

## 2-3 RECORD OF DISCUSSIONS

### 1. Nurse Education

The two characteristics of arranging Nurse Education were discussed. The first was the so called '2 block' enrollment system under which student enrollment takes place twice a year and there are graduations of classes after completing the four year courses twice a year. This system is favoured by the Thai side as it yields a higher number of trained nurses twice yearly.

The second characteristic under discussion was the proposal for a 'mass-production' system of education by which means classes of 200 students were to be catered for. This is an education system generally adopted in Thailand. It was felt by the Japanese side to be excessive for the development of a satisfactory teacher/student relationship and the adoption of smaller classes was called for.

The Thai side agreed with the comments of the Japanese Survey Team on the drawbacks to having the large student numbers originally requested, namely 800 students. However though they stressed the critical shortage of nurses in Thailand which forced them to sacrifice optimum circumstances for maximum student nurse numbers they did agree to reduce their request to 600. The Japanese team noted this compromise figure and expressed their willingness to give it further consideration but set out their own conclusion that a suitable number of students would be 480 in total, divided into 120 students per year for a four year programme.

The survey team carried out investigations of the nursing educational situation in Thailand and the situation of training hospitals in the Mahasarakham area, and held exploratory discussions on the basic design and the educational system of the proposed Mahasarakham College of Nursing.

Period From 29th Oct. 1980 to 15th Nov. 1980

Institutions visited

- The Nursing College Division, Ministry of Public Health
- The School of Nursing Ramathibodi Medical Faculty, Mahidol University
- The Bangkok College of Nursing
- The Faculty of Public Health of Mahidol University
- The Project site of the Mahasarakham College of Nursing
- The Mahasarakham Provincial Hospital
- The Mahasarakham District (Wapeepratum) Hospital
- The Faculty of Nursing Khon Kaen University
- The Khon Kaen University Hospital
- The Khon Kaen Provincial Hospital
- The Nakhon Ratchasima College of Nursing
- The Nakhon Ratchasima Provincial Hospital
- The Saraburi College of Nursing

The discussion was mainly concerned with the following items.

- a. Size of the Mahasarakham College of Nursing
- b. Method and system of nursing education
- c. Educational Equipment
- d. Mutual understanding of Grant Aid and Technical Cooperation

Discussions about teaching methods were held several times. The main points examined were the 2 block enrollment system and the mass production method of education.

#### 1) System of Nurse Education

- a. The 2 block enrollment system is not satisfactory for nurse education for several reasons. It is the source of extra work for instructors who therefore cannot devote sufficient time for the proper care of their students and as a result the students' educational environment suffers. If the number of instructors is low then the quality of education the students receive will drop. However it does seem to be the only way to achieve the one overriding need of the community for increasing the supply of trained nurses by providing a graduating class of student nurses twice yearly.
- b. The application of mass production techniques to education with 100-150 students in one class does not allow a satisfactory development of the personality of the students nor an ideal class environment for acquiring knowledge and practising nursing techniques. The correct grasp of basic nursing techniques is fundamental to good nursing education and can only be learned under the close and strict surveillance of their instructor. Only a relatively small class allows the close proximity to be achieved in which student nurses can learn many important things especially with regard to their instructor's personality.

#### 2) Position of Thai Side

The Thai side, whilst understanding the comments of the Japanese side with respect to the excessive student numbers, emphasised that they were obliged to maintain both the quota of student nurses and the education system prescribed under the Fourth National Public Health Plan.

## 2. Size and System of Education

The Ministry of Public Health had originally made the following request.

Number of students : 800      200 students      a year x 4  
 Teaching Method : 2 block system      one class has 100 students

It was suggested by the team that a more satisfactory student nurse education would result from the following arrangements.

Number of student : 400      100 students      a year x 4  
 Teaching Method : To divide each class into 2 (1 block system)

Several discussions were held during which the Thai side and the Japanese side made the following points.

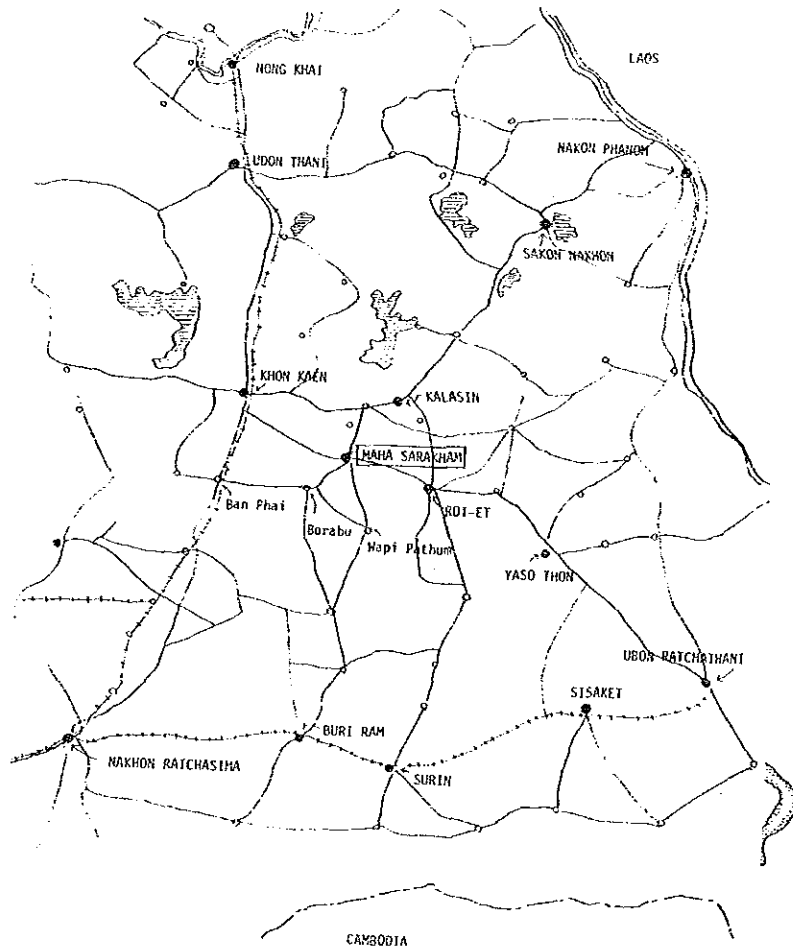
	<u>Thai Side</u>	<u>Japanese Side</u>
Number of Students	150 x 4 years = 600	120 x 4 years = 480
Teaching Method	1) 2 block system Entrance examination-March 1st group will start in June 2nd group will start in December 2) Mass production method To have large class rooms which accomodate 150 students	Suggested 1 block system and to divide class into 2  Suggested making smaller class rooms
Dormitory	All dormitory system 1st yr) 50-100 students in one room 2nd yr) 50-100 students in one room 3rd yr) 8 students in one room 4th yr) 8 students in one room	
Campus	To purchase more land immediately	Suggested obtaining more land for campus, because it was insufficient in area
Staff Housing	Decided to ask the Thai government for next year's budget	Explained that Grant Aid does not include staff housing
School Bus	Remove the request for a bus from the Grant Aid	Explained that Grant Aid does not include the school bus

EDUCATIONAL PROGRAMME  
NURSING AND MIDWIFERY CURRICULUM

	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1st year		Theory			vac.		Theory & Practice			vac.	Field Practice or Practice in Community Hospital	vac. vac.
2nd year		Theory & Practice		vac.		Theory & Practice			vac.	Field Practice or Practice in Community Hospital	vac. vac.	
3rd year		Theory		vac.		Theory & Practice			vac.	Field Practice or Practice in Community Hospital	vac. vac.	Theory & Practice
4th year		Theory & Practice	vac.			Theory & Practice		vac.		Field Practice or Practice in Community Hospital	vac. vac.	

	Semester 1		Semester 2		Semester 3		vac.
1st year	Theory	18 weeks	Theory & Practice	18 weeks	Practice	9 weeks	vacation 1 week
2nd year	"	18 weeks	"	18 weeks	"	9 weeks	1st + 2nd semester 1 week vacation
3rd year	"	18 weeks	"	18 weeks	"	9 weeks	3rd semester 2 weeks vacation
4th year	"	18 weeks	"	18 weeks	"	13 weeks	

(Enrolment begins in June and December in Mahasarakham College)



### 3. Survey of the Present Situation of Training Hospitals

- 1) There are approximately 1,600 patient beds for training of students in the Mahasarakham area.

•Mahasarakham Hospital	270 beds	420 beds
	(This will increase by 150 beds in the near future)	
District Hospitals (3)	30 beds x 3	90 "
•Roi-Et Hospital	400 beds	400 "
District Hospitals (3)	30 beds x 3	90 "
•Skonnakhon Hospital	278 beds	278 "
District Hospitals (3)	30 beds x 3	90 "
•Kalasin Hospital	205 beds	205 "
District Hospital (1)	30 beds	30 "

It is impossible to use the Kohn Kaen Provincial Hospital and District Hospitals, since students of the Kohn Kaen University are already using them.

