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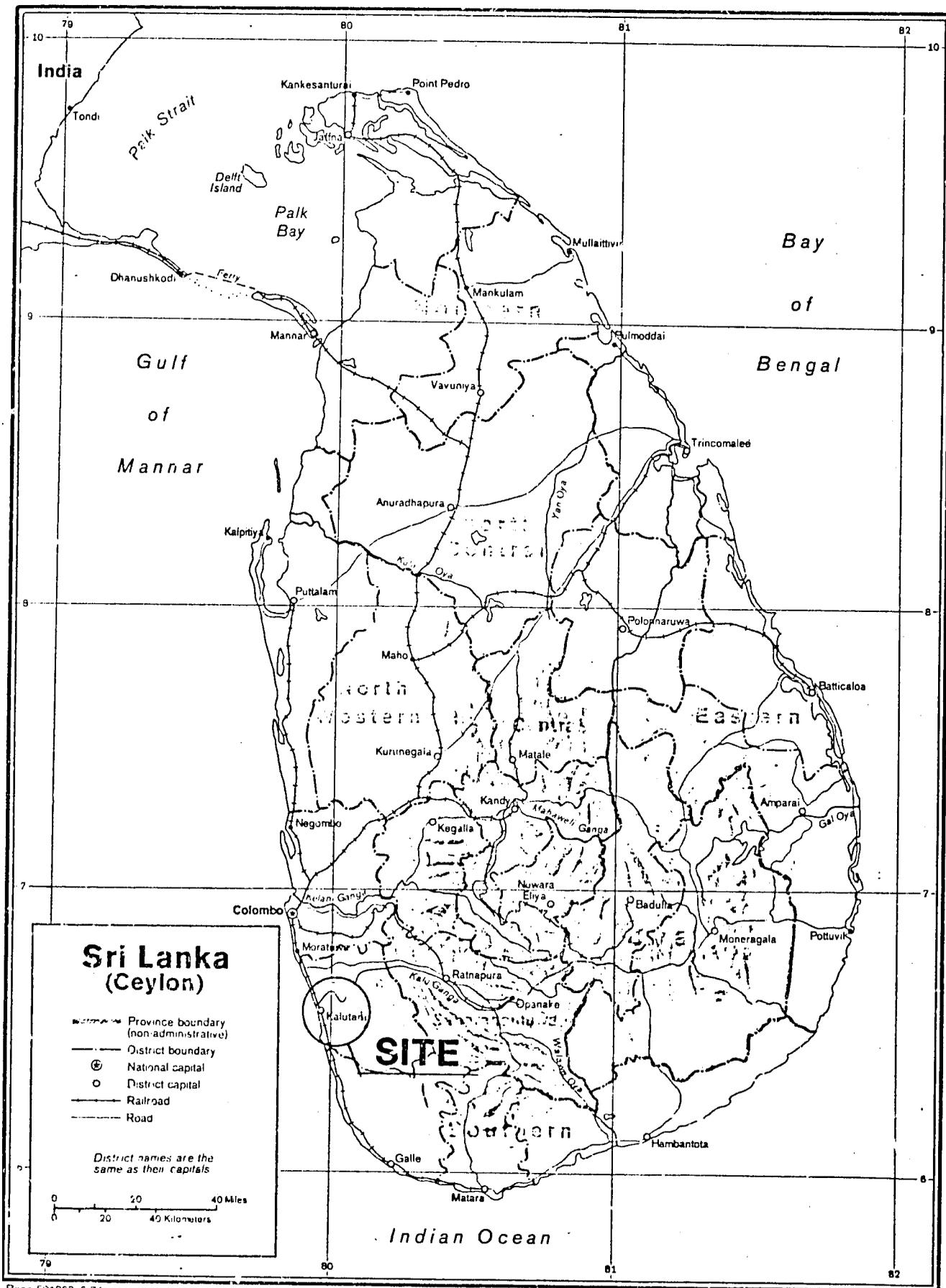
TECHNICAL ANALYSIS
OF THE PLAN TO EXPAND
FACILITIES AND FUNCTIONS OF THE
NATIONAL INSTITUTE OF HEALTH SCIENCES

KALUTARA, SRI LANKA

MARCH, 1980

PAUL A. NUTTING, M.D.
INDIAN HEALTH SERVICE
DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
OFFICE OF RESEARCH & DEVELOPMENT
P.O. BOX 11340
TUCSON, ARIZONA

JOSEPH P. SALVO
JOSEPH P. SALVO & ASSOCIATES INC.
HEALTH PLANNING CONSULTANTS



This report presents the results of technical analysis of the plan to expand the functions and facilities of the Institute of Hygiene at Kalutara. Despite the favorable statistics on health services available to population of Sri Lanka and the statistics describing the health status of the population, the government of Sri Lanka is committed to improving the coordination of health services and particularly committed to emphasizing preventive health care services.⁽¹⁾ A substantial amount of discussion and preparatory effort culminated in a plan developed in August of 1978 by the Ministry of Health in conjunction with consultants from WHO, the University of Hawaii, and USAID.⁽²⁾ This plan outlines a strategy by which the Institute of Hygiene at Kalutara is expanded to the National Institute of Health Sciences (NIHS) charged with four primary functions, (Footnote 1).

First, the NIHS will provide basic and advanced training and continuing education programs for all categories of health care workers within the primary health care team, including the public health inspector (PHI), the public health midwife (PHM), the public health nurse (PHN), and assistant medical practitioner (AMP). Although the AMP and PHM training is also provided by other Institutions in Sri Lanka, the NIHS will remain as the sole training facility for PHN's and PHI's.

Secondly, the NIHS will continue to provide health care services to the 5 MOH areas that constitute its field practice area. Within the practice area are located the Base Hospital at Kalutara, the Peripheral Unit at Beruwala, and the Rural Hospitals at Alutgama and Alutgamveediya. Also, the public health laboratory of the Institute will continue to serve the needs of the field practice area. The practice area, as a part of the NIHS complex will continue to support the training functions as an area within which the public health trainees can gain experience in community-based and team-oriented health care.

Thirdly, the NIHS will conduct basic research which provides insights into the need, training, and utilization of health manpower. Research activities will

encompass the fields of health services and operations research and will focus on five basic issues in health manpower development.

- a) Field studies on alternative patterns of health care delivery, e.g., indigenous treatment systems.
- b) Examination of the impact of models of integrated health care.
- c) Studies examining prevalent patterns of health related behavior within the community.
- d) Examination of alternative training techniques for community-based public health workers.
- e) Basic studies in health education.

Finally, when fully developed, the NIHS will serve as a focal point for health manpower development, planning, and management in the areas of community health, public health, and primary health care.

According to the plan developed by the Ministry of Health in August 1978, the expansion of the NIHS will occur in two phases. Phase I, which will occur in calendar years 1979-80 will include the following:

- a) Designation of the Institute as the National Institute of Health Sciences.
- b) Construction of additional facilities at the NIHS and the Base Hospital at Kalutara.
- c) Acquisition of additional staff for the NIHS.
- d) Development of new curriculae for the PHI, PHN, and PHM, emphasizing a multi-disciplinary team approach to primary health care.
- e) Development of a curriculum for the AMP emphasizing the role of the AMP in the coordination of a multi-disciplinary team.
- f) Development of courses for mid-level managers in the Department of Health Services, e.g., Medical Officers of Health, District Medical Officers, Supervising Public Health Inspectors, Supervising Public Health Nursing, Divisional Registered Medical practitioners, etc.

- g) Construction of four primary health care centers for testing the primary health care model.
- h) Development of an audiovisual training capability.
- i) Development of a research capability.
- j) Conducting research in three operational areas including -
 - 1) testing two variations on the primary health care model,
 - 2) a study on the effect of dietary and vitamin supplements during pregnancy and lactation (in collaboration with the Medical Research Institute and WHO),
 - 3) a study to determine the extent to which the public health personnel achieve contact with the household decision-makers.

Phase II will occur during calendar years 1981-83 and will include the following:

- a) Designation of the Director of the NIHS as the Deputy Director for Health Manpower Development within the Ministry of Health.
- b) Development of a health planning and management unit within the NIHS, which will work in collaboration with the Planning Unit of the Ministry, and will act in an advisory capacity to the Ministry of Health for matters dealing with health manpower development.
- c) Continuation of staff development for the expanded functions of NIHS.
- d) Implement the curriculae developed in Phase I for the PHI, PHN, and PHM which stress a multi-disciplinary approach to primary health care.
- e) Initiate the course in community health management for mid-level managers.
- f) Begin training the AMP at NIHS (Footnote 2).

In order to prepare this analysis a substantial amount of information was gathered through personal interview, the review of documents, review of health

status and health service statistics, and through the review of a variety of planning documents prepared by the Ministry of Health and other external agencies. Despite the consistent attempt to cross check all information used in the analysis, the large volume of data required and the relatively short time frame for the analysis precluded verification of all data available. In order that the information presented in this report can be traced to its sources, the liberal use of references is employed throughout the body of the report. Although this report employs several tables showing numerical data, the majority of the analysis is nonetheless the subjective impression of the authors after careful consideration of the available information. Much of the numerical data represents estimates, data from earlier studies, and compromises between conflicting data sources, and the appearance of precision in some data tables should not be confused with precision in the analytical techniques.

A number of individuals were interviewed during the course of the analysis. Although an incomplete list, the following includes some of the individuals who graciously offered their assistance in our quest for information. A special word of thanks is offered to the Director and staff of the NIHS for their kindness during the many hours that we kept them from more urgent activities.

1. Mr. B.C. Perera, Secretary of Health, Ministry of Health, Colombo, Sri Lanka.
2. Mr. D. Wijesinghe, Senior Addl. Secretary, Ministry of Health, Colombo, Sri Lanka.
3. Dr. G.P.C. Fernando, Director, National Institute of Health Sciences.
4. Dr. N.T. Cooray, Medical Officer, Training, NIHS.
5. Mr. K.D.C. Perera, Senior Tutor in Sanitation, National Institute Health Sciences.
6. Mrs. D.D. Saparamadu, Senior Tutor in PHN, NIHS.
7. Dr. S.W.M. Perera, Medical Officer Health Education, Bureau of Health Education, Ministry Of Health, Colombo.

8. Dr. Kartar Notaney, Chief-of-Mission, World Health Organization, Colombo, Sri Lanka.
9. Dr. Paul Ignatieff, UNICEF, Colombo, Sri Lanka.
10. Dr. Hiranthi Wijemanne, Program Officer, Health & Nutrition, UNICEF, Colombo, Sri Lanka.
11. Prof. Willie Mendez, Consultant, UNICEF.

In general the features of this project are innovative, yet consistent with the current philosophy of the development of systems of primary health care. In this regard, several features of the project are to be applauded. First, the development of a primary health care team, trained and organized to serve the health needs of individuals and families at the community level, has been a priority for some time of the Ministry of Health of Sri Lanka.^(1,4,5) This project intends to promote this approach to primary health care through the training of additional primary care manpower and through operational research exploring innovative configurations of primary health care skills.

Second, the Ministry of Health for some time has recognized the inherent difficulties in recruiting and retaining physician manpower for the rural areas of the country. For some time the Ministry has been training assistant medical practitioners (AMP's) to fill the role of the physician in rural communities. The cost of training an AMP is less than one half of that of training a physician and the course of training is considerably shorter.⁽⁷⁾ Also, it is believed that the AMP's are more likely to remain in rural areas and less likely to emigrate abroad due to an assumed decrease in the demand for them outside the rural areas of Sri Lanka. This project promotes this concept through training of additional AMP's at the NIHS and through the development of role for the AMP in coordinating the efforts of a multi-disciplinary health care team.⁽⁵⁾

Third, the Ministry of Health has long recognized the role of indigenous health practitioners in the health care system of Sri Lanka. The role of the Ayurvedic practitioners in health care at Sri Lanka has gained formal status through a

process of registering Ayurvedic physicians and the development of a 5 year University course in training Ayurvedic physicians. In addition, there are a substantial number of other practitioners of health care including non-registered Ayurvedic practitioners, herbalists, homoeopathic physicians, accupuncturists, and pharmacy owners who dispense medication without a physician's prescription.^(6,7) The Ministry of Health has long recognized the importance of not excluding from consideration this indigenuous system of health care which meets in excess of 30% of the demand for outpatient care in the country.⁽⁷⁾ This project will support this concept through programs of operational research aimed at examining alternative modes of health care delivery through systematic variation of the basic configuration of health care skills.

Finally, an important feature of the project is the development of a National Institute of Health Science which will serve as a focal point for the development of health manpower strategies for Sri Lanka. This it will accomplish by combining within the NIHS the capability for training, health care research, service, and health manpower planning and development. This is an innovative concept and one which, if adequately set into operation, could have a tremendous impact on the health care services of 78% of the population of Sri Lanka, and consequently upon their health status.

The remainder of the report presents a brief description of the health care system and an analysis of twelve issues which appear to be critical to successful operationalization of this potentially very worthwhile project.

SUMMARY DESCRIPTION OF THE HEALTH CARE SYSTEM

The health care system of Sri Lanka consists of two main sectors, government and private, which are largely differentiated by the method in which they are financed. Both sectors of the health care system provide health services which are both western-oriented and Ayurvedic. The private sector also provides a variety of

other services which cannot be classified as either western or Ayurvedic, as for example, the common practice of an apothecary prescribing medication. The government sector can be further subdivided into medical care and public health. Medical care services represent the largest part of the government health sector with the main objective to meet the expressed demand for health services of the beneficiary population of Sri Lanka. Medical care services are provided by a hierarchy of medical institutions which provide both outpatient and inpatient care. The major characteristics of the Institutions are summarized in Table 1. The technical level of health services provided by the different types of Institutions may vary depending on a variety of factors, but in general, care of a higher technical nature is available in the larger Institutions.⁽⁷⁾ There have been attempts to develop a system of referral between the various level of medical care institution since the early 1970's. However, these efforts have been met with only marginal success.

The main function of the public health services is to provide preventive services and to promote health of the population. This is accomplished through the use of several types of health personnel including the public health nurse (PHN), public health midwife (PHM), public health inspector (PHI), assistant medical practitioner (AMP), and the medical officer of health (MOH); whose activities are not confined to specific facilities but range out into the community (Footnote 3).

Organizationally the government sector of the health care system is divided into 19 superintendent of health services (SHS) districts, an SHS for the Colombo Group of Hospitals, and an SHS for each of the five disease-specific special campaigns. Each of the 19 SHS's who direct the program for an SHS district is responsible to the Director of Health Services through 5 Deputy Directors as shown in figure 2 (Footnote 4). The SHS is administratively responsible for each of the health facilities within his SHS district which may include a Provincial Hospital and will include at least one Base Hospital, and several District Hospitals, Peripheral Units, Rural Hospitals, Central Dispensaries and Maternity Homes.

Within each SHS district, there are between 2-8 Health Units each directed by a Medical Officer of Health (MOH) and consisting of the team of public health personnel serving a population of between 40-50,000 individuals. However, in reality most Health Units serve a population of nearly 100-150,000 individuals. The staff of a Health Unit consists of a public health nurse (PHN), and one or more public health inspectors (PHI) and public health midwives (PHM). Where the PHI or PHM complement exceeds eight individuals, there may be a supervising PHI or supervising PHM. The preventive functions of the Health Unit consist of maternal and child health, family planning, immunization, environmental sanitation, control of communicable disease, school health services, and health education.

