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A PROJECT TO HELP PRACTITIONERS
HELP THE RURAL POOR
Case Study No. 8

THE LAMPANG HEALTH DEVELOPMENT PROJECT

THAILAND'S FRESH APPROACH TO RURAL PRIMARY HEALTH CARE

Prepared for ICED by
Lampang Project Personnel

Commentary by
Philip H. Coombs

International Council for Educational Development
P.O. Box 217 Essex, Connecticut 06426 USA

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PREFACE

This case study of the Lampang Health Development Project in Thailand should be of special interest to officials of developing countries and external assistance agencies who are looking for fresh approaches to providing primary health care services--both curative and preventive--to the great majority of rural people who have long been without them. They will find in this report not only a description of the Lampang Project and how it evolved during its first four years of operation, but also a mid-course assessment of its progress and impacts to date, a candid discussion of some problems it has encountered, and a provisional appraisal of its replicability. The practical lessons--both positive and negative--that emerge from this experience can have relevance and utility for many situations.

This is the seventh in a series of ten case studies that form the empirical core of an ICED research project whose basic purpose is to develop useful guidance, based on actual operational experience, for policymakers and program planners and managers concerned with improving the quality of family life among the rural poor.

The project's broad focus encompasses a variety of basic family and community needs and services including, for example, health, nutrition, maternal and child care, family planning, constructive activities for out-of-school youth, and special programs to elevate the role and status of disadvantaged rural girls and women.

At the suggestion of numerous experienced "operators" who carry responsibility for meeting some of these needs, the project has focused on the following key questions:

(1) How to achieve more efficient and effective integration among the presently fragmented programs and services aimed at meeting these different family needs.

(2) How to develop more direct and extensive community participation in the planning and operation of such programs.

(3) How to incorporate relevant, low cost and effective educational (i.e., "learning") components in these programs to facilitate their success--including strong training provisions for the "providers" and pertinent education for the "consumers."

(4) How to include the poorest segments of rural communities in such programs, both as contributing participants and as beneficiaries.

(5) How to exploit more fully the unique flexibility of voluntary organizations, not only to increase the coverage and effectiveness of their own particular programs but to develop useful lessons and provide useful services for larger scale government programs.

Unlike the other case studies in this series, which were conducted independently by ICED in partnership with qualified researchers in the countries concerned, the present report was prepared and written by staff members and advisors of the Lampang Project itself, on the basis of a design developed by Dr. Manzoor Ahmed, Deputy Director of the ICED project. In order to tie this case study into the context of the overall ICED project and also to provide an independent international perspective on the Lampang Project, the case study is introduced in this publication by a separate commentary prepared by the ICED.

It is my pleasure to extend ICED's special thanks to Dr. Somboon Vachrotai, Director-General of the Department of Health in Thailand's Ministry of Public Health, and also Director of the Lampang Health Development Project, who graciously accepted ICED's suggestion that this case study be undertaken, and who guided and supported it from start to finish. ICED's thanks are similarly extended to the following people who jointly prepared and wrote the case study:

Dr. Pien Chiowanich, Dr. Choomnoom Promkutkeo, and Dr. Chaichana Suvannvejh of the Lampang Health Development Project staff; Dr. Ronald G. Wilson and Mr. John A. Rogosch of the University of Hawaii School of Public Health, resident staff at the Lampang Project; Dr. Nicholas Wright, a Project consultant from Rutgers School of Medicine, and Mrs. Termotis R. Wilson, who typed the original manuscript.

I also wish to thank the American Public Health Association in ICED's behalf for its cooperation in this case study.

Finally, it should be emphasized that the opinions and interpretations expressed in this publication are solely the responsibility of ICED and the case study authors and do not necessarily accord with the views of any of the organizations that have helped to fund either the Lampang Project or this ICED study.

Philip H. Coombs
Director of the Project

May 1979
Essex, Connecticut USA

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GLOSSARY

APHA	American Public Health Association
CBFPS	Community-Based Family Planning Service
CHD	Community Health Department (Provincial Hospital)
DEIDS	Development and Evaluation of an Integrated Health Delivery System
DCH	Department of Health (Ministry of Health)
HC	Health Communicators
HPV	Health Post Volunteers
LHDP	Lampang Health Development Project
MCH	Maternal and Child Health
MEDEX	Physician extender training program
MOPH	Ministry of Public Health
PHO	Provincial Health Officer
RTG	Royal Thai Government
Tambol	Subdistrict
TBA	Traditional Birth Attendant
UHSPH	University of Hawaii School of Public Health
US AID	United States Agency for International Development
VHC	Village Health Communicator
Wéchakorn	Paraphysician

LESSONS FROM LAMPANG:

*an ICED Commentary**

The Lampang Health Development Project has been of special interest to ICED because it represents one of the earliest attempts by any developing country government to apply systematically and on a sizeable scale the basic concept and principles of the "primary health care approach," that has been popularized in recent years by WHO and UNICEF and was endorsed by the Alma Ata International Conference on Primary Health Care in 1978.

Most well informed public health experts seem to agree that this unconventional approach makes good sense and is probably the only feasible and affordable strategy for coping with the serious and long neglected health needs of the rural families making up the great majority of the developing world's total population. The big question today about this "primary health care" concept, however, is not whether it is sound in principle but how to put it into practice in the real world. Any serious effort to do so immediately raises a host of difficult questions to which there are as yet few experience-based answers. Many policymakers and planners, well disposed toward the general idea of a primary health care system, are still looking for practical guidance on such questions as these:

. How does one actually go about "integrating" the essential components of a primary health care system--such as curative medical services, environmental sanitation, family planning, nutrition for young children, pre- and post-natal care for mothers--especially when these fragmented services are already in the hands of different specialized bureaucracies that are anxious to preserve their autonomy and to keep "going-it-alone"?

. How does one recruit, train and deploy new cadres of para-professional health workers, competent to provide the above combination of services on a mass scale, close to where the people live, and willing to work in a rural environment at incomes far below those of urban-based medical doctors? Also, how does one persuade the old-line medical profession to accept and support this "heretical" notion of allowing paraprofessionals, and even less trained village health workers, to perform some of the tasks traditionally reserved to full-fledged physicians?

. Granted that mobilizing community resources and participation is essential to getting the primary health care job done, how can government agencies go about generating such broad-based

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*This commentary was written by Philip H. Coombs, Director of the ICED project on Helping the Rural Poor, which includes the present case study.

community participation?

. How much is an effective rural primary health care system actually going to cost? Where is the money coming from? And can a poor country really afford it?

. What steps can be taken to insure that the poorest families in any community participate and benefit equally in this new type of health system?

The Lampang Project cannot be expected, of course, to provide full and final answers to all these questions. But it can shed valuable light on some of them--light that can be helpful not only to Thailand but to other countries faced with similar rural health needs and problems. The authors of the present case study have given us a revealing picture--viewed from the inside--of how the Project evolved from its initial planning phase in 1973 through its first four years of operation to the end of 1978. Their account is both descriptive and analytical. They expose some difficult problems encountered along the way and indicate some of the efforts made to overcome them. Particularly important, they give their own provisional assessment (based on still incomplete evaluation evidence) of both the achievements and the shortcomings of the project at this stage. Further, they present some tentative conclusions on the costs and feasibility of replicating the main features of the Project elsewhere in Thailand.

This introduction, on behalf of ICED, views the Lampang Project in an international perspective, through the eyes of an outside observer and in the light of ICED's other case studies of innovative rural programs in a variety of developing countries. Its purpose is not to praise or criticize or to pass any overall judgement on the Lampang Project. Rather, its purpose is to call the attention of others who may be interested in developing rural primary health care systems to some of the significant implications of the Lampang experience that may have relevance for many countries. In particular, using Thailand as an example, it comments briefly on the following issues: (1) the present state of health delivery systems in developing countries; (2) some basic requirements for expanding the coverage and utilization of a primary health care system; (3) the costs involved in meeting these requirements; (4) the realistic problems of building a community-base; and (5) the sticky problem of replicating the promising features of "demonstration projects."

It should be emphasized that the comments below are intended as a contribution to an on-going dialogue, not as an exposition of revealed truths. If this introduction manages to arouse the curiosity of readers to examine the whole case study for themselves and to draw their own conclusions, it will have served its purpose.

THE LAMPANG SETTING AND THE PROJECT'S STRATEGY

Before turning to specific issues it is important to provide a brief sketch of the rural health situation in Thailand that the leaders of the Lampang Project set out to improve. As will be seen, it has many similarities to other developing countries.

Though it is common to speak of any nation's "health delivery system" as if it were a single, unified mechanism, the reality is that most low income agrarian countries have three quite distinct and separate health systems: (1) a rapidly evolving modern *urban health system* (private and government) patterned along Western lines; (2) a thinly-spread *government rural health system* that bears little resemblance to the urban one; and (3) a *private rural health system* composed largely of various types of indigenous health providers. This was the situation in Thailand when the planners of the Lampang Project first put pen to paper in 1973.

The *urban health system* was based on a network of nearly 100 government-supported modern hospitals and closely allied private clinics that spread out from Bangkok (the hub of the system) to all provincial capitals. The vast majority of the nation's medical doctors and nurses--most of them trained in Thailand's six univerity level medical schools--were attached to this system. For many years Thailand had worked hard to build this impressive urban health system and could be justly proud of it. But it presented two serious problems. First, it was so preoccupied with *curing* illnesses that it paid little attention to *preventing* them, or to promoting the basic essentials for good health that could curb the rapidly growing insatiable demand for curative care. Second, it preempted the lion's share of the national health budget and health resources (perhaps as much as 90 percent), yet served and benefitted only a small segment of the national population (probably no more than 10 to 15 percent).

The *government rural health system* took the leavings and was quite something else. In theory it was responsible for providing health services to the 85 percent of the population living in rural areas, but in fact its capacity for doing so was grossly inadequate--as illustrated by the situation in Lampang Province when the Project began in 1974.

The provincial hospital in Lampang town--at the lowest echelon of the modern urban health system--had 300 beds, an outpatient department and a staff of 22 physicians and 58 nurses to serve, in principle, a population of over 600,000 people, largely rural.

Also in Lampang town--though not organically connected with the provincial hospital and under the jurisdiction of a different department in the national Ministry of Public Health--was a Public Health Office that headed up the rural health system. Structurally it was a three-tier system and in principle it included: (1) a "first-class health center" (later called a "district hospital") in each district,

with one doctor and a few beds for emergencies; (2) a smaller rural "health center" in each *tambol* (subdistrict) that concentrated largely on maternity cases and selected preventive health measures; and (3) a network of village midwifery centers.

The system was much smaller in reality, however, than in theory. Only one-quarter of the districts(3 out of 12) had a district hospital and only two of these had an attending physician (the only two in the whole rural health system below the provincial capital). Only one-third of the subdistricts (26 out of 75) had a rural health center, staffed by a sanitarian and midwife. Only 33 of the province's 538 villages could boast a midwifery center. Thus, at best, no more than one out of every three or four rural families in the province could be said to be "covered" by this rural health system, even theoretically. But in fact a community survey in 1974 revealed that only 15 to 17 percent of the rural people in Lampang Province actually made use of the system's facilities--presumably because the system did not offer the kind and quality of services (especially curative services) the people wanted.

The third health system mentioned earlier--the *private rural health system*--also existed in Lampang. Its precise dimensions are unknown, partly because it is scarcely visible to the naked eye of Western-trained health statisticians and also because most "modern" medical specialists tend to disparage its "unscientific and unsanitary practices." There is little doubt, however, that its various "health providers"--including traditional midwives, herbalists, injectionists, and magical and spirit doctors--were more numerous and served far more rural people in Lampang Province than the entire staff of the official health system. A great many rural people--especially the poorest--placed great stock in them and in fact had no real access to any other sort of health care service.

Faced with these hard facts, the Lampang Project planners set a basic goal of overhauling and strengthening the official rural health system so that five years hence it would be providing needed and desired health care services--including curative as well as preventive and promotive services--to at least two-thirds of the rural residents, with special emphasis on the two most vulnerable groups: women in their child-bearing years and preschool age children. To pursue this goal they adopted a multi-pronged strategy aimed at the following objectives:

(1) The reorganization of the existing provincial (government) health system, including integration of curative, preventive, and promotive health services within and between the provincial hospital and the rural health care facilities.

(2) The upgrading of existing government health workers and, especially important, the creation of a new cadre of clinically trained paraphysicians (*wechakorn*, in Thai) who would be competent to handle common illnesses and other basic health services at the subdistrict health

centers, within easy reach of the villages.

(3) The creation of a vital community base for the system, including in each village a local health committee and several trained volunteers who would provide a variety of health services to their neighbors, link their community closely to the system as a whole, and make possible a new process of "upward planning, downward support."

(4) Improvement of the efficiency of the whole system, primarily by improving its management through an internal, multi-directional system of information flows that would enable managers at all levels to monitor the system's performance and to make better-informed decisions.

With strong backing from the national Ministry of Public Health and with assistance from the U.S. Agency for International Development--channelled through two professional organizations, the American Public Health Association and the University of Hawaii's School of Public Health--the leaders of the Project endeavored over the next four years to implement this multi-pronged strategy. They learned as they went, tried to stay flexible, and seized various "targets of opportunity" that arose--such as the mobile vasectomy unit operated by the provincial hospital. Like "public health" pioneers everywhere, their philosophy and view of health was much broader than that of the curative centered, urban-oriented medical profession; hence one of their inevitable problems was to win the cooperation and practical participation of hospital-based physicians in building a stronger and more balanced rural health system.

REQUIREMENTS FOR EXPANDING THE REACH OF THE SYSTEM

A rural health system's progress must be judged by three different criteria: (1) the expansion of its geographic and population "coverage," i.e., the proportion of the population that theoretically has physical access to it; (2) improvements in the range, quality and cost factors of the health services it offers; and (3) the actual utilization of these services by its potential clientele.

The case study presents persuasive evidence--albeit quite incomplete and tentative at present--that the Lampang provincial rural health system has made significant progress, judged by all three of these criteria, during the Project's first four years of operation (see Tables 5, 6 and 7). It is important to recognize, however, that not all of this progress is attributable solely to the Project. Even before the Project had been conceived, the Royal Thai Government had committed itself to a nationwide expansion of rural health facilities and personnel, and this expansion, as implemented in Lampang Province, happily coincided with the Project's special efforts during the first four years of its operation. Thus, for example, between 1974 and the end of 1978 the number of district hospitals rose from three to five (each with its own doctor),

and the subdistrict health centers increased from 26 to 61. There was a corresponding large increase in the usual complement of government nurses, nurse aides, sanitarians, and midwives (see Table 6). Had it not been for this sizeable expansion program, funded outside the Project budget by the Government's "regular" provincial health budget, there could not have been this dramatic increase in the geographic/population "coverage" of the system.

On the other hand, had it not been for the innovative features of the Project, this expansion would have followed the conventional pattern and simply reproduced the old system on a larger scale, with all its serious shortcomings. As it was, however, the Project--according to preliminary evidence--seems to have contributed significantly in terms of the second and third of the above three criteria. It helped to broaden the scope and improve the quality of the system's services, and to increase the utilization of its capacity. The Project's greatest contribution in these respects, it would appear, came from training and deploying the new cadre of paraphysicians (*wechakorn*) who, for the first time, made it possible for the rural health centers to provide substantial curative services (which the villagers were most eager to have), as well as to strengthen their preventive/promotive health services (including family planning). Thus, for example, according to available service statistics on the first district to be implemented (Hang Chat) under the Project, the number and proportion of total estimated illness cases handled by the health centers doubled between 1974 and 1977; the number of supervised pregnancy cases more than doubled; and the number of family planning "acceptors" served by these district facilities nearly trebled. (See Tables 7, 8 and 11.) If the 1979 follow-up baseline surveys reveal comparable trends throughout the whole province, then it will be reasonable to conclude that the Project has indeed made a sizeable contribution to increasing the supply, quality, and utilization of the rural health system's services.

It should be noted, however, and this point is relevant to many other situations, that it will never be possible to measure the Project's specific contribution with any degree of quantitative precision. This is because the changes that are occurring in the rural health services in Lampang Province and in the health status of its population are the result of a *combination* of causal factors--of which the Project is only one--and their respective contributions cannot be neatly disentangled and measured separately. Indeed, it will be exceedingly difficult even to measure with any significant degree of accuracy the combined impact of all these forces--this because follow-up baseline surveys, despite their theoretical attractiveness, have an exasperating habit of not being really comparable to the original baseline surveys, and the "control areas" against which changes in the "implementation areas" are to be judged, have an equally exasperating habit of not remaining "uncontaminated."

THE COST IMPLICATIONS

What can we learn from the Lampang Project at this stage about the costs of building a rural primary health care system that is adequate in size and quality to serve the needs of the majority of the population in any given rural area?

The attention of the Project evaluation staff, of course, is focused on the costs of the Project itself and on what it might cost to replicate its main features in other provinces of Thailand. But this is only a fraction of the total cost picture that government policy-makers and planners must take into account in assessing the feasibility of duplicating the "Lampang model" elsewhere. To be realistic they must look at the *whole* Lampang rural health system, not simply at the special components provided by the Project. Thus they must weigh the costs of *all* inputs and components, including the added capital investment in new facilities and the increased recurrent costs for additional personnel, supplies and so forth.

We can get a rough notion of the overall cost picture in Lampang Province by looking at what happened to the "regular" provincial health budget (excluding Project expenditures) between 1974/75 and 1977/78 (see Tables 12 and 13). It will be noted that total expenditures (including capital costs, which accounted for 45 percent of the total) more than trebled in this short period, largely reflecting the major expansion of facilities and personnel referred to earlier. The figures do not tell us where the capital expenditures went, but it is reasonable to assume that more than half went into doubling the capacity of the provincial hospital, and the rest into new district hospitals and subdistrict health centers. However, the breakdown of *operating* expenditures (shown in Table 13) as between the provincial hospital and the district health facilities and services is more revealing. Total operating costs for the entire provincial health program increased four-fold between 1974/75 and 1977/78--a tremendous rise by any standard. What is equally significant, during the first three of these four years, the share of total operating funds allocated to the district facilities (as distinct from the provincial hospital) rose from 28 percent to 53 percent of the total, reflecting a strong build up of the infrastructure of the rural health system.

This is exactly what one might expect when a government sets out seriously to expand the geographic and population coverage of a skimpy rural health system. It requires sizeable capital outlays to expand facilities and, much more important in the long run, a permanently higher annual operating budget to cover increased personnel, supplies and other recurrent costs of the expanded rural system. Added to the old cost structure are the additional costs of any new features, such as the training and support of paraphysicians and village health volunteers. To be sure, the efficiency of the whole system might also be improved simultaneously, but this would result mainly in more and better quality services rather than in any substantial reduction in the amount of money spent.

It should also be noted that by the time the Lampang rural health system achieves close to 100 percent coverage--some years hence--much more capital will have been invested and the operating costs will be much higher still. At the end of 1978, half the districts still had no hospital and 14 of the 75 subdistricts were still without a health center. Moreover, as pointed out in the case study, there is need to fill some important present gaps--for example, to add a vigorous child nutrition program in each village, to mount an extensive immunization program, to provide stronger support for the village volunteers, and to tune up the system in other respects. All this will cost more money.

The point we wish to make is not that a broad-scale rural primary health care system is too expensive to be afforded. On the contrary, it is undoubtedly the least expensive way to do the job and it probably *can* be afforded by any country willing to give it a high enough priority. The point we wish to underscore is that no one should have any illusions that a good rural health system can be bought "on the cheap." It is not simply a matter of adding one more stage at the bottom of the existing system by persuading each community to join the system and to bear the extra costs. It is a matter of greatly strengthening the entire infrastructure of the system *above* the community level so that it can properly support community self-help health activities and provide important health services that are beyond the capacity of individual villages.

WHAT DOES IT TAKE TO ACHIEVE "COMMUNITY PARTICIPATION"?

The Lampang Project planners believed--along with many others--that an effective and affordable rural primary health care system requires a strong community base. Thus they provided for replacing the conventional "top-down" approach to delivering health services with what could be termed a new system of "upward planning, downward support." This implied that each community would not only have its own volunteer health workers and local services but a health committee that would diagnose the community's health problems and needs, set its own priorities, make its own plans, mobilize its own resources for implementing these plans, and seek such outside assistance as would be necessary to supplement local resources and efforts. In turn, the obligation of the health system above the village level would be to respond to these locally defined plans and needs with appropriate support.

This seems a very rational and appealing concept. But as the Lampang experience confirms, it is a very difficult one to apply in real life--villages and villagers being what they are, government agencies and agents being what they are, and both being unaccustomed to such a partnership. The evidence in the case study tells us that this vital aspect of the Lampang strategy, though by no means a failure, has fallen disappointingly short of the initial hopes and expectations. But this should come as no surprise to anyone familiar with numerous other attempts to generate "community

participation" (not only in the health field). Almost invariably such attempts have either failed outright or have required much greater and more sustained effort than anticipated (particularly by the well intentioned--but inadequately informed-- urban people who initially design them).

The authors of the case study attribute the underperformance of the village health committees and volunteers to several factors: insufficient encouragement and support by the health center staff; lack of a sufficiently clear definition of the functions of the local committees and health communicators; the breakdown of the government logistical system for resupplying household medicines to the health post volunteers; and the fact that some volunteers, pressed for time by their regular work and other obligations, could not make themselves available at hours most convenient to their "clients." The authors also report that the village health volunteers have requested more training, particularly on first aid and dealing with emergencies, and a broader job description.

These explanations all ring true. But one wonders whether the problem is not more deeply rooted, perhaps even in the planning process itself and in some erroneous underlying assumptions. One such assumption seems to have been that two weeks of compact, pre-packaged initial training, followed by only one day a year of "refresher training," would suffice to give the health post volunteers all they would require to carry out, largely on their own, the crucial roles and responsibilities envisaged for them in the plan. A correlary assumption was that it would be sufficient, in order to keep the volunteers actively and effectively tied in with the "system," to be visited only once a month by a rural health center staff member, who would review their daily log book and give them such advice, assistance and supervision as they might require. A third apparent assumption was that the village health committee (which is typically only one of several such local committees inspired by various government agencies with different objectives and priorities in mind) would embark more or less spontaneously on a new and undefined health planning process and would give clear direction and active support to the work of the volunteers.

In retrospect, these assumptions were clearly flawed. They obviously expected too much of the villagers, particularly in light of the relatively meagre support the provincial health system was prepared to give them. We do not know the facts in this case, but we do know that history teaches that community development planners often get the cart before the horse. They decide on their plan *in absentia* without first getting to know the villages and the villagers in question well enough, and without seeking and listening to their advice. Villagers, after all, have a great deal of practical local wisdom, or they would not have survivied this long in the face of so many adversities. They may be illiterate and they may seem quite unsophisticated to the educated urbanite, but they are no fools. If an outsider urges them to take on new time-consuming functions and responsibilities to improve their own lot and it seems at the time

to make sense to them, they will usually be willing to give it a try, particularly if they are assured of receiving such outside support as they may require. But then if the outside support falters or proves inadequate, and if they are left on their own for long stretches without seeing or hearing from their new "partners," it is hardly surprising if their initial enthusiasm wanes and their own efforts slacken.

