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9. ABSTRACT

The American Public Health Association, under a contract with the Agency for International Development, has designed a program in public health improvement which is called the Development and Evaluation of Integrated Delivery Systems (DEIDS). The activity is designed to assist countries to demonstrate how to establish health delivery systems within seven years. Such projects include, but are not limited to, Maternal and Child Health and Family Planning and Nutrition. The projects are to cover large populations in predominantly rural areas. They are to utilize in-country resources for the service component, although external assistance organized by DEIDS is available for planning, evaluation, training, and limited amounts of essential equipment. It is expected that successful health delivery systems can be subsequently replicated in the country or in the region.

- These are phases through which DEIDS projects proceed:
- a) Phase I -- reconnaissance within a specific country or region, to gather information about disease patterns, health services as currently organized, local resources, cultural aspects, community involvement, the potential for integration of various parts of public health, opportunities for innovation, current and potential staffing, training, supervision, emphasis upon preventive services, outreach, cost, and evaluation
  - b) Phase II -- Detailed planning. This phase begins if the survey in Phase I recommends it, and involves experts from the host country as well as experts assigned by DEIDS.
  - c) Phase III -- Pilot Project Operations, which continue for as long as eight years.

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PROPOSAL FOR DEVELOPMENT AND EVALUATION  
OF  
AN INTEGRATED HEALTH DELIVERY SYSTEM  
IN  
T H A I L A N D

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"DEIDS"  
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This proposal is submitted by The American Public  
Health Association under Contract AID/csd-3423.

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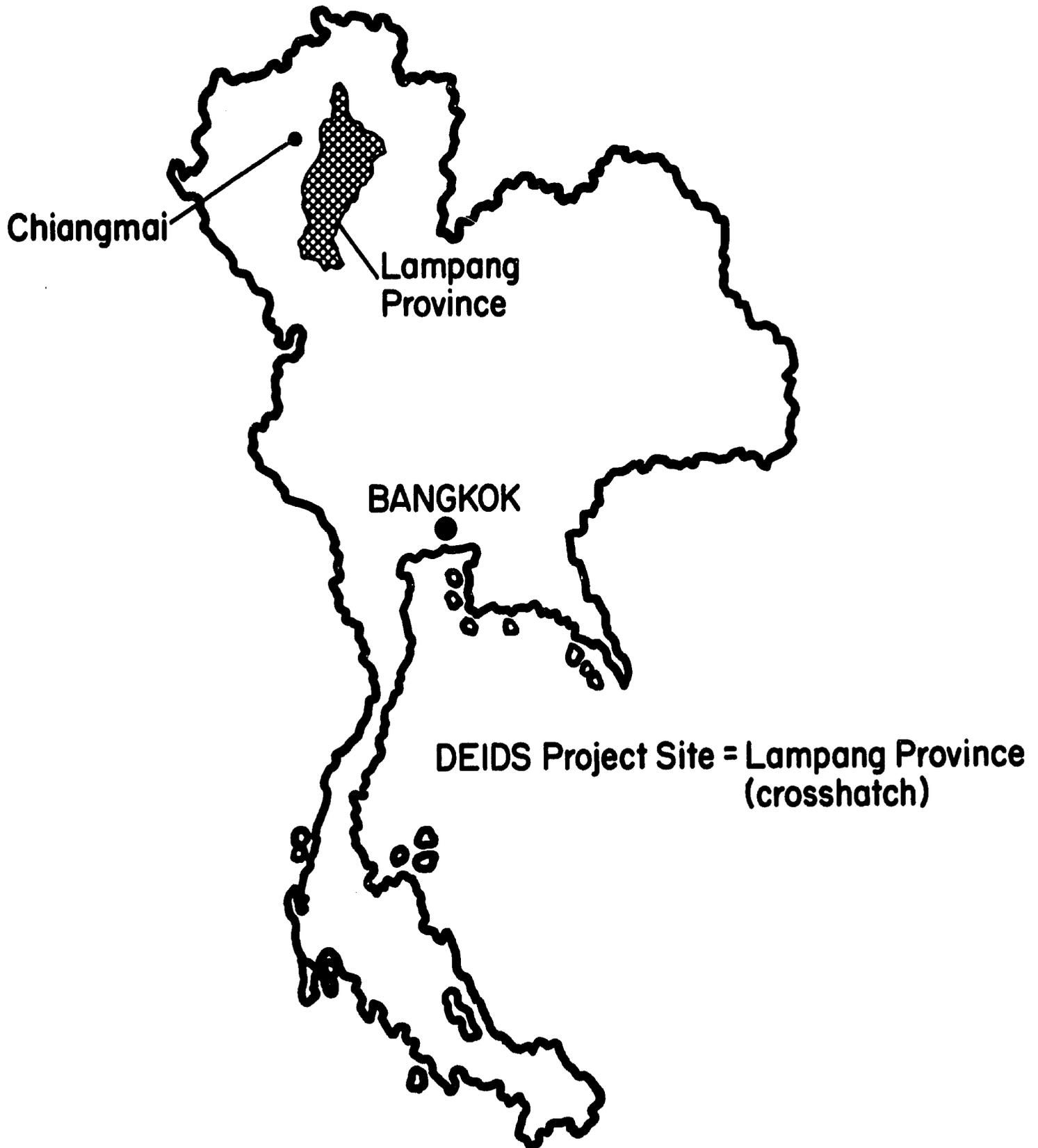
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## Preface

The rationale of DEIDS-Thailand is presented in the briefest format possible so as to give a flow of the project. Purposefully, details have been avoided in the narrative so as not to mask the presentation.

It is strongly recommended that the reader spend time to peruse the appendices where the facts for the statements are compiled.

# THAILAND



## Introduction

This plan for DEIDS is a Thai product. The details were formulated by a Working Group and Steering Committee in the Ministry of Public Health. A Working Group in the selected province also participated.

Thailand is concerned with the lack of quantity and quality of health services in its rural areas, especially those services geared toward mothers and children. Rural health is important when 85% of Thailand's population (38 million) live in rural settings and when only about 17% of this population make use of the available low cost preventive, curative and promotive health services which are government sponsored.

The specific goal is to provide a low cost, integrated health delivery system which is used by two-thirds of the women of fertile age and children under 6 years of age in Lampang Province. Key features of the system can be replicated throughout rural Thailand without external assistance. The proposed health system will include Family Planning, Maternal Child Health, Nutrition, and other preventive and curative services. It is uppermost in the minds of all involved that the goal will have been met when there is general improvement in the quality of life of the Thai people. A spirit of humanitarianism prevails throughout the project.

A National Family Planning Policy has been adopted by the Royal Thai Government. As a result, family planning activities play a prominent role in promoting the general health of the people. In Lampang Province, the DEIDS project will continue to further these family planning activities so that the momentum and the pace of the existing programs will accelerate. Similarly, nutrition programs have been initiated in the province primarily through the Child Nutrition Centers which are scattered throughout the districts. At present, nutrition services seem sporadic. It will be important to evaluate and supplement these requirements so that the nutritional services will get prominent attention in the DEIDS project.

The Ministry of Public Health provides health services through its hospital-health center complex which reaches to the level of the villages. The majority of the people, when ill, seek help from the private sector

which includes resources such as drug stores, traditional doctors and midwives, and monks. This poor utilization of the health center complex is due to the dearth of facilities as well as the scarcity of competent manpower. The doctor/population ratio is about 1:1,000 in Bangkok, whereas similar ratio in the provinces is 1:15,000 or more.

On the average, Thais become ill twice/person/year and spend about 154 baht (\$7.50)/person/year on their illness. It is estimated that private expenditure on health was about 5,376 million baht(\$269 million) whereas public expenditure in the same year (1970) was recorded as 1,321 million baht (\$66 million). The coordination and cooperation of the efforts of the private health sector(physicians, injectionists, druggists, tambol doctors) will require detailed planning during the initial steps of the project. The druggists are an important source of health services in Thailand. It is hoped that methods will be found to include this group to accept training and become involved in referral, planning, and consultation so that they will be used as allies of the system rather than antagonists who are seen as uncontrollable. In a similar manner, the traditional midwives will be included in the training program so that they will be true auxiliaries to formal medicine.

The Ministry of Public Health is committed to providing health services to the rural population. A system of health care delivery, availability of manpower and budgetary provisions is present. However, with the assistance of DEIDS, there will be a reassessment of these factors which will insure coverage in quality as well as quantity.

The DEIDS project proposes four innovations which will improve the availability and accessibility of health services in rural Thailand. They are:

1. To organize and test a low-cost health delivery system in the villages which utilizes trained, non-physician personnel in addition to the lay health promoters and communicators such as monks and village headmen.

2. To train non-physician personnel to a level of competency in delivering curative and preventive health care on the village level(page 24).

Whenever possible, the private medical sectors will be invited to participate in the training programs.

3. To inventory and analyze the existing health services, costs, and the utilization of such resources (page 28).

4. To strengthen the health delivery infrastructure, especially in management and administrative practices on the provincial and district levels (page 16).

Two, three and four above are essential components in order to satisfy the first innovation. Low-cost health care cannot be delivered unless there is a cadre of trained, intermediate technology workers who can provide those medical services which do not require the skills but need only the supervision of the physician. Furthermore, the curriculum for the training of these personnel cannot be organized unless there is an inventory and analysis of tasks or services required by the patients. Finally, such individuals cannot function unless there is an organized health delivery infrastructure in which they can function at a cost which is compatible with the health budget of the Thai government.

The planners considered the following end of project status in formulating the DEIDS plan:

- That by 1978, a practical low-cost, health delivery system will cover at least 66% of the fertile women and children under 6 years of age in Lampang Province which is a typical, large administrative unit in a rural area.

- That the integrated health services provided will be accessible and acceptable and will include, but not be limited to MCH, FP, and Nutrition.

- That the cost of the system to be created will be affordable for the nation to maintain and replicate, with maximal utilization of in-country resources.

The completion of a detailed plan for DEIDS-Thailand in four months would be difficult in any case. In this instance, the planning process was complicated by the need to reconcile in a single plan the many potential purposes of the DEIDS Project.

The material which follows contains the skeleton of what we believe to be a sound project design. Provisions have been made during the first year of the project to flesh out the outline in the following areas:

1. Cost analysis for the projected system which would lend credibility to the expectation of extensive replication in Thailand.

2. Assurance that the Royal Thai Government's Civil Service will provide incentives for performance of the intermediate level health workers.

3. Detailed plan formulation for the coordination of efforts of the Ministries of Interior, Education and Agriculture, the private health sector (physicians, injectionists, druggists, tambol doctors) and activities conducted by private agencies such as PPAT, UNICEF and WHO. Efforts will be made to obtain an accurate picture of the impact of the private medical sector.

4. Definition of tasks required of the intermediate-level health worker (Medex) in order to design the training curriculum, and to formulate job specifications and descriptions which will be required for civil service classifications.

5. Establishment of baseline data to document the distinctly different patterns of morbidity and mortality rates during the dry and wet seasons to plan realistically for work loads.

## Section I. Rationale

### A. General Information

The Kingdom of Thailand, formerly known as Siam, is located in Southeast Asia. It has an area of approximately 200,000 square miles. Thailand has common boundaries with Burma on the west and north, Laos on the north and east, Cambodia on the southeast and Malaysia on the south. The southern portions of the country are bordered by the Gulf of Thailand and the Andaman Sea.

The Thai people originally lived in southern China. Centuries ago, they gradually migrated to the fertile plains of the Chao Phraya and Mekong Rivers. Thailand's population numbered 6 million in 1900 and 26.3 million in 1963. In 1970, it was estimated at 34 million, and 38.6 million in mid-1972.

About 85 percent of the people live in the rural areas. On the basis of the 1970 preliminary report, Thailand has a population density of 171 persons per square mile. Bangkok, the capital of Thailand, is located in the central region with a population of 3.7 million.

The culture is closely related to Buddhism which is the national religion. There are 24,000 Buddhist temples and 300,000 monks. Of the total population, three percent are Moslems, 1.7 percent believe in Confucius, and 0.6 percent are Christians.

Thailand has a literacy rate of 70 percent and 97 percent of its inhabitants speak Thai. The majority of the people have four years of schooling.

It is an agricultural country with an annual per capita income of about \$170. In 1969 the Gross National Product (G.N.P.) was \$6.3 billion.

Thailand has had a constitutional monarchy since 1932 with a highly centralized administrative system. The country has 71 provinces. Each province is headed by a governor who is appointed by the Minister of Interior. A province is divided into districts (amphoes) which are headed by a district officer. The districts are further subdivided into tambols and villages. On the average, a province is made up of 8 districts

(50,000 population per district); 1 district = 9 tambons (5,000 population per tambon); and 1 tambon = 9 villages (500 population per village). There are 50,000 villages in Thailand.

#### B. Health Status and Problems (Refer to Appendix C)

Thailand has one of the world's highest population growth rates which is 3.3 percent annually. Should this growth continue, Thailand's population will double by 1993. The average life expectancy for males is 55 years while that for females is 62; infant mortality rate is 49/1,000; maternal death rate is 4/1,000; and stillbirth rate is 3/1,000.

Over a century ago Western medicine was introduced into Thailand by the American missionaries. The first medical school was established at Siriraj Hospital in 1889. Today Thailand has 4 medical schools which graduate 370 physicians yearly. Nineteen nursing schools produce about 700 nurses per year.

The Ministry of Public Health was established in 1942. It is through this government body that all public health services are provided.

The Ministry is divided into four departments: Office of the Under-Secretary of State; Department of Medical and Health Services; Department of Medical Sciences; and, the Department of Health Promotion. For each province, Rural Health falls under the aegis of the Provincial Chief Medical Officer who is responsible for both health and medical services. He is administratively responsible to the Department of Medical and Health Services of the Ministry of Public Health and to the Provincial Government.

Preventive and curative services are provided to the people through a system of hospital health center complexes. Although the health infrastructure reaches down to the village level, only 17% of a surveyed population utilize the health facilities of the public sector. The majority of the people, when ill, seek help from the private sector which includes resources such as drug stores, traditional doctors and monks. By the same token, the Ministry of Public Health reported in 1970 that the hospital health center complex provided health services to only 27% of the total rural population (34 million).

Such poor utilization of the health center complex is due to the fact that only 45% of the total 556 districts in Thailand have first class health centers. Only 180 of the first class health centers have physicians. Therefore only 32% of the total districts in Thailand have physicians who have the authority to diagnose diseases and treat the patients. All other paramedical auxiliary health personnel such as nurses, junior sanitarians, midwives and Tambol doctors\* have little training in medical therapy and have almost no authority to provide curative services. The doctor/population ratio is about 1:1,000 in Bangkok whereas similar ratio in the provinces is 1:15,000 or more. (See page 4 for incidence of illness and private and public expenditure therefor.)

The total Ministry of Public Health budget for 1974 is 1,114,283,090 baht(\$55,714,154). The actual expenditure for 1973 was 1,016,379,771 baht (\$50,818,944) and the budget request for 1975 is 1,514,426,507 baht(\$75,721,326).

The Ministry of Public Health budget as percentage of the national budget was:

1969	2.73%
1970	3.49%
1971	3.41%
1972	3.49%
1973	3.19%

Causes of death are:\*\*

1. Certain diseases of early infancy and ill-defined diseases under 1 year
2. Accidents, poisoning, violence
3. TB (respiratory system)
4. Pneumonia
5. Heart disease
6. Gastroenteritis and colitis
7. Malignant neoplasms
8. Malaria
9. Diseases of pregnancy, childbirth and puerperium
10. Diseases of stomach and duodenum

\* Each tambol has a Tambol doctor who is selected from among the village people and trained in first aid and simple medication. He comes under the aegis of the Ministry of Interior and works under the supervision of the District Health Officer. Each Tambol doctor is responsible for collecting information regarding illnesses and epidemics in his tambol.

\*\* Source of data: Ministry of Public Health, 1971

The ten leading causes of morbidity are:\*

1. Diseases due to labor, abnormal and normal pregnancy
2. Total infectious diseases
  - (a) GI infections
  - (b) U.R.I.
  - (c) Mosquito-borne diseases
  - (d) All other infections (tetanus, hepatitis, malaria, etc.)
3. Accidents, poison, violence
4. Non-infective GI diseases
5. Mental diseases
6. Diseases of G.U. system
7. Malnutrition diseases
8. Malignant neoplasms
9. Diseases of heart and vascular lesions
10. Skin diseases

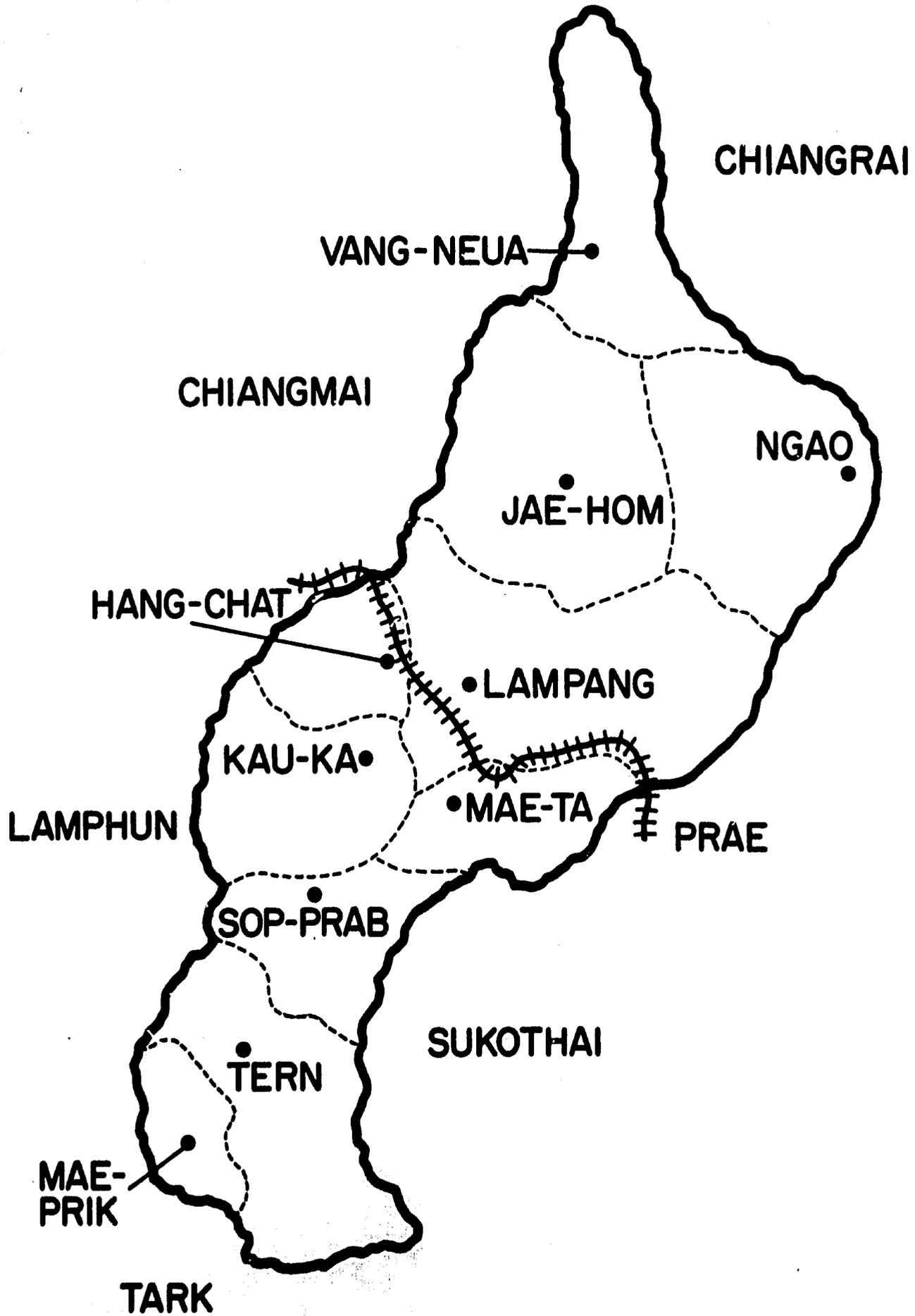
Public Health problems in Thailand are summarized as follows:

1. Population Explosion
2. Diseases
  - (a) Communicable and infectious diseases
  - (b) Diseases of pregnancy, childbirth, puerperium
  - (c) Accidents (car), poisoning, violence
  - (d) Malnutrition diseases (protein and vitamin deficiencies)
  - (e) Mental diseases and drug addiction
3. Health Services Administration
  - (a) No clearcut national health policy and national health plan
  - (b) Low government health budget (only 3% of total budget yearly)
  - (c) Out-of-date Public Health Laws
  - (d) Poor statistical health data
  - (e) Inadequate health services (especially in rural areas)
  - (f) Inadequate production & maldistribution of health personnel

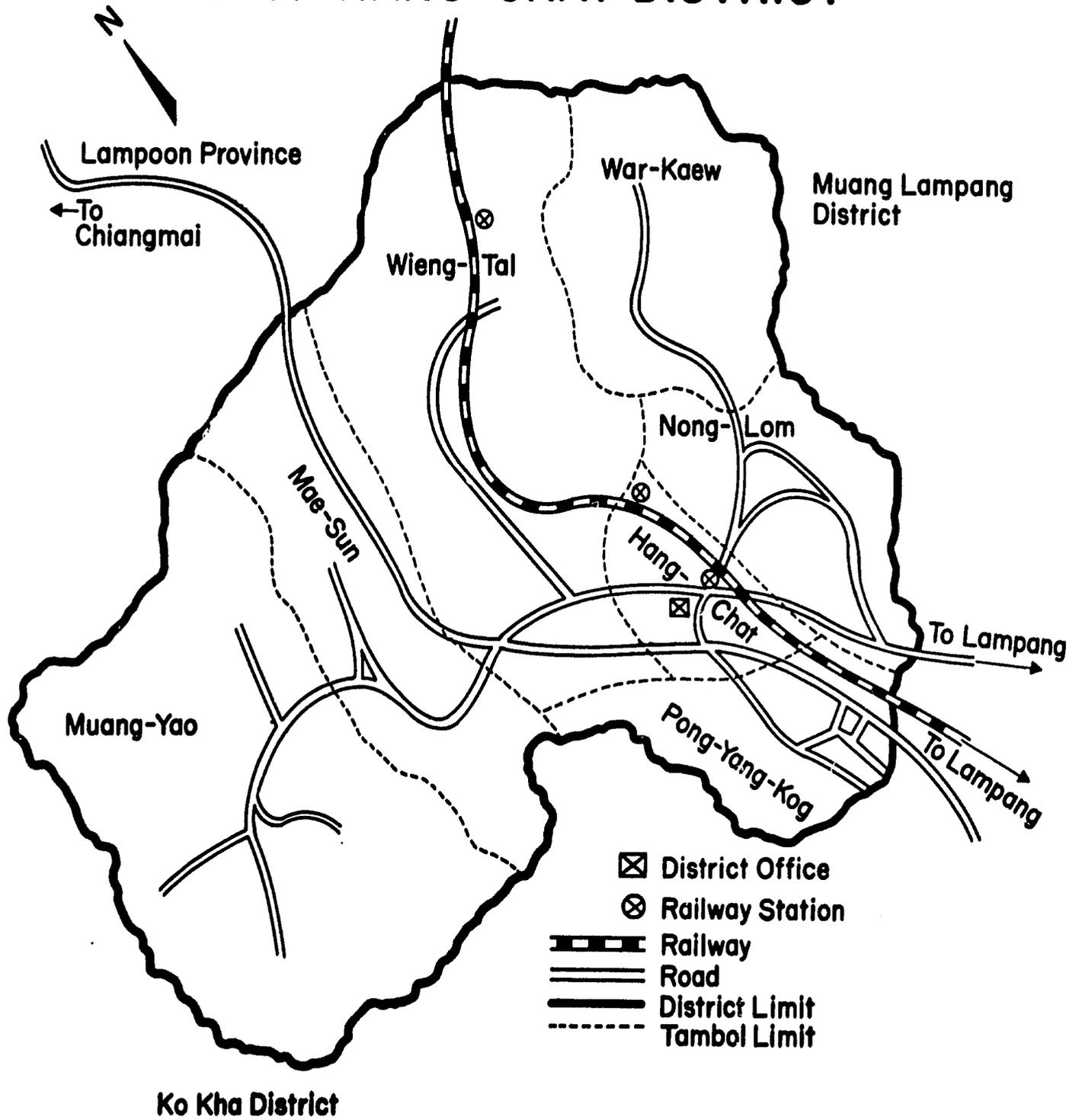
\* Source of data: Special study, Department of Medical Services, Ministry of Public Health, 1967 (latest figures)

- (g) Poor coordination between "producers" (universities) and "users" (Ministry of Public Health) of health personnel
  - (h) Poor coordination between "public" and "private" health sectors
  - (i) Lack of communication between users and consumers
  - (j) Lack of community organization
  - (k) Poor administration leads to fragmented health services resulting in duplication of both activities and resources
  - (l) Highly centralized
  - (m) Inadequate coverage due to existing health infrastructure
4. "Health Risk"
- (a) Air and water pollution (especially in urban areas)
  - (b) Other environmental sanitation problems (such as poor excreta and sewage disposal, inadequate clean water supply, etc.)

# MAP OF LAMPANG PROVINCE



# MAP OF HANG-CHAT DISTRICT



### C. Strategy

DEIDS will begin in the Hang Chat District, Lampang Province. Hang Chat District (680.718 square kilometers) with a population of 40,854 is 14 kilometers west of Lampang City and 85 kilometers east of Chiangmai City.

The Working Group in conference with the Provincial officials decided that one district (Hang Chat) be undertaken initially as a demonstration site in order to confine energies and assure success. Lampang Province in its entirety should come under the aegis of DEIDS by the end of the fourth year, 1978.

Lampang Province (population: 610,323; square kilometers: 12,518) is about 500 kilometers from Bangkok and two hours by plane or 15 hours by train from Bangkok. Lampang City, population 42,007, is the capital of the Province. It is 70 kilometers southeast of Chiangmai City.

The Working Group recommended and the Steering Committee finalized the selection of Lampang Province over other provinces for the DEIDS project because:

1. There is a network of communication to and within the Province.
2. It is non-insurgency country.
3. It is not too rich nor too poor.
4. It has an existing medical care delivery system.
5. The DEIDS project has the endorsement of the Provincial officials.
6. Replication of DEIDS in other parts of the country may be easier with Lampang as an example.
7. It has a population of over 500,000 which is a requirement of the project.

A low-cost, integrated health delivery system with services to the majority of the fertile women and children under 6 years of age who live in Lampang Province will be demonstrated through the coordinated efforts of four divisions:

1. Medical and Health Services
2. Personnel Development
3. Information-Evaluation-Research
4. Administrative Services Division

Although these divisions are mandated with distinct functions, each is dependent upon the other for supportive information and completion of assigned tasks before making advancements in the total project.

## 1. Medical and Health Services Division

The Provincial Hospital will serve as the base for delivering health services in the Province. The Rural Medical and Health Center (RMHC) (formerly known as the First Class Health Center) will operate as an extension of the out-patient clinic of the Provincial Hospital which is located in Lampang City. In addition, the RMHC will function as the health service base at the district level. There will be one RMHC in each district.

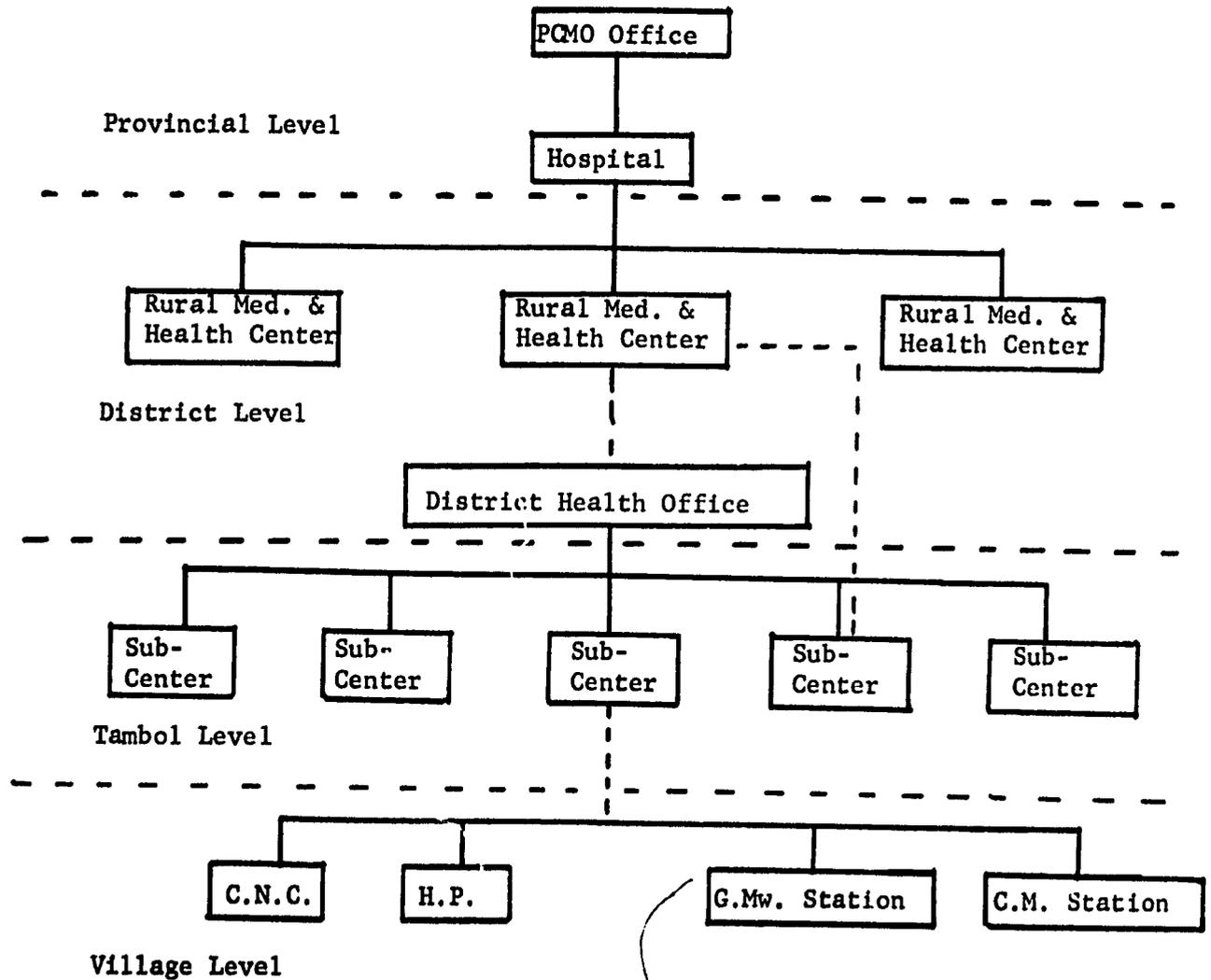
A physician will be assigned to the Han Chat Rural Medical Health Center.

