility Rate

It can be estimated from the study of the curriculum that the utility rate of the lecture rooms will be about 70% of the inner-school lectures in the Certificate Level. and about 40% of inner-school lectures in the Bachelor Level.

For Demonstration

- |                                 |                     |
|---------------------------------|---------------------|
| 3) Demonstration Room           | 1 (for 80 students) |
| 4) Maternity Demonstration Room | 1                   |
| 5) Preparation Room             | 1                   |
| 6) Nutrition Laboratory         | 1 (for 80 students) |

##### \*Utility Rate

Certificate Level	20%
Bachelor Level	10%

##### 7) Seminar Room 3

Capacity of 20 students each. It is for group-work such as investigation & discussion after demonstration and after coming back from outer school clinical practice. Outer school clinic practice and group works are both an important part of nurse education in Nepal. These rooms will be used for seminar rooms in Bachelor Level as well.

##### \*Utility Rate

Certificate level	10%
Bachelor level	50%

Others

8) Library 1

The present capacity of Mahaboudha Nurse Campus is 5,600 volumes. This is expected to increase to 10,000 volumes, due to the fact that text books must be stored in the library and from the acquisition of new books.

9) Teaching staff room

Professor's Room	1 (for 1 person)
Reader's Room	2 (2 persons per room)
Recturer's Room	8 (4 persons per room)
Teacher's Room	2 (4 or 5 persons per room)

(2) Administrative block

1) Campus Chief's Room	1
2) Office Rooms	
for Administration section	1 (6 persons)
for Account section	1 (4 persons)
for Examination section	1
Typist Room	1 (2 persons)
3) Meeting Room	1
4) Others	

(Janitor's room for drivers and peons, electrical room, pump room, storage room, etc.)

2. Student Dormitory .

(1) Bed Rooms	140
	(2 students in each room)

It is estimated that at least 40 of the total number of students (320) will be able to attend school from their home and will be able to go home by school buses even after night-clinical practices.

It is clear that self-study is very important to increase the efficiency of the nurses' education. It is common in Japan that two hours of self-study are necessary for a one hour lecture, and an hour self-study for a one hour demonstration. The plan to house two students in a room was derived from considerations of the efficiency of self-study and the present arrangements in local schools including the Mahaboudha Nurse Campus.

(2) Other facilities

- 1) Dining Hall      140 seats for 280 students
- 2) Kitchen          Capable of supplying 280 meals at one time, meals matches the present menu of the Mahaboudha Nurse Campus. The proposed time table and menu are as follows:  
  
7:00 AM            breakfast: rice, darr, vegetables, curry  
10:00 AM          morning tea: tea, bread  
4:00 PM            afternoon tea: tea,snacks  
7:00 PM            supper: rice, darr, chapati, vegetables, curry

Food and fuel expenses will be paid by the students. A food storage room, cook's room (8 cooks, 9 sweepers), and a toilet are planned as attachments.

3) Laundry          1

A laundry and drying place of an appropriate size will be provided on each wing of each floor of the dormitory.

4) Shower Room    1

A shower room of appropriate size will be provided on each wing of each floor of the dormitory.

5) Warden's Section 1

This consists of an office (near the entrance) and a living quarters (living room, kitchen, two bedrooms, bathroom, etc.)

The campus teachers (female) will take turns being warden. She will be in charge of the discipline and consultation of the students.

6) Housekeeper's Section 1

A housekeeper's living quarters (twin bedroom, kitchen, shower room)

7) Sick Room        1

The size is that of a student bedroom (2 beds in the room). The room will be used to accommodate ill students.

3. Others

- 1) Guard House      2
- 2) Firewood Storehouse 1



**CHAPTER 4**  
**SITE CONDITIONS**



## CHAPTER 4 SITE CONDITIONS

### 4-1 Proposed Construction Site

The site of the Nurse Campus, which is in the district of Maharajunj, Kathmandu, is situated about 4 kilometers north of the center of the city. The surrounding area of the site is a fair residential area, where neat and clean houses, a government's guest house, and embassies are located. This is the district in which Kathmandu municipality is emphasizing the development of the infrastructure of the area. This district is listed as a residential area, where, it is considered to be suitable for the construction of the Nurse Campus.

The construction site occupies a part of the Tribhuvan University Teaching Hospital, and the entrance gate from the public road will be shared with the Hospital. Tribhuvan University plans to develop this area into a medical education complex.

Although public bus and omnibus-mortor tricycles are available from the center of the city, both of them are always crowded and difficult to utilize for the student's transportation.

## 4-2 Natural Conditions

### 4-2-1 Configuration

The site slopes slightly towards the south. Part of the site has been reclaimed with surplus soil from the construction of the existing Teaching Hospital. Paddy-fields and ridge passes remain in the rest of the site. There will be no obstacles for construction.

### 4-2-2 Soil Conditions

The site of the Teaching Hospital is lower than that of the proposed Nurse Campus. It formerly was paddy-field as well. According to the soil investigation report for the Teaching Hospital, the soil conditions of the hospital area are suitable for the construction of four-storied buildings, which indicate that the proposed site has similar soil conditions. To make the basic design accurate, a soil investigation on the proposed site was conducted by a local soil test company. From the result, it can be said that the soil conditions are same as of the Teaching Hospital and are suitable for the construction of four-storied buildings.

### 4-2-3 Meteorology

In Nepal, elevation above the sea defers largely from the southern Terai to the Himalayan high mountain area, and the country has various climatic provinces. Kathmandu Valley has rainy (June-September) and dry seasons (October-May). The Meteorological Department reports that about eighty percent of the annual precipitation occurs in the rainy season, and the mean value of maximum temperature is 28.5 C. In the dry season, there is a little rainfall, and the climate is mild since both temperature and humidity are comparatively low. The differences of diurnal temperature, however, are large, and the mean value of minimum temperature at night is 2.2 C from December to February. Therefore the buildings should be designed under the consideration of a cold climate rather than a hot climate. The wind comes mostly from a South-westerly direction throughout the year. The wind force is not very strong, so it is not necessary to take into consideration wind force in design of the building.