

THE IMPACT AND SUSTAINABILITY OF USAID ASSISTED
HEALTH ACTIVITIES IN THAILAND
1951-1989

by

Thavitong Hongvivatana, Ph.D.

Charles N. Johnson, M.P.H.
(Team Leader)

Robert J. Muscat, Ph.D.

Suwit Wibulpolprasert, M.D., M.P.H.

Annemarie Wouters, Ph.D.

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PREFACE

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EXECUTIVE SUMMARY

Between 1951 and 1989, the U.S. Agency for International Development Mission to Thailand (USAID) provided over \$100 million to the Royal Thai Government for some thirty separate projects in health, population and nutrition. In addition, contractors funded by AID/Washington have provided substantial assistance to Thailand and some of these programs are expected to continue in the future. Bilateral assistance for specific projects in the broad health sector is now ended. USAID requested a five person team to review the bilateral projects over the past 38 years for the purpose of drawing conclusions about the impact and sustainability of activities after USAID funding had ended. The team of Americans and Thais spent five weeks together in Thailand reviewing documents, interviewing present and former leaders of the Ministry of Public Health (MOPH) and other organizations in Bangkok and in several provinces and preparing this report.

Sustainability was defined as the extent to which the objectives and benefits of the USAID-assisted activity continue to be met for at least two years after project assistance has terminated and the extent to which, where appropriate, the groups affected want to or can take charge of the activities to continue achieving the results. An analysis of sustainability was undertaken at three levels: policy, program and individual activity. Impact indicates whether the activity, project or program achieved its intended objectives and has had an effect on health status and the health infrastructure.

USAID provided funds for activities in six main areas, malaria eradication and control, population and family planning, rural water and sanitation, medical education and health training, primary health care and nutrition. What is striking in each of these areas is that all significant USAID-supported activities have been sustained at the policy and program levels, in some cases for decades after the bilateral project terminated. It is at the individual activity level where a few elements of USAID support failed. The unsustained activities did not jeopardize achievement of policy or program objectives.. There was no pattern of explanations of why individual activities were not sustained.

With USAID assistance the MOPH developed a strong malaria control program which reduced malaria from the primary cause of death in the 1950s to a minor cause today. Substantial USAID support enabled the MOPH to rapidly organize and expand nationally a family planning program that is acclaimed worldwide; birth rates have dropped sharply and contraceptive prevalence now matches that of the industrialized nations. The Chiang Mai medical school has continued to expand and improve long after USAID funding ended and institutional relationships with U.S. counterparts have continued over the decades. USAID funds promoted rapid expansion of potable water and sanitary privies in selected rural areas. The MOPH utilized USAID funds to test various

approaches to delivering primary health care services and to train health workers down to the level of village volunteers. With limited nutrition funds from USAID, the MOPH tested formulated foods, especially for children, as part of a national effort to reduce malnutrition. USAID funds played a direct and important role in institution building, especially for the malaria, family health and training divisions of the MOPH and the Chiang Mai medical school.

Seven factors appear to have promoted the sustainability of activities supported by USAID: (1) Policy/Program Commitment: existence of a policy statement by the MOPH related to the particular area of USAID assistance and evidence of strong government commitment to implement the policy; (2) Leadership: presence of a highly motivated, dedicated and technically competent group of leaders within the MOPH; (3) Institutional Capacity: presence of a well-developed institutional framework within the MOPH to manage, administer, plan and implement health care policies; (4) Flexible Approach: MOPH preference for an experimental, flexible and pragmatic approach to the development of improved systems of health service delivery; (5) Resource Commitment: RTG/MOPH commitment to increase the relative share of domestic financial and material resources in total project requirements to replace donor funds; (6) Community Participation: recognition of the value of village participation as a strategy to increase coverage of health care services; (7) Economic Stability/Prosperity: importance of economic stability and recent economic prosperity to ensure adequate budgetary resources to public health and to enable and encourage increased population demands for new health care interventions.

It is clear from the above that sustainability depends largely on the actions of the country. The role of USAID has been to support the development of policies, institutions, action programs and trained personnel. The record of 38 years of outstanding achievements in the health field bears witness to the sustainability of those activities with which USAID has been associated.

There are opportunities for continuing U.S. assistance to Thailand in the health sector. New health problems are coming to the fore in Thailand, such as AIDS, environmental health and financing of health services. Thai public health officials have a strong interest in maintaining ties with U.S. institutions and thinking as they move to meet these new health challenges.

GLOSSARY

AID	United States Agency for International Development
AID/W	United States Agency for International Development/Washington Headquarters
AIDS	Acquired Immune Deficiency Syndrome
BMA	Bangkok Metropolitan Administration
DEIDS	Development and Expansion of Integrated Delivery Systems
EPD II	Emerging Problems of Development II Project
GNP	Gross National Product
IUD	Intra-Uterine Device
Mission	Same as USAID
MOPH	Ministry of Public Health
NESDB	National Economic and Social Development Board
NFPP	National Family Planning Program
NMEP	National Malaria Eradication Program
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PHC	Primary Health Care
RTG	Royal Thai Government
USAID	United States Agency for International Development Mission in Thailand
VHS	Village Health and Sanitation Project
VMC	Village Malaria Collaborator
WHO	World Health Organization

1. INTRODUCTION

This is a study of the extent to which USAID-assisted policies, programs and projects in the health sector in Thailand have been sustained by the Royal Thai Government (RTG) in the years following the conclusion of specific USAID bilateral projects and the impact of USAID assistance on improving health status in Thailand. The study also attempts, briefly, to look ahead, to identify some significant emerging health problems that may make it difficult for the RTG to sustain activities in the future at the same high level of effectiveness already achieved. In this report, the term health covers programs in health, population and nutrition. The methodology for this study is rather different from the sustainability studies already undertaken in countries in Africa and Central America. The previous studies were able to make comparisons between projects that succeeded and failed, between aided institutions or activities that were continued after completion of the AID assistance at acceptable levels of operation, and others that declined or collapsed within a couple of years after AID withdrawal. Where comparisons can be made between activities that were and were not sustained, it is possible to identify factors that were common to the sustained ventures but absent from the abandoned ones. In the case of the Thai health sector, it is difficult to make such comparisons. Whether at the level of policy, program or project, most USAID-assisted activities have been sustained.

A few exceptions to this general sustainability record were identified, which do not appear comparable to the category of sustainability "failure" that was frequently found in the studies in other countries. Some of these specific activities that were not continued are briefly in chapter 3.

Needless to say, over four decades of programs and projects, there were many cases of individual project components that flagged or were cited in mid-project monitoring and evaluation reports as needing greater RTG attention and more effective implementation. However, unless such implementation problems persisted and resulted in unsatisfactory final outcomes and unsustainable activities, these mid-course project management problems were outside the scope of this study.

We are left with a few cases of USAID-assisted activities that were not, or are not being sustained. As explained below, these are minor instances in the context of the overall record. Significant problems of sustainability appear, instead, to lie in the future, raising some interesting questions of possible contributions USAID might make to help ensure that the past gains and very creditable USAID-assisted achievements continue to be sustained and consolidated.

1.1 Study Methodology

Given the large number of assisted activities, and the fact that some minor ones of the fifties appear to have been conceived as one-shot assistance for problems that were not very widespread in any case (e.g. leprosy), the team did not attempt to do an encyclopedic review. Rather the study focuses on the main policy, programmatic and institutional objectives which were also the main project areas to which the bulk of the health money was allocated.

Studies of sustainability in other countries considered a lengthy list of contextual and project characteristics that might have made the difference between temporary or lasting impact of the AID-assisted activities and institutions. The contextual factors include such things as political environment, U.S.-host government relations, socio-cultural and economic context and policy commitment. Project characteristics examined included such things as the project negotiation history, administrative arrangements and leadership, financing structures, project design, community participation and the effectiveness of the project itself. Rather than follow a mechanical checklist review of these proposed factors, we discussed with a number of the senior people involved over this long period their own understanding of why things have worked relatively well in the health sector. We tried to determine the necessary and sufficient conditions that seem to have been of greatest importance. We have attempted to do so, in each subject area or institution examined below, at the three levels: policy, program/project, and individual activity component.

The study began with a week of orientation, discussion of methodology and review of documents in Washington. On arrival in Bangkok, the three American team members were joined by two Thai colleagues. Primary responsibility for the six program areas (malaria, population, etc.) was divided among the five team members. The team spent the first week in Bangkok, interviewing senior officials and professionals at the Ministry of Public Health and in other relevant institutions. Some of the interviewees were retired officials whose careers in public health or medical education stretched back to the early years of the USAID program, who were for many years in senior decision-making positions in the health sector, and who also had been directly involved in past USAID projects as participants and as mid-level and senior technicians and administrators.

The team spent the next two weeks in the field, visiting four provinces, Khon Kaen and Nakhon Ratchasima in northeastern Thailand and Chiang Mai and Lampang in northern Thailand. The team observed various facilities and activities in each of the six program areas in numerous locations. The team had discussions with health personnel in a systematic "descent" through the public health system, from the MOPH in Bangkok to the provincial chief medical officers in each province and to provincial, district (amphur), village cluster (tambon) and village levels. The discussions and site visits gave the team

members an opportunity to see the public health system in terms of its structure and operational conditions. By observing the system in four different provinces, the team also gained insights into the system's scope and ability to adjust to local conditions. Although the field visits cannot be construed as a systematic sampling, the two Thai team members had extensive knowledge of field conditions and were able to put the facilities observed into the framework of average conditions throughout the country. Finally, the team also interviewed selected persons in non-governmental organizations active in the health field. While the team followed a general sequence of explanation and questions in the interviews, it was not felt necessary to develop a formal questionnaire.

The report was drafted in Bangkok and reviewed with MOPH and USAID personnel before the team departed.

1.2 The Thai Context

The U.S. bilateral assistance program to Thailand is in its 39th year. From the very start of the program in 1951, assistance in the health sector has played an important role. Out of a cumulative total of around \$1 billion, health projects have amounted to over \$100 million. Over this long period, USAID projects have touched almost every aspect of the health sector (as other project areas have worked in a wide range of development activities in the Thai public and private sectors).

The overall record of economic development in Thailand is well established as one of the most impressive among the countries that have received sustained assistance from the U.S. Per capita income has risen from \$100 when the program began to about \$1000 today. Thailand has developed from a country largely agricultural, with limited institutional or human capital endowment, limited economic infrastructure and extensive poverty, to a country that sees itself becoming the next newly industrialized Asian country.

1.3 Development of the Health Sector in Thailand

This economic transformation has also seen a major expansion in the size and reach of the health delivery system, substantial improvements in basic indices of health and welfare and rapid change in the country's health profile. Thus motor vehicle accidents has emerged as the major cause of hospital admissions, and degenerative, cardiovascular and other ills of middle-income societies have begun to displace malaria and other diseases that have been reduced through public health measures. Life expectancy has risen from about 58 years for males and 62 for females in 1970-75 (and several years less in 1950) to over 62 for males and over 66 for females today. Birth and death rates have fallen substantially. Population growth has dropped from over 3% in the early 1970s to less than 1.5% today.

A major shift has been accomplished in the allocation of public sector health resources, with district level budgets and facilities growing faster than provincial or Bangkok. The level of medical care available in Bangkok and the medical science research and teaching capacities in the country are exceptional among developing countries and in some areas equal to high international standards. The public health education institutions in Thailand provide training for students and officials from other developing countries. The Ministry of Public Health is recognized as among the best administered among Thai ministries and compared with ministries of health generally in developing countries.

While this study focuses on specific programs and projects assisted by USAID, it is important to understand the American role in the broad context of the development of the generation of Thai health leadership that has presided over these near four decades of institutional development and health status change. A large share of the senior medical and public health community in Thailand, the group that has shaped the policies and administered the institutions and programs described herein, obtained much of their higher professional education and training in the U.S., mainly under USAID and Rockefeller Foundation financing. They have continued to maintain professional relations with their American counterparts, especially with the individual university schools of medicine and public health where they obtained their training. The long-run impact of this training goes well beyond the contribution the training made as a component of the specific projects under which their U.S. experience was originally financed. This is true especially for the most senior individuals who have (as a matter of MOPH policy) circulated among the leading decision-making and administrative positions of the ministry, rather than staying with the first area of responsibility for which the advanced participant training may have been tailored. The benefits achieved by the USAID-assisted projects discussed below, and the commitment and ability to sustain (and adapt) the institutions and programs over a long period of time, must be attributed to a considerable extent to the role and capability of this professional generation.

2. U.S. ASSISTANCE TO THE HEALTH SECTOR: IMPACT AND SUSTAINED ACTIVITIES

The team reviewed some thirty projects in six major areas of health, population and nutrition funded over the past 38 years with a USAID contribution of over \$100 million. The USAID contributions enabled the MOPH to train staff and rapidly expand services nationwide to deal with the major health problems of the period. Bilateral USAID assistance to the health sector is now completed, except for some activities and overseas training funded under the Emerging Problems of Development II (EPD II) project, a broader bilateral project which will continue through 1991. This section will review the major findings in the six major areas of assistance. What is striking in each of the sectors is that all significant activities have been sustained by the MOPH, in some cases for decades after the bilateral project terminated.

2.1 Health Status and the Impact of U.S. Assistance

Four decades of economic assistance and of major health sector development in Thailand have brought about substantial demographic change, improvements in health status and changes in the nature of the country's health problems. Population growth has dropped from over three percent in the early 1970s to less than 1.5 percent today. Contraceptive prevalence among married women aged 15 to 44 has risen from less than 15 percent at the end of the 1960s to nearly 70 percent today. Desired family size has dropped significantly. The family planning program covers the entire country. Although prevalence rates remain comparatively low among some minority groups, the success of the programs helped to avert 13 million births over the past twenty years. The implications of this accomplishment for education facilities, demands for public health services, unemployment levels, forest destruction for settlement and so on have been substantial and have contributed to the country's rapid economic advance.

Indices of health status show major changes and improvements over the period of U.S. assistance. Malaria and other diseases that were major causes of morbidity and mortality for generations up through the 1950s have been reduced to minor public health problems. Life expectancy at birth has risen from 54 for males and 59 for females in 1960 to over 62 for males and over 66 for females today. Severe (third degree) malnutrition among children under age five has virtually disappeared, while second degree malnutrition has been reduced to 2.5 percent of the under-fives. Mild (first degree) malnutrition has been reduced from 51 percent of the under-fives in 1982 to 23 percent by 1987 (still unsatisfactory, however, and still the subject of major MOPH efforts). As detailed in the text below, programs of basic preventive public health, appropriate to the major health challenges Thailand faced over much of

this period and including interventions such as sanitation and potable water facilities, immunization of children, nutritional monitoring, expansion of rural access to primary entry facilities and a hierarchical hospital referral system, have all been successfully introduced. Large-scale institutional development took place during the same period to educate the medical, technical and administrative personnel needed to operate the expanding health systems and to provide in-service training and research capabilities needed to sustain the systems' effectiveness.

USAID projects have been involved in virtually all of these Thai programs. Some USAID activities were substantial while others were small or marginal. In some of the substantial cases, such as population and medical education which are described in detail below, the impact of the USAID role is unequivocally large and it seems justified to conclude (and to agree with the Thais involved) that the connection between USAID assistance, project outcomes and health status impact is obvious and significant. Nevertheless, it is important to keep in mind that apart from interventions that effectively interrupt specific disease transmissions (immunizations and malaria vector control), health status is a function of many factors, such as family economic status, migratory patterns and education, only some of which can be affected by public health measures. Demographic change is also the result of many factors besides the availability of contraceptives. Thus, while the record of USAID health assistance appears strong in the light of proximate outputs (medical students trained, in-service training accomplished, availability of information of family planning information, contraceptives distributed, etc.), one must be cautious in extending the apparent impact of such programs to final health status. During the period of USAID assistance, the RTG has received substantial funds for health programs from other bilateral and international donors and this must also be taken into account.

Finally, as noted below, virtually all of the leading public health officials in Thailand have received some of their training in the United States, much of it under USAID funding. Apart from the specific projects, the long-term impact of this saturated training on the élan and professionalism of the public health leadership may well have been the central contribution USAID has made toward improving health status in Thailand, affecting almost every aspect of MOPH operations and most of the leading medical and public health training institutions of the country.

2.2 Malaria

USAID provided \$25.22 million for malaria eradication and control projects between 1951 and 1984. With this assistance, the MOPH greatly expanded its Malaria Division, trained technical staff, organized and managed an army of field visitors and later village malaria collaborators to take blood slides and administer presumptive treatment, organized and maintained a massive household insecticide spraying program and finally established a

nationwide network of malaria clinics. USAID projects provided most of the insecticides and equipment for spraying and laboratory research, vehicles, technical assistance, especially in the earlier days of the program, construction of research, training and field unit buildings, training in the U.S. for much of the leadership of the Malaria Division, support for research, and preparation of training and health education materials.

During the past four decades, malaria has dropped from the number one cause of mortality in Thailand to a minor cause. Although malaria remains a serious problem in some areas along the borders with neighboring countries where malaria is endemic, the incidence of malaria has stabilized at a low level in most parts of the country.