The basic center for health care delivery will be the Sub-Center (formerly known as the Second Class Health Center or Midwifery Center). Such centers will be established in each tambol.

These Sub-Centers will refer difficult to handle cases to the Rural Medical and Health Center. The health promoters in the villages, - who may be monks, village headmen or others, - will refer patients to the Sub-Centers.

It will be stressed that there be a balance between the curative, preventive and health education activities within the units of the functional organization (page 15). This can be accomplished if the people are convinced and encouraged to use the RMHC and the Sub-Centers for curative services. In this manner, these centers can relieve the Provincial Hospital from committing all of its efforts for curative care, but can mobilize some of its resources for preventive and health education activities. Similarly, it is expected that the Sub-Centers will concentrate on preventive and health education activities, but can provide curative services which are commensurate with its capabilities (page 19).

The following Functional Organization Chart is for the DEIDS project in Lampang Province.

FUNCTIONAL ORGANIZATION

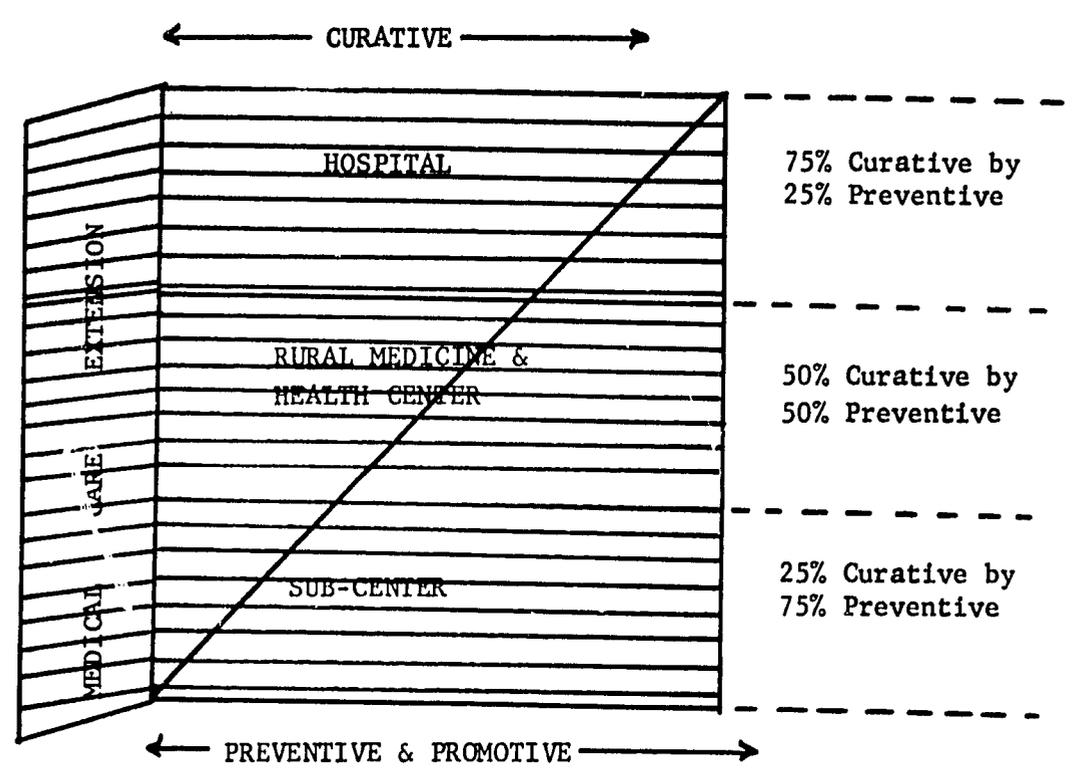
PCMO = Provincial Chief Medical Officer  
 C.N.C. = Child Nutrition Center  
 H.P. = Health Post  
 G.Mw. = Granny Midwife  
 C.M. = Communicator

**Legend:**

————— Line of Command

----- Line of Technical Supervision

Balance of Health Service in the Government Functional Units



The Medical and Health Services Division in the DEIDS project will concentrate on Maternal and Child Health, Family Planning and Nutrition. Other health services to be included will be communicable disease control, improvement of environmental sanitation such as water supply, strengthening of laboratory services, organization of a Community Health Section in the Provincial Hospital, establishment of a referral and communication system in health services; and provision of a supervisory mechanism throughout the health delivery system.

Maternal and Child Health (MCH):

Traditional midwives will be trained as an extension of the trained midwives. Concerted attempts will be made to recruit and utilize monks as health promoters who will use their temples as information centers. The temples are the centers for village life where worship services are held at least two times each month, during half moon and full moon. All villagers attend these services.

A MCH referral system will be developed so that select cases from the villages can be readily hospitalized. Throughout the health services system (Provincial Hospital Rural Medical & Health Centers Sub-Centers), health education will be incorporated into the service activities. Special attention will be paid to the improvement of antenatal care, the birth delivery system, and postnatal care in the hospital, health center, and sub-center.

Family Planning:

Family Planning services in the Provincial Hospital, Rural Medical Health Center, and Sub-Centers will be increased through the distribution of pills, IUD insertions, sterilization and condoms. The Sub-Centers will be used as the basic operational unit.

As many as 6,540 health workers will be available to distribute family planning commodities. For example, the communicators, health promoters, and traditional midwives may have access to condoms and pills. Health workers such as nurses and Medex who are trained at a higher level may be able to use menstrual regulation devices and insert IUDs. The physicians will perform the more sophisticated skills in family planning which are required by some individuals.

Coverage will be ensured with a "supermarket" approach to provide the many choices available to the user. It is recognized that details will have to be pursued in liberalizing the rules and policies of the

existing medical requirements to permit as many trained and capable workers as possible to participate in a practical, simple, inexpensive family planning program. It is planned that there will be close coordination with USOM/Thailand, Family Planning Office, to plan the most effective manner by which the women of fertile age in the Lampang Province may be reached.

Nutrition:

Each community with a Sub-Center will be encouraged to establish a Child Nutrition Center (CNC) under the aegis of an already established governing structure such as the village council. Child Nutrition Centers provide drills in the "three Rs" and other school-type activities such as singing, dancing, and playing. Interspersed throughout the day are lessons in health such as toileting and handwashing. Nutrition with food supplements and lunch is a part of the total program. These Centers are for children below school age. They are not only for undernourished children or others who have health problems.

During the initial stages of the DEIDS project these centers may be the responsibility of the Sub-Centers, but may be gradually transferred to become the responsibility of the village health post near which the CNC is situated.

Private day care centers will be upgraded in the project area to that of government standards. This will be done in coordination with agencies such as the Department of Community Development, Ministry of Interior and the Department of Teacher Training, Ministry of Education.

It is acknowledged that there is a gap between the child who is being weaned and the four- to five-year olds who are enrolled in private day care centers and the Child Nutrition Centers. Facts such as availability of protein products in Lampang Province are not known at present. Details will have to be compiled early in the project to ascertain how the nutritional needs of this group of children and mothers may be met so that effective programs can be introduced early in the life of a child. An example of a method is the training of the women who come to the Provincial Hospital to prepare food for relatives who are hospitalized. (Provincial Hospitals in Thailand do not have food services.) It would seem opportune to provide information on dietary matters while there is a "captive" audience all over the hospital grounds. In this manner, lessons learned by the women may be transferred to their daily lives.

Texturized protein will be introduced more extensively in the feeding program at the Child Nutrition Centers and in the school lunch programs with the cooperation of all provincial education officers and local authorities. In addition, malnutrition will be combated by the distribution of iodated salt to prevent endemic goiter; fortified fish sauce with iron to combat iron deficiency anemia; vitamins to prevent vitamin deficiency; and orthophosphate to prevent vesical calculi. These products can be distributed by all Rural Medical and Health Centers, Sub-Centers and Health Posts where the people will be able to purchase these items at low, government subsidized prices. The services of the Agricultural Promotion Officer will be solicited to augment food production techniques in the villages.

Finally, nutrition education will be stressed especially to pregnant women and women who are breast feeding.

Communicable Disease Control:

This activity will be conducted by wide immunization against smallpox, diphtheria, pertussis, tetanus, and poliomyelitis.\* In addition, efforts will be made to integrate into the general health services, those disease which have been under special campaigns such as tuberculosis, leprosy and malaria.

Environmental Sanitation:

Communities under the DEIDS project will be encouraged to participate financially as well as to provide manpower in establishing small and large-scale water supply systems. Additional areas which will require motivation and encouragement will be the construction and use of sanitary privies, methods of refuse disposal and household drainage, and the cleaning of individual homes and compounds.

Laboratory Services:

The laboratory services in the hospital and the Rural Medical and Health Centers will be strengthened. All health personnel both in the public and private sectors will be encouraged to utilize the laboratory services.

\* It is suspected that polio cases are present in the village, but not reported.

Community Health Section:

This program will be established in the Provincial Hospital. Its primary responsibility will be to provide preventive and promotional services to the community in MCH, FP, Nutrition, CDC and other areas.

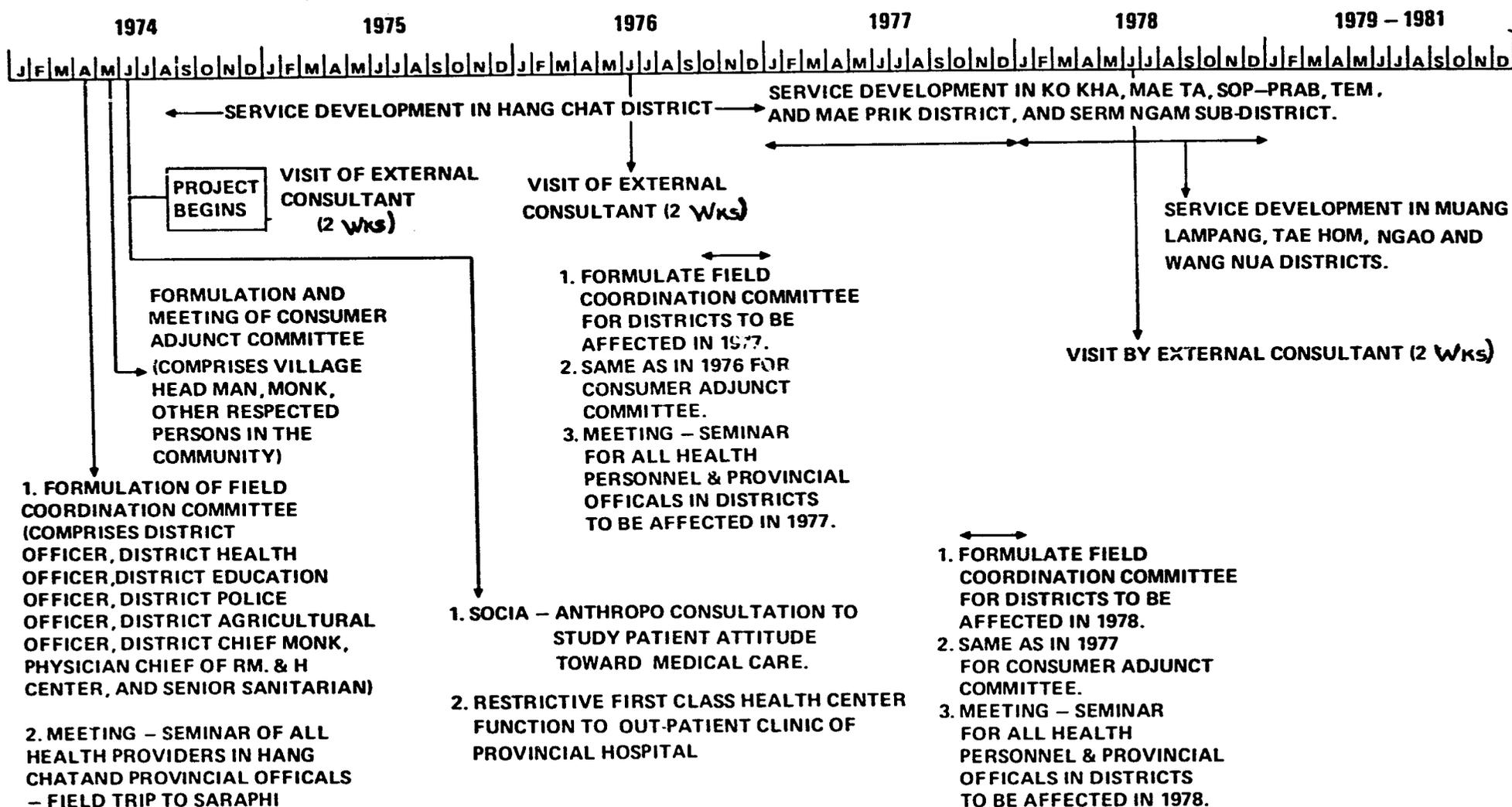
Referral System:

The requirement for this activity is a clear understanding by all personnel as to how patients can be smoothly referred from the Sub-Center to the Provincial Hospital and vice versa without "falling through the cracks." Factors to be taken into consideration will be the paper work required, mode of patient transportation, and the utilization of the existing communication system such as the police radio.

An integral element of the DEIDS project is the supervision of health personnel, especially those who provide services outside of the Provincial Hospital. This supervision includes those in the private sector such as druggists, injectionists, and tombol doctors who are located in the tombols and villages. A system of supervision will follow the functional organization with details to be worked out when the project is initiated.

Broad description of health personnel in the province is included in Appendix J.

# MEDICAL AND HEALTH SERVICES



**REMARKS:** 1. INTEGRATED HEALTH SERVICE STATUS TO BE WORKING IN AUGUST 1974, IMMEDIATELY AFTER THE COMPLETION OF CROSS TRAINING.  
 2. MEDICAL CARE RUNNING THROUGH "MEDEX" STARTS TO BE WORKING IN JANUARY 1976 - HOWEVER, FIRST CLASS OF MEDEX TRAINEES TO BE PLACED IN PRECEPTORSHIPS ON 1 APRIL 1975.

## 2. Personnel Development Division

The health care delivery system in the project area will work only if adequate numbers of trained health personnel, in addition to physicians, are available.

Seven training programs for health personnel have been identified which will strengthen the health delivery system in Hang Chat District and Lampang Province. These programs are:

1. Trainer Training
2. Cross Training for Administrators, Supervisors and Service Personnel
3. Volunteer Training for Health Post Workers and Communicators
4. Traditional Midwife Training
5. On-the-Job Training (continuous)
6. Intern Training
7. MEDEX

There are two innovations in the development of health manpower for the DEIDS project. One is the training of 85 intermediate technologists, non-physicians, who will be able to provide basic health services which will be integrated into a low cost system of health delivery in the villages. This system, MEDEX, affords an organized approach to the problems of delivering health, family planning and nutrition services to Hang Chut District, Lampang Province. The rationale for the establishment of this new category of personnel has been outlined by Dr. Richard A. Smith, Consultant. (See Appendix H).

The training programs which include objectives, types of trainers, trainee qualifications, duration of training, number of trainees per class, number of classes required, training sites and equipment needs are detailed in Appendix K.

Curricula planning will be undertaken as an addendum to this planning phase.\* Three physicians who will be assigned to the DEIDS project will observe on-going training programs in Hawaii, Seattle, Spokane and Truk to formulate the basic training requirements, especially for MEDEX. In addition, refinement of the training programs for health personnel in the Lampang Province will take into consideration the following:

\*This activity is now under process as a Phase II operation because of the lack of time during the Phase II planning period.

identification of the problems, analysis of required tasks, and writing of job descriptions. It is noted that presently in the Hang Chat District job descriptions for various health personnel are available, but these documents are not current and are not realistically geared to the services required by the people.

MEDEX will be an experimental program. As Medexes are trained, the number of "health workers" and "practical nurses" will decrease, since these personnel will probably qualify for further training in the MEDEX program.

It is clearly evident that there will never be the number of physicians which is needed in Thailand. The ratio of doctors to population in rural Thailand is 1:15,000. This figure is not predicted to lower significantly in the near future. Therefore, it is essential that an intermediate level of medical technologist be trained so that the physicians' skills can be extended.

The utilization of Medex is a solution to the issue of the dearth of physicians. (The problem of migration of physicians to foreign countries, especially to the United States, is being solved somewhat by compulsory service of the newly graduated physician in rural Thailand. This program has just begun. The successful retention of these physician in the rural communities is debatable at this time.)

EIGHT-YEAR GOAL FOR HEALTH PERSONNEL\* - LAMPANG PROVINCE

Category	Medical Care Sector (Hospital)		Public Health Sector (Rural)		Total		Overall required	Remarks
	Existing	Additional required	Existing	Additional required	Existing	Additional required		
1. Physician*	22	5	3	9	25	14	39	
2. Nurse	52	10	7	18	59	28	87	
3. Sanitarian	0	0	3	10	3	10	13	
4. District Health Officer	0	0	11	0	11	0	11	
5. Health Worker	0	0	29	73	29	73	102	
6. Dentist	2	2	0	1	2	3	5	
7. Pharmacist	2	2	0	0	2	2	4	
8. Practical Nurse	23	50	1	90	24	140	164	
9. Nurse Aide	138	100	0	0	138	100	238	
10. Midwife	0	0	61	51	61	51	112	
11. Dental Auxil.	1	4	0	11	1	15	16	
12. Medex**	0	5	0	80	0	85	85	
13. Health Post Volunteers	0	0	0	540	0	540	540	
14. Communicator Volunteers	0	0	0	5,400	0	5,400	5,400	
15. Traditional Midwife	unknown	unknown	unknown	600	unknown	600	600	

\*\*To be recruited from health workers, practical nurses, nurse aides, and midwives. This will provide upward career mobility for these categories of workers.

\* Intern training in Lampang Hospital is a new source for recruiting physicians.

The second innovation is the use of at least 5,950 trained volunteers who will function as Health Post Workers and Communicators. The Health Post Worker refers patients to the health personnel for services. He assists in feeding program at the Child Nutrition Center and helps to find cases which pose serious health problems. After completion of a training period, he may be able to treat minor ailments and provide food supplements as well as non-prescriptive drugs at nominal costs to the patients. He will also investigate and record births and deaths.

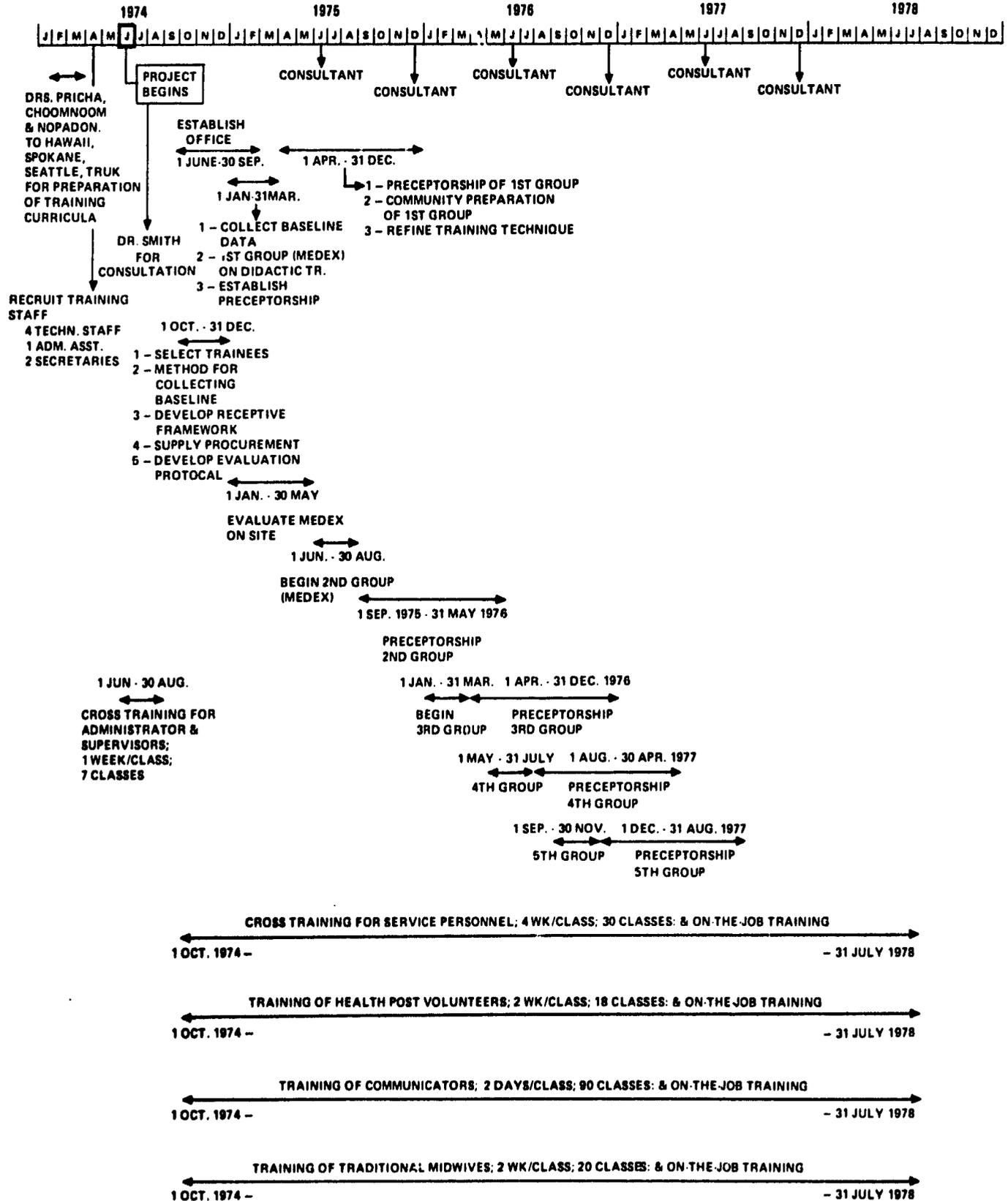
The Communicator's primary function will be to assist the patient in entering the health service system. He will serve as liaison between the government officials and the people and disseminate health information to the people. It is in the latter category that monks will be recruited and trained. This formidable manpower resource has been used minimally for health purposes in Thailand. Preliminary investigations with the religious hierarchy do not seem to contraindicate the valuable contribution that this can make in up-grading the basic health of people living in the villages.

Other areas of concern with which to be mindful are the need for external as well as internal evaluation of the training program; the provision of academic ladders which will encourage career development; and an assurance of a continual flow of trainees to ascertain coverage throughout Lampang Province. The details for the above will be developed during the early stages of Phase III.

The teaching staff for the training programs will be recruited from qualified and available personnel on the staff as well as faculty members from Chiangmai University, Mahidol University and the University of Hawaii. It is planned that these institutions will also be involved in the evaluation and assessment of the training activities.

The Lampang Midwifery School in Lampang City is being considered as the training center. Should this materialize, it is estimated that \$20,000 will be required for the renovation of the school for classrooms, dormitory and office facilities.

# PERSONNEL DEVELOPMENT



\* INTERNSHIP PROGRAM NOT LISTED PENDING APPROVAL OF MEDICAL COUNCIL AND LAMPANG HOSPITAL

### 3. Information-Evaluation-Research Division:

The products of this Division are essential to the functioning of the Medical and Health Division and the Manpower Development Division. This Division will be responsible for processing information which will be used by the project in planning, assessing and evaluating its goals and objectives. The facts established will be important in making changes which are necessary during the course of the project. For example, Task Analysis conducted twice each year will have marked effects on the curriculum for the MEDEX training program.

In addition, the information gathered will be used for making appropriate comparisons with Jae-Hom District, the total Lampang Province and Mae-Tah District, Lamphun Province which neighbors Hang Chat, the project site. Hang Chat will be the experimental district and the other areas will be designated as the "controls."

It is anticipated that for "institutional building," students and faculty from Chiangmai, Mahidol Universities and the University of Hawaii will be requested to participate in the activities of this Division.

There are eight types of information which will be gathered throughout the duration of the project.

#### 1. Vital Statistics Reporting

Report of births and deaths. New data collection procedures will be developed to supplement the existing system.

#### 2. Community Surveys

Baseline data on population socio-demographic characteristics and attitudes and practices in health and family planning matters.

#### 3. Nutrition Surveys

Physical examinations to supplement health interview surveys in a limited way. This survey will also include factors such as critical incidents on weaning practices and the introduction of solid foods to infants.

#### 4. Clinical Records

A streamlined record system for clinical use which includes information on individual patients such as laboratory tests, medication, and Morley-type weight charts which are kept current, unduplicated and easily retrievable.

#### 5. Service Records Abstract

These abstracts will illustrate facts such as episodes of illnesses rather than details of individuals. It may summarize information on groups

of individuals. Such information will be vital for program analysis.

6. Task Analysis

Identification of the nature and appropriateness of activities engaged in by each category of workers in the provision of services.

7. Cost Analysis

Analysis to reflect total cost by program element, cost per unit of service and according to program effectiveness.

8. Administrative Analysis

Information to determine supervisory attitudes toward the community being served.

Dr. William A. Reinke, consultant to DEIDS-Thailand, from Johns Hopkins University, stated that, "Although it is useful to list and develop elements of the information system separately, these elements must ultimately be combined into an integrated total system covering each of the program areas." He further states, "It should be noted that each of the eight component sources of information described earlier might contribute items of information in several program areas. Moreover, information for a particular program may be compiled from more than one source."

The schedule of events which this Division will undertake is listed below. It should be noted that similar information will be collected simultaneously in the "control" areas so that comparisons can be made. It will be the responsibility of the Field Director to assure the effective use of the data by all program components so that changes will be made when required.

COST ANALYSIS

1974  
Nov - Cost Analysis

1975  
Nov - Cost Analysis

1976  
Nov - Cost Analysis

1977  
Nov - Cost Analysis

1978  
Nov - Cost Analysis

1979  
Nov - Cost Analysis

1980  
Nov - Cost Analysis

1981  
Nov - Cost Analysis

ADMINISTRATIVE ANALYSIS

1974

1975  
Jan - Administrative Analysis

1976  
Jan - Administrative Analysis

1977  
Jan - Administrative Analysis

1978  
Jan - Administrative Analysis

1979  
Jan - Administrative Analysis

1980  
Jan - Administrative Analysis

1981  
Jan - Administrative Analysis

**TASK ANALYSIS**

1974

Oct-Dec - Task Analysis

1975

Apr-June - Task Analysis

Oct-Dec - Task Analysis

1976

Apr-June - Task Analysis

Oct-Dec - Task Analysis

1977

Apr-June - Task Analysis

Oct-Dec - Task Analysis

1978

Apr-June - Task Analysis

Oct-Dec - Task Analysis

1979

Apr-June - Task Analysis

Oct-Dec - Task Analysis

1980

Apr-June - Task Analysis

Oct-Dec - Task Analysis

1981

Apr-June - Task Analysis

Oct-Dec - Task Analysis



CLINICAL RECORDS STUDY

1974  
June 74 - May 77

1979  
Jan 79 - Dec 81

1980 --

1981 --

SERVICE RECORDS ABSTRACT

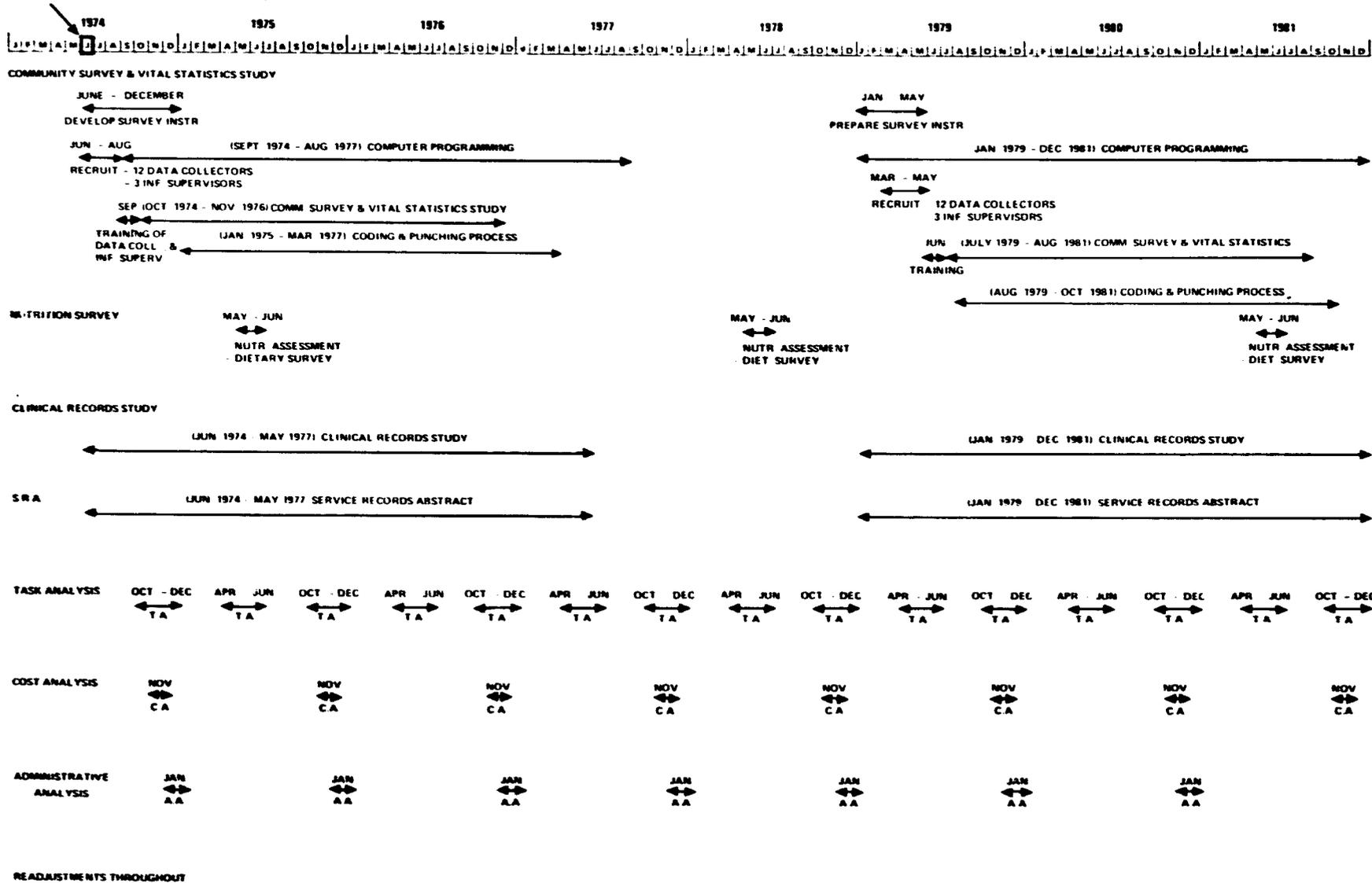
1974  
June 74 - May 77

1979  
Jan 79 - Dec 81

1980 --

1981 --

# INFORMATION-EVALUATION-RESEARCH



#### 4. Administrative Service Division:

This is the "housekeeping" Division of the total project. It is through this Division that the Field Director and U.S. Counterpart will operate. A major responsibility will be its support services which include all details of administration such as personnel, finances, correspondence, transportation and supply.