ICED has examined a few cases where voluntary organizations eventually achieved a fairly effective working relationship with community health workers. But in no case was it easy; it required a great deal of persistent and patient effort over many months, including weekly visitations to the villages and close supervision and continuous on-the-job training of the local health workers by professional members of the central health staff. It also requires establishing a real sense of mutual trust and respect and giving the local workers a sense of being a valued member of a professional team--not simply a local errand boy. Obviously it is much more difficult for a large and necessarily bureaucratized government health service to act with the flexibility and spirit of a voluntary organization. But this does not alter the fact that these are basic requisites for getting an effective community-based health system going.

All of this is not to deny that the Lampang Project has made a good start toward establishing a strong and viable community base. Given all the constraints and difficult logistical problems, it seems to have done remarkably well. But it is still only a start, and to bring this effort to full fruition will clearly require a more intensive effort. We suspect that, among other things, it will require re-examination and revision of the initial assumptions implicit in the original plan; expanded provisions for continuous on-the-job training for village volunteers and committees, taking various forms; more frequent and helpful visitations to the villages by the wechakorn and other health center staff; a new effort to develop workable local planning methods with the help of village committees; and not least of all, a new concerted educational effort directed at the villagers at large (as distinct from spasmodic and relatively superficial "information" efforts) that will give them a fresh perspective and appreciation of their own life and environmental circumstances and lead them by their own logic and choice to adopt improved family and community health practices.

The purpose of the above remarks, however, is not to give unneeded advice to the Lampang Project. It is rather to call the attention of outside readers of this report to a very basic truth that has been once again confirmed by the Lampang experience: to develop strong community participation is not only an essential requirement for a viable primary health care system but it is also a much more complicated affair than is often assumed.

SOME OBSERVATIONS ON REPLICATION

Mindful that many "demonstration" projects in the past have proved economically impossible to replicate because insufficient attention was paid to costs by their designers, the planners of the

Lampang Project were determined from the outset to avoid this pitfall. They not only tried to be "cost conscious" in mapping their initial strategy but they also included provisions in the overall evaluation process for monitoring and analyzing the cost-effectiveness of various Project activities and system "tasks."

Calculating costs for this type of project, however, is difficult at best. One-time-only "developmental" costs must be differentiated from "normal" repeatable costs beyond the developmental stage; "joint costs" shared by two or more different activities must be allocated between them on some reasonable basis; projection of the costs of replicating various distinctive features of the demonstration project in a different context presents many sticky problems; and so forth.

Notwithstanding these complexities, however, the authors of the case study have made an heroic effort to estimate what it would cost to implement the main features of the Lampang Project in other provinces of Thailand. These features include especially: (1) the system reorganization, including the integration of medical and health care services within, and coordination between, the provincial hospital with the rural health facilities; (2) the wechakorn para-physicians at the subdistrict health centers; (3) the village health volunteers and the involvement of local communities, and the private sector; and (4) improving the management and efficiency of the whole system.

The authors emerged with what at first glance seems a surprisingly low estimate of replication costs: for an extra expenditure equivalent to only 11 percent of the external assistance funds used in the Project its main features could be reproduced elsewhere.

Three important considerations should be borne in mind with respect to this estimate of replication costs. First, the bulk of the external assistance funds were devoted to: (a) developing training methods and materials, which are now available for broader use at a fraction of their original cost, and (b) to evaluation and research activities that the authors assume will not need to be continued in other areas. Second, the 11 percent estimate does not include any of the very sizeable capital and associated operating costs that the Government must incur in other provinces to expand and strengthen the basic infrastructure of the system (without which the innovative Project features would have far less impact). As we saw earlier, these expansion costs in Lampang Province have considerably exceeded the budget of the Project itself, and substantial further government expenditures will be required before the Lampang rural health system itself can be called "complete." Third, the above replication cost estimate also does not include provision for the additional elements that the authors feel are still needed in the Lampang area, such as a greatly strengthened child nutrition program, stronger support for the village committees and volunteers and further strengthening of the Department of Community Health in the provincial hospital.

In short, it is vitally important to view this 11 percent estimate in the context of the overall costs of the *whole* system in order to avoid the illusion that this is the only cost requirement for achieving a full-blown primary health care system. In reality it is but a small fraction of the total increased expenditures required.

Apart from these cost considerations, the Lampang case reveals some other interesting insights into the matter of replication. As it happens, the Government of Thailand, apparently satisfied that the Lampang Project was turning out well, did not even wait for cost estimates and other evaluation evidence to be completed before taking steps to replicate (in modified form) some of the main features of the Lampang Project. Specifically, the Government recently decided to incorporate two of the principal Lampang features in an ambitious new "20 Province Project" assisted by the World Bank. The plan calls for (1) training 1500 wechakorn-like nurse practitioners, employing the training methods and materials developed by the Lampang Project, and (2) training sufficient health volunteers over the next five years for all the villages covered by this large new project.

This strong vote of confidence in these innovative features of the Lampang Project before the Project has even run its full course and been finally evaluated is historically quite unique and testifies to the Government's stout determination to move with dispatch toward spreading primary health care throughout rural Thailand. On closer inspection, however, one is prompted to pose some gnawing questions, not to second-guess the Government's decisions but to illustrate the importance of viewing a primary health care system *as* a system.

First of all, the nurse practitioners under the "20 Province Project," though trained in the manner of the wechakorn, will apparently be used quite differently. They will all be assigned, not to the rural health centers, but to provincial and district hospitals where they will work under the immediate supervision of medical doctors. They will be engaged largely in clinical services and curative care, but not in any preventive/promotive activities in the villages. Thus, unlike the wechakorn, they will not become the mainstay of strengthened rural health centers close to the bulk of the people.

The wechakorn are apparently to be replaced in the health centers by midwives who are given only four months of special training in clinical services. While this is certainly useful, it appears to constitute a substantial watering down of the basic idea of the wechakorn as the key to strengthening the health centers, to bringing both curative and preventive/promotive services closer to the villages, and to reducing the unnecessary flow of common illness cases to the hospitals. Unless we have our facts wrong, this significant weakening of the Lampang Project strategy reflects the continuing strong influence of the hospital-centered medical philosophy as against the broader and more village-oriented primary health care philosophy.

It also raises a further question. How will the numerous village health volunteers in the "20 Province Project" be given the strong and steady support they require? Will the health center staff be up to the task? If not, where will the support come from? And if adequate support is not forthcoming can the village health volunteers be expected to keep up their morale and efforts and to make a substantial contribution on their own?

Our intent in posing these questions is not to challenge the efficacy of Thailand's "20 Province Project" but, once again, to underscore the importance of viewing any primary health care system in its entirety, as a system, made up of interacting, mutually reinforcing components. In any such "system"--be it an agricultural production system, a school, or a health system--if any important component is missing or malfunctioning, or if its relationship to other components is out of kilter, then the performance and productivity of all the other components and of the whole system will suffer. Therefore, there are important risks to be guarded against in replicating only selected features of an innovative demonstration project, seen in isolation. Unless these features are carefully fitted into their new context they may turn out to be disappointing misfits.

THREE GENERAL CONCLUSIONS

These introductory comments have attempted to illustrate some of the important principles and lessons that can be derived from the experience of the Lampang Health Development Project of potential value to others seeking to develop a wide-reaching and affordable rural primary health care system. Three important general conclusions emerge from this discussion:

First, to build a workable and affordable primary health care system that will serve the great majority of needy rural families is a considerably more complicated, time-consuming and expensive undertaking than is generally realized by those who have not actually tried. Nevertheless it has to be done, because this is undoubtedly the most effective and feasible way--probably the *only* way--to meet the crucial and long-neglected basic health needs of rural people. Whether it *will* be done is largely a question of each individual country's political priorities, and of the willingness of both the medical profession and the public health profession to cooperate fully in the effort.

Second, securing the genuine and extensive participation--not simply the token or half-hearted participation--of rural communities at the base of such a system is especially complicated, yet absolutely essential to its success. This invariably requires strong and steady technical and other kinds of support and encouragement from a substantially strengthened and reorganized health infrastructure above the village level.

Third, to plan and build and manage a primary health care system successfully, it is vitally important to keep viewing it *as* a system of highly interdependent and mutually supporting parts and to the surrounding social-economic-cultural milieu if the whole system is to function effectively. Regardless of how well any particular innovative feature may work in the context of a demonstration project, it cannot be expected to work equally well if plucked out separately and transplanted from the demonstration "system" to a quite different context--unless great care is taken to adapt it properly to all the other components of the receiving system.

These few general conclusions by no means exhaust all the important lessons that can be drawn from the Lampang experience. We suggest to our readers that as they examine the case study they try to discover on their own what the Lampang Project has to teach us all about such other important matters as: (1) improving the management and efficiency of a primary health care system; (2) the realistic problems of integrating a medically-dominated urban hospital system with a rural system seriously deficient in curative services; (3) the importance of evaluation, but also the serious limitations of expensive, sophisticated methodologies for measuring *quantitative* changes and impacts, which may in the end not answer some of the most important *qualitative* operational questions of prime concern to policymakers; (4) the most appropriate--and the least appropriate --kinds of help that external assistance agencies can render in this field, and the best ways of rendering it; and (5) perhaps most important of all, practical ways to insure that the poorest segment of rural communities enjoy equal access to and equal benefits from a primary health care system.

No one project, of course, can be expected to shed more than partial light on any of these basic issues. But because such relatively large and systematic, government run projects of rural primary health care are still few and far between, we must be especially grateful for such light as the Lampang Project affords, and to the authors of the case study who have given us the opportunity to see the light.

CHAPTER 1

PROJECT BACKGROUND

ORIGIN AND DEVELOPMENT OF PROJECT

Health leaders in Thailand have long recognized the need to strengthen the government health care delivery system and extend basic health services to cover the majority of the Thai population, 85 percent of which resides in under-served rural areas. During the 1960s, the rural population grew at over 3 percent a year and suffered primarily from easily-diagnosed and easily-treated conditions, such as communicable and infectious diseases common in Southeast Asia, diseases of pregnancy and childbirth, malnutrition, gastrointestinal problems, skin infections, and accidents. Scarcely 25 percent of the rural population had convenient access to government health facilities; and even where such facilities were available they were often not utilized. Only 15-17 percent of the rural population would seek health care from government facilities and personnel. Only 2-3 percent of the national budget was allocated for health services, and the limited numbers of trained medical and health personnel gravitated to Bangkok and other urban centers.

In the ten years before the conceptualization and development of the Lampang Health Development Project, the Ministry of Public Health implemented two pilot projects aimed at strengthening the rural health services delivery system and extending basic health services that would be available, accessible, affordable, and acceptable to the rural population. The experience gained in these projects--the Pitsanuloke Project and the Saraphi Project--had a direct influence in planning the Lampang Project.

The first of these was implemented by the Ministry of Health in 1964-68 in Pitsanuloke Province (population about 500,000) to strengthen rural health services through the construction of rural health centers, recruitment of additional health personnel, and retraining of all existing rural health personnel. Subdistrict (having a population of about 5,000) health workers were selected by local people to work on a voluntary basis, but they were eventually trained and hired as sanitarians to help staff the subdistrict level health centers. The important approaches of this effort were (1) strengthening rural health services facilitated by integration of health and medical services at the peripheral service units, (2) extending rural health services by recruiting villagers to be new health

workers, (3) establishing a revised record-keeping and reporting system based on family folders, and (4) establishing a patient referral system between the local health centers and the provincial hospital. Regular supervision and a patient referral system were attempted, but could not be maintained. The project was considered a partial success, but it lacked adequate evaluation for detailed analysis and planning purposes.

The Ministry of Public Health implemented the Saraphi Project in Chiengmai Province in 1968-71 with a view to developing a model for rural health services that would emphasize Maternal and Child Health, Family Planning, Nutrition, and Communicable Disease Control services and promote the active participation of the community and village health volunteers and health communicators. A central district health center, five subdistrict health centers, and six midwifery centers were constructed and staffed by newly-recruited government health workers. The highlight of the project, however, was the recruitment and training of health post volunteers in three subdistricts and health communicators in another two subdistricts. Child Nutrition Centers were established through community participation; village health posts were established and staffed by village health post volunteers; well-child clinics were strengthened in all service units; and a patient referral system was attempted between the village health post and the government health centers. The experience gained, although not adequately evaluated, suggested that village health post volunteers and health communicators could (1) effectively promote village level health services, (2) strengthen the referral of patients to appropriate facilities, and (3) encourage community participation in operating the child nutrition centers.

Although these two earlier projects had ended their status as "projects," a number of the innovations they fostered were subsequently applied in modified form in other areas by the Ministry of Health and by the planners of the Lampang Project. In particular, the basic ideas for selecting and training local health post volunteers and health communicators were borrowed by the Lampang Project from the Saraphi Project.

In 1970, a national survey on the utilization of health services in Thailand revealed that less than 20 percent of rural villagers, when ill, utilized government rural health centers. Subsequent analyses of the national health services revealed that the major problems centered on the following: inadequate health service coverage, inadequate health service manpower production and distribution, inadequate health data, poor coordination between public and private health sectors, lack of communication between suppliers and consumers, lack of community organization, inadequate health service infrastructure, and poor administrative and management practices resulting in fragmentation of services, duplication of effort,

and inefficient use of severely limited resources. Ministry of Public Health leaders were determined to find ways and means of solving these problems so as to bring basic health services within easy reach of a majority of the rural population.

In 1971 the U.S. Agency for International Development (US AID) had contracted with the American Public Health Association (APHA) to develop and evaluate new approaches for integrated rural health care delivery systems for improved health, population, and nutrition services in the developing world. The US AID-APHA proposal called for "long-term (up to eight years) pilot, experimental work to be carried out in four representative less-developed country locations...with a large population base (500,000 or more) in such a manner that general conclusions on accessibility, acceptability, and affordability can be drawn."

In 1972, the APHA approached the Royal Thai Government and the University of Hawaii to elicit their interest in collaborating on a "DEIDS" (Development and Evaluation of an Integrated Health Delivery System) project for Thailand. In 1973, a joint team of US AID, APHA, and University of Hawaii School of Public Health (UHSPH) representatives reached agreement in principle with the Thai Ministry of Public Health to plan a "DEIDS" project for Thailand, and the APHA and UHSPH recruited a health professional from Hawaii to work with the Ministry for six months to help plan the project. The plan for the DEIDS/Thailand Project was completed by late 1973 and was submitted, approved, and funded in 1974. Significantly, the Project Proposal stated that "after careful consideration with AID, it was decided that the planning/monitoring/evaluation system for the project should be expanded, beyond the original goal of measuring how many people are reached, to include planning and programming questions, and longer-run questions of cost-effectiveness and replicability." The Proposal also emphasized that "unless flexibility is possible during Phase III (implementation) activities, an acceptable low-cost system will be difficult to develop. Since the design of a high-coverage delivery system is unproven in Thailand, it must start with a reasonable hypothesis and let the program evolve from there through constant evaluation of services structure, utilization and cost."

The "DEIDS/Thailand Project" was inaugurated in September 1974, with the Royal Thai Government (RTG) and the APHA signing the "Project Agreement" for development and evaluation of a health delivery system in Lampang Province; and in December 1974, the University of Hawaii signed a subcontract with the American Public Health Association to provide technical assistance to the RTG in support of the DEIDS/Thailand Project. The administrative and collaborative structure of the Project provided for "central funding" from US AID (under the US AID-APHA/DEIDS Contract), a Project Agreement between APHA and the RTG to provide financial assistance, and a subcontract between the APHA and the UHSPH to provide technical assistance. The Project, approved by the Cabinet of the Royal Thai Government, has since been administered by the Ministry of Public Health and implemented by the Ministry's Department of Health and the Lampang Provincial Health Office. The Government's role in

planning the Project and its steadfast commitment to the goal and objectives of the Project have been noteworthy.

The northern province of Lampang, with a 1974 population of over 600,000, was selected by the Ministry of Public Health to be the site for the "DEIDS/Thailand Project," now best known as the "Lampang Health Development Project." The selection called for: (1) a population over 500,000 (2) fair communications to and within the province, (3) a noninsurgency area, (4) moderate economic status, and (5) endorsement by provincial officials.

Figure 1 traces the evolution in Thailand of the key concepts and basic elements of an integrated rural primary health care system that were utlimately incorporated in the Lampang Health Development Project.

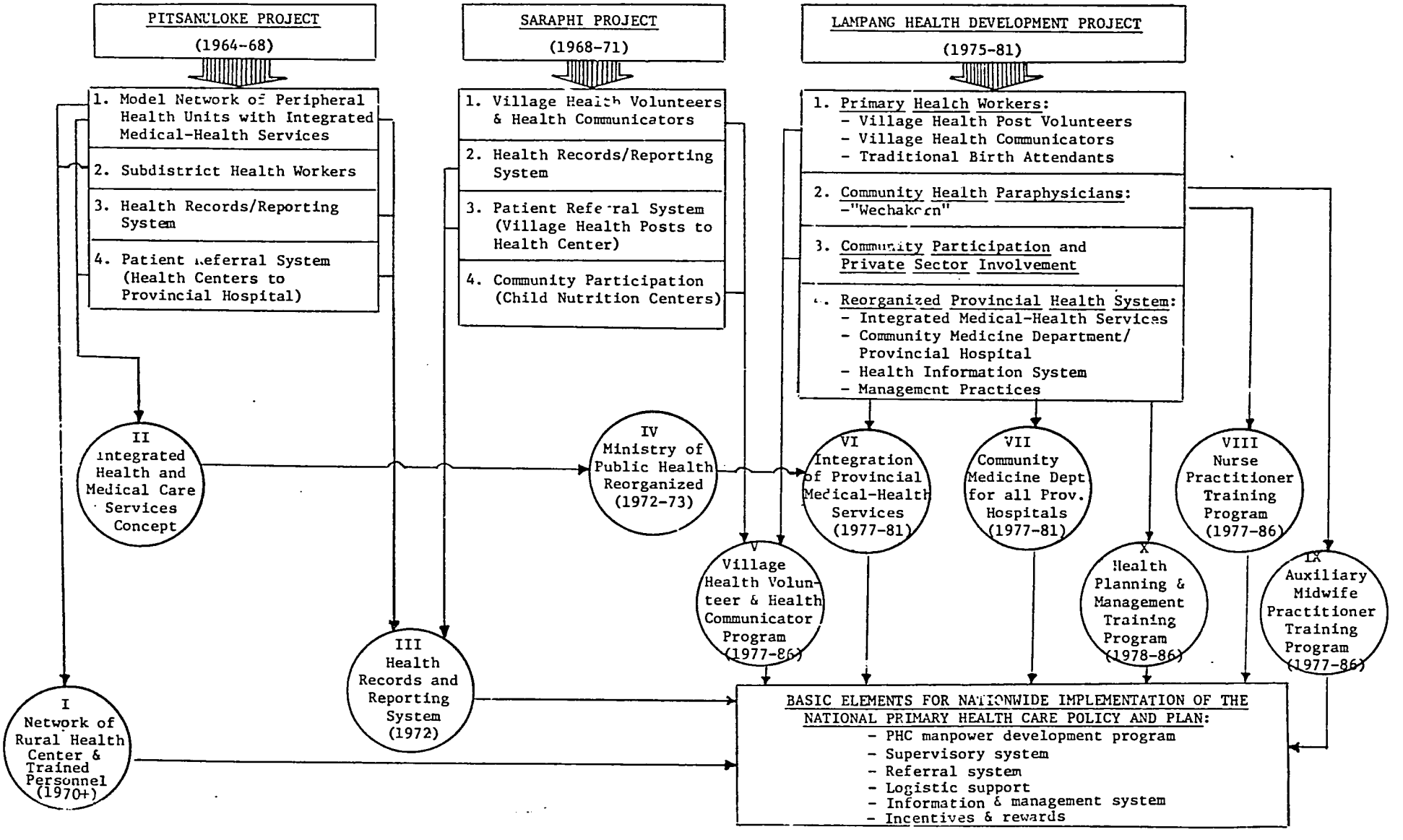
PHILOSOPHY AND RATIONALE

Given the limitations of budget, trained health manpower, health facilities and other resources needed for implementing and maintaining a viable and effective health delivery system, planners of the Lampang Project sought ways to expand health services that would be the most cost-effective. They recognized that it would be far too expensive to build adequate facilities and train enough physicians, even if they were willing to reside and work in rural areas. Therefore, project planners decided to retrain existing categories of health workers (nurses, midwives, and sanitarians) to provide a limited range of relevant and competent curative services as intermediate clinical care providers or as community health paraphysicians called *wechakorn.** The limited number of available physicians could readily supervise the corps of wechakorn physician-extenders, and thereby significantly extend clinical care services to the subdistrict (population about 5,000) level. For more sophisticated clinical care by physicians, a patient referral system was planned to link all service facilities.

The planners were convinced that an *integrated* system that provided a combination of curative, disease prevention, and health promotion services--with special emphasis on nutrition, family planning, and maternal and child health services--would be more cost-effective than fragmented single-purpose services. They also believed that integrated services would be more comprehensive, convenient, and acceptable to the consumers. Hence, the Lampang Project aimed at the integration of previously separate health services and the reorganization of health system infrastructure. It was expected that by strengthening management practices and operating the health system through informed decisionmaking, based on a streamlined health information system, improved performance, efficiency, and effectiveness could be achieved.

**Wechakorn*, Thai for physician extender or paraphysician, is a term coined by Lampang Project leaders, derived from *wecha,* meaning medicine or medical care, and *korn,* meaning provider or practitioner.

FIGURE 1: DEVELOPMENT OF CONCEPTS AND BASIC ELEMENTS FOR PRIMARY HEALTH CARE AND INTEGRATED RURAL HEALTH SERVICES IN THAILAND (1964-1986)



The central strategy of the Project coincided with the concepts inherent in the "primary health care" approach advocated by the World Health Organization. The mobilization of all available private sector and community resources would vastly increase the coverage of the coordinated government-private health care providers. Community organization and community participation in an expanded health system would be essential. The concept of village health volunteers and health communicators, present in earlier projects, required further testing but seemed promising. It was felt that village health volunteers could be supervised and guided by the wechakorn and other health workers at the nearby health center, and that the wechakorn would provide the first referral point for village volunteers. It was recognized that most rural deliveries are performed by traditional birth attendants. Thus, rather than attempt to change this pattern, plans were made to train the traditional birth attendants in more sanitary practices and to recognize conditions requiring more skilled attention.