It has been estimated that the average distance that an individual must travel in order to reach some component of the government health care system is approximately 3.0 miles.⁽⁷⁾ If the number of facilities and practitioners of the private sector is included in the computation the average distance is reduced to 2.2 miles.⁽⁷⁾ In contrast the average distance a patient must travel to reach a practitioner of indigenous health care (Ayurvedic and others) is approximately 0.9 miles.⁽⁷⁾

The Ministry of Health concurrently maintains five specialized campaigns geared at controlling specific diseases. These include:

- a) Anti-malaria Campaign,
- b) Anti-filariasis Campaign,
- c) Anti-tuberculosis Campaign,
- d) Anti-leprosy Campaign,
- e) Anti-venereal disease Campaign.

Each of these is under the direction of an SHS who has the same relative status in the administrative hierarchy as the SHS who directs the SHS district. A superintendent of a specialized campaign is responsible to the Deputy Director, Public Health Services and through his Office to the Directorate of Health

Services. The specialized campaigns have their own cadre of health personnel and provide diagnostic and therapeutic services to individuals with the target disease, control of the mosquito sector (malaria, filariasis), BCG vaccination (tuberculosis), and special treatment centers for tuberculosis, venereal disease and leprosy.

The government sector provides nearly 100% of the public health services in Sri Lanka. On the other hand Simeonov⁽⁷⁾ estimates that the government provides approximately 40% of outpatient services and the Ayurveda private sector provides approximately 32% of the outpatient services in the country.

I. THE NEED FOR A NATIONAL INSTITUTE OF HEALTH SCIENCES

Although our original charge was to prepare a technical analysis of the plan to expand the Institute of Hygiene, we discovered early in the course of our work that such a tunnel-vision analysis of the NIHS would lead us to conclusions and recommendations which would be inappropriate when viewed in the broader context of the Ministry's plan to improve rural health care. Although confounding our present task and possibly increasing the complexity of subsequent involvement of USAID, we feel that it is essential to view the plan to expand NIHS in a broader context.

Currently, health services to the rural population of Sri Lanka are sharply differentiated into curative services and preventive or public health services. The human and material resources of the Ministry devoted to the two functions of health care are rigidly compartmentalized and coordinate at best at the level of the Superintendent of Health Services, although the dichotomy probably extends upward to the Deputy Director level of the Ministry (Deputy Director Medical Services and Deputy Director Public Health).

In 1978, a national workshop was held in which the Ministry of Health identified fourteen discrete deficiencies in the present system of health care in rural Sri Lanka.⁽⁵⁾

- a) Inadequacy of workers,
- b) under-utilization of staff,
- c) improper distribution of staff,
- d) inadequate facilities for staff,
- e) inadequate preparation for staff,
- f) absence of team concept among workers,
- g) inadequate coverage,
- h) breakdowns in supplies,
- i) breakdowns in services,
- j) inadequate transport,
- k) procedural deficiencies,
- l) absence of integrated care,
- m) inadequate funds,
- n) less recognition for public health staff as compared with curative staff.

Consistent with the government policy to "promote the coordination and/or integration (of the health care delivery system) at all levels whether preventive, curative, rehabilitative, diagnostic, therapeutic or research, including the Ayurvedic or indigenous system of medicine"(5) a model for the delivery of integrated primary health care in the rural areas has evolved. Although the many descriptions of this continually evolving model will differ, it is approximately as shown in figure 3. The model divides the rural areas of Sri Lanka into Health Regions, each with a maximum beneficiary population of 200,000 persons and the health services provided within Region will be organized at three levels. A health care team comprised of the public health inspector, public health midwife, Ayurvedic doctor and community health worker will form the first level of the model serving an area consisting of approximately 10,000 persons. The team will provide health services in home, schools, and within existing clinical facilities in the

area currently manned by either western-oriented or Ayurvedic practitioners. The functions of the team will be directed primarily toward communicable disease control, maternal care, child health, family planning, nutrition, accidents, and village and home sanitation.

At level two of the model, existing facilities will be utilized to function as Integrated Health Centers (IHC) and will serve a population of approximately 30,000. In order to meet the needs of the rural population of Sri Lanka approximately 720 such IHC's will be required, each consisting of about five primary teams (Level I) and staffed by an AMP, nurse, and Ayurvedic physician. Each IHC will include important services (including maternity) and outpatient services. The IHC will also serve as a referral facility for patients referred by the village level health care team (Level I). Further the IHC will serve as a distributing point for medications used by the primary health care team as well as headquarters for the health care teams within its range.

At the third level of the model is the Regional Hospital (roughly equating to existing District Hospitals) which will be under the charge of a Regional Medical Officer. The latter will be responsible for the planning, implementation, monitoring, and evaluation of the work in that Health Region.

It is the belief of the Ministry of Health that implementation of this model has the potential to promote the following in support of government's policy on the development of an integrated system of health care for the rural areas of Sri Lanka.⁽⁵⁾

- a) Better care in the periphery (rural areas),
- b) total and integrated care,
- c) integrated development of the community,
- d) integration of western health care, Ayurvedic, and traditional health care,
- e) emphasis on team approach and concept,

- f) adequate machinery for supervision and evaluation,
- g) in-service training and continuing education,
- h) incentives and promotional prospects,
- k) strengthening of hitherto neglected spheres of activity,
- l) emphasis more on preventive-promotional aspects than curative activities.

In order to further develop and implement this model of an integrated health care system, several requirements have been defined, within which the expanded NIHS is expected to figure prominently. First, more responsibility will have to be given to the present primary health care team which include in addition to their current capabilities (Footnote 3):

- a) Taking blood pressure,
- b) inserting IUD's,
- c) provision of first aid,
- d) provision of treatment for malaria,
- e) provisions of treatment for simple ailments,
- f) recognize the need and provide referral for the more complex ailments.

Secondly, the role the community health worker will have to be developed. It has been proposed that the community health worker will be trained within the local working environment with the NIHS developing and implementing a program of training for the trainees of the community health worker.

Thirdly, in order that the model of integrated health care will continue to evolve dynamically in response to the changing health needs of the rural population of Sri Lanka, a focal point for health services research and health manpower development is required.

Fourth, as the AMP will be required in the model to function effectively in both a preventive and curative role, as well as to coordinate the activities of a multi-disciplinary health care team, several modifications of the AMP curriculum

will be needed.⁽⁹⁾ Currently, the AMP's are trained at two of the large University teaching hospitals graduates with a strong orientation to curative, physician-oriented, hospital-based medical care.

A. ASSESSMENTS:

1. The plan to expand the NIHS cannot be assessed properly if dissected out of the context of the Ministry's plan to develop an integrated primary health care system for the rural areas of Sri Lanka. Taken out of context it appears to be only an effort to increase the output of public health manpower. In proper context the NIHS will play a pivotal role in the effort to modify the basic under-pinnings of the health care system in Sri Lanka.
2. The evolving plan to integrate primary health care at the community level is sound and based on current state-of-the-art of health care programming.
3. If USAID plans to increase its support of the health sector of Sri Lanka in the future, this project represents an appropriate time to do so.

B. RECOMMENDATIONS:

1. The plan to expand the NIHS as a component of a larger scheme to improve health care in underserved areas should be solidly supported.

II. STAFF DEVELOPMENT FOR THE NIHS

Table A shows the current institutional strength of the NIHS complex, along with the proposed additional staff to support the expanded functions. Currently there are 95 professional/technical staff within the NIHS and it is proposed that 31 will be added for a 32.6% increase. Of these three administrative grade medical officers would be added as the three Deputy Directors; eight medical officers would be seconded from other parts of the Ministry of Health for AMP training, and an

additional four medical officers, 4 PHI's, 4 PHN's and a midwife would be added to the staff in support of training and health services delivery. The proposed expansion also calls for the addition of several health related disciplines not currently among the staff. These include a health educator, a behavioral scientist, a social worker, a statistician, and an audiovisual specialist.

Currently the NIHS has a total of 31 administrative support staff and it is proposed that 35 more be added, for a 113% increase. Thus, when all additional positions have been filled, the professional to support staff ratio will be approximately 1.9:1.

Although the budget plan of the project proposal does allocate monies to be used in training courses to develop additional capabilities within the staff of the NIHS,⁽²⁾ the plans for staff development do not appear in some cases to be sharply focussed. Specifically, there is no definite plan for the development of staff of the NIHS in research and in management. As is noted later in this report, the research and management issues are viewed as critical to the success of the NIHS in its expanded role. Due to the vital nature of each it is recommended that a more specific strategy for staff development in these areas be formulated.

The development of staff capabilities in research is of particular importance for several reasons. First, the research perspective of the current NIHS staff is excellent. This perspective as reflected in current and previous research studies performed at NIHS indicate a keen awareness of the need to investigate issues that are important in the real world of health services delivery.⁽¹⁰⁾ An inherent danger in sending professional staff abroad for additional training in health services research techniques is the tendency to allow the technical details of research methodology to overshadow a sense of balance in identifying and pursuing relevant research issues. This could unfortunately result in professional staff who perform more sophisticated studies on less important issues.

Second, since health services research is a very large field, it is important to have a prior notion of the research skills that will be required in the NIHS. An individual trained in specific techniques will tend to find studies in which to employ the techniques he has learned and it will be relatively difficult to convince him to become involved in studies which employ other techniques. In other words, researchers tend to do research in those areas for which they are equipped with technical expertise rather than in issues that are of interest to the organization.

Third, some consideration should be given to developing staff capabilities in the often neglected area of transferring research findings into developmental plans. Far too often excellent research studies are completed, only to gather dust on the shelf because the original researcher has either no means or inadequate knowledge of setting into action the insights gained from his research study.

Likewise, there is no strong evidence that a specific plan exists to develop the management expertise required for the successful operation of the NIHS. This is discussed in more detail in issue III.

Beginning in June, July, or August of 1980 (specific date currently unknown to NIHS, see issue III) approximately 60 (specific number also unknown to NIHS) AMP students will arrive at Kalutara to begin their training. Since a substantial amount of effort will be required in the development of the training program for the AMP students, it is important that four (of the 8) medical officers to be seconded to NIHS for AMP training be accomplished immediately. Likewise, the current activities in training and service of the Institute are spreading thin the efforts of the current NIHS staff. It would thus seem to be important that at least three (of the 7) additional medical officers be added to the NIHS staff as soon as possible. The latter are urgently needed to support the Institute's efforts in curriculum development, developing a specific plan for facility

utilization and course scheduling, filling in for current shortages in training and field services, and for filling in vacancies created as existing staff leaves for additional training.

On the date that the Institute of Hygiene became the National Institute of Health Sciences, the Director also assumed the responsibility for all medical care within the four facilities within the practice area. In order to assist in the multitude of administrative details that have suddenly fallen within the Director's responsibility, the NIHS is in urgent need of the Deputy Director for Medical Care, in order that the Director may deal with the many issues involved in developing the expanded functions of the NIHS.

A. ASSESSMENTS:

1. Planned increases in professional staff of NIHS appear to be appropriate.
2. Planned increases in administrative support staff appear to be appropriate.
3. There appears to be no specific strategy for the development of staff in the management of the complex functions of the NIHS (See issue III).
4. Plans for the development of staff capabilities in research are somewhat vague.

B. RECOMMENDATIONS:

1. There should be a clear strategy for the development of staff capabilities in the management of the functions of the expanded NIHS.
2. Development of staff capabilities in research should be planned carefully with the following objectives:
 - a) To preserve the research perspective that currently exists among the staff.
 - b) To develop research skills in design, analytical techniques, and methods of transposing research results into operational or developmental plans.

3. The Deputy Director, Medical Services should be recruited and assigned to the NIHS as soon as possible.
4. Four of the eight medical officers to be seconded to the NIHS for AMP training should be assigned as soon as possible to assist in preparation for the AMP training.
5. Three of the seven medical officers to be added to the NIHS staff should be assigned immediately to assist in the efforts of expansion of the functions of NIHS.

III. MANAGEMENT REQUIREMENT OF THE NIHS

In order for the NIHS to function effectively as a focal point for health manpower development for the country, it must provide an active interface between the Health Care System and the Ministry of Health, as depicted in figure 5. In this capacity the NIHS through its research and field based activities will identify impediments, deficiencies, and problems in the provision of primary health care in the rural areas of Sri Lanka. It will provide to the Ministry of Health recommendations based on its findings, experience, knowledge, and systematic observation of the health manpower needs in the rural areas. In turn NIHS will receive from the Ministry health manpower policies which represent the parameters within which the NIHS must operate its training and continuing education programs. Consequently, NIHS provides to the health care system of Sri Lanka solutions to the problems and impediments in health care in terms of additional health manpower, reconfigurations of existing skills and services and innovative adaptive models for primary health care. Even though the model depicted in figure 5 is a gross over-simplification of the functions of the NIHS, it is apparent that in order to perform effectively in this role the NIHS must effectively coordinate its functions of research, training, service to its field practice area, and health manpower planning. Each of the functions must act in a dynamic way with each of the other

functions deriving its requirements from them and providing each with its own set of requirements. As a simplified example, figure 6 focusses on the research function and demonstrates its relationship with each of the other functions. The research function has as its primary output insights and information which it feeds into each of the other functions. In turn the research function receives the requirements for research in specific issues from the planning and training function. Similarly, diagrams could be constructed which place each of the other three functions as the central feature of this interactive process.

In order to coordinate these diverse functions an unusually effective management structure will be required by the NIHS. The proposed organizational structure (shown in Figure 7) signifies a deputy director for training, medical care, and field services. At the next lower echelon assistant directors will be named for health planning and management, family health and nursing, environmental health, disease prevention, health behavior change, and administration. Notably absent from the organization structure is an individual responsible for coordinating the research functions of NIHS. It has been proposed all members of the NIHS complex will be involved in research activities. Although this approach allows for a great deal of flexibility it also places a tremendous burden on the Director in coordinating the functions of NIHS. Further it provides the substrate for several potential problems.

First, since the NIHS resource requirement for both training and service to the practice area will largely be driven by a demand outside the immediate control of the NIHS, it is to these needs that the Institute will first respond. As the only training facility in the country for PHI and PHN's and as the organization responsible for the primary health care to the communities in the field practice area, the demands placed on these two functions will carve substantially into the resources intended for health manpower planning and research. Consequently, the latter two functions could take place only when the demands for service and training are low.

Second, individuals engaged in research have a generic tendency (unless otherwise coordinated) to engage in research activities in issues that are of a personal or professional interest to them. Quite often their research interests do not coincide with the research needs of the organization. Therefore, the result may be a series of disconnected activities which although of high technical quality do not come together with the research requirements of the health care system.

Third, as NIHS begins to move into full operation its research component and potential will undoubtedly attract the attention of a variety of external agencies willing support research activities that are of particular interest to them. In the absence of a mechanism within NIHS to identify relevant research issues and to prioritize them, there is a strong possibility that the research activities of NIHS will be less in support of NIHS functions and more in support of the external organization offering the most attractive support.