The MOPH has integrated fully the costs of the malaria program into its regular budget. The technical staff of the Malaria Division has demonstrated its technical competence in continuing careful surveillance to prevent any future resurgence of malaria. An area of concern for the future is in replacement of vehicles and equipment formerly supplied by USAID. The MOPH budget provides only limited funds for regular replacement of such items. Similarly, the revolving fund for motorcycle purchase by field staff is declining because of the fairly long repayment schedule. The MOPH has not budgeted funds to replenish these revolving funds.

With major USAID assistance, the malaria mortality rate was reduced from 169 deaths per 100,000 population in 1951 to 12.5 in 1971 and 4.5 deaths by 1984, the years in which USAID project assistance ended. The rate has since fallen to 2.7 deaths by 1988. USAID funds enabled the MOPH to develop a nationwide malaria control program, increasing the number of malaria clinics from 44 in 1979 to 487 by 1987. USAID funds under the most recent project provided training for over 22,000 village malaria volunteers and about 50,000 volunteer kits.

2.3 Rural Water and Sanitation

Between 1951 and 1983, USAID provided \$16.391 million for ten separate water and sanitation projects. USAID funds enabled the MOPH to establish a Sanitation Division (initially called the Community Health Development Division) and train the initial staff. Funds from the early USAID projects were focused on shallow well drilling, construction of sanitary privies and demonstrations of practical village level water supplies, privies and sanitation clean up programs. Under these projects thousands of wells and several hundred thousand sanitary privies were installed, often through substantial community and individual involvement.

Some early projects were only partially successful. The initial MOPH-USAID strategy was to install privies and shallow wells prior to providing health education to villagers or encouraging community

participation. Later projects emphasized community participation by involvement of village committees, experimented with decentralized administration of health services in selected areas, supported nationwide health education programs and developed a rural health worker handbook for village development programs. Handpumps provided by USAID proved difficult to maintain and repair; consequently the MOPH undertook research to adapt handpumps to rural Thai conditions and pumps are now manufactured locally. Village sanitation development funds, supported by the final USAID project, have had mixed success and in many villages are being decapitalized.

Water and sanitation activities remain an essential part of the MOPH program. Funds and staff are well integrated into the MOPH budget and personnel systems.

Under early USAID projects 376 shallow wells were dug and environmental sanitation programs reached about 500,000 people in the northeast through self-help digging, reservoir building and pit-privy projects. The mobile medical teams provided health and medical services to tens of thousands of persons in the northeast. Nearly 250 water treatment and distribution systems were completed. Other projects provided funds for effective and reproducible demonstrations of village level privies, water supply and cleanup programs with community participation in 52 villages; later increased to 259 villages. Nearly 1,000 poverty villages received soft loans to establish sanitation revolving funds so villagers could buy materials for sanitary privies and water collection jars. Results of the Village Health and Sanitation project included installation of 5,000 sanitary wells, 220,000 sanitary privies and 61 village water systems. Over 500 officials were trained in village sanitation and volunteer health committees were organized in 6,000 villages to promote self-help activities.

2.4 Medical Education and Health Training

The projects funded by USAID in this field between 1951 and 1974 in the amount of \$8.8 million provide the most striking examples of long term sustainability.

With USAID assistance, the Chiang Mai University Medical School was established. Construction costs were split between USAID and the RTG. The University of Illinois School of Medicine was contracted to provide technical assistance and academic training for future staff members. The Chiang Mai Medical School has flourished and expanded. Today it is recognized as a top quality medical institution in Thailand. Relationships between Chiang Mai and the University of Illinois have continued, with Illinois continuing to assist Chiang Mai students and faculty members in finding funds for specialized training programs in the U.S. The two schools have an agreement for continuing relationships in research and student and faculty exchanges. Illinois faculty continue to place Chiang Mai staff in clinical training programs and personal ties between faculty members remain close.

USAID funds helped establish Thailand's first health training center in Chon Buri. This training center was the origin of the Training Division within the MOPH. The training center evolved into a regional public health training college. USAID supported equipment for the facility, technical assistance in organizing the curricula, training grants for the faculty, as well as funds for production of training materials. The training center continues as the primary training facility for health personnel. Based on the success of this project, the MOPH has subsequently funded three additional regional public health training colleges. Funds for the operations of these facilities are now included in the regular MOPH budget.

Of the nearly 12,000 participants USAID has financed for training in the U.S. or third countries, nearly 11,000 had been trained by 1980. Since then, participant training has declined substantially. As of 1980, about 1,250 or 12 percent of all participants were categorized under medicine and public health. American foundations, principally Rockefeller, were also important sources of medical and health training and institutional development support in Thailand. As of 1986, half of the senior decision-making positions in the MOPH were occupied by former USAID participants. Large numbers of USAID participants could be found down the ranks of the MOPH. While much of this training had taken place in the context of specific projects and programs, the long-run impact was diffused throughout the ministry as participants advanced in their careers and moved from one program or area of responsibility to another. Although many Thais viewed this training as the most important and pervasive contribution of the USAID program to the course of public health in Thailand, (as one of the team members learned in the course of an earlier study), the impact of these training experiences cannot be identified in the same way as the impact of projects assisting specific institutions and activities. A number of the senior officers with whom the team met mentioned the importance of the USAID-funded training in developing a public health (as opposed to a medical) orientation.

2.5 Primary Health Care

Two projects with funding of \$11 million supported the development of primary health care between 1975 and 1987. The Lampang/DEIDS project tested cost-effective strategies for PHC delivery, some of which were incorporated later into MOPH programs. The Rural PHC Expansion Project developed manpower training programs for a wide range of health workers down to village health volunteers in about 9,000 villages, increased greatly growth monitoring activities, developed revolving sanitation funds in 1,000 villages, promoted widely the understanding and use of oral rehydration therapy and provided management and supervisory training for provincial and district health personnel. An operations research agenda was largely unsuccessful with only three of nine studies completed because of MOPH reluctance to use loan funds for research.

PHC is now a cornerstone of the MOPH's national program with funds included in the regular budget. Even during a period of RTG budget stringency in the early 1980s, the MOPH increased the budget for PHC. External donor assistance for PHC has dropped from 50% to less than 10% of total PHC costs in recent years.

2.6 Food and Nutrition

Nutrition programs received limited funding from USAID, amounting to \$767,000 for two projects implemented between 1952 and 1982. The Protein Food Development project functioned from 1962 to 1972 as part of an international effort to identify superior formulated foods, especially for children, as a simple dietary solution to protein calorie malnutrition. Useful research was undertaken, but the project waned as this "silver bullet" approach to overcoming malnutrition lost favor in the international nutrition community. The MOPH continued to rely on a centrally developed formulation until research in the mid-1980s demonstrated its limited potential. The MOPH now relies on adaptable supplementary foods suitable to local communities. Village nutrition funds and child weight monitoring programs received USAID support under the Rural PHC Expansion project in the 1980s. The final project evaluation noted that the nutrition funds were being decapitalized. Children resisted eating repeatedly the same foods. Also, mothers with well nourished children were not interested in the supplementary food available through the nutrition funds and poor women who were interested did not have to reimburse the funds. The MOPH introduced a practical alternative to get supplementary foods to poor underweight children by issuing coupon books good for specific groceries at local stores.

The child weighing program continues as an educational tool and system for identifying underweight children. There are problems in reaching those children who do not enter the weighing programs, especially since this group may likely contain a disproportionate number of underweight children. Developing mechanisms for reaching these unserved target groups remains a problem and high priority for the MOPH.

2.7 Population

USAID assistance for population programs has been the largest element of its health sector program. Three population projects provided over \$42 million between 1968 and 1989. Since bilateral assistance ended only at the end of June 1989, discussion of sustainability might seem premature. However, rapidly diminishing donor assistance and equally rapid increases in MOPH budget for the program leaves little doubt of sustainability. The Thai national family planning program has received world-wide acclaim for its success in effectively delivering family planning information and services throughout the country. Nearly 70% of married women of reproductive age currently use the most effective methods of contraception, a level similar to the industrialized countries of North America and western Europe.

The first bilateral project (1968-75) concentrated on training personnel in family planning and on providing contraceptives to begin a national expansion of the program. The second project (1976-81) provided substantial amounts of contraceptives, equipment, training, and institutional reimbursements to rapidly expand the voluntary sterilization component of the program to meet rising demand and continued training of staff including personnel at the village, health center and district levels.

The final bilateral project (1982-89) continued to provide contraceptives, supported national expansion of voluntary sterilization services, and provided funds for special programs to reach the hill tribes and religious minorities.

It is important to note that contractors financed by funds from AID/Washington have played an important role in the Thai national family planning program over the years. These organizations have contributed about \$20 million for projects in Thailand, beginning with Population Council assistance for policy research and formulation in the late 1960s. Other contractors have played key roles in helping to train physicians in voluntary sterilization techniques and in supporting Thai non-governmental organizations.

Funds for the family planning program are integrated into the MOPH budget. Funding and procurement of an adequate supply of contraceptives is perhaps the main concern for the future. Yet, overall, there appears to be no area where donor assistance is vital and few areas where donor assistance is needed. Thailand offers an excellent site for regional and international training for family planning policy makers and program managers. Thai family planning experts could be a valuable source of technical assistance for other countries.

During the past twenty years, birth rates have dropped sharply from 3.3 percent in the early 1970s to 1.5 percent today. Contraceptive prevalence among married women aged 15-44 has risen from less than 15 percent in 1970 to nearly 70 percent today with nearly all women or couples choosing the most effective contraceptive methods. The MOPH estimates that the successful national family planning program helped avert up to 13 million births over the past 20 years resulting in great savings for health services, other social services and education costs and helped ameliorate problems of unemployment and underemployment. Adoption of the small family norm by most young couples will have substantial future impact on demands for education, health care, housing and jobs.

3. FACTORS CONTRIBUTING TO THE SUSTAINABILITY OF USAID-ASSISTED ACTIVITIES

3.1 Definition of Sustainability

In assessing the sustainability of USAID-assisted projects in the health sector, the team was guided by the following definition of sustainability: the extent to which the objectives and benefits of the USAID activity continue to be met for at least two years after project assistance has terminated and, where appropriate, the extent to which the groups affected want to or can take charge of the activities to continue achieving the results. Note that this definition does not focus on the continuation of specific activities but rather on continuation of overall project benefits and objectives under the leadership of local authorities.

We examined whether USAID-assisted projects were continued at three levels: policy, program and individual activity. This hierarchy of analysis provides an understanding of sustainability across a range of perspectives: from the more general viewpoint of policy (e.g. national family planning policy or Health For All Charter), to the individual programs which compose the policy implementation strategies (e.g. malaria control program or primary health care program) to the specific activities within each program (e.g. construction of water systems or development of malaria eradication teams). In light of time constraints, the team focused on the main policy, programmatic and institutional objectives although as much detail as feasible on individual activities was sought.

The data presented in chapter two demonstrates that, for all six main areas of health interventions, USAID-assisted activities have been sustained at the general policy and program levels. Health indicators have continued to improve at impressive levels. The MOPH is providing strong institutional and financial support to these policies and programs and is committed to improving implementation strategies. It is at the individual activity or project component level that one finds elements assisted by USAID that were not sustained. The termination of these activities appears not, however, to have jeopardized achievement of overall policy or program objectives.

The remainder of this chapter is divided into two main sections. The first reviews examples of those activities which were terminated and why. The second part of the chapter attempts to answer the often-asked question, "Why have health programs worked so well in Thailand?".

3.2 Review of Unsustained Activities

In describing unsustained projects or activities, it is useful to consider two major categories of activities: (1) those activities which were

never meant to be sustained and (2) those activities which were intended to be sustained but failed.

In the first category sustainability was not an issue. Examples of these are provided below:

1) projects in the 1950s that merely placed equipment in hospitals, with no institution-building or technical assistance attached;

2) successful vertical programs such as yaws long since needing no more than low level surveillance;

3) miscellaneous one-shot efforts such as leprosy

4) pilot projects, such as the Lampang/DEIDS project, designed to generate lessons to incorporate into general programs, where the pilot itself is not expected to have a long-run life as a distinct entity.

A representative selection of activities in the second category is described below. A comprehensive review of all activities was not feasible within the time allowed for this report since hundreds of discrete activities were undertaken during the 38 years of bilateral USAID health assistance. The results highlighted by these findings are twofold. First, there appears to be no pattern of reasons why specific activities failed. Among the variety of obstacles to sustainability, some are the complexity of nature (geology), reduction of USAID financial assistance, inappropriate imported technology (although it may have been the only available technology at the time), insufficient administration, lack of management, inappropriate strategies to alter health behavior and reluctance to use borrowed funds. The second main result is that in a majority of cases, problems which did arise in specific activities were resolved through modified approaches so that overall program objectives were maintained.

During the period 1971-1976, the malaria control program was significantly altered to cope with the termination of substantial USAID financial assistance. MOPH resources were refocused to concentrate on priority areas with high incidences of malaria. The country was stratified according to different levels of malaria receptivity in association with major variations in the terrain. This came at a time when uniform national malaria coverage was no longer necessary. This refocused program was more cost-effective and was able to maintain and improve upon the initial benefits of mortality and morbidity decline.

Under the Environmental Health and Sanitation project, only 49 of 346 wells produced potable water. Due to the geology of the region, the other wells were salty. This indicated a need for more sophisticated groundwater exploration techniques which were later used under the Ground Water Exploration project. Another problem with these wells was inappropriate and low use by the population. The expectation had been that the simple presence of potable water systems would encourage use. This was not the case. Field research determined that intensive health education programs would be required

to change health behaviors. Such activities were incorporated into later water and sanitation programs. In a few cases, technologies imported under USAID projects proved inappropriate because of complex maintenance and lack of spare parts. Some examples include hand pumps and water pump engines. Eventually hand pumps were modified by the Thais and produced locally. Another imported, but more effective, water pump engine was found.

The Chiang Mai Medical School, in its early years of operation, faced problems of textbook shortages, poor teaching techniques, limited administrative support, attracting faculty to a relatively rural area and losing graduates to the United States. The operational difficulties were resolved with technical guidance from advisors from the University of Illinois School of Medicine. A new government policy of mandatory three-year government service for new medical graduates was instituted to stem the drain of medical students overseas.

Under the Rural Health Expansion project, only three of nine planned operations research projects were completed largely because of MOPH reluctance to use loan funds for research activities. This is one case where the project design and negotiation process failed to identify this potential problem with use of loan funds.

3.3 Reasons for Sustainability

In this chapter, several reasons are proposed as explanations for the sustainability of population, health and nutrition activities supported by USAID or the benefits of those activities. On the basis of extensive field interviews and discussions with key MOPH officials and other donors, the team proposes seven major factors which appear to have contributed to sustainability. They are briefly listed below; then each is discussed more fully in the body of this chapter.

The following seven factors appear to have promoted the sustainability of activities supported by USAID: (1) Policy/Program Commitment: existence of a policy statement by the MOPH related to the particular area of USAID assistance and evidence of strong government commitment to implement the policy; (2) Leadership: presence of a highly motivated, dedicated and technically competent group of leaders within the Ministry of Public Health; (3) Institutional Capacity: presence of a well-developed institutional framework within the MOPH to manage, administer, plan and implement health care policies; (4) Flexible Approach: MOPH preference for an experimental, flexible, and pragmatic approach to the development of improved systems of health service delivery; (5) Resource Commitment: RTG/MOPH commitment to increase the relative share of domestic financial and material resources in total project requirements to replace donor funds; (6) Community Participation: recognition of the value of village participation as a strategy to increase coverage of health care services; (7) Economic Stability and

Prosperity: importance of economic stability and recent economic prosperity to ensure adequate budgetary resources to public health and to enable and encourage increased popular demand for new health care interventions.

Notably, all of these factors pertain to attributes of the Thai government, its ability and commitment to promote health sector development. These factors have enhanced the capacity of the RTG and MOPH, in particular, to effectively absorb donor funding. Over the past 38 years, USAID and Thailand have developed a mutually supportive working relationship. USAID has been responsive to the needs of the MOPH and has channeled its assistance along the guidelines established by the MOPH for policy implementation. Without USAID support, it is unlikely that the MOPH could have implemented its policies and programs as widely or as rapidly as it has.

3.3.1 Policy/Program Commitment

In most cases, USAID involvement has been in areas where the MOPH has a strong policy or program commitment. USAID assistance has contributed to both the exploration phase preceding formulation of the official policy/program and to the policy implementation phase.

For example, in primary health care, the Lampang/DEIDS project complemented a series of other pilot projects (Saraphi, Phitsanulok) which eventually led to the development of the PHC policy and implementation strategy. In 1979, the Health For All Charter was approved by both the Cabinet and the Parliament. After 1979, training programs for village health volunteers and communicators were launched and required funding from the central government which, at the time, the government did not have. Under the Rural Primary Health Care Expansion project, USAID provided substantial funds to enable accelerated implementation of the policy.

USAID rural water and environmental sanitation projects have also benefited from the policy support given to primary health care. Notably long before this time, the Kingdom had already promulgated the first sanitation laws in 1897.

Similarly, USAID provided financial support for an ORT program already underway by the Communicable Disease Control Department. In particular, this activity supplemented those of the National Control of Diarrheal Disease Programs begun by the MOPH in 1979.