GOAL AND OBJECTIVES

The ultimate *goal* of the Lampang Project is to improve the health status of the population of Lampang Province. The more specific *objectives* for reaching this goal are:

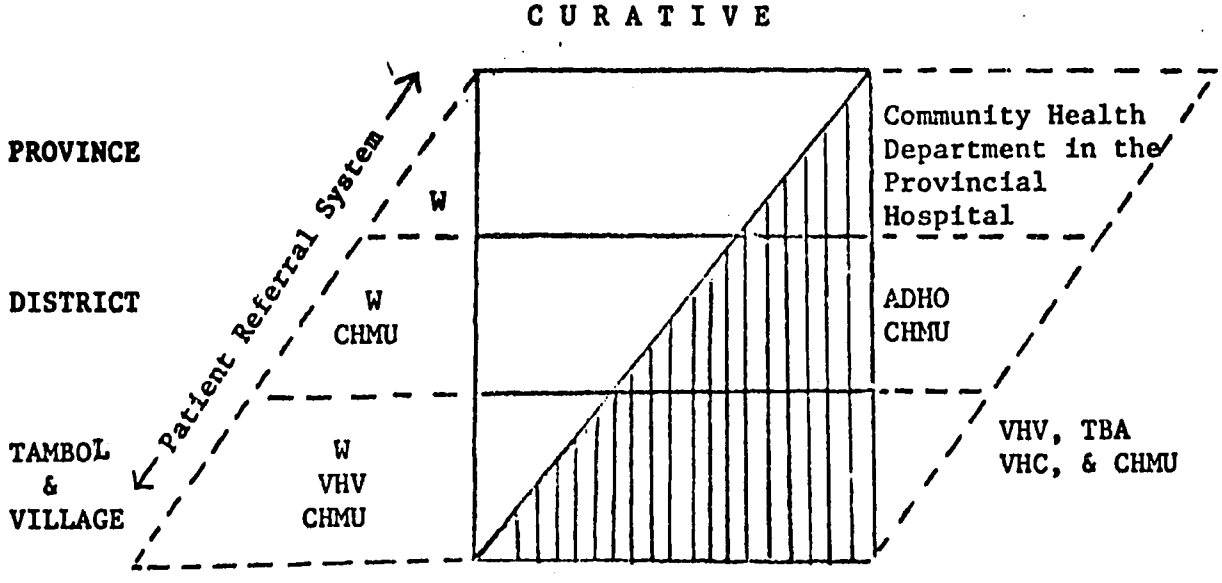
1. to expand health care coverage to at least two-thirds of the rural population, especially women in their child-bearing years and preschool age children, with an emphasis on family planning, nutrition, and maternal and child health services;

2. to establish a model integrated provincial health service delivery system which extends integrated curative-preventive-promotive health services to every subdistrict health center, and to establish preventive-promotive health services in every village through trained village health volunteers; and

3. to establish a provincial health care system that is cost-effective, meaning "lower-cost" per service unit, the key features of which can be replicated nationwide within the limitations of Royal Thai Government resources.

To achieve these objectives the planners envisaged a vertically integrated, multi-tier health care delivery system, illustrated diagramatically in Figure 2. The system as a whole was designed to expand both curative and preventive/promotive services in proportions appropriate to the health needs of the local population. It was also designed to make optimum use of scarce highly-trained health manpower and sophisticated facilities and equipment through

FIGURE 2: DISTRIBUTION OF EFFORT BY LEVEL AND TYPE OF SERVICE



W = Wechakorn (Paraphysician)
VHV = Village Health Volunteer
VHC = Village Health Communicator
TBA = Traditional Birth Attendant
ADHO = Assistant District Health Officer
CHMU = Community Health Dept. Mobile Unit

an appropriate division of labor among the different tiers.

The bottom tier, comprising the subdistrict (tambol) health center team and affiliated village level volunteer health workers, would devote about three-quarters of their total effort to preventive/promotional work and the remaining quarter to handling simpler curative cases (referring more difficult cases to higher levels). The district hospital at the middle level and the provincial hospital at the top would devote the bulk of their effort (about three-quarters) to more sophisticated curative services and in addition would provide important supervisory and support services to both the curative and preventive/promotive work at the bottom tier.

The specific strategies of the project and the various staff and institutional arrangements it provided to insure the effective functioning of the system depicted in Figure 2 will be examined below. First, however, it will be useful to examine the health system as it existed prior to the project and also the demographic features and health status of the rural population.

NATIONAL HEALTH CARE STRUCTURE

The Ministry of Public Health is the major health service provider in Thailand, overseeing a widespread network of hospitals and rural health centers reaching out to all 71 provinces, to over half of the 570 districts of the country, to about 60 percent of the subdistricts, and to almost 10 percent of the villages. The Ministry in Bangkok is organized as follows (see Figure 3):

1. The Office of the Under Secretary of State for Public Health coordinates the work of five ministry departments and directly administers the provincial health care system.
2. The Department of Medical Services is responsible for specific hospitals in the Bangkok area and for special-function hospitals (including psychiatric care) in other parts of the country.
3. The Department of Health, with eight technical divisions, provides a variety of support for ministry programs relating to the environment and population.
4. The Department of Communicable Disease Control coordinates all immunization and disease control programs.
5. The Department of Medical Sciences is responsible for laboratory research and services.
6. The Office of Food and Drug Control is the national unit responsible for control of food and drug production and distribution.

Besides these service functions, the Ministry also trains a large number of health workers to staff its network of health facilities.

FIGURE 3: ORGANIZATION OF THE MINISTRY OF PUBLIC HEALTH

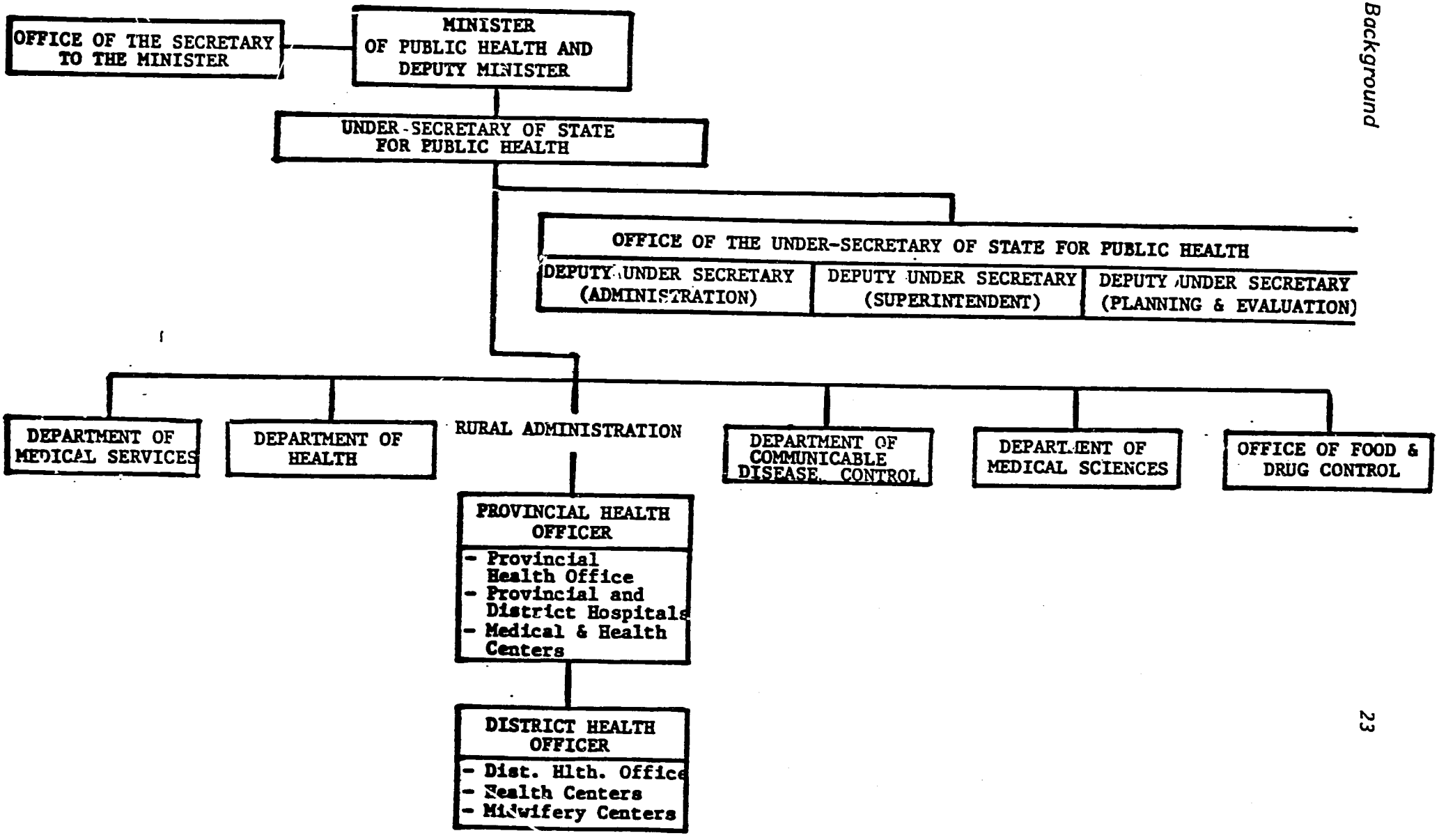
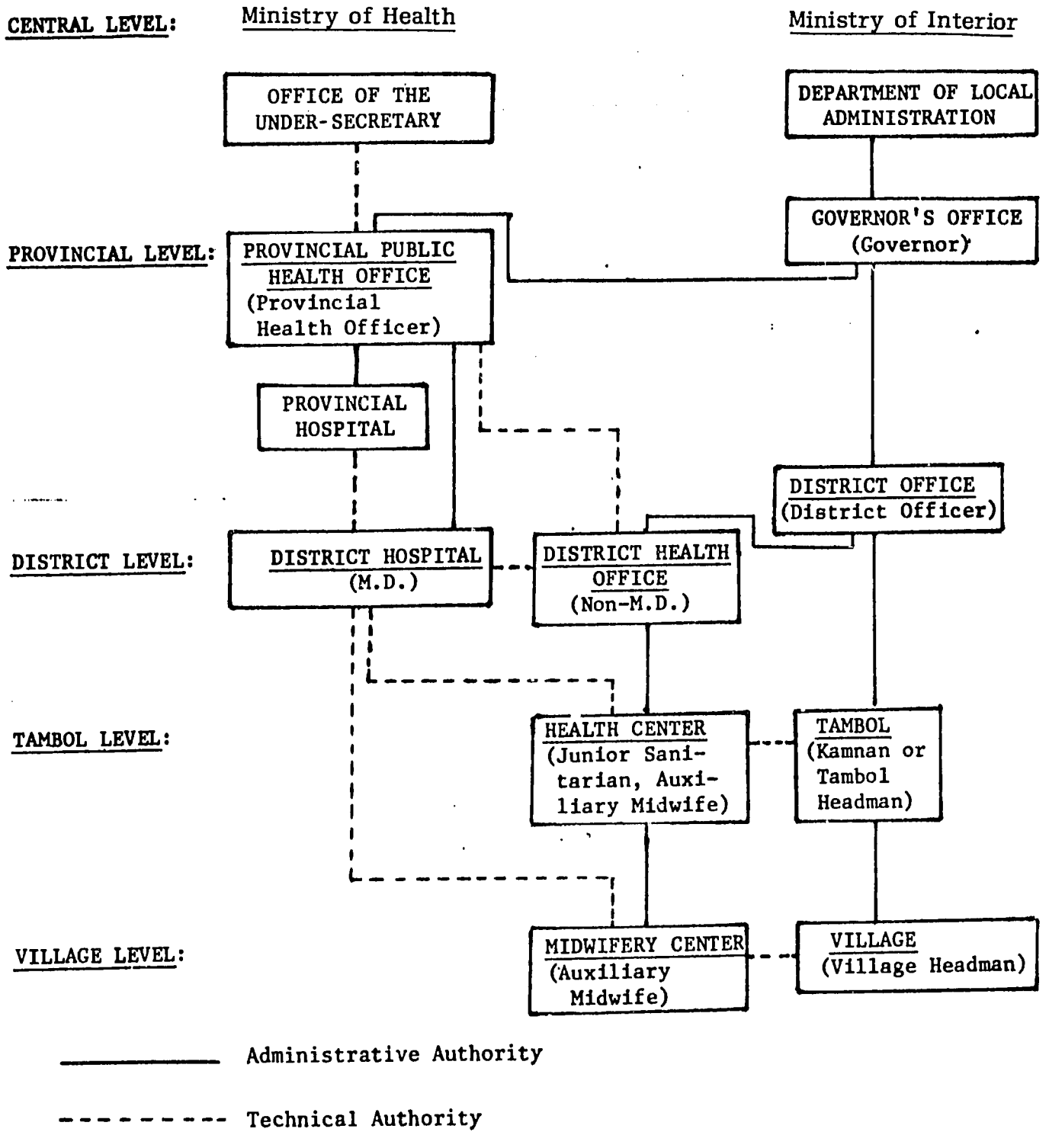


FIGURE 4: NETWORK AND ADMINISTRATIVE RELATIONSHIP BETWEEN MINISTRY OF PUBLIC HEALTH AND MINISTRY OF INTERIOR, THAILAND (1978)



It provides preservice training for nurses, midwives, male sanitarian health workers, nurse aides, and a variety of other auxiliary personnel. It also offers a wide array of refresher courses and other types of continuing education to its personnel.

Other more specialized and highly trained health personnel are produced outside of the Ministry. Physicians are trained in six medical schools, three of which are located in Bangkok. A large number of nurses, medical technologists, and other specialized personnel are also trained in university settings, such as the Faculty of Public Health of Mahidol University, which provides graduate training at the bachelor and master's level for all types of health personnel who qualify for university education.

PROVINCIAL HEALTH ADMINISTRATION

The basic administrative unit in the country is the province, each of which has a provincial health organization headed by a Provincial Health Officer who is directly responsible to both the provincial governor and the Under Secretary of State in the Ministry of Public Health. Although the Provincial Health Officer is officially in charge of both the provincial hospital and the rural health center network, there has traditionally been a clear separation between the provincial hospital, which provides predominantly curative care, and the provincial health office, which is responsible for the network of rural health centers, providing some curative but mostly preventive services. Provincial hospitals range in size from about 150 to 600 beds. The Provincial Health Office has responsibility for district hospitals (formerly called "first class medical and health centers"), subdistrict health centers, and midwifery centers. Figure 4 shows the provincial health care organization and its linkages to overall provincial administration. Figure 5 shows the available provincial health facilities and coverage in 1976.

The Lampang Project is one of several approaches the Ministry of Public Health has fostered to deal more effectively with observed inadequacies. The innovations and modifications of the existing provincial health system that constitute the Project's key features include:

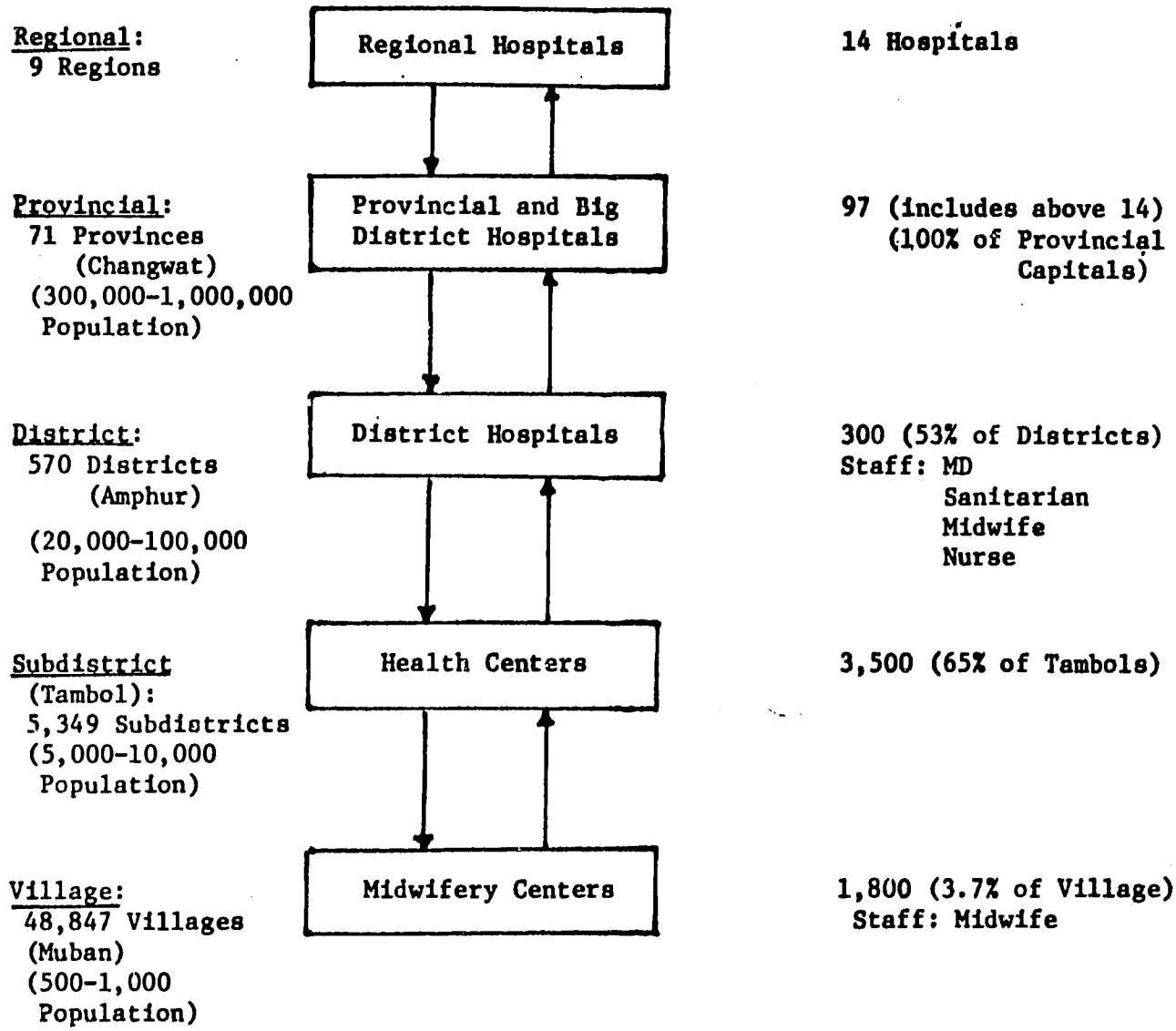
1. <u>Reorganization and strengthening of the provincial health service infrastructure by:</u>

   a. integrating the curative, disease prevention, and health promotion services by coordinating and administering them under a single provincial health administration;

   b. establishing a Department of Community Health within the Provincial Hospital; and

   c. improving management and supervisory practices, in part by developing a practical management information system.

FIGURE 5: CURRENT MINISTRY OF PUBLIC HEALTH FACILITIES AT THE PROVINCIAL LEVEL 1976 [a]



[a] Source: MOPH Planning Division, 1976

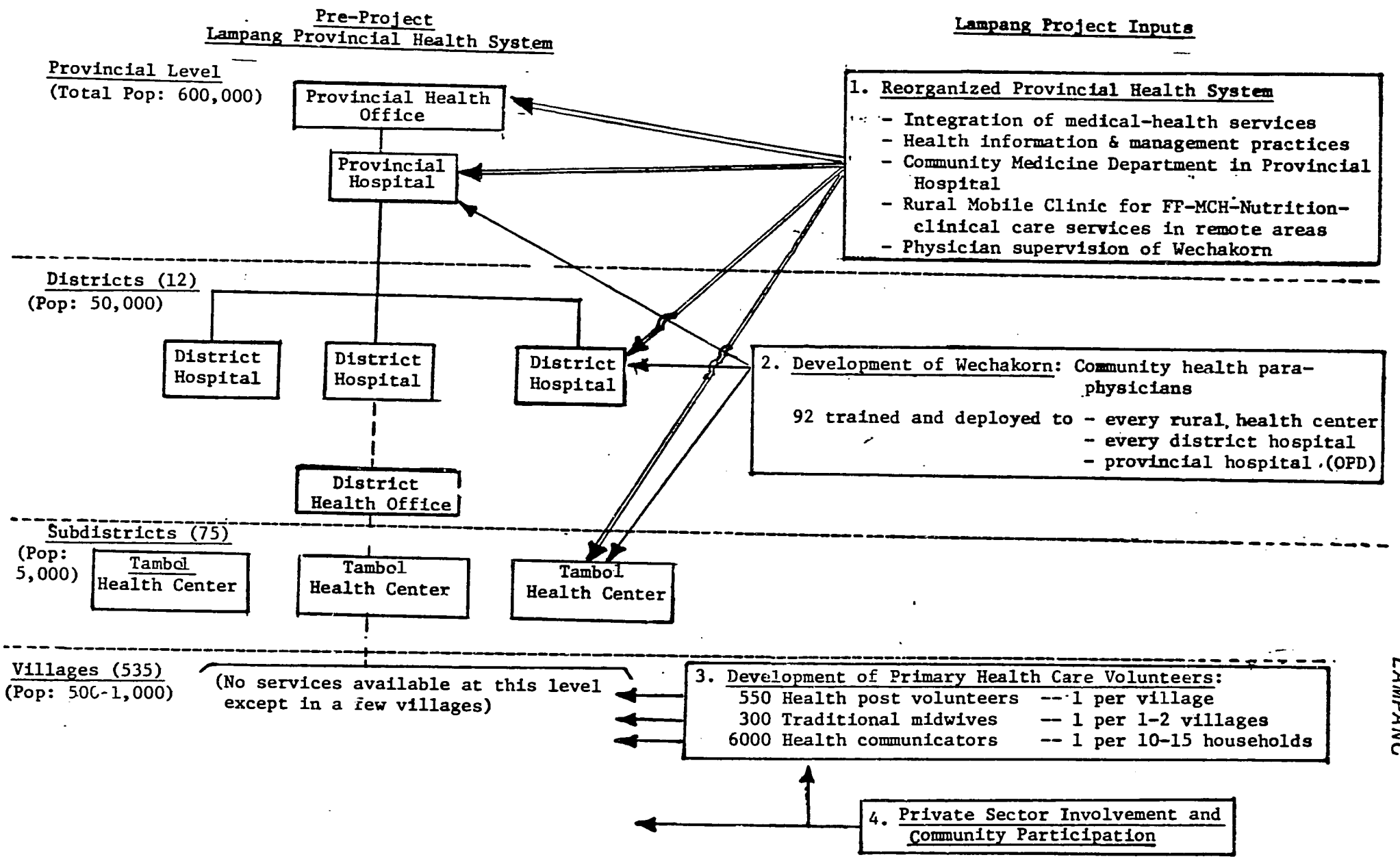
2. Development of community health paraphysicians (wechakorn) to overcome the lack of skilled curative services available at the periphery. Ninety-two wechakorn, recruited from among nurses, midwives, sanitarians, and nurse aides have been trained for one year in the provincial and district hospitals, after which the majority return to assignments in subdistrict health centers.