A Field Director, Dr. Pricha, has been appointed by the Ministry of Public Health to coordinate the DEIDS project in Lampang Province. He will be responsible to the Director of the Project who is the First Deputy Under-Secretary of the Ministry of Public Health. The latter will be assisted by a Deputy for the Project.

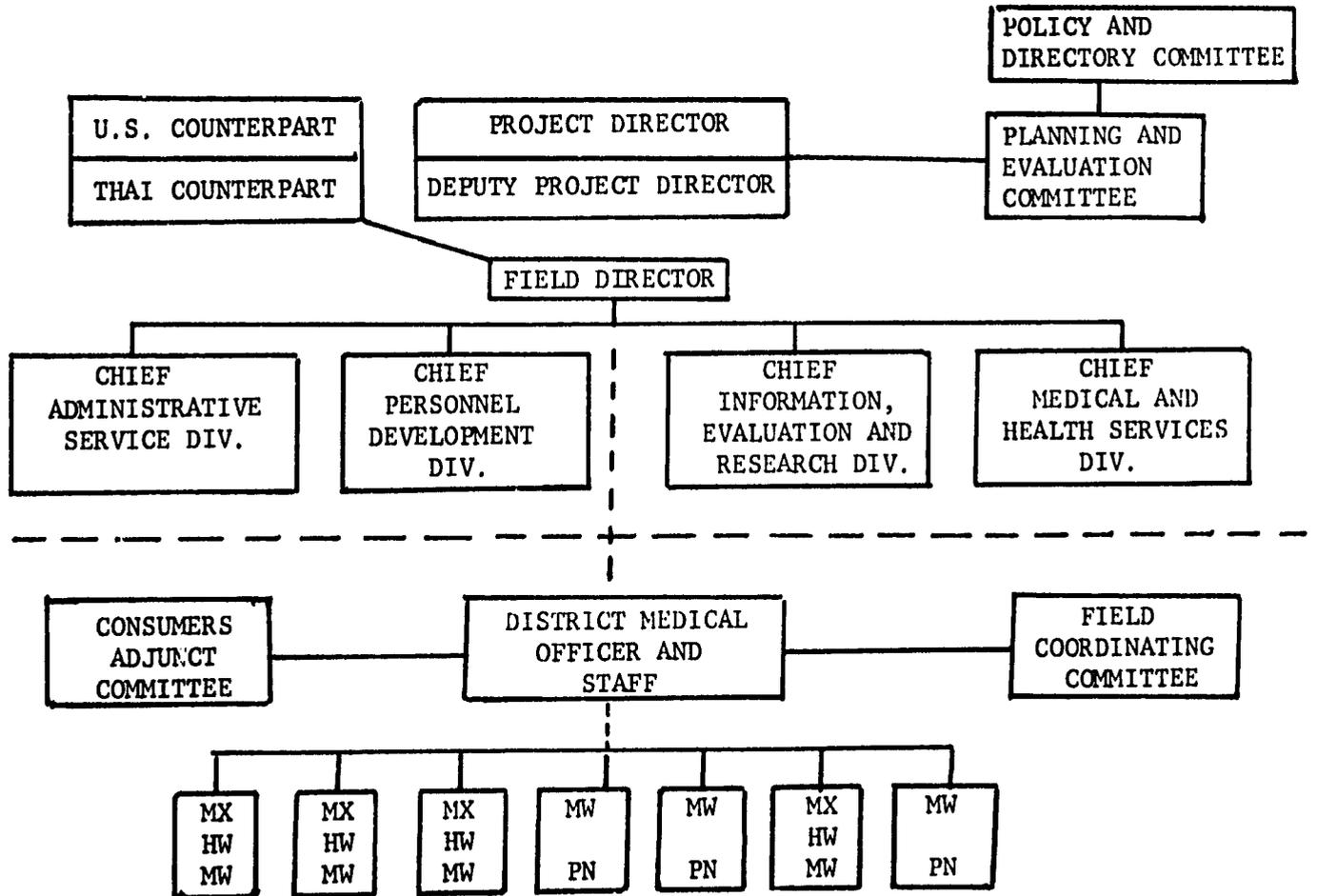
The Director of the Project will be advised by a Planning and Evaluation Committee composed of technically qualified individuals from the various divisions of the Ministry of Public Health. This Committee will report to the Policy and Directory Committee chaired by the Under-Secretary. A U.S. representative and a Thai counterpart will be working closely together to facilitate the success of the project. They will relate to the Field Director. All Division Chiefs will be responsible to the Field Director.

The District Medical Officer and his staff will work closely with the Field Director. He will be responsible to the Provincial Chief Medical Officer who will work closely with the Field Director. Both men, the Provincial Chief Medical Officer and the Field Director, are responsible to the Director of the Project.

Two committees will be organized to define the role of the Rural Medical and Health Center. A Field Coordination Committee will include as members: District Officer, District Health Officer, District Education Officer, District Police Officer, District Agricultural Officer, District Chief Monk, Chief of the RMCH, and Senior Sanitarian of the RMHC. The second committee will be a Consumer Adjunct Committee which will consist of village headman, teachers, monks, and other respected persons in the community.

Detailed recommendations related to administration of health services have been made by Dr. A. Patterson, DEIDS-Thailand consultant. Many of his concerns will be incorporated into the functions of this Division (see Appendix I).

DEIDS PROJECT ORGANIZATION



Below this level are volunteers and other local community organizations.

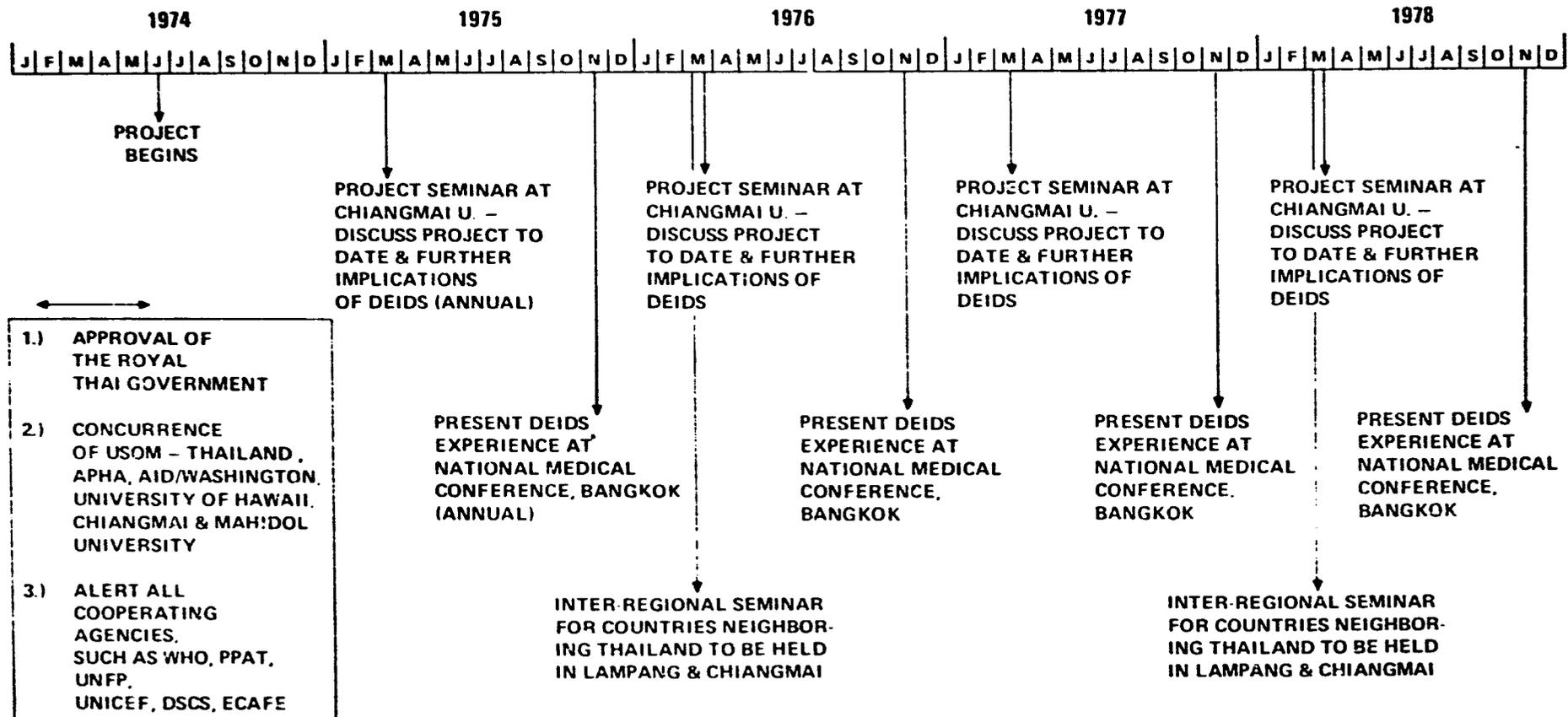
- N.B.    MX = Medex  
           HW = Junior Health Worker  
           MW = Midwife  
           PN = Practical Nurse

In addition, descriptions, compositions, and functions of the Policy Committee, the Planning and Evaluation Committee as well as the job descriptions of the Project Director, Deputy Project Director, Field Director, Chiefs of the four Divisions, the Thai and U.S. Counterparts are listed in Appendix A.

The transmission of information for replicability to other provinces and the neighboring countries will be through the efforts of this Division. Annually, this Division will be responsible for conducting project seminars at Chiangmai University to discuss project findings and the implications of DEIDS. To these seminars will be invited those provinces surrounding Lampang. In addition, DEIDS experiences will be presented at the National Medical Conference which is held each year in Bangkok. In attendance will be the Provincial Medical Officers from each of the seventy-one provinces. Interested participants will be invited to the project site to observe the activities in progress.

Bi-annually, DEIDS will be responsible for conducting an intra-regional seminar to which representatives from countries neighboring Thailand will be invited. This meeting will be held in Bangkok with field visits to Lampang and Chiangmai.

# ADMINISTRATIVE SERVICES



**ADMINISTRATIVE SUPPORT SERVICES THROUGHOUT THE PROJECT: – PROGRESSIVE ACTION FOR NATIONAL ACCEPTANCE OF LOW COST HEALTH SERVICES TO THE MAJORITY OF THE RURAL POPULATION**

**SECTION II LOGICAL FRAMEWORK**

PROJECT DESIGN SUMMARY  
LOGICAL FRAMEWORK

Life of Project: \_\_\_\_\_ to FY \_\_\_\_\_  
From FY \_\_\_\_\_ to FY \_\_\_\_\_  
Total U. S. Funding: \_\_\_\_\_  
Date Prepared: \_\_\_\_\_

Project Title: DEIDS - Thailand

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	TARGETS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS																
<p><b>Goal:</b></p> <p>To improve the general level of health of those living in rural Thailand.</p> <p><b>Areas of Health Problems:</b></p> <ol style="list-style-type: none"> <li>1. Population growth</li> <li>2. Diseases of pregnancy and its complications</li> <li>3. Malnutrition</li> <li>4. G-I Diseases</li> <li>5. Respiratory Diseases</li> <li>6. Motorcar accidents</li> <li>7. Dental health</li> <li>8. Mental health</li> </ol>	<p>Conditions that will indicate purpose has been achieved: End of project status.</p> <p><b>Examples:</b></p> <p>Reduction in fertility rate, mortality and morbidity rates, gastro-intestinal diseases, and psychosomatic illnesses.</p> <p>Rise in height, and weight of children under 15 years of age, and improvement in dental hygiene.</p>	<p>Baseline figures on health status and realistic figures based on the Lampang Approach will be determined in the early stages of the project.</p>		<p>Assumptions for achieving purpose:</p> <ol style="list-style-type: none"> <li>I. Funds are available for the delivery of health services in rural areas of Thailand.</li> <li>II. Key features of the Lampang DEIDS approach are workable.</li> </ol>																
<p><b>Purpose:</b></p> <p>A low cost health delivery system used by 2/3 of the women of fertile age and children under 6 years of age in Lampang Province. Key features of the system extensively replicated throughout rural Thailand without external assistance.</p> <p>The proposed integrated health system will include FP, MCH, Nutrition and other preventive and curative services.</p>	<p><b>End of Project Status</b></p> <ol style="list-style-type: none"> <li>1. At least 2/3 of women 15-44 and children under 6 in Lampang Province have utilized more than once, one or more of the following services: FP, MCH, Nutrition, and other preventive and curative care.</li> <li>2. Cost of health services will be affordable by the Royal Thai Government (RTG) when expanded to serve the majority of the rural population of Thailand.</li> <li>3. Key features of the Lampang approach will be in process of replication in provinces that include a majority of the rural population of Thailand. The key features are:             <ol style="list-style-type: none"> <li>a. Rural Medical and Health Centers are the primary delivery system for out-patient services.</li> <li>b. Intermediate level health workers (Modex) for staffing of RMC.</li> <li>c. Health Services for target group based on systematic evaluation of existing delivery system effectiveness and</li> </ol> </li> </ol>	<p><b>L. Projected Coverage of the Population in Lampang Province</b></p> <table border="1"> <tr> <td>1974</td> <td>75</td> <td>76</td> <td>77</td> <td>78</td> <td>79</td> <td>80</td> <td>8001</td> </tr> <tr> <td>201</td> <td>35</td> <td>30</td> <td>31</td> <td>40</td> <td>45</td> <td>55</td> <td>65</td> </tr> </table> <p>* in thousand</p> <ol style="list-style-type: none"> <li>2. Information for setting targets unavailable at present but will be generated during early stages of project.</li> <li>3. Significant milestones (coverage):             <ul style="list-style-type: none"> <li>1976: Bang Chat District</li> <li>1977: Ko Kha, Mae Ta, Sob Prab, Tern, Mae Prik Districts and Bua Ngam Sub-District</li> <li>1978: Muang Lampang, Jan Nam, Ngao, and Van Nuan Districts</li> </ul> </li> </ol>	1974	75	76	77	78	79	80	8001	201	35	30	31	40	45	55	65	<p><b>Lampang Approach</b></p> <ol style="list-style-type: none"> <li>1a. Potential target group (existing Census of 1970)</li> <li>1b. Actual coverage; clinical records</li> <li>2a. Standard of Affordability: Analysis of RTG Health Expenditures.</li> <li>2b. Cost of Lampang Approach: Cost Analysis by Information-Evaluation Research Division</li> <li>3. Replication Survey at Annual National Medical Conference</li> </ol>	<ol style="list-style-type: none"> <li>I. Consumer attitudes and behavior can be changed which include their active participation in planning community health services</li> <li>II. Integration of health services administratively as well as in practice is accepted by health workers.</li> <li>III. Government civil service system will make provisions for new types of job performances by health workers such as the Medical.</li> <li>IV. Workable cooperation and coordination between agencies such as the ministries and private sectors.</li> <li>V. Evaluation and use of results in making continued adjustments in the system.</li> <li>VI. The project will enhance the effectiveness of relevant Thai and counterpart U.S. institutional capabilities in administering, evaluating, and delivering services related to FP, MCH, nutrition and other preventive and curative health needs.</li> </ol>
1974	75	76	77	78	79	80	8001													
201	35	30	31	40	45	55	65													

**Outputs:**

making Lampang low cost health delivery system workable

1. Trained Madex staff working in Rural Medical and Health Centers and sub-centers.
2. Other medical auxiliaries trained and working in Lampang
3. Information on Lampang experience available for various programs
4. Information available for Medical and Health Services Division to revise services based on Lampang experience.
5. Trained Madex staff working outside Lampang.
6. Cost analysis of Lampang low cost health delivery system; assess reasonableness of replication elsewhere in Thailand.
7. Officials from other Thai Provinces supporting replication of key features of Lampang-- based on knowledge of actual Lampang experience obtained at conferences, site visits, and written reports.
8. Lessons for other LDCs from Lampang experience.

1. a. Preceptorship in Lampang
- b. Certified Madexes in field (cumulative)
2. Traditional midwives, health post workers, communicators, medical services personnel, and interns. (cumulative)
3. Task analysis, clinical records, nutrition survey.
4. "c" above, and cost analysis, service records abstract, administrative analysis, vital statistics, and community survey.
5. Beginning of Madex preceptorships and certified Madex in the field outside Lampang.
6. Annual reviews
7. Officials obtain facts on Lampang, based on experiences related at conferences, site visits, and written reports
8. Number of countries replicating key features of Lampang.

See TARGET Table below,

1. Provincial medical office and DEIDS project payroll records.
2. Rural Medical and Health Center records which list trained auxiliary workers who dispense government issued drugs.
3. Spot-check of Madexes' clinical records by supervisors.
4. Reports written by Madex trainees. Report to Administrative Services Division.
5. Provincial Medical Office and DEIDS payroll records; trainee stipends and Madex salaries.
6. Administrative Service Division's analysis to be submitted to the Ministry of Public Health with copy to APHA.
7. Questionnaire to be distributed at Chiangmai & Bangkok Confs.
8. Questionnaire to be distributed at inter-regional conferences.
9. Civil Service classification change regarding pay status by Dec. 1975.
10. Qualified trainers are available.
11. Indigenous health personnel are willing to undergo training.
12. Health workers on provincial payroll will be given time to attend training sessions.
13. The Lampang Midwifery School is capable of accommodating the scheduled training programs.
14. All available and assembled information will be used.

**T A R G E T (OUTPUTS)**

12/31/74 12/31/75 12/31/76 12/31/77 12/31/78 12/31/79 12/31/80 12/31/81

Important milestones (coverage)

	Manq Chut	6 south-ern districts	4 north-ern districts						
1a. Preceptorships in Lampang in field at end of didactic training	20	30							
1b. Certified Madex in field (cumulative)	0	20	55	85	85	85	85	85	85
2. Traditional midwives (cumulative)	60	240	420	600	600	600	600	600	600
Health Post workers (monks, tambols, doos)	60	240	420	540	540	540	540	540	540
Communicators	540	2700	4860	5400	5400	5400	5400	5400	5400
Cross-training, administrators and supervisors	155	155	155	155	155	155	155	155	155
Service personnel	40	280	520	620	620	620	620	620	620
Interns	0	5	10	15	20	25	30	30	30
3. Task Analysis	0 1*	0 3	0 5	0 7	0 9	0 11	0 13	0 15	0 15
Clinical Records (review of improvements annually)	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 8
Nutrition Surveys	0 1	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 7
4. Cost Analysis	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 8
Service Records Abstract	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 8
Administrative Analysis	0 1	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 7
Vital Statistics	0 1	0 1	0 1	0 2	0 2	0 2	0 2	0 2	0 2
Community Survey	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 8
5. Trained Madex staff working outside of Lampang									
a. Beginning of preceptorships	0	0	10	0	0	0	0	0	0
b. Certified Madex in field	0	0	5	15	15	15	15	15	15
6. Cost Analysis of Lampang project	0 1	0 2	0 3	0 4	0 5	0 6	0 7	0 8	0 8
7. Officials from other Thai Provinces supporting replication of key features of the Lampang project	0	20	50	80	110	140	170	200	200
8. Replication of key features of Lampang in countries outside Thailand	0	0	0	1	2	3	3	3	3

\*or time, etc.

**Inputs:**

By July 1974, create operational Divisions which consist of Administration; Information-Evaluation-Research; Personnel Development; and Medical and Health Services.

1. Establish administrative infrastructure in Lampang Province and Districts which is supported by policy and planning groups composed of providers and consumers.
  - Field Coordination Committee (providers) and Consumer Adjunct Committee functioning by June 1974.
2. Information-Evaluation-Research Division operational by June 1974 with provision throughout the project for community survey and vital statistics study, nutrition survey, clinical record study, service record abstracts, task analysis, cost analysis, and administrative analysis. This Division will collect, analyze and provide data for the operation and refinement of the delivery system, administration, and manpower training.
3. Personnel Development Division operational by June 1974 - train health cadres to staff health facilities from which integrated services in FP, MCH, nutrition and other preventative and curative care are provided.
4. Functional reorganization of the health delivery services in Lampang Province and Districts. Health services, MCH, FP, Nutrition, communicable disease control, environmental sanitation, laboratory services, community health services, and referral system in place and operational by end of 1978 throughout Lampang Province; Annual participation in provincial seminars and National Medical Conferences; also, inter-regional seminar on biannual basis, sponsored by DEIDS.

**DEIDS BUDGET**

Summary of Budget for In-country Expenses

	APHA	RIG
1974	\$297,350	\$ 304,780
1975	426,400	1,388,919
1976	371,843	2,616,913
1977	370,390	1,222,785
1978	399,230	9,418,933

SECTION III

NARRATIVE ACCOUNT

A. GOAL

The goal of this project is to improve the general health of the target group served by a low cost health delivery system.

The Thai Ministry of Public Health has identified the following health problems as requiring attention. They are listed according to priority: population growth, diseases of pregnancy and its complications, malnutrition, gastro-intestinal and respiratory diseases, motor-car accidents, dental health and mental health.

The indicators of goal achievement will be a reduction in fertility rate, mortality and morbidity rates which include maternal mortality, and the lowering of gastro-intestinal diseases and psychosomatic illnesses. There will be a rise in weight and height of children under five years of age and improvement in dental hygiene and mental health.

Statistical data regarding the target group are scattered and the accuracy of available facts is questionable. Information will be assembled and analyzed during the initial phase of the project, especially those facts related to the demonstration Province.

B. PURPOSE

The purpose of this project is to provide a low cost health delivery system which is used by two-thirds of the women of fertile age and children under five years of age in Lampang Province. Key features of the system will be replicated throughout rural Thailand without external assistance.

The proposed, integrated health delivery services will include family planning, nutrition, and maternal child health as well as other preventive and curative care.

At the end of the project in 1981, the target population would have utilized more than once, one or more of the available services. It is estimated that the cost of the health services will be affordable by the Royal Thai Government when key features of the Lampang approach are expanded to meet the health needs of the majority of Thailand's rural population.

The primary delivery system for out-patient services will be the Rural Medical and Health Centers (RMHC) which will be heavily staffed by intermediate

technology health workers (Medex). The training of these individuals as well as the determination of health services for the target group will be based on a systematic evaluation of the effectiveness and efficiency of the existing delivery system.

Coverage of the target group (fertile women and children under six years of age) in Lampang Province is estimated to range from 48,300 or 20% of the total target group in 1974 to 198,600 or 65% in 1981.

Cost analyses throughout the project period will reflect the anticipated financial requirements for the country. Such costs will be determined by examining the government's budget for rural health; the required budget to serve 66% of the national target group (34 million people in rural Thailand); the budgetary needs to extend the Lampang Project; and the percent of the total rural population affected in the provinces which replicate the Lampang DEIDS project.

The stated purpose for DEIDS will be verified by ascertaining whether the target group was served. Coverage will be determined by examining records in the RMHC and by making comparisons with the 1970 census figures, and through some sample surveys. In addition, the level of affordability by the Royal Thai Government will be determined by an analysis of the government's health expenditures compared with the Lampang DEIDS approach. Finally, a survey will be made of those persons attending the DEIDS sponsored annual conferences. Inquiries will be made as to whether there has been a replication of Lampang's key features in the rest of the country.

The purpose of this project will have been met when:

1. Consumers actively assist in planning the health services in their respective communities.
2. Health workers after training provide integrated health services which include family planning, maternal and child health, and nutrition.
3. The civil service system provides career opportunities for the newly created intermediate technology health workers, Medex.
4. The representatives of the private sector, druggists, injectionists, Tambol doctors, and traditional midwives and agencies such as the various ministries can work together to improve the general health of those individuals living in rural Thailand.
5. The health delivery system continually makes adjustments in the programs as a result of on-going analyses of collected data.

6. The relevant Thai (Chiangmai and Mahidol Universities) and counter-part U.S. institution (University of Hawaii) enhance their effectiveness to administer, evaluate, and assist in the delivery of services which are related to family planning, maternal and child health, nutrition, and other preventive and curative care.

### C. OUTPUTS

The significant milestones for DEIDS in Lampang Province are the projected coverage of the demonstration area. By the end of 1976, the majority of the target population in Hang Chat District will have access to and will use the available low-cost health services. The second target, in 1977, will be the inclusion of five districts and one sub-district in southern Lampang. By the end of 1978 four northern districts will be included as a third target. All of Lampang Province will be served until the end of the Project year, 1981.

To make Lampang's low cost health delivery system work, eight-five (85) Medexes will be trained in five, twelve-month training programs. They will be assigned to the Rural Medical and Health Center (RMHC) where the majority of the patients will be treated. Formerly, many of these patients travelled long distances to be seen at the Provincial Hospital by physicians. The by-passing of the District RMHC and sub-centers created unmanageable over-loads in the hospital's Out-Patient Department.

Medical auxiliaries identified as Health Post Workers and Communicators (traditional midwives, monks, village headmen, druggists, injectionists, Tambol doctors) will require training. The training period for this group will range from two days to four weeks. Auxiliary health workers totalling 6,540 will be trained throughout the duration of the DEIDS Project. During the same period, 155 supervisors and administrators and 620 service personnel (nurses, physicians and other health workers) will undergo in-service training to incorporate the theory and practices of integrated health services in Lampang Province's reorganized health delivery system. Included in the training programs will be the introduction to the Medexes who will function as an extension of the physician with supervision by the latter.

All training programs will require continual revisions. The verifiable indicators will be the examination of data from task analysis, clinical records and nutrition surveys. The proof of Medex placement in the RMHC will be reflected in the payroll records of the Provincial Medical Office and the DEIDS office. In addition, supervisors will make spot checks of the Medexes' clinical records.

Availability and performance of auxiliary health workers will be checked through records in the RMHC. These documents reflect the amount of government issued drugs and medical supplies dispensed.

While training is being conducted, the Information-Evaluation-Research Division will examine data which reflect the effectiveness of the delivery of health services, a responsibility of the Medical and Health Services Division. Included in these data will be information from clinical records; cost, task and administrative analyses; vital statistics; data on fertility rates and other data relative to family planning; and community and nutrition surveys. Reports written by the Medex in training and reports from various sources gathered by the Administrative Services Division will also serve as means for verification.

An innovation of DEIDS-Thailand will be the successful utilization of the intermediate technology health worker, Medex. These newly trained health personnel will be placed outside Lampang Province in 1976. Replication of this key feature of the Lampang project to other parts of Thailand will be verified by the payroll records of the Provincial Medical Offices.

The activities of the DEIDS Medical and Health Services Division will be replicable when cost analysis for Lampang Province show that it is reasonable to be attempted elsewhere in Thailand. Such information will be available and determined by data reviewed annually by the Information-Evaluation-Research Division and submitted by the Administrative Service Division to the Ministry of Public Health and to APHA/AID.

It is predicted that key features of DEIDS will be incorporated in other provinces. It is likely that replication will be based on knowledge of Lampang experiences learned by health officials at conferences, site visits and through written reports. To encourage such progress, two annual conferences are planned, one to be held in Chiangmai and the other in Bangkok. At these gatherings, questionnaires will be distributed to survey the level of replication.

The extent to which the key features of the Lampang Project will be copied by developing countries surrounding Thailand is unknown. To pursue the likelihood that there might be adoption of some of the findings, the Lampang experience will be disseminated through bi-annual intra-regional conferences in Bangkok sponsored by DEIDS. Replication data will be solicited by means of questionnaires distributed at the conferences.

It is assumed that the outputs for DEIDS-Thailand will be assured if by 1975, the RTG Civil Service Department can change the personnel classification which will incorporate the new, intermediate health worker (Medex)

Another assumption is that qualified trainers are available and that the indigenous health personnel are willing to undergo training. It is also taken for granted that the health workers already on the provincial payroll will continue to receive their salaries and be given time to attend training sessions. (Essential to the training program will be the availability of the Lampang Midwifery School where all of the didactic training of health workers will be conducted.)

Finally, the enhancement of the training courses and the revisions and replication of DEIDS-Lampang will be based on facts published by the Information-Evaluation-Research Division throughout the life of the project. It is essential that all available analyses of information be used for the evaluation of the status and progress of DEIDS.

#### D. INPUT

By July 1974, there will be four operational divisions which will have the responsibilities of conducting the DEIDS Project in Lampang Province. The Divisions are: Medical and Health Services, Personnel Development, Information-Evaluation-Research, and Administration.

The Medical and Health Services Division: This division is responsible for the functional reorganization of the health delivery system in Lampang Province and Districts.

To assist in this activity, two committees will be organized and solicited for guidance. The participation of these committees is intended to insure consumer inputs at the "rice roots" level. The committees are the Field Coordination Committee which is the provider group at the district level, and the Consumer Adjunct Committee which will have as members responsible village people who can represent the needs of the users of services. By the end of 1978, health services which include family planning, MCH, nutrition, communicable disease control, environmental sanitation, laboratory services and community health services should be operational throughout Lampang Province.

Personnel Development Division: This Division will be operational by June 1974. Its efforts will be directly related to the success of the health services delivery system. It is responsible for furnishing the cadre to staff the health facilities from which the integrated health services in family planning, MCH, nutrition and other preventive and curative care are provided.

Information-Evaluation-Research Division: The services of this group will be available from the early stages of the project. This Division will start in June 1974. Throughout the project it will collect, analyze and disseminate facts gleaned from community surveys, vital statistics study, nutrition surveys, clinical record studies, service record abstracts, and task, cost and administrative analyses. The compiled data will be essential for the operation and refinement of the medical and health delivery system, manpower training and administration of the total project.

Administration Division: This Division will provide all of the support services for the entire project, such as procuring supplies and providing transportation. In addition, it will be responsible for coordinating and insuring the smooth flow of a division's completed activity into the planned use of the findings by another division. For example, the Manpower Development Division cannot conduct meaningful training programs unless "task analysis" is completed by the Information-Evaluation-Research Division. This Division is also responsible for working towards replication of the key features of the Lampang project. An activity towards this goal will be to conduct annual seminars in Chiangmai and Bangkok for in-country officials and the bi-annual seminar in Bangkok to which representatives from intra-regional countries will be invited.

The objectively verifiable input indicators are the budget proposed by the Royal Thai Government and the budget request from APHA. The total costs reflect only those funds required for in-country expenses.

### E. EVALUATION

DEIDS-Thailand sees its approach to evaluation as a pragmatic one. Evaluation has been incorporated as an on-going necessary activity. The responsibility for evaluation is reflected in the activities of the Information-Evaluation-Research Division. It will make the Lampang project work by steering the activities toward its goal and purpose. This Division is mandated to provide the entire project with analyzed data which will affect the total project as well as a specific activity. For example, "cost analysis" is needed to determine replicability of low cost health delivery for the rest of Thailand as well as to countries surrounding Thailand and "task analysis" is vital for manpower development curricula planning. All information gathered should be usable. Should any of the planned activities for the Information-Evaluation-Research Division not prove to be helpful to the project, such activity(ies) will be dropped.