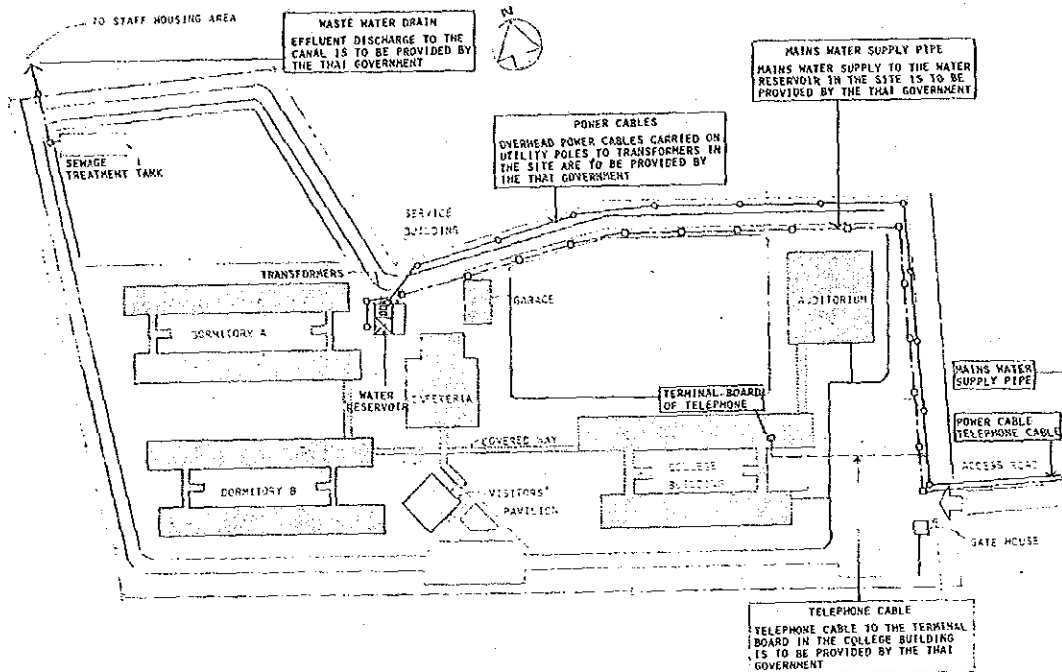
- 2) It is about 50 km from Mahasarakham to the Roi-Et Hospital, 200 km to Skonnakhon Hospital and 100 km to Karasin Hospital. It will not be ideal to transport students, but it will be possible to send them to these hospitals, provided there was a good rotation program, available such as concentrated ward training.
- 3) There are a few small hospitals in the Mahasarakham area for students at present. Larger and more general hospitals will be needed for student's practice, because approximately 1,600 patient's beds are not sufficient to provide over 600 students with adequate practice.
- 4) In the Mahasarakham Hospital there are only 4 wards, medical surgical, pediatric and obstetric. There is also an operating room, delivery room and I C U etc. This hospital will be the main training place for the college. However, the facilities and medical equipment at this hospital are inferior and obsolete compared with those of Kohn Kaen University Hospital.

4. Project Site and Access Road

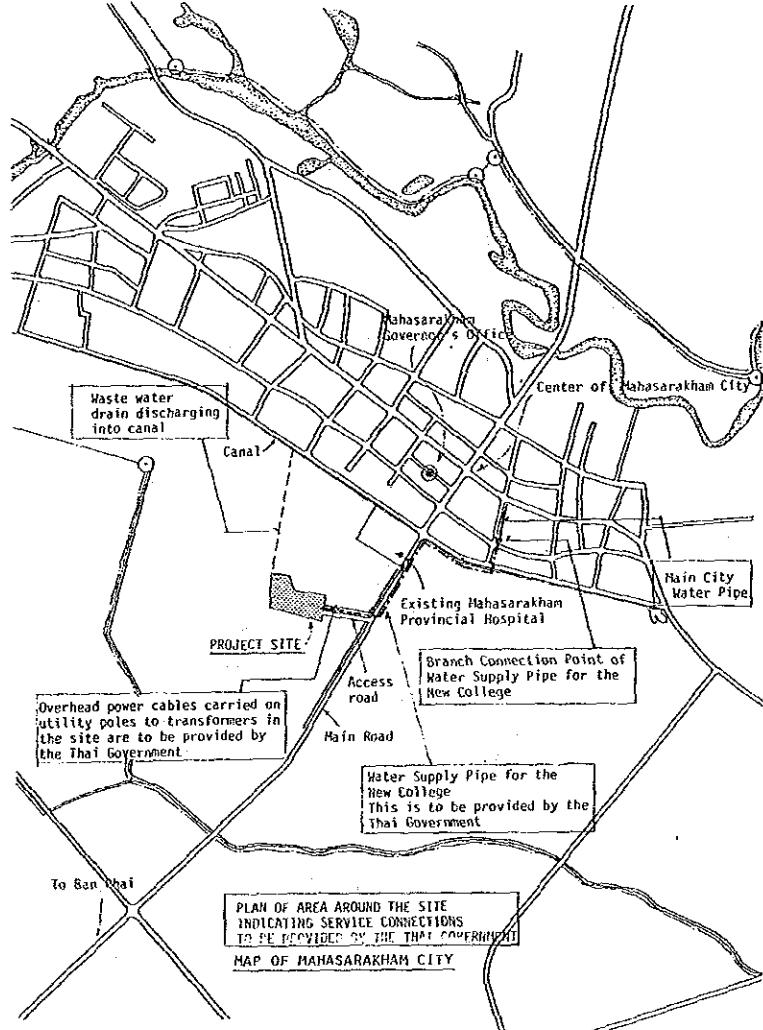
Because the original land acquisition of 32,000 m<sup>2</sup> was considered inadequate for the project site the Survey Team suggested and the Thai side agreed to purchase a further 16,000 m<sup>2</sup> of adjoining land. The Thai side took steps to obtain additional funds to carry out this purchase thus increasing the site area to approximately 48,000 m<sup>2</sup>. The Thai side agreed to increase the level of the site by 1.5 m generally to bring the level up to that of the main road and in addition to construct an access road link to the main road. The Thai side understood that all this work will have to be completed before the construction of the project could commence.

5. Utilities & Services

All the required utilities and services including, water, electricity, telephone and drainage will be provided to the site by connection from the nearest available existing services. The team advised the Thai side to carry out all such work and to provide all necessary services within the site to the locations required by the layout of the project facilities. All of the various tasks and miscellaneous responsibilities to be undertaken under the rules and regulations of Japanese Grant Aid by both parties were discussed and agreed and included in the MINUTES OF DISCUSSION as shown in section 2-4 Exchange of Minutes. They are more fully listed in 4-8 Scope of the Works.



WATER, ELECTRIC AND TELEPHONE SERVICES





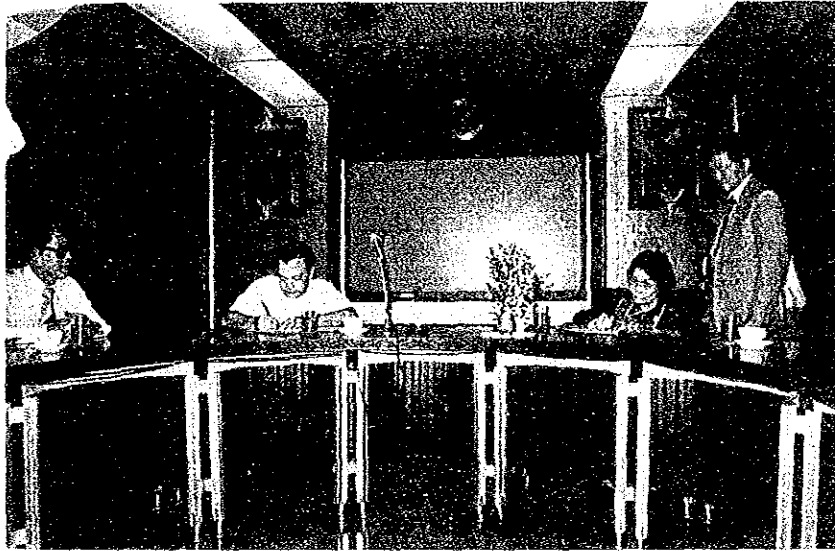
## 2-4 TEAM MEMBERS

The following members comprised the Survey Team headed by Prof. Y. TAKAHASHI.

Leader	Prof. Yuriko TAKAHASHI	Professor Aichi Prefectural College of Nursing
Nursing Educator	Sayoko KARASHIMA	Assistant Director Japan Red Cross Medical Center
Project Coordinator	Yoichi SEKI	Japan International Cooperation Agency (JICA)
Planner (Project Manager)	Kiyoshi HATA	Senior Architect Design and Supervision Div. Nikken Sekkei Ltd
Elec., Mech. and Educational Equip. Engineer	Koichi SUZUKI	Engineer Electrical and Mechanical Div. Nikken Sekkei Ltd
Cost Estimator (Architect)	Shozo BABA	Architect Design and Supervision Div. Nikken Sekkei Ltd
Structural Engineer	Tetsuo TOYODA	Engineer Structural Div. Nikken Sekkei Ltd

## 2-5 EXCHANGE OF MINUTES

At the completion of the site investigation, the findings and the discussions held were summarized in the Minutes. In the Minutes signed by Dr. Winit Asawasena, Deputy Under-Secretary, Ministry of Public Health for H. E. Dr. Prakorb Tuchinda, Under-Secretary, Ministry of Public Health and Prof. Yuriko Takahashi, Leader of the Japanese Survey Team, both parties agreed to recommend to their respective Governments that the necessary measures for establishment of the College be taken. The full text of the Minutes is shown below.