3. Deployment of three types of community health volunteers in every village of the province. At least one "health post volunteer" (HPV) and, where available, one "traditional birth attendant" (TBA) have been trained for each of the province's 545 villages, making basic primary health care services and nonprescription drugs accessible to every villager in the province. To assist the health post volunteers, groups of "health communicators" (HC) are also trained, one for every ten families, to provide a network of advice, referral, and health information to every household. By 1979, 650 health post volunteers, 350 traditional birth attendants, and 6,000 health communicators will have been trained.

4. Stimulating community and private sector involvement. This is a major emphasis in the development process. Community support has been actively sought through the formation of "Village Health Committees," whose function is to select the volunteers and to provide local support to them once the volunteers are in place. Efforts have also been made at the local level to involve private organizations and health care providers (such as druggists, private clinics, Rotary and Lions Clubs) and others with important roles in village health care and development.

Figure 6 provides a summary picture of how the new inputs of the Lampang Project have modified and supplemented the previously existing provincial health system with a view to enlarging and improving rural health services.

FIGURE 6: LAMPANG PROVINCIAL HEALTH SYSTEM AND THE INPUTS OF THE LAMPANG HEALTH DEVELOPMENT PROJECT



CHAPTER 2

THE LAMPANG SETTING

AREA BACKGROUND

Lampang is one of 16 provinces in the north of Thailand, located centrally within the region. Lampang had an estimated population of about 660,000 in 1978 in an area of 12,518 square kilometers (4,890 square miles). The population growth since 1970 averaged 1.8 percent per year. The province has 12 districts, 75 subdistricts, and 538 villages. The provincial center Lampang town, has a population of 50,000.

Lampang is located on the rail lines between Bangkok and Chiengmai and on the main highways linking Bangkok and Chiengmai and other major points in the northwest. The population is predominantly Buddhist and rural; the economy is largely agricultural. Rice is the main crop, along with other cash crops such as peanuts, pineapple, and sugar cane. Because of its location along communication arteries, agro-processing plants have also been established, such as major canning facilities for crops such as pineapple, and sugar processing plants. Lampang also derives income from extractive industries, such as timber, wolfram, tin, fluorite, and lignite. In one district, a lode of lignite has been discovered, which has stimulated the development of a large power generating plant using lignite as fuel. There is also a variety of cottage industries producing wood carvings, decorative weapons, and pottery.

PROVINCIAL HEALTH FACILITIES

When the Lampang Project began field operations in late 1974 the provincial hospital had 300 beds, a staff of 22 physicians and 58 nurses, an average daily occupancy rate of 100 percent, and a daily out-patient load of from 300 to 500 patients. Only three of the province's 12 districts had district hospitals and only two of these had a physician in attendance. Twenty-six of the province's 75 subdistricts had a health center, staffed by a sanitarian and a midwife. In addition, there were midwifery centers located in 33 of the province's 538 villages. Within the provincial health office, there were also units for communicable disease control, venereal disease control, and epidemiology. There were also a malaria control unit,

a regional sanitarian center, a leprosy control center, and a regional midwifery school also located in the health service complex. In addition to government-sector health services, there were at least 20 private medical clinics in Lampang town (staffed mostly by hospital physicians in nonofficial hours), and two private hospitals of 25-50 beds each. In the rural areas,there were a variety of indigenous practitioners, such as herbalists, injectionists, traditional birth attendants, magical and spirit doctors.

The services provided by each type of government health facility mentioned above can be summarized as follows:

1. *Provincial Hospital:* Basically curative health services are available with the primary specialties and a few subspecialties represented. Patients requiring more sophisticated care are referred to the teaching hospitals in Chiengmai or Bangkok. Male and female sterilization, as well as IUDs, birth control pills, and Depoprovera injections are available in the hospital's family planning unit.

2. *District Hospital:* Clinical care is provided for most acute illnesses, trauma episodes and minor surgery, along with short-term, acute in-patient care. It also provides the full range of maternal and child health and family planning services, including vasectomy (in one district hospital), IUD insertion, pills, and Depoprovera injection.

3. *Subdistrict Health Center:* Provides first aid and emergency treatment for minor illness and injury, pre- and post-natal care, deliveries, child and school health, nutrition center services, family planning services including pill and condom distribution, sanitation and environmental health (privies and clean water supply).

4. *Midwifery Center:* Offers pre- and post-natal care, deliveries, family planning services, including pill and condom distribution.

During the ensuing four years the provincial and district level hospital facilities were substantially augmented, not as a direct result of the Lampang Project but as part of the government's nationwide effort to enlarge rural health facilities. By 1978, there were five district hospitals, all with doctors and wechakorn assigned, and one more scheduled for completion in 1979.

HEALTH STATUS OF THE POPULATION

The community health survey conducted in 1975 established a baseline against which many of the objectives of the Lampang Health Development Project (LHDP) will be measured. It also provides a

picture of health status in the first experimental area brought into the LDHP (Hang Chat--E1) and its two control areas (C1 and C2). One of the control areas (Mae Tah--C1) is in Lampang Province, the other, C2, is in an adjoining province and will not be considered further here (see following Figure 7). About 20 percent of households, or 1,500, in E1 were sampled. The comprable figure for C1 was 10 percent or 1,100. The data to follow characterize some 100,000 people, or about 15 percent of the estimated 1975 population in Lampang Province.

Households in the two sampled areas were predominantly rural and mostly engaged in agriculture. Only 20-25 percent were considered poor.* Almost half the households had access to a water-seal latrine. Most families obtained their drinking water from shallow wells, half of them within their own compounds. Only 10 percent took further steps to boil or filter their drinking water.

1. Illnesses and Choice of Remedial Services:

In the two weeks before the survey, 9 percent of the sampled population claimed to have been ill. The most common symptoms were diarrhea, shortness of breath, painful or cloudy urination, stomachache, fever. headache, cough, and vomiting, in that order. Fifty-five percent of illnesses did not last over 6 days.

As shown in Table 1, fifty to sixty percent purchased medicine directly and only 27 percent went to government health facilities for diagnosis and treatment.

While much illness is self-limited, prolonged self-treatment or reliance on traditional healers may at times lead to more serious disease and disability by delaying the application of more appropriate medical care. Although government health services may be utilized more in area E1, as compared to the 1970 national survey results, the absolute figure remains low. The finding that relatively few individuals sought care in the more expensive private sector suggests that the population in area E1 has less access to this sector (confirmed by local observers), but also, as compared to the national sample, is less able to afford such care when ill.

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*This statistic is based on subjective judgments by the individual interviewers, taking into account the quality of the family's housing, its possessions such as farm animals, and the amount of arable land it owned or tilled. Fragmentary evidence from other surveys suggest, however, that the percentage of seriously poor families in the rural sector of Lampang Province may be substantially higher than 20-25 percent.

FIGURE 7: GEOGRAPHICAL PHASING OF PROJECT IMPLEMENTATION

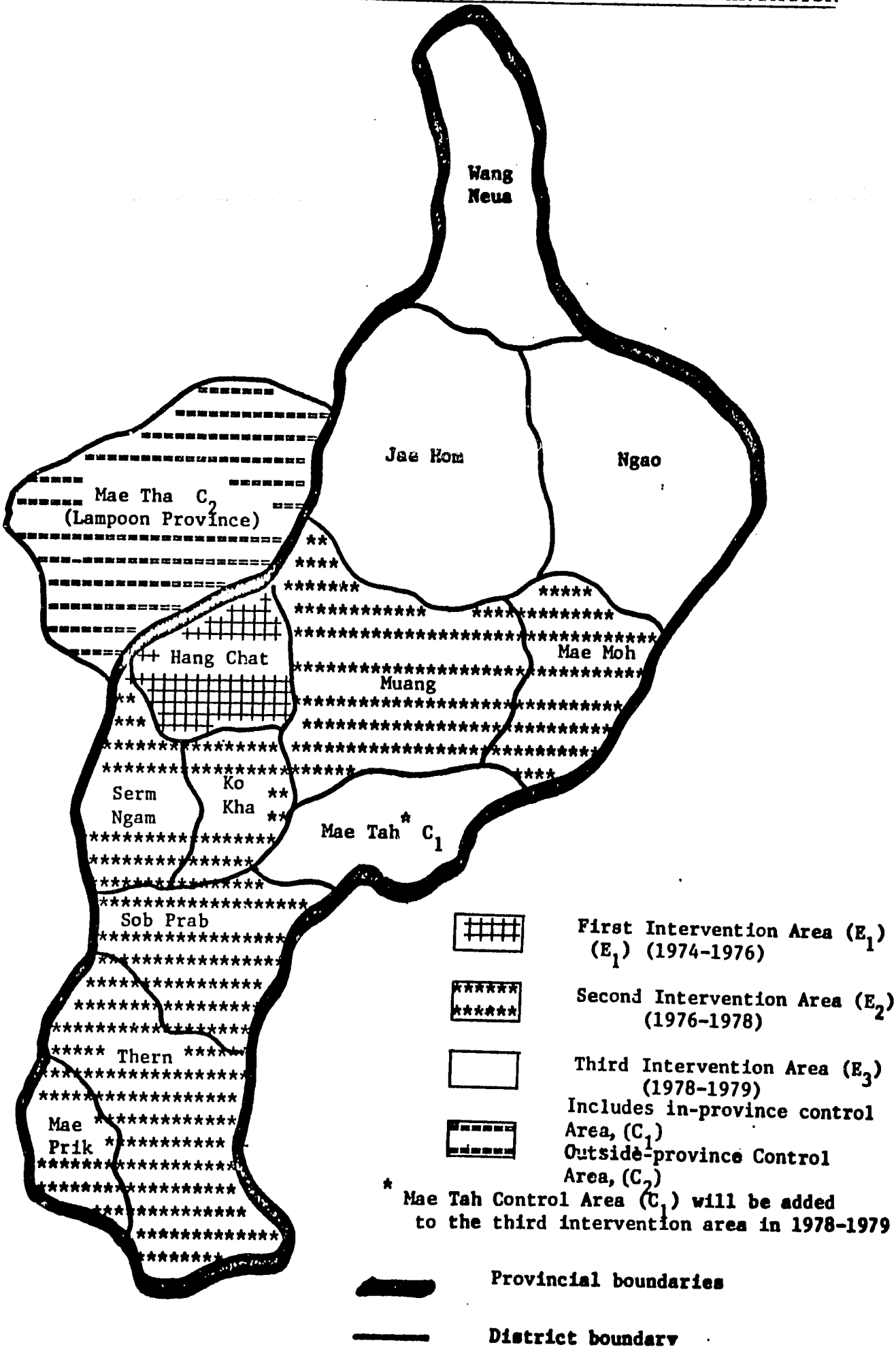


Table 1

Baseline Utilization of Health Services

First Place/Practitioner Chosen When Ill	% of Ill Persons Choosing			
	National Survey, 1970	Rural[a] North, 1970	E_1[b]	C_1[b]
Purchased own medicine	51.4	52.7	50.5	61.0
Private hospitals/clinics	22.7	7.1	8.7	7.3
Government hospital	10.5	13.9	12.7	7.1
Herbalists, injectionists, traditional midwives and other local healers	7.8	17.4	8.8	10.9
Government health centers/ miwifery centers/ clinics/other	4.9	6.5	14.2	10.7
No care sought or no response	2.7	2.4	5.1	3.0
	100.0	100.0	100.0	100.0
All Government Health Facilities	15.4	20.4	26.9	17.8

[a]Part of National Survey, 1970

[b]E1 and C1 data are from Community Health Survey, 1975.

2. Maternal and Child Health:

According to the same Community Health Survey, slightly over 75 percent of all deliveries were supervised by trained personnel, although 45 percent of these were at home. The majority of these women had had at least one pre-natal contact at the hospital or health center, but less than 10 percent went for a post-natal examination. Sixty percent underwent the traditional practice of post-partum "roasting," or lying by the fire, and almost all went without vegetables or meat for the first post-partum month.* It is widely believed that

*Roasting has been a traditional practice in which the mother and child are confined to a room for about a month, kept warm by a brazier of coals, and given an extremely limited diet--mostly rice-gruel and fried pork skin. The practice is thought to hasten uterine involution and enable the mother and child to overcome the adverse effects of delivery.

the post-partum mother should refrain from eating a variety of (frequently nutritious) foods in the belief that the practice will protect the health of suckling infants. Salted baked rice and pork skin are the main foods permitted. While there is difference of opinion about some foods, some restrictions of food is the usual practice even among younger mothers.

Analysis of the pregnancy history data revealed a 1974 infant mortality rate of 53.6 (per 1,000 live births) in area E1, and 74.2 in area C1. Although the official national rate from reported deaths is 25 per thousand live births, independent estimates from the Survey of Population Change, believed to be more accurate, suggests a rate between 75-80. Nutritional surveillance information for children under 6 indicates that 13-15 percent may be second or third degree malnourished against a Thai weight-for-age standard. These findings in E1 are supported by independent data from other districts in Lampang Province.

3. Fertility and Family Planning:

It is clear that fertility in Lampang has been falling rapidly since the late 1960s, well ahead of the rest of Thailand. Contiguous provinces, probably in response to vigorous family planning efforts, have shown an even more rapid fertility decline. All sources indicate crude birth rates in the vicinity of 20 per 1,000 population and confirm that population age structure and changing marital patterns do not explain the decline in both E1 and C1. The national rate is currently estimated at 32.

Over 50 percent of eligible married women were currently using a method, most often the pill, in E1 and C1 in 1975. It is important to note the likely role of family planning in bringing married women in contact with government health services. As shown in Table 2, a much larger proportion of women used services than did children under 6, although both rates are relatively high.

Since it seems likely that other maternal and child health services are promoted through the strong interest in family planning, integration of these services can further activate and extend the benefits to children.

The Project design is basically a quasi-experimental pre-test/post-test type, with two control areas. In the Lampang operational area, there are three sequentially-phased experimental areas designated E1, E2, and E3 for implementation, corresponding to the districts listed below. E1 is a single district, E2 comprises seven districts, and E3 has four districts. Mae Tah is one control district (C1) within Lampang Province (which will be the last district for implementation of Project

Table 2

Proportion of Women (Age 15-44 years) and Children (age under 6 years) Using Government Health Services in Areas E1 and C1

Target Population	E1	C1
Married women 15-44	54.6%	53.8%
Children under 6	31.1%	31.1%

Source: 1974 Community Health Survey, LHDP.

interventions), and another control district (C2) is in Lampoon Province adjacent to Lampang. The preceding map (Figure 7) shows the phased intervention areas and the two control areas.

Geographical Phasing of Project Implementation

Project implementation was planned in three stages: the first stage (October 1974 to October 1976) covered one district (E1), Hang Chat; stage two (October 1976-78) covered the seven districts of the southern part of the province (E2)--Muang, Mae Moh, Ko Kha, Serm Ngam, Sob Prab, Mae Prik, Thern; and the third phase will extend the project to all remaining districts (E3) -- Wang Nua, Jae Hom, Ngao, and Mae Tah (C1). E1 contains about 7 percent of the province's population, and E2 and E3 contain about 60 percent and 33 percent, respectively.

CHAPTER 3

ORGANIZATION, PERSONNEL, AND MANAGEMENT

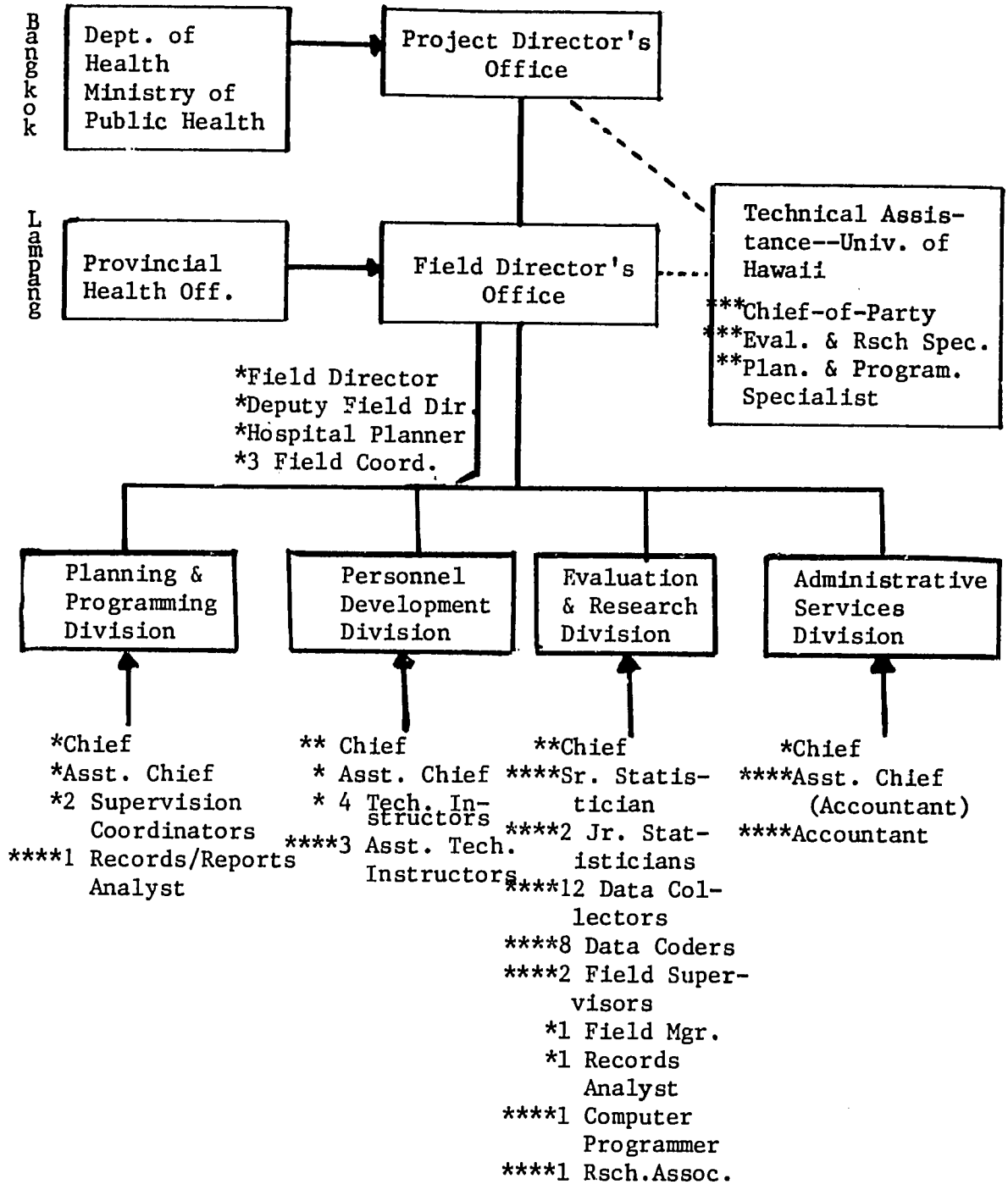
PROJECT ORGANIZATION

To describe the Lampang Project organization is a complex task because project personnel include existing staff members from the provincial health organization, professionals assigned from other units within the Ministry of Public Health and other government agencies, as well as other technical and administrative staff hired specifically for the Project. Project field operations -- delivery of services, training, supervision, management -- are carried out by resident provincial health staff. Those who have come to the Project from the outside act as planners and stimulators, helping to introduce and evaluate the new approaches that are the heart of the Lampang Project. In the final analysis, it is the provincial health organization that must deliver health services to the population of Lampang. The Lampang Project aims to make this process more pervasive, more efficient, more integrated, more community-oriented, and more affordable.

One activity which is not normally a responsibility of the provincial health organization (and one for which it is not equipped) is project evaluation. Evaluation activities--surveys, data processing and analysis, etc.--are carried out by special evaluation staff with necessary coordinating support from the province. Project evaluation staff assist the provincial health staff in strengthening its own information and analysis systems.

The Lampang Project has been organized into a number of components to assist in Project implementation at the provincial level, and to coordinate support from the central ministry in Bangkok. Figure 8 outlines the general Project organization and staff. The Project Director is the Director-General of the Department of Health, one of the five departments within the Ministry. The Project Director takes responsibility for coordinating all support with the various agencies both inside and outside the Ministry of Public Health, and he has established a Project office within the Department of Health. In Lampang Province,

FIGURE 8: LAMPANG PROJECT ORGANIZATION AND KEY PERSONNEL



* Regular MOPH and Lampang Provincial Health Personnel

** Special assignment personnel from RTG agencies (including MOPH) and institutions.

*** U. S. Personnel (Univ. of Hawaii)

**** Hired from private sector.

the Project Field Director oversees Project operations at the provincial level, and all Project division chiefs report to him. Because the heart of Project operations is improved coverage and delivery of health services within the province, it was recognized from the outset that the Field Director must also be a senior provincial health official. Consequently, the Project Field Director has been the Provincial Health Officer from the outset.

Under the Field Director are four Project Divisions: the Planning and Programming Division, the Personnel Development Division, the Evaluation and Research Division, and the Administrative Services Division.

The Planning and Programming Division has responsibility for assisting the provincial health staff in planning and implementing the various modifications and innovative approaches in the Project. The small staff of five professionals have assisted health staff at all levels of the province in selecting the paraphysician wechakorn, in organizing the village committees, in selecting village health volunteers, in stimulating participation from private sector groups, and in organizing programs of special emphasis, such as nutrition surveillance and services and expanded family planning services. In short, the Planning and Programming Division has been responsible for assistance in planning all activities related to service delivery.

The Personnel Development Division, with a staff of training specialists, has responsibility for planning and implementing all training and orientation required to implement the various project approaches. This includes the design and development of the wechakorn paraphysician curriculum, organizing the training schedule in cooperation with the provincial hospital and other health facilities, and preparing all related training materials. It also includes developing a two-week training curriculum and field training programs for the health post volunteers and traditional midwives, and the two-day training sessions for the health communicators. In addition, the division organizes orientation programs for the various service and supervisory personnel at the provincial level; it also implements a training-for-trainers program for those provincial staff who carry the burden of field training. The Personnel Development Division prepares all teaching materials and aids needed for each of the training programs, and draws on a wide range of experience available at other training institutions for assistance.

The Evaluation and Research Division has responsibility for monitoring Project progress and for measuring its impact on service delivery and on the health status of the target population. Because the demands of the evaluation process are unique and outside the normal range of provincial health service activity (and will not be continued at the end of the Project), the Evaluation Division has carried out its activities with its own personnel. Given its wide range of activities, the Evaluation Division has the largest staff of all Project divisions.

The Division of Administrative Services was set up to administer financial and administrative services. It prepares the Project budget, oversees Project expenditures, controls fiscal and administrative procedures, and prepares all required financial reports.

In addition to the Project divisions, a technical assistance staff of three faculty members of the University of Hawaii School of Public Health work as integral members of the Project staff, providing technical consultation in the areas of planning and management, manpower development, evaluation and research. They also assist in coordinating activities with international agencies. The American Public Health Association monitors and manages the project in behalf of the U. S. Agency for International Development.