The work schedule for evaluation and research is detailed on pages 30 to 34.

F. BUDGET

This budget is self-explanatory. It was prepared in line with the practices of the Royal Thai Government. For example, yearly salary increments are not included.

The budget submitted by the Thai Ministry of Public Health was not detailed, but a break-down comparable to that of APHA can be presented when the project begins.

Calculations beyond 1978 were not attempted since the estimates would be mere guesses. It is anticipated that costs, especially related to transportation (gas and oil), equipment, vehicles and office supplies will rise dramatically. The anticipated ratio of increase for each item is unknown at this time.

PROPOSED BUDGET

	<u>1975</u>		<u>1976</u>		<u>1977</u>		<u>1978</u>		<u>1979*</u>	
	<u>APHA</u>	<u>R.T.G.</u>	<u>APHA</u>	<u>R.T.G.</u>	<u>APHA</u>	<u>R.T.G.</u>	<u>APHA</u>	<u>R.T.G.</u>	<u>APHA</u>	<u>R.T.G.</u>
Salaries	133,620	220,564	131,020	280,032	90,120	360,171	80,220	410,211		
Consultants	38,329	-0-	27,320	-0-	20,820	-0-	27,320	-0-		
Honcraria	17,600	-0-	17,600	-0-	17,600	-0-	17,600	-0-		
Travel and Per Diem	32,800	6,000	32,800	9,000	33,830	13,500	38,770	19,750		
Transportation of Commodities	-0-	750	-0-	1,025	-0-	1,513	-0-	2,270		
Other Direct Costs:										
Conference	16,000	-0-	25,000	-0-	24,000	-0-	29,000	-0-		
Data Processing	7,500	-0-	7,500	-0-	-0-	-0-	-0-	-0-		
Communication	3,400	75	3,400	113	4,000	170	4,000	225		
Printing & Repro	8,500	750	4,000	1,025	6,000	1,513	6,000	2,270		
Stipends	91,500	-0-	46,500	-0-	46,500	-0-	46,500	-0-		
Rent	-0-	20,550	-0-	22,530	-0-	24,708	-0-	27,104		
Miscellaneous	3,600	-0-	3,600	-0-	3,600	-0-	3,600	-0-		
Construction	-0-	942,950	-0-	1,995,950	-0-	479,060	-0-	8,451,650		
Equipment, Vehicles, Materials and Supplies	103,250	197,280	27,060	307,240	57,260	342,160	51,680	505,455		
	456,090	1,388,919	325,800	2,616,915	303,730	1,222,785	304,690	9,418,935		
University of Hawaii:	<u>171,281**</u>		<u>171,281**</u>		<u>171,281**</u>		<u>171,281**</u>			
	627,371		497,081		475,011		475,971			

\*identical  
with 1978  
budget  
throughout

\*\* 60% of this amount is for faculty time to be spent in Thailand.

DEIDS Project OrganizationPolicy Committee

The Policy Committee will consist of high ranking officials of the Ministry of Public Health and the Rectors, Deans, and faculty members of affiliated universities, as follows:

- |   |                 |
|---|-----------------|
| 1. Under-Secretary of State for Public Health                                   | Chairman        |
| 2. Deputy Under-Secretary of State for Public Health<br>(Dr. Somboon Vachrotai) | Deputy Chairman |
| 3. Rector, Chiangmai University   | Member          |
| 4. Rector, Mahidol University   | "               |
| 5. Director-General, Department of Medical<br>and Health Services               | "               |
| 6. Director-General, Department of Public Health Promotion                      | "               |
| 7. Director-General, Department of Medical Sciences                             | "               |
| 8. Dean, Faculty of Public Health, Mahidol University                           | "               |
| 9. Dean, Faculty of Medicine, Chiangmai University                              | "               |
| 10. Director, Division of Hospitals   | "               |
| 11. Director, Division of Family Health   | "               |
| 12. Director, Division of Nutrition   | "               |
| 13. Director, Division of Rural Health  | "               |
| 14. Director, Division of Health Training                                       | "               |
| 15. Director, Division of Health Education                                      | "               |
| 16. Director, Division of Epidemiology  | "               |
| 17. Director, Division of Biostatistics   | "               |
| 18. Director, Division of Health Planning                                       | "               |
| 19. Dr. Samlee Plianbangchang   | Member & S      |

Function:

The Policy Committee will be responsible for formulating the policies for the project and assuring that the plan is formulated within the scope and boundary of the stated policy. In addition, it will provide controls to ascertain adherence to the approved plan. This committee will be the communicator between the national policy makers and the DEIDS Staff and will be responsible for advising and guiding the Planning and Evaluation Committee, especially in the area of clarifying ambiguous and difficult problems of national concern. The Policy Committee will coordinate the functions of DEIDS with those of other ministries and agencies.

Planning and Evaluation Committee

This committee will include technical staff members from the various divisions of the Ministry of Public Health and from other technical and academic institutions outside the Ministry.

1. Dr. Somboon Vachrotai, Office of Under-Secretary	Chairman
2. Dr. Yuthana Suksamitti, Division of Health Planning	Member
3. Dr. Phongsome Atthasampoona, Division of Epidemiology	"
4. Dr. Tongpoon Wicharnrajkhon, Division of Biostatistics	"
5. Dr. Sutham Hiranniramol, Office of Under-Secretary	"
6. Dr. Rangsan Mahasandana, Division of Hospitals	"
7. Dr. Chachaval Virabhand, Division of Rural Health	"
8. Dr. Prayoon Klinchom, Division of Family Health	"
9. Dr. Prasert Suwannu, Division of Nutrition	"
10. Dr. Prachuab Sompongse, Division of Health Education	"
11. Dr. Snit Chotivej, Office of Lampang PCMO	"
12. Dr. Pricha Desawadi, Office of Chiangmai PCMO	Member & Secretary
13. Dr. Amnuay Traisupa, Division of Rural Health	Member
14. Dr. Choomnoom Promkutkao, Chiangmai Medical School	"
15. Dr. Chalard Tripat, School of Public Health, Mahidol U.	"
16. Mr. Prayoon Sasom, Division of Health Training	Member and Asst. Secretary
17. Dr. Samlee Plianbangchang, Division of Health Training	Member and Asst. Secretary
18. Representative from Lampang School of Midwifery	Member

Function:

This committee will be responsible for all aspects of plan formulation, adjustment of the Plan, and evaluation of the project operation. It also will serve as the monitor for the Policy Committee in regulating and controlling the details of operation.

Project Director

The Project Director will be responsible for the DEIDS Project. His authority and administrative responsibilities are regulated by the rules and regulations which have been jointly agreed upon by APHA/AID and the RTG.

Dr. Somboon Vachrotai, the First Deputy Under-Secretary of State for Public Health, is the Project Director. He is indirectly responsible to the Policy Committee and advised directly by the Planning and Evaluation Committee.

Deputy Project Director

The Deputy Project Director assists the Project Director in all administrative activities. In the absence of the Project Director, he will function as the Director. Dr. Snit Chotivej, Lampang Provincial Chief Medical Officer, is the Deputy.

Field Director

The Field Director will be responsible for coordinating all of the project activities in the field so that the purposes and goal of the project will be met as scheduled. He will be responsible for the optimal functioning of the four divisions under his administration. He is responsible to the Director of the Project, through the Deputy Project Director.

Chief, Administrative Services Division

The Chief of the Administrative Services Division will be responsible for all administrative services of the project: records and reports, time and leave, correspondence, transportation, storage, supply, personnel services, and budget. He will report to the Field Director.

Chief, Personnel Development Division

The Chief of the Personnel Development Division will be responsible for all activities concerning health personnel development in Lampang Province

such as recruitment, training, supervision and control, and the development of career ladders.

He will report to the Field Project Director.

Chief, Information, Evaluation, and Research Division

The Chief of the Information, Evaluation, and Research Division will be responsible for all activities concerning information system, vital statistics, evaluation, and research in the medical and health system of Lampang province. He will report to the Field Director.

Chief, Medical and Health Services Division

The Chief of Medical and Health Services Division will be responsible for all activities concerning the delivery of medical and health services to the people in Lampang province. He will report to the Field Director.

### Thai Counterpart

The Thai Counterpart will be responsible for all international health activities, especially those related to APHA/AID. He will work closely with the U.S. Counterpart and the Field Director in all aspects of DEIDS, Phase III. He will coordinate those activities which require communication between central administration of the Ministry of Public Health and the local health authority in Lampang. In addition he will participate in the activities of the Policy Committee as well as the Planning and Evaluation Committee of the DEIDS Project. In the Policy Committee, he will be a member and secretary, and in the Planning and Evaluation Committee he will be a member and assistant secretary.

He will be a full-time staff member of the project and will be responsible to the Project Director, and assistant to the Project Director.

### U.S. Counterpart

The U.S. Counterpart will be located in Lampang Province, as a full-time worker. He will work closely with the Thai Counterpart in all aspects of DEIDS, Phase III to facilitate the progress of the project. He will be the liaison between Thailand and APHA/AID/USOM. He will be responsible for all contacts between Thailand and U.S. based institutions. He will assist the Field Director in all aspects of the respective Divisions' functions when requested to do so by the Field Director.

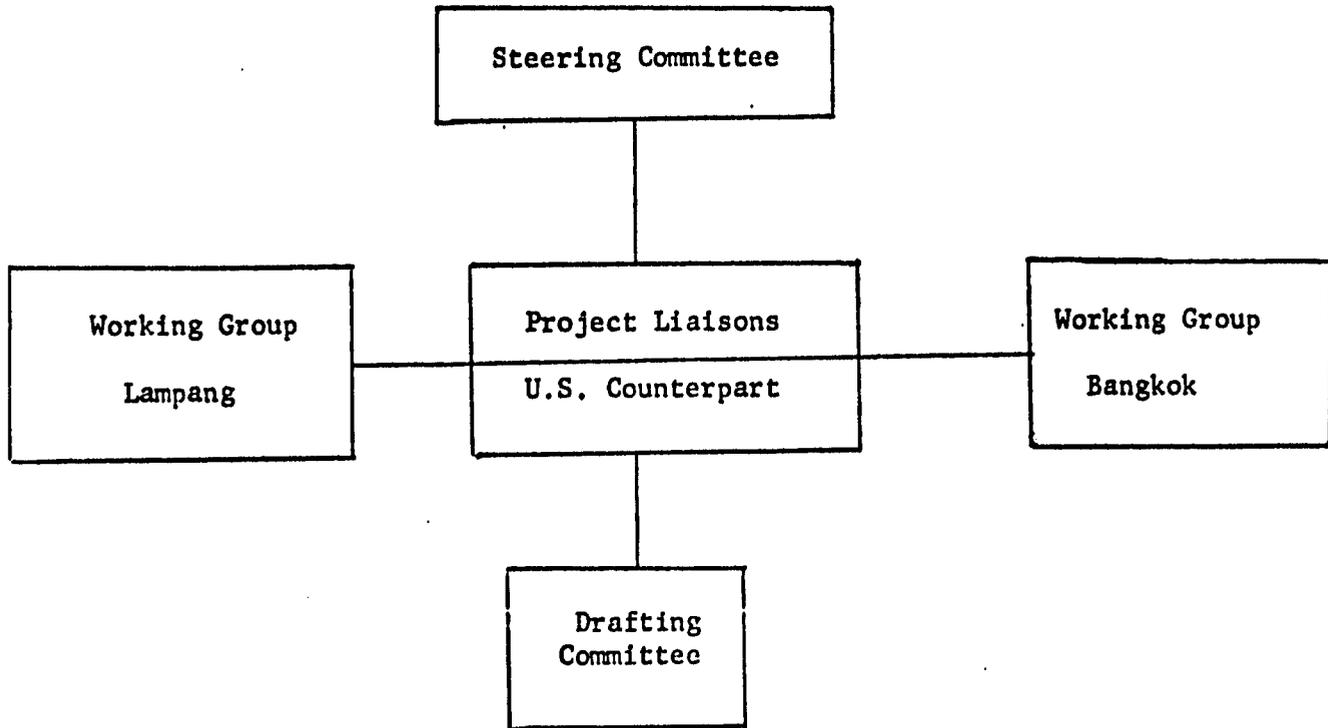
Chronological Account of DEIDS in Thailand

1. January 29-February 9, 1973: DEIDS Reconnaissance team headed by Dr. Thomas Hood. Team members included Dr. Theodore C. Doege and Dr. Satoru Izutsu  
AID Liaison Officer: Dr. Lloyd Florio
2. April-May 1973: APHA/AID decision on the selection of Thailand for the DEIDS project. Acceptance by the Ministry of Public Health to implement Phase II.
3. June 8, 1973: Meeting Ministry of Public Health officials and USOM personnel
4. July 5, 1973: Appointment of Steering Committee for DEIDS
  1. Dr. Komol Pengsritong Under-Secretary of State for Public Health
  2. Dr. Somboon Vachrotai Deputy Under-Secretary of State for Public Health
  3. Dr. Choed Tonavanik Director General, Department of Medical and Health Service
  4. Dr. Chitt Hemachudha Director General, Department of Public Health Promotion
  5. Dr. Prakorb Tuchinda Director General, Department of Medical Science
  6. Dr. Winich Aswasena Director, Division of Family Health
  7. Dr. Amnuay Othangkorn Director, Division of Nutrition
  8. Dr. Sompongse Khuthanondha Director, Division of Rural Health
  9. Dr. Vichien Suebsang Director, Division of Hospital
  10. Dr. Yuthana Suksamitti Director, Division of Health Planning
  11. Dr. Samlee Plianbangchang Med. Off., Division of Health Training
5. July 17, 1973: Steering Committee Meeting
6. July 25, 1973: Steering Committee Meeting
7. July 30, 1973: Meeting with Pre-Phase II team: Dr. Thomas Hood, Dr. Roy Smith and Dr. Satoru Izutsu with the Steering Committee members.  
  
Decision on Lampang Province as the project site made at this time.  
  
DEIDS Phase II tentative schedule proposed.
8. September 3-5, 1973: Dr. Somboon and Dr. Samlee to Lampang Province to meet with working group in Lampang to describe DEIDS and formulate plan as well as to request data preparation for use in plan formulation for Phase II.

9. September 13, 1973: Appointment of working group:
- |                            |  |
|----------------------------|--|
| 1. Dr. Somboon Vachrotai   | 2. Dr. Yuthana Suksamitti                                  |
| 3. Dr. Pongsom Atthsampuna | 4. Representative from the<br>Division of Vital Statistics |
| 5. Dr. Sutham Hiranniramol | 6. Dr. Rangsan Mahasanthana                                |
| 7. Dr. Chachaval Virabhand | 8. Dr. Jumroon Mikanorn                                    |
| 9. Dr. Prasert Suwanna     | 10. Dr. Prachuab Sompongs                                  |
| 11. Dr. Prayoon Klinchom   | 12. Mr. Narintr Tima                                       |
| 13. Dr. Snid Chotivej      | 14. Dr. Pricha Desawadi                                    |
| 15. Dr. Amnuay Traisupa    | 16. Dr. Samlee Plianbangchang                              |
10. September 19, 1973: Additional member assigned to working group
- |                           |                        |
|---------------------------|------------------------|
| 1. Dr. Pairoj Ningsanonda | 2. Dr. Viraj Salitula  |
| 3. Dr. Forendr Vongfak    | 4. Dr. Somwang Somchai |
11. October 1, 1973: DEIDS Phase II planning begins
12. October 4, 1973: Meeting of working group in Bangkok for orientation to DEIDS
13. November 16, 1973: Meeting of counterparts to DEIDS consultants
- | <u>Dr. Richard Smith</u> | <u>Dr. William Reinke</u> | <u>Dr. Athol Patterson</u> |
|--------------------------|---------------------------|----------------------------|
| 1. Dr. Pairoj            | 1. Dr. Chachaval          | 1. Dr. Yuthana             |
| 2. Dr. Daorong           | 2. Dr. Chalermasuk        | 2. Dr. Pricha              |
| 3. Dr. Amnuay            | 3. Dr. Sutham             | 3. Dr. Choomnoom           |
14. December 2, 1973: Dr. Smith arrives for consultation - depart December 9
15. December 4, 1973: Dr. Reinke arrives for consultation - depart December 13
16. December 5-7, 1973: Working Group to Lampang with consultants
17. December 11, 1973: Dr. Patterson arrives for consultation - depart December 22
18. December 24-28, 1973: Working Group to Lampang
19. January 1, 1974: Finalization of Phase III Plan
20. January 6-12, 1974: Drs. Hood and Florio for consultation

Phase II (September 1973-January 1974)

DEIDS - ORGANIZATION



Steering Committee

The Steering Committee consisted of high-ranking officials of the Ministry of Public Health as follow:

1. Under-Secretary of State for Public Health	Chairman
2. Deputy Under-Secretary of State for Public Health (Dr. Somboon Vachrotai)	Deputy Chairman
3. Director-General, Department of Medical and Health Services	Member
4. Director-General, Department of Medical Sciences	Member
5. Director-General, Department of Public Health Promotion	Member
6. Director, Division of Family Health	Member
7. Director, Division of Nutrition	Member
8. Director, Division of Rural Health	Member
9. Director, Division of Health Training	Member
10. Director, Division of Health Education	Member
11. Director, Division of Epidemiology	Member
12. Director, Division of Biostatistics	Member
13. Director, Division of Health Planning	Member & Secretary
14. Dr. Samlee Plianbangchang, Division of Health Training	Member & Secretary

When matters concerning the policy of the Ministry of Public Health were discussed, the Deputy Minister was invited to preside. The Provincial Chief Medical Officer of Lampang was invited to attend the meeting from time to time. Functions of this committee were:

- a. To set the scope and boundary of work.
- b. To advise and guide the working group, especially in the area of administration.
- c. To clarify and make decisions on ambiguous and difficult problems.
- d. To be the "communicator" between the national policy makers and the working groups.
- e. To coordinate work with those of other ministries.
- f. To assist the working group in solving administrative problems such as funding and procurement of equipment.

Working Group

Members of Working Group were selected from the technical staff of the various divisions of the Ministry of Public Health and from technical staff of Lampang Provincial Medical and Health Services.

A. Working Group Bangkok consisted of:

- |  |                                 |
|--|---------------------------------|
| 1. Dr. Somboon Vachrotai,<br>Office of the Under-Secretary     | Chairman                        |
| 2. Dr. Yuthana Suksamiti,<br>Division of Health Planning       | Member                          |
| 3. Dr. Phongsome Attasampoona,<br>Division of Epidemiology     | Member                          |
| 4. Dr. Tongpoon Vicharnratrakarn,<br>Division of Biostatistics | Member                          |
| 5. Dr. Sutham Hiranniramol,<br>Office of the Under-Secretary   | Member                          |
| 6. Dr. Rangsan Makasandana,<br>Division of Hospitals           | Member                          |
| 7. Dr. Chachaval Virabhand,<br>Division of Rural Health        | Member                          |
| 8. Dr. Jamroon Meekanorn,<br>Division of Rural Health          | Member                          |
| 9. Dr. Prayoon Klinchom,<br>Division of Family Health          | Member                          |
| 10. Mr. Prayoon Sasom,<br>Division of Health Training          | Member                          |
| 11. Dr. Prasert Suvannus,<br>Division of Nutrition             | Member                          |
| 12. Dr. Prachuab Sompongse,<br>Division of Health Education    | Member                          |
| 13. Dr. Amnuay Traisupa,<br>Division of Rural Health           | Member & Secretary              |
| 14. Dr. Samlee Plianbangchang,<br>Division of Health Training  | Member & Assistant<br>Secretary |

- B. Working Group Lampang consisted of Provincial Chief Medical Officer and provincial technical staff of medical and health services.

These working groups were responsible for carrying out all aspects of the plan formulation for the DEIDS Project. They functioned under the framework of policy laid down by the Steering Committee, especially in the area of administration.

Project Liaison

Dr. Yuthana Suksamiti, Director of the Division of Health Planning and Dr. Samlee Plianbangchang, First Grade Medical Officer of Health of the Division of Health Training, were appointed by the Ministry of Public Health as the Project Liaisons.

Project Liaisons were responsible for coordinating all of the planning activities of working groups as well as fulfill the role of "Communicators" between APHA/AID and the Thai Ministry of Public Health. In cooperation with U.S. Counterpart, they formulated strategies and determined the budget for the DEIDS phase II activities. They were also the communicators between the Steering Committee and working groups. They reported directly to the Steering Committee. They were responsible for the Drafting Committee in compiling, coordinating, and finalizing the DEIDS plan.

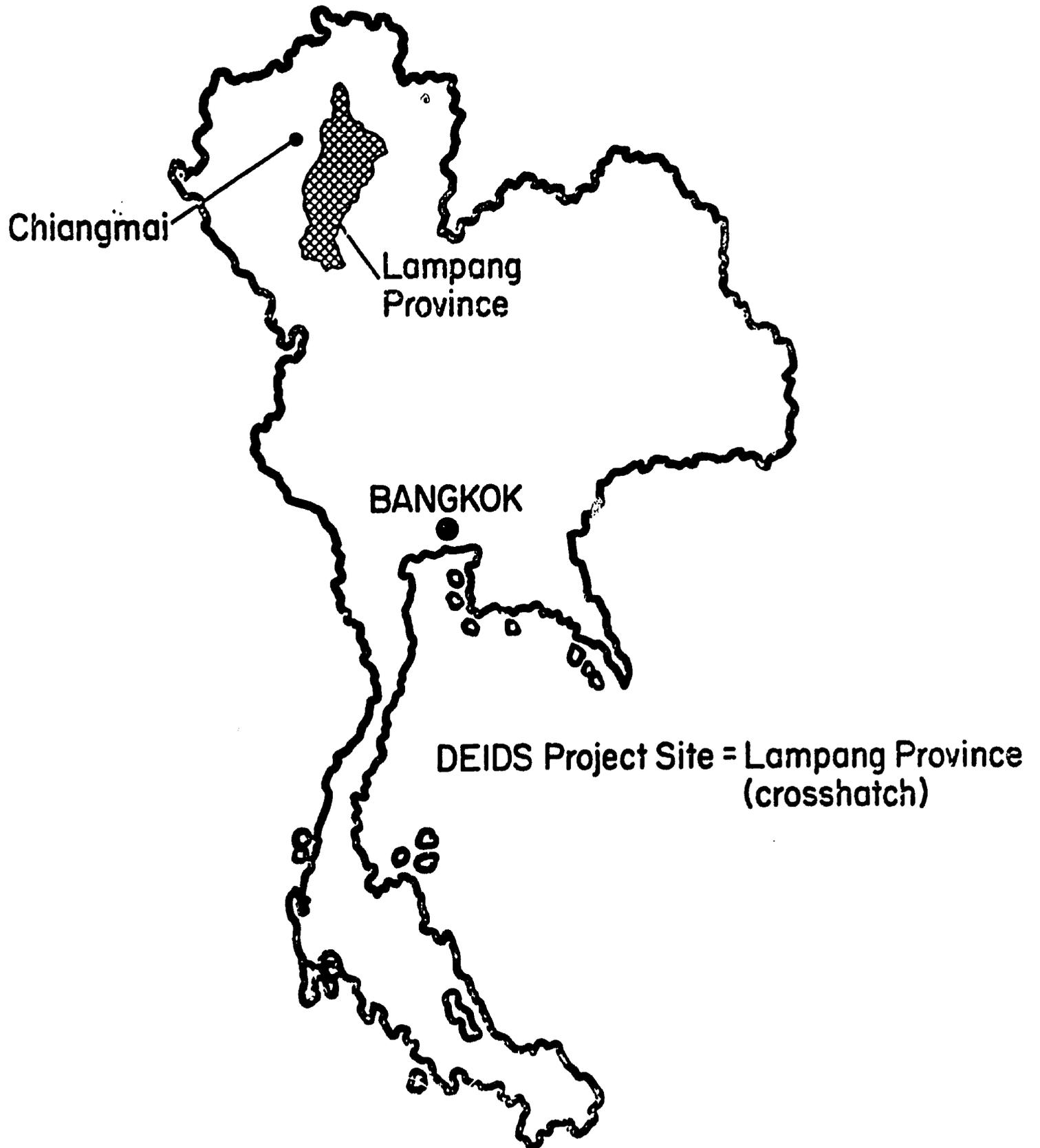
Drafting Committee

Members of the Drafting Committee are:

- |                       |                    |
|-----------------------|--------------------|
| 1. Dr. Satoru Izutsu  | Chairman           |
| 2. Dr. Annuy Traisupa | Member             |
| 3. Mr. Prayoon Sasom  | Member & Secretary |

Drafting Committee was appointed from Working Groups and responsible for compilation, coordination, and finalization of the DEIDS Plan.

# THAILAND



## THAILAND

### BACKGROUND

#### 1. Geography

The Kingdom of Thailand, formerly known as Siam, is located in Southeast Asia. It has an area of approximately 200,000 square miles. Thailand has common boundaries with Burma on the west and north, Laos on the north and east, Cambodia on the southeast and Malaysia on the south. The southern portions of the country are bordered by the Gulf of Thailand and the Andaman Sea.

The country is divided into four regions. The Central Region (24 provinces plus Bangkok Metropolis) is known as Thailand's "rice bowl". It is drained by the Chao Phraya River and is the geographic and economic heart of the country. This region is rich in alluvium and is watered by an extensive network of canals and irrigation projects. The Northeastern Region (16 provinces) is a large plateau which rises about a thousand feet above the central plains and comprises about one-third of the country. A major portion of this land is poor and suffers from drought or floods, depending on the season. The Southern Region (14 provinces) is a sliver of land which extends from central Thailand south to Malaysia. It is covered extensively by rain forests. The Northern Region (16 provinces) is the area of mountains and valleys. About one-fourth of the country is located in this region. The mountains run north and south through this region and are densely forested. The valleys between the mountains are narrow and fertile.

Thailand's climate is dominated by monsoons. In most regions, there are three seasons: rainy (June-October), cool (November-February), and hot (March-May). Rainfall is the heaviest in the south and lightest in the north.

#### 2. The People

The Thai people originally lived in southern China. Centuries ago, they gradually migrated to the fertile plains of the Chao Phraya and Mekong Rivers. Thailand's population numbered 6 million in 1900, 26.3 million in 1963; in 1970 it was estimated at 24 million and 38.6 million in mid-1972.

Thailand has one of the world's highest population growth rates which is 3.3 percent annually. Should this growth continue, Thailand's population will double by 1993. The average life expectancy for males is 55 years while that for females is 62; infant mortality rate = 49/1,000; maternal death rate = 4/1,000; and stillbirth rate is 3/1,000.

About 85 percent of the people live in the rural areas. On the basis of the 1970 preliminary report, Thailand has a population density of 171 persons per square mile. By regions, the numbers of persons per square mile was 258 in the Central Region, 180 in the Northeastern Region, 159 in the Southern Region, and 116 in the Northern Region. Bangkok, the capital of Thailand, is located in the Central Region with a population of 3.7 million.

The culture of Thailand is closely related to Buddhism. Its arts, literature, social system, habits and customs show strong similarities to the neighboring countries of Burma, Cambodia and Malaysia, but with special characteristics which have been developed over the centuries. The cultural influences of ancient India is strongly evident. Buddhism is the national religion. There are 24,000 Buddhist temples and 300,000 monks. Of the total population, three percent are Moslems, 1.7 percent believe in Confucias, and 0.6 percent are Christians.

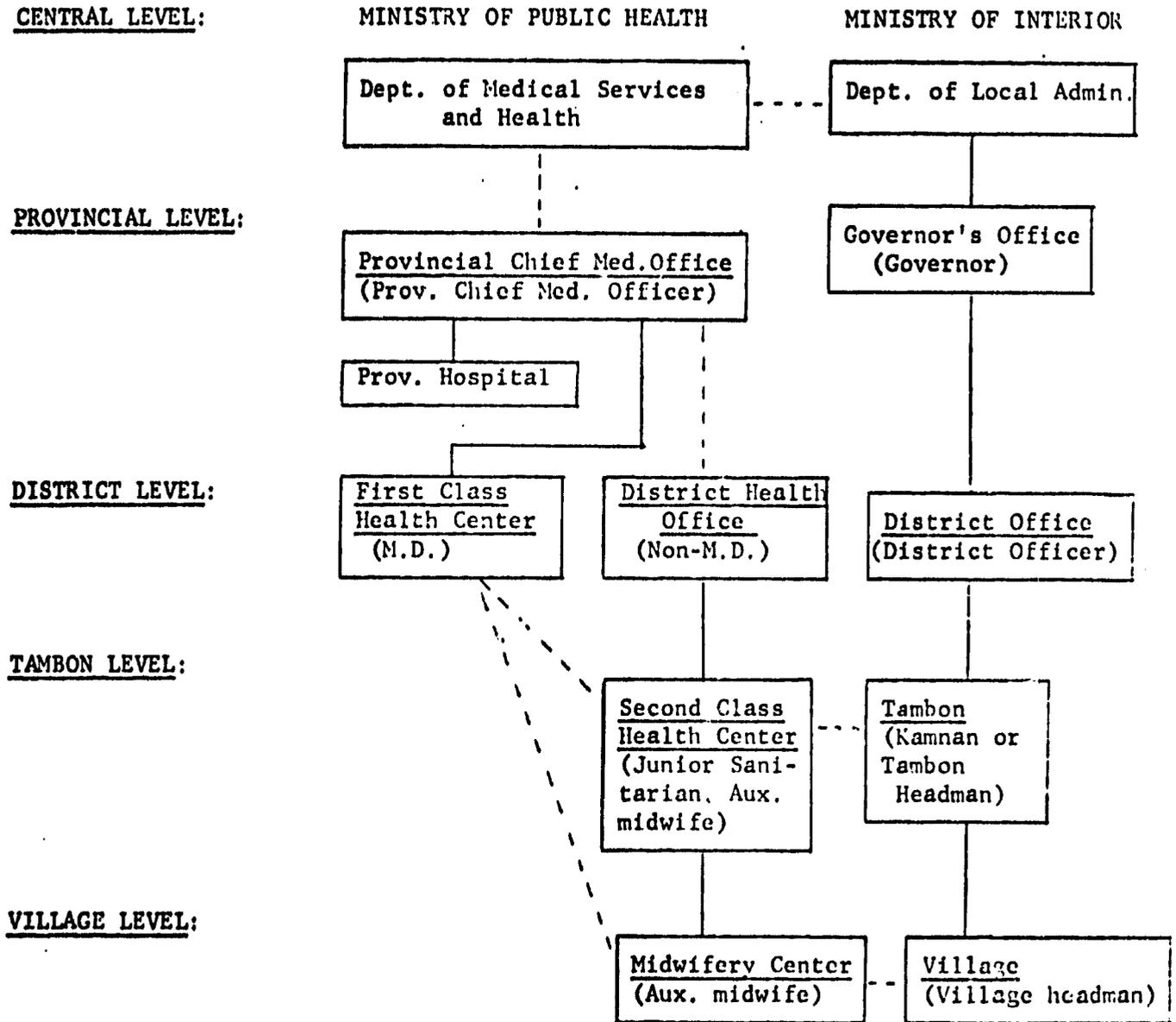
Thailand has a literacy rate of 70 percent and 97 percent of its inhabitants speak Thai. The majority of the people have four years of schooling.