MINUTES OF DISCUSSION  
ON  
THE CONSTRUCTION PROJECT OF THE MAHASARAKHAM COLLEGE OF NURSING  
THE KINGDOM OF THAILAND

At the request of the Government of the Kingdom of Thailand for assistance in establishing the Mahasarakham College of Nursing (hereinafter referred to as "THE COLLEGE") in Mahasarakham, the Government of Japan through the Japan International Cooperation Agency (JICA) has sent a twenty one days survey team headed by Prof. Yuriko TAKAHASHI (Professor, Aichi Prefectural College of Nursing) to conduct the Basic Design Survey on the project from October 27, 1980.

The team held a series of discussions and exchanged views with the relevant Royal Thai Government Authorities on the establishment and construction of the College.

As a result of the survey and discussions, both parties have agreed to recommend to their respective Governments to take the necessary measures towards establishing the College as stated in the Minutes attached herewith.

November 14, 1980

Bangkok, Thailand

*Yuriko Takahashi*  
Prof. Yuriko Takahashi  
Head of the Japanese  
Basic Design Survey Team

*N. Asavanna*  
for. Dr. Prakorb Tuchinda  
Under-Secretary of State for  
Public Health

## M I N U T E S

1. The proposed College will be established at Mahasarakham.  
The land is to be the property of the Ministry of Public Health.
2. The objectives of the Construction of the College are to provide the facilities for nurse education to meet the greater number of trained nursing staff required for the planned increase in provision of nurses to rural areas.
3. The outline description of the College is as follows:
  - 3.1 Teaching facilities
  - 3.2 Student accommodation
  - 3.3 Services building
  - 3.4 Equipment
  - 3.5 Recreational facilities
4. The government of Japan will take necessary measures to provide the buildings, facilities and equipment for the College, as listed in Annex I.
5. The Royal Thai Government will take necessary measures as follows:
  - 5.1 To secure land suitable for the College.
  - 5.2 To clear and level the site before the start of the construction of the College.
  - 5.3 To construct and pave access roads to the site before the start of the construction of the College.
  - 5.4 To provide data and information necessary for the construction of the College including topographic survey, soil test and other geological survey results.
  - 5.5 To provide such items necessary for the College as listed in Annex II.

## ANNEX I

The following buildings and equipment are to be provided by the Government of Japan.

The College will be composed of the following facilities:

1. Teaching facilities (The college building)
  - 1.1 Class rooms
  - 1.2 Library
  - 1.3 Laboratories
  - 1.4 Audio Visual room
  - 1.5 Administration and Director's office
  - 1.6 Associated facilities
2. Auditorium
3. Dormitories
  - 3.1 Student bed rooms
  - 3.2 Matron's rooms
  - 3.3 Study rooms
  - 3.4 Recreation space
  - 3.5 Associated facilities
4. Cafeteria
  - 4.1 Dinning room
  - 4.2 Kitchen
5. Visitor's pavilion
6. Services building
7. Equipment

Equipment for educational and residential purposes.

## ANNEX II

Items, facilities and equipment whose cost should be borne by the Royal Thai Government:

1. Power and water supply mains to the service buildings, including services for construction use.
2. Telephone wiring to the College buildings.
3. Drainage and sewerage outside the site.
4. Landscaping and fences.
5. Furniture, utensils, rugs and drapes.
6. Building licence fees.
7. Recreational facilities
  - Tennis and basketball courts
8. Access road.

## 2-6 CONFIRMATION SURVEY

### 1. Objectives

As a result of the Basic Design Survey, November 1980, (described in Section 2-2 and 2-3), a basic design was carried out in Japan and compiled in the REPORT ON BASIC DESIGN -DRAFT- MAHASARAKHAM NURSING COLLEGE IN THE KINGDOM OF THAILAND.

The Japan International Cooperation Agency dispatched a survey team led by Miss S. Karashima Assistant Director Japan Red Cross Medical Center to the Kingdom of Thailand from January 26 to February 4, 1981 to submit and explain the Report and conduct further investigation and hold discussions necessary for finalizing the basic design.

### 2. Consultation

The team made a presentation of the basic design and discussed it with the Thai counterparts of the Ministry of Public Health, who agreed in principle to all matters described in the report and explained by the Japanese Survey Team. The discussions were mainly concerned with the works to be conducted by the Thai side, the building design, utility service system and educational equipment. In conclusion it was confirmed that the scope of the works to be provided by the Thai Government and the Japanese Government respectively was as per the statement in the Minutes and described in Section 2-4 of the report.

#### 1) Works to be conducted by the Thai Government

The team confirmed that the works to be conducted by the Thai side, such as the soil testing, preparation of survey map of the additional land, land filling of the site and construction of the access road now have been started and will be completed by the time required for this project to commence in accordance with the statement of THE MINUTES OF DISCUSSION, November 14, 1980.

2) Building design

With regard to the Basic Design of the Buildings for the college, dormitories, cafeteria and lecture theater presented in the plans of Basic Design Report -Draft-, the Thai side requested some modifications of buildings to the team who agreed to incorporate them into the final report.

3) Utility service

With respect to electrical and mechanical systems for the buildings and facilities in the site, the discussions held and exchange of views are described in page 5, THE MEMORANDUM OF DISCUSSION, APPENDIX 1.

4) Educational equipment

Discussions held on the educational equipment resulted in certain revisions to the list of items of equipment requested by the Thai side.

The above mentioned are summarised from the confirmation survey details as described in the statement of the MEMORANDUM OF DISCUSSION ON THE CONFIRMATION SURVEY.

### 3. Confirmation Survey Team

The following members comprised the confirmation survey team headed by Miss S. Karashima.

Leader	Sayoko KARASHIMA	Assistant Director Japan Red Cross Medical Center
Project Coordinator	Yoichi SEKI	Japan International Cooperation Agency (JICA)
Planner	Kiyoshi HATA	Senior Architect Nikken Sekkei Ltd
Engineer	Koichi SUZUKI	Engineer Nikken Sekkei Ltd



RECORD OF CONFIRMATION SURVEY  
ON  
THE CONSTRUCTION PROJECT OF THE MAHASARAKHAM COLLEGE OF NURSING  
THE KINGDOM OF THAILAND

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At the request of the Government of the Kingdom of Thailand for assistance in establishing the MAHASARAKHAM College of Nursing in MAHASARAKHAM, the Government of Japan through the Japan International Cooperation Agency (JICA) has sent a ten days Confirmation Survey Team headed by Miss Sayoko KARASHIMA (Assistant Director of Nursing, JAPANESE RED CROSS MEDICAL CENTER) to conduct explanation and confirmation for the Report on Basic-Draft on the project from January 26, 1981.

The team held of discussions and exchanged views with the Thai Government Authorities on the report on Basic Design-Draft.

As a result of the discussion, both parties have agreed as follows:

1. The Report on Basic Design-Draft was accepted by Thai Government Authorities.
2. The Final Report including statement of the attached memorandum will be submitted to the Thai Government by the end of March, 1981.

