MANAGEMENT SCIENCES FOR HEALTH
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THAILAND

HEALTH SECTOR ASSESSMENT

BEST AVAILABLE

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THAILAND

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ABBREVIATIONS

ADB	-	Asian Development Bank
AID	-	Agency for International Development
AIT	-	Asian Institute of Technology
ARD	-	Accelerated Rural Development
ATC/PHC	-	Asian Training Center for Primary Health Care
BCG	-	Bacillus Calmette-Guerin [injection to protect against TB]
BMN	-	Basic Minimum Needs
CBR	-	Crude Birth Rate
CDR	-	Crude Death Rate
CFR	-	Case Fatality Rate
CIDA	-	Canadian International Development Agency
CNC	-	Child Nutrition Center
DCD	-	Department of Community Development
DH	-	District Hospital
DHO	-	District Health Office
DMR	-	Department of Mineral Resources
DOLA	-	Department of Local Administration
DPT	-	Diphtheria/Pertussis/Tetanus
EPI	-	Expanded Program of Immunization
ESCAP	-	United Nations Economic and Social Commission for Asia and the Pacific
FDA	-	Food and Drug Administration
FMCSP	-	Free Medical Care Services Project
GNP	-	Gross National Product
GPO	-	Government Pharmaceutical Organization
GWD	-	Ground Water Division
IBRD	-	International Bank for Reconstruction and Development
IEC	-	Information/Education/Communication
JICA	-	Japanese International Cooperation Agency
MOI	-	Ministry of the Interior
MOPH	-	Ministry of Public Health
NESDB	-	National Economic and Social Development Board
NGO	-	Non-governmental Organization
NIDA	-	National Institute of Development Administration
NRDC	-	National Rural Development Committee
NSO	-	National Statistical Office
OECF	-	Overseas Economic Cooperation Fund, Japan
ORS	-	Oral Rehydration Salts
ORT	-	Oral Rehydration Therapy
PADP	-	Poverty Area Development Project
PCMO	-	Provincial Chief Medical Officer
PEM	-	Protein Energy Malnutrition
PHC	-	Primary Health Care
PHO	-	Provincial Health Office
RJCP	-	Rural Jobs Creation Program
RPEP	-	Rural Poverty Eradication Program
RTG	-	Royal Thai Government
RWS	-	Rural Water Supply Division

SDP	-	Social Development Project
TB	-	Tuberculosis
TBA	-	Traditional Birth Attendant
TFR	-	Total Fertility Rate
TT	-	Tetanus Toxoid
UNDP	-	United Nations Development Programme
UNICEF	-	United Nations Children's Fund
USAID	-	United States Agency for International Development, Thailand
VHC	-	Village Health Communicator
VHV	-	Village Health Volunteer
WHO	-	World Health Organization

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EXECUTIVE SUMMARY

An assessment of Thailand's Health Sector was requested by USAID/HPN to identify priority areas wherein future AID assistance would have the greatest impact. A total of one month was allotted to the assessment, during which time a joint Thai/U.S. team made field visits in the north and central regions of Thailand, with the remaining time spent gathering information in Bangkok.

Thailand, a constitutional monarchy of just over forty-seven million people, is located in the center of the Indo-Chinese peninsula. It covers an area of about 200,000 square miles and climatically ranges from semi-arid in the northeast, to wet and tropical in the south. Thailand has a good system of transportation accessing most of the country, and radio and television transmissions cover the entire nation. Although the average per capita annual income is US$ 670, poverty conditions still exist, primarily in the north and northeastern regions of the country.

Crude birth and death rates in 1981 were given as 31/1000 and 8/1000 respectively, with an estimated population growth rate of 2 percent per year. Fifteen percent of the population is under 5 years of age, 42 percent is under 15 years, and 3 percent is 65 years or older. Life expectancy at birth is 62 years. Seventy-seven percent of the population is considered rural. Eighty-four percent are literate and 95 percent are Buddhist.

Morbidity and mortality data are incomplete. National Statistical Office surveys suggest underreporting of deaths to be 30 percent for all ages, and over 50 percent for infants. Similarly, illness is significantly under-reported. It is estimated that almost one-half of all mortality in the country falls in the under-five age group. Neonatal tetanus, and diarrheal disease are the leading causes of morbidity and mortality in this age group. Protein-energy malnutrition is estimated to exist to some degree in 50 percent of pre-school children, with 12 to 15 percent falling in the more serious second and third degree categories. Over half of reported neonatal deaths occur among low birth weight babies.

In attempting to address these problems, the MOPH has developed categorical programs for the Control of Diarrheal Disease, an Expanded Program on Immunization, Nutrition, and Water and Sanitation. In the late 1970's, the MOPH launched a Primary Health Care project to promote community participation and expand the rural coverage of health services. This program relies heavily on village health volunteers (VHVs) as health motivators, and providers of simple curative care and simple medications. These volunteers' role has been expanded to include formation and running of village cooperatives which collect revenues to support the distribution of drugs, production and distribution of nutritional supplements, building of water supply facilities and latrines, and provision of maternal and child health services.

As the concept of Primary Health Care has evolved over the past five years in Thailand, it has changed from a focus strictly on health to one

on community development more broadly. Instead of being viewed as a village-based extension of the government's rural health delivery infrastructure, the village volunteers are now seen as catalysts for involving the village community in other development activities, not necessarily limited to health sector activities. Senior MOPH officials strongly articulated their belief that the village health volunteer program (which they refer to as the heart of the Primary Health Care Program) in cooperation with village and tambol planning committees, are a means by which to stimulate villagers to recognize their own problems and to plan ways to resolve them using local resources.

In an extension of this PHC concept, the RTG has realized that the health sector alone cannot achieve the overall community development that is a necessary precursor to and concomitant of individual health. Toward this end, a program of Basic Minimum Needs (BMN) has been developed under the leadership of the NESDB. The BMN approach is aimed at: integration of health into overall social development; stimulation of community participation, resource allocation and self-reliance; and stimulation of intersectoral coordination through technical advisory groups comprised of health, community development and agriculture workers, and local teachers. The VHVs are also involved in implementation of the BMN approach. The Team believes AID should clearly understand what is meant by the PHC and BMN approaches, how they have evolved, the degree of commitment RTG has for them, and the responsibility that the RTG has placed on the VHV as the vehicle upon which the PHC, and to a lessor extent the BMN, efforts ride.