### 3. Economy

Thailand is an agricultural country. The annual per capita income is about \$170, and the Gross National Product (G.N.P.) in 1969 was \$6.3 billion. From 1969 to 1970, exports increased from 708 to 711 million dollars due to an increase in the export of tapioca and maize.

It is expected that during the next few years, the export rate will increase only slightly since the increased population growth will reduce the amount of rice which is the main export item. Imports have been rising at an average rate of 8 percent per year, reaching \$1.3 billion in 1969. It is anticipated that the import rate will continue to rise in the future due to developmental loans and increase private industrial investments. The major items imported include machinery and transport equipment, petroleum products, metal goods, textiles and chemicals.

FIG. 1. NETWORK AND ADMINISTRATIVE RELATIONSHIP BETWEEN MINISTRY OF PUBLIC HEALTH AND MINISTRY OF INTERIOR, THAILAND (1973)



#### 4. Government Structure

Thailand has had a constitutional monarchy since 1932 with a highly centralized administrative system. The country has 71 provinces. Each province is headed by a governor who is appointed by the Minister of Interior. A province is divided into districts (Amphoes) which is headed by a district officer. The districts are further subdivided into tambols and villages. On the average, a province is made up of 8 districts (50,000 population per district); 1 district = 9 tambons (5,000 population per tambon); and 1 tambon equals 9 villages (500 population per village). There are 50,000 villages in Thailand.

The Ministry of Public Health was established in 1942. It was formerly a small department in the Ministry of Interior. The administrative relationship between these two ministries is still closely linked in the provinces (Figure 1).

The Ministry of Public Health is divided into four departments as illustrated in Figure 2. The provincial Chief Medical Officer is responsible for both health and medical services. He is administratively responsible to the Department of Medical and Health Services of the Ministry of Public Health and to the Provincial Government.

Health services are provided to the rural people through the hospitals and through peripheral health units which are located in the villages. These units provide preventative as well as direct medical services.

Village doctors or Tambol doctors come under the aegis of the Ministry of Interior. Each tambol has a Tambol doctor who is selected from among the village people and trained in first aid and simple medication. They work under the supervision of the District Health Officer and are responsible for collecting information regarding illnesses and epidemics in his tambol.

#### 5. Health

##### 1. General problems

Thailand faces serious public health problems, particularly in the rural areas, where 85% of the population live. The government cannot provide adequate medical care to all living in the rural areas. The majority of the people when ill seek help from the drug stores, traditional doctors and monks. The Government-run health centers are poorly utilized by the rural population.

Over a century ago Western medicine was introduced into Thailand by the American missionaries. The first medical school was established at Siriraj Hospital in 1889. Today Thailand has 4 medical schools which graduate 370 physicians yearly, 19 nursing schools produce about 700 nurses per year. Although the nation's health today is much better than what had been in the past, Thailand still faces many serious Public Health problems in both urban (15%) and rural (85%) areas. The ten leading causes of death are shown in Table-1 while the ten leading causes of sickness or morbidity are demonstrated in Table-2 below.

TABLE-1 TEN LEADING CAUSES OF MORTALITY IN THAILAND\*

Leading Causes of Death	Death Rate (per 100,000 pop.)	
	1967	1970
1. Certain diseases of early infancy and ill-defined dis. under 1 year	36.3	29.5
2. Accidents, poisoning, violence	26.2	27.7
3. TB (respiratory system)	28.3	21.1
4. Pneumonia	19.6	15.1
5. Heart diseases	16.5	15.6
6. Gastroenteritis & colitis	27.6	15.0
7. Malignant neoplasms	12.9	13.3
8. Malaria	12.9	10.1
9. Diseases of pregnancy, childbirth and puerperium	10.1	7.6
10. Diseases of stomach and duodenum	5.1	6.9

\*Source of data: Ministry of Public Health, 1971

TABLE-2. TEN LEADING CAUSES OF MORBIDITY IN THAILAND\*

Leading causes of sickness	Total Patients	Percentage
1. Diseases due to labor, abnormal and normal pregnancy	183,532	40.5
2. Total infectious diseases	118,553	26.1
a) GI infections	48,453	10.7
b) U.R.I.	45,578	10.0
c) Mosquito-borne diseases	19,780	4.3
d) All other infections (tetanus, hepatitis, malaria etc.)	4,742	1.1
3. Accidents, poison, violence	52,919	11.7
4. Non-infective GI diseases	19,928	4.4
5. Mental diseases	15,324	3.4
6. Diseases of G.U. system	13,983	3.1
7. Malnutrition diseases	3,415	1.9
8. Malignant neoplasms	7,512	1.7
9. Diseases of heart and vascular lesions	6,757	1.5
10. Skin diseases	6,577	1.5

\*Source of data: Special study, Department of Medical Services, Ministry of Public Health, 1967 (latest figures)

After careful considerations from various data, PUBLIC HEALTH PROBLEMS in Thailand can be summarized as follows:

PRIORITY PUBLIC HEALTH PROBLEMS

1. POPULATION EXPLOSION PROBLEM
2. DISEASE PROBLEMS
  - a) Communicable and infectious diseases
  - b) Diseases of pregnancy, childbirth, puerperium
  - c) Accidents (car), poisoning, violence
  - d) Malnutrition diseases (protein and vitamin deficiencies)
  - e) Mental diseases and drug addiction

**PRIORITY PUBLIC HEALTH PROBLEMS (Continued)**

**3. HEALTH SERVICES ADMINISTRATION PROBLEMS**

- a) No clear-cut national health policy and national health plan
- b) Low government's health budget (only 3% of total budget yearly)
- c) Out-of-date Public Health Laws
- d) Poor statistical health data
- e) INADEQUATE HEALTH SERVICES (especially in rural areas)
- f) INADEQUATE PRODUCTION & MALDISTRIBUTION OF HEALTH PERSONNEL
- g) Poor coordination between "PRODUCERS" (universities) and "USERS" (Ministry of Public Health) of health personnel
- h) Poor coordination between "PUBLIC" and "PRIVATE" health sectors
- i) Lack of communication between Users and Consumers
- j) Lack of community organization
- k) Poor administration leads to fragmented health services resulting in duplication of both activities and resources
  - l) Highly centralized
  - m) Inadequate coverage due to existing health infrastructure

**4. "HEALTH RISK" PROBLEMS**

- a) Air and water pollution (especially in urban areas)
- b) Other environmental sanitation problems (such as poor excreta and sewage disposal, inadequate clean water supply etc.)

The primary area of concern to the Ministry of Public Health is in rural Thailand where 32 million Thais live. It is in rural Thailand where problems related to the population, disease and health services administration exist at the highest degree. For example, in Bangkok the doctor population ratio is about 1:1,000 whereas similar ratio in the province is 1:15,000 or more. The preventive and curative services are provided for the people through a system of hospital-health center complex as shown in Figure 1. The health infrastructure reaches down to the village level and the total number of various types of health centers are shown in Table-3 below.

**TABLE-3 TOTAL NUMBER OF GOVERNMENT-OWNED HOSPITALS AND HEALTH CENTERS IN THAILAND\***

	(Provincial) General Hospital	(District) 1st-Class H.C.	(Tambol) 2nd-Class H.C.	(Village) Midwifery Centers
Total No.	84	252	2,937	1,731
Total health personnel	34-148	15 (1 MD/ center)	2-3	1
% area coverage	84/71 (over 100%)	252/556 (45%)	2937/5115 (57%)	1731/45640 (4%)

\*Source of Data: Ministry of Public Health, 1973

Table-3 illustrates that only 45% of the total 556 districts in Thailand have first-class health centers. Furthermore, only 180 of the first-class health centers have MD's. Therefore, only 32% of the total districts in Thailand have physicians who have authority to diagnose diseases and treat the patients. All other paramedical and auxiliary health personnel such as nurses, junior sanitarians and auxiliary midwives have little training in medical therapy and have almost no authority to provide curative services.

Figure 3 demonstrates the inadequate health service units in a province. Figure 4 shows that the private sector reaches down mostly to the district level only, although this sector is several times larger than the public sector.

A country-wide health survey (sample size 3,908 families in 30 randomly-selected districts) was completed in 1970 by the Ministry of Public Health and the Faculty of Public Health, Mahidol University. It pointed out that only 17% of the surveyed population utilized health facilities of the public sector yearly (Table-4). It was also found that on the average, Thais became ill twice per person per year and they spent about 154 bahts (\$7.70) per person per year on their illness. It was estimated that private expenditure on health was about 5,376 million bahts (\$269 million) whereas public expenditure in the same year (1970) was recorded as 1,321 million bahts (\$66 million).

**FIG. 3 AVAILABLE HEALTH CENTERS AT VARIOUS LEVELS IN A PROVINCE IN THAILAND, 1973 (average)**  
 (Shaded blocks mean existing facilities.)

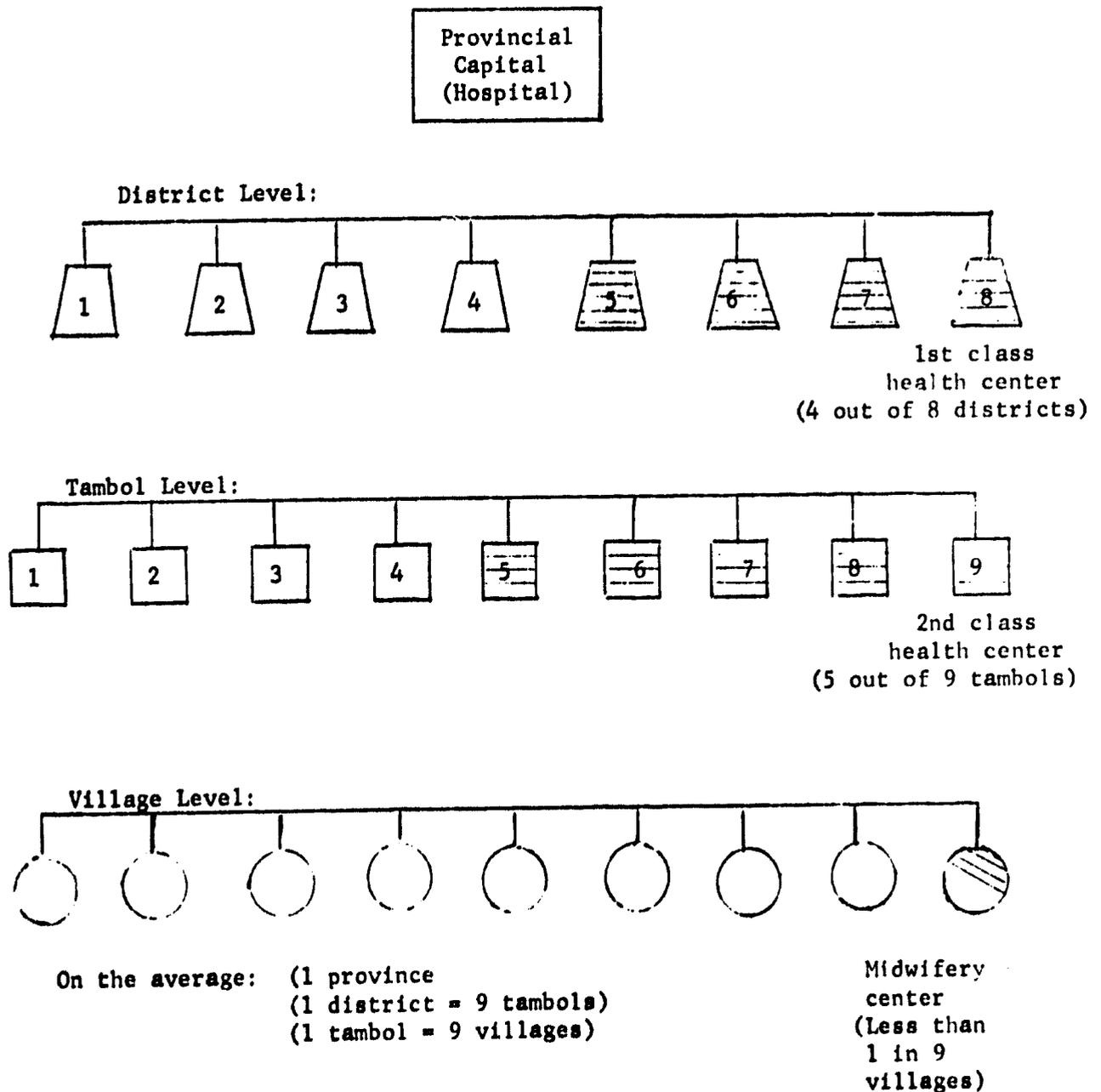


FIG. 4 DELIVERY OF URBAN AND RURAL HEALTH SERVICES BY PUBLIC AND PRIVATE HEALTH SECTORS IN THAILAND, 1973

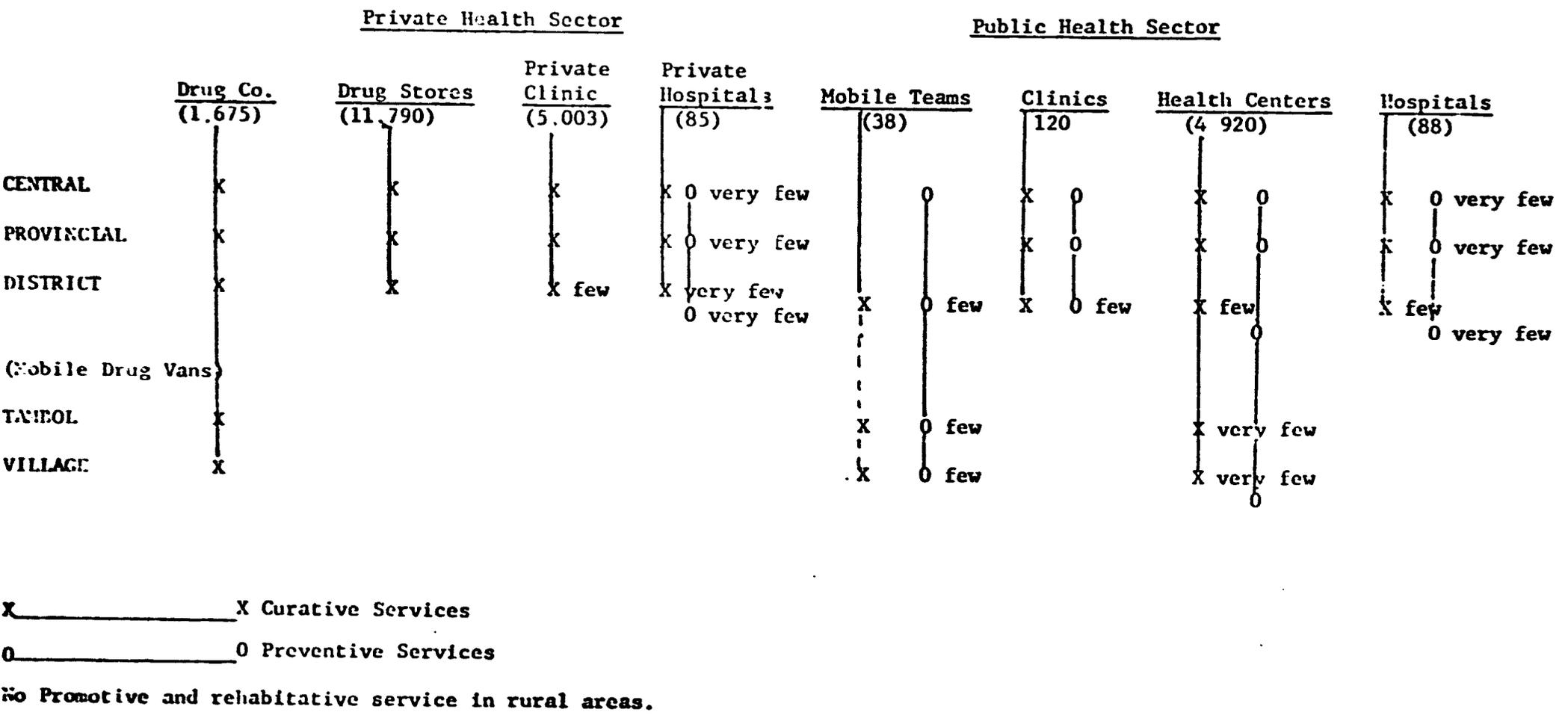


TABLE-4 NUMBER OF VISITS MADE BY THAI PEOPLE SEEKING MEDICAL CARE \*

Place of Treatment	Bangkok Metropolis	Provinces	
		Urban	Rural
1. Drug stores (self treatment)	406 (45%)	479 (47%)	1310 (61%)
2. Private clinics	274 (31%)	268 (26.3%)	191 (9%)
3. Hospitals (public and private)	142 (16%)	172 (17%)	171 (8%)
4. Traditional doctors, priests, etc.	17 (2%)	53 (5.2%)	263 (12%)
5. Health centers and other Public Health Units	14 (1%)	25 (2.4%)	172 (8%)
6. No treatment and no answer	41 (5%)	23 (2.1%)	51 (2%)
<b>TOTAL</b>	<b>894 (100%)</b>	<b>1,020 (100%)</b>	<b>2,158 (100%)</b>

\*Source of data: Health Manpower Study, Ministry of Public Health, 1970

Thus, the health center complex is still poorly utilized by the rural people. Another report from the Ministry of Public Health in 1970 also confirmed the above findings by showing that the hospital-health center complex in 1970 provided health services to only 27% of the total population (34 million).

The Ministry of Public Health is responsible for producing various types of "auxiliary" health workers who will work mostly in the rural areas. The details on each of these health personnel are shown in Table-5.

**TABLE-5 VARIOUS TYPES OF "AUXILIARY HEALTH PERSONNEL" PRODUCED BY THE MINISTRY OF PUBLIC HEALTH \***

Type of Health Worker	Required Basic Education	Duration of Training	Production Per Year	Total Number produced (up to 1973)
1. District H. Officer	10th grade or over	4 months	50	541
2. Junior sanitarian	10th grade	1.5 years	500	2,457
3. Auxiliary midwife	10th grade	1.5 years	450	4,590
4. Practical nurse	10th grade	1 year	130	128
5. Practical nurse-midwife	10th grade	1.5 years	410	**
6. Psychiatric practical nurse (male)	10th grade	1.5 years	50	**
7. Dental auxiliary	12th grade	2 years	20	**

\*Source of Data: Department of Medical Service & Health, Ministry of Public Health, 1973

\*\*Data are not available at the time of preparation of this report

Although various categories of auxiliary health workers are produced, the major defect lies in their inability to diagnose and dispense medical treatment because medical authorities feel reluctant to give them more knowledge in this area. In reality, these auxiliaries are required to give medical treatment with minimal background in therapeutic training (see Junior Sanitarian Curriculum in appendix) because there are very few or no doctors around in their areas.

The Ministry of Interior which controls all Provinces administratively is quite concerned about the medical care gap in all rural areas due to the Communist insurgency problem.

The best propaganda for the government is to provide adequate medical care for the people, especially those in rural areas. Thus, in the past few years, many types of auxiliary health workers have been trained by the Ministry of Interior in order to fill the medical care gap.

The Ministry of Public Health also helps to train these people who work mostly at Tambol and village levels. The Ministry of Public Health, on an experimental basis, trained village volunteers and established 81 village health posts in the northern and northeastern regions of Thailand. The outcome of training was not satisfactory. However, the Ministry of Interior proceeded with short training courses in medical care because of national security reasons. The various types of auxiliary health workers produced by the Ministry of Interior are shown in Table-6.

TABLE-6 VARIOUS TYPES OF "AUXILIARY HEALTH PERSONNEL" PRODUCED BY THE MINISTRY OF INTERIOR\*

Type of Health Worker	Required Basic Education	Duration of Training	Production Per Year	Total Number Produced (up to 1973)
1. Tambol doctor**	None	2 weeks	2,670	5,339
2. Assistant Tambol doctor**	7th grade or more	15 days	1,300	
3. Rural Nurse Aid**	10th grade	6 months	192 (ave.)	843
4. Village Health Volunteer	7th or 10th grade	4 months	60	
5. Border Patrol Police	10th grade	3 months		

\*Source of Data: Department of Local Administration, Ministry of Interior, 1973

\*\*See their training curricula in the appendix

If the various types of health workers produced by the two ministries are combined and placed at various levels in a Province, the total picture will be:

Level	(Ministry of Public Health)	(Ministry of Interior)
District:	District Health Officer Junior Sanitarian Auxiliary Midwife Practical Nurse	
Tambol:	Junior Sanitarian Auxiliary Midwife Practical Nurse	Tambol Doctor (every Tambol) Assistant Tambol Doctor Rural Nurse Aid
Village:	Auxiliary Midwife	Border Patrol Police Village Health Volunteer Rural Nurse Aid

## NATIONAL DATA FOR PLANNING

## DEMOGRAPHIC DATA (NATIONAL)

Number of Census Population by Sex and Rate of  
Population Growth (1911 - 1970)

Date of Census	Number of Population			Population increase	Rate of pop. growth per 1000 pop. per year
	Total	Males	Females		
1 April 1911	8,266,408	4,122,168	4,144,240	-	-
1 April 1919	9,207,355	4,599,637	4,607,688	940,947	13.6
15 July 1929	11,506,207	5,795,065	5,711,142	2,298,852	21.9
23 May 1937	14,464,105	7,313,584	7,150,521	2,957,898	29.6
23 May 1947	17,442,389	8,722,155	8,720,534	2,978,584	18.9
23 April 1960	26,257,916	13,154,149	13,103,767	8,815,227	32.2
1 April 1970	34,152,000	17,002,000	17,150,000	7,894,084	26.8

**Regional Demographic Data**  
**Census Population by Age and Sex, Northern Region, 1970**

Age (Year)	Total	Male	Female
All ages	7,468,000	3,732,000	3,736,000
Under 5 years	1,101,000	547,000	554,000
5 - 9	1,180,000	598,000	582,000
10 - 14	1,053,000	534,000	519,000
15 - 19	822,000	416,000	406,000
20 - 24	500,000	255,000	245,000
25 - 29	445,000	225,000	220,000
30 - 34	470,000	233,000	237,000
35 - 39	441,000	224,000	217,000
40 - 44	355,000	182,000	173,000
45 - 49	286,000	142,000	144,000
50 - 54	215,000	106,000	109,000
55 - 59	175,000	84,000	91,000
60 - 64	143,000	62,000	81,000
65 - 69	106,000	53,000	53,000
70 and over	150,000	56,000	94,000
Unknown	26,000	15,000	11,000

**Census Population by Age and Sex, Northeastern Region, 1970**

Age (Year)	Total	Male	Female
All ages	12,023,000	5,967,000	6,047,000
Under 5 years	2,287,000	1,136,000	1,151,000
5 - 9	1,908,000	965,000	943,000
10 - 14	1,557,000	804,000	753,000
15 - 19	1,289,000	637,000	652,000
20 - 24	948,000	463,000	485,000
25 - 29	796,000	393,000	403,000
30 - 34	688,000	333,000	355,000
35 - 39	626,000	316,000	310,000
40 - 44	499,000	247,000	252,000
45 - 49	389,000	194,000	195,000
50 - 54	304,000	150,000	154,000
55 - 59	253,000	121,000	132,000
60 - 64	185,000	88,000	97,000
65 - 69	119,000	57,000	62,000
70 and over	142,000	56,000	86,000
Unknown	33,000	16,000	17,000

**Census Population by Age and Sex, Central Region, 1970**

<b>Age (Year)</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>
All ages	10,392,000	5,151,000	5,241,000
Under 5 years	1,498,000	766,000	732,000
5 - 9	1,533,000	781,000	752,000
10 - 14	1,382,000	709,000	673,000
15 - 19	1,188,000	594,000	594,000
20 - 24	827,000	392,000	435,000
25 - 29	687,000	335,000	352,000
30 - 34	674,000	337,000	337,000
35 - 39	542,000	264,000	278,000
40 - 44	469,000	231,000	238,000
45 - 49	360,000	175,000	185,000
50 - 54	331,000	157,000	174,000
55 - 59	281,000	130,000	151,000
60 - 64	228,000	109,000	119,000
65 - 69	156,000	72,000	84,000
70 and over	211,000	86,000	125,000
Unknown	25,000	13,000	12,000

## Census Population by Age and Sex, Southern Region, 1970

Age (Year)	Total	Male	Female
All ages	4,269,000	2,143,000	2,126,000
Under 5 years	704,000	353,000	351,000
5 - 9	670,000	343,000	327,000
10 - 14	551,000	287,000	264,000
15 - 19	440,000	214,000	226,000
20 - 24	294,000	145,000	149,000
25 - 29	269,000	131,000	138,000
30 - 34	269,000	133,000	136,000
35 - 39	231,000	116,000	115,000
40 - 44	196,000	103,000	93,000
45 - 49	137,000	69,000	68,000
50 - 54	124,000	60,000	64,000
55 - 59	107,000	54,000	53,000
60 - 64	98,000	49,000	49,000
65 - 69	72,000	34,000	38,000
70 and over	94,000	43,000	51,000
Unknown	13,000	9,000	4,000

VITAL AND HEALTH STATISTICS

Crude Birth and Death Rate

Comparison of Crude Birth and Death Rates, 1960 - 1971

Year	Crude Birth Rate	Crude Death Rate	Rate of Natural Increase
1960	34.6	8.4	26.2
1961	33.7	7.8	25.9
1962	34.9	7.9	27.0
1963	35.6	8.1	27.5
1964	38.1	7.9	30.2
1965	37.0	7.2	29.8
1966	35.0	7.6	27.4
1967	35.1	7.2	27.9
1968	36.7	7.1	29.6
1969	33.8	7.3	26.5
1970	33.3	6.5	26.8
1971	34.5	6.4	28.1

**Infant Mortality Rate**  
**Infant Mortality Rate by Sex, 1960 - 1971**

<b>Year</b>	<b>Total</b>	<b>Male</b>	<b>Female</b>
1960	48.9	53.0	44.4
1961	51.0	62.2	45.8
1962	44.7	48.4	49.4
1963	37.9	41.9	33.5
1964	37.8	41.8	33.5
1965	31.2	34.5	27.7
1966	33.5	36.6	30.1
1967	27.9	30.5	24.9
1968	26.5	29.2	23.6
1969	26.2	28.9	23.3
1970	25.5	28.0	22.9
1971	22.5	24.6	20.3

**Maternal Mortality Rate****Maternal Mortality Rate by Region, 1967 - 1971**

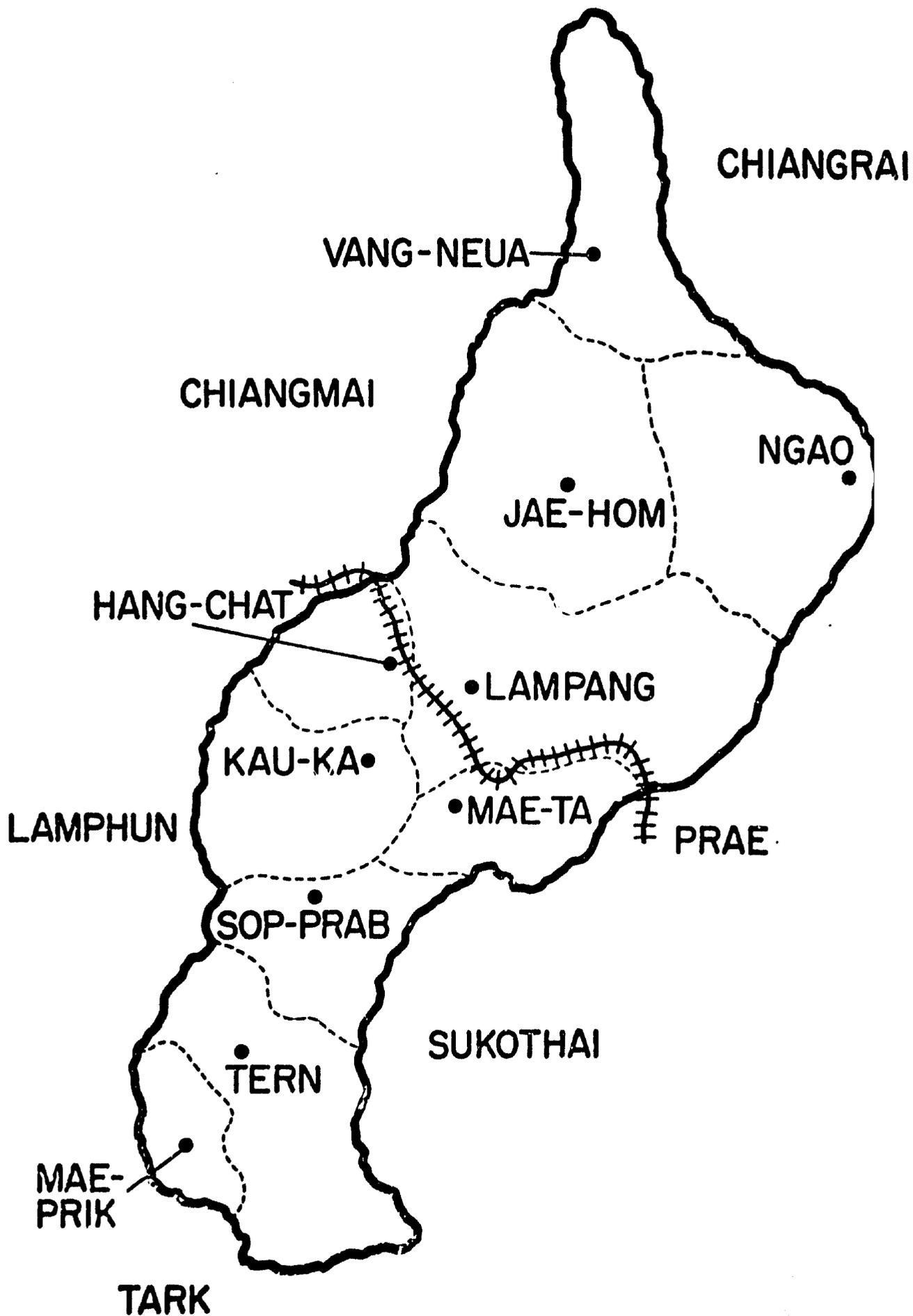
<b>Region</b>	<b>1967</b>	<b>1968</b>	<b>1969</b>	<b>1970</b>	<b>1971</b>
<b>All Regions</b>	<b>2.8</b>	<b>2.7</b>	<b>2.6</b>	<b>2.3</b>	<b>2.1</b>
<b>North</b>	<b>2.7</b>	<b>2.3</b>	<b>2.3</b>	<b>2.1</b>	<b>1.9</b>
<b>Northeast</b>	<b>3.9</b>	<b>3.8</b>	<b>3.8</b>	<b>3.3</b>	<b>8.6</b>
<b>Central</b>	<b>1.6</b>	<b>1.5</b>	<b>1.5</b>	<b>1.2</b>	<b>1.4</b>
<b>South</b>	<b>2.9</b>	<b>2.7</b>	<b>2.0</b>	<b>2.1</b>	<b>2.5</b>