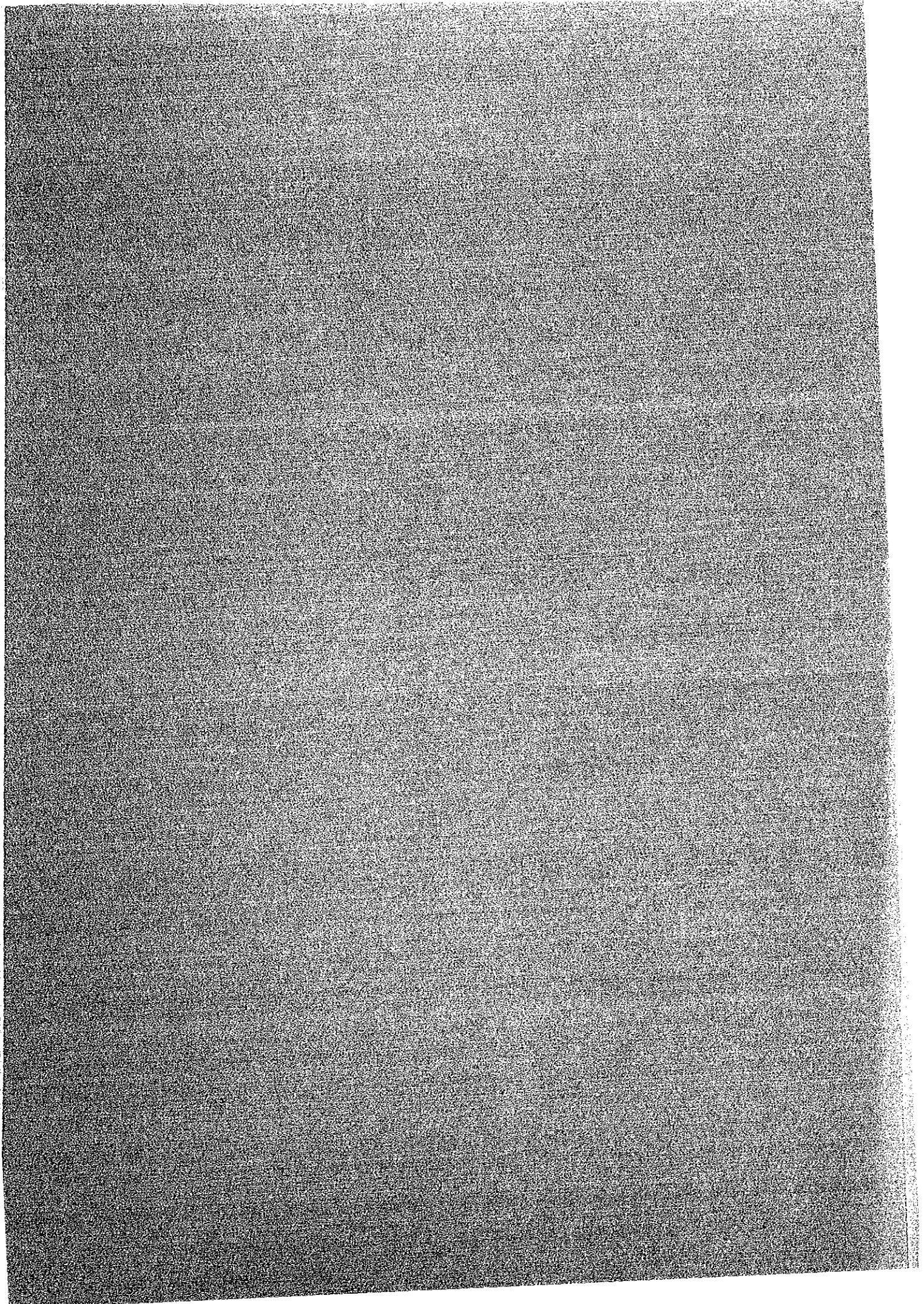
February 3, 1981  
Bangkok, Thailand

Sayoko Karashima  
Miss Sayoko KARASHIMA  
Assistant Director of Nursing  
Japanese Red Cross Medical Center  
The Confirmation Survey Team

Paga Sriyuktasuth  
Miss Paga SRIYUKTASUTH  
Director of Nursing Colleges Division  
Office of the Under-Secretary of State  
for Public Health  
Ministry of Public Health



CHAPTER 3 BRIEF DESCRIPTION OF NURSE EDUCATION FACILITIES



CHAPTER 3 BRIEF DESCRIPTION OF NURSE EDUCATION FACILITIES

1. Characteristics

- 1) Objectives of the Nursing Education and Training Program.
  - a. To expand nursing education and training.
  - b. To improve the quality and suitable distribution of nursing personnel.
  - c. To develop greater professionalism of nursing by providing education and training opportunities for career advancement.
  
- 2) The length of nursing education for Registered Nurses (R.N.) in Thailand is now generally 4 years (147 credits), from senior high school. The qualification of the Diploma in the college of nursing under the control of the Ministry of Public Health is equivalent to a Bachelor of Science (B.S.) in Nursing.

Existing nursing schools for R.N.:

Competent authority	Number	Term length	Degree awarded
Ministry of Public Health	10 colleges	4 years	Diploma
	7 schools	2 "	"
Division of State University	5 university courses	4 "	B.S.
Red Cross (connected to S.U.B.)	1 college	4 "	B.S.
Air force	1 school	3.5 "	Diploma
Army	1 "	3.5 "	"
Navy	1 "	3.5 "	"
Police Department	1 "	3.5 "	"
Mission	1 "	3.5 "	"
Private	1 "	3.5 "	"

- 3) The phasing out of the practical nursing program, 1 1/2 years after junior high school and promotion of the diploma, 2 years course (80 credits) after senior high school, has now begun.

- 4) Nursing Education Program of Ministry of Public Health.
  1. Degree program, 4 years from senior high school, 147 credits
  2. Diploma, 2 years from senior high school, 80 credits
  3. Diploma (Temporary), 2 years from practical or midwifery program
  4. Practical nursing program, 1 1/2 years from junior high school, discontinued in 1980
  5. Intensive course for clinical instructors, 4 months, 22 credits from 4 year diploma program
  6. Nursing instructors program, 1 year, 36 credits, from 4 year diploma program
  7. Under-graduate programs:
    - 2 years from diploma program, 72 credits
    - 1 to 1 1/2 years from nurse instructor program and clinical instructor program
  8. Graduate Diploma in Nursing Education Administration, 36 credits, for holders of Master's degree of nursing or other equivalent program, to commence in 1982 if feasible.
  9. Continued program leading to degree equivalent, 19 credits 6 months for graduates of phased out 3 1/2 years program from M.S. 5
  10. Basic Medical Care, 2 months, for nurses in service
  11. Midwifery, 6 months, for practical nurses
  12. Rural health personnel program, 4 months for midwives and practical nurses
  
- 5) There are Master Degree Programs in Nursing at some universities
  
- 6) Instructors are not in short supply at present.
 

There are 6 nurses who have a Doctorate Degree and approximately 300 nurses who have a Master's Degree in Thailand.
  
- 7) The Fundamentals of Medical Treatment is added to the 4 year's curriculum.

## 2. Shortage of Nurses

- 1) There is a shortage of numbers of nurses in Thailand, especially in the North-Eastern area. As indicated in the following table.

Number of nurses, practical nurses in 1978

	Population	Nurse	Practical N.	N : P.N.
Thailand	44,976,000	15,208	13,611	1 : 0.89
North-Eastern	15,894,000	1,588	2,095	1 : 1.32
Japan	115,174,000	229,604	233,528	1 : 1.01

Population in 1980	Thailand	47,173,000	)Thai:North-E=2.8:1
	North-Eastern	16,670,000	

Population per nurse in 1978

	population per nurse	per (N + P.N.)
Thailand	2,926	1,544
Japan	501	248

As conclusions from the above data, the ratio of population to nurses is higher than Japan at present throughout Thailand. It is clear that there is a shortage of nurses in the North-Eastern area because the population of the North-Eastern area is approximately 1/3 of Thailand, however, the number of R.N. is approximately 1/10 of Thailand. And also, it can be deduced that the quality of nursing in the North-East is rather low compared with the rest of Thailand, despite the presence there of many Practical Nurses.

- 2) The number of nursing staff in each hospital is not short when compared with Japanese hospitals. However, many hospitals are actually accomodating far more patients than the official number of regular patient's beds would indicate. For example, some hospitals are accomodating 50 (fifty) patients on 30 (thirty) beds in one ward !  
(There are 2 patients on one bed at some hospitals)  
As a result, of this acute overcrowding a shortage of nurses actually exists.

In addition there is a desperate need for more hospitals to accomodate patients adequately.

- 3) The numbers of physicians and other medical personnel are also insufficient in Thailand, especially in the North-Eastern area.

Data in 1978

	Physician	Medical Personnel	Nurse	Population
Thailand	5,796	19,691	15,208	44,976,000
North-Eastern	504	4,214	1,588	15,894,000
Japan	142,984	382,648	229,604	115,174,000

Population per physician etc. in 1978

	per Physician	per Medical personnel	per Nurse
Thailand	7,677	2,259	2,926
Japan	805	300	501

As there are shortages of physicians and other medical workers, nurses are taking on the responsibilities of those workers. Student nurses have to study medical treatment and pathology at the College of Nursing.

There will be a need for many nurses to be like 'bare-foot doctors' especially in the North-Eastern Area.

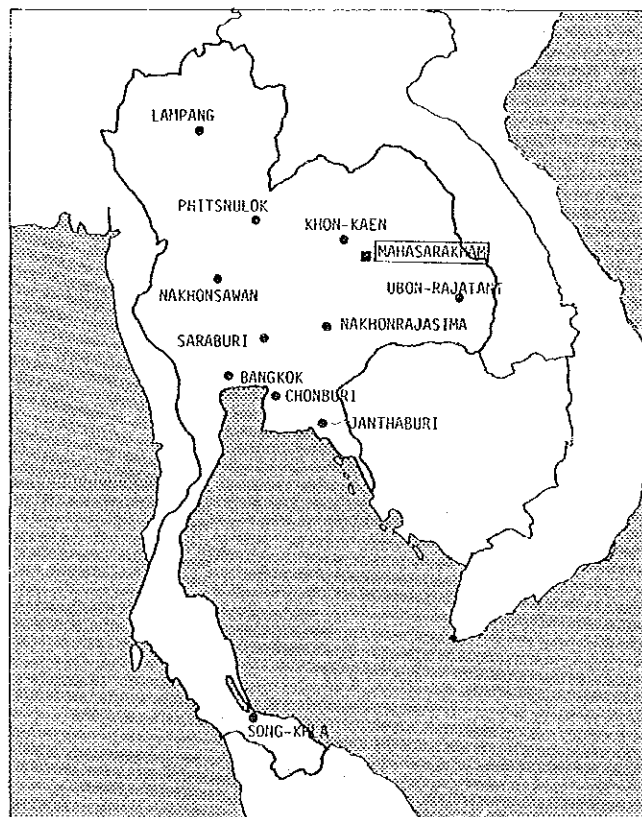
- 4) The nursing practice is not arranged well at some hospitals. This was the source of several complaints made to the survey team during their visits. As their jobs become increasingly complex, nurses will find themselves busier, and there are likely to be increasing complaints of nurse shortages.
- 5) It is feared that mass production nursing education will have to be arranged at the Mahasarakham College of Nursing. Generally speaking, this method is not an ideal teaching method for student nurses. However, this method has been already started at many nursing colleges.