However, evaluations of the Primary Health Care project have identified multiple problems, e.g. high drop-out rate of volunteers and communicators, volunteers' emphasis on providing curative rather than preventive services, volunteers' poor retention of subjects covered during training, etc. Further, MOPH personnel were not in agreement on whether volunteers' training should be modified to focus on a limited number of priority interventions, or be expanded to include a wide range of village development activities.

Given the central role of the volunteers in the MOPH's rural health services' and community development strategy, it is recommended that AID provide assistance to assess how the PHC project should be oriented in order to maximize its cost-effectiveness in improving the health status of target groups. It is also recommended that AID provide support to assist in the modification of PHC project training materials based on the recommendations of the assessment.

Malnutrition is perhaps the most significant health problem in Thailand of children under-five, affecting over 50 percent to some degree. Although the RTG established a Food and Nutrition Committee to develop strategies to reduce malnutrition, little recognition seems to be given at this policy-making level to relationships between agricultural pricing, production and export policies and food availability in poor households. The programs thus far implemented have not resulted in significant declines in overall malnutrition. Nutrition interventions

focus on the identification (through periodic weighing) and treatment (through distribution of food supplements) of malnourished children, rather than on prevention of malnutrition. Few interventions seem to take into account income constraints which are related to malnutrition of families and thus children. Government efforts to promote breastfeeding, appropriate introduction of solid foods and adequate intake during pregnancy, require strengthening to take into account the complex socio-cultural-economic factors which underlie current inappropriate nutritional behaviors.

Thus, the assessment team has recommended that the Population, Health and Nutrition Office of USAID/Thailand, work with the Office of Agriculture, USAID/Thailand, to develop an intersectoral food and nutrition strategy, and to work together with the the RTG Food and Nutrition Committee to develop policies and program interventions oriented toward the prevention of malnutrition. It is also recommended that AID assist in: 1) the strengthening of nutrition education programs (with particular emphasis on use of mass media), 2) provision of additional scales for village level weighing activities, and 3) provision of technical and financial support for a variety of nutrition research topics.

In contrast to the problem of malnutrition, the MOPH has made progress in reducing morbidity and mortality from diphtheria and poliomyelitis through the institution of an Expanded Program on Immunization (EPI). However, high dropout rates for the second and third doses of DPT and OPV, and low coverage of TT for pregnant women, are reflected in the lack of change in rates of neonatal tetanus and poliomyelytis. (To date the EPI program has not provided measles vaccinations, but will begin to do so in 1984.) The high dropout rates are believed to be related to families' ignorance about the importance of completing immunization schedules and to constraints which prevent them from coming to health facilities on the days when immunization clinics are held. Tests of vaccine potency indicate that the cold chain is maintained, and vaccine supplies seem adequate for current program needs.

Thus, the assessment team has recommended that AID provide assistance to the MOPH to strengthen public educational efforts regarding immunization (again emphasizing mass media), and in developing guidelines for EPI training of tambol-level workers. In addition, AID could assist by providing additional electric refrigerators for installation in health facilities newly connected to electrical grids. Finally, AID should consult with UNICEF and the GPO to determine whether additional vaccine will be needed in the short run, or if additional vaccine production equipment will be required to increase vaccine supplies in the longer run.

Finally, although mortality from diarrheal disease appears to have decreased to a low level in recent years, the incidence of diarrheal episodes remains unchanged. AID with respect to this health problem can be targetted to: 1) the National Control of Diarrheal Disease Program (NCDDP) for promotion of oral rehydration therapy (ORT), 2) the various government agencies involved in the provision of water supply and sanitation technologies, and 3) the private sector for both interventions.

Given UNICEF's and WHO's current support for the NCDDP, it is recommended that AID provide support to the NCDDP on an ad hoc basis (perhaps through the PRITECH project) for unanticipated program needs which require a quick response. In addition, AID might provide assistance to: 1) strengthen public education on ORT, 2) determine if the GPO or government hospitals require oral rehydration salt (ORS) mixing and packaging equipment to produce the ORS required by the program, and/or 3) study the role of private sector pharmaceutical firms in the production and distribution of ORS and in public education about the importance of ORT.

In the area of water supply and sanitation, its seems most important that AID coordinate its assistance with the NESDB and the technical support team developing the Rural Water Supply and Sanitation Master Plan. In addition, the assessment team has recommended AID provide assistance specifically for:

1) Resolution of technical problems, e.g. determination of optimal technologies and marketing strategies, improvement of public education on the importance of hygiene and the availability of various technologies.

2) Training of water supply personnel to improve skills in water quality analysis/monitoring; evaluation of alternative technologies; and the operation, maintenance, management and financing of village water supply systems.

3) Research on a variety of questions, e.g. determination of the relationship of water quality indicators and health status; the cost-effectiveness of existing technologies under different hydrogeological, climatic and economic assumptions; and the evaluation of new technologies.

4) Financial assistance to rehabilitate existing village-owned systems and to increase the initial capitalization of water supply and sanitation revolving funds.

(AID's centrally-funded WASH project could be utilized to provide some of the assistance needs identified above).

However, several factors constrain these MOPH programs from achieving their objectives. Perhaps the most intractable of these is the limited amount of budgetary support available for programs oriented toward the provision of preventive health services. Thailand allocated only US $3 per capita per year in 1979 for all public health services (in contrast with other countries with similar GNPs which allocated US $7). Over 50 percent of the budget is allocated to the provision of curative services, and much of this for hospital care. Although the MOPH budget grew in nominal terms between 1975 and 1980, it stagnated in real terms. It is unlikely that recent (1981 to 1982) real growth in the MOPH budget will continue, as projections of growth of the MOPH budget in the 1980s are slower than for the previous decade.

In view of this problem, the MOPH's interest in mobilizing additional revenues and in developing cost containment strategies, and AID's sector priority to assist countries to develop self-sustaining health sector programs; the assessment team has recommended that AID provide assistance for a number of health financing policy, training and research activities. These include support for: 1) formation of a "Health Economics and Financing Policy Study Group", 2) placement of health economists in the MOPH, 3) strengthening of health economics' training in the curricula of health professionals, 4) study of the viability, efficiency and equity of cost-recovery efforts at RTG hospitals, health centers and in community revolving funds, and 5) assessment of the cost-effectiveness of rural health service delivery strategies.

Another important systemic constraint identified was the weakness of management systems at the district level and below. Identification and targeting of high-risk groups, priority setting, use of epidemiologic tools, and general management skills are poor. Inadequate budgetary support for personnel, transport, per diems and equipment make it difficult for district health offices to play a strong supervisory and co-ordinating role. Conflicts between district hospital physicians and district health officers further complicate the over problems.