In addition to the Project staff and UHSPH technical assistance staff resident in Lampang, division chiefs may draw on outside consultants for special technical needs when required. The Evaluation and Research Division and the Personnel Development Division in particular have used outside consultants in carrying out their operations. Most of these consultants have come from institutions within Thailand. Occasionally, consultants from abroad have also been invited.

ORGANIZATIONAL CHANGE AND INTEGRATION

Although the Ministry of Public Health has nominally brought together the hospital and rural health services under one administrative unit (the Provincial Health Office), an effective system of cooperation and coordination at the provincial level has not yet been fully developed.

The Lampang Project has sought to establish a closer alignment between the curative hospital services and the preventive/promotive services of the rural health facilities. This process is considered essential, since the hospital is viewed as the nucleus for medical and health care in the province, providing leadership in training and technical support, as well as service delivery. As part of the design for reorganization, a Department of Community Health--Thailand's first department of this type in a provincial hospital--was established to provide a link between the hospital and rural health centers.

The Community Health Department's Mobile Health Clinic Program provides an interesting example of how the activities of the provincial hospital and rural health care infrastructure have become integrated under the Lampang Project. This particular activity grew out of a nationwide mobile vasectomy program organized by the Ministry of Public Health's National Family Planning Project to meet an evident large demand among rural males for vasectomies. Responsibility for operating a mobile unit in Lampang Province was accepted by the new Community Health Department of the provincial hospital.

Initially the Lampang mobile clinic sessions were confined to vasectomies, but as a result of heavy villager response and requests for other types of services they were expanded to provide out-patient curative care, immunizations, nutrition education and food supplements. The mobile clinic usually goes to two locations a month (generally a rural health center, but occasionally a district hospital that lacks vasectomy services) and spends two days at each location. One week in advance a health education team goes into the scheduled area and works with the health post volunteers and health communicators to inform the villagers of the forthcoming clinic and to motivate them to attend. (A number of HPVs have set a good example by being among the first to seek a vasectomy.)

The mobile clinic staff generally includes one or two surgeons from the provincial hospital, assisted by a small team of surgical nurses or wechakorn. This team works hand-in-hand with the local health center team during the clinic sessions, thus providing them useful on-the-job training. These mobile clinic sessions have had a positive effect in attracting large numbers of villagers to the local health centers, in stimulating and training local health care activities, and in greatly increasing the number of vasectomies. In the first year of operation the mobile clinics performed more than one thousand vasectomies and over three thousand immunizations, and treated nearly seven thousand out-patients.

The training and supervision of the wechakorn paraphysicians has also served to improve the links between the hospital and the rural health centers. Most of the one-year training period is spent in the provincial hospital, first in the didactic classroom phase, and then in the clinical preceptorship rotations. During the training period, the wechakorn trainees develop a strong relationship with their physician-instructors. Not all physicians in the provincial hospital accept the idea or the added burden of training nonphysicians in a broad range of clinical care. However, recognition of the need for, and utility of, the new paraphysician is increasing because of the clear contributions made by the nurse-wechakorn who are assigned to the provincial hospital.

Introducing the wechakorn into the provincial hospital, the district hospitals, and the rural health centers has broadened and strengthened the pattern of health care at each of these facilities. In the provincial hospital, nurse wechakorn are utilized in screening patients in the Out-patient Department, relieving the burden placed on the few physicians normally responsible for these services. Wechakorn also assist in the provision of routine care in the wards, and in providing night call services. In the district hospital, one wechakorn is assigned to assist the physician. Seventy to seventy-five percent of the wechakorn, however, return to health centers at the subdistrict level, where there is no physician available.

IMPORTANT ROLE OF THE WECHAKORN

The deployment of wechakorn to subdistrict health centers seems to have brought the most dramatic change in health care at the subdistrict level. Rural villagers previously utilized the subdistrict health center minimally, knowing that a full range of clinical services could be found only at the district or provincial hospital. With the deployment of the wechakorn to the subdistrict level, care for illness and other health-related needs, including expanded family planning services, is now available near the village.

Wechakorn paraphysician candidates are selected from existing health services personnel--nurses, midwives, sanitarians, and nurses aides--and given an intensive year of competency-based training that equips them to deal with most common health problems, as well as to recognize those more complex conditions requiring the attention of a physician. Although wechakorn continue to maintain their former responsibilities after they complete training and return to their assignments, the one year of competency-based training broadens and strengthens their role and responsibilities at their respective facilities. Their training enables them to diagnose and treat a wide range of the common health problems and illnesses found in the rural areas, utilizing antibiotics and other modern treatments. Their preventive and promotive service activities, formerly their main work, have also been expanded with training in insertion of IUDs and injection of Depoprovera, and in organization of community-based nutrition surveillance and service programs.

Another responsibility that has been added to the role of the wechakorn and other subdistrict health center workers is supervision and technical support for the community health volunteers. At least one health post volunteer is trained for each village to provide primary health care to his fellow villagers. For each HPV, there are approximately ten health communicators in a village. There is one traditional birth attendant in approximately ever two villages. The training and deployment of these three types of community health volunteers is one of the Project's major thrusts in strengthening health care coverage in the rural areas and in enabling the villagers to help themselves.

The important task of maintaining the morale and motivation of the volunteers and of providing adequate technical and logistical support belongs to the subdistrict health center staff--the midwife, the sanitarian, and the wechakorn. In an average subdistrict, the health center has responsibility for 5 to 10 health post volunteers, 50 to 100 health communicators, and about 5 traditional midwives. Each health post volunteer should be visited, at a minimum, once a month to gather information on the volunteer's activities, to assist in solving any problems that may have come up, and to facilitate the resupply of household drugs. Although village volunteers are a promising path to improved health care at the village level and facilitate better use of scarce health manpower resources, their required supervision and support adds new burdens to health workers at higher levels.

The primary health care network of village volunteers is, on the one hand, an extension of the government health care system, but on the other hand is a community-based, private sector system organized to blend as smoothly as possible with the values, traditions, and life-style of rural villagers. There are important reasons for this approach. Not only is the government currently unable to bring health services to every village (and cannot do so in the near future), but it appears that it is not absolutely necessary for the government to reach every one of the villages. Recognizing that villagers in Thailand have a long history of reliance on their own ingenuity and resources without outside assistance, it seems reasonable that, given some stimulation, direction, training, simple medical supplies, and reassurance, villagers can build on native self-reliance in meeting their primary health needs.

COMMUNITY SUPPORT AND COORDINATING BODIES

To establish and maintain such a network of village health care requires a foundation of community support and participation and the sympathetic cooperation of governmental and other organizations at all levels. Thus, in the early planning stages, Project staff proposed that several types of committees be formed, or, if already existing, be oriented to generate support at all key levels. These included: (1) Village Health Committee, (2) Subdistrict Councils, (3) District Advisory Committees, and (4) a Provincial Coordinating Committee.

The Village Health Committee is potentially one of the most important of the community groups. In each village, the former health committee, originally established to improve sanitation and water supply, has been reorganized or a new committee formed. Usually the village committee includes the village headman and other influential members of the village. The first step in the community social preparation process is establishing the committees as a means to provide initial orientation about the objectives and approaches of the Project, to learn of the community's health concerns, and to elicit their support and active participation. Subdistrict health center workers, in cooperation with Project staff, visited every village to organize the committees.

Once the committees were established, their first task was to identify and select the village health volunteers for their area. In the very early stages of the Project a sociometric survey method was used to identify the volunteers, but, though effective, it was found to be too time-consuming and costly for large-scale use. When given a specific task, such as volunteer selection, the village committees were eager and cooperative. However, once the volunteers were trained and returned to the village, the further role of the committee's continuing role has not been well-defined. Committee members in more recently intervened areas have been trained as health communicators, thus obviating the selection of a separate group of villagers to carry out this function. This provides committee members with a clearer role and draws more directly on their special influence in the community.

Subdistrict Councils are a normal coordinating group established by the government for the purpose of local administration. A Subdistrict Council is made up of heads of government units at the subdistrict level, as well as influential citizens from the communities. Subdistrict Councils are oriented by the Project and have been instrumental in coordinating support from other government sectors.

District Advisory Committees, normally made up of the local district officer and all heads of government units, are crucial to the acceptance and effective operation of the Project in each district. Since all health workers fall under the authority of the district officer, his clearance is required before the Project can move into any given area. Under his leadership and support the District Advisory Committee serves as an important mechanism for securing cooperation for the Project from all relevant government units. For example, the district officer and district facilities have been involved in training village health volunteers and in providing assistance to specific activities such as nutrition by other key government units, including agriculture, community development, and education.

The Provincial Coordinating Committee, headed by the governor and composed of all the heads of provincial government agencies (including the Provincial Chief Medical Officer) and district officers, has been a mechanism to inform all government units of the Project's goals and activities as well as to seek advice in dealing with any problems involved in the new approaches. Both governors assigned to Lampang during the Project's period of operations have been strongly supportive, and the Coordinating Committee has been a means for the governor to express and extend his support.

Community Volunteers: The clearest expression of community support is the participation of village volunteers themselves. They receive minimal compensation and yet contribute their time and space in their households to serve their neighbors. The contribution must be both recognized and nourished by the government health services.

Experience in the Project has indicated that the key elements in maintaining the volunteer contribution are regular supervision and encouragement by local government health workers and timely maintenance of the health post volunteers' household drug supply. Where these two elements have lapsed, volunteer morale and performance have declined.

Local Practitioners: Finally, in the interest of mobilizing all available health resources, the Project has sought to involve private sector groups and individuals to the greatest extent possible. Traditional birth attendants have been utilized in every village where they are active. A number of the health post volunteers have previously been herbal practitioners, injectionists, or malaria volunteers. Many druggists--both in the village and urban areas--not only sell medicine but also provide advice on diagnosis

and treatment to their customers. The Project has secured the cooperation of many of the druggists in monthly reporting to the Provincial Health Office on certain specific illnesses they have observed and also the level of their drug sales. In return, the Project has provided short training sessions for the druggists in appropriate prescription of the medicines they sell.

Private Organizations: Recently, a Thai private sector organization, Community-Based Family Planning Services (CBFPS), has established a network of village volunteers who primarily distribute contraceptives (oral pills and condoms), but who now also provide antiparasite medications and some primary health care services. CBFPS has paid particular attention to developing an effective management system, based on a paid district coordinator who works closely with the local district health officer, and a simple, rapid feedback reporting system. Their success in management has prompted the Project to invite CBFPS to implement its approach in one district of Lampang Province and to compare its results with the Project-implemented areas.

MANAGEMENT, INFORMATION AND SUPERVISION

As the Lampang Project began operations, it had to grapple with and seek to overcome the problems of inadequate management practices and a cumbersome information system within the provincial health organization. From the provincial to the district level, and from the district level to the subdistrict health center level, supportive supervision--routine visits for problem-solving, on-the-job training, and feedback on performance--were infrequent and inadequate. Moreover, the provincial information system--including more than forty individual reports and records--was an unnecessary burden at all facility levels and generated a huge amount of data which, even if up-to-date and accurate, seldom reached decision points in a timely or useable form. As a result, reliable information on performance of facilities and personnel was seldom available for management decision-making at various points and levels. Moreover, the flow of information had been generally in one direction only, with little feedback to the units generating and needing the information.

Old and New Management Problems

As will be seen, the Project staff initiated a variety of measures to remedy these existing management and information deficiencies. It must also be noted, however, that several features of the Project created new management burdens and information needs. For example, creation of a new tier of health workers--the village health volunteers--added a new management burden to the subdistrict health center staff. Health center workers must now provide supervisory and logistical support and gather information on a cadre who were not formerly under their responsibility.

Further, at the subdistrict level, the addition of wechakorn paraphysicians introduced new demands for technical supervision and

management. Midwives and sanitarians at the health center level were normally supervised and supported by senior sanitarians and midwives from the district and provincial levels. But the wechakorn, with their new clinical skills, clearly required a different type of technical support than formerly provided. Specifically, they needed technical guidance and continuing education from skilled clinical practitioners such as the doctor at the district health center, from physicians who trained them in the provincial hospital, or--at a minimum--from an experienced and skilled wechakorn.

The health center normally stocked a limited range of drugs, medical supplies and equipment, but to practise their new clinical skills, the wechakorn required a broader range of drugs, medical supplies, and equipment. This placed new demands on the district and provincial logistics system. The wechakorn's expanded role in clinical care also required improvements in the medical referral system from the subdistrict health center to the district hospital, and from the district hospital to the provincial hospital.

Each subdistrict health center staff had to assume the new responsibility of overseeing the activities of six to eight health post volunteers, two to three traditional midwives, and 50-80 health communicators in the area. A number of subdistricts, however, do not have health centers and hence health centers in an adjacent subdistrict must assume responsibility for two subdistricts. In order to make the work more manageable, two or three health center workers divide responsibility for supervision geographically, so that each may visit regularly only two or three volunteers. Health staff are expected to visit the volunteers at least once a month, when they review the health post volunteer's log book and fill out a volunteer performance summary extracted from the daily log book.

The logistical mechanism for supplying the health post volunteers with household drugs had to be changed during the course of the Project. Initially, health post volunteers were given a supply of the drugs from the health center which they could sell at a slight profit, using the returns to purchase resupplies. The local health worker was assigned the task of collecting the money and coordinating orders for resupplies through the Provincial Health Office, which in turn ordered supplies from the Government Pharmaceutical Organization. After the first year, it became apparent that the government drug supply network was less effective than expected; health workers found it inconvenient to collect the funds and deliver the drugs, particularly when volunteers often did not have money available to repay the initial credit. At the same time, health workers did not always visit volunteers with sufficient frequency, because of seasonal communication difficulties or other more pressing activities. The resulting lack of medical supplies was deterimental to the HPV's local credibility, morale and performance.

To improve the supply network, the Project established an agreement with one of the major pharmaceutical suppliers in Lampang to

order the household drugs directly from the Government Pharmaceutical Organization and take responsibility for resupplying the volunteers through local drug outlets at the subdistrict level. This arrangement has relieved the subdistrict health workers of the burden of money collection and supply but has imposed an inconvenience on the health post volunteer. He must now come to the subdistrict to pick up his drug resupply. Since transactions are on a strictly cash basis, this can be an obstacle to regular resupplies being purchased.

With experience managerial solutions have continued to evolve. Most recently, the Project added a district coordinator to assist the District Health Officer. One of his major responsibilities will be to support village health volunteers.

Support for wechakorn in the district and provincial hospitals has presented only minimal problems since the wechakorn work in close proximity to their physician supervisors and can consult with them and receive in-service training regularly. However, for wechakorn located in the more distant subdistrict health centers, technical support is a crucial need and often a difficulty. In districts that have physicians at the district hospital, clinical conferences are held when the health center workers come to the district for the monthly staff meeting. It has been less feasible for the district hospital physicians to travel around to the subdistrict health centers to provide on-the-job supervision and instruction, in part because of demands on them at the district hospital and also because the district hospital has no officially-defined role in supervising subdistrict health center activities. Another mechanism for providing technical supervision to the health center wechakorn has been the organization of provincial hospital clinical conferences each month by doctors who formerly trained the wechakorn. These have been useful in the early stages when the number of wechakorn was small, but as their number increased these conferences became less feasible. There is a clear need--and an expressed request from the wechakorn themselves--for individualized, extended technical supervision at their work sites, but this need has not yet been adequately met on a regular basis. A number of former wechakorn instructors--hospital staff from the Community Health Department in the provincial hospital and Project trainers--have made sporadic but useful follow-up visits to health center wechakorn. A more regularized supervision system is under consideration, perhaps using a senior, skilled wechakorn.

Supplies and equipment needed by the wechakorn at their health centers was a problem for the first group of wechakorn because, as former midwives and sanitarians, they had not been authorized to order antibiotics, for example, or to insert IUDs. Although there had been an orientation for provincial senior staff concerning the role of wechakorn, when the first group completed its training there was still some confusion about what they were authorized to do. For example, a few provincial staff members questioned supplying the wechakorn at the health centers with a new lines of drugs and equipment.

This problem has, for the most part, been resolved as a result of continued discussion and clear demonstration of their own competence by the wechakorn.

Streamlining the Information System:

In order to facilitate the management process and the monitoring of Project progress, the Project and provincial staffs have worked together in an attempt to streamline and lighten the burden of the existing information system and to make it more useful and effective.

Since village health volunteers were not previously part of the provincial health care system, a new system of reporting on their activities had to be established. Given the fact that volunteers are not government employees, only minimal demands for reporting could be made on them. The solution adopted was for each health post volunteer to be trained to keep a daily log of service contacts, which includes information on the contact's name, age, sex, reason for the contact, treatment prescribed, and payment for any drugs dispensed.

The health worker from the local subdistrict health center visits the volunteer each month and abstracts data from the daily log for use in a monthly volunteer activity reporting sheet, which is then compiled for each district. The monthly district report summarizes the total number of services contacts for illness care, total family planning acceptors and contacts, the number of family planning supplies distributed, and the amount of money collected for drug sales. The volunteer reports are then sent to the Provincial Health Office (and to the Lampang Project Evaluation and Research Division) for routine monitoring. The Evaluation and Research Division periodically analyzes and summarizes volunteer performance and distributes a report to the Provincial Health Office and related Project divisions. Information on the activities of the traditional midwives and village health communicators is not routinely gathered.

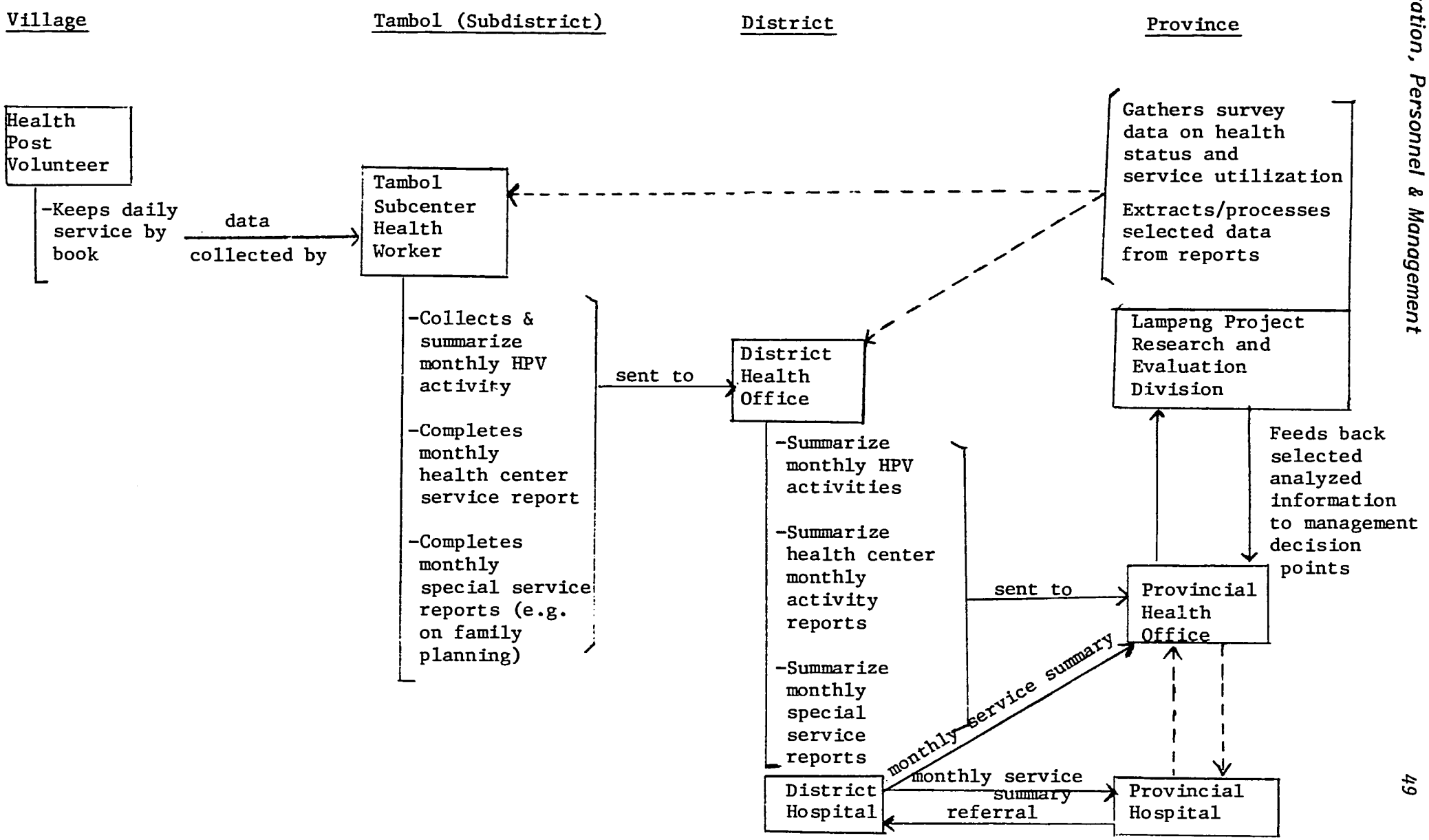
The Lampang Project has made efforts to streamline the routine reporting system by deleting items that are of marginal use, but there has been considerable resistance to these attempts both in the provincial health office and at the Ministry level. The Programming and Planning Division, along with the Evaluation and Research Division, has routinely reviewed the monthly reports coming in from the various rural health facilities, and has extracted data that are relevant to routine monitoring. These data, which summarize performance of the various health facilities by category of activity (e.g., family planning, maternal child health, nutrition, and illness care) are distributed to Project and provincial health decision makers. The burden of reporting on peripheral health staff has, therefore, not been reduced substantially, but specific information items from these reports have been selected to make relevant information easily accessible to Project and provincial staff for management purposes.

In addition to information from routine reporting mechanisms, the Evaluation and Research Division, as part of its overall project

assessment and evaluation function, has carried out a number of surveys which provide baseline information on health status and health service utilization. These data have been useful in identifying the level of health status and health service problems, in pinpointing their location, and in identifying where program emphasis should be placed. For example, one important result of baseline surveys was the recognition that the nutrition problem in Lampang Province is more serious than had been assumed. The Community Health & Nutrition Survey detected high levels of malnutrition and also identified the areas of greatest prevalence.

Figure 9 provides a summary diagram of the information sources and flows described above.

FIGURE 9: HEALTH INFORMATION SOURCES AND CHANNELS OF FLOW



CHAPTER 4

TRAINING OF HEALTH PERSONNEL AND INFORMATION DISSEMINATION

Under the overall planning and supervision of the Project Personnel Development Division, pre-service, in-service, and refresher training have been provided for a variety of Government health personnel and local health volunteers as summarized in Table 3.