One class accommodates 100 to 150 students. Professors and instructors are forced to use microphones to lecture. Each instructor takes charge of 8 to 15 students at nursing training institutes.

Number of student nurses at several colleges and a university

Institutes	1977 1st yr	1978 2nd yr	1979 3rd yr	1980 4th yr	students per instructor
Bangkok College of Nursing	175	175	175	175	8
School of Nursing Ramathibodi	100	100	100	100	4
Faculty of Nursing Khon Kaen Univ.	120	120	120	120	10
Nakhon Ratchasim College of Nursing	200	146	140	127	10
Saraburi College of Nursing	102	69	45	(1981) 200	15



LOCATION OF COLLEGE OF NURSING

### 3. National Plans

The shortage of nurses is a serious problem in Thailand. National Plans to provide adequate numbers of nurses are now underway.

Phase I. Man-Power Requirement of Nurse Personnel in the Fourth National Development Plan (1977 - 1981) for Public Health Development, planned in 1976

Phase II. Second Half of Fourth Plan and Fifth Plan (1980 - 1986)

The project has the following targets.

- 1) To increase numbers of student nurses and institutes for producing more nurses attached to the Ministry of Public Health.
- 2) To improve the standard nurse education curriculum by adding the study of fundamental medical treatment so that a nurse can help a patient who has a simple illness, and can also decide when an illness is serious enough to warrant transferring a patient to a major hospital.
- 3) The ratio of doctor : nurse : bed should be 1 : 4 : 10.

Demand and supply of nursing man power attached to M.P.H.

	Demand	Expected Graduates	Graduates
R.N.	3400	1100	1014
P.N.	4240	1430	4318
Instructor	700	390	253
Total	8340	5920	5585

	1980-1981	1982-1986
R.N.	2250	6750
Diploma 2 years	1550	9750
P.N.	1020	0
Total	4820	16500

Regarding the number of nurse students for each year, various institutes enlisted new students as follows:

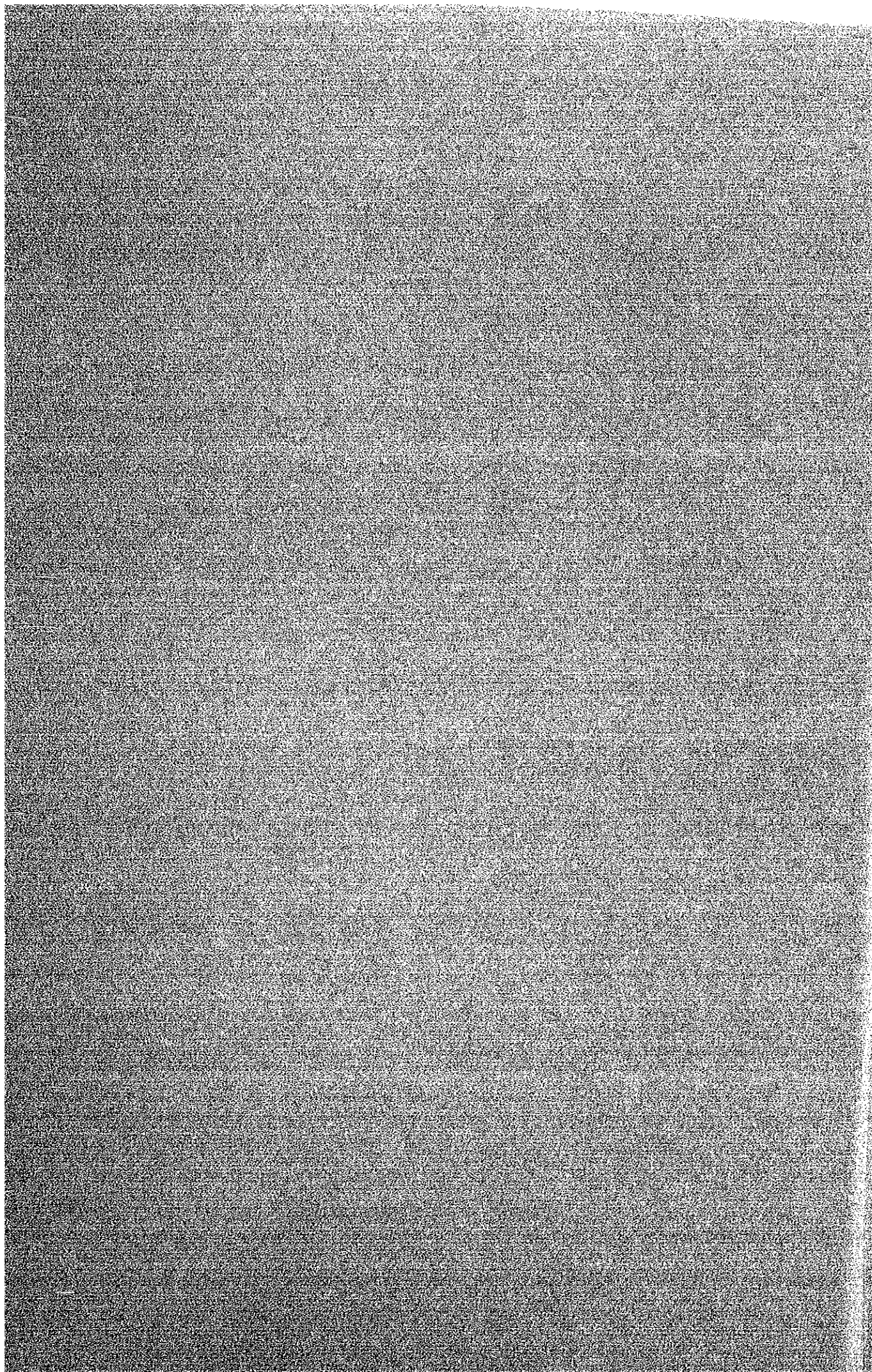
Institute	<u>Number of Nurse-Students</u>			
	4th yr	3rd yr	2nd yr	1st yr
	1975	1976	1977	1978
State University Bureau	248	527	526	502
Other Ministries and private sector	226	551	571	579
The Ministry of Public Health	547	536	850	1,050
Total	1,021	1,614	1,947	2,131

Therefore numbers of students graduating are as follows:

<u>Year (A.D.)</u>	<u>Number of Graduates</u>
1979	1,021
1980	1,614
1981	1,947
1982	2,131



CHAPTER 4 BASIC DESIGN



## CHAPTER 4 BASIC DESIGN

### 4-1 GENERAL

Upon returning to Japan the basic design survey team studied the feasibility of accommodating 600 students in this project and finally concluded that the facilities could be arranged to accommodate 600 students. This increase in capacity was carefully studied both from the viewpoint of educational requirements and the physical limitations of the site. Subsequently the design was further developed in the light of information gathered and discussions held by the survey team during their visit to Thailand. In this way the basic design survey team believe that they have managed to achieve the maximum effective use of the site and facilities possible within the scope of the program. With the design of these facilities it is hoped that the serious shortage of nurses in Thailand will be relieved and a marked improvement in the standards of health care nursing will be achieved.

### 4-2 BASIC DESIGN POLICY

1. The project design will be finalized to reflect the requirements revealed in the meetings and the conditions found in the basic design survey.
2. The college will be equipped with such installations and functions as will suffice for service as a nursing college of regional area size in Thailand.
3. Special attention will be paid to making the facilities suitable for the climatic conditions, modes of living and construction methods prevailing in the region.
4. The buildings will be designed following a basic policy that the construction materials and construction skills should be those generally available in Thailand.
5. The design policy was to accommodate the maximum possible educational facilities within the constraints of the project.

#### 4-3 OUTLINE OF BUILDINGS AND FACILITIES

1. The buildings and facilities for the Mahasarakham College of Nursing will consist of the College building, Auditorium, Cafeteria, Visitors' Pavilion, Dormitories and associated service facilities. Each building accommodates the following spaces.