The assessment team recommended that the MOPH study the problem of multiple lines of authority impacting on overall district level management. The team also recommended that AID conduct a health management needs assessment to more carefully delineate management problems in the sector, and that AID assist the MOPH in strengthening management training programs for public health personnel. Several public and private Thai organizations which might be strengthened to provide such training are identified.

Throughout the process of considering the MOPH programs, the team identified areas where the results from additional bio-medical or health services' research would benefit the programs of the MOPH. Historically, RTG allocations for health research have been low, and external support for such research has been declining. Therefore, the assessment team has recommended that AID assist in the identification of grant support to Thai researchers for research related to the priority health and health sector problems in Thailand.

CHAPTER I
INTRODUCTION

During the last decade, the health efforts of the Agency for International Development (AID) have been aimed at encouraging and assisting developing countries to develop and implement workable primary health care (PHC) programs. The primary objectives of AID's current health sector assistance are to help developing countries become self-sufficient in providing broad access to cost-effective, preventive and curative health services directed at the primary causes of mortality and morbidity particularly among infants and children, to improve the health of women, and to increase the productivity of the population at large by preventing or alleviating debilitating illness.

Given this Agency-wide health sector policy, this assessment was requested by USAID/Thailand's Office of Health, Population and Nutrition to identify priority areas for United States' health assistance over the next several years. The following tasks comprised the scope of work for the assessment team.

1. Assemble and analyze data regarding health conditions in Thailand, focusing especially on morbidity and mortality among infants, children under five, and women of reproductive age. In particular, attention should be given to early childhood diseases (e.g., tetanus, measles, polomyelitis, etc.), diarrheal disease, and undernutrition. Description of health conditions will also include malaria which will be assessed separately as part of July 1983 evaluation of the USAID Anti-Malaria Project. Analysis of health conditions should document nature, extent, severity and probable causes of morbidity and mortality identified. The discussion of causation should also include social and cultural factors.

2. Describe and assess current and planned RTG and other donor program interventions designed to address these problems. To the extent that current efforts are inadequate, effort should be made to describe the probable causes (e.g., managerial/administrative, technical, financial, and/or manpower constraints). Financial analysis should examine investment and recurrent cost requirements of key Primary Health Care (PHC) interventions, as well as the issue of user financing. This section should fully describe donor-assisted activities in these areas.

3. On the basis of the proceding analysis, the assessment team will determine the extent to which problems identified should/can be addressed with RTG's own resources. To the extent that external assistance is needed, can/will this support be provided by other donors? If unmet needs remain, should/could AID assist in addressing these needs and under what arrangements (e.g., bilateral, centrally-funded or combination of both?).

The scope of work did not include consideration of population issues or family planning programs in Thailand, as a separate assessment will be undertaken of these in the Fall of 1984. However, it should be noted that the public health sector described in this paper is critically important to the delivery of contraceptives and family planning services.

A total of one month was alloted to the assessment, of which 2 weeks were allocated to briefings by central ministry, provincial and district health personnel at the Rose Garden and during brief field visits to the Korat and Lampang provinces. The remaining 2 weeks were spent gathering additional information in Bangkok and writing the draft report.

The assessment team felt that insufficient time had been allowed for the data gathering and analysis tasks required for such a comprehensive scope of work[1/]. Nevertheless, it is hoped that this report will be of use in guiding AID assistance to the PHC, nutrition, diarrheal disease control, immunization, and water supply and sanitation programs, and to the health sector more generally in the areas of planning, management, financing and research.

CHAPTER I NOTES

1. As a consequence of the limited time available to the team, in-depth consideration was not given to the problem of malaria in Thailand. However, it should be noted that malaria has shown a resurgence in some endemic areas in recent years from 2.2 to 3.6 cases per 1,000 population during 1966 to 1972 and to 10.7 cases in 1981. In 1981, malaria was ranked the seventh leading cause of death in Thailand. There has been a reduction in the death rate due to malaria from 15.8 deaths per 100,000 population in 1974 to 8.6 in 1981, and it is expected that the overall incidence of malaria will decline due to early detection and new regimens of anti-malaria drugs. However, it should be noted that almost 25 percent of the population live in endemic areas; that 95 percent of the *Plasmodium falciparum* malaria (70 percent of total malaria in Thailand) is resistant to chloroquine, and that strains of *P. falciparum* with multiple drug resistance are emerging. Thus, malaria should still be considered an important problem in selected areas of Thailand. For further information on the problem of malaria in Thailand see: Cowper, L. et al. (July 1983) *Final Evaluation of the USAID Anti-Malaria Project, July 5-27, 1983*, Bangkok: USAID.

CHAPTER II
COUNTRY DESCRIPTION

A. Geography and Climate

Thailand covers about 514,000 sq. km. of the Indo-Chinese peninsula. Topographical features divide the country into 4 regions: Northern, Northeastern, Central and Southern. Northern Thailand is a mountainous area, covering about 108,000 sq. km.. Northeastern Thailand is a low, plateau covering 170,000 sq. km. with a semi-arid climate. Central Thailand consists of 159,000 sq. km. in the basin of the Chao Phraya River. Bangkok is located in this region. The Southern region consists of 77,000 sq. km. on the hilly Malaysian peninsula.

There are three seasons in Thailand: the hot/dry season from March to May, the rainy season from June to October and a cold season from November to February. On average, Thailand receives about 50 inches of rainfall a year.[1/]

B. Infrastructure: Transportation, Communication and Power

Thailand has a relatively extensive transportation system: 16 airports, 22 seaports, 4,765 km. of railway line, 14,000 km. of state highway, 30,000 km of provincial roads and 85,000 km. of rural roads. The Chao Phraya and Mekong rivers and connecting canals are navigable.