It should be mentioned that some USAID-assisted projects in rural health, water and sanitation in the 1960s were motivated by concerns for political insurgency in the Northeast region. Although this influenced the geographic scope of project activities, the RTG generally did not accept interventions which were inconsistent with current health policies and strategies. For example, in spite of USAID preference to distribute sanitation technologies

for free to accelerate government presence in insurgency areas, the MOPH required the usual strategy of community participation.

All eight components of PHC, including water and sanitation and nutrition, continue to receive strong government support under the rural development program which promotes intersectoral and interlevel coordination of social development planning.

In 1959 the World Bank published a report for Thailand with the first public warning of the negative consequences of continued rapid population growth on development. By the late 1960s, the RTG was seriously rethinking its pronatalist policy based on demographic research and seminars supported by the Population Council. USAID assistance to pilot population programs in 1968 preceded formal declaration of the national family planning policy in 1970. During most of the period of U.S. involvement in population activities, the RTG has had a strong population policy.

Since 1943, the Royal Thai Government has had a strong national anti-malaria vertical program. At that time, the Malaria Control Division was established in the MOPH. By the time of USAID involvement in malaria eradication activities, the RTG in collaboration with WHO/UNICEF had already experimented with intradomiciliary residual spraying. The malaria campaign was the single largest vertical program ever carried out in Thailand. Later, almost all of the ten elements in the anti-malaria USAID-funded project (1979-84) were to further strengthen ongoing activities and emerging ideas being experimented with by the Malaria Division.

In medical education, the Thai government had already begun a medical education program through the establishment of the first two medical schools before USAID assistance was requested. The RTG sought U.S. assistance to improve selected departments, e.g. preventive medicine and medical technology. The idea of creating a third medical school originated with the RTG as did the choice of Chiang Mai for the first regional location of an institution of higher medical education. The Thai government approached USAID to participate in the foundation and initial development of the Chiang Mai school.

3.3.2 Leadership

The aggressive health and population policy formulation and implementation pursued by Thailand is evidence of a highly motivated, dedicated and technically competent group of leaders within the Ministry of Public Health. A significant amount of the high-level training obtained by these leaders, starting in the 1950s, came from USAID funding. The first USAID projects in health and sanitation provided funding for fellowships towards masters degrees in public health. Similarly, the first malaria project funded U.S. and third country training fellowships. Both academic and short-term training in family planning in the U.S. was provided for

professionals in the MOPH and several universities under the Family Health Project. In addition, under the Potable Water Project, ten sanitary engineers were trained in the U.S. Under the Chiang Mai Medical School project, the RTG committed itself to post all trained participants to the faculty. A majority of the senior health officials interviewed by the team had received overseas graduate level training. Over 1,250 participants have received advanced medical or health training in the U.S. or third countries, including half of all persons now in senior policy-making positions in the MOPH.

3.3.3 Institutional Capacity

This leadership group developed an institutional setting conducive to aggressive development and implementation of health care and population policies. In 1973, the Ministry of Public Health shifted its organizational structure from a vertical to a horizontal program orientation (with the exception of malaria). In addition, the MOPH sought to develop its management capacity. Around the same time, the MOPH first began using the advanced and systematic health planning technique called "Project System Analysis". Later, WHO sponsored activities in "Country Health Programming" which eventually evolved into a broader, more comprehensive and flexible technique known as "The Managerial Process for National Health Development". This process has improved coordination between planning, budgeting and program implementation. It has also promoted dialogue between the MOPH, other health-related agencies, community and non-government leaders.

The MOPH in Thailand has a reputation for being among the most efficiently managed of health ministries in developing countries. In relation to other ministries in Thailand, the MOPH also has the reputation as one of the best administered. Health was the first ministry to rotate department heads and to institute integrated ministerial planning.

In addition to the general institutional capacity of the MOPH it is worthwhile to note efforts to sustain the institutional support required by individual projects. In the cases of USAID assisted programs in malaria, water and sanitation, training, population and primary health care, the MOPH created divisions to direct the new programs. Most of these divisions were first created as implementing bodies for project activities. Eventually they became technical divisions except for malaria which still operates as a vertical program.

3.3.4 Flexible Approach to Program Development

In almost every health or population-related program, the MOPH has taken an experimental approach to program development. Sustainability of the fundamental public health benefits has been achieved through flexibility or willingness to change particular activities in favor of potentially more effective ones. This has meant that specific program components, activities

or technologies initially supported by USAID were often changed or discarded. This should not be interpreted as a failure of USAID assistance but rather as a learning experience. In some cases, USAID has directly supported this experimental process by funding pilot projects such as the Lampang project. In fact this was an important form of assistance since the MOPH often cannot fund experimental schemes out of its own budget.

It appears that USAID has been quite supportive of this flexible approach. The forty year long-term relationship between USAID and Thailand has fostered good collaborative arrangements. Most recollections of negotiations between USAID and Thailand suggest a mutually supportive working relationship.

To illustrate this notion of sustainability through flexibility, a few examples of USAID-assisted program components, activities or technologies that were modified are described below. In the three USAID population projects where USAID provided substantial funds for training, the RTG revised family planning training courses to reach lower and lower cadres of health personnel in order to make family planning information and services available at the village level.

In water and sanitation, the MOPH strategy in collaboration with USAID to install privies and shallow wells before providing extensive health education to the villagers or encouraging community participation proved unsuccessful. Having learned this lesson, the MOPH emphasized community participation in the later Village Health and Sanitation project. Although maintenance and repair of USAID-provided handpumps proved nearly impossible, the MOPH eventually adapted this pump to the environment and was able to produce it locally. Similarly, although the USAID-provided engines supplied under the Potable Water Project failed, the MOPH was able to replace them with Japanese and British engines.

In the case of nutrition, USAID recently supported village nutrition funds; however, the latest evaluation indicates that these funds are being decapitalized. As an alternative mechanism for providing subsidized supplementary food for underweight children of poor families, the MOPH introduced a new scheme in 1988 based on food coupons.

In the malaria eradication program, the MOPH anticipated that changes would be required when USAID funding ended. In view of the termination of USAID assistance in 1971 and the shift from an eradication to a control strategy, the MOPH adopted a "Six Year Plan of Action for Malaria Control Operations" (1971-1976). In this plan, program activities were modified to suit the new financial and technical situations.

As these examples show, changes in USAID-assisted activities have strengthened rather than undermined the sustainability of the fundamental

public health benefits. The changes which have taken place reflect learning by doing both within the country and by international public health specialists. Examples of the latter case include the transition from malaria eradication to malaria control programs, the movement away from formulated protein food development and the increasing importance of health behavior programs to complement the transfer of technology.

3.3.5 Resource Commitment

The MOPH has made substantial financial contributions to each activity supported by USAID. Counterpart funding has been a vital source of supplementary funding for many activities. USAID has seldom paid salary costs or other normal operating costs, concentrating instead on providing funds for commodities, equipment, vehicles, overseas and local training, research and technical assistance.

For example, in the first malaria eradication project all program staff and permanent employees had been paid by the government throughout the project. When USAID funding was terminated in 1971 most program components were sustained. After 1971 following the withdrawal of USAID assistance, the level of inputs fell temporarily but then climbed to about 60% of its peak level from 1976 onwards. This lower level of funding seems not to have reduced the effectiveness of the program.

In family planning, during the Third, Fourth and Fifth Five Year Plans, the donor share of total family planning expenditures was 68%, 64% and 27%, respectively. With only limited donor funds available in the Sixth Five-Year Plan, the RTG budget now accounts for most of the family planning expenditures, supplemented by some clinical fees.

For establishment of the Chiang Mai Medical School in 1957, the RTG committed itself to finance half of the construction costs and to operate and maintain the school subsequently, all of which was done. Within the medical school itself, there was a commitment to seek funding to supplement USAID and RTG assistance. The school obtained substantial amounts of money from local communities, individuals, and alumni organizations.

Finally, it is particularly interesting that the Chiang Mai and Illinois Medical Schools have sustained their relationship over the 19 years since the end of the Illinois contract. This appears to have been initiated by the institutions themselves, funded by a combination of sources other than USAID.

The MOPH has also had notable success in providing budgetary support to replace USAID assistance in primary health care. All training for village health volunteers and communicators is now financed by the MOPH. It is notable that even during the periods of regulated zero-growth budget (1984-1986), the MOPH continued to provide substantial support to PHC. The

expenditure on primary health care by the MOPH has had an increasing trend from 21.7% of the total budget in 1978 to 24.9% in 1987. The share of donor assistance to Thailand for PHC has continued to decrease from more than 50% to less than 10%.

A final example of resource commitment pertains to regional training facilities. After the establishment of the Chon Buri Regional Training Center with USAID assistance, the MOPH went on to establish three other regional public health training colleges.

These cases show that, historically, resource commitment by the MOPH has been a necessary and sufficient condition to ensure the financial sustainability of USAID-assisted activities to date. It is not clear, however, whether reliance on government subventions will be appropriate or adequate to financially sustain these activities in the future. During the decade between 1978 and 1987, there was a 120 percent increase in total health expenditures which resulted in an 80 percent increase in per capita health expenditures. During the 1983-1987 period, the average annual increase in per capita health expenditures was especially high at 8.2 percent, a figure higher than most developed countries and higher than the average annual increase in GNP per capita (3.7 percent). Should this trend continue, the share of GNP devoted to health would increase to 8.1 percent by the year 2000, a figure comparable to most industrialized countries.

The government's health budget may not be able to keep pace with these trends. If so, the RTG will have to reconsider carefully its role in financing and providing health care. According to the traditional theory of public finance, governments should direct their subventions to preventive and promotive health care programs and to population groups which have less than adequate access to health care (generally the poor and minority groups). As already mentioned, within the last decade the MOPH has already begun to redirect its resources in this way. Many of the USAID-assisted activities have been preventive or promotive in nature; however, there may be aspects of each program which could be turned over to private finance should there be pressure on the government budget.

In addition to the question of whether the government can or should maintain its financial support of USAID-assisted activities, there is also the question of whether the population can support its share of the financial burden of obtaining health care. Already, more than two-thirds of the total health expenditures are paid from private out-of-pocket sources. In this case, important issues to be considered include (1) providing access to health services for poverty groups and (2) assessing the need for health insurance: whether individuals need protection against the large unexpected financial losses due to illness.

3.3.6 Community Participation

One of the important lessons learned during the development of health care activities has been the value of community participation and village self-reliance. The initial belief among public health experts was that the simple presence of health care technologies would stimulate use of these technologies. This, in fact, was not the case. As shown in the cases below, no significant health improvements or behavior changes resulted solely from the provision of the health infrastructure. When health education components and community participation aspects were added to the programs, appropriate changes in health behavior occurred more rapidly. The MOPH responded to the low rate of acceptance of health care services in the Phitsanulok and Saraphi PHC pilot projects by developing strategies for greater village participation including the village health volunteer and village health communicator. Similarly, volunteers are used for malaria and sanitation programs. Volunteer mothers have been included in nutrition programs. Although this network of volunteers may have some shortcomings, the basic approach of village self-help has contributed greatly toward wider use of health care services and improvements in health behavior.

The MOPH-USAID strategy to install privies and shallow wells before providing health education to the villagers or encouraging community participation proved unsuccessful. Later, under the Village Health and Sanitation project, community participation through village committees was emphasized and proved more successful.

The MOPH has encouraged the use of community financing to support several health activities, such as drug revolving funds and sanitation funds. Although the sustainability of these funds may be threatened by poor management or insufficient capital, the underlying principle of community participation seems to have been effective in changing health behavior and accelerating the coverage of shallow wells, latrines and other appropriate technologies. It should also be mentioned that donations by individuals and communities was an important source of funding for the Chiang Mai Medical School.

3.3.7 Economic Stability and Recent Prosperity

Although Thailand experienced economic constraints in the 1970s and 1980s, it has never experienced the negative rates of growth of GNP faced by some other developing countries. This has enabled the government to continue and even augment budgetary support to health programs to replace donor funding. Evidence of this is clearly stated above. The recent economic prosperity has also enabled the population to buy the new health and sanitation technologies being introduced by the government. For example, villagers are increasingly demanding the more sophisticated, factory-made, ceramic water-seal privies.

In addition, general development of rural infrastructure (roads, electrification and irrigation) has clearly accelerated the coverage of the health service delivery system. Improvements in literacy are likely to have facilitated programs in health education. Finally, it should be noted that the political stability experienced in Thailand since 1979 has also contributed to the steady and sizeable momentum achieved in health sector development.

4. CHALLENGES FOR THE FUTURE

USAID assistance over the past 38 years (1951-1989) for health, population and nutrition programs has contributed significantly to development of the MOPH health infrastructure and to substantial improvement of the health status of the Thai people. However, Thailand has reached a level of socio-economic development where many traditional health problems are diminishing and new health and social problems are taking their place. Any future USAID collaboration should best be channeled to assist the MOPH in meeting these new challenges. A brief description of some possible areas of USAID assistance follows.

4.1 Health Care Financing

Health expenditures in Thailand are growing rapidly, rising from 3.4% of gross national product (GNP) in 1978 to 5.6% in 1987 (see Appendix H). The problem of how to finance the costs of health services and the implications for equity and cost containment are becoming more serious issues for the public agenda. The expanding role of the private sector in health, particularly the private hospitals, coupled with the heavily subsidized services at the public hospitals, are issues of special relevance for discussions of health care financing. The public and private roles in health care activities need to be considered on two fronts: (1) public versus private provision of services and (2) public versus private financing of services. Public providers could be partially funded through private sources (e.g. user fees). Public finances could be channeled through private organizations. For example, in order to reach vulnerable or hard core groups, the government might work through local non-governmental groups or private voluntary organizations.

On the whole, the health care financing situation in Thailand is quite complex, comprising varied sources of expenditure (see Appendix H). Not much research has been done to guide government policymakers in health care financing. And, to date, there has not been any government institution responsible for assessing and directing the development of health care financing policy in Thailand.

At this time, there may be a role for USAID to support pilot projects or special studies or to provide technical expertise to assist the RTG to develop a health care financing policy. Later, policy implementation activities might require some technical or financial assistance. Support of specialized training, exchange programs and workshops in health care financing, economics, and management may be worthwhile throughout the policy development and implementation process.

4.2 Emerging Health Problems of an Advanced Developing Country

A new generation of health problems, such as traffic and workplace accidents, heart diseases, cancer, AIDS, aging, tobacco and health, environmental health and pollution problems, is rapidly dominating the health scene in Thailand. These problems are caused by multi-etiological factors and may require multi-sectoral corrective actions. Yet the traditional health system structures developed thus far are not adequate to deal effectively with these problems. For example, prevention and control of accidents, AIDS and many non-communicable diseases require knowledge of not only bio-medicine, but also medical anthropology and health economics.

Future USAID assistance in the form of technical assistance, training and research could enhance the capacity of the MOPH to deal with such newly emerging problems as environmental health, AIDS, tobacco and health, traffic accidents and occupational health. More specifically, the MOPH should be strengthened in health behavior research, health economics and epidemiology.

4.3 Reaching Vulnerable High Risk Groups

New health strategies may be required to address the difficult problems in extending coverage to the so-called "hard core" or vulnerable groups, such as the hill tribes of the north, religious minorities in the south and inhabitants of slum areas in the major cities. While traditional health programs like nutrition, population, water and sanitation, malaria and PHC have reached a high level of coverage for the population as a whole, coverage rates are much lower among the hard core groups. The traditional design of health programs does not appear to be efficient in dealing with these groups who are supposed to be the priority target populations of the future.

A possible role for future USAID assistance in this area would be for specialized operations research and technical assistance. The vulnerable groups are likely to continue to require substantial financial assistance from the government. A cost-effective strategy to implement these activities might be to encourage the participation of non-governmental organizations and private voluntary organizations.

4.4 Health Information Systems

To cope with rapidly changing health problems and socio-economic environment, valid, relevant, specific and timely information is needed by policy makers, planners and program managers. The organizations involved in producing such information need to be strengthened with computerized information systems. Information on health status and health activities, in addition to outcome and impact data of health programs, needs to be systematized and made into usable forms for planning and management. Information systems to support health system research need to be developed.

Changing Health Problems of an Advanced Developing Country

generation of health problems, such as traffic and work-related diseases, cancer, AIDS, aging, tobacco and health and pollution problems, is rapidly dominating the scene. These problems are caused by multi-etiological factors. Sectoral corrective actions. Yet the traditional health systems developed thus far are not adequate to deal with these problems. For example, prevention and control of many non-communicable diseases require knowledge of not only medical and health economics, but also social and economic factors.

Future USAID research could emphasize emerging problems such as accidents and occupational health strengthened in health care in the form of technical assistance to the MOPH and other health agencies. More specific research, health training and such newly emerging health, traffic MOPH should be strengthened in epidemiology.

4.3 Reaching Vulnerable Populations

New health strategies must focus on reaching the most vulnerable groups, such as the hill tribes of the north and inhabitants of slum areas in the cities in the south. While traditional health programs like nutrition, population control, malaria and PHC have reached a high level of coverage, rates are much lower among these groups. Health programs does not reach those who are supposed to be the target of the future.

A possible role for specialized operations groups are likely to be to encourage private voluntary organizations. These groups require substantial financial assistance from the government. The government should encourage the formation of non-governmental organizations. These groups would be for the vulnerable and assistance from these organizations might be needed.