Currently, the decisions for when and how many trainees the NIHS will receive is made at a higher level of the Ministry of Health. This practice renders the NIHS incapable of any rational process of scheduling of staff and facilities. Although the decision of how many students to trained per year may remain at a higher level the ability to schedule courses must rest with the NIHS (Footnote 5).

The field practice area within the NIHS complex serves a dual role including both the provision of public health services to the beneficiary population as well as in training students of the Institute. Consistent with the training philosophy of the NIHS, a great deal of the training in several of the basic courses is conducted in the field. This places an additional requirement on the professional staff selected for the field practice areas that are not required in other areas of Sri Lanka. Currently, the NIHS is able to select the MOH candidates to fill vacancies within the field practice area but do not have the authority to do the same for PHI's, or PHN's or PHM's. In order that the field practice area may perform effectively in both service and training it would seem to be important that

the NIHS be given the authority to select among the candidates for positions in the field practice area on the basis of their skills and interest in training as well as their orientation and attitudes toward multi-disciplinary health care.

Similarly, the orientation, interest, and skills in training of the speciality staff of the Base Hospital at Kalutara will have a substantial impact on the effectiveness of the AMP training undertaken by the NIHS. The AMP students will receive their clinical training at the Base Hospital and in order to maintain the consistent philosophy of community orientation, coordination of a multi-disciplinary team, and the integration of preventive and curative services; the professional staff involved in training AMP students must possess certain qualities not necessarily required at typical Base Hospitals. It is vital that candidates for professional positions at the Kalutara Base Hospital be made aware (prior to their selection) of the additional requirements and expectations of them in the training of AMP students. Since the NIHS is ultimately responsible for both the quality of the health care and the training provided it seems reasonable that the authority to select among candidates for professional positions be delegated to the Director of NIHS.

A. ASSESSMENTS:

1. Management of the NIHS with four diverse functions will be a complex operation requiring a sophisticated management process. The magnitude of the success of the NIHS may be heavily dependent on the effectiveness by which the four functions are managed.
2. In order to effectively manage training program of the NIHS, the NIHS must be able to schedule the training programs.
3. The proposed management structure does not clearly place the responsibility for coordinating the research activities of the NIHS. This leaves the research function at a disadvantage in the competition for resources within the NIHS.

B. RECOMMENDATIONS:

1. The project would be strengthened by the addition of specific technical expertise to aid in the development of a management process for the NIHS.
2. The responsibility for scheduling the training courses should be transferred to the Director, NIHS.
3. The management structure of NIHS should clearly place responsibility for conducting research activities of the NIHS. In view of the complex management requirements for the NIHS as a whole, this responsibility should be delegated downward from the Director (e.g. Deputy Director, Research).
4. The NIHS should be given the authority to select the public health personnel (PHI, PHN, PHM) for the field practice area based on their skill and interest in training as well as their professional competence.
5. The NIHS should be given the authority to select the specialists for the Kalutara Base hospital on the basis of their interest and skill in the clinical training of AMP's, their community health orientation, and their commitment to the importance and value of a multi-disciplinary health care team.

IV. MANPOWER OUTPUT OF THE NIHS

The data of Table 8 shows the number of trainees currently at the NIHS (computed as an average over the last five years), the total numbers trained annually in Sri Lanka, and the same figures projected to 1983. The data suggest that by 1983 the NIHS will be training 39% of all manpower for the primary health care team, and will have increased its training output by approximately 107%.

The data of Table 9 estimates the current deficit in manpower for each of the primary care disciplines, and projects the deficit to 1988 (five years after the NIHS has been in full operation). Although some of the data of Table 9 is outdated it nonetheless serves as a reasonable estimate to the extent to which the NIHS can

close the gap between the health care manpower available and the manpower required. Based on estimates of the current need and current level of staffing, the estimated annual loss of manpower through attrition, the increased need for personnel due to growth of the population, and the manpower trained each year it is projected that the current deficits in manpower will be reduced by 46% (PHI), 90% (PHM), 62% (PHN) and 83% (AMP). That is to say, that if the NIHS expands its training output as proposed, the percent of the health manpower need that is being met currently and in 1988 as shown below:

	% of manpower need that is met	
	1980	1988
PHI	77%	90%
PHM	56%	96%
PHN	49%	84%
AMP	50%	92%

It should be noted that the output of the NIHS will include approximately 60 AMP graduates per year specifically trained to function as a coordinator of the multi-disciplinary primary health care team. This will require a modification of the current curriculum for AMP students which will include training in a multi-disciplinary setting and a substantial amount of field work. The staff of the NIHS has been involved in the preliminary planning of the AMP curriculum and appears to be accepting the challenge with enthusiasm.

The NIHS is currently developing course material for a continuing education module for training middle managers in the management of the health care system. Although no definite projections of the number of trainees envisioned per year are available, it would seem that the development of such a course would result in a substantial qualitative increase in the output of the NIHS in its training function.

In brief reviews of the curriculae of the PHI, PHN, and PHM there appeared to be a relative lack of nutritional topics included, although nutritional problems^(11,12) still rank as important in Sri Lanka. The current curriculae do not specify performance objectives for each module of training,⁽¹³⁾ although the proposed PHI course⁽¹⁴⁾ did include training objectives. The specification of performance objectives for each module of a training program serves several useful functions. First, it helps to focus on the basic objectives of the training in order that appropriate teaching methods can be employed, appropriate written material can be developed, and appropriate audio visual material can be used. Second, performance objectives permit trainers to evaluate the effectiveness of their training in terms of the specific abilities of the students upon completion of the training. Such a technique allows curriculum developers to continually modify training materials in order to evolve the most effective methods and techniques achievable within existing constraints. Finally, performance objectives specify useful bench marks against which to assess the individual students progress during the course of training.

The following represents an example of the development of a training module by appropriately specifying performance objectives and criteria, (Footnote 6). This example shows a 1-1/2 hour training module on "nutrition during pregnancy and lactation".

NUTRITION DURING PREGNANCY AND LACTATION (1.5 HOURS):

To provide knowledge of the physiological changes of pregnancy and concurrent changes in nutritional requirements and the psychosocial factors of pregnancy and lactation which may influence nutritional status.

PERFORMANCE OBJECTIVES:

Given information on nutrition during pregnancy and lactation and one day's intake of a non-pregnant woman, the student will modify the diet to meet the needs of pregnancy and lactation.

LEARNING OPPORTUNITIES:

1. Lecture/Discussion
2. Film: Have a Healthy Baby
3. Practice in modification of the diet of a non-pregnant woman for a pregnant woman and a lactating woman.
4. Handout(s)

STANDARDS OF PERFORMANCE:

80% correct modification of diet to meet the needs of pregnancy and 80% correct modification of diet to the needs of lactation.

A. ASSESSMENTS:

1. From projections based on best data currently available it appears that expanded NIHS will double its output of basic trainee graduates by 1983, and by 1988 will achieve a reduction in the current manpower deficits as follows:
 - PHI: 46% reduction in current deficit
 - PHM: 90% reduction in current deficit
 - PHN: 62% reduction in current deficit
 - AMP: 83% reduction in current deficit
2. Additionally, the NIHS will be graduating 60 AMP's per year specifically trained to function as a coordinator of a multi-disciplinary health care team.
3. Additionally, the NIHS will be training middle managers of the health care system in community health management.
4. Additionally, the NIHS will have developed continuing education courses for the members of the primary health care team.

B. RECOMMENDATIONS:

1. As curriculae are developed and modified, performance objectives and performance criteria should be specified for each module of the training.

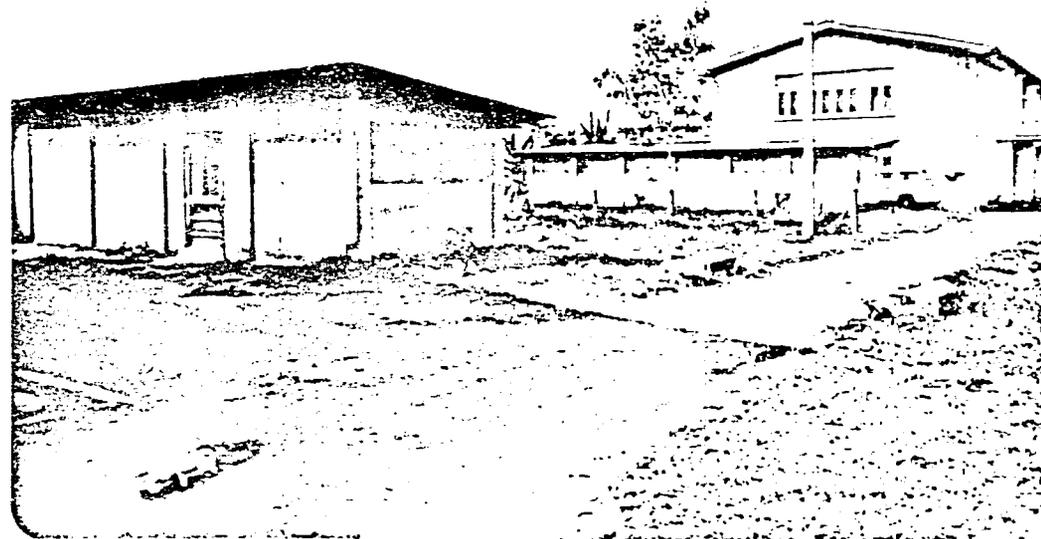
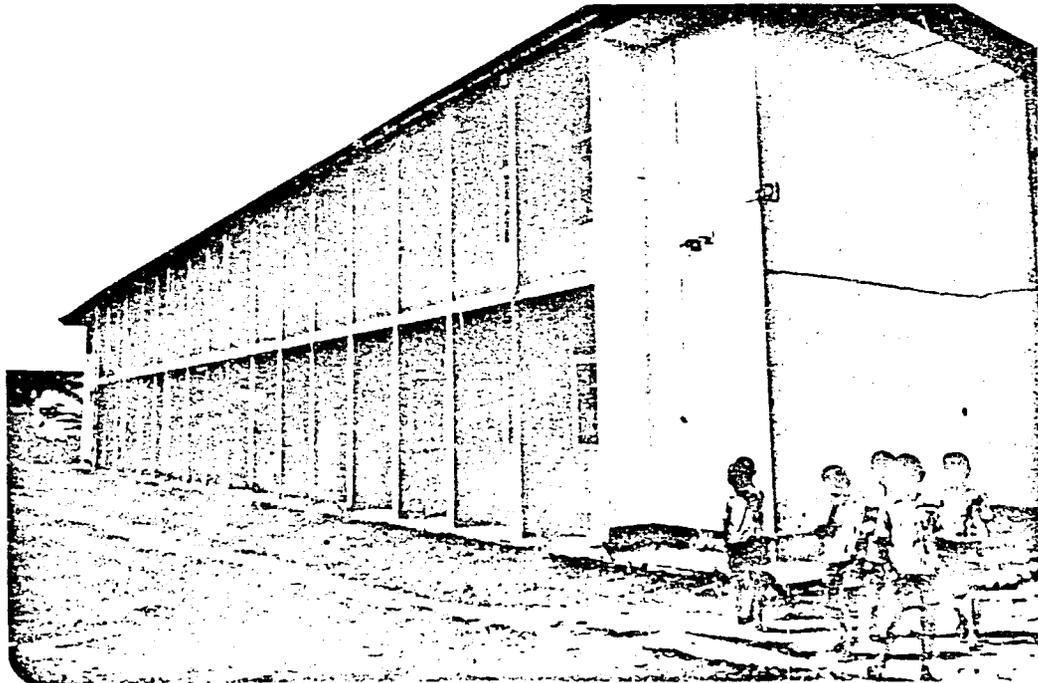
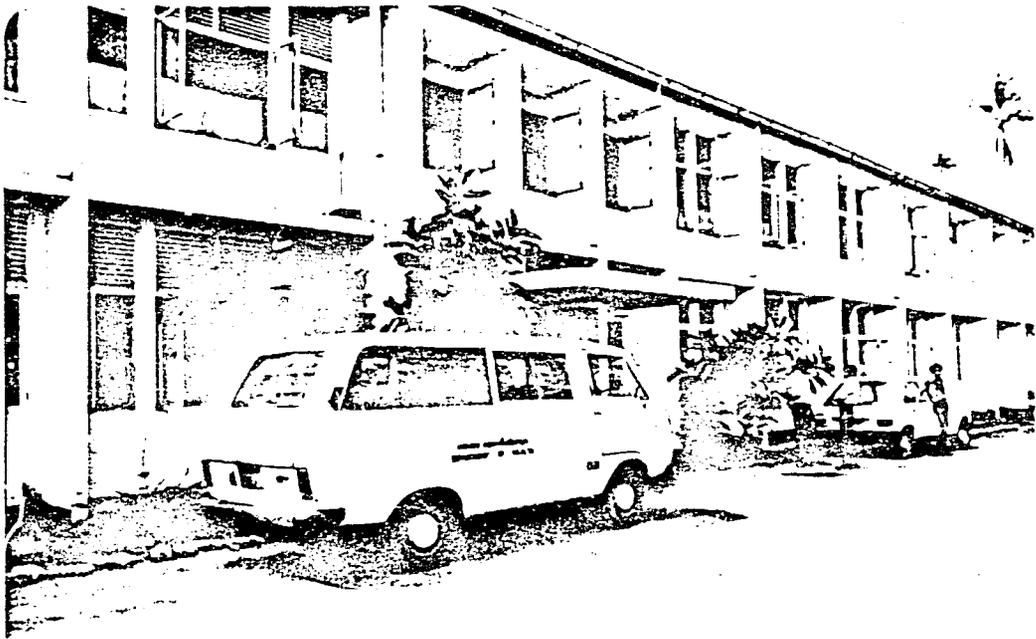
V. SITE AND GENERAL DESIGN PLANNING

Health training facility planning has as its purpose the translation of physical space requirements plus functional concepts into a two-dimensional configuration of physical areas. Health training facilities for the developing world should make a maximum effort to reflect and incorporate the unique systems and protocols of such settings.⁽¹⁵⁾ Unique aspects of a nation such as Sri Lanka must be carefully interpreted for successful integration into the design of the National Institute of Health Sciences.