The Telephone Organization of Thailand and the Communication Authority of Thailand provide domestic and international phone services, postal services, and telegraph/telex services. The average telephone density for the country is about 10 per 1000 population. One hundred, seventy-four newspapers or magazines are published in Thailand. Programs from 266 radio stations and from 10 television transmitters reach all 73 provinces.[2/]

At present, all cities, towns and larger villages (36 percent of all villages) have electric power for domestic or industrial use.[3/] Domestic energy production is sufficient to meet 11 percent of total commercial energy demand, and the remainder is supplied by imports of petroleum and other energy products. Energy imports accounted for 31 percent of total imports and 45 percent of export earnings in 1980. It is expected that development of off and on-shore energy deposits will allow Thailand to provide for two-thirds of its domestic energy consumption by 1990.[4/]

C. Population Characteristics

In 1981, the population of Thailand was estimated to equal 47.2 million persons. The 1979 estimated crude birth (CBR) and crude death rates (CDR) were 31/1,000 population and 8/1,000 population respectively, resulting in an estimated annual growth rate of 2 percent, down from a rate of 3 percent in 1970. Fifteen percent of the population is less than 5 years of age, 42 percent is under 15 years and 3 percent is aged 65 or older. Life expectancy at birth is 62 years. Twenty-three percent of the population live in urban areas (greater than 5,000 population). The other 77 percent live in over 52,000 rural communities. Eighty-four percent of the adult population is literate and 95 percent are Buddhist.[5/]

D. Government Structure

Thailand is a constitutional monarchy. Until recently, most of the political authority was centralized and government plans and budgets were developed and programs administered through the Office of the Prime Minister.[6] At present, attempts are being made to decentralize responsibility for development planning and resource allocation decisions to villages which are the lowest level of political organization (see Chapter 3, section B). Thailand's political sub-divisions are given in Table 2.1.

E. Economic Trends, Policy and Planning

Over the decades of the 1960's and 1970's, Thailand achieved average annual rates of real GDP growth of 8.4 percent and 7.2 percent respectively. These rates were above the average rate of growth for all middle-income countries for the same decades, 5.8 and 5.6 percent per annum respectively.

From 1960 to 1980, per capita income grew at an average annual rate of 4.7 percent as compared to rate of 4.1 percent for all middle income countries. Annual per capita income in 1980 was estimated at $670. Distribution of the benefits of economic growth were fairly widespread, as the incidence of poverty was reduced from 51 percent in the 1960's to 31 percent in the mid-1970's (and from 61 to 35 percent in the rural areas). However, there are still significant concentrations of poverty in the North and Northeastern regions of the country. In 1979, the regional distribution of the poor was as follows: Northeastern Region: 50 percent, Northern Region: 23 percent, Southern Region: 12 percent, Central Region: 9 percent, and Bangkok: 6 percent (see Table 2.2).[7]

TABLE 2.1
POLITICAL SUBDIVISIONS IN THAILAND

Level of Political Organization	Number of	Population Size	Means of Selecting Administrators
Province (Changwat)	73	0.5-1.5 million	Governor appointed by Ministry of Interior
District (Amphoe)	700		District Officers appointed by Ministry of Interior
Sub-district (Tambol)	5,777	5,000	Kamnan -Elected by village headmen
Village	53,163	200-5,000 (x = 750)	Headmen -Elected by village population

Source: World Health Organization (1983) Thailand Country Presentation, WHO Southeast Asian Regional Conference on Primary Health Care, Pyongyang, DPR Korea, 7-16 September 1983, p. 2 (mimeo).

TABLE 2.2
INDICATORS OF POVERTY DISTRIBUTION IN THAILAND
1979

	Bangkok	Central	North	Northeast	South	All Areas
Per Capita Income (US$)1/	1,317	771	383	218	554	527
Percent of National Population Classified as Below the Poverty Line2/	6	9	23	50	12	N.A.

Source: 1/ UNICEF (January 1982) Thailand, Recommendation for UNICEF Assistance 1982-1986, Submission to the 1982 UNICEF Executive Board, Bangkok: UNICEF, p. 23.

2/ World Bank (November 1979) Income, Consumption and Poverty in Thailand, 1962/63 to 1975/76, Washington, D.C.: World Bank, Table 3.2, p. 54 (World Bank Staff Working Paper No. 364). The poverty line is defined as household total income less than: $1,981 per person per year in sanitary districts and villages, and $2,961 per person per year in municipal areas.

The contributions of different sectors to GDP growth varied during the 1960 to 1980 period. For example, agriculture's contribution to economic growth dropped from 40 percent in 1960 to 25 percent in 1980, industry's share rose from 19 percent in 1960 to 29 percent in 1980 and service's share rose from 41 percent in 1960 to 46 percent in 1980.

Expansion of Thailand's trade occurred during the same period. Imports as a share of GDP rose from 20 percent in 1960 to 30 percent by 1980, in part due to the two oil price increases during the 1970s. Exports increased as a share of GDP from 18 percent in 1960 to 25 percent in 1980. Agriculture commodities

as a percent of total merchandise exports fell from 91 percent in 1960 to 63 percent in 1979. Textiles and manufactured goods became more significant exports during the same period.[8/]

In the mid-1970's, the Royal Thai Government (RTG) adopted a number of growth-promoting policies which required expansion of public expenditures (from 13.4 percent of GDP in 1974 to 23.3 in 1981)[9/] and led to an increase in investment by the private sector. However, these policies coupled with the second oil-price increase of 1979, and the deterioration of the international economic environment, led to the worsening of external and domestic deficits, higher domestic inflation and a rapid increase in foreign debt.

More specifically, the trade deficit increased from $700 million in 1974 to $3 billion in 1980. Net inflows of foreign capital fell because of higher interest rates in other countries and the overvaluation of the baht. The current account deficit remained at 6 to 7 percent of GDP.[10/] The public sector deficit increased from 6.0 billion baht in 1975 to 49.2 billion in 1980. These deficits comprised 2.1 and 7.5 percent of GDP during the same years. Government deficits increased from 7.5 billion baht in 1975 to 25.9 billion in 1980, equalling 16 and 21 percent of total government expenditures during the same years.[11/] Foreign borrowing was a negligible proportion of resources used to finance deficit in the early '70s, but was used to cover 23 and 50 percent of the 1975 and 1980 public sector deficits respectively (see Table 2.3). External debt as a percent of GDP increased from 8.7 in 1974 to 18.0 in 1980.[12/] In addition, the proportion of concessional finance decreased from 50.7 percent in 1975 to 22.8 percent in 1981, with nonconcessional finance increasing from 49.3 to 77.2 percent (see Table 2.4). In 1982, Official Development Assistance (ODA) grants made up only 12 percent of total ODA, and only 0.9 percent of total loan and grant flows to the RTG.[13/]

To address these problems, the RTG has set out the following objectives for the Fifth Five Year Plan (1982-1986).