4.4 Health Information Systems

To deal with rapidly changing health problems and socio-economic conditions, relevant, specific and timely information is needed for planners and program managers. The organizations information need to be strengthened with computerized systems. Information on health status and health activity, outcome and impact data of health programs, needs to be collected and made into usable forms for planning and management. Information systems to support health system research need to be developed.

including the indexing of the local research projects.

USAID assistance might include fellowships for long term training of health information specialists. Some computer hardware and software packages would enhance existing computer capability and effectiveness of existing MOPH systems. Support for workshops and seminars on modern management technology and management information systems, including financial management, is needed to improve the understanding of these management tools.

4.5 Utilizing Thai Expertise for International Technical Assistance

As a final general footnote to the maturation and sustainability of many of the institutions USAID has assisted in the health sector, it is worth emphasizing the emergence of Thai capabilities for providing technical assistance to other countries. There is a strong cadre of trained Thai professionals who have had field experience in planning, organizing, managing and solving many of the health, population and nutrition problems with which other countries are dealing. Thai health institutions are especially well qualified to conduct training in many of the health disciplines. After normalization of international relations with the Indochina countries, Thailand's health institutions will be in strong position to extend training and institution-building assistance. Thailand's ability to finance such aid will, of course, be limited, but these institutional capabilities could be an important source of expertise for bilateral donors and international organizations planning new assistance programs in these countries.

4.6 Continuing Institutional Development

After completion of 38 years of bilateral assistance to the health sector through specific projects, USAID-RTG collaboration in health was shifted to the Emerging Problems of Development Project and later incorporated into the EPD II project. Emerging problems in epidemiology, health economics and health care financing, as well as AIDS research and evaluation, are examples of activities being supported under the EPD II program. Institutional strengthening is being provided through fellowships, both short term and long term, to young medical doctors and analysts in the MOPH. These fellowships offer a new opportunity for the MOPH to create capable well-trained personnel for the next generation. Other means of institutional strengthening include local as well as foreign advisors, networking of related institutions and development of information systems. Training courses as well as research grants on relevant subjects are used to booster the capability of concerned institutions to deal with the emerging problems.

The exchange of ideas between Thailand and the U.S. which has occurred under EPD II has been extremely useful not only to provide advanced training to new leaders, but also to keep experienced professionals up-to-date with the most recent events in policy, methodology and technical issues being developed

throughout the world. Dialogue between professionals from Thailand and other countries should continue to be encouraged. Possible avenues include participation in conferences, exchange programs for academic and non-academic institutions (e.g., insurance companies and hospitals), exchange of professional journals and short term fellowships.

Some attention needs to be given to reducing the bureaucratic and administrative constraints which hinder or delay utilizing funds under the EPD II project.

APPENDIX A.

USAID ASSISTANCE FOR HEALTH PROGRAMS, 1951-1989

<u>Project</u>	<u>Time Frame</u>	<u>USAID Funding</u> (<u>\$000</u>)
<u>Disease Control</u>		
Malaria Control	1951-1957	2,810
Various Communicable Diseases Control	1952-1958	668
Malaria Eradication	1958-1962	2,490
Malaria Eradication	1963-1971	15,420
Anti-Malaria Project	1979-1984	4,500
Applied Diarrhea Research	1987-1989	220*
AIDS Technical Assistance, Research and Commodities	1987-1989	2,415**
<u>Rural Water and Sanitation</u>		
Environmental Health and Sanitation	1951-1958	919
Health and Sanitation Administration	1951-1959	866
Rural Health	1952-1962	1,153
Health and Sanitation	1955-1958	6
Ground Water Exploration	1955-1956	2,822
Village Health and Sanitation	1960-1968	1,772
Comprehensive Rural Health	1961-1973	5,042
Potable Water Project	1966-1969	3,143
Mobile Medical Teams	1968-1971	642
Village Sanitation Development Fund	1982-1983	26
<u>Medical Education and Health Training</u>		
Health Education	1951-1959	207
Medical Education Development	1951-1955	1,480
In and Pre-Service Training	1952-1959	146
Chiang Mai Medical School	1957-1969	5,851
Chon Buri Training Center	1962-1969	585
Faculty of Public Health (Mahidol)	1969-1974	492

<u>Project</u>	<u>Time Frame</u>	<u>USAID Funding</u> ((\$000))
<u>Health Care</u>		
Hospital Improvement	1951-1962	1,604
Police Hospital Improvement	1955-1961	138
Siriraj Hospital Equipment	1955-1961	62
Drug and Pharmaceutical Control	1964-1969	122
Lampang/DEIDS Health Development	1974-1981	5,000**
Rural PHC Expansion	1978-1986	6,000
Health Sector Assessment	1983	70
Child Survival and Health Management	1986-1990	481*
EPD II Health Economics, AIDS, Epidemiology and Fellowships	1986-1991	850
PHC Management Improvement and Health Enterprise	1987-1991	504**
Nursing Education	1987-1988	120*
<u>Food and Nutrition</u>		
Nutritional Disease Control	1952-1954	129
Protein Food Development	1969-1972	638
Nutrition Education Study	1980-1982	10*
Applied Nutrition	1986-1992	265*
Studies on Vitamin A Deficiencies	1987-1991	694*
<u>Population</u>		
Vital Statistics	1953	61
Family Health	1968-1975	7,893
Health and Population Planning	1975	610
Population Planning I	1975-1983	16,130***
Population Planning II	1982-1989	17,783

* Project funded by AID/W

**Project funded by USAID and AID/W

*** includes \$5,712,000 for contraceptives provided by AID/W

APPENDIX B

CASE STUDY: MALARIA

1. Introduction

The prevention and control of malaria in Thailand has been one of the success cases in the history of global malaria control programs. The USAID assistance to malaria eradication and control amounted to \$25.22 million during the period 1951-1984, making it the second largest USAID supported health program.

1.1 Malaria Situation

Prior to the beginning of USAID assistance in 1951, malaria was the leading cause of death with a mortality rate as high as 351 per 100,000 population. The declining trend of the malaria mortality rate was much accelerated by a country-wide malaria control/eradication program assisted by USAID. The malaria mortality rate has been continuously declining from 169.1 per 100,000 in 1951 to 22.8 in 1963, 4.5 in 1984, and 2.7 in 1988. Though malaria is no longer a major life-threatening disease, morbidity rates have fluctuated over the years. In 1947 the API (Annual Parasite Incidence per thousand population) was 286. Because of the nation-wide malaria control/eradication efforts, the API was reduced to the stable level of 2-3 per 1,000 population during 1966-1972. In 1974 the morbidity rate climbed up to 6.9 and stabilized with small fluctuations at the level of 7.1 to 7.9 in the next consecutive five years. During 1980-1982 a resurgence of malaria appeared with a rise in morbidity rates to 8.9 in 1980, peaking at 10.6 in 1981 and dropping to 9.1 in 1982. Since then the transmission of malaria has been under control once again with the API stabilizing around 5.0 to 6.7.

On the whole the malaria control and eradication program in Thailand has been notably successful in reducing malaria transmission and mortality. The resurgence of malaria, though threatening for a few years, did not continue in Thailand as in many other developing countries. This is attributed to the strong anti-malaria program by the Royal Thai Government, assisted by USAID.

1.2 Background to the Anti-Malaria Program in Thailand

In 1930 the first Thai malaria control unit was organized in Chiang Mai. Thirteen years later the Malaria Control Division was established in the Ministry of Public Health to be responsible mainly for distribution of antimalarial drugs. The encouraging results of a WHO/UNICEF supported pilot project in Chiang Mai province during 1949-51, using DDT as an intradomestic residual spray, led in 1951 to development of the USAID assisted country-wide malaria control program based mainly on insecticide residual house spraying. The program also relied on active case detection by deploying a large army of family visitors to take blood-slides from villagers

in malarious areas. Increasingly realizing the need for more passive case detection, the village malaria collaborator (VMC) program was initiated in 1961 in provinces such as Chiang Mai, Khon Kaen, Nakhon Ratchasima and Chon Buri. The VMC is a volunteer trained for one or two days and expected to take blood slides from the villagers suspected of contracting malaria and administer presumptive treatment.

In 1964 the malaria control program was converted to a time-limited malaria eradication program which continued to be supported by USAID. Under the national malaria eradication program (NMEP), operational plans were made to achieve total coverage of insecticide residual house spraying, except in the border areas.

The NMEP was again converted back to "malaria control" in 1971 in accordance with the WHO-revised strategy aiming to protect the gains already made and prevent the increase in new problem areas. This coincided with the termination of USAID assistance for malaria eradication in Thailand. Further USAID assistance for malaria control did not resume until 1980. The period of 1971-1976 was marked by significant adjustments in the antimalarial program in response to the revised strategy and the termination of USAID assistance which contributed substantially to the costs of necessary inputs to the program (i.e. insecticides, vehicles, equipment and wages). The most important change was the stratification of the country according to different levels of malaria receptivity in association with major variations in the terrain. Generally, the country is divided into a control area consisting of forested hills and mountains, border areas and insecure areas with a population of about 10.5 million and an eradication area consisting of 38.5 million persons in which there is no indigeneous malaria transmission. The main control measures in the control area are residual insecticide house spraying, malaria clinics for radical treatment, drug distribution and health education. Other supplementary measures include larviciding, space spraying, case detection and treatment. The resumption of USAID assistance to the anti-malaria program in 1980-1984 further strengthened the institutional capability of the Malaria Division in implementing the control program. The anti-malaria program is undertaken at both the national and regional level. The headquarters is located in the Malaria Division of the MOPH in Bangkok. Its activities include administration, health education and training, vector control operation planning and evaluation, epidemiology, applied research, entomology and laboratory services. There are five regional offices, each directed by a malariologist. Each region contains six to seven zone offices which themselves contain 5 to 14 sectors.

2. USAID Assistance

There were two major USAID-funded malaria projects in Thailand. The first covered the period 1951-71, with expenditures of \$18,517,000 to assist the RTG to control and later to eliminate malaria. Assistance under the

Malaria Eradication project took the form of furnishing insecticides, spray equipment, laboratory equipment and supplies, motor vehicles, technical assistance in the form of expatriate malaria advisors and U.S. and third country training fellowships. It should be noted that the line activities, notably the house spraying operation and case detection (e.g. house visitors), in the eradication program were supported significantly by USAID. The Malaria Eradication project ended in 1971 when the malaria death rate had been drastically reduced to 12.5 per 100,000 population and the morbidity rate to 3.6 per 1,000 population.

The second USAID-funded project for malaria was the Anti-Malaria project during 1979-84 with total funding of \$4,500,000. The project was specifically aimed at strengthening the institutional capability of the Malaria Division to provide continuing malaria services to 9.3 million rural inhabitants in endemic, high-risk malarious areas of the country. Although assistance for research and training activities was provided, the primary focus of the project was interventions at the operational level with a special emphasis on case detection and treatment for high-risk populations. The Anti-Malaria project included funds for (1) technical assistance; (2) fellowships; (3) training of malaria volunteers, malaria clinic workers and Malaria Division sector and zonal staff in a variety of anti-malarial skills; (4) research; (5) capital improvements in the construction of research, training and field unit buildings; (6) commodities, including sprayers, microscopes, volunteer kits, audio-visual equipment, research and training equipment and malaria clinic furniture; (7) vehicle overhauls; (8) health education materials; (9) provision of a revolving fund for motorcycle hire/purchase; and (10) motorcycle procurement.

It should be especially noted that the Anti-Malaria project assistance did not involve residual insecticide house spraying (except provision of some sprayers) which was a major component in the prior Malaria Eradication project.

3. Results of USAID Assistance

The successful malaria control in Thailand is significantly due to USAID assistance. Evaluations of the two USAID-funded projects consistently found that the projects were effectively implemented. During implementation of the Malaria Eradication project during the 1960s, although complete coverage by DDT spraying was not achieved, large areas were cleared of endemic malaria. The mortality rate was reduced from 169.1 in 1951 to 10.1 per 100,000 population in 1971, the year the project ended and the Thai malaria program strategy was converted back to its long-term control objective. The Thailand malaria project evaluation in 1985 reported that all of the ten elements of the Anti-Malaria project had contributed positively to the successful achievement of the Government's anti-malaria program. Worthy of special mention is the combination of training and commodities which resulted in a tremendous expansion of malaria clinics and the malaria volunteer network.

The malaria clinics are located mostly in control areas, provide walk-in diagnosis and radical treatment of malaria and efficiently contribute to case detection and timely treatment. The downward trend of the malaria morbidity rate after the peak in 1981 (API 10.6 per 1,000 population) is attributed to the striking increase in the number of malaria clinics and productive malaria village volunteers, resulting in earlier diagnosis and appropriate therapy. The USAID-funded project helped increase the number of malaria clinics from 44 in 1979 to 403 in 1983 and 487 in 1987. USAID assistance provided training for over 22,000 malaria volunteers and about 50,000 volunteer kits.

4. Sustainability

On the whole the national malaria program of the MOPH has continued to be effective in controlling malaria after the cessation of USAID-funded projects. Of course, there were difficulties and problems immediately after the termination of the financial assistance. Necessary adjustments in program activities were made carefully so that the program has been able to keep and even improve the initial benefits of mortality and morbidity decline. Most malaria control/eradication activities supported by USAID assistance during 1951-71 and 1980-84 have been sustained. Such high sustainability is due to the following factors.

4.1 National Commitment to Malaria Control

A litmus test of national commitment to health is the amount of financial and human resources allocated for the purpose. In this regard, the Thai government and the MOPH easily pass the test. A former director of the Malaria Division noted that the Thai malaria program managed to get over the difficulties after the cessation of USAID-assistance in 1971 simply because all the program staff and permanent employees were paid by the government budget. USAID funds had paid for the temporary employees, mainly the house visitors and spraymen. When the financial assistance for line activities stopped, an adjustment was made to reduce the number of these temporary employees and to change the term of employment from full-time to part-time (e.g. hiring spraymen on a temporary basis for each cycle of house spraying operation). After the termination of USAID assistance, the RTG has continued to pay for necessary insecticides and other inputs to maintain the anti-malaria operations. A USAID assessment revealed that following the withdrawal of USAID assistance the level of inputs began to fall and reached a low point in 1974 and then climbed to about 60% of its peak level (in the late 1960s) from 1976 onward. The MOPH budget in FY 1989 for the Malaria Division is 320 million baht. Although there have been complaints from the field that the government budget is not adequate to maintain the level of vehicles and equipment, it is difficult to objectively assess the problem, especially its effects on the control of malaria transmission.

4.2 Project Negotiation

For the Malaria Eradication project (1951-71) it was not possible to definitely assess the involvement of the Thai government officials in the project formulation. However, it was consistently reported that the working relationship between USAID malaria advisors and Thai officials in the program was amicable, constructive and mutually reinforcing. Almost all of the ten elements in the Anti-Malaria project (1980-84) were to further strengthen ongoing activities and support experimental ideas for program modification. This project was developed as a collaborative effort by the MOPH and USAID.

4.3 Institutional Organization and Technical Competence

The USAID-funded malaria projects were implemented vigorously by the Malaria Division of the MOPH as a national vertical program. Benefiting from the strong government commitment to malaria control and USAID assistance, the vertical program was rapidly institutionalized and the service infrastructure strongly developed. The early USAID support for U.S. and third country fellowships and other training programs significantly increased the pool of local technical competence in the Malaria Division. This enhanced the prestige and organizational power of the Malaria Division. More importantly, it enabled the national anti-malaria program to successfully stratify the country according to epidemiological criteria and plan control activities in response to the withdrawal of USAID financial assistance in 1971.

5. Future USAID Collaboration

On the basis of the most recent evaluation of the anti-malaria program in Thailand in 1986, there are two areas where future USAID collaboration would be helpful to the MOPH in dealing with new challenges in malaria control.

5.1 Several key retirements or promotional moves out of the Malaria Division have been taking place. To maintain a national corps of experts in malaria control, there is an urgent need for funding support for advanced training in U.S. institutions to bring relatively young staff members to positions of increased responsibility and to recruit new capable young physicians and scientists into the Malaria Division. The RTG has limited budget provisions for overseas training.

5.2 Malaria control in Thailand at present encounters three major problems of rapid dissemination of P. falciparum strains highly resistant to both 4-aminoquinolines and sulfadoxine and pyrimethamine drugs, the exophilic behavior of some malaria vectors and occupational migration of people to highly malaria endemic areas. USAID technical and funding support for research and development for more effective vector control and drug therapy would contribute to further control of malaria in Thailand.

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APPENDIX C

CASE STUDY: RURAL WATER AND SANITATION

1. Health Problem

A 1951 survey of intestinal parasitic diseases by Dr. E. H. Sadun, a specialist under American sponsorship, reported that Thailand's environmental sanitation, especially the use of hygienic toilets, was at a very underdeveloped stage. In early 1950, the Communicable Disease Control Division of the Health Department started another campaign for intestinal parasitic disease control. Initial findings showed that approximately 50% of the population was plagued with hookworm. Although the MOPH had made major strides in the eradication of major communicable diseases such as yaws, smallpox and bubonic plague by the mid 60s, diseases of the alimentary system, infections and diseases relating to sanitary deficiency continued to be leading causes of death as shown in the statistics (1960) below: diarrhoea and dysentery (34.0/100,000); pulmonary tuberculosis (31.6/100,000); pneumonopleuritis (26.9/100,000); malaria (24.3/100,000); and accidents (19.1/100,000). The cholera epidemic of 1958-1959 underscored the critical need for safe water.