## Death by Causes

Mortality Rate (per 100,000) from Ten Leading Causes  
1967 - 1971

Causes	Mortality Rate				
	1967	1968	1969	1970	1971
TB (Respiratory System)	28.3	26.9	23.7	21.1	19.4
Diarrhoeal Disease	27.6	27.1	24.8	15.0	18.9
Accidents, Poisonings and Violence	26.2	25.5	26.0	27.7	27.3
Pneumonia	19.6	17.1	16.2	15.1	15.1
Diseases of Heart	16.5	13.8	15.6	15.6	20.1
Avitaminoses and other Nutritional Deficiencies	13.6	11.6	10.7	10.4	9.1
Malignant Neoplasma (all forms)	12.9	11.5	11.9	13.3	12.4
Malaria	12.9	10.4	10.4	10.1	12.5
Diseases of Pregnancy, Childbirth and the Puerperium	10.1	10.0	8.9	7.6	7.2
Diseases of the Stomach and Duodenum	5.1	6.4	6.6	6.9	5.1
Others	567.3	568.7	582.5	515.7	497.7

# MAP OF LAMPANG PROVINCE



**Preliminary Information of Lampang Province**

July 1973

Categories	Description
Governor	Mr. Chum Boonraung
Provincial Chief Medical Officer and Director of Hospital	Mr. Sanit Chotiwej
Provincial Health Officer	Dr. Yonglap Puchawan
Population (1972)	610,323
Number of District/Sub-district	10/1
Municipality/Sanitary District	1/9
Number of Tambon	75
Number of Village/Entered Village of CHD	535/379
Population/Density	48.6/km <sup>2</sup>
Area	12,518 km <sup>2</sup>
Number of Hospitals	1 Government 4 Private
Name of Governmental Hospital	Muang Lampang Hospital
Number of Beds	293
First-class Health Centers	3
Second-class Health Centers	26
Midwifery Centers	33
Other Regional Health Units	1. V.D. Control Unit
Child Nutrition Center	2. Community Health Development
	3. Leprosy Control Unit
	4. Midwifery School
	5. Rural Water Supply Unit
	6. Malaria Control Unit
Hospital Expenditure (million baht)	6.728
- Governmental Budget "	3.551
- Charges and donations "	3.117

Categories	Description
<b>Total Number of Physicians</b>	28
<b>Total M.D. (Min. of Public Health)</b>	22
- Number of M.D. (Government Hospital)	17
- M.D. (PCMO Office)	1
- M.D. First-class health center	3
- M.D. Other health unit	-
<b>Total M.D. Other Organizations</b>	3
<b>Total Private M.D.</b>	4
M.D. Government: Population	1:29,063
M.D. : Population	1:21,797
<b>Total number of nurses</b>	73
In Government Hospital	48
Provincial Chief Medical Office	7
Private	14
Other Organization	4
<b>Nurse : Population ratio (Public Sector)</b>	1:11,096
<b>Total Number of Health Workers</b>	30
<b>Health Worker : Population Ratio</b>	1:20,344
<b>Total Number of Midwives</b>	58
<b>Midwife : Population Ratio</b>	1:10,523
<b>Number of Hospital Beds (Dept. of Med &amp; Health Services)</b>	293
<b>Bed : Population Ratio</b>	1:2,083
<b>M.D. : Nurses : Bed Ratio</b>	1:2.4:14.6
<b>Clinics with hospitalization/beds</b>	2/35 (general)
<b>Clinics without hospitalization</b>	
M.D. Clinics	24
Physician Assistants Clinics	2
<b>Dispensaries</b>	136

Categories	Description
Drug store 1st grade	10
Drug store 2nd grade (without dangerous drugs)	47
Traditional drug store	79
Drug store : Population Ratio	1:4,474
Number of delivery conducted by health personnel	4,837
Total number of births	15,868
Percentage of delivery conducted by health personnel	30.5%
Percentage of latrines per rural households	37.7%
Sanitary wells	498
Small-scale water supply	206
Number of patients at Health Centers	
O.P.D./Number of Visits	29,606/53,426
I.P.D.	217
Cases Referred	179
Number of services/1,000 population (Total O.P.D. patients of govern- mental hospital and health centers)	327.7

## Ratio of Beds &amp; Health Personnel Per Population in Public Sector - 1970

	<u>All Thailand</u>	<u>Bangkok- Thonburi Met. area</u>	<u>Rest of Thailand</u>	<u>Lampang (1972)</u>
Hospital beds:Population	1:1,094	1:258	1:1,607	1:2,083
Physician	1:11,106	1:1,372	1:31,137	1:25,430
Nurse	1:4,927	1:702	1:10,878	1:11,096
Midwife	1:11,337	1:17,647	1:10,980	1:10,523
Sanitarian	1:14,223	1:15,000	1:14,244	1:20,344

## Number of Beds &amp; Health Personnel Per 1,000 Population in Public Sector - 1970

	<u>All Thailand</u>	<u>Bangkok- Thonburi Met. area</u>	<u>Rest of Thailand</u>	<u>Lampang (1972)</u>
Hospitals	0.91	4.16	0.62	0.48
Physicians	0.09	0.73	0.03	0.03
Nurses	0.20	1.42	0.09	0.09
Midwives	0.09	0.66	0.09	0.10
Sanitarian	0.07	0.07	0.07	0.05

Vital Statistics of Lampung Province 1972

Midyear population	654,279	
Number of births	15,105	Birth Rate 23.08
Number of deaths	4,918	Death Rate 7.5
Number of infant deaths	539	Infant Mortality Rate 35.68
Number of mother deaths	28	Maternal Mortality Rate 1.85

Leading causes of admission classified by disease group in percentage for total in patients:

	No. of Cases	Percentage
1. Diarrhoeal Diseases	356	1.6
2. Fever	286	1.3
3. Pneumonia	257	1.2
4. Heart Failure	221	1.0
5. Diseases of Respiratory Tract	211	0.9
6. Jaundice	208	0.9
7. Renal Calculi	191	0.9
8. Vesical Calculi	174	0.8
9. Bronchitis	156	0.7
10. Enteritis	154	0.7

Information and Statistics of Lampang Hospital during 1968 - 1972

Work-load Year	Population	Bed Capacity	# of Out-patients	# of In-patients	# of Patient Days	Rate of Occupancy	Length of Stay	# of Del. per year	# of Maj. Operation Per year	# of X-Ray Per Day	Routine Lab Per Day	Dental Service Per Day
1968	567,000	259	84,621	14,099	81,652	86%	5	1,980 (5.50/day)	1,775 (4.93/day)	17.00	49.97	14.38
1969	577,000	293	87,048	16,202	82,279	77%	5	2,293 (6.37/day)	1,955 (5.43/day)	20.57	54.30	14.63
1970	588,000	293	88,176	17,067	87,954	82%	5	2,653 (7.37/day)	2,401 (6.67/day)	20.77	61.03	12.74
1971	599,000	293	101,326	18,654	95,840	90%	5	3,179 (8.83/day)	2,617 (7.27/day)	24.40	71.53	13.99
1972	610,000	293	109,347	21,227	93,451	87%	4	3,744 (10.4/day)	2,916 (8.10/day)	26.90	78.33	15.14

## Population

Table I Annual Population Projections for Lampang, 1971 - 1981

Year	National Growth Rate (percent)	Total Population (in thousands)	Lampang Growth Rate (percent)	Total Population incl. Migration
1960				
1970	2.66 <sup>a</sup>	36,032	2.71 <sup>a</sup>	583,400 <sup>b</sup>
1971	3.28	37,195	3.35	602,900
1972	3.21	38,381	3.27	622,600
1973	3.14	39,585	3.20	642,500
1974	2.94	40,814	3.00	661,800
1975	3.04	42,061	3.10	682,300
1976	2.85	43,330	2.91	702,200
1977	2.99	44,670	3.05	723,600
1978	2.92	45,931	2.98	745,200
1979	3.01	47,263	3.07	768,100
1980	3.04	48,616	3.10	791,900
1981	2.87	49,961	2.93	815,100

## Footnotes:

- a. Average growth rate 1960 - 1970
- b. 1970 Census Population rounded off to nearest 100
- c. Population projected for 1970 based on 1960 Population Census

## Sources:

Statistical Yearbook 1971, National Statistical office and revised population projection by Manpower Planning Division of NEDE, October 1973 (baseline year 1960), Population and Housing Census, 1970, Lampang Province NSO.

## Method:

1. Determine annual growth rates for Lampang Province. This is done by means of a ratio as follows:

$$\frac{\text{Average national growth rate (1960 - 1970)} \times \text{annual national growth rate}}{\text{Average provincial growth rate (1960 - 1970)} \text{ (annual provincial growth rate)}}$$

2. Determine annual total population of Lampang by multiplying population of previous year by annual growth rate.

**Table II Annual Population Projections for Lampang Province by Sex  
1971 - 1981**

Year	Both Sexes	Males	Females
1971	602,900	302,500	300,400
1972	622,600	312,400	310,200
1973	642,500	322,400	320,100
1974	661,800	332,100	329,700
1975	682,300	342,400	339,900
1976	702,200	352,400	349,800
1977	723,600	363,100	360,500
1978	745,200	373,900	371,300
1979	768,100	385,400	382,700
1980	791,900	397,400	394,500
1981	815,100	409,000	406,100

**Assumption:** Sex Ratio remains the same as that in 1970 Census throughout the projection period.

- Method:**
1. For total annual population projection use projected population from Table I.
  2. For male/female distribution, use sex ratio obtained in the 1970 Population and Housing Census, Changwad Lampang.

Table III Annual Population Projections for  
Lampang Province by Urban/Rural  
1971 - 1981  
(Urban Municipal Areas)

Year	Total Population	Urban	Rural
1971	602,900	41,400	561,500
1972	622,600	42,800	579,800
1973	642,500	44,200	598,300
1974	661,800	45,500	616,300
1975	682,300	46,900	635,400
1976	702,200	48,200	654,000
1977	723,600	49,700	673,900
1978	745,200	51,200	694,000
1979	768,100	52,800	715,300
1980	791,900	54,400	737,500
1981	815,100	56,000	759,100

**Assumption:** The percentage of urban to total population remains the same during the projection period as that in 1970, i.e. 6.87%.

- Method:**
1. For total annual population projections, use projected population from Table I.
  2. For urban/rural distribution, apply percentage of urban population to total as obtained in 1970 Population and Housing Census, Changwad Lampang.

Table IV Annual Population Projection, by Age Group, for Lampung Province 1971 - 1981

Age Group	1970	%	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
1	15,679	2.7	16,300	16,800	17,400	17,800	18,400	19,000	19,500	20,100	20,700	21,400	22,000
1 - 4	67,380	11.6	69,900	72,200	74,500	76,800	79,100	81,400	83,900	86,400	89,100	91,800	94,600
5 - 9	86,618	14.8	89,200	92,200	95,100	97,900	101,000	103,900	107,100	110,300	113,700	117,200	120,600
10 - 14	81,107	13.9	83,800	86,500	89,300	92,000	94,800	97,600	100,600	103,600	106,800	110,100	113,300
15 - 44 T	238,380	40.9	246,600	254,700	262,800	270,700	279,100	287,200	296,000	304,800	314,800	323,900	333,400
M	120,435	20.7	124,800	128,900	133,000	137,000	141,300	145,400	149,800	154,300	159,000	163,900	168,700
F	117,945	20.2	121,800	125,800	129,800	133,700	137,800	141,800	146,200	150,500	155,200	160,000	164,700
45 - 64	70,328	12.1	73,000	75,300	77,700	80,100	82,600	85,000	87,600	90,200	92,900	95,800	98,600
65 +	23,428	4.0	24,100	24,900	25,700	26,500	27,300	28,100	28,900	29,800	30,700	31,700	32,600
All ages	583,378	100.0	602,900	622,600	642,500	661,800	682,300	702,200	723,600	745,200	768,100	791,900	815,100

T = Total      Assumption: Population structure remains the same during the projection period as that in 1970 Census

N = Males      Source: 1970 Population and Housing Census, Changwad Lampung N 80.

F = Females    Method: 1. Use total annual population from Table I

2. For distribution by age group, apply percentage given in 1970 Population and Housing Census, Changwad Lampung.

Table V (Part I) Projected Growth Rates of Population by Amphoe<sup>a</sup>, Changwad Lampang 1971 - 1981

Amphoe <sup>a</sup>	1960 Population Census	1970 Population Census	Ave. Growth Rate	b	Projected Growth Rate										
					1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Muang Lampang	141,263	183,764	2.63	1.03	3.25	3.17	3.10	2.91	3.01	2.82	2.96	2.89	2.98	3.01	2.84
Ko Kha	67,887	80,082	1.66	1.63	2.05	2.01	1.96	1.84	1.90	1.78	1.87	1.83	1.88	1.90	1.80
Tigao	32,643	42,669	2.68	1.01	3.31	3.23	3.16	2.97	3.07	2.88	3.02	2.95	3.04	3.07	2.90
Chae Hom	53,986	64,230	1.74	1.56	2.15	2.10	2.05	1.93	1.99	1.89	1.96	1.91	1.97	1.99	1.88
Thoen	26,919	45,752	5.31	0.51	6.56	6.41	6.27	5.88	6.07	5.70	5.98	5.84	6.01	6.07	5.74
Mac Tha	38,404	56,032	3.78	0.72	4.67	4.56	4.46	4.18	4.32	4.06	4.26	4.16	4.28	4.32	4.09
Mac Phrik	11,589	13,575	1.58	1.72	1.95	1.91	1.87	1.75	1.81	1.70	1.78	1.74	1.79	1.81	1.71
Kang Nua	48,077	34,654	-0.33	-8.21	-0.41	-0.40	-0.39	-0.36	-0.38	-0.36	-0.37	-0.36	-0.38	-0.33	-0.36
Sop Prap	18,718	22,413	1.80	1.50	2.22	2.17	2.12	1.99	2.06	1.93	2.02	1.98	2.04	2.06	1.95
Hang Chat	32,213	40,207	2.22	1.22	2.74	2.68	2.62	2.46	2.54	2.38	2.50	2.44	2.51	2.54	2.40
Total	471,699	583,378	2.71	-	3.35	3.27	3.20	3.00	3.10	2.91	3.05	2.93	3.07	3.10	2.93

a = Amphoe includes municipal area

b =  $\frac{\text{Average Annual Growth Rate Lampang 1970 - 1970}}{\text{Average Annual Growth Rate Amphoe 1960 - 1970}}$

Table V (Part II) Population Projections by Amphoe<sup>a</sup>, Changwad Lampang 1971 - 1981

Amphoe <sup>a</sup>	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Muang Lampang	189,700	195,700	201,800	207,700	214,000	220,000	226,500	233,000	240,000	247,200	254,200
Ko Kha	81,700	83,300	84,900	86,500	88,100	89,700	91,400	93,100	94,800	96,600	98,300
Ngao	44,100	45,500	46,900	48,300	49,800	51,200	52,700	54,300	56,000	66,700	68,600
Chae Ron	65,600	67,000	68,400	69,700	71,100	72,400	73,800	75,200	76,700	78,200	79,700
Thoen	48,800	51,900	55,200	58,400	61,900	65,400	69,300	73,300	77,700	82,400	87,100
Mae Tha	58,600	61,300	64,000	66,700	69,600	72,400	75,500	78,600	82,000	85,500	89,000
Mae Phrik	13,800	14,100	14,400	14,700	15,000	15,300	15,600	15,900	16,200	16,500	16,800
Wang Nua	34,400	34,100	33,800	33,700	33,600	33,500	33,400	33,300	33,200	33,100	33,000
Sop Prap	22,900	23,400	23,900	24,400	24,900	25,400	25,900	26,400	26,900	27,500	28,000
Hang Chat	41,300	42,400	43,500	44,600	45,700	46,800	48,000	49,200	50,400	51,700	52,900
<b>Total</b>	<b>600,900</b>	<b>618,700</b>	<b>636,800</b>	<b>654,700</b>	<b>672,700</b>	<b>692,100</b>	<b>712,100</b>	<b>732,300</b>	<b>753,900</b>	<b>785,400</b>	<b>807,600</b>

Table VI Annual Population Projections for Changwat Lampang by Municipal Areas and Amphoes<sup>a</sup> 1971 - 1981

Amphoe <sup>a</sup>	1971		1972		1973		1974		1975		1976		1977		1978		1979		1980		1981	
	GR.	No.																				
Lampang M.A.	1.36	40,600	1.33	41,100	1.30	41,600	1.22	42,100	1.26	42,600	1.13	43,100	1.24	43,600	1.21	44,100	1.25	44,700	1.26	45,300	1.16	45,800
Lampang Muang	3.89	149,300	3.80	155,000	3.72	160,800	3.49	166,400	3.60	172,400	3.33	178,200	3.54	184,500	3.46	190,900	3.57	197,700	3.60	204,600	3.45	211,800
Po Pha	2.05	81,700	2.01	83,300	1.96	84,900	1.84	86,500	1.90	88,100	1.73	89,700	1.87	91,400	1.83	93,100	1.88	94,800	1.90	96,600	1.81	98,300
Nano	3.31	44,100	3.23	45,500	3.16	46,900	2.97	48,300	3.07	49,800	2.83	51,200	2.02	52,700	2.95	54,300	3.04	56,000	3.07	56,700	2.9	58,600
Chae Hom	2.15	65,600	2.10	67,000	2.05	68,400	1.93	69,700	1.99	71,100	1.87	72,400	1.96	73,800	1.91	75,200	1.94	78,200	1.88	79,200	1.8	79,700
Phuen	6.56	48,800	6.41	51,900	6.27	55,200	5.88	58,400	6.07	61,900	5.77	65,400	5.98	69,300	5.84	73,300	6.01	77,300	6.07	82,400	5.74	87,100
Mac Tha	4.67	58,600	4.56	61,300	4.46	64,000	4.18	66,700	4.32	69,600	4.05	72,400	4.26	75,500	4.16	78,600	4.28	82,600	4.32	85,500	4.05	89,000
Mac Phrik	1.95	13,800	1.91	14,100	1.87	14,400	1.75	14,700	1.81	15,000	1.77	15,300	1.78	15,600	1.74	15,900	1.79	16,200	1.81	16,500	1.73	16,800
Wang Nau	0.41	34,400	0.40	34,100	0.39	33,800	0.36	33,700	0.38	33,600	0.35	33,500	0.37	33,400	0.36	33,300	0.33	33,200	0.38	33,100	0.33	33,000
Pop Prap	2.22	22,900	2.17	23,400	2.12	23,900	1.99	24,400	2.06	24,900	1.93	25,400	2.02	25,900	1.98	26,400	2.04	26,900	2.06	27,500	1.95	28,000
Hang Chat	2.74	41,300	2.68	42,400	2.62	43,500	2.46	44,600	2.54	45,700	2.33	46,800	2.50	48,000	2.44	49,200	2.51	50,400	2.54	51,700	2.40	52,900
Whole Province	3.35	601,100	3.27	619,100	3.20	637,400	3.00	655,500	3.10	674,700	2.94	693,400	3.05	713,700	2.98	734,300	3.07	756,300	3.10	768,300	2.93	811,000

**Footnote:**

Totals in annual projected population, Changwad Lampang differ from those indicated in Table I due to compounding effects of amphoe growth rates.

**Sources:**

Thailand Population Census 1960, Changwad Series. Changwad Lampang: 1970 Population and Housing Census, Changwad Lampang, National Statistical Office.

**Assumption:**

Ratio between Population Growth Rate of Lampang Province and that of each district remains the same during the projection period as that during 1960-1970 Census.

**Method:**

1. Determine average growth rate for each amphoe from 1960 and 1970 Population Census, Changwad Lampang.
2. Project annual growth rate for each amphoe for period 1971-1981 as follows:

$$\frac{\text{average annual growth rate Lampang 1960 - 1970}}{\text{average annual growth rate Amphoe 1960 - 1970}} =$$

$$\frac{\text{annual provincial growth rate}}{\text{annual amphoe growth rate}}$$

3. Project annual population for each amphoe by multiplying population of previous year by projected annual growth rate for each amphoe.
    - a. Amphoe excludes municipal area
    - b. Totals in annual projected population, Changwad Lampang, differ from those indicated in Tables I and V due to compounding effects of Amphoe/Municipality growth rates.
- MA = Municipal Area.

**Source:**

Thailand Population Census 1960, Changwad Series, Changwad Lampang:  
Population and Housing Census, Changwad Lampang National Statistical Office.

**Assumption:**

Ratio between Population Growth Rate of Lampang Province and that of each district/municipality remains the same during the projection period as that during 1960-1970 Census.

**Method:**

1. Determine average growth rate of each amphoe and municipal area from 1960 and 1970 Population Census, Changwad Lampang.
2. Project annual growth rate for each amphoe and municipal area for period 1971-1981 as follows:

$$\frac{\text{average annual growth rate Lampang 1960-1970}}{\text{average annual growth rate Amphoe/Municipality 1960-1970}} =$$

$$\frac{\text{annual provincial growth rate}}{\text{x (annual amphoe/municipal growth rate)}}$$

3. Project annual population for each amphoe/municipality by multiplying population of previous year by projected annual growth rate for each amphoe/municipality.

**Provincial Demographic Data**  
**Census Population by Age and Sex, Lampang Province, 1970**

Age (Year)	Total	Male	Female
All ages	583,378	292,739	290,639
Under 5 years	83,059	41,795	41,264
5 - 9	86,681	43,923	42,695
10 - 14	81,107	41,567	39,540
15 - 19	60,970	30,539	30,431
20 - 24	40,354	20,569	19,785
25 - 29	33,930	17,007	16,923
30 - 34	36,399	18,512	17,887
35 - 39	37,185	18,868	18,317
40 - 44	29,542	14,940	14,602
45 - 49	23,073	11,567	11,506
50 - 54	18,632	9,354	9,278
55 - 59	15,553	7,654	7,899
60 - 64	13,070	6,178	6,892
65 - 69	9,960	4,535	5,425
70 and over	13,468	5,494	7,974
Unknown	458	237	221

## Leading Causes of Admission, Lampang Province, 1972

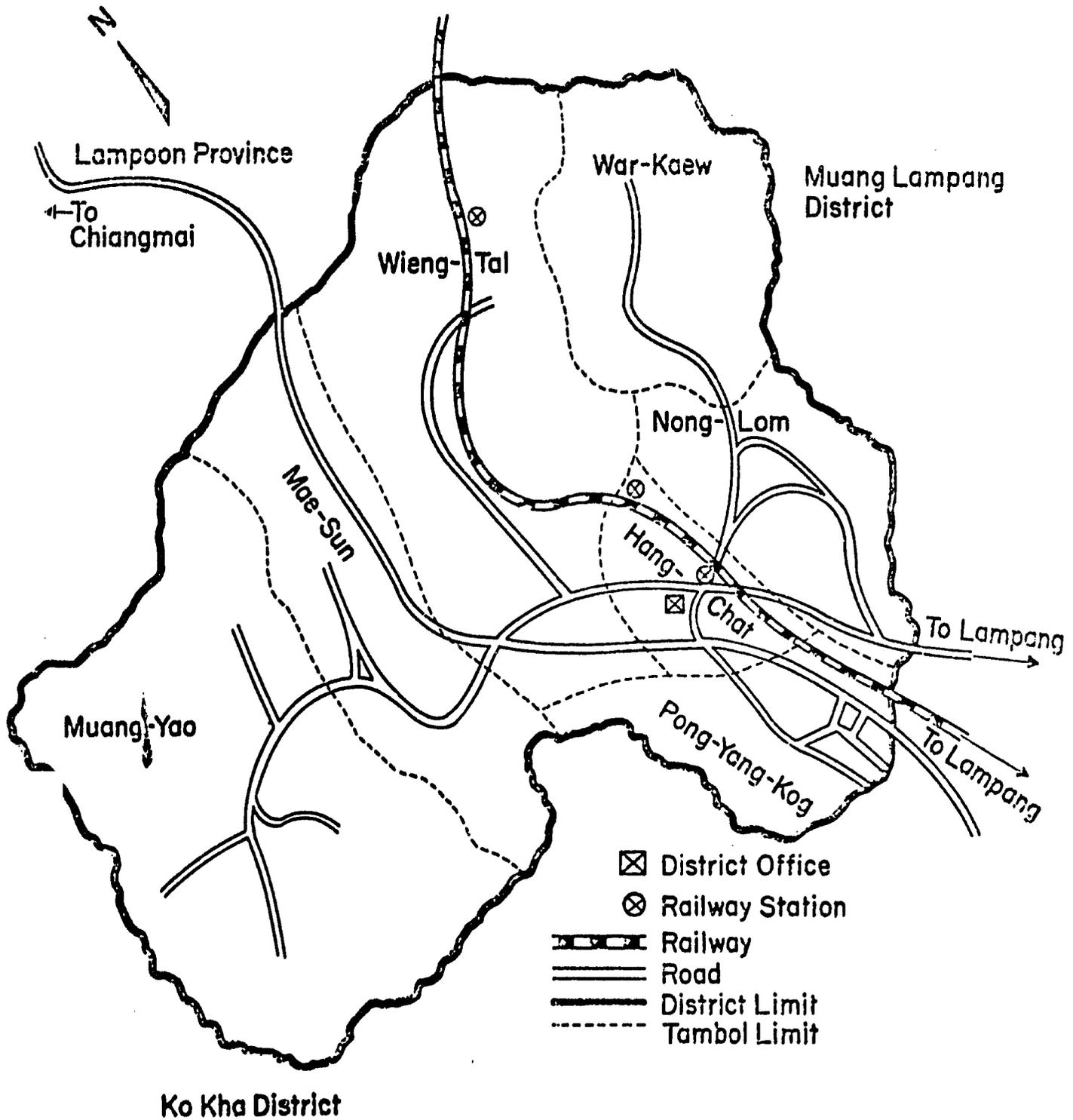
Leading Causes	No. of Cases	Percentage
1. Diarrhoeal diseases	356	1.6
2. Fever	286	1.3
3. Pneumonia	257	1.2
4. Heart failure	221	1.0
5. Diseases of Respiratory Tract	211	0.9
6. Jaundice	208	0.9
7. Renal Calculi	191	0.9
8. Vesical Calculi	174	0.8
9. Bronchitis	156	0.7
10. Enteritis	154	0.7

## Vital and Health Statistics, Lampang Province

1968 - 1972

	1968	1969	1970	1971	1972
Crude Death Rate	8.9	9.1	7.3	7.9	7.5
Infant Mortality Rate	33.5	29.1	35.8	51.9	35.7
Maternal Mortality Rate	1.7	1.5	1.3	2.1	1.9
Mobility Rate	98,720	103,350	105,062	119,968	(199,45) 130,494
Hospital Admissions	14,099	16,202	16,886	18,642	21,147
<u>Deaths by Causes:</u>					
Diarrhoeal diseases	260	188	170	143	108
T.B.	45	109	73	106	131
Malaria	12	-	-	111	3
Malignant neoplasms all forms	7	21	19	36	61
Avitaminosis and other nutritional deficiencies	7	-	1	42	22
Diseases of the heart	59	47	49	57	76
Pneumonia	42	59	3	25	16
Cirrhosis of liver	34	10	11	16	11
Pyrexia of unknown origin	1,594	677	1,604	1,669	266
Accidents	99	98	122	123	98

# MAP OF HANG-CHAT DISTRICT



## Background Data of Hang Chat District for DEIDS Project

### I. General Information

Area	680,718 sq. km.
Tambols	7
Villages	61
Population	40,854
Males	20,241
Females	20,613
Population Density/sq.km.	60
Households	7,289
Schools	40
Students	8,392
Teachers	283
Temples	53
Monks	78
Novices	381
Communication	
from Hang Chat District Office to Lampang Province	18 km.
from Hang Chat District Office to Tambol Muang Yao	18 km.
from Hang Chat District Office to Tambol Mae Sun	12 km.
from Hang Chat District Office to Tambol War Kaew	8 km.
from Hang Chat District Office to Tambol Pong Yang Kog	9 km.
from Hang Chat District Office to Tambol Wieng Tal	5 km.
from Hang Chat District Office to Tambol Nong Lom	4 km.
Committees and Clubs	
Community Health Development Committees	54
Educational Committees	39
Youth Clubs	6

### II. Vital and Health Statistics

* Crude Birth Rate	23.08
* Crude Death Rate	7.5
** Infant Mortality Rate	-
** Maternal Mortality Rate	-
No. of Delivery Conducted by Health Personnel	48.487
No. of Delivery Conducted by Traditional Midwives or Others	51.527

### III. Health Manpower

#### A. Public Sector

Health Workers	4
Midwives	10

#### B. Private Sector

Physician	1
Traditional Midwives	44
Injection Doctors	70

IV. Health Service Institutions

A. Public Sector

2nd-Class Health Centers	6
Midwifery Centers	4
Child Nutrition Centers	7

B. Private Sector

Modern Medicine Clinic	1
Drugstores	4

\*\*V. Leading Causes of Illness

Malnutrition  
Respiratory Diseases  
Gastro-Intestinal Diseases

VI. Leading Causes of Death  
(Data to be collected)

\* These data are Lampang Province data. Data in these categories are not available for Hang Chat District but will be ascertained during the DEIDS project.

\*\* Reports reflecting data for these categories are inaccurate due to the lack of qualified medical personnel in the District. These data will be gathered during the DEIDS project.

**Health Service Institutions & Health Manpower**  
**Hang Chat District, 1973 (Public Sector)**

Health Service Institutions	Health Manpower			
	Physician	Nurse	Health Worker	Midwife
1. District Health Office	-	-	1	-
2. Hang Chat 2nd-Class Health Center	-	-	1	1
3. Muang-Yao 2nd-Class Health Center	-	-	1	1
4. Pong-Yang-Kog 2nd-Class Health Center	-	-	1	1
5. Mae-Sun 2nd-Class Health Center	-	-	-	1
6. Nong-Lom 2nd-Class Health Center	-	-	-	1
7. War-Kaew 2nd-Class Health Center	-	-	-	1
8. Ban Yang Oil Midwifery Center	-	-	-	1
9. Ban Huay Ruen Midwifery Center	-	-	-	1
10. Ban Mae How Midwifery Center	-	-	-	1
11. Ban Kuang Midwifery Center	-	-	-	1
<b>Total</b>			<b>4</b>	<b>10</b>

District Demographic Data  
Census Population by Age and Sex  
Hang Chat District - 1970

Age (Year)	Total	Male	Female
All ages	40,207	19,937	20,270
Under 5 years	5,637	2,865	2,772
5 - 9	6,360	3,178	3,182
10 - 14	6,081	3,023	3,058
15 - 19	4,209	2,152	2,057
20 - 24	2,407	1,223	1,184
25 - 29	1,721	841	880
30 - 34	2,331	1,165	1,166
35 - 39	2,697	1,328	1,369
40 - 44	2,183	1,109	1,074
45 - 49	1,712	850	862
50 - 54	1,128	551	577
55 - 59	861	413	448
60 - 64	1,018	488	530
65 - 69	809	349	460
70 and over	1,021	385	636
Unknown	32	17	17

Concept and Principles of Information  
William A. Reinke - 11 December 1973

Since health care delivery systems operate at the interface between individual providers and clients, the information requirements for monitoring the system are necessarily detailed. In the case of an innovative program covering a large population, e.g. DEIDS, it is critical not only to establish what is being accomplished, but also how and why certain factors are contributing to or inhibiting success. There is a consequent danger that demands for information could become overwhelming.