1. Restore Thailand's economic and financial position by reducing internal deficits and external debt.

2. Bring about structural adjustment to achieve increased economic efficiency and more balanced regional growth.

3. Complete social infrastructure and bring about a more equitable distribution of social services.

4. Alleviate poverty, particularly in areas with high concentrations of population below the absolute poverty line.

5. Improve national security.

TABLE 2.3
FINANCING OF PUBLIC SECTOR CASH DEFICIT
1970-1982

Fiscal year	Cash Surplus (-: deficit) B bln	Cash Surplus (-: deficit) % of GDP	Financed from: (%) Total	Net foreign borrowing	Net domestic borrowing: From public	Net domestic borrowing: Gov't savings bank	Net domestic borrowing: Comm. banks	Net domestic borrowing: Subtotal	Monetary authorities etc./c
1975	-6.0	-2.1	100.0	22.9	6.5	7.6	46.9	61.0	16.0
1976	-15.2	-4.6	100.0	22.8	6.5	8.0	26.2	40.7	36.5
1977	-16.2	-4.3	100.0	21.4	11.0	14.6	14.7	40.3	38.3
1978	-24.5	-5.4	100.0	38.8	7.6	7.8	21.5	36.9	24.3
1979	-26.4	-4.9	100.0	48.7	6.4	6.1	2.7	15.2	36.2
1980	-49.2	-7.5	100.0	50.4	1.8	8.1	12.4	22.3	27.3
1981/a	-44.6	-5.8	100.0	53.9	3.9	3.9	6.2	14.0	32.0
1982/b	-56.5	-6.6	100.0	36.5	7.7	7.0	11.1	25.8	37.8

/a Preliminary.

/b Estimated.

/c Includes borrowing from the Bank of Thailand, Exchange Equalization Fund, Counterpart Fund, coin issue and net use of cash balance.

Source: Bank of Thailand.

TABLE 2.4
SOURCES OF PUBLIC SECTOR EXTERNAL FINANCE
1970-1981

	Average Annual Growth (%)		Distribution (%)		
	1970 -75	1975 -81	1970	1975	1981
Concessional	5.8	24.8	72.6	50.7	22.8
Bilateral	16.8	28.9	27.7	31.7	17.3
Multilateral	-4.2	16.1	45.0	19.1	5.6
Nonconcessional	27.9	53.6	27.4	49.3	77.2
Bilateral	-10.1	65.8	11.5	3.6	8.8
Multilateral	63.9	32.8	5.7	35.7	23.4
Financial institutions	78.7	89.5	0.8	10.6	40.8
Supplier credits	-12.0	30.8	9.3	2.6	1.6
Bonds	-	-	-	—	2.6
Total	13.7	42.5	100.0	100.0	100.0

Sources: World Debt Tables, 1980.

Recognizing the importance of addressing the basic human needs of the more than 10 million people living under the poverty level, the Thai government has designated 286 districts (of 700) in 8 provinces (of 73) as areas to receive special attention and additional budgetary funds (including for health-related activities) under the Rural Poverty Eradication Program (RPEP) and the Rural Jobs Creation Program (RJCP). The Fifth Plan also emphasizes the need to improve the planning and management practices and coordination at the Central, Provincial and District levels of government in order to move towards decentralization of authority and to encourage community participation in the formulation of public policies.

The World Bank's medium (i.e. between optimistic and pessimistic) estimates and projections of macroeconomic trends for Thailand for the 1980's indicate a slower rate of GDP growth at approximately 5.5 percent (due in part to slower rates of growth internationally and Thailand's "openness" to the world economy). The annual growth rate of per capita income is estimated to decrease to 3.2 percent. The current account deficit is expected to decrease from its 1979 high of 7.7 percent of GDP to 4.1 percent in 1983 and to remain above 3 percent of GDP through the 1980's (assuming growth of exports and stagnation or decline of energy imports). However the public/private debt service ratio (debt as a percent of exports) is projected to increase from 16 percent in 1982 to 22 percent in 1986. Although the public debt service to export ratio cannot legally rise above 9 percent, Bank of Thailand forecasts indicate that it will do so in FY83 and for at least the following 5 years. Public sector deficits are expected to remain at 9 to 10 percent of GDP, and the government deficit at 5 percent of GDP. Thus one of the major challenges facing the RTG during the 1980's is to avoid the "crowding out" of private investment, by increasing domestic public resource mobilization and slowing public sector investment growth. Continued external borrowing will also be required, but will pose heavier debt burdens on Thailand in the future.[14/]

CHAPTER II NOTES

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CHAPTER III
OVERVIEW OF THE PUBLIC HEALTH SECTOR

A. RTG Health Policy

During the Fourth Five-Year National Health Development Plan (1976-1981), the standard of health care delivery improved remarkably and a considerable expansion of coverage was achieved. However, a large proportion of Thai people remained without access to health services and continued to suffer from pressing health problems related to poor living conditions, inadequate sanitary facilities, malnutrition and preventable diseases. It was recognized that reliance on a clinically-oriented health system was costly and unresponsive to the needs of the majority of the population, especially in rural areas.

In 1979, following the Alma Ata International Conference on Primary Health Care the Cabinet decided that the Primary Health Care (PHC) approach would become a key component of Thailand's national health development policy. The goals and strategies of the RTG's Fifth National Health Development Plan (1982-1986) clearly reflect the RTG's orientation towards PHC.

- Strengthen Primary Health Care through community participation in the planning, implementation and evaluation of government health services.

- Expansion of health activities at district, tambol and village levels.

- Accelerate integration of health services in basic medical care, health education, endemic disease control, MCH and family planning, sanitation and water supply, immunization, essential drugs, food and nutrition (the eight essentials of PHC) and dental care.

- Upgrade the quality and quantity of personnel at the district level and below and re-orient the roles of personnel at the provincial level and above to support PHC. Develop strategies to achieve the more equitable distribution of health personnel.

- Discourage expansion of large service units so as to increase coverage of health services for rural areas, including construction of new district hospitals and upgrading midwifery centers to health centers.

- Re-orient the health service delivery system towards PHC through health planning, health policy development, decentralization, management, development of appropriate technology and intersectoral coordination. A central Advisory Board for National Health Development has been appointed to coordinate these activities.

- Provide free medical care to the low income population and those over 60 years of age.

- Upgrade consumer protection services.

- Produce, procure and distribute drugs and develop a national formulary of essential drugs.

- Ensure that all rural households have adequate and clean water.

- Strengthen health education of the public.

- Upgrade training of health personnel in consonance with the health needs of the people.

- Promote research studies aimed at increasing the self-reliance of the rural populace (e.g. drug cooperatives).[1/]

B. Community Participation and the Basic Minimum Needs Approach

One of the most important aspects of PHC is the mobilization of individuals and communities to take active part in planning and implementation of activities and programs which impact on their health.