Table 3

Summary of Lampang Project Training Activities

Training Category	Length of Training	Number Trained as of August 1978	Estimated Number yet to be Trained	Total Trained at End of Project
Wechakorn	1 year	96	30[a]	126
Health Post Volunteers	2 weeks	572[b]	100	672
Health Communicators	2 days	4,846	1,000	5,846
Traditional Midwives	2 weeks	244	100	342
Trainers	2 weeks	133	---	133
Administrators & Supervisors	1 week (half days)	72	---	72
Service Personnel	1 week	195	75	270

a The fourth group of 30 began training in 1978 and will finish in May, 1979.

b Includes 50 volunteers trained by Community-Based Family Planning Services in Ngao District.

WECHAKORN TRAINING

A major effort has been devoted to training the wechakorn because of their strategic importance to the entire Project. Their basic role is: (a) to greatly expand the availability of both curative and preventive/promotive health services in rural areas; (b) to reduce the burden on medical doctors in the district and provisional hospitals of handling simpler cases so that they can concentrate on more serious and complicated ones; and (c) to be the principal link between the village health volunteers and committees and the higher echelons of the expanded health care system.

As noted earlier, the wechakorn candidates have already had a certain amount of training and experience in the health field, usually as sanitarians, nurses, nurse-aides or midwives. The wechakorn's training is designed to equip him/her to take a strong leadership role among the health center team, and to establish a relationship with the village health volunteers that is crucial to providing effective health care coverage in the area. After completion of the one-year training course, the wechakorn is able to:

1. provide medical care for patients suffering from common illness and injuries by using available resources under the physician's overall responsibility;

2. recognize cases that are beyond his capability,refer patients, and consult physicians as necessary;

3. supervise the health center team members;

4. administer the health subcenter or assist in clinical and administrative work in the district hospital; and,

5. promote and guide community health development programs.

The training approach used for wechakorn is problem-oriented and the methods are competency-based. The methods of training wechakorn were adapted from the MEDEX model, which originated in the United States during the late 1960s.* The short one-year duration requires that theoretical and classroom material be minimized and practical clinical experience be maximized. Emphasis is on "learning by doing"; hence,

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*MEDEX is a "physician extender" training program, inaugurated at the University of Washington in the 1960s to retrain medical corpsmen for physician-supervised practice in the United States. The program was later developed in several other universities, including the University of Hawaii, which introduced the program internationally for the first time in Micronesia (Trust Territory of the Pacific Islands) during the early 1970s. The term "medex" refers to the individual physician extender, and is derived from the French words *une extension de medecin,* extension of the doctor.

the training course is divided into two major phases: the didactic, or classroom, phase, which lasts 16 weeks, and the preceptorship, or practical clinical phase, which lasts 36 weeks. The didactic phase is broken up into a series of discrete units, employing problem-oriented modules. Each module is a self-contained learning unit, which includes a pre-test and post-test for each learning objective and the substantive materials the trainees must learn before successfully completing that module. The various modules are the basis of the classroom sessions and may require from a day to several weeks to complete. Since the physicians in the provincial hospital have the major role in training wechakorn, they were invited to participate in preparing the modules and other training materials. With initial assistance from the Health Manpower Development (MEDEX) Staff of the University of Hawaii, Provincial Hospital and Project staff worked together to write and refine the modules and the other materials for the training curriculum. The current content of training and time required for wechakorn is as follows:

1. Core Skills:

1.1	History taking and medical terminology	30 hours
1.2	Physical examination, anatomy and physiology	60 hours
1.3	Laboratory examination	30 hours
1.4	Use of formulary	6 hours
1.5	Introduction to comprehensive health care	6 hours
1.6	How to use protocol	6 hours

2. General Clinics:

2.1	Skin problems	30 hours
2.2	Ear, Eye, Nose and Throat problems	30 hours
2.3	Chest problems	30 hours
2.4	Abdominal problems	30 hours
2.5	Genito-Urinary/Kidney, Ureter, Bladder problems	30 hours
2.6	Diarrhea/Vomiting/Dehydration	12 hours
2.7	General problems	30 hours

3. Emergencies — 84 hours

4. Maternal and Child Health

   4.1 Maternal and Child Care

   4.2 Family Planning

5. Community Health and Field Supervision

5.1	Nutritional problems	30 hours

5.2	Prevention	30 hours
5.3	Vital statistics	18 hours
5.4	Community Health Education	18 hours
5.5	Supervision	12 hours

Twenty-nine weeks of the 36-week preceptorship are spent in the provincial hospital, rotating among the various departments, both in-patient and out-patient, as well as on night duty. Working under close supervision of physicians in the departments, wechakorn learn to take histories, examine patients, diagnose problems, and prescribe the proper treatment. Protocols guide the learning process for the wechakorn by providing simplified decision chains which systematically present the steps in dealing with a patient presenting a given problem (or set of problems), in order to arrive at a diagnosis and prescribe proper treatment, or to know when to refer the patient to a physician if necessary.

In addition to the 29 weeks of hospital rotations, wechakorn spend four weeks working on community health development at the rural health center level, one week on community health resource planning, and another two weeks on electives in the hospital. At the end of the training program, each wechakorn trainee is given a written and practical test, and faculty members from various medical schools throughout Thailand are invited to act as the examiners. During the practical examination each wechakorn is given a series of patients to examine, diagnose, and prescribe treatment, and their findings and actions are judged by the panel of medical school faculty.

Some difficulty was anticipated, and encountered, in jointly training individuals with different backgrounds and educational levels. This was partially overcome by special refresher sessions to bring everyone to a standard level. At the end of training, there were no significant differences among the final test scores of the various trainee categories.

Over half of the wechakorn are women--midwives, nurses, and nurse aids. Table 4 summarizes the backgrounds and final assignments of the first three groups of wechakorn trained.

Table 4

Wechakorn Background and Final Assignment
(As of December 1978)

Background	Number Trained	Wechakorn Location after Training			
		Rural Health Center	District Hospital	Provincial Hospital	Other
Nurse	14	--	2	10	2
Midwife	51	49	2	--	--
Sanitarian	25	24	1	--	--
Nurse Aide	4	2	--	--	--
Other	2	--	--	--	--
Total	96[a]	75	5	10	4

[a] 92 wechakorn are in Lampang Provincial assignments. Two nurses aides and two Border Policemen were sent for training by special request. The fourth, and last, group of 30 wechakorn are currently in training, scheduled for completion in May, 1979.

TRAINING OF HEALTH POST VOLUNTEERS

The health post volunteer is the focal point of primary health care in each village. One volunteer is chosen in each village, or more than one in large villages that are widely dispersed. The people normally selected as health post volunteers are generally mature (over 30), established members of the community, who are most often farmers or small shopkeepers. They are unlikely to migrate out to seek better paying jobs; hence the problem of attrition has been minimal and where it has occurred, has been covered by retraining programs. Although the volunteers are usually expected to be able, at a minimum, to read and write, this requirement is flexible.

The rural volunteer is trained to:

1. provide simple first aid and illness care to his fellow villagers, using nonprescription household drugs provided by the government;

2. refer more complicated cases to the local health facilities;

3. support community nutrition surveillance and nutrition service programs;

4. advise villagers about family planning and distribute pills and condoms;

5. inform mothers and children about services provided by local health facilities;

6. distribute (in a few areas) drugs for malaria, tuberculosis, and leprosy patients living in the village;

7. support and supervise the health communicators in the village; and

8. coordinate government activities with local villagers.

The training course for groups of 25 to 30 health post volunteers lasts ten working days, or two weeks. Through a series of lectures, discussions, and practical activities, trainees are given instruction in the recognition and care of minor diseases; in recognizing which types of people should be referred to other health facilities for care; in recording births, deaths, and migration; in making the daily log; and in supervision and community motivation. Training is usually arranged at some facility close to the volunteer's home, normally at a village temple, school, or government facility.

Training is carried out by health workers and other government officials in the area where the volunteer is located, assisted by provincial and project training staff. The materials used are prepared by the Lampang Project training staff in the Personnel Development Division, and at the end of training each volunteer is given a Health Post Volunteer manual which can be kept in his/her home for easy reference.

The health post volunteer is provided with an initial supply of household drugs on credit, at a discount. He/she sells the drugs at a slight profit, then pays back the cost of the consignment to purchase a new supply. Thus the health post volunteers gain a small amount of income from their work, but it is usually quite nominal ($5-10/month only).* In addition, they and their families are provided free medical care at the health center and provincial hospital. By the end of 1978, 572 of the targetted total of 670 had been trained.

At least once a month, the wechakorn or another health center worker visits the volunteer to help solve any problems, to provide technical and logistics support, and to gather information from the daily logbook for inclusion in the Tambol health center's monthly report. One day of on-the-job refresher training is provided each year for health post volunteers, the village committee, and other local health personnel so that problems can be dealt with jointly.

TRAINING OF HEALTH COMMUNICATORS

Health communicators are the second type of village volunteer developed by the Lampang Project. One health communicator is chosen for about 10-15 households, making a total of about 10-15 communicators for each village. Their role is to promote the services of the local health post volunteer and the subdistrict health center. They also receive and disseminate health information among the households assigned to them, under the overall supervision of the health post volunteer.

The health communicator candidates are selected by the village committee and sent in groups of 50-75 to a training center near their home. Their two days of instruction includes:

Introduction to Lampang Project	1/2 hour
Functions of the Communicator	1/2 hour
Nutrition	1 hour
Maternal and Child Health	1 hour
Family Planning	1 hour
Observation of the occurrences of common communicable diseases	1 hour

*20 Bahts = US$1

Local health service system	1 hour
Household medicine	1 hour
Human relations	1 hour
Receiving and disseminating health information in a village	1 hour
Sanitation	1 hour
Child Nutrition Center	1 hour
Cooperation with the Ministry of Interior	1 hour

Teaching is done through small group discussions and lectures, supplemented with handouts, posters, models, and slides. As of mid-1978, 4,846 communicators had already trained and about 800-1,000 were still to be trained before the completion of the project.

The health communicators are generally younger than the health post volunteers and thus tend to be more transient in their services. However, because of lack of clarity of their contribution, the impact of their attrition or service performance has not been observed.

TRAINING OF TRADITIONAL MIDWIVES

Traditional birth attendants, or "granny" midwives--almost all women--still deliver a majority of the children born in rural areas and attend to pre- and post-natal care. Because they are usually older and closely involved in family affairs, they have great influence in the village. Traditional midwives are selected in every village where one is present if they are not over 60 years of age. In some areas that are well served by government health facilities, the number of traditional midwives has been decreasing, with the result that only one midwife could be identified and recruited to serve two villages. The traditional midwives are trained in groups of about 25 at the Lampang Regional Midwifery School for a period of two weeks. During the course of the training, which is carried out by Project and Midwifery School staff, the trainees learned to:

1. give advice to mothers and children in using health services from local facilities;

2. detect abnormal pregnancies and refer them to health centers

or to the district or provincial hospital;

3. do normal deliveries using aseptic techniques;

4. advise mothers and children about good nutrition;

5. give minor medical care using household medicines;

6. distribute pills and condoms and encourage villagers to practice family planning; and,

7. report births to the health post volunteer or village headman.

The content of the two-week curriculum includes:

Introduction to participants	1/2 hour
Pre-test (question and answer method)	1/2 hour
Introduction to Lampang Project	1 hour
Sanitation and personal hygiene	1 hour
Mother and child health	25 hours
Family planning	4 hours
Household medicines	1 hour
Recording of births	1 hour
Integrated health service in the district and role of the Traditional Birth Attendants	2 hours
Sterile technique	3 hours
Nutrition for mothers and children	3 hours
Patient referral system	1 hour
Introduction to Child Nutrition Center	1 hour
Post-test (question and answer method)	1 hour
Observation at antenatal clinic, well baby clinic and obstetric ward at Lampang Hospital	9 hours

Since the traditional midwives are usually illiterate, the midwifery school training has been adapted to their special needs. The general content is presented in an informal setting by demonstrations and observations, and by lectures making use of role playing, models, pictures, movies and slides. The trainers are all local women who speak the local dialect.

Traditional midwives are entitled to free medical care at the local health center, district, and provincial hospital. They are normally supervised by the government midwives in the subdistrict health centers and receive refresher training once a year. Two hundred and forty-four

traditional midwives had been trained by the Project as of mid-1978, with about 100 more still to be trained by the end of the Project.

TRAINING OF ADMINISTRATORS AND SUPERVISORS

All administrators and supervisors from the Provincial Health Office and the provincial hospital, including physicians, chief nurses, dentists, pharmacists, district health officers and supervisors of the Provincial Health Office received one week of orientation training to:

-- understand the Project goals and approaches;

-- orient them to the operation of integrated health services and how it will affect them;

-- orient them to the importance of their own roles and of others on the health team.

The training is completed in five half-day sessions to reduce the time that senior staff must be away from their responsibilities. Follow-up on-the-job training for one day is also provided twice each year.

TRAINING OF SERVICE PERSONNEL

All staff who provide services at the provincial hospital and district hospitals, health centers, and midwifery centers are given one week of training to orient them to the Project's goal and methods and to demonstrate how the project approaches will affect them in their individual jobs. Most of the people who receive the training are nurses, laboratory technicians, dental hygienists,junior health workers, midwives, and practical nurses. On-the-job training is provided in addition to routine supervision.

Training of Trainers

A two-week training program was organized for all provincial health staff who assist in training village health volunteers and in orienting service personnel. Trainer trainees learn classroom teaching methods, curriculum and lesson plan preparation, use of teaching and audio-visual aids, and organization of training programs. The course is held at a teacher training college in a nearby province and is run by the college staff and project staff. The content of the training is as follows:

-- Orientation

-- Principles of Teaching

-- Psychology in Rural Health Development

-- Sociology and Human Relations

-- Public Speaking

-- Technology of Teaching

-- Good Community Teacher
-- Role of Mass Communication in Public Health Work
-- Teamwork of Group Process
-- Organization of Training Programs
-- Practice for Teaching
-- Evaluation for Training Programs

At the end of 1978 there had notyet been a systematic evaluation of the adequacy or effectiveness of the various training programs described above.

PROJECT ADVISORY COMMITTEES AND THEIR FUNCTIONS

In order to orient and publicize the approaches and methodologies of the Lampang Project and to gain support in problem solving and resource assistance, several advisory committees have been established within the Ministry of Public Health and in other sectors of the government. Although the committees have generally not played a major role in project operations, they have provided an occasional forum for keeping people informed and enlisting support.

The first of these committees is the Lampang Project Policy Committee, composed of high-level government policy-makers and planners from a variety of relevant ministries and agencies. The Policy Committee, chaired by the Under Secretary of State for Public Health, reviews project progress and current constraints about twice yearly, and provides advice and assistance in facilitating project operations. Members of the Policy Committee include representatives of the National Economic and Social Development Board, Department of Technical Economic Cooperation, Civil Service Commission, Bureau of the Budget, Ministry of Interior, Ministry of Public Health, Bureau of State Universities, and various faculties of medicine and public health.

Another high-level advisory committee is the Lampang Project Executive Committee, composed of representatives from various departments and divisions within the Ministry of Public Health. This committee, chaired by the Project Director (Director General, Department of Health), provides technical advice and support to Project staff in resolving issues that can be handled within the Ministry of Public Health. It is also a mechanism for keeping various units within the Ministry informed of project progress.

As noted earlier, at the provincial level the Provincial Coordinating Committee, chaired by the Governor of Lampang Province and including the heads of all government departments in the province as well as all district officers, coordinates support at the provincial level and is a vehicle for keeping all provincial units posted on the progress of the project. Similarly, in each district a District Advisory Committee, chaired by the District Officer and participated in by heads of all

district government units, performs advisory and coordinating functions at that level.

All of these committees serve to publicize Lampang Project activities to the widest possible audience. Another major vehicle for reporting the project's progress, and for gaining advice and recommendations from a wide variety of interested parties, is the Project's Annual Review. Annual Reviews have been held each year since 1975, serving as a forum for presenting project progress to date, discussing problems encountered, seeking effective solutions, and for productive discussions in dealing with salient issues. The Annual Review is attended by representatives from most government and nongovernment agencies with an interest in health and rural development, including agencies represented in the Project Policy Committee and Executive Committee, and other government and international agencies.

Another important vehicle for project information dissemination is the exchange visits that have occurred since the beginning of the project and which continue with increasing frequency. A number of project staff have been requested as consultants to other projects and programs within and outside of Thailand. Project staff have assisted the government of Korea and the government of Pakistan in their efforts to build basic health care programs similar to the Lampang Project. A number of project staff have attended international and domestic workshops, seminars, and meetings to make presentations related to the project. The Lampang Project is now receiving several hundred visitors each year from nearly every continent, and representing a wide variety of government, nongovernment, and international agencies. The large number of visitors have been a useful mechanism for generating interest and support for the Project around the world.

CHAPTER 5

EXPANSION AND INITIAL IMPACT

Before the project became operational in 1974, the population of Lampang Province was considerably more deprived of government health services than in Thailand as a whole. As Table 5 indicates, a much smaller percentage of Lampang's districts and subdistricts had health centers, and the ratio of available doctors, nurses and hospital beds to the population was much lower than the national average.

EXPANSION OF THE HEALTH SYSTEM

By 1978 the picture had changed dramatically. Health service facilities and personnel in Lampang Province had expanded greatly, as shown in Figure 10 and Table 6, with still further expansion scheduled for 1979. The provincial hospital (not included in Table 6) was in process of doubling its bed capacity and becoming a regional hospital; it had a new Community Health Department to backstop health personnel and facilities at lower levels; and it was operating a new multipurpose mobile clinic in remote rural areas. The number of district hospitals had risen from three to five (with a sixth one scheduled for 1979), each with its own medical doctor. But the most striking increases were in the number of subdistrict health centers (from 26 in 1974 to 61 in 1978) and of various categories of government health workers at the district and subdistrict levels, along with large new cadres of village level health volunteers.

Much of this expansion was the result of intensified efforts by the Ministry of Public Health that were separate from the Lampang Project plan, but the Project itself also contributed substantially, especially in training wechakorns for the subdistrict centers and numerous village volunteers.

The net effect of all these expansion efforts was to boost considerably the "theoretical" geographic and population coverage of government health services in Lampang Province. The real test would be, however, the extent to which this increased capacity would be utilized by the potential clients and the impact it would have on the health status of the Lampang population.

FIGURE 10: MAP OF LAMPANG PROVINCE SHOWING DISTRIBUTION OF HEALTH SERVICE UNITS (1978)

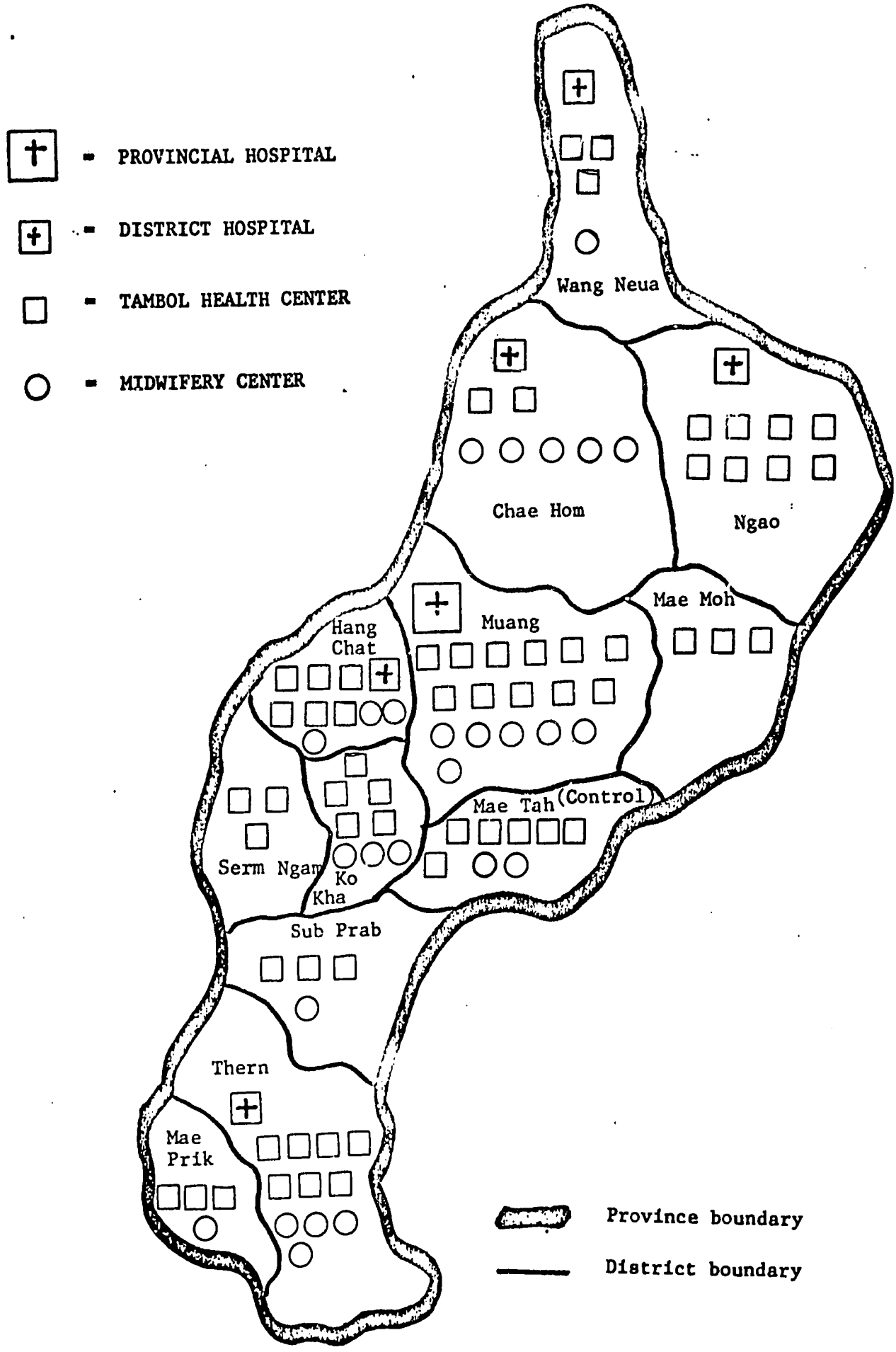


Table 5

Geographic and Population Coverage by Government Health Facilities and Service Personnel in Thailand and in Lampang Province, 1973

Health Facilities and Personnel	Thailand (1973)	Lampang (1973)
Health Centers		
Districts covered	45%	33%
Subdistricts covered	57%	35%
Villages covered	4%	6%
Hospital Beds	91/100,000	48/100,000
Personnel		
Physicians	9/100,000	3/100,000
Nurses	20/100,000	9/100,000
Midwives	9/100,000	10/100,000
Sanitarians	7/100,000	5/100,000

Table 6

Growth of Government Rural Health Service Facilities and Personnel in Lampang Province [a] 1974 to 1979

Year	Number of			Number of Service Units			Number of Government Personnel					Personnel added by Project Implementation			
	Dis-tricts	Subdis-tricts	Vil-lages	District Hospitals	Health Centers	Midwifery Centers	MD	N	NA	MW	S	W	HPV	VHC	TBA
1974	11	75	538	3	26	33	2	3	--	58	30	--	--	--	--
1978	12[d]	75	538	5	61	26[b]	5	7	17	78	44	47	572	4846	244
1979[c] (est.)	12	75	538	6	65	n.a.	6	n.a.	n.a.	n.a.	n.a.	75	672	5846	342

[a]Does not include provincial hospital.