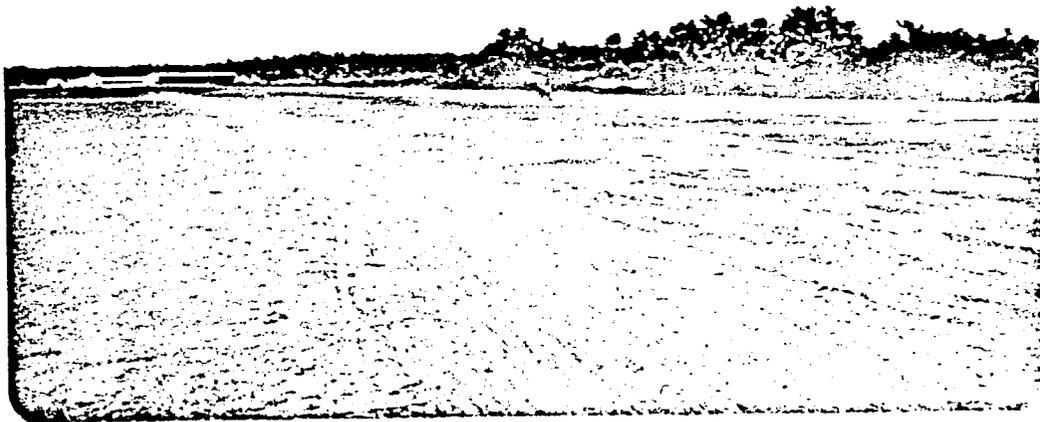
The NIHS is very fortunate to have an ideal site location consisting of 24 acres in a rural setting (see figures on next pages). The area is well above the requirements standards of the U.S.A., such as the California State Department of Education Standards,⁽¹⁶⁾ Bureau of School Planning, (Footnote 7). The site was a former R.A.F. World War II airfield. Most of the hard surfaced runway is still intact, which has caused a drainage problem. However, this problem will be resolved once the runway surface is removed. The rectangular shaped area is bordered by clusters of tall trees and shrubbery growth, making for an ideal noise buffer between the proposed complex and the few homes in the area.

The cluster complex of the buildings are functionally interrelated and connected to the other building clusters by covered link corridors. Design of the cluster buildings is one storey, except for the two storey administration building and the hotel buildings. This type design minimizes maintenance cost and operations and also harmonizes with the rural atmosphere. All buildings are to be sited to take full advantage of maximum light and ventilation.

EXISTING N.I.H.S. BUILDINGS



PROPOSED SITE FOR N.I.H.S. PROJECT



The landscaping design is not a part of the proposal estimates. A common arrangement of streets will encircle and also connect to the cluster building configurations to provide vehicular access service. The purpose of the functional arrangement of the cluster system of buildings is to minimize cross traffic conditions and to reduce any noise level distractions to other classes scheduled in the area.

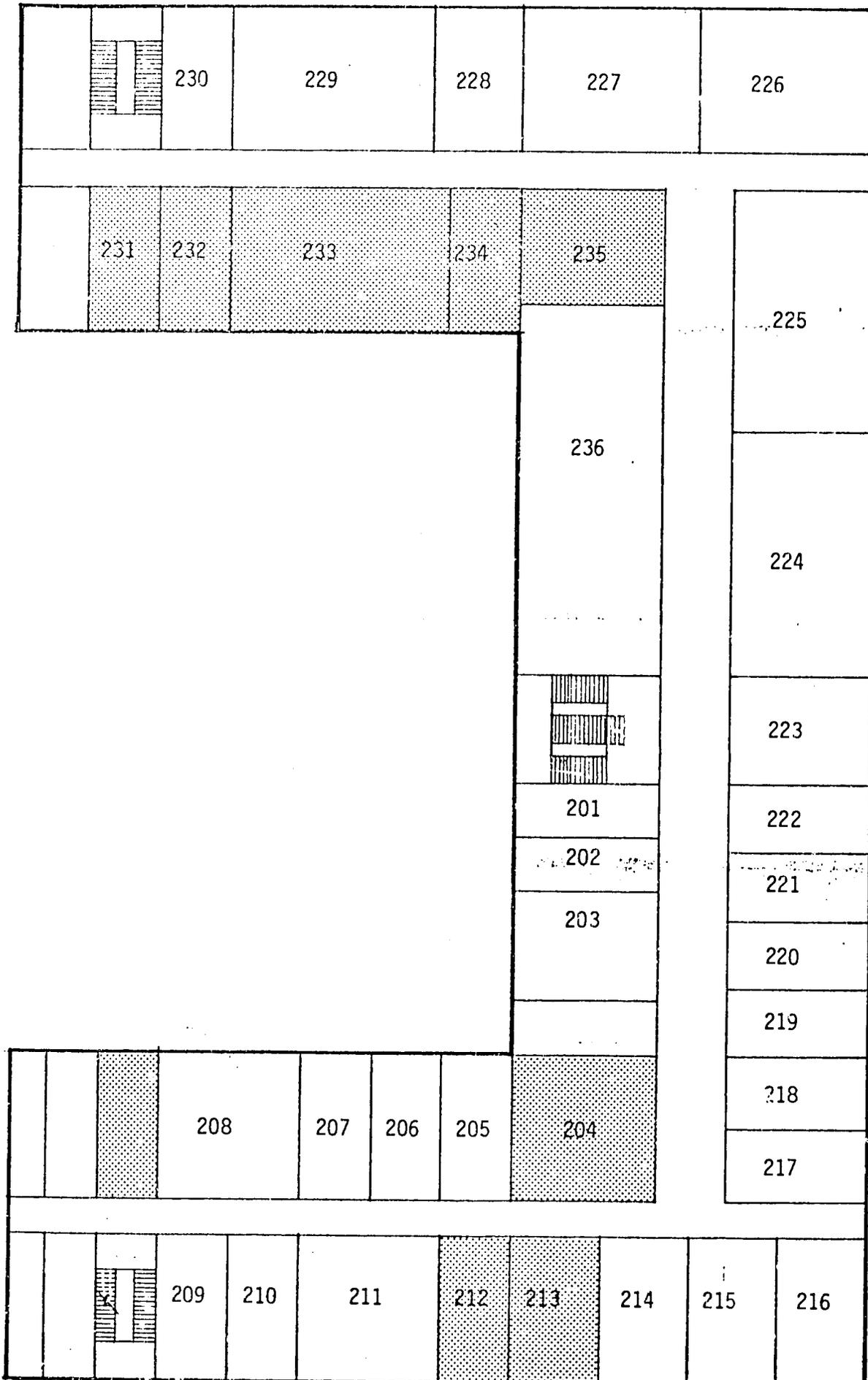
The proposed plan has achieved that arrangement configuration except for one building location. The kitchen and cafeteria appear to be in the proximity of the lecture rooms, and could cause a noise and odour problem since the lecture rooms will have open window ventilation.

The existing NIHS administration and lecture hall poses some problems in future integrated functional arrangements. Although no definite plan exists at the present time to harmonize programs with the proposed complex, it appears that the administrative and stores areas will be fragmented in both areas. Concerted planning should be directed toward consolidated storage areas and to restrict any future efforts to convert finished room areas into "temporary store rooms".

A. ASSESSMENTS:

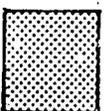
1. The 24 acre site is more than adequate space for the proposed complex and future expansion plans.
2. The design of the buildings will utilize full advantage of maximum light and ventilation.
3. The landscaping design was not included in the proposal funding.
4. The functional arrangement of various buildings were alligned according to usage criteria.
5. Currently no plan exists to integrate use of the existing facility with the proposed NIHS complex (see floor plan of existing buildings on next pages).

EXISTING N.I.H.S. FACILITY

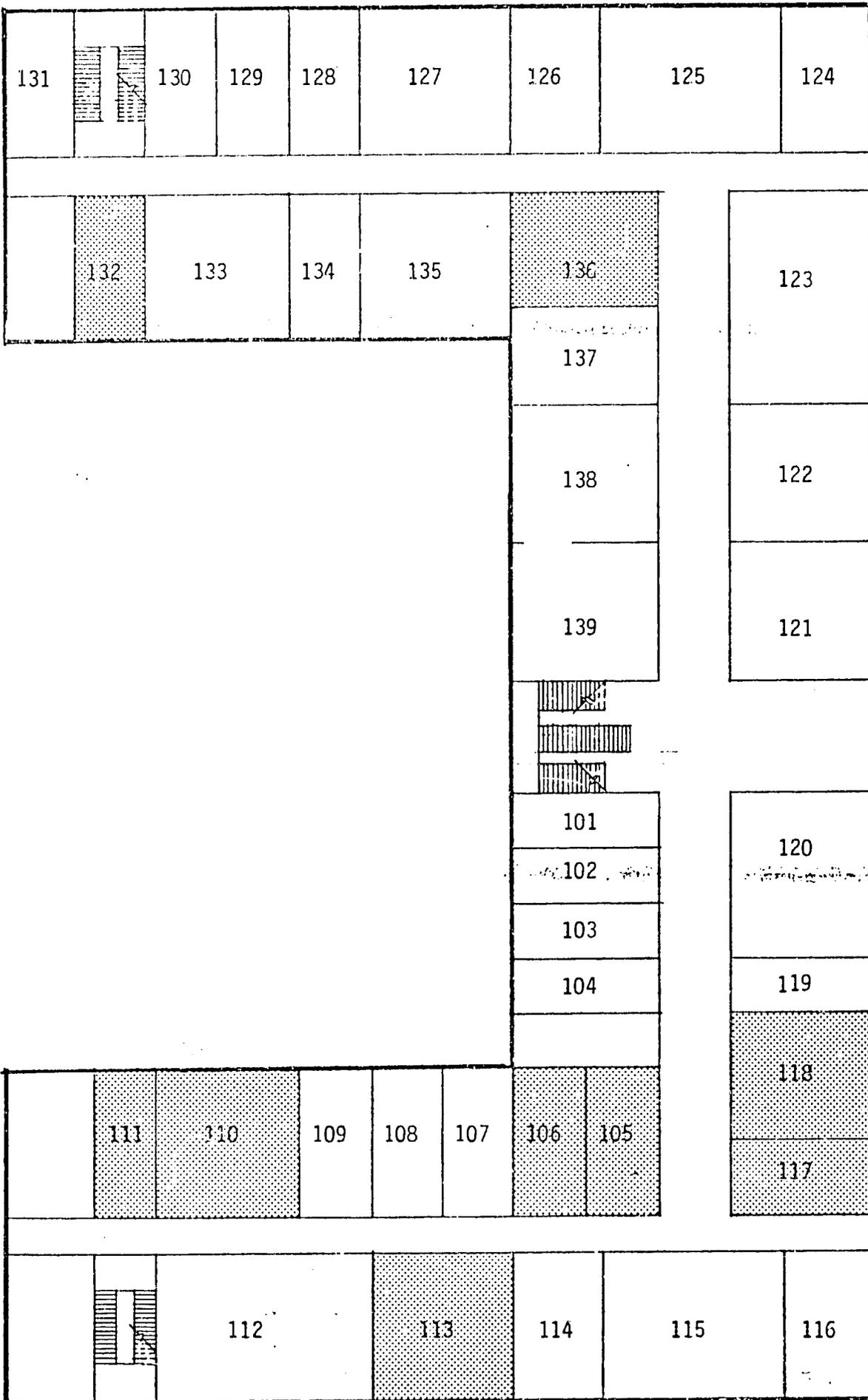


FIRST FLOOR

EXISTING STORE AREAS

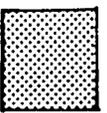


EXISTING N.I.H.S. FACILITY



GROUND FLOOR

EXISTING STORE AREAS



ROOM SCHEDULE OF EXISTING N.I.H.S. FACILITY

GROUND FLOOR

101	Clerk	121	Anti-filariasis Campaign
102	Accountant	122	Anti-filariasis Campaign
103	Medical Office of Health	123	Pathology
104	Pay Clerks	124	Bacteriology
105	Store Anti-filariasis Campaign	125	Laboratory
106	Store Anti-filariasis Campaign	126	Laboratory
107	Staff Restrooms	127	Laboratory
108	Public Health Inspector	128	Laboratory
109	Clinic	129	Laboratory
110	Store (General)	130	Laboratory
111	Store (General)	131	Staff Restrooms
112	Clinic	132	Store (Laboratory)
113	Store (Drugs)	133	Laboratory
114	Clinic	134	Laboratory
115	Dental Clinic	135	Laboratory
116	Public Health Nurse	136	Store
117	Store (General)	137	Lounge
118	Store (General)	138	Anti-filariasis Campaign
119	Latrine	139	Anti-filariasis Campaign
120	M.O.H.'s Office		

FIRST FLOOR

201	Sr. Tutor (Sanitation)	219	M.O.H. Office
202	Sr. Tutor (Nursing)	220	M.O.H. Office
203	Library	221	M.O.H. Office
204	Store (General)	222	M.O.H. Office
205	S.P.H.	223	Director N.I.H.S.
206	Typists	224	Lecture
207	Sr. Tutor Public Health	225	Lecture
208	Lecture	226	Restrooms
209	Restrooms	227	Lecture
210	Sup'v. Public Health Resider	228	Anti-filariasis Campaign
211	Health Unit	229	Canteen
212	Store (General)	230	Canteen
213	Store (General)	231	Store (General)
214	Binder's Room	232	Store (Audio/Visual)
215	Tutor's Office (Sanitation)	233	Store & Receiving
216	Tutor's Office (Sanitation)	234	Store (Family Planning)
217	Tutor's Office (Nursing)	235	Store (General)
218	Tutor's Office (Nursing)	236	Auditorium

B. RECOMMENDATIONS:

1. The landscaping design should be included in the proposal at this time not only for the aesthetic qualities, but, also from a cost and energy savings standpoint. A donor should be designated prior to design drawings contract.
2. The NIHS indicated they would submit a plan that contained details of integrating the existing facilities and the proposed complex. This is absolutely necessary!

VI. SPACE ANALYSIS REQUIREMENTS

In translating the educational requirements into space needs, and attempting to achieve maximum flexibility in facility usage, the major challenge is to develop an overall facility that will provide for a good teaching and learning environment to meet both immediate and long range health training needs.

A well planned scheduling program will insure maximum usage of the lecture and laboratory areas.

Table 10 indicates the number of square footage and rooms.

The demonstration room and the demonstration center have dual functions and should be studied further before a final decision is made to build two demonstration buildings.

The auditorium proposed design would accommodate 500 students. The building contains an entrance lobby, toilets at each side of the entrance. The fixed seating is sloped to the elevated stage. Storerooms are located on each side of the stage. A rear lobby is located behind the stage with an exterior entrance. The entire building would be centrally air conditioned. According to NIHS officials, the auditorium would be used an average of once a month by a maximum of 200 students. In order to maintain maximum use and flexibility, an alternate design for the auditorium should be considered. A design to be considered would be to divide the structure into four movable partitioned areas of 75 students capacity

in each area. The arrangement would produce four more lecture areas, plus the capability of one 300 student capacity auditorium/lecture center when required, (see Figure 11).

The current supply system of the NIHS has produced a problem of planned stores area in the proposed plan. The plan has two storerooms indicated on the ground floor of the administration building. The area should be studied for removal of the storerooms and used as administrative areas.

The supply system increases the difficulty of maintaining supply control discipline. Supplies are delivered for different categories once a year. For example, all garments for the various health workers in the region arrive in one load, or all the pharmaceuticals arrive for the annual regional requirements.

As a result of the supply system, crucial space is used for storage that ordinarily would be used for lecture, administrative or hostel areas.

The pharmaceuticals are now being stored in the entire ground floor of one of the hostel buildings, thus forcing the students to live in very restricted conditions on the upper floor. Approximately one fourth of the existing NIHS administration building is also used for various departmental supply storage. Consideration should be given to design a warehouse type structure to centralize all stores and would also initiate improved stores management control. Since the designed buildings will have a higher level of sophisticated equipment installed, a small section of the warehouse should include a workshop for in-house repairs.