##### 1) College Building

- Administration Office
- Typing & Duplication Room
- Director's Room
- Conference Room
- Staff Rooms
- Audio-Visual Room
- Control Room
- Toilet
- Library
- Lecture Theatre
- Students' Room
- Lecture Rooms
- Laboratories
- Demonstration Room
- Storage

##### 2) Auditorium Building

- Auditorium
- Stage
- Projection Booth
- Storage
- Toilet

##### 3) Dormitory (for 1st & 2nd year students) Building A

- Bed Rooms
- Study Rooms
- Recreation Area
- Lobby (Common Room)
- Sick Room
- Matron's Rooms
- Storage
- Ironing Rooms
- Laundries
- Toilet
- Shower Rooms

##### 4) Dormitory (for 3rd & 4th year students) Building B

Ditto

##### 5) Cafeteria

- Dining Room
- Service Counter
- Kitchen
- Office
- Storage

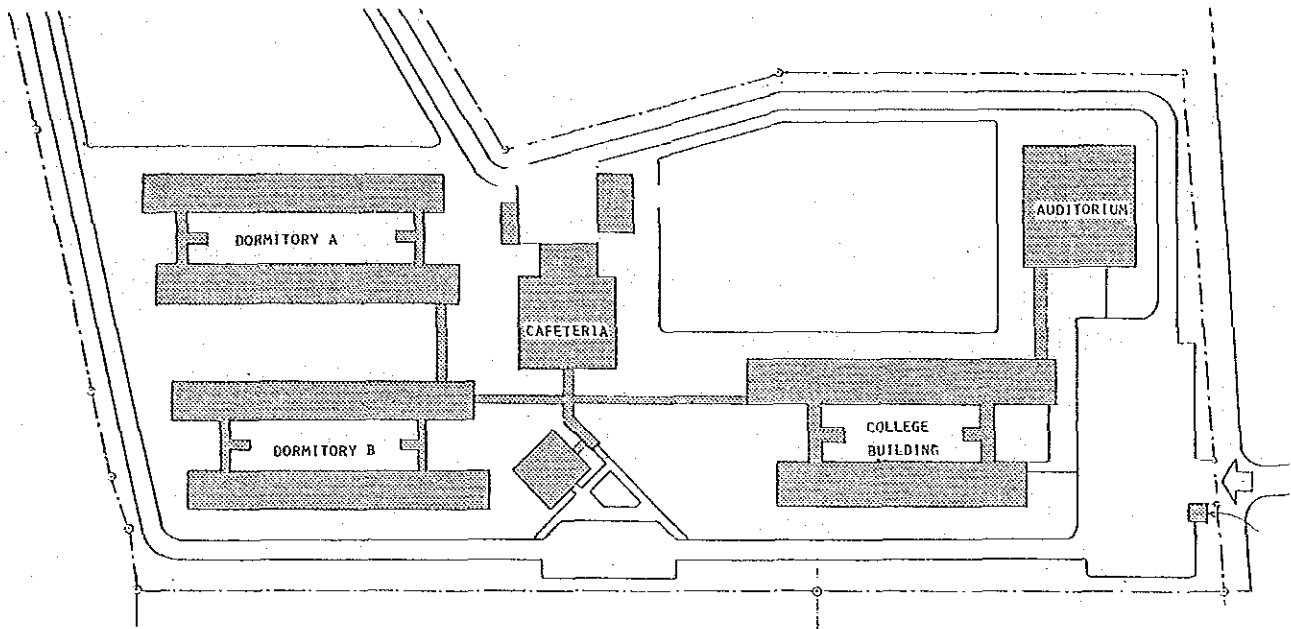
##### 6) Visitors' Pavilion

- Meeting Room

##### 7) Service Buildings and Facilities

- Pump Stations
- Covered Way
- Elevated Water Tank
- Garage
- Gate House
- Flag Poles
- Road and Parking Area





BUILDINGS AND FACILITIES

## 2. Building Areas

The approximate total floor area of each building is as follows.

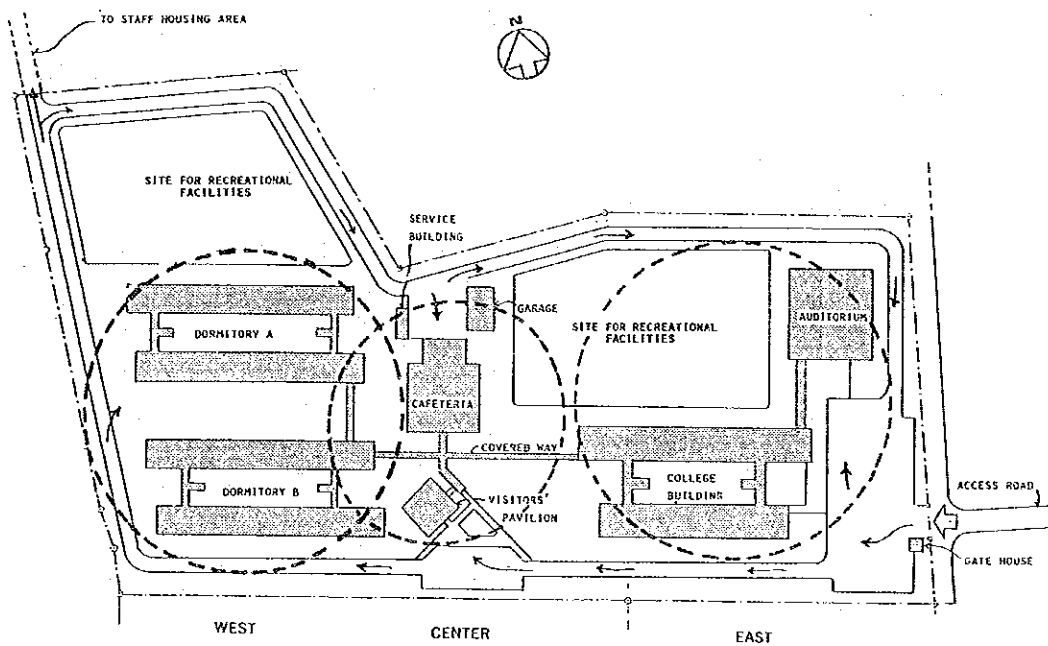
1) College	3,400 m <sup>2</sup>
2) Auditorium	1,500 m <sup>2</sup>
3) Dormitories A	4,000 m <sup>2</sup>
4) " B	4,500 m <sup>2</sup>
5) Cafeteria	620 m <sup>2</sup>
6) Visitors' Pavilion	150 m <sup>2</sup>
7) Covered Ways	400 m <sup>2</sup>
8) Associated Facilities	230 m <sup>2</sup>
Total	14,800 m <sup>2</sup>

#### 4-4 SITE PLANNING

The general composition of the Mahasarakham College of Nursing and its layout plan is based on the following concept.

1. The project site is now under cultivation as a rice paddy and is 1.5m lower than the existing main road. It must be filled with compacted fill by the Thai side before start of construction. The area around the site is rural in character and provides attractive views these will be used to advantage in the layout planning.
2. An access road will be constructed by the Thai side from the main road to the gate of the site.
3. Each building and facility will be laid out so as to be compatible with the site extending east to west. Taking into account the need for privacy the dormitory is located at the west part and the college building and the auditorium are located at the south part close to the main entrance. Visitor's pavilion, cafeteria and service buildings are situated at the middle of the site to optimise their central relationship with other facilities.
4. The buildings will be oriented in the east-west direction so as to prevent rooms from being exposed to the afternoon sunlight and to provide the maximum natural ventilation.
5. A clear separation will be maintained between buildings to provide the requirement for privacy and natural ventilation, and each facility will be connected by the covered ways.
6. The site will be provided with a circular road for ease of administration, and parking spaces will be provided for the college, the dormitory, cafeteria and the service building.

7. The recreation areas will have enough space for tennis-courts, basketball courts and any other sports facilities which the Thai Government may decide to provide.



SITE PLANNING

## 4-5 BUILDING DESIGN

### 1. Planning

#### 1) College building

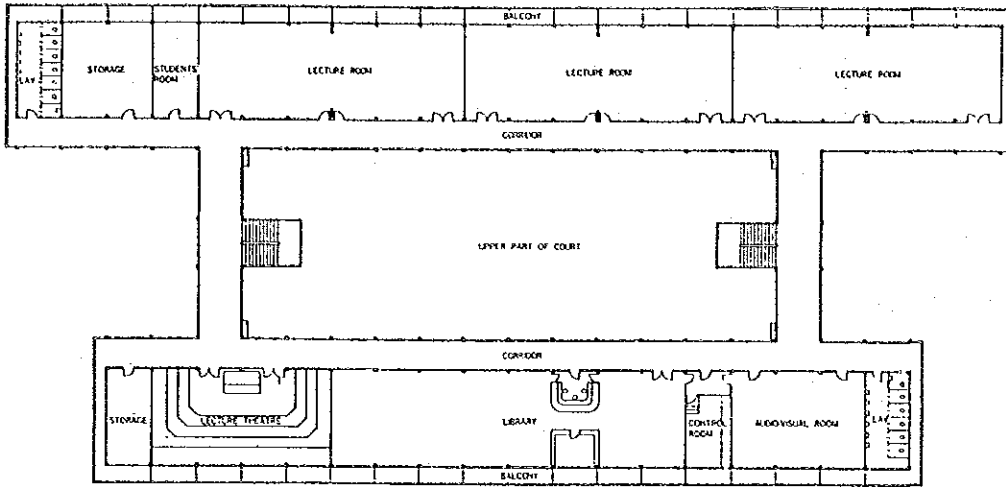
The college building will be a two-storeyed building. Except for some rooms for special purposes, natural ventilation will be adopted to avoid the use of mechanical cooling systems. In order to provide adequate air movement, a courtyard will be centrally located. Eave overhangs and louvers will be provided wherever practicable in order to protect rooms from direct sunlight or rain. Entrance lobby and corridors will be semi-open type spaces.

The first floor will comprise administration office, director and vice-director's offices and five staff rooms. One staff room has been provided with an addition divided with a partition to form 2 consultation rooms. In the opposite wing will be accommodated the demonstration room and three laboratories, which have been located on the 1st floor to facilitate service connections.