[b]A number of midwifery centers have been upgraded to health centers.

[c]Completion of Project installations.

[d]A subdistrict converted to a full district in 1976, making a total of 12.

MD = physician N = Nurse NA = Nurse Aide MW = Midwife S = Sanitarian
W = wechakorn HPV = Health Post Volunteer VHC = Village Health Communicator
TBA = Traditional Birth Attendant
n.a. = No estimate available

It would be premature at this stage to attempt any final judgment on Project impacts since the evaluation studies are scheduled over a period of seven years whereas Project implementation is only in its fourth year. It is possible, nevertheless, to reach some tentative judgments, based on preliminary data available on certain areas and on numerous observations by well-informed observers. This preliminary evidence sheds useful light on: (1) the performance of village level health volunteers; (2) trends in general illness care services; (3) infant delivery services; (4) nutritional services; and (5) family planning.

To place this preliminary evidence in proper perspective it should be recalled that the basic evaluation design for the Lampang Project is geared to the phased implementation of integrated primary health care by areas (E1, E2 and E3), with two control areas, C1 in Lampang Province and C2, an adjacent district in Lampang Province. The principal means of measuring subsequent changes in health services and status, in addition to regularly reported Ministry of Public Health service statistics and other independently-collected selected data bearing on Lampang, are: (1) baseline and follow-up cross-sectional community health and nutrition surveys, (2) separate and periodic analyses of administration, tasks, and costs, and (3) special studies. Follow-up surveys to the initial baseline community surveys (conducted in 1974) will be initiated in 1979 and should provide considerably more information on the matters discussed below.

PERFORMANCE OF VILLAGE HEALTH VOLUNTEERS

Once the *health post volunteers* were trained and on the job, a pattern that emerged quickly was a surge in service contacts (primarily distribution of medicines and oral contraceptive pills), followed soon, however, by a sharp decline, and then by a slowly rising trend. The pattern shown in Figure 11 for Hang Chat District (E1) and Muang District (E2) is typical.

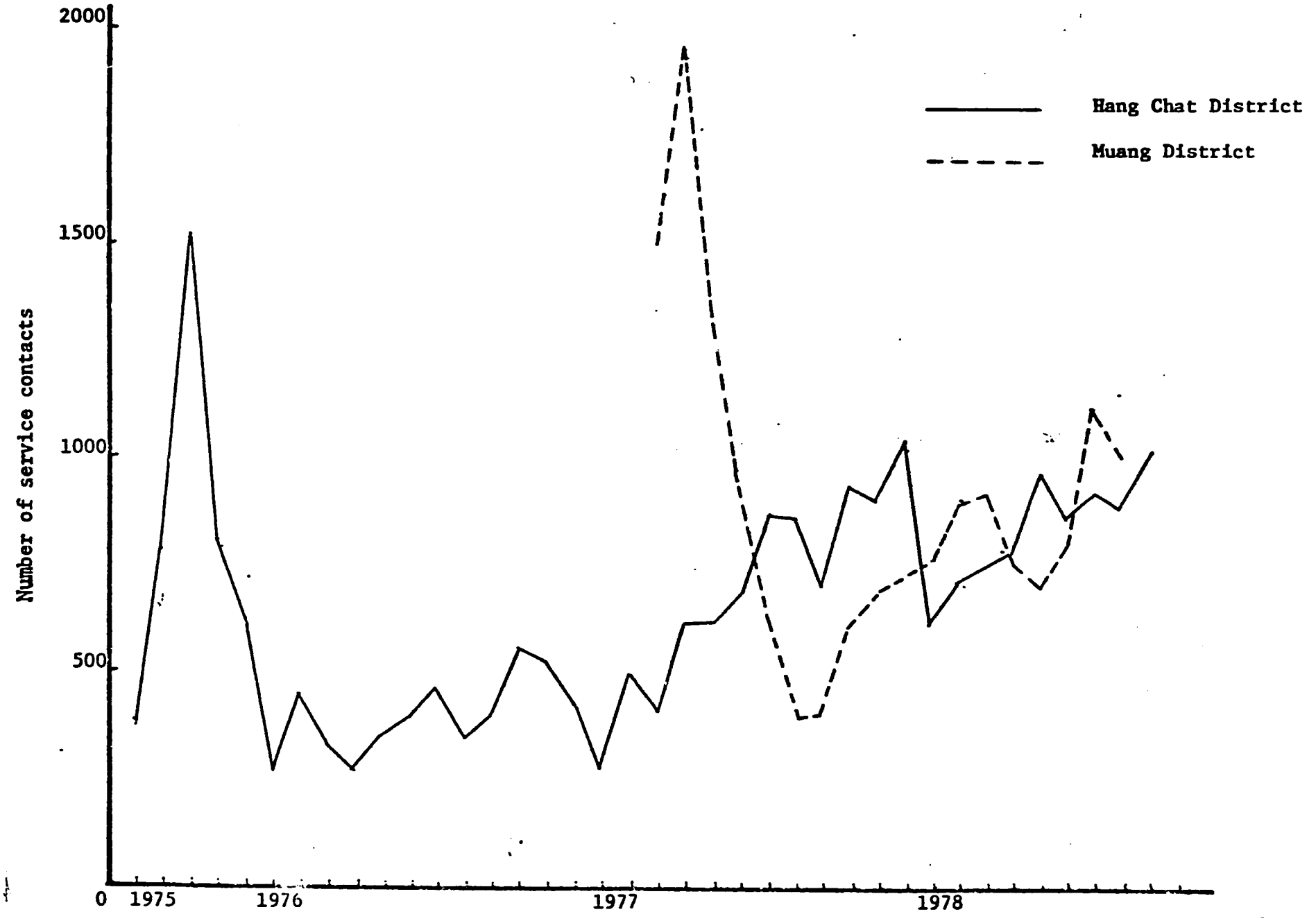
This marked decline was undoubtedly associated with problems encountered in keeping the health post volunteers resupplied and in maintaining high morale through routine supervision; but most continued to function nevertheless, even if at a lower level than at first. Where supervision has been regular, performance has been good. Some health post volunteers, living in villages near rural health centers, have been bypassed by the villagers. Other health post volunteers who work away from their houses for most of the day may not be available to provide optimum service.

Despite these initial problems, it is estimated that in their first year of deployment, health post volunteers in different villages in E1 provided services ranging from 13 to 38 percent of all villagers seeking care--a clear gain.

Follow-up studies of health post volunteers indicate their interest in more first aid training and higher monetary incentives.

Figure 11

Health Post Volunteer Service Contacts in Hang Chat District (E_1) and Muang District (E_2)



Although data are not routinely collected on the activities of *health communicators* it appears that, apart from being usefully mobilized in support of the field activities (especially the mobile clinics) of the Community Health Department, they have been relatively inactive. Undoubtedly one main reason has been the uncertainty over their role and lack of clear direction from the Village Health Committees. It seems evident that the communicators cannot be counted upon in the future to report vital events, but they may be helpful in invigorating child nutritional activities.

The *village health committees,* once having selected the local health post volunteers and health communicators, also tended to become inactive--though some have voiced the desire for more curative services in their village. Again this inactivity apparently reflects a lack of clarity about the specific functions of the committees and also, perhaps, the historical passivity of villagers in their relationship to government agencies.

The trained *traditional birth attendants* have clearly been active with respect to pregnancy (and its prevention), delivery, and post-partum care. Beyond carrying out these activities at a higher level than before, however, under the supervision of the wechakorn and/or government midwife, they seem to have been relatively inactive in other matters. As with the health communicators, the TBAs have not been helpful in the reporting of vital events.

TRENDS IN GENERAL ILLNESS CARE SERVICES

Table 7 presents estimates for 1974 through 1977 of the actual distribution of general illness care services, by level and location, for Hang Chat District (E1) compared to control area Mae Tak (C1). The "targets" in the left-hand column of Table 7 represent the estimated proportion of total patient visits that should--appropriately and desirably--be handled at the different levels of the extended health care system. The clear emphasis is on extending care to the village--or near the village--while simultaneously extending the capacity of the whole system to provide integrated basic health services, including illness care for the approximately 2 illnesses per person annually reported in the Community Health Survey.

The other columns in Table 7 contain reported data and estimates of what has actually happened from 1974 through 1977. These reported data, it should be noted, are considered incomplete in certain instances, and some of the estimates are necessarily only rough approximations. Nevertheless they suggest a number of significant changes that are taking place--at least in part as a consequence of the Project.

The overall target of channelling 65 percent of all illness cases through the government's extended health care system

Table 7

General Illness Care Services to E_1 and C_1 Populations by Location of Service 1974-1977

	Location of Service	Targets (1979)		Visits and Percent Distribution							
				1974		1975		1976		1977	
		Visits	(%)	Visits	(%)	Visits	(%)	Visits	(%)	Visits	(%)
AREA E_1	Provincial Hospital	4,230	5	6,177	7	3,846[e]	4	6,827	8	6,148	6
	District & Subdistrict Health Centers	21,149	25	15,968	19	13,011[d]	15	22,168	26	34,672[f]	40
	HPV	29,607	35	[a]	--	10,103	12	4,872[c]	6	8,387	10
	Sub-Total	54,986	65	22,137	26	26,950	31	33,867	40	49,207	56
	Others, including Traditional Healers	29,608	35	--	74	--	69	--	60	--	44
	Estimated Total Episodes[b]	84,594	100	84,594	100	85,578	100	86,562	100	87,544	100
AREA C_1	Provincial Hospital					7,403	7	9,263	8	10,159	9
	Distict & Subdistrict Health Centers					7,130	6	10,020	9	11,892	10
	HPV (None in place, 1975-77)					0	0	0	0	0	0
	Sub-Total					14,533	13	19,283	17	22,051	19
	Others, including Traditional healers					--	--	--	--	--	--
	Estimated Total Episodes[b]					115,132	100	115,716	100	116,300	100

Source: All data are from Provincial Service Statistics.
(See next page for footnotes)

Footnotes to Table 7

[a]No HPVs were in place in 1974.

[b]Based on the Community Health Survey, an average of two significant illnesses per person each year were assumed to require attention. The Project target is to attend to 65% of these illnesses with a concentration of care at the village or near village level.

[c]It was observed that HPV activity subsided after the first 6 months, but then increased slowly (see Fig. 12).

[d]It seems possible that use of the health centers fell in 1975 because many of their key personnel were in training to become wechakorn.

[e]This figure seems too low, perhaps representing an undercount or failure to register addresses at hospital visits, or an artifact of project data for the last 5 months of 1975 to a full year.

[f]The newly-built District Hospital was only open for 9 months in 1977.

(the remainder being handled by various types of private practitioners) seems well on its way to achievement. According to Table 7, the estimated percentage climbed steadily from 26 percent in 1974 to 56 percent in 1977, and it is expected to reach or surpass the target by 1978/79. The pattern of distribution of cases by level and location, however, deviates considerably from the targeted pattern, for a number of apparent reasons.

The provisional hospital visits by Hang Chat (E1) people held relatively steady from 1974 through 1976, except for a temporary sharp dip in 1975 (which appears to be a statistical aberration in the reporting system). However, the significant decline from 1976 to 1977 (from 8 to 6 percent of the total cases handled) suggests the possible beginning of a trend toward limiting provincial hospital visits to more serious cases, with the district hospitals and subdistrict health centers absorbing a growing share of the less serious cases. This possibility is reinforced by the dramatic rise in the proportion of total visits handled by the health centers in Hang Chat (E1), from 19 percent in 1974 to 40 percent in 1977 (substantially above the target level). There seems little doubt that the presence of the newly trained wechakorn contributed greatly to this sharp upward trend.* By contrast, the health post volunteers have clearly undershot their target by a wide margin, suggesting that further steps are needed to strengthen the role and activities of the HPVs and other volunteers at the village level.

The record of illness care services in control area C1 (where the Project is not yet operational) differs sharply from E1. The estimated total volume and percentage of cases handled by the (unextended) government health care services increased somewhat (from 13 percent in 1975 to 19 percent in 1977), but far less than the increase in E1. The proportion of cases involving the provincial hospital increased each year rather than declining. The proportion going to the health centers also increased (from 6 percent in 1975 to 10 percent in 1977), but far less than in E1.

Though further evidence and evaluation are still required, one can reasonably draw three tentative conclusions at this stage: first, the recently extended health system in E1 is already delivering substantially more illness care services to the people of the area than earlier; second, the newly strengthened health care centers are siphoning off a sharply increased proportion of the "easier" cases, thereby freeing up the provincial hospital to concentrate on more difficult cases; and third, additional efforts are still required to increase the performance and effectiveness of the village level volunteers.

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*Given the nearness of Hang Chat to the Lampang Municipal Area and the projected expansion of provincial hospital capacity, it may be difficult to keep this desirable trend from reversing in future years.

INFANT DELIVERY SERVICES

The available statistics presented in Table 8 suggest that the overall target of having 95 percent of deliveries supervised by trained health personnel was reached by 1977 in Hang Chat (E1), but that the relative distribution of supervised births did not follow the sub-targets. While there is instability in some of the numbers, and the estimated births may be incorrect, it appears that the provincial hospital's share of deliveries is still unduly high and may not be decreasing significantly. The presence of the wechakorn seems to have increased dramatically the proportion of deliveries supervised by them or the trained auxiliary midwives at home or at the health centers in 1977. The trained TBAs seem slowly to be losing ground, confirming a trend that has been observed over the past several years.

As mentioned earlier, the expansion of the provincial hospital and also the training needs of the Lampang Midwifery School may make it difficult to restrict access to the provincial hospital to only those women referred there with pre-natal complications.

NUTRITION

The emphasis of the Lampang Project in addressing the health needs of preschool age children has already been mentioned. Nutritional status in this vulnerable population group is of special concern, especially in view of the high incidence of serious malnutrition revealed by the baseline surveys in E1 and E2 and by subsequent surveillance reports. (See Table 9.)

Clearly 10 to 15 percent of preschool children in E1 and E2 are moderately to severely malnourished, and another 30 to 40 percent are mildly undernourished. This finding came as a surprise to health policymakers who, judged by the Cost and Task Analysis conducted by the Project, had not recognized the prevalence of serious undernourishment. In E1 only 4 percent of the total budget was spent on nutritional activities in 1975-76. The coverage of preschool children by the Child Nutrition Centers in Hang Chat (E1) is estimated at no more than 5 percent, and many who attend these centers may not actually need special nutrition care.

Having identified a group of severely malnourished children, an effort was made to have HPVs and wechakorn follow these cases and supply regular supplemental food. The results of the first six month followup are shown in Table 10. Since much of the weighing was done by less trained HPVs, some misclassification was expected. While information is incomplete, it appears that less than half, and possibly as few as one-quarter of the children, improved over the period. It should be emphasized that although some improvement was seen, many such children still remained malnourished.

Table 8

Deliveries to Hang Chat Women (E_1) by Location of Supervising Personnel, 1974-77

Location of Supervising Personnel	Target		Deliveries							
			1974		1975		1976		1977	
	Distribution	(%)	No.	(%)	No.	(%)	No	(%)	No	(%)
Provincial Hospital	--	25	263	26	296	32	297	33	267	30
Health Centers[a]	--	35	166	18	196	21	176	19	394[e]	44
TBA (trained)	--	35	n.a.	39[b]	331	36[c]	239	26	204	23
Subtotal		95	n.a.	(Est) 83	823	90	712	79	865	97
Other		5	n.a.	(Est. 17)	91	10[d]	191	21[d]	27	3
TOTAL[f]		100	924	100	914	100	903	100	892	100

[a]Supervision by the trained midwife at the health center or at home.

[b]Based on the proportion of Hang Chat women with 1974 births supervised by TBAs, revealed by the Community Health Survey (1975).

[c]Home births supervised by TBAs trained by the Lampang Project (estimated 75% of total number in villages). Figures for last 5 months of 1975 projected to whole year may be too high.

[d]Calculated by exclusion. Thought to be too low in 1975 and too high for 1976.

[e]Delivery totals for 10 months projected to 12 months.

[f]Total births based on estimated total populations of 42,000 to 43,000 from 1974-77, with estimated fall in birth rates from 22.0-20.5 per 1,000 over the same period.

Table 9

Nutritional Status of Pre-School Children in Hang Chat (E_1) District and Portions of Muang District (E_2)

Nutritional Status Classification[a]	Percent E_1[c]	E_2[d]	E_2[c]
Normal	56	45	47
Primary undernutrition	31	44	37
Secondary undernutrition	11	10	12
Tertiary undernutrition	2	1	3

[a]Gomez weight-for-age against Thai standard.

[c]Surveillance data, N (children) = 4,000

[d]Community Health Survey, sample of all six E_2 districts, N (children) = 1,500.

Table 10

Followup of Sample of Seriously Malnourished Children in Hang Chat (E_1) 1977-1978

Children Identified as 3° undernourished by Nutritional Surveillance[a]		Number	Percent
Misclassified[b]		6	8
Died before followup		3	4
Improved[b]			
to 2° status	5	20	25
to 1° status	3		
Unspecified	12		
Unchanged		32	42
Unknown[c]		16	21
TOTAL		77	100

[a]Nutrition surveillance in 1977 estimated that 2% of Hang Chat children under 6 were severely (third degree) malnourished.

[b]A minimum estimate.

[c]It is known that some of these 16 children improved while others were misclassified. The exact numbers are unknown, however.

A few children died and the largest single group were those whose status was unchanged. The notes of the followup workers make it clear that many HPVs were not fully cooperative and some wechakorn were unable to take an active role. Half the children who received supplements received them at home, the balance coming to the health center. In only two of seven health centers was staff performance considered satisfactory. Where food supplements were delivered or collected, the child was much more likely to improve.

These results must be judged disappointing. Since the improvement of child nutrition is a priority of the Project, new approaches may need to be devised to stimulate the villages to recognize the problem (perhaps through the dramatic recovery of a severely malnourished child in the village) and to activate the HPVs (perhaps by means of an incentive in selling supplemental food). Ultimately, food supplements should be locally made, pointing to a possible role for the private sector. Finally, the role of health education to train mothers how to prepare local foods properly, and to decrease the role of superstition, needs expansion through HPVs and HCs, and to be reinforced by re-stimulated wechakorn. There may well be a role for a trial of mothers' clubs in some villages to carry out continuous surveillance and to promote better nutritional practices.

FAMILY PLANNING

The baseline Community Health and Nutrition Survey in E1 and C1 indicated very high levels of current family planning practice before Project interventions were introduced. With a current contraceptive prevalence rate at 50 percent and above, a rapid further large increase in acceptance could hardly be expected.

Followup data on current family planning practice will not be collected until the Community Health and Nutrition Survey is repeated at the end of the Project in 1980. However, family planning service statistics do provide some evidence of how Project activities may be affecting family planning acceptance. Table 11 summarizes new family planning acceptor data for the period of Project operations in E1 and C1 areas.

The growth of family planning acceptance from 1974 to 1977 is clearly greater in area E1 than area C1. The sharp increases in 1976 are for pill acceptors and women receiving DMPA injections at health centers rather than at the provincial hospital. The placement of the wechakorn has much to do with the increased acceptance in area E1 and its timing. The striking increase in number of sterilizations in the district facilities of area E1 in 1977 represents the activities of the mobile vasectomy clinic of the Community Health Department. This mobile clinic has amply demonstrated that rural men with low income and limited educational background are interested in vasectomy. The response has been vigorous and 1978 will show further gains in the acceptance of this method.

Table 11

New Family Planning Practice Acceptors in E_1 and C_1, 1974-1977

Service Location	Method	1974		1975		1976		1977	
		E_1	C_1	E_1	C_1	E_1	C_1	E_1	C_1
Provincial Hospital	Sterilization M/F	75	n.a.	76	71	69	76	37	69
	IUD	127	"	78	142	66	179	70	125
	Injection	--	"	1	--	2	--	4	3
	Pill	24	"	33	65	62	71	32	78
	TOTAL	226	"	188	279	149	321	143	275
District Hospitals and Health Centers	Sterilization M/F	1	"	--	--	--	--	187	--
	IUD	1	"	--	--	--	--	10	--
	Injection	--	"	41	--	207	--	251	--
	Pill	476	"	574	819	799	791	801	816
	TOTAL	478	"	615	819	1,006	791	1,339	816
TOTAL - Hospital + District		704	"	803	1,098	1,205	1,212	1,482	1,191

[a]Data for Hang Chat District Hospital are for 9 months, the period the facility was newly opened.

If the provincial hospital data are separated from the total new acceptors, the contrasting pattern of acceptance at the district level is striking. Whereas in E1 there was a 49 percent increase in new acceptors between 1975 and 1976, and a 33 percent increase from 1976 to 1977, there was a slight decrease in C1 over the same period. There was also a small decrease in provincial hospital new acceptors who came from Hang Chat. Although conclusions must be tentative, the sharp increase in new acceptances in E1 seems to correspond with the introduction of wechakorn and community health volunteers. Furthermore, the proportion of new acceptors traveling to the provincial hospital for services has decreased in Project operational areas, but has not decreased in the control area. This strongly suggests that the expanded availability of family planning services at the district level and below have attracted more new acceptors, reducing the need to use the provincial hospital.

Once the mobile clinic began operations in October 1977, there was a surprisingly vigorous response in most of the areas where the service was introduced. In the first year of the mobile clinic (Oct. 1977-Sept. 1978) over 1,000 men received vasectomies. Interestingly, a majority of these were poor farmers, with four or less years of education and with three or less children. The initial impact of this clinic on the pattern of family planning acceptance can be seen in Table 11. It should be noted that in the same period the mobile clinics also provided over 3,600 immunizations (mostly cholera and typhoid) and services to more than 6,500 outpatients (two-thirds of them women).

CHAPTER 6

COSTS, RESOURCES AND REPLICATION REQUIREMENTS

A frequent criticism of special demonstration projects is that they may produce excellent results and impact, but frequently employ methods that the implementing government cannot afford to replicate and institutionalize in other parts of the country. For this reason, as the Lampang Project began, emphasis was placed on analyzing what additional resources would be required for the government to incorporate the Project's key features into the health structures of other provinces. At this point in the project, a comprehensive analysis of costs and outputs is not complete. However, some interim information and findings are presented below that point to encouraging, even if tentative, conclusions.

REGULAR PROVINCIAL HEALTH SYSTEM COSTS

Table 12 summarizes the actual and projected expenditures of the provincial health care system for the four years the Lampang Project has been in operation. The figures conform to the standard government accounting categories and do *not* include external assistance (dealt with separately below).