In summation, the areas that should be restricted in the proposed design scheme are: (1) reducing the demonstration areas from two to one center, (2) redesigning the auditorium to a flexible four area lecture hall that could be converted to a 300 student auditorium/lecture center, (3) consolidating all stores into one designed warehouse/workshop building, and (4) relocating the first aid room from the second floor adjacent to the library to the ground floor, with a separate entrance.

A. ASSESSMENTS:

1. The overall proposal was functionally planned for almost every building in the complex.
2. The two demonstration areas indicated a duplication of tasks for two rather larger buildings.
3. The 500 person auditorium would be used on an average of once a month.
4. Based on the supply system at the NIHS, the Institute has been forced to implement a fragmented storage area system that uses lecture rooms and hostel space in the existing facilities.

B. RECOMMENDATIONS:

1. The demonstration areas should be consolidated into one demonstration center. The other demonstration room could be considered as the future dissecting laboratory.
2. The 500 person auditorium can be designed as a multiple lecture room area of four 75 person sections that could be converted into a 300 person auditorium by a sliding partition design.
3. In the event the multiple use auditorium/lecture center design is approved, two of the lecture room buildings could be consolidated into a much needed warehouse/workshop area.

VII. MAINTENANCE AND OPERATION OF NIHS COMPLEX

The building maintenance of the proposed NIHS complex will be performed on an on-call basis with the Department of Building, Ministry of Housing Construction. The same procedure would be in effect for any electrical malfunction, however, the request would go to the Electrical Board, Ministry of Power, Irrigation and Highways. Both Departments have resources offices in Kalutara, (as shown in figure 12).

All requests for maintenance would be evaluated on a priority basis with other requests from different Government installations.

As result of this system, experience in other developing countries has shown that any preventive maintenance program is usually relegated to a very low priority in the work load evaluation.

Every effort should be made by the donors in cooperation with the Ministry of Health to initiate a plan whereby the NIHS would have an in-house maintenance department to minimize the annual maintenance costs of the complex.

The maintenance personnel should include the following technicians and apprentices:

One Electrician - Two Electrician Apprentices

One Plumber - Two Plumber Apprentices

Five General Maintenance

Five Laborers

Two Gardeners

The GSL should be advised to plan projected annual electrical rate consumption funding for the NIHS complex due to the designed air conditioning units, street lighting, additional ceiling fans and light fixtures, audio visual equipment, laboratory equipment, kitchen equipment and increased senior officers quarters and trainee hostels.

During a meeting with the NIHS accountant, it was learned that projected annual electrical rate consumption funding was being calculated at double the present annual electrical cost. A more realistic rate approach would be approximately 12 to 15 times the present annual electrical cost.

A. ASSESSMENTS:

1. At the present time, the building maintenance of the NIHS is performed on an on-call basis to the Department of Building, Ministry of Housing and Construction. The same procedure is used with the Electrical Board, Ministry of Power, Irrigation and Highways in the event of any electrical outage of fixtures or equipment.
2. The NIHS does not have the authority to maintain an in-house maintenance crew to perform routine preventive maintenance and repair procedures.

B. RECOMMENDATIONS:

1. The Ministry of Health should plan and fund an in-house maintenance department to maintain the proposed NIHS complex at a consistent operational level.

VIII. PROJECT COST

In reviewing the costs of the NIHS complex and USAID's input of \$500,000, the overriding issue is the rate of inflation cost at the time the project is scheduled for award of contract.

According to Colombo private contractors, the escalating rate of inflation will be approximately 48% from September 1979 to July 1980 and may rise as high as 100% by December 15, 1980. (See attached time schedule.)

In view of this inflationary factor, a priority listing of buildings in a first phase construction contract should be considered that would functionally be compatible with the existing buildings.

Listed herewith are alternatives where construction costs could be revised, deleted or delayed to a later phase. Costs are base on rates as of September 1979.

(1) Delete four lecture halls if the auditorium/lecture center is approved:

Savings: \$38,700.00

(2) Delete one demonstration room and schedule all demonstration classes in the demonstration center.

Savings: \$13,500.00

(3) Delete covered link corridors.

Savings: \$57,670.00

(4) Delay the library/administration building. Upgrade the present library in the existing building by expanding into the adjacent room. Install window air conditioners.

Savings: \$74,000.00

A discussion should also be held with other donors on the possibility of reducing the number of grade 4 and grade 5 quarters. These two items total \$251,670.00

Estimated Project Costs (U.S. \$000)

Donor	1979	1980	1980	1982	1983	Total
Aid	-	-	60	400	40	500
GSL	484	519	673	731	836	3,243
UNICEF	137	217	257	50	109	707
WHO	53	48	11	5	5	122
OTHER	-	100	150	250	120	602
Total	674	884	1151	1436	1110	5,255

The shortfall currently in the construction budget is approximately as follows:
(Based on September 1979 costs)

Design (A & E) costs:	\$135,000
External/Internal (Utilities)	300,000
Landscaping	15,000
Furnishings-Library	5,000
-Auditorium	<u>15,000</u>
<u>Construction Shortfall:</u>	\$470,000

Unicef estimates an inflation rate of 50% by December 1980, while private Colombo contractors vary between 90% and 100% inflation rate by the same period.

Comparative costs of the proposal estimated cost(17) and those Tudawe Brothers Limited, presently constructing the American Embassy building are as follows:

	UNICEF SEPTEMBER 1979	TUDAWE BROTHERS LTD. DECEMBER 1980
Auditorium	(Rs.) 2,000,000	(Rs.) 3,500,000
Library/Documentation	500,000	875,000
Administration	600,000	1,050,000
Staff Rest Rooms	100,000	175,000
Six Lecture Halls	870,000	1,522,000
Two Seminar Rooms	400,000	700,000
Audio Visual Lab	200,000	400,000
Six Lab Rooms	985,000	1,970,000
Demonstration Room	200,000	350,000
Demonstration Center	400,000	700,000
Cafeteria	300,000	525,000
First Aid/Stores/JTR	400,000	700,000
Trainee Rest Room	200,000	300,000
Garage/Guard Room	250,000	437,000
Covered Link Corridor	865,000	1,000,000
Seven Grade 5 Qtrs	2,585,000	4,653,000
Four Grade 4 Qtrs	1,190,000	2,160,000
Two Hostels	3,000,000	5,250,000
Total	15,045,000	26,318,000
Water Supply	600,000	1,000,000
Sewage Disposal	300,000	750,000
Road Works	1,000,000	3,000,000
Boundary Walls	200,000	400,000
Lt Technical Supply/Road		
Lighting	350,000	700,000
Standby-Generator	250,000	400,000
Internal Telephones	200,000	200,000
Air Conditioning	1,000,000	1,500,000
Fire Extinguishers	50,000	100,000
Total	3,950,000	8,050,000
	(Rs) 18,995,000	(Rs) 34,368,000

TIME SPAN COVERS PERIOD FROM PROGRAMMING THROUGH THE DEVELOPMENT OF CONTRACT DOCUMENTS AND THE AWARD OF THE CONSTRUCTION CONTRACT

	1979 SEPT	OCT	NOV	DEC	1980 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	1980 NOV		
DETERMINATION OF PLANNING NEEDS	██████████																
PREPARATION OF SCHEMATIC DRAWINGS								██████████									
APPROVAL OF SCHEMATIC DRAWINGS										██████████							
PREPARATION OF WORKING DRAWINGS										██████████							
PREPARATION OF TENDER DOCUMENTS												██████████					
INVITATION TO BID													██████████				
SELECTION OF SUCCESSFUL BIDDER														██████████			
AWARD OF CONTRACT & HANDOVER OF SITE															██████████		
SUPERVISION OF WORKS (A&E FIRM)															██████████		
CERTIFICATION OF PAYMENTS															██████████		
ISSUANCE OF CERTIFICATE OF COMPLETION															██████████		
																COMPLETION TIME 18 TO 24 MONTHS	

MILESTONE SUMMARY SCHEDULE

A. ASSESSMENTS:

1. USAID has planned to assume a role in funding approximately \$500,000 for the NIHS construction budget. The budget is based on an estimate made in September 1979.
2. Budget projections for July-August 1980 indicate a 48% increase, and, by December 1980 a 100% increase over the proposal estimates of September 1979.
3. UNICEF has indicated that AID will fund the design drawings for the project. The approximate cost will be \$135,000, based on the September 1979 construction estimate.
4. UNICEF has also indicated AID will fund the furnishings for the auditorium and library. The total is approximately \$20,000.
5. UNICEF is also requesting a donor for external and internal services (Utilities): \$300,000 and a landscaping cost of \$15,000.

B. RECOMMENDATIONS:

1. A meeting should be held consisting of all project donors to determine the sources of all project costs.

IX. PROJECTED UTILIZATION OF THE PROPOSED FACILITIES

Based on the best estimates available, an attempt was made to quantify the projected utilization rates of the proposed facilities. Table 13 presents the data estimating the capacity of the proposed facilities for lectures/seminars and for laboratory training. The capacities are expressed in units of student-weeks and are based on extremely conservative estimates of the number of students which would be comfortably accommodated per building. The capacities were thus computed by multiplying the number of buildings times the number of students per building times 52 weeks. From table 13 it can be seen that the total capacity of the proposed facility for lecture/seminar is 38,480 student-weeks if the 500 seat auditorium is

considered as a lecture facility, providing nine separate sites for lecture/seminar activities. If the auditorium design is modified to accommodate 300 students as an auditorium and 75 students in each of four lecture areas, the total lecture/seminar capacity of the facility is 28,080 student-weeks providing twelve separate sites for lecture/seminar activities.

Table 14 presents the data deriving from estimates of the amount of space required in terms of lecture/seminar and laboratory for each of the major training programs of the expanded NIHS. From these estimates the percent utilization of the space in the proposed facilities can be computed, and the following estimates represent the projected utilization as if no teaching activities are to be carried out in the existing facilities. The extent to which the current facility will house some teaching activities will serve to lower the projected utilization rates presented below.

The projected requirements for training space is 11,281 student-weeks total or 25% of the total 44,720 student-weeks available. The utilization of laboratory space is projected to be 64% (3964 student-weeks out of 6240 available). On the other hand it is estimated that 7317 student-weeks of lecture/seminar space will be required out of 38,480 (19%), computed to include the 500 seat auditorium. If the auditorium is redesigned to accommodate for lecture areas for 75 students each, then the utilization is 26%, (7317 out of 28,080 student-weeks available).

Although the estimates of table 13 and 14 may not be exact, it nonetheless appears that the proposed facility has a relative abundance of lecture/seminar space and a relative deficiency of laboratory space. Because of the equipment required, laboratory space is generally more difficult to schedule and attempting to achieve 64% utilization may require inordinately efficient scheduling. On the other hand lecture/seminar activities are easier to schedule into a multiple use area and thus 19% utilization of lecture/seminar space might be viewed as somewhat inefficient. If the 300 seat auditorium/lecture center design is adopted, then two

or the proposed lecture halls could be used for another purpose with the utilization rate still only at 29%. An equally compelling argument for modifying the auditorium design for use as multiple lecture rooms is the fact that an additional three sites for lecture/seminar activities are gained (an increase from 9 to 12).

A. ASSESSMENTS:

1. Using estimates of percent of man-weeks of training requiring laboratory facilities, the projected laboratory utilization rate is 64%. This is high enough that rather efficient scheduling will be required.
2. In contrast the projected utilization of lecture/seminar facilities is:
 - a) 19% with 500 seat auditorium,
 - b) 26% with modified auditorium/lecture center design,
 - c) 29% with modified auditorium/lecture center and two proposed lecture halls deleted from the plan.
3. Based on gross projections, it appears that the proposed facility may have a relative abundance of lecture/seminar facilities and a relative deficiency in laboratory facilities.

B. RECOMMENDATIONS:

1. Proposed design of modified auditorium/lecture center (See issue VI), promotes flexibility and increases utilization of lecture/seminar space.
2. A specific plan and utilization analysis of both existing and proposed facilities (based on more precise data than that presented in this report) should be prepared.
3. Consideration should be given to using the relative abundance of lecture/seminar space for other more urgently needed facilities.

X. SOCIAL IMPACT

The proposed expansion of the facilities and functions of the NIHS per se does not have a substantial social implication. It is only as the NIHS is viewed in the broader context of the scheme of rural health care development that the rather important social implications are brought into focus. A key member of the proposed community-based primary health team will be the community health worker (CHW). She will be from the immediate community and trained locally within the community. The CHW will organize and direct the work of volunteers from the community, who have also received basic training in health issues which are important within the local community. It is proposed that the CHW will function as a member of the primary health care team and work to mobilize community support for health services and provide health education to the community. It is through the community health worker that the primary health care team will receive a great deal of the important information relating to the health needs of the community. In this regard the CHW may conduct surveys and investigations relating to simple health problems of the community. As a member of the primary health care team, the community health worker may assist in conducting MCH clinics, maintaining records and statistics, and will be trained to recognize several health conditions and to refer them to the appropriate member of the primary health care team. If this concept can be put into operation, the community will be in a position to participate significantly in formulating their health care program.

The beneficiaries of the project will be among the 78% of the population who reside in the rural areas, and particularly those without access to basic curative and preventive health care services. Since the proposed model for primary health care delivery integrates the curative and preventive functions, implementation of the project, in theory, will reduce the need for patients to contact several parts of the health care system in order to receive both curative and preventive services. For example, a child may receive both preventive (immunization,

nutrition education, etc.) and curative (diagnostic and therapeutic) services within a single contact with the health care system. Thus, in theory the effort required on the part of the beneficiaries to receive health services should be reduced and coordination of care attendant upon integration of the curative and preventive functions should substantially improve the quality of health care available to the rural population continued.

Women have long played an important role in the maintenance of family health in Sri Lanka, and this role is maintained in the development of the primary health care model. With the proposed project, women will be the major beneficiaries of the project outputs both in terms of training provided and services received at the community level. Typically, the public health personnel have been a mixture of males and females. The PHI's are predominantly male, the PHN's and PHM's are predominantly female, and the AMP's have been approximately 70% male and 30% female. On a straight numerical basis, the output of the expanded training function of the Institute would be approximately 47% female and 53% male as computed below:

	<u>Total</u>			
	<u>Trainees</u>	<u>Males</u>	<u>Females</u>	<u>% Females</u>
PHI	80	80	0	0%
PHN	40	0	40	100%
PHM	50	0	50	100%
AMP	60	42	18	30%
Total	230	122	108	47%

In addition, it is planned that the community health worker who will form the primary interface between the primary health care team and the community will be predominantly female. It also should be noted that women currently enjoy a slight majority among current medical students in Sri Lanka.

With regard to the increased services provided to previously underserved population, women also will remain as major beneficiaries. Maternal care and family planning services have long been priorities of the Ministry of Health, and further it is proposed that of the expanded activities of the PHM and PHN, the insertion of IUD's is prominently mentioned.