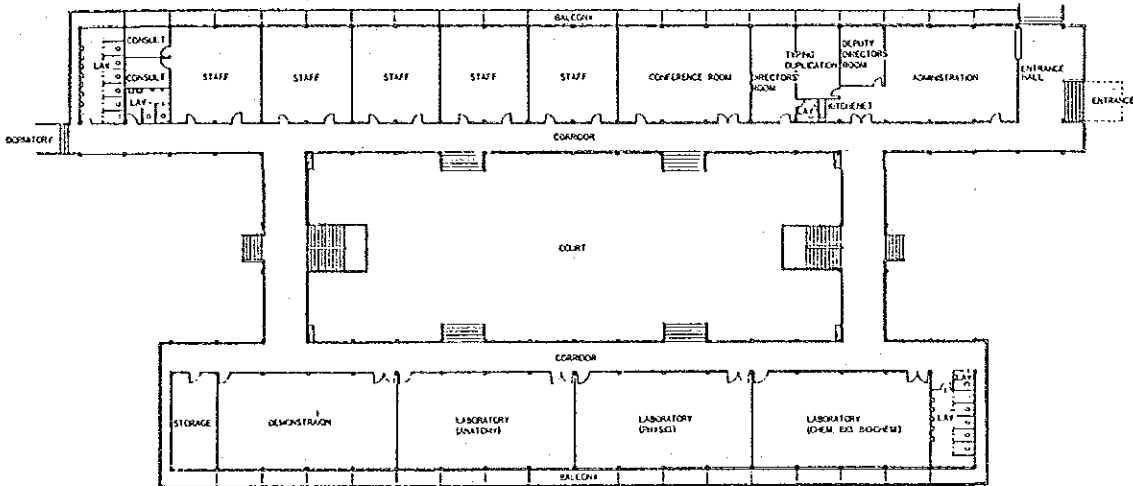
The second floor will accommodate three lecture rooms for 150 students each. These can be divided with movable partitions to create 6 lecture class rooms of 75 students each. The opposite wing contains the college library, lecture theatre and audio visual (A.V.) room.

#### 2) Auditorium

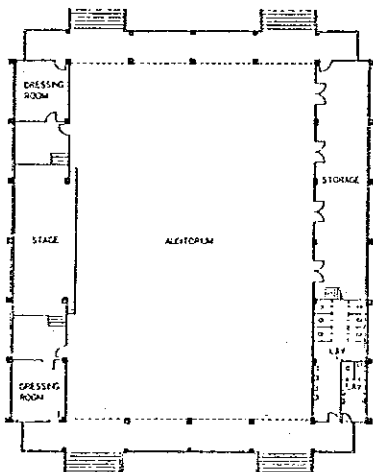
The auditorium will be a multi-purpose building. At different times it will be possible to hold assemblies for all the college students and staff, show films, hold congress meetings and accommodate a variety of indoor sports and gymnastic activities. It has been provided with a ventilation system suitable for all the above functions. During periods when gymnastic activities are in progress natural ventilation will be used and for lectures air-conditioning can be used.



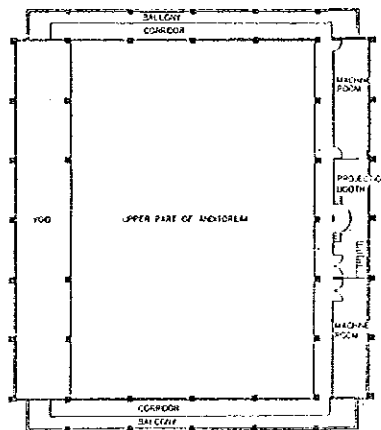
COLLEGE BUILDING 2ND FLOOR



COLLEGE BUILDING 1ST FLOOR



1ST FLOOR  
AUDITORIUM



2ND FLOOR  
AUDITORIUM

The stage has been partly set back into the wall of the auditorium and dressing rooms have been planned adjacent to provide direct access to the acting area. On the other side of the auditorium is a large storage space for chairs and sports equipment. A projection booth has been provided at second floor level opposite the stage.

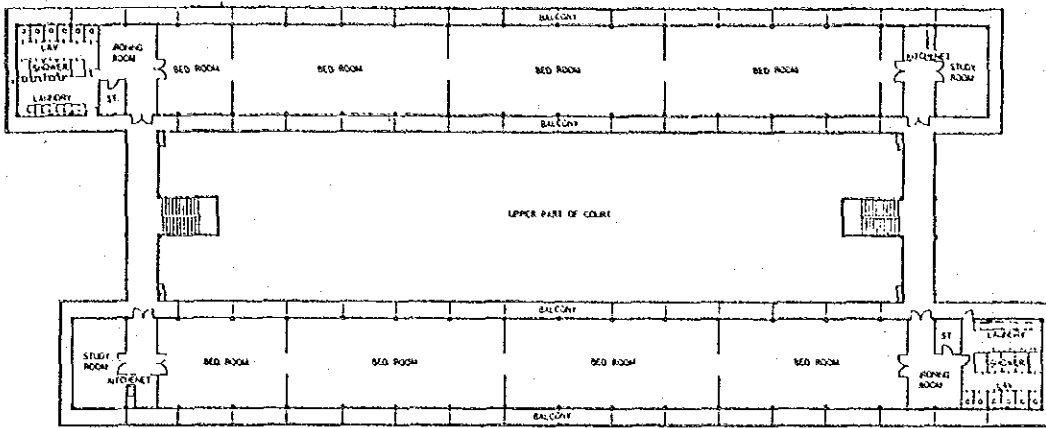
### 3) Dormitories

Dormitories are situated in two three-storeyed building. Each building will comprise two parallel wings with a courtyard between to ensure optimum natural ventilation. Eave overhangs and open louvers will be provided wherever practicable to protect rooms from direct sunlight or rain. Building A will accommodate 300 first and second year students in open type dormitories with a central circulation aisle. Building B will also accommodate 300 students but of the third and fourth years. These will sleep in separate bed rooms each accommodating 8 students divided into two sections with four beds in each. Access will be via a corridor opening onto the courtyard. At one end of each wing will be located toilet accommodation, laundry and ironing room and at the other end will be a quiet study room. The opposite wing has the same plan but reversed.

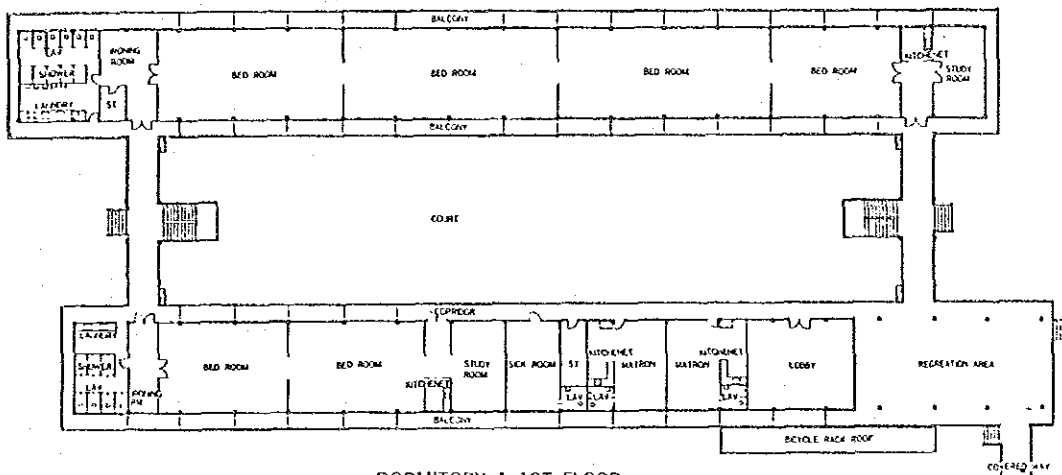
On the first floor of each building one wing will repeat the layout of the floor plan above. The other wing will accommodate a semi-open recreation area at the entrance, a lobby (common room) two matron's rooms and a sick room. The remainder of the floor will have dormitory accommodation.

### 4) Cafeteria

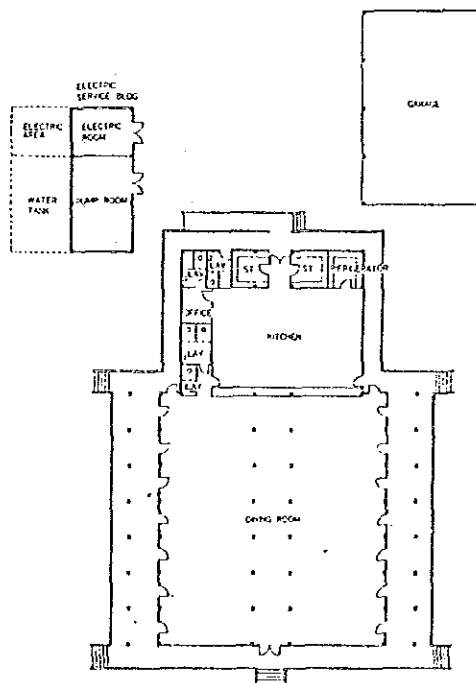
The cafeteria will be arranged as a self-service system with a self service counter between the table area and the kitchen. There will be seating accommodation for 300 students and staff at dining tables. Thus, assuming each dinner spends 30 minutes to eat the meal, the whole college can collect and eat their meal in about 1 hour.