In order to avoid such a state it is essential that the DEIDS information system be tied directly to the specific objectives of the program and very selectively to inputs and obstacles that relate in a key way to programmed outcomes. To emphasize the point we might consider a complex chemical process which is selectively metered at key points in the process. Where the measurement of raw material input and process yield indicate what the process is accomplishing, the monitoring of process meters establishes why and how the results are being achieved and thereby provides a basis for rational intervention to improve process yield and optimize performance.

The DEIDS information system must be designed for both clinical and program analysis purposes, and these two aspects must be considered separately. Whereas detailed family history information may be necessary for patient management, the program analysis information needs should be met by efficient sampling procedures wherever possible.

It would be unfortunate if initiation of services was unnecessarily delayed and then locked into an irreversible pattern to be evaluated some time later. The approach being suggested here is evolutionary in nature, with program adjustments to be made whenever the need for adjustment has been documented.

This emphasis on internal monitoring apart from external evaluation requires an information system capable of rapid processing and feedback of data. It also requires careful control over and documentation of any program adjustments that are introduced.

Details of Recommendations Made by Dr. William A. Reinke which have been Incorporated into the Activities of the INFORMATION-EVALUATION-RESEARCH DIVISION.

Components to be developed in the information system are:

1. Vital Statistics Reporting

Accurate reporting of births and deaths is essential to the evaluation of the DEIDS Project. For this reason new data collection procedures must be developed to supplement the existing system. According to the new procedures of this project, vital statistics investigators would make periodic visits to sample villages in order to obtain from key informants (e.g. monks, teachers, local midwives) reports of recent births and deaths.

2. Community Surveys

An initial brief community survey is necessary in order to obtain baseline data on population socio-demographic characteristics and attitudes and practices in health and family planning matters. Data to be collected would include family composition, economic status, basic knowledge about health and illness, exposure to health hazards such as impure water, inadequate waste disposal practices, and poor nutrition practices, recent morbidity experience, health care practitioner preferences, type of practitioner recently consulted, along with information about distance travelled for care, type of treatment received, and cost, knowledge, attitudes, and practice of family planning, preferred source of family planning services, and pregnancy history.

The community surveys are especially important in view of the numerous sources of health care (e.g. drug stores, private clinics, quacks) that are being utilized in addition to the government services. The surveys must be established on an ongoing basis in order to monitor changing attitudes and practices toward these sources of health and family planning care.



### 3. Nutrition Surveys

In some studies physical examinations are conducted to supplement health interview surveys. Such examinations can be very costly, however, and are recommended in the present case only in a limited way. In particular, anthropometric measurements should be taken periodically on children and hemoglobin levels should be determined on a sample of women. Such information is necessary to monitor nutritional status in key population groups, such as pregnant women and young children.

### 4. Clinical Records

A streamlined record system for clinical use can only be designed by those providing services. Among other things, however, this system should include Morley-type weight charts for pre-school children and family folders. While the latter are already being used in Thailand, special care must be taken in the DEIDS Project to assure that they are kept current, are not lost or duplicated, and are easily retrievable.

### 5. Task Analysis

In addition to a record of services provided, it is necessary to identify the nature and appropriateness of activities of each category of worker engaged in the provision of services. Such information will be used to determine the balance between direct service and supporting activities and with regard to the latter will document the levels of input associated with such things as record keeping, supervision, training and travel. The data will also be analyzed in relation to requirements for and success of competency based training. Examples of the possible format for this aspect of the information system are given in Tables 1 and 2.

### 6. Cost Analysis

Personnel costs will be a major component of total program costs, but information must be compiled in addition on costs of facilities, space, equipment, supplies and vehicles used. It is essential that the analysis of costs be conducted to reflect not only total cost by program element

(maternal and child health, family planning, nutrition, etc.) but also by cost per unit of service (patient visit, family planning acceptor, BCG immunization, etc.) and according to program effectiveness (woman year of contraceptive protection, birth averted, death averted, etc.). Such analysis is important since if DEIDS is effective in increasing service coverage, the cost of public health care may increase whereas the efficiency and effectiveness of the services should increase and consequently unit costs may decline. Information from the task and service records analysis is essential for the allocation of personnel costs among services in accordance with the cost analysis requirements outlined in this section above.

#### 7. Administrative Analysis

It is necessary that the administrative and supervisory framework serve maximally to promote program objectives. Although the task analysis outlined above will provide some of the requisite information in this regard, it is also important to determine supervisory attitudes toward the community being served. Such information will be obtained through staff interviews and through documentation of patterns, of communication leadership, decision making, and compliance with policies and directives. The assistance of social anthropologists will be essential to the development of this information source and the interpretation of findings.

Although it is useful to list and develop elements of the information system separately, these elements must ultimately be combined into an integrated total system covering each of the program areas as indicated schematically in Table 3. An illustrative list of items of information that might be included in the total information system is given in Table 4. It should be noted that each of the eight component sources of information described earlier might contribute items of information in several program areas. Moreover, information for a particular program may be compiled from more than one source.

Table 3. Schematic Relationship between Information Sources and Program Areas

Component Source	Program					
	Illness Care	Pers. Pre.	Maternity	Family Plan.	CDC	Env. San.
1. Vital Statistics 2. Community Surveys 3. Nutrition Surveys 4. Clinical Records 5. Service Records Abstracts 6. Task Analysis 7. Cost Analysis 8. Admin. Analysis						

Table 4. Illustrative Summary of Information Items in DEIDS Information System1. Care of Illness

No. Patients by Complaint  
 No. Patients Receiving Drugs, Injections, Other Treatment  
 Distance of Patient Travel  
 Patient Visits Per Episode of Illness  
 Type Practitioner Consulted and Reason  
 To Whom Referred  
 Reason for no Consultation  
 Duration and Severity of Illness  
 Deaths  
 Cost of Consultation and Drugs  
 Cost of Travel  
 Other Cost

2. Personal Preventive Care

Routine Well Care Contacts  
 Immunization by Type  
 Nutrition Contacts  
 Nutritional Status  
 Health Talks Given

Table 4. Illustrative Summary of Information Items in DEIDS Information System  
(continued)

3. Maternity Care

Prenatal Contacts  
 Deliveries  
 Postnatal Contacts  
 Births  
 Source of Prenatal Care Last Time and Reason  
 Place of Last Delivery and Reason  
 Source of Postnatal Care Last Time and Reason

4. Family Planning

Family Planning Talks Given  
 Motivation Contacts  
 Service Contacts  
 Follow-up Contacts  
 No. Acceptors by Type  
 No. Currently Practicing by Type  
 Previous Use of Contraception by Type  
 Willingness to Use Family Planning  
 Reason for Unwillingness  
 Preferred Source of Family Planning  
 No. Living Children  
 Age of Youngest Child  
 Child Mortality Experience

5. Communicable Diseases Control

Malaria Visits, Blood Smears, Cases Treated  
 TB Visits, Cases Treated  
 Other Contacts

6. Environmental Sanitation

Source of Drinking Water  
 Waste Disposal Means  
 Service Received Regarding Water, Waste

7. Administration

Personnel Background, Training, Experience  
 Personnel Knowledge of Job and Organization  
 Personnel Satisfaction  
 Supervisory Visits  
 Vital Statistics Contacts  
 Training Given by Type and Duration

Table 4. Illustrative Summary of Information Items in DEIDS Information System  
(continued)

8. Information Related to Each of Above

Vehicle Use  
Building Space Use  
Out-of-pocket Expenditures  
Place of Service Provision  
Recipient of Service (Child, Eligible Woman, Group, etc.)  
Nature of Personnel Activities  
Direct Service by Type  
Supporting by Type

## Manpower Development

"The most important cause of the underutilization of presently available service. Social distance, patient perception of the provider of services and vice-versa, patient and provider motivation, confidence in the provider, economics and transportation also contribute to an underutilization of presently available resources." \*

Site visits showed primary health centers seeing 15-30 patients per day, secondary centers attending to the needs of perhaps 5-10 daily, and midwifery centers seeing 4-5 patients per day at the village level. However, the lack of primary care providers at the village level (capable of providing health, family planning and nutrition services) and the concomittant absence of an image of concern and competence to deliver such services appear to be the most critical hurdles to overcome.

The manner in which Thai people obtain health services provides further guidance for improving their delivery system. It appears that 58% of the people do not get into a system based upon scientific medicine. Further, with 23% seeking help in private hospitals and clinics it appears that approximately 75% of the population could be benefited by a government-sponsored health scheme. At present only 15% avail themselves of government health facilities.\*\*

Site visits to first and second class health centers revealed narrowly focused categorical clinic and personnel organization with surprising underutilization.

\* Dr. Richard A. Smith of the University of Hawaii, Consultant to DEIDS-Thailand, December 1973.

\*\* Questionnaire for the Fifth Report on the World Health Situation 1969-1972, p. 27.

These problems cannot be solved by MOPH assumption of the tambol doctor system of the Ministry of Interior since politics would neutralize any such program efforts. Present categories of personnel operating at the village level (midwives) and secondary health center (junior health workers) are not capable of providing the kinds of basic health services which would promote program objectives.

The difficulties to be encountered with the medical profession in the delegation of medical tasks (basic health services); the resistance to innovation in any form by patients and others; bridging the reciprocal social distance between patients and providers; setting the stage for a reorganization of health services delivery in rural Thailand which entails a new personnel category based upon competence and performance rather than degrees; development of deployment and supervisory structure which has not existed before for basic health services--all of these require a totally new image for a health services provider. In order for true and lasting change to occur, a great deal of attention must be paid to this new provider. Only with this heavy emphasis on his/her identity and image as a new provider of services can changes be achieved in the manner and extent health services are delivered under this new system.

The promotion of health in its preventive aspects is to be an integral part of the DEIDS Project. Health promotion in the form of health information augmented by new governmental response capability is to be an important facet of this project.

The Saraphi Project\* points up the superb opportunity to achieve significant success in this area by utilizing the Buddhist Monks as health facilitators and communicators. This huge resource (300,000) could be used imaginatively to augment any present or further modality for delivering health services.

In addition, this proposal is to create a low-cost health delivery system capable of providing integrated health, family planning and nutrition services at the village level. This program is to be designed in

\* An experimental health delivery project in Chiangmai Province, headed by Dr. Pricha.

such a manner that if evaluation of the prototype demonstrates attainment of its objectives, it can be replicated with relative ease throughout the province--and subsequently throughout the country. It should be mentioned at this point that there should be a very small and minor urban component to this program so that the image of this new system does not appear to be discriminatory against the rural poor.

The trainees of this new category of health services provider should be drawn from the ranks of health workers presently working at the level of rural people (midwives, junior health workers). Supervisory Medex could be trained from present underemployed nursing ranks. To satisfy certain political needs, a small representative sample of traditional health workers (such as tambol doctors) should be part of this effort to create a totally new health services provider in Thailand.

The result of this effort will be to consolidate a number of diverse categories into a single image, providing village level health services while simultaneously reorganizing the way in which the present health delivery system functions to promote and maintain the health of the Thai people.

## ADMINISTRATIVE SERVICES DIVISION

The dichotomy of the existing organization (Chart I) of medical and health delivery system at the local level creates problems in delivering a comprehensive, integrated health service to the local people. The cooperation and coordination between medical care and public health sectors are in many instances, impossible.

Therefore, it is planned that the organization of Lampang provincial medical and health services be organized in a way which will integrate the medical care and public health services into the villages.  
(Chart II)

Dr. Athol J. Patterson

Consultant - DEIDS - Thailand

22 December 1973\*

Central Ministerial Structure\*\*

1. Because of the large number of divisions in a small number of departments creating an excessively large span of control and impeding efficient direction, it is suggested:

That additional departments be created.

2. Because all of the departments have interests in, and the need for communications with the provinces it is suggested:

That coordination of work and communications with the provinces, except for unimportant matters, be the responsibility of officials above the departmental level in the ministerial hierarchy.

3. Because certain subjects and activities are related to the work of all departments it is suggested:

That such subjects be handled in the offices of the Undersecretary and Deputy Undersecretary of State for Health.

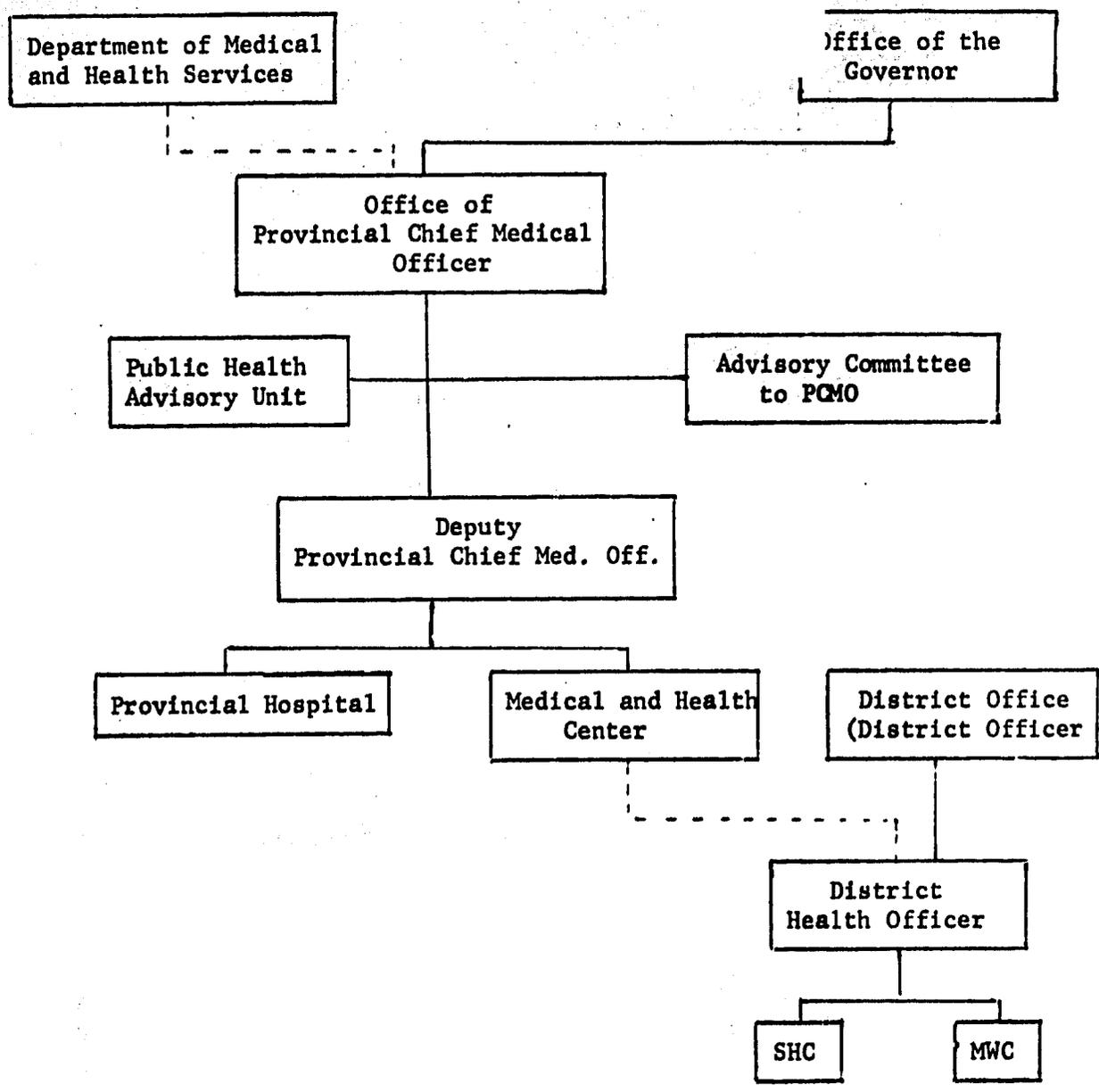
4. Because certain activities are of a national nature and others mainly related to the provinces it is suggested:

That it might be convenient to establish within, or directly under the offices of the Undersecretary and Deputy Undersecretary, but above the departmental level, an office concerned with national affairs and another with the provincial affairs and that the head of the latter office might be authorized to handle all communications with the provinces.

\* Dr. Athol J. Patterson, consultant to DEIDS-Thailand, submitted the following report on 22 December 1973.

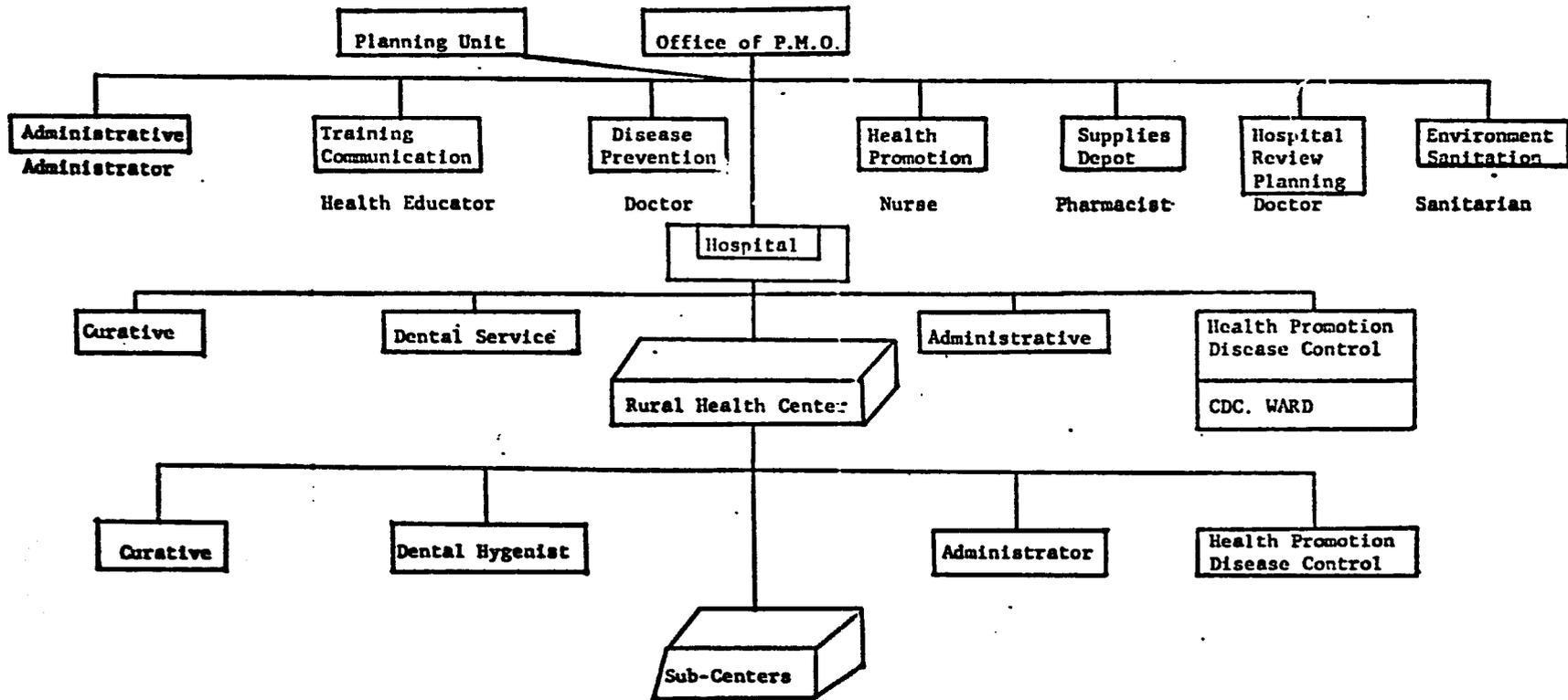
\*\* Because of the importance of this subject, the need for a profound study and the short time available, the consultant has deliberately made suggestions which should be considered tentative as opposed to firm recommendations.

Chart I  
Existing Provincial Medical  
and Health Organization



N.B.  
PCMO = Provincial Chief Medical Officer  
SHC = Second Class Health Center  
MWC = Midwifery Center

CHART II  
PROPOSED ORGANIZATION



## Regional Offices

At the present time it is largely true to say that the officials of the Ministry in Bangkok render advisory services while executive services are handled at the provincial level. For some activities, however, there are regional officials although the provinces within the regions vary from subject to subject. The development of regionalization is welcome as it brings the advisory services closer to the provinces where they are needed.

It is therefore recommended:

- (i) That for health purposes the country be divided into regions. There could be initially some five or six.
- (ii) That regional offices of the Ministry be established, starting in the north and including Lampang in one region.
- (iii) That in each region there be a basic team made up of highly qualified individuals. The team could include a:
  - public health administrator
  - public health engineer
  - public health nurse
  - health educator
  - specialist physicians and surgeons as e.g.  
a neurologist or orthopedic surgeon
  - nutritionist et al.
- (iv) That flexibility be shown in the composition of the team taking into account the differences in the problems in the various regions of the country, the size of the populations served as well as the availability of suitably qualified personnel.
- (v) That the team have its offices in a single unit.
- (vi) That the team be headed by an individual who might be called the director general for the region.
- (vii) That the functions of all members of the team be advisory, and that they visit the provinces within their regions frequently.
- (viii) That an effort be made to place the existing regional teams in the same locations as the proposed new teams.

### Provincial Health Organization

The provincial health organizations will for the near future need to be designed, insofar as the senior posts are concerned, so as to suit each province. Forty are headed by former provincial health officers and thirty by former hospital directors. In those provinces such as Lampang where the new Provincial Medical Officer was formerly the Hospital Director, there will be no experienced public health physician at the provincial level.

Attached is a personnel chart suitable for Lampang Province.

It is assumed that matters concerning the senior personnel and the health centers which do not relate to medical care will be dealt with directly without being channelled through the office of the Hospital Director. It is recommended:

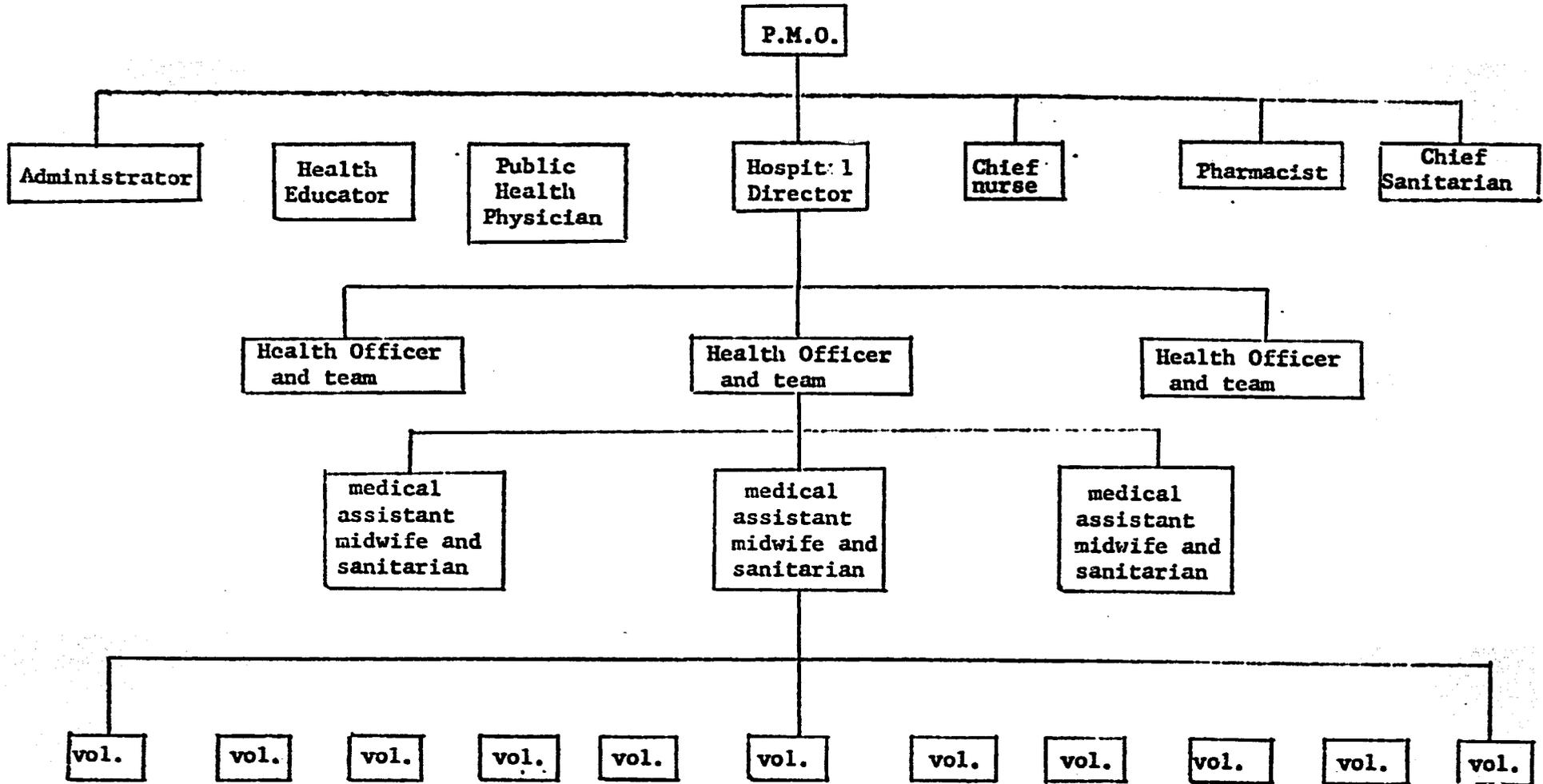
That in this group of provinces where the PMO was formerly a hospital director that an experienced public health physician be appointed and that the initial appointment be made in Lampang Province.

### Provincial Offices

Hospitals are doing no preventive work whereas the network of health centers is doing both preventive and clinical work. No supervision of this clinical work is provided by the specialists in the hospitals nor are the facilities, including the beds of the health centers, being utilized by the hospital service. The hospital services provide the only official dental services\* although dental aides are becoming available for employment in health centers and they must work under supervision. There is a duplication of administration including the purchasing of land and construction of buildings. The system does not promote the efficient referral of patients from the smallest units to the most specialized, or vice versa. With integration of the work of the two departments there would not only be better services for the public but economics for the Ministry. Exceptions to these generalizations are the integrated laboratory services which are seen in some eleven provinces.

\* It is known that a few dentists are employed by the Department of Health but the above statement as a generalization is true.

PROVINCIAL PERSONNEL CHART



**It is therefore recommended:**

- (i) That when new provincial health offices are constructed that wherever possible they be placed either in the provincial hospital building or adjacent to them.
- (ii) That clinical work now being provided in provincial health offices should be transferred to the supervision of the provincial hospital staff.
- (iii) That all district medical officers be associated with the provincial hospitals where they should attend clinical sessions at fixed times.
- (iv) That specialists from the hospitals also supervise the clinical work in the health centers.
- (v) That in the absence of district medical officers, physicians from the provincial hospital should provide regular clinical sessions in the health centers and supervise the medical assistants.
- (vi) That convalescent patients from the hospitals be transferred to the health centers when their homes are either in, or adjacent to, the town in which the health centers are situated.
- (vii) That patients on being discharged, except those living in the provincial capital have reports sent to the appropriate health center  
when the case has been referred from a center;  
when the illness has been an infectious disease or one in need of additional care that could be provided from the center. (In areas where there is particularly poor patronage of the health center there would be advantages in having all cases discharged from hospitals visited by someone from a health center to see whether further care would be required and, incidentally, an entree to the homes.)
- (viii) That there be plans of work for specific periods such as twelve months.

### First Class Health Centers

With certain notable exceptions, the public makes little use of the centers and, when in need of medical attention, proceeds either directly to hospitals or to private practitioners of various kinds. Not only are clinics poorly attended but the hospital beds in the centers are little used. Oftentimes wards are deserted or used for other purposes. There are many possible explanations for this. Many first class health centers do not have a doctor. Young doctors with no experience in administration or the handling of funds, unfamiliar with teamwork and who have not been properly oriented in the administration of the health centers, fail to inspire and guide the staff. As a result patients are discouraged and go elsewhere. In centers which do have physicians, continuous medical care cannot be provided if the physician carries out his duties in supervising the subsidiary centers--he must visit these frequently. Best patronized are the first or second class centers where either a physician is stationed or is known to be visiting. The orientation course given at Chonburi appears to have been of varying length and some of the physicians have not received appropriate preparation for the administration of health centers. No dental work at all is being done.

It is recommended:

- (i) That use of the term first class health center be discontinued.
- (ii) That the title "health center" be given to those centers staffed and equipped to provide medical care and preventive services of high professional quality.
- (iii) That new centers to be constructed be located in places which are conveniently accessible to the people who will use them.

- (iv) That health centers function partly as extensions of the hospital service with properly equipped wards and clinics to which patients can be referred back from the hospitals for after care and follow up.
- (v) That each health center have a permanent staff which will include one doctor and one medical assistant or medex so that one or the other will always be available in the center for the provision of medical care.
- (vi) That sufficient vehicles be available to permit the doctor, public health nurse medical assistant, or medex, nurse-midwife or sanitarian to make regular and frequent visits to subsidiary centers and also to answer emergency calls.
- (vii) That each health center have an adequately equipped side-room laboratory with a person trained in routine laboratory work. In certain areas microscopists previously employed in malaria eradication laboratories would be available for retraining. In other areas existing health workers might have to be employed. These side-room laboratories would be linked with and supervised by the combined clinical and public health laboratories of the province.
- (viii) That a study be made to see whether it would be possible, at least in certain areas, to supply transportation to enable patients needing it, to travel to and from sub-centers to the primary centers and to the hospitals.

#### Second Class Health Centers

The title of these health centers suggests that the services are inferior to those obtained in first class health centers. This should not be the case as any services rendered, while less comprehensive than those of first class health centers, should be given competently or not at all. The centers are actually out-stations of the health centers. Only rudimentary medical care can be provided as little is taught to the midwives and junior health workers.

It is therefore recommended:

- (i) That the term second class to be discontinued and that the health centers become known as sub-centers.
- (ii) That new sub-centers be constructed only in locations which would permit supervision at all times of the year.
- (iii) That a medical assistant or medex be placed in each sub-center.