The project can also have substantial social implications through its proposed research function. Since it is predominantly through this research activity that the Ministry of Health will gain its information for assessments of the health care needs of the population and subsequent development of innovative configurations of health services to meet health needs and expectations of the communities served. For example NIHS is currently undertaking a study to determine who within the rural household is the decision-maker and for which health and health-related issues. When completed this study will yield information which can be fed back into the health manpower development process in order to develop the primary health care team in a manner which will enhance its desired effects on the modification of health related behaviors.

A. ASSESSMENT:

1. There are several positive social implications of the proposed project, and no significant negative implications were identified.
2. Major beneficiaries of the project are individuals in need of prevention and/or curative health services in previously underserved communities.
3. Women figure prominently as beneficiaries both of expanded training and expanded services.

XI. COST-BENEFIT OF THE PROPOSED PLAN

Definitive cost-benefit analysis are difficult to conduct in health issues even under the best of circumstances and would be totally inadequate under the time

constraints of this report. However, it may be useful to approach several of the issues by way of holding one dimension (either cost or benefit) constant and estimating the other dimension for alternative strategies of design or implementation.

An alternative to developing the capability for training AMP's of the NIHS would be to increase the capacity for training AMP of the two Institutions that are currently geared up to provide AMP training, i.e. the University of Colombo and the University of Peradeniya. However, the training programs at the Universities are under the administrative control of the Ministry of Education. The latter is apparently unable to increase the capacity for AMP training without reducing the output of physicians and other health personnel. The Ministry of Health wishes not only to increase the output of AMP's but more importantly to produce a different kind of AMP than is currently graduated from the University teaching hospital. The Ministry strives to develop an AMP who will fill an important role in the proposed model of primary care. More specifically, the new type of AMP is to be oriented to a more balanced view of curative and preventive services, is to be oriented to a community-based view of health care, and is to be an effective coordinator of the primary health care team. The Ministry of Health feels that in order to develop this role for the AMP, the training must be under the control of the Ministry of Health and within the functional organization of the NIHS, which is in the best position to develop, study, and implement a curriculum to produce the new AMP.

The research capability of the NIHS potentially can have a tremendous effect on the cost benefit ratio of the project. If research issues are appropriately identified and prioritized, and if the knowledge deriving from studies is effectively fed into future policy, planning, and development activities of the Ministry of Health, a relatively modest investment in health service research can pay tremendous dividends in terms of the health of the beneficiary population. Many of the most important issues to be studied by the research component of the

Institute may be relatively inexpensive to conduct and may even be incorporated into the training programs and utilize NIHS students in the conduct of the study. This has been done at the NIHS where, for example, an excellent study of the state of the communities knowledge of helminth infestation⁽¹⁰⁾ was undertaken by a class of public health inspectors as a part of their training. If the results of this study are subsequently used to restructure more effective health education approaches and material, then a relatively large benefit could result from a modest research cost.

The extent to which the NIHS in its expanded role can generate a favorable cost-benefit relationship through its research activities is largely dependent upon the extent to which the management of the NIHS is able to coordinate and effectively manage the diverse functions of the NIHS. If research issues are not appropriately identified and prioritized, the result may be a series of studies which reflect more the interest of the principal investigator than they reflect the need for knowledge in health programming for Sri Lanka. Similarly, if a definite process does not exist by which the results of research studies are effectively incorporated into training programs and Ministry policy and plans for development of health care, then the best conceived and executed research studies will accomplish little in the way of improved health for the beneficiary population. Therefore the need for effective management of the NIHS is again emphasized.

The cost benefit ratio involved in utilizing AMP's in rural areas would appear to be favorable. The cost of training the AMP is estimated to be approximately 40% that of training the physician and the training time is considerably shorter.⁽⁷⁾ Since the AMP has filled a role in rural areas for many years, it is apparent that they have the acceptance of the beneficiary population, as a legitimate and competent source of western-oriented health care. On the benefit side, it is assumed that the AMP is less likely to migrate from the rural area to which he was

assigned into the more populous urban areas although precise data on the longevity of AMP's at their post are incomplete. Unlike the physician the AMP is not licenced and less likely to be attracted abroad.

Although there is a lack of solid evidence, it is generally assumed that the cost-benefit ratios associated with preventive activities are superior to those associated with curative activities. In this regard it is important to note that the primary outputs of this project are an enhanced ability of the health care system to implement and coordinate preventive and public health services. According to morbidity and mortality statistics recently presented by the Ministry of Health⁽¹⁸⁾ approximately 200,775 (19.5%) of the inpatient cases treated in the government hospitals were due to preventable illness, and 3,969 (12.3%) of institutional deaths in 1975 were also due to diseases which are within the state-of-the-art of health care to prevent.

Although particularly difficult to quantify what will be the benefit derived by the community from a health care system which integrates both curative and preventive health services at the local level, from the consumers point of view, this will substantially reduce the non-monetary costs of receiving health services, since the opportunity to receive both preventive and curative services from a single contact with the health care system will be enhanced.

A. ASSESSMENT:

1. The project appears to have favorable cost-benefit relationships both to the health care system and to the consumer.
2. The research functions of NIHS could be extremely important in generating an even more favorable cost-benefit ratio.

XII. ADEQUACY OF BASELINE DATA

In general Sri Lanka has a wealth of data describing the population, the health care system, and the health status of the population. Consequently, the plan to

expand the functions of the NIHS are based upon a reasonable amount of baseline data. However, in several instances it would be useful to generate data to serve as a baseline for subsequent evaluations of this project. First, it would be useful to obtain precise data on the number of posts which currently exist and which are vacant in the rural sector for public health inspectors, public health midwives, public health nurses and assistant medical practitioners. Current estimates of the primary care manpower strength is derived largely from an excellent, although somewhat outdated, manpower study conducted in 1972 and published in 1975.⁽⁷⁾ A more current assessment of this nature would be necessary both to provide a baseline for later evaluation and also to assess the magnitude of the manpower shortage to be addressed by the expanded NIHS. Such an assessment should be periodically updated since Sri Lanka is experiencing a substantial population growth as well as an increasing internal migration due to governmental development projects (e.g., the Mahaweli Development Scheme) in the dry zone areas. This internal migration from the more populous areas to the development areas in the southern, eastern, and north central regions is expected to accelerate in the next few years. The net effect is to increase the requirement for primary health care manpower. Recently, the NIHS completed a survey of the number of MOH posts which were vacant throughout the country. Currently, the NIHS is undertaking a similar survey of each MOH regarding vacancies in the posts of the PHI, PHN, and PHM. If completed, the survey will provide the bulk of the required data outlined above.

In a similar vein it would be important to be able to quantitatively characterize the longevity of the various types of public health and primary care manpower at their posts in the rural area. The best estimates of the attrition rate derives from the 1972 health manpower study,⁽⁷⁾ and the attrition rates quoted in this study were unusually low, ranging from 2% per annum for the AMP to 3% per annum for the PHI. It is noted that attrition rates in other countries in the region are substantially higher. For example, in Taiwan it was determined that

30% of nurses are lost to nursing practice within 3 years after graduation.⁽¹⁹⁾ In addition to the crude attrition rate, it would be important to make estimates of the rates at which the several categories of health personnel migrate from their assigned posts in the rural area back into the more populous areas.

It would also be useful to develop some information regarding the output of the various personnel in public health and primary care. The essence of the productivity of the health personnel would be expressed as a function of a change in the health status of their community, and thus not simply amenable to quantification. However, more simple information such as the number of hours worked per day, the number of patients contacted, and the health service tasks performed would be useful as a baseline for assessing the effect of the development of a multi-disciplinary concept in primary health care on the various surrogate measures of productivity of the health personnel involved.

A. ASSESSMENT:

1. The baseline data available to the Ministry of Health is generally adequate for evaluation of the project impact.

B. RECOMMENDATIONS:

1. Update the data on the requirement and current strength of the PHI, PHN, PHM and AMP in the rural areas.
2. Make an assessment of the longevity of graduating trainees at their assigned post in the rural areas (e.g., the percent of PHM's who completed training in 1975 who are still working in the rural area in 1980).
3. Develop a modest data base on the output of the various members of the primary health care team.
4. The latter two would be particularly appropriate as studies to be undertaken by the research function of the NIHS.

XIII. MISCELLANEOUS

The project proposal prepared by the Ministry of Health in August of 1978⁽²⁾ does not include the subsequent plan to provide complete training for approximately 60 AMP students within the NIHS complex, nor does it include the additional facilities (Footnote 8) or personnel which will be required for AMP training. The budget plan in the 1978 document reflects cost estimates which have become outdated since that time. Thus, the several documents prepared more recently by the international agencies^(20,21) are based on this document and also are out dated both in scope of the proposed project and the budget plan.

Recently, the Minister of Health established the National Health Development Committee which in turn consists of six standing committees. The Director of NIHS has been named as a member of one group, the Health Manpower Committee. In order to effectively carry out its role and responsibilities for "all aspects of health manpower development" it seems that the NIHS needs representation on other national working groups relating to education in health and primary care. For example, the NIHS should also be represented on other national committees, such as the standing committee on Primary Health Care and the Community Medicine Study Board of the Post Graduate Institute of Medicine.

A. ASSESSMENT:

1. The budget for the project is 18 months old, and cannot be analyzed until updated and made consistent with current scope of project and current cost figures.

B. RECOMMENDATION:

1. A current budget plan should be prepared consistent with the current scope and cost estimates of the project.

2. The NIHS should be represented on national working groups concerned with health and health-related education and primary care, notably the Primary Health Care Committee (of the National Health Development Committee) and the Community Medicine Board (of the Postgraduate Institute of Medicine).

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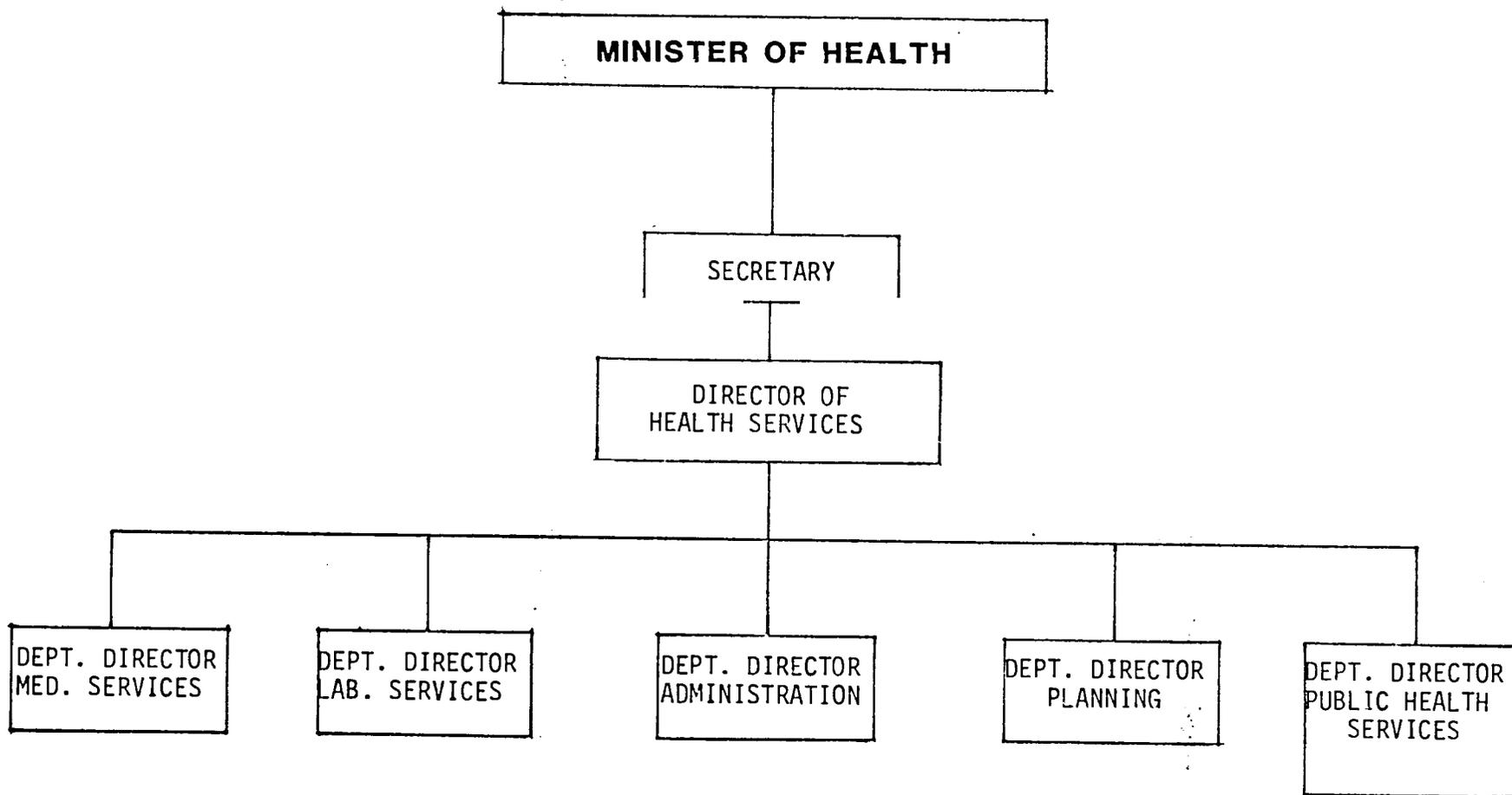


FIGURE 2:

STRUCTURE OF THE CENTRAL ORGANIZATION OF THE MINISTRY OF HEALTH

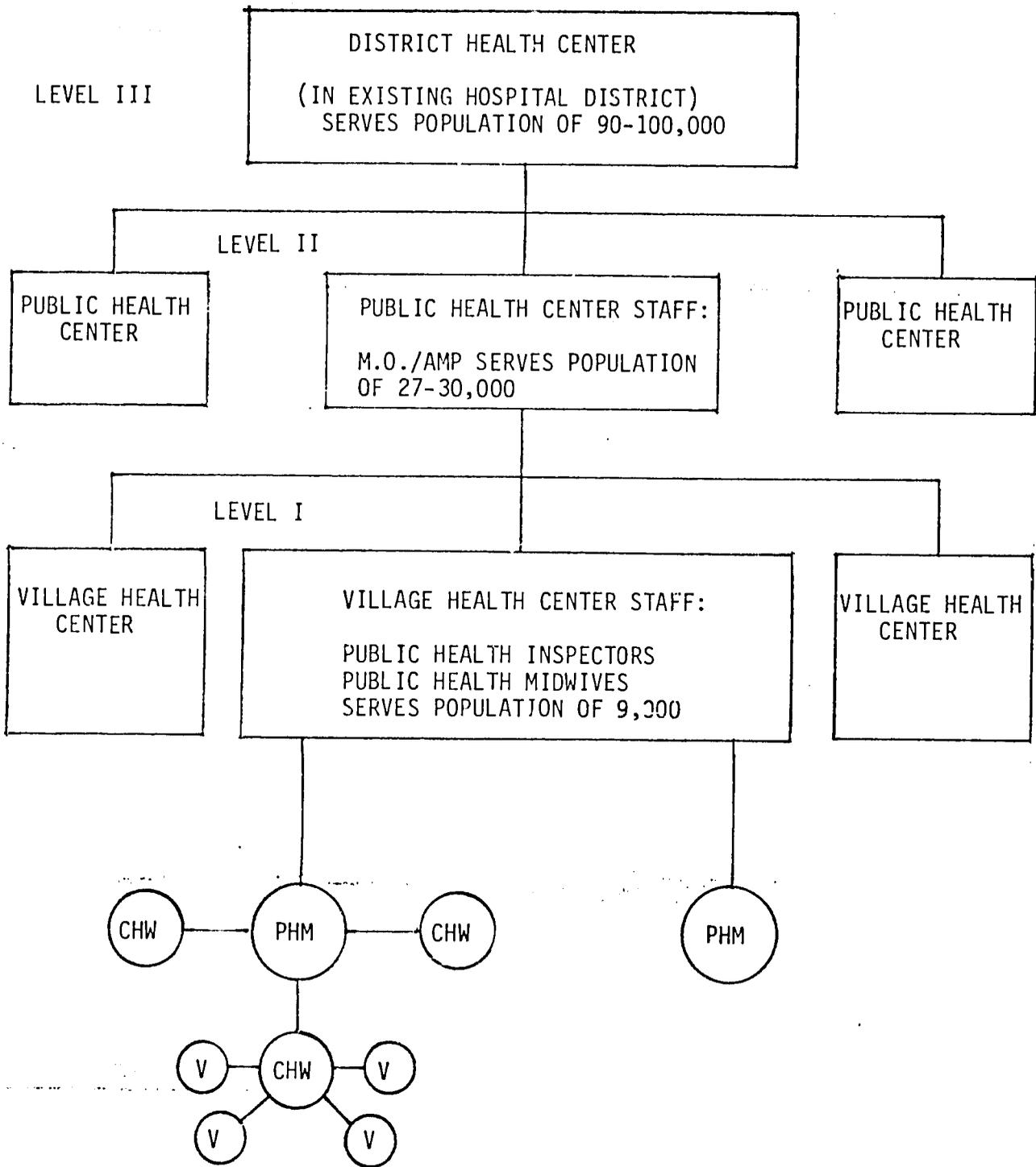


FIGURE 3: ONE VERSION OF EVOLVING MODEL FOR PRIMARY HEALTH CARE IN SRI LANKA.