2. Description of Projects

Major USAID projects:

1951-58	Environmental Health and Sanitation	\$919,000
1951-59	Health Sanitation Administration	\$866,000
1952-62	Rural Health	\$1,153,000
1954-58	Health and Sanitation	\$6,000
1955-56	Ground Water Exploration Project	\$2,822,000
1960-68	Village Health and Sanitation	\$1,772,000
1961-73	Comprehensive Rural Health	\$5,042,000
1966-69	Potable Water Project	\$3,143,000
1968-71	Mobile Medical Teams	\$642,000
1982-83	Village Sanitation Development Fund	\$26,000
1985-86	A portion of Rural PHC Expansion	\$1,000,000

Under the Environmental Health and Sanitation and Health and Sanitation projects, USAID assisted the RTG to drill 376 shallow-wells. An extension of the environmental sanitation program was planned to benefit directly 500,000 people in the northeast through self-help digging, reservoir building and pit-privy projects. This activity was eventually integrated into the Rural Health project.

In the Rural Health and Health Sanitation Administration projects, effective and reproducible demonstrations of village-level privies, water supply and clean-up programs were developed through active community

participation in 52 villages in three provinces. The practicality of decentralized administration of health services was demonstrated in selected districts, one province and one region as an effort to show that overcentralization may hinder responsiveness to local needs. National expansion of this activity was sponsored under the Village Health and Sanitation project.

The major objectives of the Village Health and Sanitation (VHS) project were to provide at least one source of safe water in each village; to provide a sanitary privy for each household; to improve premise sanitation; to promote health education; to provide training for a corps of environmental sanitation personnel; and to carry out research.

Many of the elements of the VHS project were incorporated into the Comprehensive Rural Health project. The unique aspect of this project was the geographic focus in the northeast which was troubled by insurgency. Areas of assistance included training of health workers, developing rural health infrastructure, environmental health activities, communicable disease control, rural hospital improvement and participant training. Also, Mobile Medical Teams provided services to remote villages in the northeast.

Specific objectives of the Potable Water project included establishment of 250 treatment and distribution systems (source of water, water treatment plant providing chlorination, water storage tower and distribution system); U.S. engineering training for ten Thai engineers; and in-service training for 150 Sanitary Engineering Division personnel. Selection criteria for the villages included having an existing source of water, willingness to participate in construction and willingness to pay for operation and maintenance. A trained villager became the plant operator.

The final USAID assistance in the area of water and sanitation came under the Village Sanitation Development Fund. Under this project, 1,000 poverty villages were selected to be given soft loans with which they could establish sanitation revolving funds. This activity was actually one component of the Rural PHC Expansion project.

3. Major Results of the Program

The early attempts at shallow-well drilling under the Environmental Health and Sanitation project were only partially successful in that only 49 of the 346 wells produced potable water, the rest being mostly salty. This proved the need for more geological information so the drilling program was turned over to the Ground Water Exploration project. The main objectives of this project were to evaluate the ground water potential of the northeast and to provide essential information for successful development of groundwater supplies. All together, 680 wells were drilled of which 443 yielded good quality water. The remaining wells produced brackish or salty water. Large deposits of rock salt were found to underlie major portions of the northeast.

The Rural Health Development project established the 52 demonstration villages, completed the development of in-service training and pre-service training center at Chon Buri and established a national health education program. A regional laboratory was established with field staff for the Northeast. By 1959, sanitation and health education projects were underway in 259 villages.

The results of the VHS project included: installation of 5,000 sanitary wells, 220,000 sanitary privies and 61 village water systems; completion of 48 provincial two-week workshops for rural sanitation personnel; establishment of two training centers; orientation in village sanitation to 542 officials; initiation of village health committees and self-help activities in 6,000 villages. Similar activities along with the supply of vehicles, medical supplies and equipment were completed for the northeast region under the Comprehensive Rural Health project.

Under the Potable Water project, 250 village water systems were completed. Finally, under the Village Sanitation Development Fund project, revolving funds were established although decapitalization of many of them appears to be a major problem.

4. Comments on Sustainability

Environmental sanitation programs in Thailand have been in existence long before USAID assistance in this area was introduced. In 1897, the Kingdom promulgated the first sanitation laws, launched garbage disposal campaigns, and arranged for the first public pit latrines and toilets in Bangkok. In 1918, the Rockefeller Foundation assisted with a pilot project to eradicate hookworms which was then expanded by the RTG to 44 provinces. In 1926, defecation in rivers and canals was banned. By 1928, self-reliance in the projects to suppress hookworms was encouraged. In 1952, the Communicable Disease Control Division of the Health Department started another campaign for intestinal parasitic diseases. In 1953, it designed the Community Health Management Model to encourage local people to participate in sanitation efforts. The first model unit was opened in Chiang Mai. From its inception to 1959, the MOPH had tried out several pilot projects to promote health and sanitation.

In light of these events, early USAID assistance in environmental sanitation beginning in the early 1950's provided a timely influx of money, equipment and technical assistance to the already evolving environmental sanitation program of the RTG. This is a major reason why USAID assistance to environmental sanitation programs made longlasting contributions to the health needs of Thailand. This is not to say that each individual activity provided with USAID assistance was sustained.

For example, some activities supported by USAID under the Environmental

Health and Sanitation project (1951-1958), the Health and Sanitation project (1954-1958) and Local Health Development (1952-1962) were only partially successful. The MOPH strategy in collaboration with USAID to install privies and shallow wells first before providing health education to the villagers or encouraging community participation proved unsuccessful. Villagers were neither interested nor able to maintain the new technologies. The results of these activities should not be viewed as failures in sustainability but rather as lessons learned in the evolution of more successful water and sanitation programs. MOPH commitment to improved environmental sanitation was still strong as evidenced by USAID assisted activities under the Health Sanitation Administration project (1951-1958) which experimented with decentralized administration of health services in selected districts, supported nationwide health education programs and training and developed a rural health worker handbook for village development programs.

The lessons learned in previous environmental sanitation activities were incorporated in the nationwide Village Health and Sanitation project. In particular, this project emphasized community participation by involvement of the village committees. USAID supported this approach with the provision of technical assistance in the social sciences, especially anthropology, in addition to the usual sanitary engineers.

Other USAID activities which were less successful under VHS included maintenance and repair of USAID-provided handpumps which proved to be nearly impossible; however, the MOPH undertook research to adapt the hand pumps to the environment. In fact, the Thais developed a modified handpump which could be produced locally. The USAID hand pumps have long since fallen out of use. The MOPH also improved USAID-provided water seal latrines to allow minimal use of water.

The Comprehensive Rural Health project (1961-1973) continued many of the elements of the Village Health and Sanitation project. However, the geographic scope of the project was heavily influenced by the presence of insurgency in the northeast provinces during the Vietnam war. Although some projects, such as Mobile Medical Teams, were intended to be sustained only so long as insurgency continued in the northeast, they were in fact found to be useful interventions for the long term. The MOPH now supports mobile integrated health service teams throughout the nation to extend the basic health infrastructure. Also, a system of voluntary mobile medical teams has been organized by a foundation headed by the king's mother.

Although changes in health behavior, namely proper use of wells and latrines, continued to lag behind the availability of physical improvement, villagers were increasingly demanding more sophisticated privies. Recently, there has been an increased demand for attractive factory-made ceramic water seal privies. The substantial and rapid economic growth being experienced by Thailand at this time is facilitating the adoption of new technologies.

The geographic scope of the last major USAID water project, the Potable Water project (1966-1969), was also heavily influenced by political events of the period. However, the basic nature of the activities was consistent with MOPH activities. There was considerable controversy in 1966 regarding the suitability of this project for the northeast. The financial ability of smaller towns to support rather sophisticated water treatment plants with piped water systems was open to question. The broadening of USAID support to include areas outside the areas of insurgency was rejected as not compatible with U.S. assistance policy to Thailand. The final decision was that USAID support would focus on politically sensitive areas but that the scope of the project would be reduced to only those sites where there was a sufficient concentration of people so that financial self-sufficiency in operating the systems was a reasonable possibility. Another area of contention between USAID and the RTG on this project concerned the issue of self-help. The RTG wanted to continue its strategy of community participation. USAID preferred to install the equipment for free in order to expedite the intervention during this politically sensitive time period. USAID eventually accepted various degrees of self-help strategies.

Most activities of the Potable Water project have continued to be sustained beyond the project period. More than 50 new systems are built every year with community participation. There are several reasons for the success and sustainability of these activities. Participant training in the U.S. created a cadre of highly motivated, competent professionals. Virtually 100% have returned to Thailand to work. Second, community participation has greatly increased the chances of success. Supervision of community operators has generally been good. Innovative financing schemes of charging per cubic meter of water have enabled many of the systems to become self-sufficient.

As in earlier projects, although longlasting contributions were made under the Potable Water project, some the project components were not sustained. USAID-furnished engines were a dismal failure. They broke down and spare parts were difficult to obtain. They were eventually replaced by Japanese or British engines. Initial financing schemes were inadequate. Communities ran into difficulty while they converted from public to private metered taps. Although water meters have improved the financial sustainability of the water systems, there are problems of inequity where the poor cannot afford water charges. There continues to be concern for maintenance. Maintenance of hand pumps is a difficult problem.

In the final USAID project in this field, the Village Sanitation Development Fund, there is a serious concern that in these poverty villages, the funds are being decapitalized. Sanitation funds, in general, were first introduced around 1980. They are the least numerous of all PHC funds. Community financing through sanitation funds has had some success especially in the larger and more prosperous villages. One serious limitation of the funds for successful financing of sanitation activities in the future is that

many of the funds are undercapitalized relative to household demand for loans and relative to the cost of some of the water and sanitation improvements the funds are established to finance. In addition, as with other types of village funds, lack of management skill at the village level threatens the success of the revolving funds. Management problems include incomplete record keeping, poor accounting and inventory control and lack of commitment or time of fund managers.

In conclusion, there are seven major factors which contributed to the sustainability of USAID environmental sanitation programs in Thailand: (1) Thailand has had a long history of proven commitment to improve the environmental sanitation living conditions of its population; (2) The RTG continues to have a strong policy commitment to water and sanitation improvements under the Rural Development Program where availability of potable water has become a national target under the Basic Minimum Needs policy. The primary health care policy also stresses improvement in environmental sanitation. Coverage of rural water and sanitation has been supported through intersectoral collaboration with the Ministries of Health, Interior, Education and Agriculture; (3) The MOPH approach to solving environmental sanitation programs has been through experimentation, recognizing that knowledge about such interventions is incomplete. Activities were dropped or modified as lessons were learned. These should not be viewed as failures but rather as a natural evolution towards an improved system, especially the role of community participation. Development of appropriate technologies (hand pumps, engines) was also a process of trial and error as imported equipment was adapted to local conditions and sometimes eventually produced in-country; (4) The recent economic growth of Thailand has enabled more households to adopt new technologies. Also, although the country faced economic constraints during the 1980s, GNP growth rates never became negative. The MOPH budget was generally maintained; (5) Political concerns during the Vietnam war led to projects which were only intended to be sustained during the period of insurgency; nevertheless, RTG ensured that all projects were consistent with the overall health development plan; (6) Training of high-level technicians abroad with USAID financial assistance developed a cadre of high motivated and skilled personnel to lead the environmental sanitation program; and (7) Selection criteria of villages under the Potable Water project identified those communities committed to successful implementation of the activities.

5. Issues for the Future

The MOPH will soon have to deal with newly emerging problems in environmental health such as water and air pollution, occupational health, food sanitation and toxic waste disposal. Of all the various aspects of health, it is felt that environmental health issues will increase in relative importance. A hindering factor to resolving these environmental problem is that there is a shortage of engineers in both the public and private sectors.

Although coverage of basic water and sanitation technologies such as latrines, shallow wells and water jars is quite good, these interventions will be sustained only if health behavior, namely proper use of wells and latrines, continues to change. Water and sanitation officials in the RTG view programs to change health behavior as an important area of longterm intervention. Community participation to maintain both private and public sanitation activities is crucial.

Success of community financing through sanitation funds will require resolution of problem in management and decapitalization. Moreover, questions of equity need to be carefully considered.

APPENDIX D

CASE STUDY: MEDICAL EDUCATION AND HEALTH TRAINING

1. Description of Program

Between 1951-1974 the USAID program allocated about \$8.76 million to institution-building projects in medical and public health higher education. These projects financed training, technical assistance and physical expansion of the three leading medical schools of Chulalongkorn, Mahidol and Chiang Mai universities. Two newer medical schools have been established in more recent years without USAID participation. The Chiang Mai project was by far the largest of these projects and was the most comprehensive as an institution-building activity. No question of sustainability, in the broadest sense of institutional continuity or vigor, has arisen with respect to any of these schools. The projects were undertaken in years when severe shortages of doctors, nurses and other medical and public health technical and administrative personnel posed major obstacles hampering the creation of a modern health system in Thailand. The three older institutions are still the leading schools in the field. They have strong international reputations. The School of Public Health at Mahidol University, which also received early support from USAID, provides training for people from many other developing countries.

Thailand now has a nation-wide, tiered system of hospitals staffed with the graduates of the three assisted schools and the two newer medical schools. Students have been selected from a large pool of applicants through highly competitive processes and have generally been seen as the cream of the student crop in Thailand. In 1989 the medical schools took in about 740 entering students. This is close to the country's annual need for filling out the staff requirements of the public health system, including replacement of doctors who leave government service after their mandatory three years during which they are normally posted at one of the district or provincial level hospitals. The RTG was able to impose this compulsory service because medical education in Thailand is heavily subsidized. It was forced to impose the service about 15 years ago because of the high leakage of graduates in earlier years who left Thailand to practice in the U.S. or set up private practice in Bangkok, strongly averse to living and working in (then) relatively remote and backwater small towns.

The early assistance to the first two medical schools, in Bangkok, focused on selected departments, e.g. preventive medicine. The program funded technical assistance from Washington University Medical School of St Louis and helped to fill out equipment needs. As noted, the Chiang Mai project was a full-blown institution-building activity including seven years of technical assistance and training provided by the University of Illinois College of Medicine and counterpart funding of the school's initial construction program on a 50/50 basis with the RTG. The evaluation team focused on the Chiang Mai

project as USAID's major effort in medical education.

The idea of creating a third medical school originated in the RTG and Chiang Mai was chosen for the first regional location of an institution of higher medical education. The RTG approached USAID to participate in the foundation and initial development of the school. Under the 1957 project agreement the RTG committed itself to post all trained participants to the school, to finance half the construction costs and to operate and maintain the school subsequently, all of which was done. The contract with Illinois was signed in 1962 by which time construction was well underway and the students and faculty were shifted from a temporary location in Bangkok up to Chiang Mai. Illinois staff found a range of problems, e.g. textbook shortages, poor teaching techniques and limited administrative support.

2. Sustainability

From the perspective of 1989, these events and difficulties are past history in the life of a vigorous institution. The quality of the school's output was reflected from the start in the ability of a large fraction of the first graduating class to emigrate to the U.S., obtain a medical license and set up practice. In fact, this drain of graduates was the major threat to the sustainability of the intended benefits to Thailand of the project. This drain began with the initial class of 1964 and continued for seven or eight years. Many of these emigres subsequently returned to Thailand. By 1982 for example, seven of the 56 members of the class of 1972 were known to be living in the U.S.; of the class of 1973, only two out of 57. Of the class of 1970, however, 24 were in the U.S. No overseas drain, apparently all to the U.S., had been recorded since two members of the class of 1975. The school now offers a master's degree and is considering offering a PhD in medical science, e.g. biochemistry. The school also offers specialty training in pediatrics, orthopedics, etc. and is very active in the development of medical education as a whole in Thailand.

The main threat to the sustainability of the school was the initial shortage of professional staff, the difficulty of getting physicians to join a faculty so far from Bangkok. This was solved during the life of the project and in the context of a city now thriving as the center of northern development.

The leadership of the institution, under successive deans, has paid close attention to activities needed to sustain the school's quality. Budget has not been a serious or pervasive problem per se, although funding limitations have been tight for some components, e.g. overseas training and experience for faculty, and the school has had to seek additional funds to supplement its RTG budget, apparently with some success. Thus the school obtained grants from the China Medical Board of New York in 1981 for \$250,000 to launch a permanent endowment fund and for purchasing book and equipment and \$150,000 for teaching

and public education materials. The school has also received gifts from alumni in the U.S. (who have formed a Thai Medical Association of America) which have been used for faculty post-graduate training in the U.S.

Particularly interesting has been the strong motivation and success with which Chiang Mai and Illinois have sustained their relationship over 19 years since the end of the Illinois contract. This appears to have been initiated by the institutions themselves, funded by a combination of sources other than USAID. In 1970 the schools drafted a framework agreement for continuing relationships in research and student and faculty exchange. Illinois has continued to place Chiang Mai staff in clinical programs in Chicago and elsewhere. Personal ties between the faculties which were established in the 1960s have been close over the intervening years.