### Midwifery Centers

The public is quantitatively more in need of general medical care than of having safe deliveries. The midwifery center is the smallest unit in the network of health services. It should be a center not only for midwifery and maternal and child health work, but the personnel stationed in them should be able, with proper training and supervision, to detect serious illnesses and emergencies and to refer them to the centers for treatment and also to deal directly with day-to-day sickness and first aid, as well as to perform preventive work. At the moment very little work is done at the centers and the delivery case load is very small.

It is therefore recommended:

- (i) That the term midwifery center be changed to health unit and that the scope of the services be widened.
- (ii) That health volunteers be recruited in each village and that regular contacts be made with the health unit.
- (iii) That medical assistants or medex be stationed in these units provided that funds for their support can be found.

### Supervision

Faulty supervision is a well-recognized fault of the health services. This has been pointed out by many consultants and it is well known to officials of the Ministry. The problem is accentuated because many districts do not have medical officers. An unfortunate aspect of the inadequate supervision is that so many of the employees are young and, by repeating incorrect actions, are acquiring bad habits which, without correction, they might practice for the remainder of their careers.

It is considered, however, that progress could be made and it is therefore recommended:

- (i) That the processes of supervision be taught in all courses and particularly in the orientation courses for medical officers so that it will be accepted as a regular, essential and educational part of any work process.

- (ii) That performance evaluations as prepared in Pitsanuloke be made annually for all personnel and that salary increases be given only if work is satisfactory.
- (iii) That post descriptions be used for all personnel.
- (iv) That in all geographical units there be work plans for weekly, monthly and yearly periods.

#### Personnel Administration

It is thought that with changes in personnel administration, more efficient services could be obtained.

The salaries of physicians placed in first class health centers, unless they open private practices, are very much less than the total incomes of physicians posted in provincial hospitals who, usually, also have a private practice. The size of many of the towns in which first class health centers are located, and amenities in general, are such as to discourage the expenditure involved in setting up a private clinic. It would seem reasonable therefore to increase the remuneration of the district medical officer who is such an essential member of the health team.

In some provinces a reason for poor supervision is the shortage of money for the payment of per diem allowances when staff are away from their offices. On other occasions it was found that there is a shortage of money to purchase gasoline. More frequently there seems to be a shortage of vehicles to permit all members of the provincial health offices to travel to the districts for purposes of supervision.

Although the cost of living varies in different parts of Thailand, no corresponding salary differentials are made. Recruitment would surely be easier if cost of living allowances could be given in those places where living is more expensive.

The propriety of permitting midwives to accept "presents" for doing deliveries is questionable. It is believed that instead of accepting presents some midwives demand fees and fees which are higher than those of the indigenous midwives. If the acceptance of money were forbidden then

perhaps more progress would be made in having deliveries handled by trained midwives instead of by the untrained.

In some second class health centers health workers mould the concrete tops of the pour-flush privies and sell them to the public. In areas where they are not available commercially or where they appear to be too expensive it would seem better for these slabs to be made in the 1st class health centers or provincial office and to be sold at cost price to the public as is the case with Government drugs.

The wider use of post descriptions as well as performance evaluations would serve to promote good administration as well as help supervision. For a large variety of reasons many trained personnel are not doing the things for which they have been trained and which people with less training could do equally well or even better. Strict adherence to post descriptions would serve to reduce this anomaly. Where adherence to post descriptions is for any reason not possible, it would be better to adjust the post description.

Although some of the recommendations in this section would result in increased expenditure, it is submitted that expenditures of this kind would bring about a better return for the total investment and certainly more than some alternative expenditures such as the construction of new health centers.

It is therefore recommended:

- (i) That an effort be made to increase the remuneration of district medical officers.
- (ii) That adequate budgetary provision be made for the payment of per diem allowances, the purchasing of gasoline and the provision of vehicles.
- (iii) That consideration be given to the payment of cost of living differentials.
- (iv) That the propriety of permitting midwives to accept presents be reviewed.
- (v) That where needed the concrete slabs for pour-flush privies be made in the health centers and sold officially at cost prices.
- (vi) That post descriptions be used in all provinces and that personnel carry out the functions listed in the post descriptions.

### Laboratories

Laboratory services are in many ways very unsatisfactory. Although there are microscopes in some first class health centers they are very rarely used. This contributes to imprecise diagnoses and treatments and there is no true knowledge of the prevalence of intestinal parasites. Inadequate use is made of provincial laboratories even when communications are such that specimens can be readily sent to them and reports received. A common complaint is that there are delays in receiving reports back from the laboratories.

In some parts of the country it would be possible to use in health centers, microscopists trained to examine malaria parasites and to give them a little extra training so as to permit them to do stool examinations and simple blood and urine tests. Because some of these women are married, it would not be possible to transfer them from some locations. The quantity of work which would be involved in a first class health center if a laboratory technician were available is not known. Although the physicians must have in their medical training received the necessary instructions, it would seem that either they have forgotten them or no one has directed them to make use of that knowledge.

It is therefore recommended:

- (i) That in the orientation course, all physicians be given a brief refresher course in simple laboratory techniques.
- (ii) That when possible, laboratory technicians be employed first experimentally in order to determine the workload in a good health center.
- (iii) That in all health centers without laboratory technicians the medical officer train someone to do simple laboratory tests.

### Dentistry

The only dentists employed by the Government in the Province are stationed in the Lampang Hospital.

It is recommended:

That dental auxiliaries be employed to staff the health centers and work under supervision of a provincial public health dentist who will have to be recruited.

### Environmental Sanitation

The greatest need in rural areas is to make a more salubrious environment. There is a direct and obvious relationship between the environment and the nature of prevalent diseases.

In many districts no efforts are made to dispose of garbage and refuse in a sanitary manner. Often there is no surface drainage-- something which could easily be corrected by the utilization of local labor. There has been a general deficiency of sanitary work and the emphasis of the work has been on the construction of individual household privies with the neglect of the provision of small water supplies. This generalization of course does not include the admirable work done by the divisions concerned with rural water supplies and community health development. Even many health centers do not have their own wells and some of those that do are not functioning properly. Some wells which have been constructed seemed to be excessively wide and thus costly and insufficient use has been made of bores and pipes. There seems to be no sullage pits to dispose of kitchen waste waters. Very rarely are regular chemical and bacteriological tests made of the public water supplies. The health workers do not carry out the sanitation activities described in the post descriptions prepared for them.

It is therefore recommended:

- (i) That an effort be made as soon as possible to appoint regional and provincial public health engineers who would provide technical supervision for all the sanitation work of the health workers. Until this is possible, and until regional teams have been established, it might be advisable to utilize existing engineers at the regional level as all-purpose public health engineering advisors.
- (ii) That the help of the village monks be enlisted to effect sanitary changes in the village environment.

### Supply and Distribution of Drugs and Equipment

The efficiency of medical care services is largely dependant on the ready availability of drugs and equipment. If they are not at hand when needed, or there are long delays in delivery, the medical and nursing staff become discouraged and the services are deemed by the public to be ineffective.

While it is recognized that in recent years progress has been made in improving the service, it is recommended that:

- (i) Special attention be paid to further improving the central supply distribution and storage of drugs and equipment.
- (ii) Trained and experienced staff be employed for this purpose at central, regional, provincial and hospital levels with repair, maintenance and storage depots as may be appropriate.

### Location

It is anticipated that there will be the normal difficulties in introducing the various innovations. It is important to overcome these difficulties before trying to replicate the activities. Of the two districts considered for the initiation of the project, one has very good--and one has very bad--communications. To promote the chances of success it is, therefore, recommended:

That Hang Chat rather than Jae Hom District be chosen for the initiation of the project.

### Records and Reports

As so much time was spent in Pitsanuloke Province by Dr. Hammoud,\* Dr. Chanavar and others designed record forms.' As these forms were used both in Pitsanuloke and Saraphi, it is recommended:

That these forms be used on the project area with whatever modifications experience might indicate.

### Statistics

One reason for the unenthusiastic collection of statistics is that those who prepare them often do not see any result or acknowledgment. At the local level as well as the provincial, the return of tabulated data showing what work has been done in other villages or districts, can serve to stimulate the laggards. It is therefore recommended:

That simple summaries of district and provincial activities be circulated among all members of the health team.

### Transportation

To provide greater medical care coverage, and also taking note that the "quacks" and "injectionists" have motorcycles and visit houses in the villages, it is recommended:

That an effort be made to provide motorcycles to more categories of health workers and also funds to both maintain them and purchase fuel, taking note of the local availability of spare parts and wisdom of standardization.

### Health Promotion

As the volunteer health workers seem to have contributed to the success of the Saraphi project it is recommended:

That they be used in Lampang and that as a reward some of the good ones be selected for additional training for one of the various categories of health workers currently employed.

### Village Premises

As the participation of the public tends to increase the use of health services it is recommended that the villages be asked to provide a room for the use of the volunteers and of the visiting health workers from the various centers.

### Residents and Interns

There are twenty-three physicians and surgeons in Lampang Hospital; all are specialists. There are no interns or residents. After 4:30 p.m. there are no physicians in the 300-bed hospital, although one doctor is on call. Patients, when admitted, are sent by a nurse to what she considers the appropriate ward. The initial examinations are made by the specialists. Of the case records examined while touring the hospital, only about one in fifty were complete and rather vague directions had sometimes been issued to the nurses. There appears to be great misuse of specialist time and it is therefore recommended:

- (i) That an effort be made to raise the standards of the Hospital, as for example, by establishing a pathology department so that it will be approved by the Medical Council initially for interns, and perhaps at a later date for residents in selected specialties.
- (ii) That some of the medical assistants or medex be located in the Hospital so that they can undertake the initial examinations of new admissions, make daily checks on the patients, and carry out the specialists' medical orders as well as complete the case records and fill in discharge slips which would be forwarded to the appropriate health centers.

#### Medical Education and Training

Current medical education is not appropriate for rural practice. Graduates who have received almost all of their training in big hospitals located in large cities are not equipped to work in rural health centers.

It is therefore recommended:

- (i) That the instructors in the Chiangmai Medical Faculty be encouraged to make use of the Lampang Hospital and of the network of health centers for the training of medical students.
- (ii) That use be made of the Chiangmai medical students to carry out surveys such as the initial health survey to collect baseline data.

#### Medical Assistants

It is recommended that:

- (i) That the Thai word for medical assistant or medex be decided upon.
- (ii) That an appropriate uniform which will serve to promote the professional appearance of the assistants or medex be selected and that the assistants be required to wear them while working.
- (iii) That the recruits for training as medical assistants or medex be required to have a minimal number of years of school education, as for example, ten years and preferably that this be followed by a period of successful work in the field of health.

- (iv) That the training of the medical assistants or medex be given within the province.
- (v) That the curriculum be based on the attainment of performance objectives.
- (vi) That the graduation of the students be based on performance abilities.
- (vii) That use be made of the curricula prepared for other programs.
- (viii) That a training director be appointed and that he invite to assist him, teachers with a sincere interest in the project.
- (ix) That following graduation, medical assistants or medex be employed in Lampang Provincial Hospital at least until such time as interns are appointed and that they also be employed in medical and health centers and in what are now called midwifery centers.
- (x) That consideration be given to the careers of medical assistants or medex so that they could receive at a later date additional training and so that they could receive promotions and thus make a satisfactory career.
- (xi) That, either medical assistants prior to undergoing training promise, upon graduation, to work only for the Government or that they be licensed only to work in the Ministry of Health or other governmental institutions.
- (xii) That all health personnel, especially the physicians, know what medical assistants are both able and unable to do.

#### Junior Health Workers

As Junior health workers are expected to provide elementary medical care, and as very little is included in their training curriculum, it is recommended:

That the time devoted to medical care in their training be increased.

#### Village Midwives

Because of the large number of indigenous midwives and the large number of deliveries performed by them, it is recommended:

That short training courses be given to them in the DEIDS Project areas as have been given in other areas.

## Monks

### (1) Training

In order to ensure the maximum and safe use of monks in the provision of medical care it is recommended:

That a standard curriculum be used for their training and that this be based on the correct understanding of a manual replete with diagrams showing how to provide first aid and to treat diseases mainly on the basis of symptoms and to use for this purpose, with appropriate modifications, manuals already prepared in other countries such as South Vietnam.

### (2) Selection

As there appear to be at least several monks in every temple that is in current use, it is recommended:

That for each village, training be given to the monk most interested in providing health services.

## Schools and School Teachers

Because of the relatively large school population and the large percentage of the national budget (19%) devoted to education, and because elementary school teachers are required to spend two hours a week on the teaching of health and related subjects and as the teaching in teacher training institutions is not given by physicians it is planned:

That officials of the Ministry of Health study the quality of and nature of teaching in health given in public schools in order to ensure that it is of a satisfactory standard.

Because the consumption of potable water and the correct use of toilets in schools can promote the wish for satisfactory standards, it is recommended:

That in the project area steps be taken to ensure that all schools have satisfactory water supplies and toilet installations and that the pupils be made to use them.

### Committees

To increase consumer input and to promote the greater utilization of health services it is recommended:

That at all levels in the health hierarchy, advisory committees be used and that at the village level perhaps the members could be appointed after consultation with the headmen and the monks. The village committees would be invited to comment upon the health services offered, be encouraged to organize community projects and to recommend acceptable people for training as health workers.

### Health Surveys

It is recommended:

That the initial health surveys which it is envisaged will be carried out in June by the Chiangmai senior medical students should include items such as ages, heights, weights, hemoglobin estimations, temperatures, blood smears (for malaria), skin examinations for signs of malnutrition and infection, and oral examinations, supplemented by questions concerning past, recent and current illnesses.

### Key Personnel

It is believed that in most provinces administrative adjustments are still needed because of the recent and very wise decision to integrate the preventive and curative health services. Lampang seems to be no exception and in addition the new Provincial Medical Officer, who was previously director of the hospital will retire in two years. It is of crucial importance to the success of the project that the Provincial Medical Officer and the Hospital Director be both capable and genuinely interested in it. It is therefore recommended:

That in filling the vacant positions that the special needs of the project be kept in mind.

### Special Status

These appointments are but the first of a long series of special requirements for the DEIDS Project. Others are mentioned elsewhere in this report, for example, higher salaries for all personnel, the acquisition

of motorcycles along with their maintenance (including the purchase of gasoline) and the extra funds required for the employment of the medical assistants. Also, with the successful establishment of the project in the initial province, probably the Director will want officials who have obtained experience in it to be shifted to provinces to which that project will extend. It is therefore recommended:

- (i) That the Ministry devise a way of giving a special status to this project with a degree of autonomy not possessed by other projects of the Ministry of Health.
- (ii) That this arrangement be approved by the Royal Thai Cabinet.

## Job Descriptions for Provincial Health Personnel

### 1. Principal Medical Officer

He is responsible for the health services personnel in his province. He directs, controls, guides, orders and evaluates all health programs under his jurisdiction.

### 2. Assistant Principal Medical Officer

He functions as the deputy to the Provincial Medical Officer in all matters delegated to him.

### 3. Director of the Provincial Hospital

He is responsible for all matters related to the hospital. He reports to the Principal Medical Officer.

### 4. Director of the Health Center

He is responsible for the administrative and professional activities of the Health Center and also technically supervises the sub-centers in his district. He is responsible to the Provincial Medical Officer.

### 5. District Health Officer

He is responsible for the administration of the sub-centers in his district and assists the district officer in matters related to serious health problems and insures the development of sound health practices in all who live in the district.

### 6. Junior Health Worker

He is responsible for supervising and controlling the Child Nutrition Center and Health Post Worker as well as the Communicators. He provides direction in all aspects of health in the villages. He is stationed at the sub-center.

## Job Descriptions for Provincial Health Personnel (continued)

### 7. Midwife

The Midwife shares with the Junior Health Worker the responsibility for the supervision and control of the Child Nutrition Center, Health Post Worker and the Communicators. She is also responsible for the welfare of all aspects of maternal and child health. She is located in the sub-center. Note: It is primarily through these workers in the sub-centers that an integrated health delivery system will be realized.

### 8. CNC (Child Nutrition Center) Attendant

This worker is responsible for the operation of the CNC, which is a program for pre-school age children. The children who attend this program need not be malnourished or ill in any way. She conducts a pre-school program which includes meals. She is assisted by mothers who participate in all aspects of the center's program including the preparation of lunch with food supplements. For further details see page 20.

(It is expected that the mother who helps in these Centers will convey the lessons learned to her family, which have in many cases younger children who are being weaned or not eligible, because of age, to attend the CNC.)

### 9. Health Post Worker

This worker refers patients to the health personnel for services. He assists in the feeding program at the Child Nutrition Center and assists in the case finding of serious health problems. After completion of a training period, he may be able to treat minor ailments and provide food supplements as well as non-prescriptive drugs at nominal costs to the patients. He will also investigate and record births and deaths.

### 10. Communicator

His primary function will be to assist the patient in entering the health service system. He will serve as liaison between the government officials and the people and disseminate health information to the people.

**Estimated Minimum Case Load to be Provided by Health Auxilliaries  
in the Various Types of Services by Real Working Days**

Number of Days in 1 year	Number of Holidays in 1 year	Number of Working Days in 1 year
365	Saturdays and Sundays 104 days Other holidays 13 days Sick leaves 15 days Other leaves 15 days	218
365 days	147 days	218 days
As there are 7 working hours a day, the working hours in 1 year = 218 x 7 = 1,526 hours.		

Table 4. The calculation of case load per midwifery center per year

Type of Services	Popula- tion under Responsi- bility	Rates Used in Calculation	Case Load Per Year
<b>A. Maternal and Child Health</b>			
- Prenatal services	3,000	Birth rate = 23:1,000	$\frac{3000 \times 23}{1000} = 69$
- Postpartum services	3,000	Birth rate = 23:1,000	$\frac{3000 \times 23}{1000} = 69$
- Delivery services	3,000	Birth rate = 23:1,000	$\frac{3000 \times 23}{1000} = 69$
- Neonatal services	3,000	Birth rate = 23:1,000	$\frac{3000 \times 23}{1000} = 69$
- Infant services	3,000	4% of total population	$\frac{3000 \times 4}{100} = 120$
- Preschool child services	3,000	13.5% " "	$\frac{3000 \times 13.5}{100} = 405$
- School child services	3,000	27.0% " "	$\frac{3000 \times 27}{100} = 810$
- Family planning services	3,000	20% of total population	$\frac{3000 \times 20}{100} = 600$
<b>B. General Medical Care</b>	3,000	From past experience 35% of total population	100

**Minimal Number of Case Loads in Various Services per Year**  
(For an area of about 3,000 population)

Type of Services in Various Age Groups	Number of Case loads Per Year	Minimal Percentage Requirement of Services	Minimal Number of Case loads per Year	Remarks
1	2	3	4 = 2x3	5
<u>Pregnant Women</u>				
- Prenatal	69	66%	46	
- Delivery	69		35	
- Postpartum	69	66%	46	
- Family Planning	600	66%	396	
- Case Detection				
- V.D.	69	66%	46	
- T.B.	69	66%	46	
- Leprosy	-	-66%	+46	Only in suspected cases
- Malaria	-	-66%	+46	
<u>Infant</u>				
- Neonatal services	69	66%	46	
- Services during the first year	69	66%	46	
- Immunization				
- Smallpox )				
- B.C.G. )	69	66%	46	
- D.T.P. )				
- Protein food promotion	-	-	-	
- Malaria case detection	-	-	-	In suspected cases
<u>Preschool Children</u>				
- Immunization				
- Smallpox )				
- D.T.P. )	405	66%	267	Only B.C.G. Vaccination is given to those having not yet received
- B.C.G. )				
- Case Detection				
- Malnutrition )				
- Malaria )	405	66%	267	Only suspected cases are detected
- Leprosy )				

Type of Services in Various Age Groups	Number of Case Loads per Year	Minimal Percentage Requirement of Services	Minimal Number of Case Loads per Year	Remarks
1	2	3	4	5
<u>School Children</u>				
- Immunization - Smallpox } - D.T.P. } - B.C.G. }	810	45%	365	Only B.C.G. Vaccination is given to those having not yet rec'd
- Contact Tracing - Leprosy - Trachoma	810 x morbidity rate of each disease in that area x 6		about 4 times the # of cases of each disease	
- Protein food promotion	-	-	-	
- Case detection - Trachoma } - Intestinal } - Parasites } - Leprosy } - Malaria }	810	45%	540	Only in suspected cases
<u>Adolescence and Fertile Female</u>				
- Passive case detection - T.B. ) - Leprosy ) - Occupational diseases ) - V.D. ) - Malaria )	1,200	45%	540	Only in suspected cases
- Case followup - T.B. ) - Leprosy )	1200 x morbidity rate of each disease in that area x 6		All patients handed over from T.B. and Leprosy Control projects. About 4 times the number of cases of each disease.	
- Immunization - Smallpox	1,200	45%	540	

Type of Services in Various Age Groups	Number of Case Loads per Year	Minimal Percentages Requirements of Services	Minimal Number of Case Loads per Year	Remarks
1	2	3	4	5
<u>Others</u> - Case detection - Leprosy - T.B. - Occupational diseases - Malaria - Contact tracing - Leprosy - T.B.	1,065  1,065 x morbidity rate of each disease in that area x 6	45%	479  About 4 times the number of cases of each disease	Only in suspected cases

Note: Type of services common to all age groups are medical care, surveillance of communicable diseases, environmental health, health education and certain immunizations during epidemics.

Table 6. Minimal number of case load by type of services, and time used for total services per year for one midwife.

Type of Services (Individual Services)	Minimal Number of Cases	Number of Services per case	Number of Services per year	Time used (hour) for		Remarks
				Each time of service	Total Services per year	
1	2	3	4=2x3	5	6=4x5	
a. Maternal and child health						
- Prenatal services	46	3	138	0.5	69	
- Postnatal services	46	7	322	0.25	80.5	
- Delivery services	34	1	34	4.0	136	
- Neonatal services	46	12	552	0.25	138	
- Infant services	46	4	184	0.25	46	
- Preschool child services	405	-	-	-	-	Included in the time used in d.
- School child services	396	2	792	0.25	198	

Type of Services (Individual Services)	Minimal Number of Case Load	Number of Services per case	Number of Services per year	Time used (hour) for		Remarks
				Each time of service	Total Services per year	
1	2	3	4=2x3	5	6=4x5	
b. General health service	479	2	978	1/12	81.5	
c. Time used in travelling	-	-	218	1.0	218.0	
		<b>Total</b>			967	
Group Services			Number of Services Per Yr	Time used (hour) for		
				Each time of Service	Total services per yr	
d. Services on clinic day - General medical care - Immunization - Health post, communicator - Child Nutrition Center - School health - Preschool Children			104	3.50	364	
e. Meetings			12	7	84	
f. Collection of records and reports			218	0.5	109	
<b>Total</b>					572	
<b>Grand Total</b>					1,528	

**Minimal Number of Services and Time Used for Total  
Services per Year for One Health Worker**

Type of Services (Individual Services)	Minimal Number of Services for Year	Time used (hour) for each service	Time used (hour) for total services per year
a. Construction			
- Sanitary latrine	40	7	280
- School water supply	1	56	84
b. Environmental health			
- Meetings of village - Committee	-	-	} 190
- Health education on cleanliness of housing and environment	-	-	
- Repair of water pumps, etc.	-	-	
c. Time used in travelling	-	-	218
	Total		772
Group Services	Minimal Number of Services for year	Time used (hour) for each service	Time used (hour) for total services per year
d. Services on clinic day			
- General medical care	} 104	3.50	364
- Immunization			
- Health post			
- Child Nutrition Center			
- School health			
- Preschool children			
e. Meetings	12	7	84
f. Collection of records	218	0.5	109
g. Laws and regulations	-	-	196
	Total		753
<b>Grand Total</b>			<b>1,525</b>

TRAINING PROGRAM:1. Cross Traininga- For Administrators and Supervisors

- Objective: To orient medical and health administrators and supervisors in the concepts of integrated and comprehensive health services and other innovative areas of the DEIDS Project. At the completion of the training course, they will be prepared to work interchangeably between medical care and public health services. In addition they will be able to function more effectively in the new working conditions created by the DEIDS Project.
- Trainers:
- a. Training officers and Supervisory Staff of the DEIDS Project.
  - b. Some may be recruited from various divisions of the Ministry.
  - c. Senior health and medical officials of the province.
- Trainees:
- |                             | <u>Existing<br/>Now</u> | <u>Expected at the<br/>end of 1981</u> |
|-----------------------------|-------------------------|--|
| a. Physicians               | 25                      | 39                                     |
| b. Nurses                   | 39                      | 87                                     |
| c. Sanitarians              | 3                       | 13                                     |
| d. District Health Officers | 11                      | 11                                     |
| e. Dentists                 | <u>2</u>                | <u>5</u>                               |
|                             | 100                     | 155                                    |
- Duration of Training: June 1 - Aug 30 1974  
1 week
- Number of Trainees per Class: 20
- Estimate Number of Classes Required: 8
- Training Sites: 1) Midwifery School  
2) Field Trips
- Equipment:
- 1) Overhead Projector 1
  - 2) Movie Projector 1
  - 3) Slide Projector 1
  - 4) Screen 1
  - 5) Copying Machine 1

TRAINING PROGRAM:1. Cross Trainingb- For Service Personnel

- Objective: To orient and train medical and health personnel at the service or local level in the concepts of integrated and comprehensive health services and other innovative aspects of health delivery system created by the DEIDS Project. At the completion of training they will be able to work effectively and interchangeably between medical care and public health services.
- Trainers:
  - a. Training Staff of the DEIDS Project
  - b. Training and supervisory staff of Lampang provincial medical and health services
- Trainees:
 

	<u>Existing</u> <u>Now</u>	<u>Expected at the</u> <u>End of 1981</u>
a. Junior Health Workers	29	102
b. Practical Nurses	24	164
c. Midwives	138	238
d. Nurse Aides	<u>61</u>	<u>112</u>
	<u>252</u>	<u>616</u>
- Duration of Training: 1 Oct 1974 - 31 July 1978  
4 weeks  
  
2 weeks for classroom teaching  
  
2 weeks for field and practice
- Number of Trainees per Class: 20
- Estimate Number of Classes Required: 31
- Training Sites:
  - 1) Midwifery School
  - 2) Provincial hospital, health center, midwifery centers, villages

TRAINING PROGRAM:2. Medex Program

- Objective: To train the existing categories of health and medical personnel to assume more responsibilities both in the area of medical care and public health services and undertake the physician's routine activities which actually do not require the physician's skills.
- Trainers:
  - a. Training Staff of the DEIDS Project
  - b. Training and supervisory staff of Lampang provincial medical and health services
  - c. Affiliated Universities (Chiangmai, Mahidol and University of Hawaii)
- \* - Trainees: Recruited from
  - a. Junior health workers
  - b. Midwives
  - c. Practical nurses
 TOTAL = 85
- Duration of Training: Jan 1, 1975 through 31 Aug 77
  - 12 months
  - 3 months for classroom teaching
  - 9 months for practical and field training
- Number of Trainees per Class: 20
- Estimate Number of Classes Required: 4
- Training Sites:
  - 1) Midwifery School
  - 2) Lampang provincial hospital, health centers, midwifery centers
  - 3) Chiangmai and Mahidol Universities
- Equipment:
 

1) Video T.V. with Camera	1 set
2) Overhead Projector	1
3) Slide Projector	1
- Remarks: No classroom space at Lampang midwifery school  
No living accommodation for students  
Renovation costs estimated at \$20,000

\* It should be noted that Medex trainees will be recruited from these categories as an effort to provide "upward career mobility".

TRAINING PROGRAM3. Training Program for Volunteera- Health Posts

- Objectives: To train select villagers in carrying out basic health care which includes the treating of minor ailments, taking care of basic problems of mothers and children, referring the patients to health and medical facilities, keeping simple reports and records, and carrying out other health promotive and preventive activities.
- Trainers: a. Training Staff of the DEIDS Project  
b. Training and supervisory staff of Lampang provincial medical and health services
- Trainees: a. Village headmen  
b. Buddhist monks  
c. Tambol doctors

TOTAL Number = 540

- Duration of Training: 1 Oct. 1974 - 31 July 1975  
2 weeks
- Number of Trainees per Class: 30
- Estimate number of classes required: 18
- Training sites: 1) Midwifery School  
2) Health centers  
Midwifery centers

TRAINING PROGRAM3. Training Program for Volunteer (Continued)

## b-Communicators

- Objectives: To train select villagers in communicating information between the consumers and providers of health services. They will be trained to take care of some basic health and medical problems of the villagers, and to refer the patients to health and medical facilities. However, their main responsibility will be to fill the gap between health providers and the villagers by providing health information.
- Trainers: District Medical Officer and his staff under supervision of the Training Staff of the DEIDS Project.
- Trainees: Villagers  
Total number = 5400
- Duration of Training: 1 Oct 1974 - 31 July 1978  
2 days
- Number of Trainees per Class: 60
- Estimate Number of Classes Required: 90
- Training Sites: 1) District Meeting Hall  
2) Health Centers

TRAINING PROGRAM4. Training Program for Traditional (Granny) Midwives

- Objectives: To train the traditional midwives in caring for mothers and infants before, during, and after delivery. Emphasis will be placed on the aseptic precautions and the utilization of modern means in delivering the babies. They will also be responsible for other health promotive and preventive activities. The reports and records of birth and outcome of birth will also be included in the training program.
- Trainers: Training and supervisory staff of Lampang provincial medical and health services under supervision of DEIDS Training Staff.
- Trainees: Untrained traditional midwives  
Total number = 600
- Duration of Training: 1 Oct 1974 - 31 July 1978  
2 weeks
- Number of Trainees per Class: 30
- Estimate Number of Classes Required: 20
- Training Sites: 1) Midwifery School  
2) Health Centers  
Midwifery Centers
- Equipment: Delivery kit for each trainee

5. Training of Trainers:

- Remarks: Three training staff of the DEIDS Project will be abroad for special training in curriculum development and other training techniques. On their return, they will be responsible for training trainees who will be involved in cross-training, MEDEX, volunteer training, and training of additional midwives.

TRAINING PROGRAM6. On the Job Training

Remarks: This will be a continual process of all categories and will be accomplished in relation to the supervisory system. The details will be finalized during Phase III.

7. Intern Training Program\*

- Objectives: The training program will emphasize community medicine and public health aspects of the community. Ecological factors as well as social, political and economic will be emphasized. The primary aim is to steer away from traditional medical training.
- Trainers: a. Training and supervisory staff of medical and health services  
b. Training staff of the DEIDS Project.
- Trainees: New medical graduates
- Duration of Training: 12 months
- Number of Trainees per Class: 5
- Number of Classes: 6
- Training Sites: 6 months Clinical training in Lampang provincial hospital and 6 months in community health facilities such as health centers and sub-centers
- Equipment: Textbooks and other library supply
- Remarks: Pending Medical Council approval, Lampang Hospital and DEIDS training staff.

\* Intern training is a recruitment device.