A new process to strengthen community participation in development planning has been initiated in the 286 poverty districts and sub-districts in 8 provinces under the Rural Poverty Eradication Program (RPEP). The main sectors involved in the process include the Ministries of Agriculture and Cooperatives (MOAC), Education (MOE), Interior (MOI), and Public Health (MOPH). A National Rural Development Committee (NRDC) has been established under the Chairmanship of the Prime Minister with the Vice-Chairman consisting of the ministers of the Ministries involved. The new system maintains a single line of authority connecting the NRDC with the village level, rather than several lines related to the different ministries. At each level of the political system, representatives of each ministry participate in development committees to bring about coordination of the different sectors' efforts. The members of provincial and district development committees are made up of government officials. Representatives of the tambol-level councils are people from villages in the tambols.

The planning process under RPEP starts with the Village Development Committee identifying their community problems (including health). The committee is assisted by a Tambol Advisory Working Group consisting of tambol government personnel of the four sectors. Once the problems have been identified, the committee decides which can be addressed by the villagers themselves, which need some government input and which can be only addressed by the government alone. Then a plan of action is devised, utilizing the local experience and expertise of the villagers and of the Tambol Advisory Working Group. These plans are passed up through the Tambol Council and the District Development Committee for approval at the provincial level. Once approved, funds and other resources are appropriated before the beginning of each fiscal year.

In 1980, the NESDB established a Social Development Project (SDP) to improve the intersectoral planning process of the four ministries and to assist in the integration of health in overall development. To date, the SDP has formulated minimum standards for the Basic Minimum Needs (BMN) of every

Thai citizen. There are nine BMNs with sets of indicators to be measured by villagers and government personnel. Three provinces in Thailand are currently attempting to apply the BMN indicator methodology in development planning at the village level. In September 1983, the NESDB Executive Board approved in principle, the BMN approach, and suggested that it be incorporated into the operation of RPEP.

Community participation is also encouraged through the process of selecting the village health volunteers and the initiation and operation of village revolving funds for health activities under the PHC program. These activities will be described in Chapter V and Appendix VI respectively.

C. Structure of the Rural Health Care Delivery System

Planning and overall administration of programs related to the eight essential elements of PHC are under various departments of the Ministry of Public Health (MOPH), and in the case of water supply and sanitation, other ministries. Most of the programs' activities are delivered through the MOPH's network of facilities and health workers. A brief description of this network follows. (Eight other ministries of the RTG also provide other health services or have some impact on the programs of the MOPH. The health-related activities of these other ministries are described in Appendix IV).

The MOPH is headed by a Minister of Public Health, a political appointee, but day-to-day policy and management are the responsibility of the Permanent Secretary, a physician and the highest ranking career official in the ministry. All Provincial Chief Medical Officers are directly responsible to the Permanent Secretary. The operations of MOPH nursing schools (20) and junior sanitarian schools, and the Health Planning, Epidemiology, and Health Statistics Divisions are also within the Permanent Secretary's Office.

Within the MOPH in Bangkok, there are five major departments (see Figure 1). The Department of Health is responsible for technical support for many preventive/promotive programs such as: family planning, MCH, nutrition, water supply and sanitation, school health and health education. The Department of Health is also responsible for the regional schools which train female health workers (auxiliary midwives) and male health workers (junior sanitarians). These paramedical workers staff the peripheral rural health centers. The Department of Medical Services oversees a number of specialized hospitals run by the ministry (but not including the large number of provincial hospitals). The Department of Communicable Disease Control is responsible for supporting communicable disease programs including immunization programs. The Department of Medical Science is responsible for laboratory sciences and research. Finally, the Food and Drug Administration is responsible for monitoring and regulating food, drug and cosmetic quality, and for guiding drug production by the Government Pharmaceutical Organization (GPO), a semi-independent government enterprise.

FIGURE 1

ORGANIZATION OF THE MINISTRY OF PUBLIC HEALTH (MOPH)