Real challenges lie ahead. They are well recognized by the school's leadership. Based on past performance there is no reason to doubt that these challenges will be met effectively. The overarching problem is likely to be financial pressure from rising costs, especially for the teaching hospital which, since the start of the school, has also served as a general hospital for the Chiang Mai community (there is now also a MOPH hospital in the city). Because the school's hospital serves also as a general hospital, Chiang Mai has less scope to raise patient fees than the Bangkok medical schools have with their teaching patient hospitals. Cost pressures will be difficult for the institution to meet since it is a government facility and thus shares the general constraints on RTG budget increases while having no independent authority to adjust tuition and room and board fees which cover only a minor fraction of cost per student. Alumni support has begun to be tapped but such giving in Thailand is not yet developed since most institutions of higher learning are public sector facilities. No serious planning appears to have been done yet to develop a politically feasible program to reduce the large subsidies accorded to students of medicine (and other disciplines). A reform of higher education finance would present complex issues especially for medical education; among all the subsidized university students only the medical (and related disciplines, e.g. pharmacology) graduates are required to work for the government at government salaries for three years.

In both the medical schools and the Mahidol School of Public Health, there is an awareness that the rapidly changing character of health problems in Thailand requires professional strength in various subjects in which these institutions have limited capabilities, e.g. health finance and economics; environmental health problems arising out of industrialization, urbanization, and the use of agricultural chemicals; health behavior modification; new diseases, especially AIDS; and gerontology. Medical and public health education will have to expand in these subjects if these institutions are to continue to meet the country's needs for appropriate competence among its community of health professionals.

In summary, the institution was favored from the start by strong RTG motivation and initiative, 50/50 funding of the project, full RTG responsibility for operating budget, competent and dedicated leadership, sustained RTG financial support (as with all other public universities in Thailand, the medical schools are under the Ministry of University Affairs not the MOPH although the working relations with the MOPH are close), maintenance of professional ties with American institutions (also the case with the Mahidol School of Public Health, which we have not detailed above) and very broadly, but fundamentally, the high prestige accorded the medical profession in Thailand.

3. Training of Paramedical Personnel

At the very start of the USAID program in 1951, along with the project to help improve rural sanitation, the Mission started a project to help the MOPH set up a demonstration training center located at Chon Buri, east of Bangkok. The center was designed to give basic education and in-service training to junior sanitarians, midwives and other health personnel. The project financed all the basic equipment, buildings and housing, along with participant training and nine U.S. advisors. At the completion of the project in 1959, the center was training 2-300 public health workers a year.

The Chon Buri center has continued in operation over the three decades since the USAID project ended. As the only training facility of its kind when it was set up, specifically intended as a demonstration for further development of public health personnel training capacity, there has never been any doubt as to its priority for the MOPH. In fact the MOPH has established three other regional training centers with similar functions to meet the extensive training requirements created by the expansion of the country's provincial health delivery systems over the intervening years. The Chon Buri project also led to the establishment of the ministry's Training Division, initially located in Chon Buri. Chon Buri and the other centers now also provide training for additional categories of personnel (e.g. dental nurses) as well as management training. They also offer, in cooperation with the schools of public health at Mahidol and Khon Kaen universities, continuing education towards a B.S. degree in public health. Sustaining the Chon Buri and other centers was an integral, indeed unavoidable, component of the overall policy to extend the nation's health system. In fact the training requirements are such that planning has already begun for the development of at least two more such institutions (now called public health colleges) in the next five year plan period (1992-96). As a footnote, some of the buildings the USAID project financed in the early fifties are still in use at Chon Buri.

APPENDIX E

CASE STUDY: PRIMARY HEALTH CARE

1. Health Problem

In 1970, a national survey on utilization of health services in Thailand revealed that 4.4% of rural villagers utilized government rural health centers when ill. Subsequent analyses of the national health services administration and delivery systems 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, lack of communication between providers and patients, lack of community organization, inadequate health infrastructure and poor management.

Rural populations 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. Around the time of USAID assistance in primary health care, the following diseases were the leading causes of infant mortality: perinatal complications; respiratory illness other than upper respiratory; digestive system diseases; bacterial infections other than intestinal or TB; and intestinal infectious diseases .

2. Description of Program

Major USAID projects:

1974-81	Lampang/DEIDS	\$5,000,000 (USAID and AID/W funds)
1978-86	Rural PHC Expansion	\$6,000,000 (loan)

The project activities discussed in this section will be those directly related to the primary health care strategy of the MOPH formally declared after the Alma Ata declaration of 1979. Earlier projects related to rural health and sanitation and others concerned uniquely with potable water are dealt with in the rural water and sanitation section of the report.

The first major USAID assistance to Thailand in the area of primary health care was the Lampang/DEIDS project (1974-1981). The project was funded mainly through AID/Washington. The northern province of Lampang was selected using the following criteria: a population over 500,000; fair communications to and within the province; a non-insurgency area; moderate economic status; and endorsement by provincial officials. The overall objectives of the Lampang/DEIDS project were to expand health care coverage to at least two-thirds of the rural population, especially women in their child-bearing years and pre-school age children, with an emphasis on family planning, nutrition and maternal and child health service; to establish a model integrated provincial health service delivery system which integrates curative

and preventive services at every level of administration; and to establish a cost-effective health service strategy which is replicable throughout the kingdom including community health para-physicians, village health volunteers and communicators and midwives.

The largest USAID assistance program for primary health care came under the Rural Health Expansion project (1978-1986) in the form of a loan. This USAID project was an integral part of the larger World Bank population project which aimed to make primary health care more accessible to the rural population in about 9,000 villages in 20 provinces. The first phase was implemented in 20 provinces where MCH coverage was the lowest and provided training and a series of research and evaluation studies. The second phase supported community nutrition activities in 1,800 villages of 37 provinces beginning in 1983 and, in 1984, added a program of diarrheal disease control. This included development of a fund for sanitation and a safe drinking water supply in 1,000 needy villages, otherwise known as the Village Sanitation Development Fund.

The general objectives of the project were to (1) develop manpower training programs for a variety of workers at district and lower levels; (2) improve the management and supervisory skills needed for an expanded rural primary health care system; (3) improve the health program evaluation and research capabilities of MOPH staff at the central and provincial levels; (4) reduce malnutrition among pre-school children; (5) establish a health information system; (6) introduce ORT; and (7) increase coverage of safe drinking water supply and sanitation.

Specific activities included (1) basic training of village health communicators and village health volunteers; (2) in-service training of primary care paramedicals including nurse practitioners and tambon-level auxiliary midwives and junior sanitarians; (3) in-service training for primary health care supervisors, administrators, planners at the district and provincial levels; (4) collaboration on nine operational and evaluative studies on PHC delivery and training in 20 provinces; (5) management and supervisory training programs for provincial and district officials responsible for PHC activities; (6) community nutrition activities in 1,800 villages; and (7) promotion of oral rehydration therapy.

3. Results of the Program

The Lampang/DEIDS project provided an opportunity to test cost-effective strategies for the delivery of PHC. Summarizing all of the lessons learned from this experiment is beyond the scope of this report; however, several major results are worth mentioning. They have been incorporated in future approaches to primary health care. For example, the project demonstrated the feasibility of integrating illness care, disease prevention and health promotion services. Although the wechakorn (community health paraphysicians)

reviewing these projects, the MOPH hypothesized that the lower rate of acceptance of service was due to the lack of community participation and the understanding of the people on the type of services available. To test a possible solution to this low coverage, the Saraphi project was modified to train village health workers and village health communicators.

The Lampang/DEIDS project was a unique and timely opportunity for the MOPH to further test the recommendations of the previous pilot projects, especially the effectiveness of village health workers and communicators. Furthermore, since funding of pilot projects by the MOPH is often difficult to obtain, USAID financial support for such an intervention was useful.

By the time the RTG passed the Health For All Charter following the WHO primary health care conference in 1979, Thailand was already well on the way to implementation of PHC. The national program began in 1977. Nevertheless, it was an important turning point for the RTG government which established the national PHC committee and approved the PHC Program as part of the Fourth National Development Plan. The PHC policy had been approved by both the cabinet and the parliament. This enabled major international organizations such as USAID to formulate modes of assistance consistent with Thai policy. It is notable that even during periods of regulated zero-growth budget (1984-1986), the MOPH was able to provide substantial support to PHC. In fact from 1978 to 1987, the percentage of the MOPH budget allocation to primary health care increased from 21.7% to 24.9%. The share of outside donor assistance to Thailand has continued to decrease from more than 50% to less than 10%.

After 1979, training of village health volunteers and communicators started and required funding from the central government, money which the government did not have. Under the Rural Primary Health Care Expansion project, USAID provided substantial funds to supply this financial need.

Eventual replacement of U.S. funds by the MOPH was facilitated in 1979, when a line item for PHC was established in the MOPH budget. Examples of activities previously supported by USAID assistance which are now fully supported by the MOPH include training of village health volunteers and communicators.

Similarly, USAID provided financial support for an ORT program already underway by the Communicable Disease Control Department. In particular, these activities supplemented those of the national control of diarrheal disease project begun by the MOPH in 1979. USAID funding enabled extensive and accelerated coverage and training.

One aspect of the USAID assistance program which appears to have failed is the operations research agenda. A total of six out of nine proposed studies were not completed. One explanation is the reluctance of the MOPH to use loan assistance especially for research.

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program has not been continued, the concept of the low level curative and preventive health care workers (e.g. nurse practitioner) continues to be important. The network of village health volunteers supported by groups of village health communicators has been greatly expanded.

Under the Rural PHC Expansion project, the training program was essentially fulfilled. Nutrition revolving funds have been organized in all villages. Supplementary food is being given without charge to malnourished children under five in many villages. Growth monitoring activity has greatly increased. Revolving sanitation funds have been organized in 1,000 targeted villages. Government ORS packets are available throughout the health system and in the PHC structure. Understanding of how to use ORS seems high. By 1986, at least 14.7% of rural villages used government rural health centers compared with 4.4% in 1970.

4. Comments on Sustainability

Over the years, Thailand has developed a unique approach to primary health care; one which depends heavily on a network of village volunteers and village health communicators to supplement the government health infrastructure and to promote village self-reliance including community financing. Evolution of this PHC strategy in Thailand has occurred over the past 30 years through various pilot projects and applications of lessons learned to nationwide PHC activities. The MOPH has utilized USAID assistance to support and accelerate this evolutionary process.

USAID's first major assistance related to primary health care was support of the Lampang/DEIDS project (1974-1981), a pilot project designed to explore cost-effective ways to deliver health services. Before this time, the MOPH had had two other major experiences with similar types of pilot projects. During the period 1964-1968, the MOPH in collaboration with WHO set up the health project in the Phitsanulok province which aimed at increasing the efficiency of tambon health personnel through in-service training, provision of supplies and equipment and recruitment of young people from the villages to study midwifery and sanitation upon condition that they return to work in their own villages.

At about the same time (1968-1971), the community health project in the Saraphi district of Chiang Mai province was initiated. It stemmed from the teachings on social medicine at the Chiang Mai Medical School. Its objectives were to reorient the conventional medical education toward more emphasis on community health, to foster right attitude and the sense of dedication among medical graduates to work for the rural population and to solve the problem of maldistribution of doctors in the long run.

Neither the Phitsanulok nor the Saraphi project resulted in great improvements in preventive and promotive health service coverage. In

It is clear that PHC is firmly entrenched in the MOPH. This is not to say that the current program is perfect. Several studies have been undertaken which demonstrate that continued success of the primary health care strategy based on the village health volunteers and communicators will require substantial modification. Already, several new experiments (formal and informal) are underway in selected provinces. Nevertheless, USAID assistance has played a useful and supportive role in this evolutionary process.

To summarize, there are five major factors which may account for the long lasting contributions of USAID assistance in primary health care to Thailand: (1) The MOPH has had a long history of proven commitment to the primary health care strategy. Through at least two decades of pilot projects and rural health programs, the RTG had developed implementation strategies for PHC such that by the Alma Ata WHO conference in 1979, Thailand was already well on its way to providing PHC services through its nationwide health network; (2) The MOPH was accustomed to and encouraged the pilot project approach to developing improved health service delivery systems. The Lampang/DEIDS project-type of assistance was a familiar one. Moreover, USAID funding of pilot projects was useful since typically it is difficult for the MOPH to obtain funding for such experimental approaches; (3) The RTG was strongly committed to the PHC strategy. The Health For All Charter promoting PHC was approved by the cabinet and the parliament. Also, budget allocations to PHC continued to increase in spite of resource constraints; (4) USAID provided financial support to an ongoing, fairly well established PHC program of village health volunteers/communicators and ORS distribution; and (5) The recent economic prosperity of Thailand has enabled the MOPH to continue to provide a sizeable budget to PHC activities.

5. Future Issues

Issues pertaining to sustainability of PHC in Thailand in the future can be grouped into three main areas: (1) resolution of operational shortcomings in the present system of PHC implementation; (2) increasing competition for resources as patients demand more sophisticated and costly forms of treatment; and finally, (3) emergence of new health problems which accompany urbanization, demographic transition and development.

Major operational issues currently being investigated by the MOPH include improving the effectiveness of village health volunteers/communicators; promoting intersectoral collaboration especially between the Ministries of Health, Education, Interior and Agriculture; developing better management skills at the village, tambon and district levels; exploring appropriate mechanisms for community financing; and establishing adequate legislative measures for consumer protection in foods, drugs and occupational settings. Management and financing issues are interlinked; decapitalization of village funds may be more often due to lack of adequate management than lack of

funds. There is a continuing need to train villagers to tap and use local resources and local technologies. Finally the MOPH is continuing to improve its health and management information systems. There is likely to be a need for technical assistance in this area.

Field observations suggest that there is a growing tendency among individuals in Thailand to demand more sophisticated and costly forms of treatment. Without careful PHC policy implementation and monitoring, these changing demand patterns for high technology may divert resources away from PHC to secondary and tertiary care.

Finally, with urbanization, demographic transition and development, new health needs are emerging. In addition to basic primary health care needs, the RTG will have to deal with health problems related to aging, occupational health and stress. Other diseases such as AIDS and cancer may also require increasing health resources.

APPENDIX F

CASE STUDY: FOOD AND NUTRITION

1. Description of Program

Nutrition has received about one percent of all USAID funds allocated to health in Thailand (excluding recent centrally-funded assistance). A small early project in the 1950s provided some assistance to the agricultural university (Kasetsart) for Nutritional Disease Control, which the team did not attempt to track down. A larger project from 1962-72 provided \$638,000 for Protein Food Development, reflecting the general international approach of searching for superior formulated foods, especially for children, as a single or limited input, dietary intervention solution to protein-calorie malnutrition (PEM). For a variety of reasons this approach to PEM has been downgraded by the international nutritional community (the main reasons were advances in the understanding of the etiology of malnutrition and of the synergistic impact of health and other factors interacting with the sheer quantity and dietary composition of ingested food). In the Thai case, the MOPH tried to rely on a centrally developed formulation (the most recent being a mix developed by the nutrition research unit at Mahidol University in 1982) until an evaluation in 1985 showed that some communities were unable to grow some of the components, while children resisted repeated feeding of the same mix without variation. Thus the MOPH in 1986 shifted to an alternative strategy.

Now local health authorities have a variety of formulas that are adapted to local food availabilities and tastes and that can be grown (or purchased) locally and prepared in the household. The training and experience gained under the Protein Food project appears to have strengthened the Nutrition Division but the specific formulated food outputs of the original project have been superseded by alternative, and presumably superior, approaches.

Under the Rural Primary Health Care Expansion project (1978-86) community nutrition activities were supported starting in late 1983, principally village nutrition funds and the child weight monitoring program. The project covered 1,781 of the 24,450 villages in which nutrition funds were established. The final evaluation report on the project in September 1986 found that the nutrition funds were being decapitalized. Mothers with well-nourished children were not interested in obtaining supplementary food through the funds, for which they would have to pay, while poor mothers were not required to reimburse the funds for the food acquired with fund monies. Without the profit envisaged from sale of the foods to the better-off mothers, the funds have been dwindling. This decapitalizing is apparently continuing, so that the nutrition funds are not likely to be sustained, but for sound practical reasons. As an alternative mechanism for providing subsidized supplementary food for underweight children of poor families, the MOPH introduced a new scheme in 1988 based on books of 30 coupons to be used at local groceries for

specified foods (e.g. two eggs per day per coupon). Issuance of coupon books for the second or third months is based on weight checks. If weight gain is inadequate after three months the child must be taken to the district hospital. In sum, the nutrition funds are being folded into the general development funds of the villages, while the MOPH continues experimenting with new approaches. The coupon system was expected to have the added benefit of serving as an incentive for mothers to sustain the monthly weighing of malnourished children since there was some question (raised in the final project evaluation) that children still not reached by the weighing system might include a disproportionate number of underweight individuals who would not be caught by the monitoring system for remedial feeding and whose absence from the monitoring data network would be causing an upward bias in the statistics showing substantial decline in the numbers of remaining malnourished.