DORMITORY A 2ND FLOOR



DORMITORY A 1ST FLOOR



CAFETERIA AND SERVICE BUILDINGS

## 2. Building Element System

A primary consideration in the element planning is local climatic conditions which involve strong sunlight and momentary heavy rain. Coming next to this is a construction cost saving and ease of maintenance, which require the use of locally available materials wherever practicable. From such view points, the following main building elements are proposed at this stage.

### 1) Roofs

A rainfall on the order of 100mm per 30 minutes needs to be considered in North East Thailand; so, for main roofing, corrugated asbestos cement sheets will be installed with sufficient slope.

### 2) Exterior Walls

If suitably designed to withstand direct sunlight and rain, exterior walls need not be thermally insulated. On the contrary, it will be preferable to provide exterior walls with numerous openings depending on their locations in order to provide good natural ventilation. Either common bricks or concrete blocks locally available will be used for exterior walls.

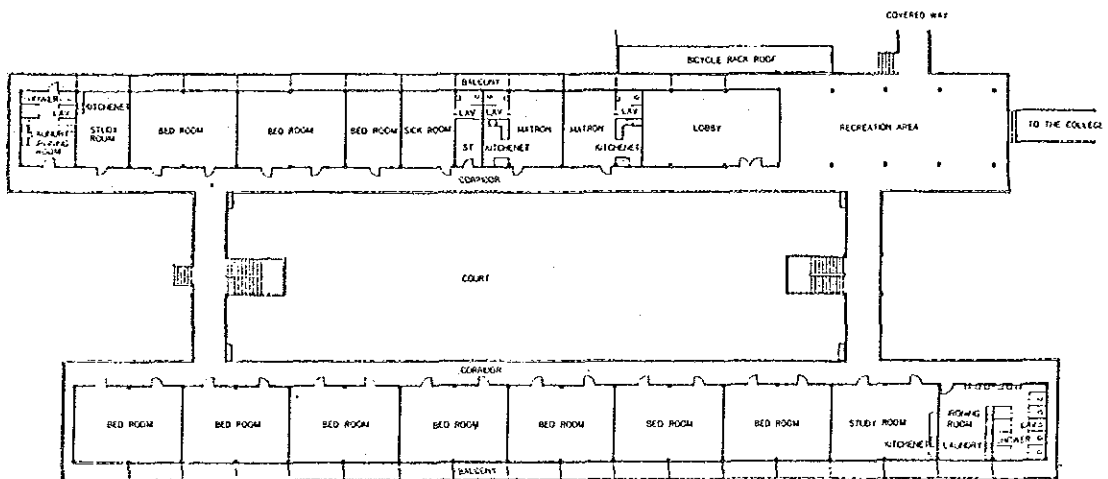
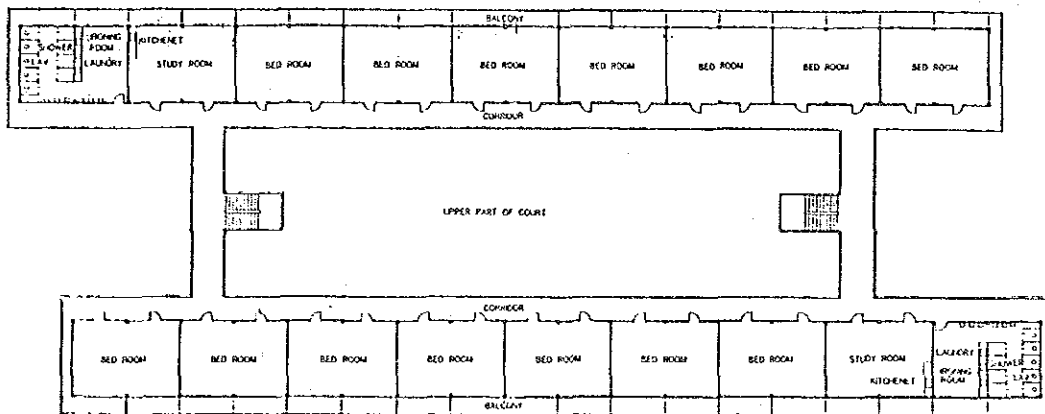
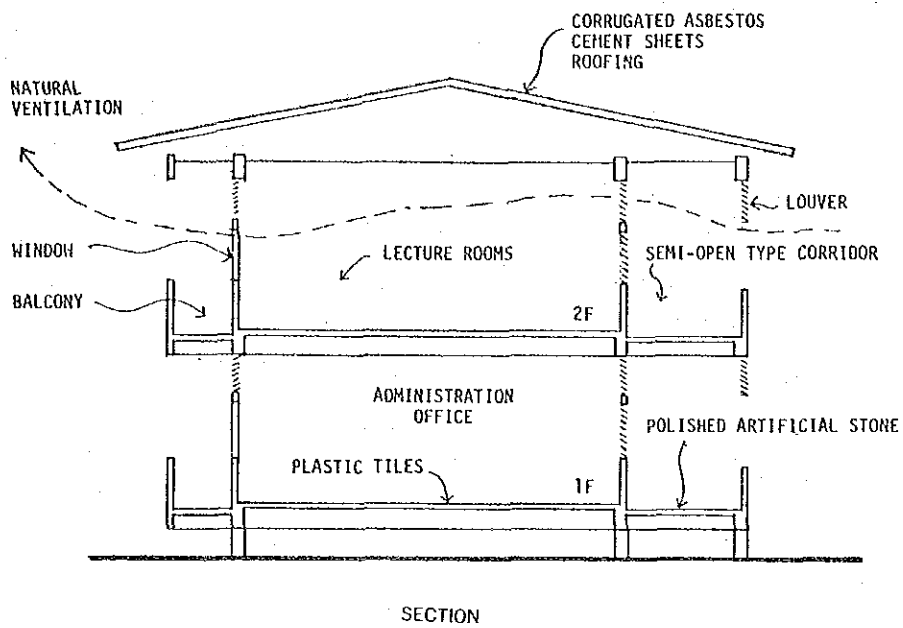
### 3) Windows

Wood, steel and Aluminium windows are available in Thailand. Aluminium louver windows will be used for natural ventilation, and window frames of steel or a suitable timber will be used for the exterior windows.

### 4) Floors

The first floor will be raised one meter or more off ground level in order to cope with the momentary heavy rain (squalls) and to maintain a good movement of air in this under floor portion. As for the floor finish materials, polished artificial stone for halls and corridors and plastic tiles for offices are being considered.





### 3. Structural Design

#### 1) Basic Policy

- a. In Thailand, the general structural system is reinforced concrete structure with brick masonry walls. And simple steel trusses are also generally used for the roofs. For this project, the above mentioned general structural system will be used.
- b. Since the geological condition of the site is poor, piling foundations will be used for the principal buildings and raft slab foundations will be used for the small one-storied buildings. However the choice of foundation system must be re-examined after the results of the boring test of the project site are known.
- c. Local products and construction methods will be used, wherever practicable.

#### 2) Structural Design Principle

The structural design will be carried out according to the following design principle.

- a. The design loads will be determined conforming to "BY-LAWS OF THE BANGKOK METROPOLIS, RE; CONTROL OF THE CONSTRUCTION OF BUILDING 1979".  
The structural calculations will be made with the working stress design method according to the design standards of the Architectural Institute of Japan.  
Permissible stresses in structural materials will be determined with reference to the Thai and Japanese codes, giving consideration to the workmanship of local workers and the variations in the quality of local materials.

b. The bearing capacities of soil and pile will be determined after the boring tests at the site have been completed.

c. Principal structural materials to be used will be as follows:

- i. Reinforcement Deformed bar SD30 (TIS Standard)
- ii. Concrete  $f'c=210 \text{ kg/cm}^2$ : cylinder in 28 days
- iii. Cement Ordinary Portland Cement (ASTM Standard)
- iv. Structural Steel SS41 (JIS Standard) or equivalent
- v. Piles Reinforced Concrete Pile  
site cast insitu.

### 3) Design Loads

Based on the foregoing principals, the following design loads will be established for the project.

a. Dead load

- i. Reinforced concrete:  $2.4 \text{ T/m}^3$
- ii. Structural steel :  $7.85 \text{ T/m}^3$
- iii. Brick :  $1.9 \text{ T/m}^3$

b. Live load

- i. Roof :  $100 \text{ kg/m}^2$
- ii. Toilet, Shower room, General:  $150 \text{ kg/m}^2$
- iii. Dormitory :  $200 \text{ kg/m}^2$
- iv. Lecture room, Office :  $250 \text{ kg/m}^2$
- v. Laboratory :  $300 \text{ kg/m}^2$
- vi. Meeting hall, Corridor, Stairs, Dining room :  $400 \text{ kg/m}^2$
- vii. Library, Storage :  $500 \text{ kg/m}^2$

c. Wind load

Height	Wind Pressure
below 10m	50 kg/m <sup>2</sup>
10m - 20m	80 kg/m <sup>2</sup>
20m - 40m	120 kg/m <sup>2</sup>

Since the wind load in Thailand is relatively small and approximately one-third of that required in Japan, the wind load can be considered as negligible in the structural design for the proposed 3 storied, reinforced concrete building.

d. Seismic load

No seismic loads need be considered.