1977

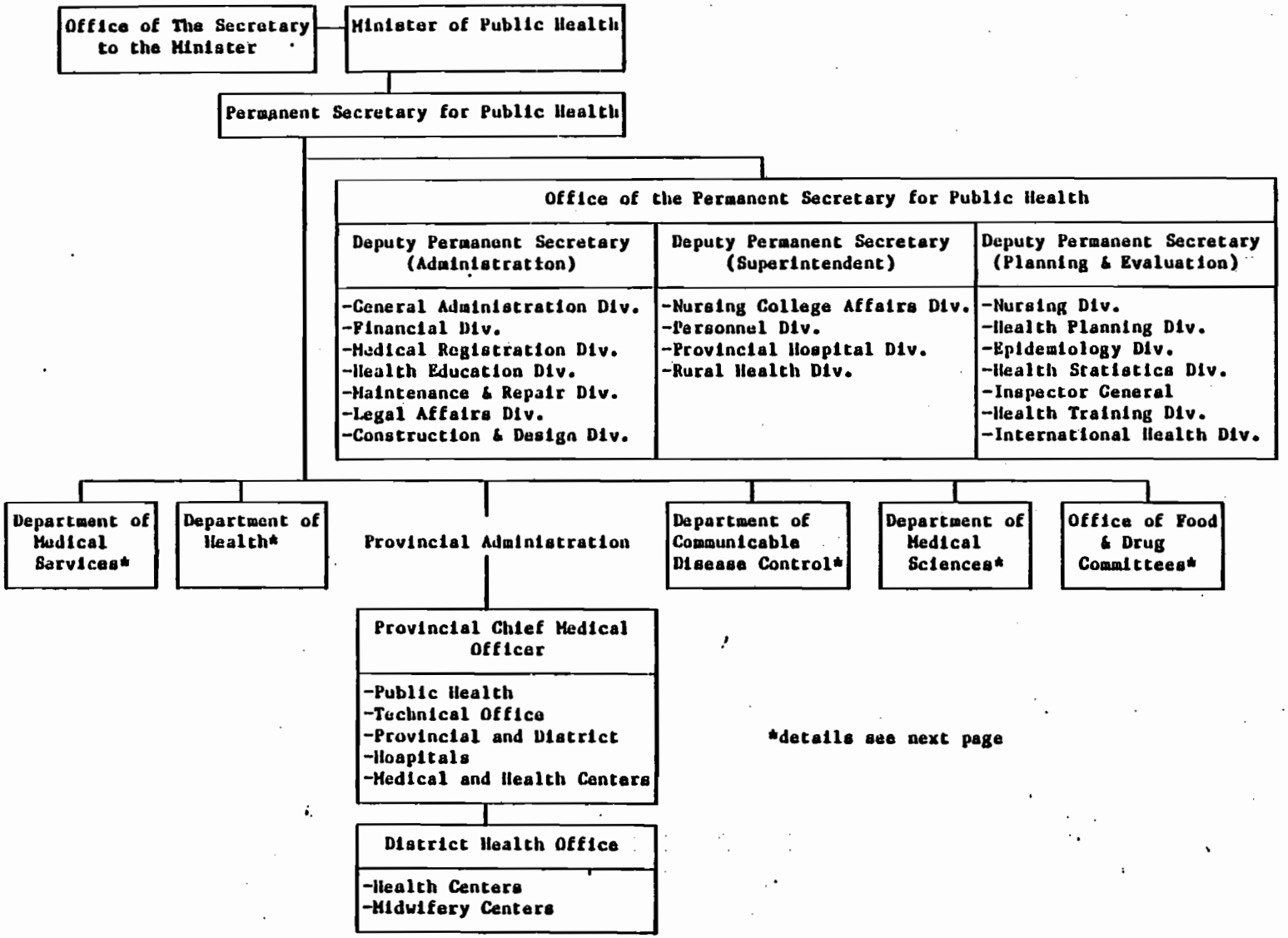

FIGURE 1 (continued)

Department of Medical Services	Department of Health	Department of Communicable Disease Control	Department of Medical Sciences	Food and Drug Administration
-Office of the Secretary -Financial Div. -Personnel Div. -Technical Div. -Mental Health Div. -Children's Hospital -Thanyarak Hospital -Prasart Neurological Hospital and Institute -Mental Deficiency Hospital -Lerd Sin Hospital -Srithanya Hospital -Buddhist Monk's Hospital -Somdej Chaophraya Hospital -Women's Hospital -Institute of Pathology -National Cancer Institute -Institute of Dermatology	-Office of the Secretary -Financial Div. -Personnel Div. -Dental Health Div. -Rural Water Supply Div. -Nutrition Div. -Sanitation Div. -Family Health Div. -School Health Div. -Environmental Health Div. -Occupational Health Div.	-Office of the Secretary -Financial Div. -Personnel Div. -V.D. Control Div. -Malaria Eradication Div. -General C.D.C. Div. -Filariasis Control Div. -Leprosy Control Div. -T.B. Control Div. -Bamrasnaradura I.D. Hospital -Leprosy Hospital -Chest Hospital	-Office of the Secretary -Entomology Div. -National Health Laboratories Project Div. -Radiation Protection Service Div. -Clinical Pathology Div. -Toxicology Div. -Drug Analysis Div. -Food & Beverage Analysis Div. -Medical Research Div. -Virus Research Institute	-Office of the Secretary -Public Relations and Advertisement Control Div. -Cosmetic Control Div. -Drugs Control Div. -Psychotromic Substance Control Div. -Food & Beverage Control Div. -Technical Div. -Inspector Div.

Source: Thailand Health Profile, MOPH Bangkok, 1977.

In 1981, the network of MOPH operated rural health facilities included the following:

Provinces:	72 Provincial Health Offices 89 Provincial Hospitals
Districts: (excluding Bangkok and districts with large hospitals)	329 District Community Hospitals 605 District Health Offices
Tambols:	4,748 Tambol Health Centers
Villages:	2,270 Midwifery Centers

The above figures are only illustrative as the numbers of facilities are continually increasing as a result of the government's effort to establish hospitals in all districts, and health centers in all tambols by the end of the Sixth Plan (1987-1992).

Two recent organizational changes have occurred in the public health service system. First, medical care and public health services have been integrated under single heads at the provincial level. Although traditional divisive pressures between the curative and preventive/promotive proponents persist, integration has become institutionalized. Second, almost all vertical health programs have been integrated into the general health service network. With a few exceptions, such as malaria and leprosy central, all programs are integrated into the daily responsibilities of health workers at the provincial, district and tambol levels.

A brief description of each service level is provided below.

Provincial Health Office. All of the nation's 72 provinces have a Provincial Health Office, headed by a physician called the Provincial Chief Medical Officer (PCMO), who is nominally responsible for both the Provincial Hospital and Provincial Health Office. In practice, the day-to-day running of the Provincial Hospital is left to a hospital director and the PCMO tends to focus on the supervision of rural health facilities and support for the various health programs for which he is responsible. For technical and policy matters, the PCMO is responsible to the Permanent Secretary of the MOPH, but he also is directly responsible to the governor, the senior civil administrator of the province (who reports to the Ministry of the Interior).

Provincial and Regional Hospitals. Most provincial hospitals have 150 to 500 beds, but regional referral centers (14) have 500 to 1,000 beds and provide training for a variety of medical and paramedical workers. Provincial hospital services are predominantly curative, but a full range of maternal and child health and family planning services are also

offered. Except for the large, regional referral hospitals, provincial hospitals are predominantly utilized by people in the immediate area of the provincial capital.

District Community Hospitals. Almost two-thirds of the nation's districts have a District Hospital (now renamed District Community Hospital). Although these hospitals normally have 10 to 30 beds (a few have 60 beds), they are predominantly out-patient facilities, providing a relatively limited range of in-patient care. The hospital normally has one physician, but there may be two or three in 30 bed facilities and up to five in a 60 bed facility. The District Community Hospital also provides full preventive and promotive health services (e.g. MCH and family planning services and immunizations) and has official responsibility for the supervision and technical support of tambol health center workers and programs in the tambol in which the hospital is located. District Hospital physicians are generally recent medical graduates with little experience in managing a rural health programs and are usually serving a mandatory two-year commitment of rural service. They tend to concentrate their efforts on medical care at the hospital leaving the preventive/promotive activities to the nursing and midwife staff.

District Health Offices. The District Health Office suggests an organizational entity, but in fact, it simply refers to the place where the District Health Officer (DHO) is located. The DHO is normally a senior sanitarian worker who is responsible for all health centers and health programs in the tambols outside of the one where the District Community Hospital is located. The DHO is directly responsible to the District Officer (who is responsible to the Ministry of the Interior). In practice however, most of the DHO's technical and managerial support and supervision comes from the Provincial Health Office.