While the evaluation noted these shortcomings of the weighing system coverage, it gave the system high marks technically and as an educational tool. The Nutrition Division has continued adjusting the system and continues to accord the weighing program a high priority.

2. Sustainability

The nutrition activities have coincided with a declining incidence of malnutrition among children. Severe (third degree) malnutrition is reported to be virtually zero, while second and third degrees together are very low except among some relatively remote and socioeconomically backward ethnic minorities. First degree malnutrition has been dropping but remains at unsatisfactory levels. Thus in 1982, 35.6% of under-fives were reported as suffering moderate (first degree) malnutrition and 15.1% second and third degrees. By 1987 these incidences were down to 20.9% and 2.4% respectively (with the latter virtually all second degree).

Overall it appears that PEM has been substantially reduced, although there are problems and ambiguities of measurement that render these data (and the village monitoring) insufficient for accurate evaluation of the extent of remaining malnutrition or of the health seriousness or implications of the increasingly residual or hard core numbers of children who are really at risk. Needless to say, it will remain extremely difficult to sort out the relative contribution of rising incomes, the weighing program, and other factors that together affect household feeding behavior and the nutritional status of young children. From the perspective of the present study, it seems clear enough that malnutrition is continuing to decline and that the MOPH continues to evaluate and adapt its monitoring and intervention activities to identify and reach the remaining malnourished children. In the adaptation process, the weighing program continues as the core of the intervention system but other specific components of past USAID projects have been superseded by more pertinent or more effective alternatives.

Finally, it is interesting to note that the Nutrition Division is considering developing a new formulated food product that could compete in local markets for the rising household expenditures on nutritionally inadequate junk snack and commercially prepared foods. In addition the MOPH is raising the priority and budget allocated to micronutrient deficiencies (iodine, iron and vitamin A) and to the nutritional problems of school-age children. As is the case with other divisions of the MOPH, the long-run sustainability of the effectiveness of the work of the nutrition authorities depends on their responsiveness to the changing character of the problems in their area of responsibility, as the nutritional problems of poverty decline in the face of rising incomes and changing dietary habits. At the same time there is evidence of growing unevenness of income distribution within villages and of the emergence of a "hard core" of rural and urban poor whose nutrition and other health problems will take more fine-tuning of the health system. The nutritional and other health personnel the team interviewed were clearly aware of this change in the health sector, generally expressing dissatisfaction with the levels of coverage achieved, levels that would be considered extraordinary accomplishments in many other developing countries. With such a perspective, the outlook for sustainability of the programs USAID supported (even if not in the same form or with the same content) is high.

APPENDIX G

CASE STUDY: POPULATION

1. The Population Problem in Thailand

After World War II, Thailand began its demographic transition from traditionally high birth and death rates to lower birth and death rates. During the 1950s and 1960s it followed the typical developing country profile with death rates falling far more rapidly than birth rates, thus creating an unprecedented "population explosion". The annual rate of population growth reached its peak of over three percent by the late 1960s and early 1970s. The rate of growth as well as the total number of persons began to create stresses for economic development. Between 1947 and 1970 the total population doubled from 17 million to over 34 million persons. Concern for the growing imbalance in the demographic transition came to the attention of policy makers as early as a 1959 World Bank mission report which cautioned the RTG on the negative consequences of continued rapid population growth on development. RTG officials began rethinking the pronatalist policy of the government.

In March 1970 the cabinet issued a population policy stating that "the Thai Government has the policy to support voluntary family planning in order to resolve various problems concerned with the very high rate of population growth which constitutes an important obstacle to the economic and social development of the nation".

2. USAID Population Assistance

Limited population funds became available for Thailand through contractors funded by AID/Washington beginning in 1965. Activities included a grant to the Population Council to support policy research and development, training, and pilot projects such as the hospital postpartum family planning program in four Bangkok hospitals. USAID reported providing medical equipment for 40 family planning clinics and assisting in the training of 15 doctors in 1967.

However, the special allocation of \$35 million for population projects by the U.S. Congress in 1968 led to rapid development of the first bilateral population project in Thailand. Between 1968 and 1989, USAID provided over \$42 million for population and family planning activities in Thailand under three bilateral projects which included substantial amounts of contraceptives financed separately by AID/Washington. Additionally, AID/W contractors and grantees have provided about \$20 million over the 1965 to 1989 period. Figures from early years are not available. Centrally funded support currently averages well over \$1 million annually, but is decreasing. USAID's population projects represent the largest single area of assistance to Thailand in the health sector, representing over 40 percent of total health assistance.

The Family Health project (493-11-580-209) and the Family Planning project (493-0266) provided \$8,502,868 for maternal-child health and family planning activities between 1968 and 1975. The population components of the project were clearly a USAID initiative resulting from the sudden availability of population funds from the U.S. Congress. But it came at a time of growing RTG receptiveness. In 1968 the MOPH quietly began a national three year Family Health project without waiting for an official national population policy statement from the RTG.

After the national population policy was announced in 1970, the project was reorganized as the Family Planning project under the new national family planning program (NFPP) of the MOPH. USAID was the major financial contributor to the RTG program which emphasized the extension of family planning through existing health services, especially the maternal and child health programs.

USAID funds were concentrated on two critical elements of the RTG program, staff training and provision of contraceptives and other commodities for expansion of family planning services. Separate courses were developed for physicians, nurses, midwives, male health workers and family planning aides. Training physicians in voluntary sterilization techniques was a special priority. USAID supplied most of the contraceptives for the NFPP in addition to clinical equipment. U.S. advisors and short term consultants provided technical assistance in program organization, management and evaluation. Substantial academic and short term training in the U.S. was provided for professionals in the MOPH and several universities. Limited funds were provided for research studies and evaluations to assist the RTG in identifying problems and possible ways of extending family planning services.

USAID project funds were allocated as follows: commodities, including contraceptives (\$6,355,565), participant training (\$1,589,013), technical advisors and consultants (\$504,687) and local costs (\$53,803). The primary purpose of the project was to support development of the basic family planning services delivery network facilities and train personnel. By 1975 there were 5,928 family planning clinics in operation under the MOPH, 149 clinics under other ministries, and 16 private clinics.

Population Planning I (493-0283) was designed to provide assistance during the RTG's Fourth Five Year Plan (1976-1981), although the project actually covered the years 1976 to 1984. USAID provided \$16,130,285 during this period, including \$5,712,000 for contraceptives funded by AID/W. The primary purpose of this project was to support national expansion of family planning services with a special emphasis on voluntary sterilization services. With USAID's encouragement and guarantee of ample supplies of oral contraceptives, the MOPH announced its "free pill policy" in 1976 as part of a major effort to expand family planning services throughout the nation. USAID and the MOPH responded to the rapidly growing demand for voluntary

sterilization, especially by Thai women, by making support for that program the largest element of the USAID project, apart from provision of contraceptives. USAID provided funds for institutional reimbursements to voluntary sterilization centers in hospitals and support for mobile voluntary sterilization information and service teams. Funds for local training of physicians, nurses, midwives and junior sanitarians and for overseas academic and observational training continued as an important project element. Funds for research helped strengthen local research institutions while providing new information for policy makers. Limited funds were provided for U.S. technical advisors and consultants.

USAID project funds were allocated as follows: commodities (\$3,475,546), excluding \$5,712,000 of centrally funded contraceptives, voluntary sterilization (\$5,142,407), local and U.S. training (\$1,090,611), technical advisors (\$100,000), information and education campaigns (\$210,991), research (\$144,909), and miscellaneous costs (\$253,822).

Population Planning II (493-0325) was designed to support the NFPP during the Fifth Five Year Plan (1982-86), but was extended to June 30, 1989 to cover about half of the Sixth Five Year Plan as well. Even during the project design stage, the MOPH and USAID agreed that this project would be the final bilateral population program. The aim of this project was to complete the national expansion of family planning services, including voluntary sterilization, with a special focus on services to hard to reach groups, namely the hill tribes and religious minorities. This project differed from the previous two projects in that more than half of the funds were in the form of a loan, rather than all grant. USAID provided a total of \$17,782,898 during the seven years of the project, including \$7.9 million of grant funds and a loan of \$9.9 million.

Although contraceptives supplies continued to be an important part of the project, the bulk of project funds concentrated on extending and strengthening family planning information and services nationwide, with special emphasis on the sub-district level and low performance provinces and districts. Training, institutional support and medical kits for IUD insertion and voluntary sterilization services continued as a major element of the USAID assistance. New activities were initiated to promote increased family planning among the hill tribes and family planning and occupational health in factories using Thai non-governmental organizations. To bring family planning services to the community level, nearly 20 percent of project funds were used to expand the use of mobile units.

USAID project funds were allocated for the following activities: family planning services, including institutional reimbursements for voluntary sterilization (\$10,766,384), contraceptives and medical kits (\$3,430,131), U.S. and local training (\$2,534,082), audit and evaluation (\$337,779), management information systems (\$136,971) and miscellaneous local costs (\$79,369).

3. Results of the National Family Planning Program

The transformation in reproductive attitudes and behavior that has been taking place in Thailand over the last several decades is so far-sweeping and profound that it can aptly be called a reproductive revolution. (Knodel 1987). The annual rate of population growth has plummeted from 3.3 percent in 1970 to 1.5 percent in 1989. Contraceptive prevalence among married women aged 15-44 jumped from less than 15 percent at the end of the 1960's to over 53 percent by the end of the 1970's and is now estimated to be nearly 70 percent. The most widely used means of fertility control are voluntary sterilization, oral contraceptives, injectibles and IUDs. These highly effective methods account for 95 percent of all current users. Desired family size has dropped significantly. The family planning program blankets the country. Rural and urban differences in contraceptive use have disappeared as the family planning program has made services available in every village. Family planning information is near universal. However, prevalence rates remain comparatively low in the Muslim south and among the northern hill tribes.

A 1988 MOPH study of the impacts of the national family planning program highlights some of the theoretical estimated savings to the government and country.

- NFPP helped avert over 13 million births over the past 20 years, leaving Thailand with a population of 54 million instead of about 67 million persons.
- The country's natural resource base would have deteriorated to perhaps unrecoverable levels, with even greater destruction of forests.
- The age structure without NFPP would have meant 32 million young children instead of 19 million.
- Without NFPP there would be 5 million more children in primary school and 2.5 million more in secondary school. The RTG has already saved over 15 billion baht from unneeded additional educational facilities, not even counting classroom and school construction.
- The NFPP is an excellent investment for human resources development, yielding 40 baht in savings for each one baht invested in family planning.
- By averting over 400,000 births annually, the RTG saves about 3.8 billion baht per year from unneeded public health services.
- Due to a declining birth rate, the RTG saved over 2.1 billion baht in the Fifth Plan and estimates savings of 5.1 billion baht in the Sixth Plan from reduced non-health social services outlays.
- The reduced number of new entrants to the labor force has helped ameliorate unemployment and underemployment problems.

4. Comments on Sustainability of Family Planning Programs

Knodel describes the timing, pace and extent of Thailand's rapid

fertility decline in terms of four major interwoven factors:

- Rapid and fundamental social changes in recent decades which cause couples increasingly to view large families as an economic burden;
- A cultural setting conducive to acceptance of deliberate fertility regulation and a small family norm with couples, not parents or kin, making the reproductive decisions;
- Latent demand for fertility control building up for several decades before information and effective contraceptives became available; and
- Organized promotion of family planning and delivery of services, largely through the NFPP, resulting in widespread awareness of and accessibility to effective and acceptable means of fertility control.

The NFPP is firmly established by government policy, has continuing strong political commitment, and is increasingly financed by domestic resources rather than foreign assistance. There appears to be no threat to the overall sustainability of this comprehensive, internationally acclaimed and successful national program.

It must be recognized that from the beginning of the NFPP, the RTG set the policy and guidelines. Donors, including USAID, were asked to contribute to a Thai organized and directed program. While often relying on donor support to test new approaches to delivery of family planning information or services or to help expand coverage, over time the RTG has steadily increased its budget contributions in full recognition of the likelihood of donor funding reductions or termination. During the Third, Fourth and Fifth Five Year Plans, for example, the donor share of total family planning expenditures was 68%, 64% and 27% respectively. With only limited donor funds available in the Sixth Plan years (1987-1991), the RTG budget now accounts for most of the family planning expenditures, supplemented by some clinical fees. Five Thai non-governmental organizations account for over 16% of expenditures, and much of their budgets are still donor financed.

The NFPP has maintained a willingness to innovate, especially for activities designed to make information and services available at the village level by lower and lower categories of health personnel. Starting in 1968 with a physician oriented program, by 1971 nurses and midwives were authorized to distribute oral contraceptives, by 1978 village health volunteers could resupply pills, by 1980 midwives could insert IUDs and by 1983 midwives could provide injectibles and operating room nurses could perform postpartum voluntary sterilization. This has made possible the availability of effective contraceptives at the tambon level.

The MOPH and USAID conducted joint reviews of the NFPP in 1975, 1977, 1980 and 1984 in an effort to identify program weaknesses and determine the most appropriate strategy for dealing with those weaknesses. Some subjects do recur in the reviews, for example, making greater use of the private sector to reduce strains on the MOPH budget, problems for the MOPH in acquiring adequate

numbers of vehicles, clinical equipment and audio-visual equipment through its budget process and improving the management information system and its usefulness for program managers.

There remain some concerns about the future of the program, such as maintaining adequate supplies of oral contraceptives now that USAID supplies are no longer available. The RTG has expanded rapidly its budget for contraceptives, but delays in shipments or shortages of particular brands are reported. The MOPH may want to review its free pill (and condom) policy as a way of increasing revenues. The Thai non-governmental organizations are most vulnerable. They receive most of their contraceptives from the MOPH and are concerned that, if shortages do occur, the MOPH would supply its own distribution system first.

The NFPP is well aware of some of the constraints and problems it faces, and has described them in its own publications. The fact that the NFPP takes an analytical and self-critical look at its programs is an important measure of sustainability. It identifies as current constraints the restricted availability of sterilization services in rural and remote areas; restricted availability of IUD services because of budget limitations on training auxiliary midwives; the difficulty of reaching some target groups, such as hill tribes, religious minorities and persons in urban slums; and competing demands of the primary health care program and declining funds for family planning will mean less time devoted to family planning promotion.

For the future, there seem to be no area where donor assistance is vital and few areas where donor assistance is needed. However, Thailand offers an excellent site for regional and international training for family planning policy makers and program managers. Donor assistance could play a useful role in assisting the NFPP to share their success with other countries. Similarly, Thailand offers a rich opportunity for research on developing a successful national family planning program.

APPENDIX H

CASE STUDY: HEALTH CARE FINANCING

The economic recession during the late 1970s and 1980s, due mainly to the oil crisis and drought in several parts of the world, had created a great challenge to the global target of Health For All By The Year 2000. Thailand was no exception, and health care financing has been a point of interest for policy makers and planners ever since. The main purpose of this case study is to summarize the situation of financing health services in Thailand, as well as to highlight future issues.

1. Trends in Health Expenditures

Table 1 indicates that the total expenditure on health has been increasing at a rapid pace. During the decade between 1978 and 1987, there was a 120 percent increase in total expenditure, which resulted in an 80 percent increase in per capita health expenditure. The total health expenditure was 30.1 billion baht in 1978 and 67.7 billion baht in 1987. Per capita health expenditure was 680 baht in 1978 and 1,282 baht in 1987. During 1983-1987, the average annual increase of per capita health expenditure was especially high at 8.2%, a figure higher than most developed countries and higher than the average annual increase of GNP per capita (3.7%). This has resulted in an increase of the proportion of health expenditure to GNP from 3.4% in 1978 to 5.6% in 1987. Should this trend continue, this proportion would increase to 8.1% in the year 2000, a figure comparable to most developed countries.

2. Source of Expenditures

Table 2 shows that more than two-thirds of the health expenditures were paid for from private out-of-pocket sources. This already high proportion has continued to steadily rise from 66.7% in 1978 to 73.2% in 1987, while other collective sources (government or other insurance) have declined from 33% to 28% during the same period. Although nearly 90% of all health facilities belong to the public sector, financing of these facilities depends on both public and private sources. With the user charge system established and operating for more than three decades, the public hospitals are able to recover between 25% to 40% of their total cost or between 80% to 120% of their non-salary recurring costs. It should be noted that almost all of the collective sources of expenditure come from general tax revenue. Private health insurance is a negligible proportion of health expenditures. The MOPH budget represents about two-thirds of all public expenditures on health.

3. Characteristics of Expenditures

3.1 Expenditures by level of care

In 1988, total health expenditures included 8% for primary health care, 25% for secondary care and 66% for tertiary care. Expenditures for primary health care by the Ministry of Public Health have increased from 21.7% of the total budget in 1978 to 24.9% in 1987, while those for secondary and tertiary care have decreased from 42.5% to 38.7% during the same period.

3.2 Expenditures by type of care

In 1988, 83% of total health expenditures were spent on curative services and only 12% on preventive and promotive care. With regard to the MOPH, the proportion of budget spent for curative care decreased from 60.7% in 1978 to 57.1% in 1987, whereas expenditures for preventive and promotive care increased from 22.9% to 23.7%.