TABLE 4: CURRENT AND PROPOSED MANPOWER OF NIHS COMPLEX.

	CURRENT STRENGTH NIHS COMPLEX		TOTAL	ADDITIONAL PROPOSED
	INSTITUTE	HEALTH UNIT		
Medical Officer	3	4	7	4
Medical Officers (Seconded) for AMP Training	0	0	0	8
Medical Officer (ADM)	1	-	1	3
Dental Officer	1	-	1	-
PHI	5	16	21	4
PHN	1	16	17	4
Public Health Tutor	4	-	4	-
Midwife	1	29	30	1
Librarian	1	-	1	-
Dental Nurse	7	-	7	-
Med. Lab. Tech.	6	-	6	-
Health Educator	-	-	-	1
Behav. Scientist	-	-	-	1
A.V. Officer/Lecturer	-	-	-	1
Social Worker	-	-	-	1
Statistician	-	-	-	1
A.V. Technician	-	-	-	1
Library Assistant	-	-	-	1
Total Professional/ Technical	30	65	95	31
Clerical	3	2	5	19
Secy./Accountant	-	-	-	1
Book-Keeper	-	-	-	2
Other	25	1	26	13
Total Support Staff	28	3	31	35

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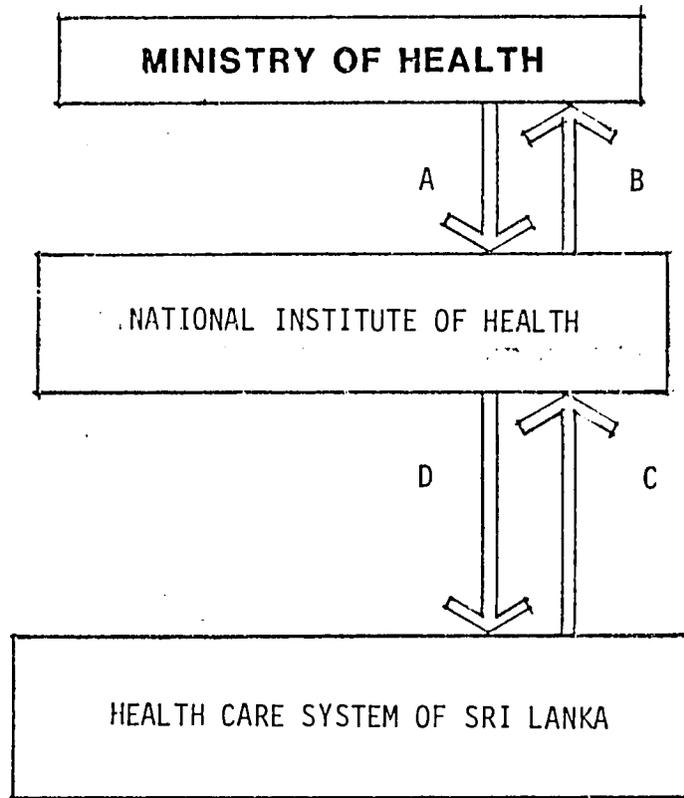


FIGURE 5: ROLE OF THE N.I.H.S. IN HEALTH MANPOWER DEVELOPMENT

- A- RECOMMENDATIONS ON HEALTH MANPOWER NEEDS, POLICY, ETC.
- B- MANPOWER POLICY, TRAINING REQUIREMENTS, ETC.
- C- SOLUTIONS IN MANPOWER PROBLEMS (ADDITIONAL MANPOWER, ALTERNATIVE CONFIGURATION OF SKILLS, ETC.).
- D- PROBLEMS IN THE DELIVERY OF PRIMARY HEALTH CARE.

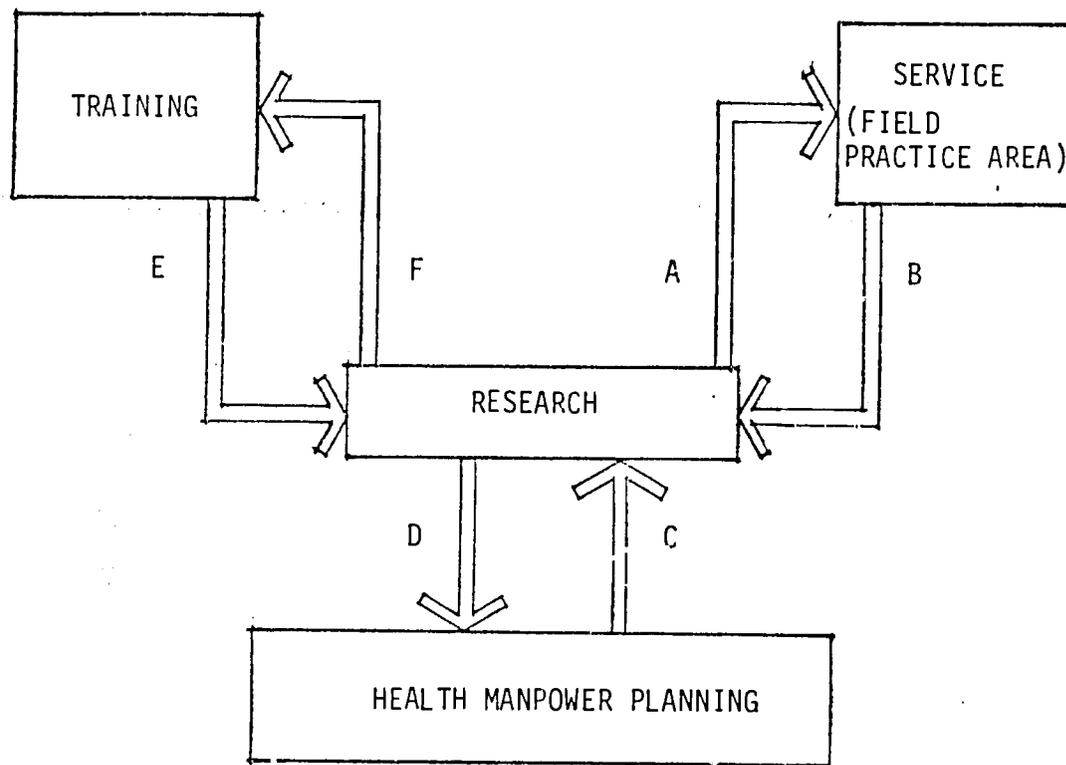


FIGURE 6: RELATIONSHIPS AMONG THE EXPANDED FUNCTIONS OF THE N.I.H.S..

- EXAMPLES:
- A- REQUIREMENTS FOR STUDIES OF THE IMPACT OF ALTERNATIVE HEALTH CARE MODELS.
 - B- SETTING OF NATURAL EXPERIMENTS, ISSUES IN HEALTH CARE, ISSUES IN TRAINING.
 - C- INFORMATION ON EFFECTIVENESS OF ALTERNATIVE HEALTH CARE MODELS.
 - D- REQUIREMENTS FOR DATA ON EFFECTIVENESS OF MODES OF HEALTH MANPOWER DEVELOPMENT.
 - E- REQUIREMENTS FOR DATA ON IMPACT/EFFECTIVENESS OF TRAINING PROGRAMS AND CURRICULUM.
 - F- INFORMATION ON IMPACT OF MODES OF TRAINING.

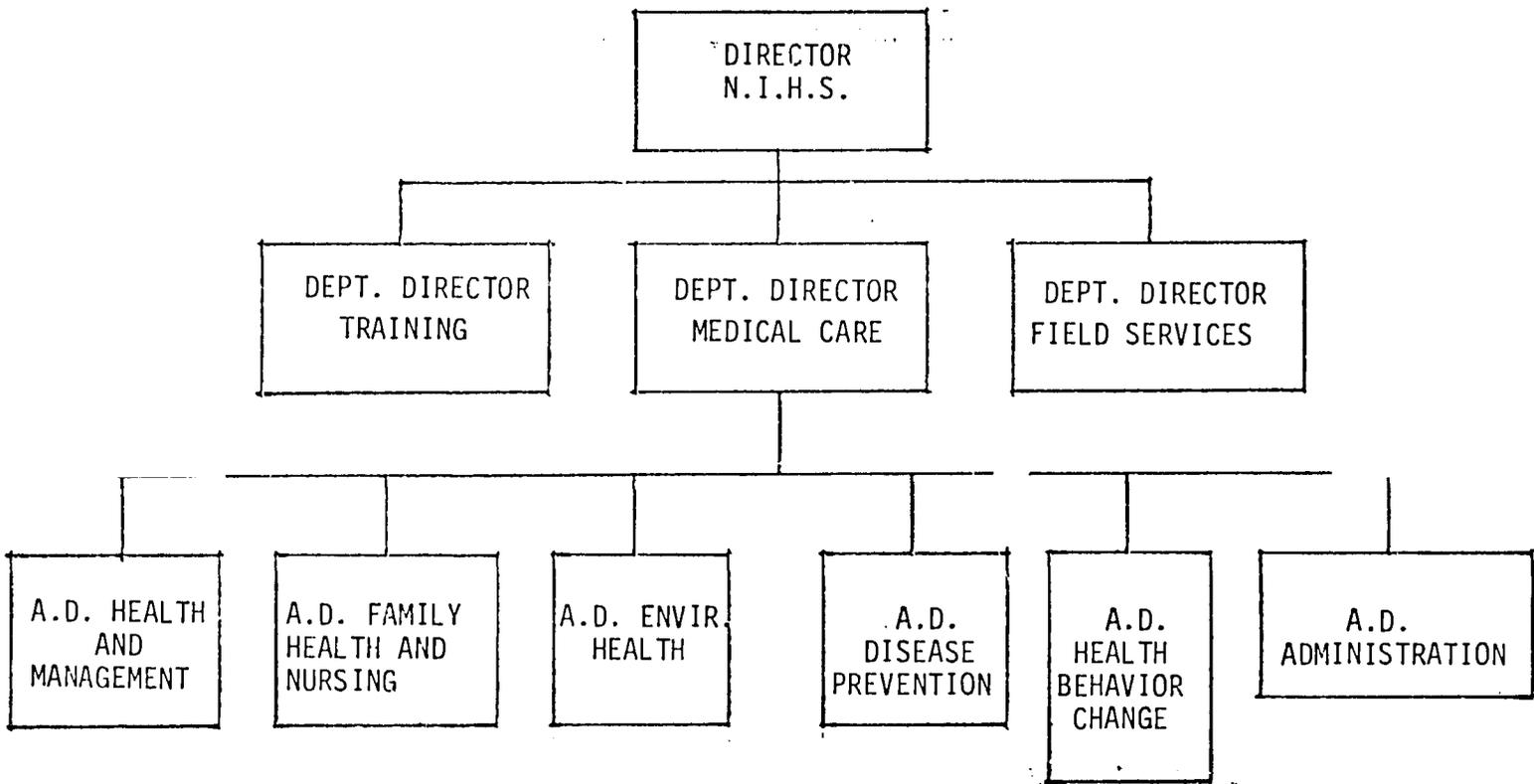


FIGURE 7: **PROPOSED ORGANIZATION STRUCTURE OF THE N.I.H.S.**

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TABLE 8: PROJECTED TRAINING OUTPUT OF NIHS BY 1983.
1/Average of years 1975-1979.

Discipline	No trained annually at Institute 1/	No. trained annually in Sri Lanka	% Total output at Institute currently	Projected No. to be trained annually by 1983 at NIHS	Projected No. to be trained annually by 1983 in Sri Lanka	% Total to be trained at NIHS in 1983	Increase annual NIHS output
PHI	75.0	75.0	100%	80	80	100%	5 6.7%
PHN	0	0	-	40	40	100%	40 -
PHM	36.2	277	13.0%	50	320	15.6%	14 39%
AMP	0	90	0%	60	150	40%	60 -
TOTAL	111.2	442	25%	230	590	39%	119 107%

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TABLE 9: CURRENT AND PROJECTED DEFICIT IN PRIMARY HEALTH CARE MANPOWER.

Discipline	Present Level a/	Present Need b/	Deficit	Projected Annual Loss c/	Increase in need by 1988 d/	No. Lost 1980-1988 e/	No. Trained 1980-1988 f/	Projected Level 1988 g/	Projected Need 1988 h/	Projected Deficit 1988	% Reduction of Deficit
PHI	1,081	1,400	319	3%	270	292	79	1,496	1,670	172	46%
PHM	1,978	3,500	1,522	2.7%	720	481	2,574 j/	4,071	4,220	149	90%
PHN	242 (150) i/	490	248 (340)	2.7%	108	59 (36)	320	503 (434)	598	95 (164)	62% (52%)
AMP	981 k/	1,980	999	2%	108	177	1,110	1,914	2,088	174	83%

SOURCE OF DATA:

- a) Reference 2, Figure I
- b) Reference 7
- c) Reference 7
- d) Reference 2
- e) Computed from project annual loss
- f) Computed from project annual training output
- g) Computed from current level, project loss and project annual trained
- h) Computed from present need plus need increase by 1988
- i) Current level estimated by Mrs. Saparamadu
- j) In 1980 there is a plan to train 2,000 PHM's to narrow the gap between need and current strength
- k) Reference 5, p.53.