During the period of Project implementation there have been heavy capital outlays--amounting to 45 percent of the total budget over four years--for the expansion of the provincial hospital and construction of several new rural health facilities. These high capital outlays are unique to Lampang and only a few other provinces where the provincial hospital is being expanded and upgraded to regional status. A substantial portion of the sizeable increase in operating costs is also associated with this expansion of facilities, reflecting the additional personnel and supplies required to operate them. This general expansion of capacity, it should be emphasized, was not part of the Lampang Project plan as such, but the Project aims to intensify the utilization and efficiency of the entire provincial health system, including the new capacity.

In order to get a better picture of actual provincial service costs, Table 13 presents operational costs only, by service locations (i.e. provincial hospital and district and subdistrict health facilities). It can be seen that the bulk of provincial health service

Table 12

Annual Provincial Health Budgets
by Functional Categories
(in U.S. dollars)

Year	Capital Costs	Operational Costs				
		Personnel[a]	Expendable Supplies	Other[b]	Total operational Costs	Annual Total
1974-75	$ 531,538	$ 425,252	$ 359,730	$ 111,460	$ 896,442	$ 1,467,980
1975-76	822,070	622,731	502,442	111,548	1,236,721	2,058,791
1976-77	2,038,713	658,329	1,545,136	336,598	2,140,062	4,178,775
1977-78	2,285,971	1,040,971	1,321,119	480,778	2,851,664	5,137,635
4 year Total	$ 5,718,292	$2,756,079	$3,728,427	$1,040,384	$7,124,889	$12,843,181
Yearly Average	$1,429,573	$ 689,020	$ 932,107	$ 260,096	$1,781,222	$ 3,210,795

Sources: Lampang Project Planning and Programming Division for 1974-76; Provincial Health Plan for 1976-78.

[a]Personnel costs include salaries, wages and overtime.

[b]Other costs include travel, per diem, and allowances, matching funds, central funds, and miscellaneous.

costs are associated with the provincial hospital, and that rural health facilities operate on small budgets. This is explained in part by the fact that the most highly-trained and highly-paid personnel are concentrated in the provincial hospital, and the types of services available there are more sophisticated and hence, more expensive. It also reflects the lower priority traditionally given to rural health services. However, the Government's current effort to change this situation is evidenced by the three-fold increase in the operating budget for district health services in 1976-77.

Note: US$1 = 20 Thai Bhats

Table 13

Annual Operational Costs by Geographic Location[a]

Year	Provincial Hospital	District Health Facilities[b]			Total
		E1 District	C1 District	Other 9 Districts	
1974-75	$ 642,399	$ 24,601[c]	$ 19,681[b]	$ 209,761	$ 896,442
1975-76	889,244	31,589[d]	31,589[d]	284,299	1,236,721
1976-77	1,015,109	93,746	93,746	937,461	2,140,062
1977-78	--	--	--	--	2,851,664

[a]Segregation of individual district costs from the aggregate provincial health budget was done as part of the Project's Cost Analysis Study, but data are only available for the baseline year 1974-75. However, since provincial hospital costs and total provincial health costs are known for subsequent years, average district health service costs can be estimated for 1975-78 by dividing the total operational budget for provincial rural health activities by the number of districts (11) in the province. This is admittedly a rough average since the size and available facilities in the eleven districts are uneven.

[b]Includes both district hospitals and subdistrict health centers.

[c]E1 and C1 district costs obtained from Cost Analysis Baseline Survey.

[d]E1 and C1 figures derived by dividing total district health budget by the number of districts (11).

PROJECTED COSTS OF REPLICATION

To ascertain what additional costs beyond the normal provincial health resources might be required to implement the key features of the Lampang Project in other areas, a first required step is to review the level of outside contributions. Table 14 summarizes annual external assistance to the Project over the past four years. The total $2.8 million (provided by US AID via the American Public Health Association and the University of Hawaii) is equivalent to an addition of approximately 22 percent to the total provincial health budget (including capital outlays) over the four year period, or about 39 percent in terms of the total operational budget.

The required budgetary increments for duplicating the main features of the Lampang Project in other provinces, however, would be considerably less. This is because a large portion of the research

Table 14

Annual Non-RTG Donor Contributions to Lampang Project
1974-75 Through 1977-78

Source	1974-75	1975-76	1976-77	1977-78	Total
APHA	$366,599	$366,599	$627,000	$627,000	$1,987,148
UHSPH Technical Assistance	114,526	189,589	256,219	260,210	820,544

APHA = American Public Health Association

UHSPH = University of Hawaii School of Public Health

and development, training, demonstration, evaluation and technical assistance costs that were essential to the Lampang Project and were supported mainly by external funds, would not have to be repeated in full. For example, almost all of the special evaluation activities directed at measuring the Project's various impacts would not have to be continued elsewhere. Similarly, the sizeable initial investment in designing training programs and developing training methods and materials for the wechakorn and other new categories of personnel would not have to be repeated since the end products of this investment are now available and can be readily used in other provinces at relatively little cost.

By examining carefully the various cost categories in the Project budget and estimating the proportion of each that could be considered necessary for replication, we have reached the conclusion that only 11 percent of the externally supported costs shown in Table 14--or roughly an average of $300,000 spread over four years--would be required as additional inputs to implement the key features of the Lampang Project in other provinces. For a province the size of Lampang, and at price levels prevailing over the past four years, this would amount to an average annual budget increment of $75,000. Taking as an illustration Lampang's aggregate provincial health budget over the past four years, this would average out to 2.5 percent per year of the cumulative total budget (including capital outlays), or 4.2 percent of the cumulative operational budget.

While the actual percentages applicable to other provinces would vary somewhat according to the size of their geographic area and population, and the size of their existing health system and budget, the above illustrative figures drawn from Lampang Province provide

a useful indicator of the order of magnitude of the costs of replicating the main features of the Project in other provinces.

A more detailed and perhaps more accurate picture of the probable costs of replication can be seen from a different angle, by examining the costs of developing and implementing specific major project components (albeit on the basis of rough cost data). The largest component is the cost of training the various personnel categories. In 1976, the estimated "normal" (i.e. post starting-up) costs of training each of the Project's innovative health worker categories were:

Health Post Volunteer	=	$124/person
Health Communicator	=	$ 17/person
Traditional Midwife	=	$112/person
Wechakorn	=	$2,000/person

These early estimates of training costs for village volunteers are probably higher than present costs because the subsequent training program for trainers prepared subdistrict health workers to assume volunteer training responsibilities, thereby reducing the higher-cost inputs of the Project Personnel Development Division staff.

Training the first group of wechakorn was expensive, with an estimated average cost of over $6,000 per trainee. However, these included heavy initial investments in developing the training, purchasing training equipment and supplies, and extensive technical consultant costs for those assisting in developing the program. Thereafter, wechakorn training costs benefited from economies of scale, leading to an average trainee cost that has stabilized at about $2,000.

If the training costs in a single district are compiled, and the other inputs needed to implement integrated health services are added, some measure of required additional resource inputs can be estimated. For example, in Hang Chat, the first operational district, implementation costs that were incurred in addition to the normal government budget are presented in Table 15. Since all implementation was done in a two-year period in Hang Chat, training costs are divided between two years. When comparing the total inputs related to Project implementation with the average annual district health budget of about $28,000, the supplementary inputs seem very large. But the major portion of the added costs are for training, which would not normally be borne by the district itself. Furthermore, training costs are an initial investment, which, being largely nonrepetitive, are much smaller when prorated over the life span of service contributed by health workers.

The estimated replication costs presented above are necessarily rough and subject to refinement as additional facts and analysis become available. They suggest, however, that the costs of reproducing the

Table 15

Two Year Project Inputs in Hang Chat District
(1974-1976)

Cost Category	Two-Year Costs*	Average Cost/Year
HPV Training	$ 9,300	$ 4,650
(a) 75 x $124/trainee = $9,300		
Communicator Training (b) 652 x $17/trainee = $11,084	11,084	5,542
Traditional Midwife Training (c) 44 x $117/trainee = $ 5,148	5,184	2,574
Wechakorn Training (d) 7 x $2,000/trainee = $14,000	14,000	7,000
Total Training Costs (Sum of above (a+b+c+d)	$39,532	$19,766
Supervision ($5/day x 4 days/month)	4,160	2,080
Supplies/Materials ($250 x 7 centers)	3,500	1,750
Total Additional Inputs	$47,192	$23,596
Estimated Average Government District Health Budget	$56,190	$28,095

*Excludes initial starting-up costs.

main features of the Lampang Project throughout Thailand in coming years should be well within the financial capabilities of the government.

It is recognized, of course, that additional resources would permit more rapid replication. For example, in the World Bank-financed Population Project, now underway in 20 additional provinces of Thailand, a number of Lampang Project-like features have been incorporated. With a total budget of approximately $68 million ($34 million in loan and grant assistance), about 50 percent is being devoted to capital construction of all types, and the remaining 50 percent to training, evaluation, and other operational costs. The Ministry of Public Health thus understands that rapid replication activities require some additional support, but in fact, much of what has been developed and evaluated in Lampang can be replicated more cheaply. Per diem rates for trainees are being reduced, wechakorn-like training is being shortened, and a variety of other steps have been taken in the project to trim costs.

CHAPTER 7

CONCLUSIONS AND LESSONS

In the fourth year of the Lampang Project, with interventions well underway but with evaluation activities incomplete, where does the Project stand with regard to achievement of its major objectives? What has been learned? What experience has been translated into Ministry policy and plans for primary health care and integrated health services?

Any appraisal at this time must necessarily be incomplete and tentative, based on only a baseline survey, fragmentary longitudinal data of uneven quality extracted from routine provincial records, and on the qualitative, but knowledgeable, reports of many experienced observers.

A further important caveat to bear in mind is that the Lampang Project is not writing on a clean slate, nor is it a total health system unto itself. On the contrary, it seeks to modify, redirect, expand, and make more efficient and effective an existing health system, based on a conventional Western model, that was failing to bring appropriate primary health care services to the great majority of rural families. Moreover, it was introduced at a time when the Ministry of Public Health was already committed to a major expansion of the existing health system's capacity, especially to serve more rural people. Without the Project, however, the system would have been expanded substantially in its old image, thus perpetuating its old imbalances, fragmentation and inefficiencies.

Thus the major goal of the Lampang Health Development Project has been to improve the health status of the population of Lampang by pursuing the following *specific* implementation objectives:

1. To expand health care coverage to at least two-thirds of the rural women in child-bearing years and preschool children.

2. To establish an integrated model of provincial health service delivery extending to the subdistrict level and linked to a village health volunteer network established in every village.

3. To establish an integrated health care system that is "low cost" (i.e. more cost-effective), the key features of which

are within the resources of the RTG to replicate nationally if found effective.

Evaluation objectives include: the measurement of consumer accessibility to and acceptance of services in the experimental and control areas; an assessment of the performance of health personnel and the efficiency (through improved mangement) of the health delivery system; measurement of the impact of services on the health status of the population over time (as compared to specific targets); and lastly, an assessment of the financial, social and administrative feasibility of replicating the key features introduced by the Project.

A series of questions bearing on the Project's objectives will serve as a useful frame for this preliminary appraisal:

A. *To what extent can integration of illness care, disease prevention, and health promotion services, as well as government and private health sector services, actually be attained?*

The Lampang experience suggests that more integration can be achieved, despite the historical separation of "medical care" and "public health" services. The administrative reorganization by the Ministry of Public Health in 1974-75, placing all provincial hospital and health services under a Provincial Health Officer, helped to expedite the integration goals of the Project. But even more important perhaps in reorienting attitudes, are the manpower development and role changes instituted by the Project. While wechakorn training is necessarily mostly clinical in orientation--to relieve the heavy demand for illness care at the hospitals as well as to bring clinical services closer to the villagers--community health skills are also emphasized. The wechakorn typically comes from a rural health center, where the preventive/promotive orientation is relatively strong, and he returns after clinical care and community health training with a renewed commitment to the preventive/promotive services stressed by the Project--maternal and child health, family planning, and nutrition.

In an underserved rural population oriented to episodic medical crises, the risk is that preventive services will be submerged by the demand for curative care. This risk is clearly lowest for family planning, which, because of the high demand and continuing interest at highest government levels, has been well-integrated in the provincial health services for some time. The risk may be highest for nutrition, which is not widely recognized by the people as an important problem and is confounded, much as family planning once was, by a maze of traditional myths.

A major contribution of the Project to integrated health services is the organization of the Community Health Department at the Provincial Hospital. While this department is not yet permanently established, there is every indication that it will be soon. Hospital physicians rotating from other departments, go out with the mobile unit into the rural areas to provide curative and preventive services and supervise

the work of the rural health centers. This rotating activity will expand in the future. At the central level the Community Health Department provides a focus for preventive services at the hospital, and it has absorbed a number of preventive functions and staff from the Provincial Health Office.

"Integration" of the private sector in an overall government-coordinated health care system will be more difficult. Private pharmacists in the towns have been cooperative in resupplying medicines to the HPV, but they were approached only when the government system was unable to provide needed supplies in a timely manner. The private Community-Based Family Planning Services, which since 1975 has been very successful in organizing private family planning services in many parts of Thailand, agreed to organize an experimental district (Ngao) within the Lampang Project area. Its program is being expanded on a pilot basis in Lampang to include provision of simple medicines, health education, and perhaps community nutritional surveillance.

So far as is known, traditional health practitioners (indigenous healers, herbalists, injectionists, etc.) as well as small merchants selling household medicines in the villages, have for the most part gone along with--or at least tolerated--the program, while traditional midwives have actively joined it.

B. *Can at least two-thirds of the target population be reached with expanded and integrated health services?*

The answer is almost certainly "yes," although complete documentary evidence is not available at this writing. Already a large proportion of eligible women (slightly over 50 percent in the baseline Community Health Survey) are being reached with family planning services. There is also evidence, at least in area E1, that almost all deliveries are now attended by trained personnel. Prenatal and postnatal services, however, appear to be weak, and this weakness suggests the need for improved supervision and followup. A higher level of complete pregnancy care can be achieved only if the wechakorn can galvanize the interests of the villagers and the service efforts of the village-based TBAs and the health center based auxiliary midwives.

The same is true for immunizations, but here the problem is compounded by the special requirements of bringing appropriate biological materials to the village in viable condition. There may need to be special immunization campaigns in Lampang, especially oriented to Diphtheria-Pertussis-Tetanus Toxoid (DPT) and bacille Calmette Guérin (BCG) for preschool children, and tetanus for the general population (with particular emphasis on women in their child-bearing years). The need to continue giving smallpox vaccinations is highly doubtful. Coverage will be very difficult to measure unless mothers are supplied with cards for themselves and their babies. Cross-sectional surveys can only establish (more reliable for smallpox and BCG) the proportion of children (but not the specific children) immunized at least once over a reference time period.

Nutritional surveillance and follow-up case work is also a great challenge. Nutrition services have been under-financed (primarily because nutrition is not recognized by the province as a major problem), and services that are available seem not to reach children most in need. As described earlier, the Project has documented that between 10-15 percent of preschool children in areas E1 and E2 are moderately to severely undernourished. What remains to be done is to systematically identify these children (already accomplished in some areas) and to establish an effective system of follow-up. Health education at the village level will need to emphasize better selection, preparation, and (within family) distribution of available foods.

As noted earlier, the project aims to reach 65 percent of the total Lampang population with basic health services. In an earlier section of this report it was seen that total coverage is increasing, and although the proportion of care provided by rural health centers appears to be increasing on target, the relative contribution of the HPVs is below expectations. The proportion of care provided by the provincial hospital has not increased significantly, at least for E1 residents, which is a positive sign.

Throughout the implementation period, the number of rural health centers and district hospitals (formerly first class health centers) has been increasing rapidly. Staffing of the district hospitals has also been strengthened; all have full-time physicians, a significant step forward over the incomplete staffing of the early 1970s. The Lampang Provincial Hospital has acquired regional status and is in the process of doubling its bed capacity. All these developments will improve overall population coverage and a more appropriate distribution of cases between levels of the system. It will be increasingly difficult to differentiate from other forces the contribution of the Project in promoting overall coverage, but the expansion of rural coverage, coupled with the growing availability of wechakorn, can be expected to shift the pattern of primary care toward the periphery of the health system. However, care within the village may weaken and be by-passed unless more support, regular supervision, and continuing education are provided for the HPVs and TBAs.

C. *Can underutilization of existing government peripheral health facilities be overcome?*

The emerging answer is optimistic. There is little question that the wechakorn have made an extraordinary difference in increasing utilization of rural health facilities, although it is not clear that their activities will reduce or even hold constant the demand for more expensive health care at the provincial hospital. Hospital planners are clearly assuming that there will be more demand.

Wechakorn themselves may be overwhelmed with curative care and find little time for preventive/promotive activities, unless the village health volunteers become more active and are better supported. To date, the potential role for planning by the village health committee

seems unrealized. It should be kept in mind, however, that villagers are often distracted by the requests of many other governmental programs to set up various development-oriented committees. Health may not appear to be the most attractive or important of these. Moreover, given years of political passivity and the influence of rural Thai culture, villagers are unlikely to make demands or perhaps even requests of the local bureaucracy. The current situation is characterized more by "downward support" than "upward planning."

D. *Can the health status of the population--fertility, mortality, morbidity--be measurably improved by integrated and expanded health services?*

It has been shown that fertility has been declining in Lampang for some time, and baseline surveys indicate that 50 percent of eligible women in areas E1, C1, and C2 were practising family planning when the Project began. Given the apparent trend and its tempo, it may be difficult to attribute further change to the Project (though evidence presented in Chapter 5 suggests a positive contribution). It should be mentioned that the Project may in any event contribute to greater efficiency in fertility control. The distribution of pills by active HPVs may be expected to improve continuation, and the Mobile Unit's successful efforts to promote vasectomy will release women from the need to take hormones over a long period of time. For many couples, sterilization, especially vasectomy, is the most appropriate and desired method, and the Project has made improvements by offering a high quality service, supported in many ways by village volunteers.

As for morbidity and mortality, the answer will rest on trends to be measured in future Community Health Surveys. Because of the inclusion of two control areas, one of them, contiguous, but remote and unlikely to be contaminated by Project effects, the Project is protected against falsely concluding that there has been a change attributable to its activities. Clearly, mortality is declining in Thailand, and this may be assumed to be so in Lampang as well. Morbidity is more elastic in nature and thus harder to measure, but following the definition used in the baseline Community Health Survey, one might reasonably expect a parallel decline in disabling illness. Attribution of such declines to the Project could be overshadowed by the significant expansion of general health services in Lampang since 1974. One anticipates positive effects on morbidity and mortality from Project activities, but they may be difficult to measure and even more difficult to associate clearly with specific Project inputs.

E. *To what extent can management and efficiency of health services be improved?*

Changing management practices is a sensitive matter, more easily accomplished at lower levels if the system supports lower-level decision-making. The addition of assistant district health officers may improve supervision and support at the rural health centers, much as the wechakorn should both stimulate and respond to the HPVs.

Many management decisions, even within the project, continue to be based mainly on experience and intuition. This is often effective, but tends to underutilize information collected for management purposes. The Project's efforts to collect data and to focus selected information on management decisions, have been impressive thus far, but may need further strengthening. The Ministry of Public Health is currently conducting a series of rural health services management workshops for provincial personnel throughout the nation.

One basis for measuring efficiency has been laid in the Cost and Task Analyses in the hospital and health centers. It is clear that, in the rural health centers at least, there was customarily a significant amount of "idle" time. If staff capabilities are strengthened and the demand for services by villagers increases, it seems likely that the slack time will be reduced. The evidence presented in Chapter 5 suggests that this is already happening

F. *Is it possible to replicate the Project's key features in other areas, given normally available resources?*

The key features to be considered here are the reorganized hospital/rural health service infrastructure, the wechakorn para-physician, the village health volunteers, the involvement of the community and the private sector, and an improved management system.

Starting with the view of the provincial hospital as the nucleus of health services at the center of an inter-related network of health centers and peripheral services reaching into the villages, the Department of Community Medicine was established to promote the hospital's community health role. The idea of reaching outside the hospital's compound to support and coordinate a variety of curative outpatient and preventive services in the larger community is not easily accepted by physicians trained under the Western medical model. Many feel their extensive training is wasted in dealing with the usually mild and often self-limited complaints of rural people. Trained to take care of rare, "interesting cases," they are not eager to move outside the hospital, even temporarily. The Department of Community Medicine in Lampang has grown slowly, gradually winning acceptance in the hospital and at the rural health centers. Soon its small staff will be increased by three wechakorn, greatly increasing its capacity to provide preventive/promotive services at the hospital and curative care and supervision in the rural areas. The usefulness and replicability of such a department is evident, but although the Ministry of Public Health plans to establish them in all provincial hospitals, final decisions on their structure, role, and activities have not yet been made.

The Ministry of Public Health, in advance of definitive evaluation of the Lampang experience, has elected to train sufficient village health volunteers (HPVs and HCs) for 20 provinces in the Five Year Plan which began in 1977. The MOPH plans to use the Lampang Project training materials and job descriptions. In addition, the Ministry will

train 1,400 nurse practitioners for the same 20 provinces. Unlike the wechakorn, all trainees will be nurses. This designation will avoid the problem of Civil Service recognition of a new class of health worker. The nurse practitioners, however, will be assigned only to the provincial and district hospitals--not to the more rural health centers where there is a greater demand and need for illness care. Training will emphasize clinical skills, rather than disease prevention and health promotion for the village level. A plan is also underway to give four months of clinical training to midwives. These workers would return to the rural health centers to provide much more limited curative services and support for the village volunteers than is provided by wechakorn.

The supervisory implications of the Ministry's plans for "paraphysician" training will require great attention and effort. While there will be few problems with the nurse practitioner, who almost always will work with a resident physician, the issue remains of how to tie the village volunteers to the specially trained midwife and how to provide logistical support and supervision to both from the district and provincial hospital. The Lampang Project experience suggests how difficult this may be to achieve, especially in the absence of wechakorn or their equivalent in every subdistrict health center.

Replication of the management system begins with careful orientation and training of provincial and district level health staff. It means the use of carefully honed information for decision-making and implies two way communication. It means the efficient referral of patients to the most appropriate level of health care. Current plans to further strengthen planning and evaluation activities at the provincial levels will certainly be helpful.

Finally, although the data related to costs of the Lampang Project are preliminary in nature, it seems that replication of the major features are well within the government's financial capabilities. Most of the Lampang Project's outside resources are nonrepetitive, having been applied to development of training methodologies and materials, and to evaluation and research. As the Ministry of Public Health implements similar features in other areas of the country, the costs should drop substantially as economies of scale apply.

Figure 1, shown at the beginning of this paper, summarizes the evolution of integrated rural health care in Thailand, and the Ministry of Public Health's directions for the near future. It seems clear that plans for future implementation have incorporated features similar to those in Lampang, as well as the experience and lessons learned there. The completion of the Project evaluation and documentation process promises to provide further information and lessons that will be of use to the Ministry in implementing expanded rural health care. Consequently, the Lampang Project seems very likely to achieve its goal of serving the mainstream of Royal Thai Government health policy formulation, health planning, and programming.