3.3 Expenditures by type of expense

The National Economic and Social Development Board (NESDB) estimated that the nation's drug consumption was 39,214 million baht in 1987. From 1978 to 1987 the drug share of total expenditures has increased from 66% to 73%. Analysis of the MOPH budget reveals a decreasing trend in the proportion for capital investment from 29.3% in 1977 to 11.3% in 1987.

3.4 Geographical distribution

There has been no definite study on the geographic distribution of health expenditures. However, if we look at the MOPH's budget, the proportion spent in urban areas decreased from 52.3% of the total budget in 1978 to 48.9% in 1987 whereas the proportion in rural areas increased from 47.7% to 51.1%. The budget for provincial hospitals, which formerly was larger than that for districts and subdistrict facilities, has become smaller since 1983.

4. Health Insurance and Related Schemes

Table 3 shows the expenditures and potential coverage by six categories of health insurance and related schemes in Thailand in 1987. The so-called Poor Card scheme has the highest coverage. This scheme entitles all members of the family with a monthly income of less than 2,000 baht and a single person with income less than 1,500 baht to receive free medical care at designated public facilities without a deductible or co-insurance. This scheme also has the lowest expenditure per member.

The private insurance scheme has the lowest coverage but the highest expenditure per member. The workmen's compensation fund, covering only work

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related illness, is in the process of development into a broader social security scheme, possibly in 1990. The health card scheme, a voluntary primary health care-related health insurance scheme, established by the MOPH in 1985, covers only 5% of the total population and is decreasing. The health benefits for government officers and employees and employees of state enterprises have the highest share of the total expenditure of the health insurance related schemes and is increasing rapidly in spite of the slow increase in total public expenditure on health. The overall coverage of the insurance related schemes is 35.9% of the total population.

5. Community Financing Schemes

Table 4 shows the number of community funds supporting four major health activities. Also listed is the amount of capital available in each type of fund. These schemes resulted from the attempt of the MOPH to achieve primary health care development through active community participation and community self management. At present, there are many more specific purpose funds, e.g. tooth brush and tooth paste fund, food sanitation fund, etc.

6. Policy Commitment

In spite of the economic recession, Thailand has been quite successful in health development during the past decade. Strong policy and political support toward the development of rural health service infrastructures as well as primary health care services has ensured adequate budgetary support from the MOPH.

Nevertheless, health care financing in Thailand has been characterized by an apparently small share of collective funding. The majority of Thais have to pay for health services out of their own pockets. This situation, combined with the increasing cost of health services, may create high economic barriers as well as inequity in receiving health services. Thailand needs a strong policy to make a deliberate shift from individual to collective payment for health services. In this context, there have been two major developments. First is the social security bill, proposed by both the ruling and opposing political parties. This bill has been approved by the Thai House of Representatives and is waiting for Senate approval next year. Under this bill, a health fund will be established on the basis of equal contributions of 1.5% of the wage bill from the employers and the employees. This fund will be implemented as an extension of the workmen's compensation fund. The government will provide necessary budget for administration. Second is the development of voluntary health insurance, presumably based on the health card scheme established by the MOPH. Unfortunately, this scheme is receiving less political support.

7. USAID Assisted Health Care Financing Projects

USAID has sponsored several studies dealing with health economics and health care financing. In 1985, USAID sponsored a study titled "Financing Health Services and Medical Care in Thailand". This was the first paper looking at the overall picture of health care financing in Thailand. Since then a project titled "Health Economics and Health Care Financing" has been designed and is being implemented during the period 1987-1991 under the responsibility of the MOPH. This project receives funding under the Emerging Problems of Development (EPD II) project. Under this project there are four major activities. First, institutions dealing with health economics and health care financing are being strengthened by means of training, information gathering and networking. Second, several research projects have been granted funds. Third, three short training courses have been offered to budget analysts, deputy provincial chief medical officers and provincial chief medical officers. Lastly, a consultative service will be provided specifically to ten district hospitals to set up information systems for financial management.

8. Future Challenges

With the rapid socio-economic development now underway in Thailand, health problems are changing from poverty and undereducation-related diseases to those related to urbanization, aging, polluted environment and noncommunicable diseases. This may, along with the increasing personal demand for medical care and the introduction of more sophisticated medical technologies and the possible establishment of the health fund under the social security bill, lead to a rapid increase in health care expenditures.

These situations also create a more complex structure of the health problems, health care delivery and health care financing systems. To be able to cope with these problems more efficiently, rational policies and plans with strong political support on the basis of sound wisdom are needed.

To develop a sound health care financing plan, information is needed in several areas, i.e. data on morbidity and mortality, data on demand for health care, data on production and utilization of health services and an inventory of infrastructure and manpower. In addition, policy studies should be conducted to solve specific problems and to assist with future planning. These studies should be performed at the macro, micro and community levels.

To be able to carry out and coordinate these studies, as well as to develop sound policy and implementation plans on health care financing, a strong national organizational structure responsible for health care financing issues should be developed in an appropriate ministry, e.g. the MOPH. Enough manpower in health economics and related fields, such as epidemiologists, medical anthropologists, clinicians and policy analysts, should be trained or

recruited to work together on health care financing either in the same organization or through networking. This is a difficult challenge for the Thai government, especially for the MOPH and related funding agencies.

The previous experience with USAID's assistance to the RTG for the Health Economics and Health Care Financing project has been a good one and should be continued. It could be used to develop a more specific and permanent organizational body capable of assuming responsibility for health care financing as well as to provide a mechanism for obtaining specialized training and launching exchange programs, conferences, workshops, special studies and pilot projects.

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Table 1 Expenditures on Health: Amount and Trend (1987 baht value)

Year	Total expenditure (million baht)	% of GNP	Per capita expenditure (baht)	%increase of per capita expenditure	%increase of GNP per capita
1978	30,174.5	3.43	680	-	-
1979	32,255.6	3.58	710	4.41	4.5
1980	34,263.7	3.89	738	3.94	0.5
1981	37,889.0	4.20	798	8.13	-1.3
1982	41,890.3	4.56	864	8.27	-0.1
1983	46,457.0	4.79	939	8.68	3.7
1984	53,032.3	5.18	1,052	12.03	3.6
1985	58,095.3	5.56	1,132	7.61	0.2
1986	62,099.9	5.63	1,192	5.30	4.1
1987	67,771.3	5.65	1,282	7.55	7.0
Projection:					
1988	74,514.5	5.81	1,389	8.35	5.46
1989	81,928.7	5.97	1,506	8.42	5.52
1990	90,080.7	6.13	1,634	8.50	5.58
1991	99,043.7	6.30	1,774	8.57	5.62
2000	232,586.1	8.05	3,718		

Source: National Income of Thailand 1982 and 1986 and information from the National Account Division, NESDB

Note: The projection was accomplished by using the data of 1983-1987, the weight was 0.1, 0.2, 0.3 and 0.4 for the rate of increase between 1983-1984, 1984-1985 and 1985-1986 respectively.

Table 2 Source of Health Expenditure, 1987 (millions of baht)

Source	1978	1980	1982	1984	1986	1987
1. Government Budget						
	9,143.9 (30.3)	9,735.7 (28.4)	12,185.2 (29.1)	14,795.5 (27.9)	16,167.7 (26.0)	16,363.0 (24.2)
1.1 MOPH						
	5,994.2 (19.9)	5,892.4 (17.2)	7,570.3 (18.8)	9,220.8 (17.4)	9,515.8 (15.3)	9,525.1 (14.1)
1.2 Other Ministries						
	2,554.5 (8.8)	2,986.6 (8.8)	3,234.5 (7.7)	3,675.6 (6.9)	4,021.1 (6.5)	4,036.8 (6.0)
1.3 Benefits for Government Officials and Employees						
	595.2 (2.0)	856.7 (2.5)	1,380.4 (3.3)	1,899.1 (3.6)	2,630.8 (4.2)	2,801.1 (4.1)
2. Workmen's Compensation Fund						
	109.5 (0.4)	128.9 (0.4)	172.2 (0.4)	264.5 (0.5)	224.2 (0.4)	267.7 (0.39)
3. Benefits for Employees of State Enterprises						
	129.4* (0.4)	242.8 (0.7)	354.6 (0.9)	406.9 (0.8)	532.4 (0.9)	564.1 (0.8)
4. Private Health Insurance						
	373.1 (1.2)	302.8 (0.9)	363.0 (0.9)	399.7 (0.8)	432.2 (0.7)	445.2 (0.7)
5. Foreign Aid						
	294.6 (1.0)	492.8 (1.4)	433.5 (1.0)	417.1 (0.8)	513.0 (0.8)	500.0 (0.7)
6. Employees and Private Households **						
	20,124.0 (66.7)	23,360.7 (68.2)	28,381.8 (67.8)	36,748.6 (69.3)	44,230.4 (71.2)	49,631.3 (73.2)
Total	30,174.5 (100.0)	34,263.7 (100.0)	41,890.3 (100.0)	53,032.9 (100.0)	62,099.9 (100.0)	67,771.3 (100.0)

Table 2 Sources of Health Expenditure (continued)

Sources

1. Health Planning Division, MOPH
2. National Income of Thailand, 1983, 1986
3. Workmen's Compensation Fund, Ministry of Finance
4. Controller General's Department, Ministry of Finance
5. Financing Health Services and Medical Care in Thailand, Charles N. Myers and Dow Mongkolsmai, 1985
6. Suchada Kiranandana, Benefits for Government Officials and Employees and Employees of State Enterprises

Remarks

1. figures in () are percentages of total expenditures.
2. * means estimation from real figures.
3. ** derived from total private expenditure minus expenditures for government officials and employees, employees of state enterprises, workmen's compensation fund and private health insurance.

Table 3 Health Insurance Related Financing Schemes, 1987 baht value

	Coverage (millions of people)	Percent of Coverage	Total Expenditure (million Baht)	Per Capita Expenditure (baht)
1. Workmen's Compensation Fund	11.20	2.26	267.7	223.08
2. Welfare for Indigent Groups	10.00	18.87	705.8	70.58
3. Health Card Fund	2.69	5.08	183.0	68.03
4. Private Health Insurance	0.24	0.45	445.2	1,855.00
5. Benefits to Government Officials	4.10*	7.73	2,801.1	683.20
6. Benefits to State Enterprise Employees	0.77	1.46	564.1	732.60
Total	19.00	35.85	4,966.9	-

Remarks

* Estimated by assuming that one employee carries two other people eligible for the same benefits.

Table 4 Community Financing, 1987

Type of Fund	Number of Funds	Average Revolving Fund (baht)	Total Funds (Millions of baht)
1. Village Drug Cooperatives	27,135	1,000	27.14
2. Sanitation Funds	20,643	6,000	123.86
3. Nutrition Funds	25,450	3,000	76.35
4. Health Card Funds	19,030	9,631	182.99
Total	N.A.	N.A.	410.34

Source : Health Planning Division, MOPH.

APPENDIX I.

INTERVIEWEES AND CONTACTS

Achviboon, Onthip, Social Projects Division, NESDB

Assawapas, Vichai, director, Nampong District Hospital, Khon Kaen

Auamkul, Nanta, senior health officer, Family Health Division, Department of Health, MOPH

Auekul, Wanpen, Family Health Division, Department of Health, MOPH

Banchongaksorn, Trairat, assistant director, Malaria Center, Region 2, Chiang Mai

Boonchart, Promma, malaria volunteer, Chart Village, Nago Subdistrict, Kuchinarai District, Kalasin Province

Boonjitradul, Srisawangvong, Family Health Division, MOPH

Charoenkul, Amnart, chief, Health Education and Training Section, Malaria Division, Department of Communicable Disease Control, MOPH

Charuchandr, Praphorn, sanitation inspector, Department of Health, MOPH

Chaurittisen, Chalong, chief, Occupational Health Section, Environmental Health Center, Region 5, Lampang

Chawneua, Pachern, chief, Dangyai Health Center, Muang District, Khon Kaen

Chitpralop, Udom, director, Malaria Center, Region 2, Chiang Mai

Daenghan, Pinanda, director, Malaria Center, Region 3, Khon Kaen

Foley, Peter, regional director, Family Planning International Assistance

Jantaksa, Prapat, assistant director, Malaria Center, Region 2, Chiang Mai

Kamor, Suthisak, Muang District health officer, Khon Kaen

Kanhanol, Chanai, chief, Malaria Zone, Malaria Center, Region 3, Khon Kaen

Ketrangsri, Sanchai, director, Malaria Division, Department of Communicable Disease Control, MOPH

Kiranandana, Thienchay, Faculty of Economics, Chulalongkorn University.

Kulaprapa, Hatana, district health officer, Khaowong District, Kalasin Province

Laddachayaporn, Aree, Training Section, Environmental Health Center,
Region 5, Lampang

Laddachyaporn, Supreera, Special Projects Section, Environmental Health Center,
Region 5, Lampang

Maneekarn, Niwat, assistant dean, Faculty of Medicine, Chiang Mai University,
Chiang Mai

Matin, Boonsom, former dean (1965-1979), Faculty of Medicine, Chiang Mai
University

Muangman, Debhanom, dean, Faculty of Public Health, Mahidol University

Na-Songklar, Mongkol, provincial chief medical officer, Nakhon Ratchasima

Ningsanonda, Pirote, former permanent secretary (1986-1988), MOPH

Nithayarumpongse, Sa-nguarn, chief, Monitoring and Evaluation Section,
Health Planning Division, MOPH

Nondasuta, Amorn, former permanent secretary (1985-1986), MOPH

Nopparat, Pornthip, Medical Technical Laboratory, Malaria Division, Department
of Communicable Disease Control, MOPH

Panomwan Na-Ayudhaya, Sathit, chief, Food Sanitation Section,
Environmental Health Center, Region 5, Lampang

Panyadilok, Suthon, Planning Section, Family Health Division, Department of
Health, MOPH

Patanachareon, Chairat, director, Northeastern Regional Training Center for PHC
Development, Khon Kaen

Patipongse, Suchart, entomologist, Malaria Division, Department of
Communicable Disease Control, MOPH

Pinichpongse, Surin, senior health specialist and former director, Malaria
Division, Department of Communicable Disease Control, MOPH

Pramanee, Sawai, governor, Nakhon Rachasima Province, Ministry of Interior

Prasittisuk, Chusak, chief, Applied Research Section, Malaria
Division, Department of Communicable Disease Control, MOPH

Raksakulkan, Pitsanu, director, Sanpatong District Hospital, Chiang Mai

Ratana, Pin, director, Sanitation Division, Department of Health, MOPH

Rojanarudom, Orapan, chief, Tungsatok Health Center, Sanpatong District,
Chiang Mai

Rugseree, Sompit, chief, Family Planning Section, Health Promotion Center,
Region 4, Khon Kaen

Sangnak, Prathin, National Accounts Division, NESDB

Siriboonma, Ampon, director, Chiang Mai Provincial Hospital, Chiang Mai

Sirisanthana, Thira, assistant dean, Faculty of Medicine, Chiang Mai University

Srikampon, Prawat, chief, Malaria Sector, Kuchinarai District, Kalasin
Province

Srisongpleua, Preeda, malaria clinic worker, Khaowong District, Kalasin
Province

Srisukri, Avudh, former dean (1977-1981), Faculty of Medicine, Chiang Mai
University

Sritawanich, Soisa-ang, director, Mother and Child Hospital, Health Promotion
Center, Region 5, Chiang Mai

Sritoomma, Srongsak, director, Environmental Health Center, Region 4, Khon
Kaen

Stern, D., WHO representative to Thailand

Sukonthachart, Wallop, chief, Nutrition Section, Health Promotion Center,
Region 4, Khon Kaen

Suntikitrungruang, Chawalit, senior health officer, Nutrition Division, MOPH

Suriyanon, Vinai, Faculty of Medicine, Chiang Mai University

Suwanteerangkul, Jiraporn, Social Medicine Division, Chiang Mai Provincial
Hospital, Chiang Mai

Tangcharoensatien, Viroj, Health Planning Division, Ministry of Public Health

Techo, Vilas, operations division manager, Population and Community Development Association

Tejasen, Tejatat, dean (1986-present), Faculty of Medicine, Chiang Mai University

Tepboon, Damrong, chief, Training and Publicity Section, Environmental Health Center, Region 5, Lampang

Thaineua, Mali, former deputy permanent secretary (1970), MOPH

Thimasarn, Krongthong, chief, Epidemiology Section, Malaria Division, Department of Communicable Disease Control, MOPH

Udomsriwatana, Vichai, chief, Environmental Quality Control and Awareness Section, Environment Health Center, Region 5, Lampang

Visarutaratana, Surasing, head, Dental Health Section, Provincial Health Office, Chiang Mai

Vong-on, Somboon, National Accounts Division, NESDB

Vongprayoon, Anchalee, chief, General Management Section, Malaria Division, Department of Communicable Disease Control, MOPH

Vongprayoon, Samart, chief, Vector Control Operation Section, Malaria Division, Department of Communicable Disease Control, MOPH

Vuthipongse, Prakrom, deputy director general, Department of Health; and former director of Primary Health Care Office (1985-86), MOPH

Wongsarojana, Suwan, former director (1971-1980), Malaria Division, Department of Communicable Disease Control, MOPH

Yongsmith, Anucha, Malaria Center, Region 2, Chiang Mai

Yoosawat, Suchin, director, Environmental Health Center, Region 5, Lampang

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