TABLE 10: INVENTORY OF SPACE NEEDS BY TYPE OF USE.

ITEM	UNIT	Approx. Area sq.ft.	No. of Rooms	Total Area Sq. Feet	Remarks
01	Staff Quarters/Garages - Med. Off.	1,700	-	-	
02	Staff Quarters/Garages - Senior Tutors	1,700	-	-	
03	Quarters for Hostel Warden	-	-	-	
04	Separate hostel Male-Female	-	-	-	Each hostel - 50
05	Staff Quarters/Garages - Med. Off.	1,700	-	-	-
06	Staff Quarters/Garages - Tutors	1,350	-	-	
07	Staff Hostel Warden	-	-	-	
08	Auditorium	5,000	1	5,000	Air Conditioner 500 seating
09	Seminar Rooms	1,000	2	2,000	
10	Library	2,000	1	2,000	Seating 100 book shelves
11	Lecture Hall	700	6	4,200	Accommodate 50-60
12	Audio-Visual Laboratory	1,000	1	1,000	Air conditioned Dark Room/Cubicle
13	Demonstration Center	2,000	1	2,000	Cubicle attached
14	Demonstration Room	1,000	1	1,000	Cubicle attached
15	Laboratory Rooms	700	6	4,200	
16	Store Rooms	250	5	1,250	Ventilated
17	Cafeteria	1,500	1	1,500	Attached toilets
18	Lobby	500	1	500	Ground floor
19	Administrative Block	500	1	500	Ground floor
20	Documentation Room	250	1	250	
21	Rest Room	250	4	1,000	2 in each floor

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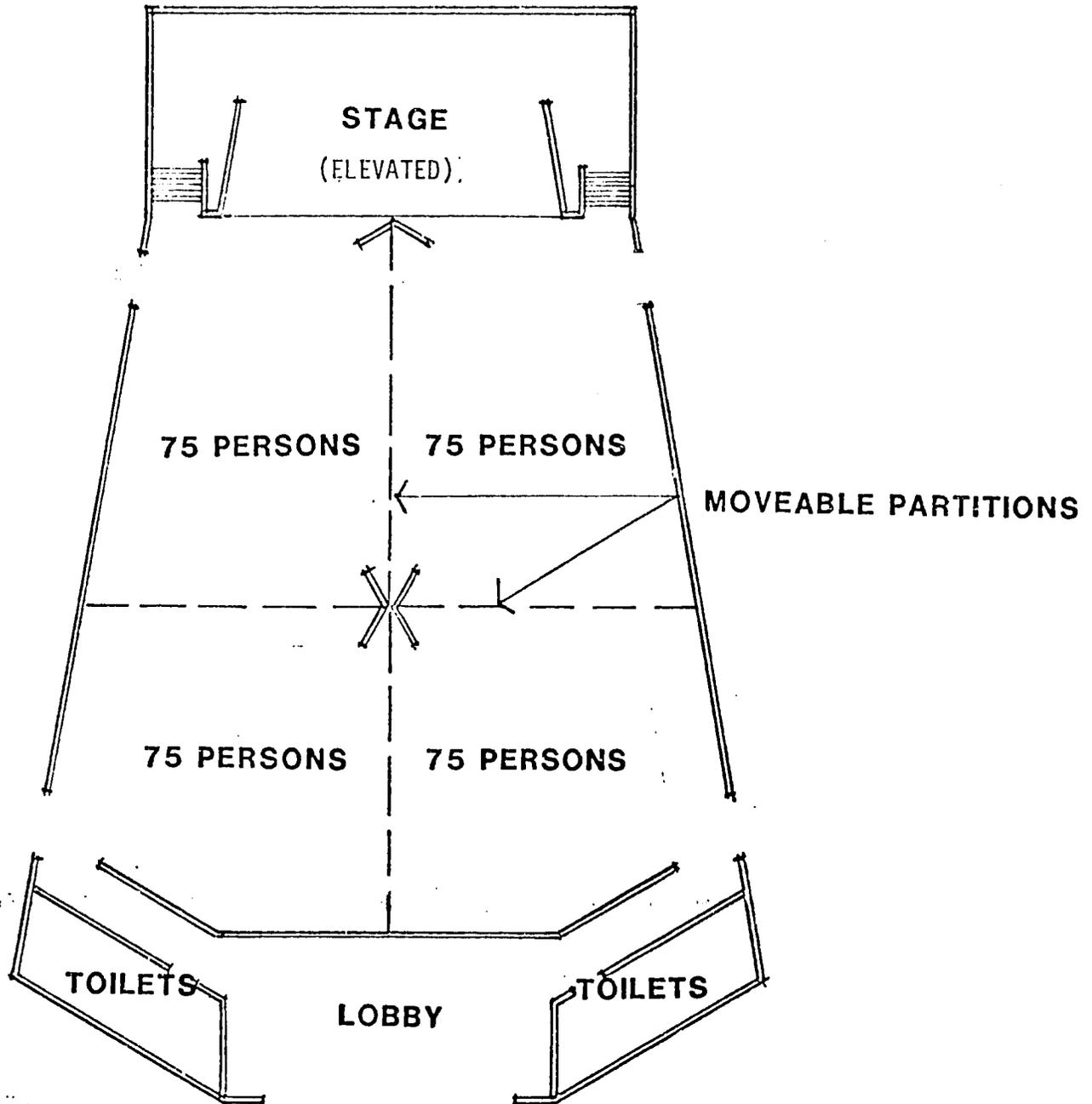
TABLE 10: (CONTINUED)

ITEM	UNIT	Approx. Area sq.ft.	No. of Rooms	Total Area Sq. Feet	Remarks
22	First Aid Center	250	1	250	Toilet attached
23	Janitor's Room	100	4	400	Two in each room
24	Staff Room	200	2	400	One in each floor
25	Toilets - two each floor	-	-	-	
26	Garages - 10 cars	-	-	-	
27	Guard Room	-	-	-	

Note: Seven Grade 5 Quarters @ 1,700 sq.ft. = 8,500 sq.ft.

Four Grade 4 Quarters @ 1,350 sq.ft. + 5,400 sq.ft.

FIGURE 11. AUDITORIUM AND LECTURE CENTER



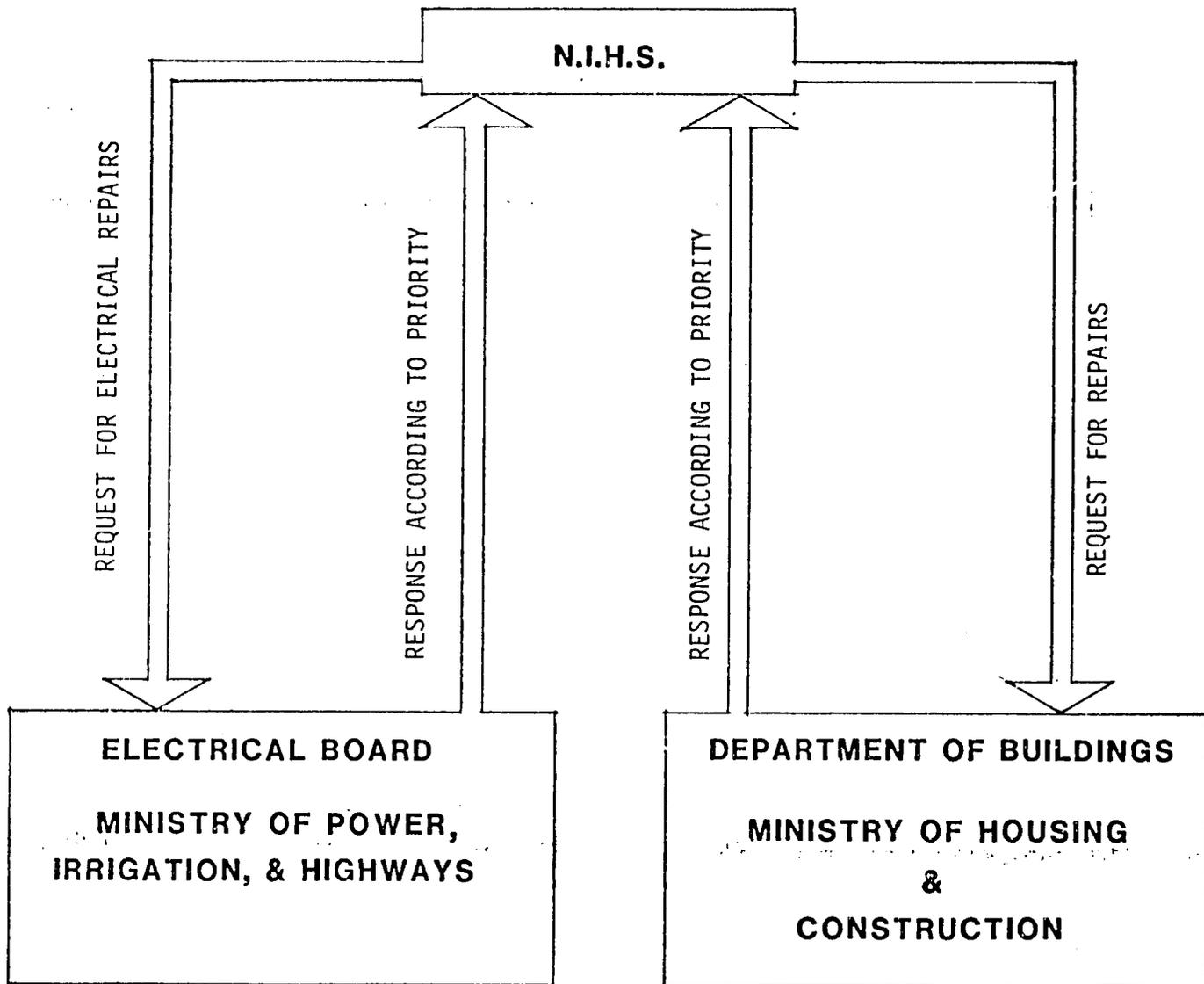
TOTAL CAPACITY: 300 PERSONS

PROPOSED CENTER WOULD HAVE MULTIPLE USE TO PROVIDE FOR LECTURE HALLS, SEMINAR ROOMS, DEMONSTRATION ROOM AND AN AUDITORIUM.

THE SEATING ARRANGEMENT WOULD BE FLEXIBLE TO PROVIDE A VARIETY OF INFORMAL GROUP MEETING SPACES.

FIGURE 12.

PROCEDURE FOR REQUESTING MAINTENANCE



NO IN-HOUSE MAINTENANCE CREW IS AUTHORIZED FOR THE PROPOSED N.I.H.S..
ALL REQUESTS TO THE TWO DEPARTMENTS ARE PROCESSED ACCORDING TO PRI-
ORITIES FROM OTHER GOVERNMENT INSTALLATIONS.

5/1/68

TABLE 13: GROSS ESTIMATES OF TRAINING CAPACITY OF PROPOSED FACILITY. NOTE THE ESTIMATES OF NO. OF STUDENTS PER BUILDING IS EXTREMELY CONSERVATIVE.

SPACE AVAILABLE IN PLANNED FACILITIES

(IN UNITS OF STUDENT-WEEKS)

<u>BUILDING TYPE</u>	<u>COMPUTATION</u>	<u>RESULT</u>
Lecture Halls	6 buildings x 30 students/ buildings x 52 weeks	9,360
Seminar Halls	2 buildings x 30 students/ buildings x 52 weeks	3,120
Laboratories	6 buildings x 20 students/ buildings x 52 weeks	6,240
Auditorium	1 building x 500 students/ buildings x 52 weeks	26,000
Proposed Auditorium Lecture Center	4 buildings x 75 students/ buildings x 52 weeks	15,600
Total Lecture/ Seminar (with Auditorium)		38,480
Total Lecture/ Seminar (with proposed Auditorium/Lecture Center)		28,080
Total Lecture/Seminar/ Lab (with 500 seat Auditorium)		44,720

TABLE 1A: GROSS REQUIREMENTS FOR TRAINING SPACE FOR MAJOR TRAINING ACTIVITIES.

MAJOR SPACE REQUIREMENT FOR PLANNED TRAINING

(IN UNITS OF STUDENT-WEEKS)

<u>Training Course</u>	<u>Lecture/Seminar</u>	<u>Laboratory</u>	<u>Total</u>
MOH	108	12	120
AMP 1st Year	1,248	1,560	2,808
2nd Year	1,248	1,560	2,808
PHI	2,995	832	3,827
PHM	416	-	416
PHN	702	-	702
HE	180	-	180
SPHI	40	-	40
SPHM	360	-	360
SPHN	<u>20</u>	<u>-</u>	<u>20</u>
Total	7,317	3,964	11,281

Assumptions:

MOH: 30 students for 4 weeks; 90% Lecture/Seminar, 10% laboratory.

AMP 1st: 60 students for 52 weeks; 40% Lecture/Seminar; 10% field; 50% laboratory.

 2nd: 60 students for 52 weeks; 40% Lecture/Seminar; 10% field; 50% laboratory.

PHI: 80 students for 52 weeks; 4 weeks (8%) in field; 72% Lecture/Seminar, 20% laboratory.

PHM: 40 students for 26 weeks; 3 days per week (60%) in field.

PHN: 45 students for 39 weeks; 3 days per week (60%) in field.

HE: 15 students for 12 weeks; 100% in classroom, no labs.

SPHI: 10 students for 4 weeks; 100% in classroom, no labs.

SPHM: 30 students for 12 weeks; 100% in classroom, no labs.

SPHN: 5 students for 4 weeks; 100% in classroom, no labs.

FOOTNOTES

1. An excellent and current summary of the project plan was prepared by Dr. N.T. Cooray of the NIHS (See Reference 3).
2. More recently it was decided to begin training the first class of approximately 60 AMP students as early as June, 1980.
3. A description of the tasks and responsibilities of each member of the primary health care team can be found in Reference 8, for the:

MOH - pp 161-188
PHI - 216-260
PHN - 276-291
PHM - 336-347

The manual was published in 1958 and is due for revision according to the staff of NIHS.

4. In the plan of expansion of the NIHS, the Director of NIHS will become the sixth Deputy Director, Health Manpower Development.
5. As an example, an unknown number of AMP students (presumably between 50-70) will arrive at the NIHS Campus at some point in the near future (presumably between June and August). Such uncertainty makes it extremely difficult to plan courses, schedule staff and facilities, and coordinate training with hospital and field activities.
6. Several curriculae from the Indian Health Services were provided to the staff of NIHS which specify performance objectives and criteria. One of the curriculae was for a community health worker course in nutrition.
7. According to California State Department of Education standards, facilities for 400 students would require approximately 15 acres.
8. The additional facilities proposed to support the AMP training include:

Anatomy Dissecting Room - NIHS
Clinical Lecture Room - Kalutara Base Hospital
4 Teaching Rooms - Kalutara Base Hospital
2 Hostels (200 students) - NIHS
5 Grade V Quarters - NIHS
1 Grade IV Quarters - NIHS