Tambol Health Centers. About three-fourths of the 5,777 tambols of Thailand have a tambol health center. Most of the 1,000 to 2,000 midwifery centers have been upgraded and are included within the tambol health center totals. Each tambol health center is normally staffed by an auxiliary midwife and a junior sanitarian (a practical nurse is being added to many tambol health centers). All of the major preventive and promotive health services are integrated into the tasks of the two health center workers. The midwife and sanitarian are responsible for prenatal, delivery and postnatal services, child immunizations, nutrition, family planning and water supply and sanitation activities . Health centers also provide limited treatment for emergencies or minor illness and referral to district or provincial hospitals for more serious problems. In theory, these activities are to be centered in the community, (e.g. home visiting, and supervision/support for village health volunteers). However, in practice, health center workers spend most of their working time at the health center awaiting patients and providing curative care.

D. Public Health Sector Financing Information

The following section will review information about financial support (both from the government budget and from patient fees) for public sector health services. More detailed information about household expenditures for health services is provided in Appendix V.

1. RTG Support for Public Health Sector Activities

Looking at the health sector as a whole, government expenditure for health increased as a percent of GNP from 0.83 in 1975 to 1.27 in 1977, but then fell in 1979 to 1.21. Government expenditure on health as a percent of total government expenditure, and per capita government health expenditure, follow the same pattern of increasing between 1975 and 1977 and then decreasing again in 1979 to 6.2 percent and 124.39 baht respectively. Finally, although total government expenditures on health increased every year in nominal terms, they stagnated after 1977 when converted to constant 1980 baht. MOPH real expenditures follow the same pattern to 1980, but increased in 1981 and 1982 (see Table 3.1). These trends suggest that government health programs do not have the financial support required to expand the coverage of existing programs, nor to launch new programs within the existing health services network. Thailand's total public health expenditure is already low in comparison with other middle-income countries. Whereas Thailand spent $3 per capita on health in 1979, the average for other countries with similar GNP per capita was $7.[2/]

Although the MOPH is the principal Ministry concerned with public health services, health activities are carried out by eight other government agencies, principally the State University Bureau (for support to medical schools and affiliated teaching hospitals) and the Ministry of Interior (for support of "municipal and tambol" doctors and other services).[3/] The MOPH budget accounted for 64 to 73 percent of total government health expenditures from 1975 to 1979. The State University Bureau budget accounted for another 20 to 25 percent of total health expenditure and the Ministry of Interior for 6 to 9 percent (see Table 3.1).

2. The MOPH Budget, Fourth and Fifth Plans

Information about the capital and recurrent allocation of the MOPH budget, and its annual increases as compared to increases in the total government budget for 1975 to 1986 is presented in Table 3.2. From 1975 to 1982, MOPH recurrent expenditures equalled from 69.2 to 81.1 percent of total MOPH expenditures, with most years clustering about 78 percent. Over the same period, salaries ranged from 40.4 to 60.8 percent of total MOPH recurrent expenditures, with most years clustering at 50 to 56 percent. The rate of increase in MOPH's budget ranged widely, from -3.3 to 76.1 percent per year. In 6 of 9 years (1975-1983) the rate of budgetary increase for the Ministry exceeded that of the total government budget as a whole.

TABLE 3.1
TOTAL GOVERNMENT EXPENDITURES ON HEALTH BY AGENCY,
FY 1975 - 1980

	FY1975		FY1976		FY1977		FY1978		FY1979		FY1980		FY1981		FY1982	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Total Govt. Expenditures on Health (Current Baht)	2,415.1	100.0	3,889.0	100.0	4,840.2	100.0	4,916.3	100.0	5,740.5	100.0						
(Constant 1980 Baht)	3,839.6		5,937.4		6,865.5		6,486.8		6,866.6							
MOPH (Current Baht)	1,547.4	64.1	2,725.3	70.1	3,520.6	72.7	3,405.8	69.3	3,976.9	69.3	4,494.6		5,571.8		6,652.3	
(Constant 1980	2,460.1		4,160.8		4,993.8		4,480.3		4,757.1		4,494.6		4,943.9		5,609.0	
Other Agencies																
State University Bureau		24.6		21.7		19.6		23.0		22.7						
Ministry of Interior		8.6		6.3		5.7		5.7		6.2						
Ministry of Defense		0.8		0.5		0.7		0.6		0.7						
State Railway of Thailand		0.7		0.5		0.4		0.4		0.4						
Ministry of Agriculture and Cooperatives		0.2		0.1		0.1		0.1		0.1						
Ministry of Communications		0.2		0.1		0.1		0.1		-						
Port Authority of Thailand		0.3		0.3		0.3		0.4		0.2						
Hospital of Thai Tobacco Monopoly Organizationa		0.6		0.4		0.4		0.4		0.4						
Total Govt. Expenditure on Health as % of Total Govt. Expenditure		0.5		0.6		7.0		6.1		6.2						
Total Govt. Expenditures on Health as % of GNP		0.83		1.16		1.27		1.11		1.21						
Per Capita Govt. Expenditure on Health (Current Baht)		57.68		90.53		109.90		109.01		124.39						
(Constant 1980 Baht)		91.70		138.21		155.89		143.43		148.79						

Source: Health Planning Division, Base Year Data and Background Information - Thailand, June 1980.

TABLE 3.2
RECURRENT, CAPITAL AND TOTAL BUDGET FOR THE MOPH
1975-1986

(Million Baht)

Year	RECURRENT			CAPITAL 2/ INVESTMENT	TOTAL	ANNUAL % INCREASE	
	Salaries 1/	Other	Subtotal 2/			MOPH	Total Government
1975	750.54	484.08	1,234.62	312.73	1,547.35	39.0	33.3
	(60.8)		(79.8)	(20.2)	(100)		
1976	864.14	1,274.44	2,138.58	586.71	2,725.29	76.1	30.5
	(40.4)		(78.5)	(21.5)	(100)		
1977	1,200.45	1,237.40	2,437.85	1,082.76	3,520.61	29.2	9.8
	(49.2)		(69.2)	(30.8)	(100)		
1978	1,285.85	1,288.95	2,574.80	820.97	3,405.77	-3.3	17.8
	(49.9)		(78.5)	(21.5)	(100)		
1979	1,513.08	1,499.10	3,012.18	964.73	3,976.91	16.8	13.6
	(50.2)		(75.8)	(24.2)	(100)		
1980	1,884.99	1,620.52	3,505.51	989.07	4,494.58	13.0	18.5
	(53.8)		(78.0)	(22.0)	(100)		
1981	2,572.38	1,798.96	4,371.34	1,200.45	5,571.79	24.0	28.4
	(58.8)		(78.4)	(21.6)	(100)		
1982	2,809.11	2,371.10	5,180.21	1,472.11	6,652.32	19.4	15.0
	(54.2)		(77.9)	(22.1)	(100)		
1983	3,542.30	2,863.85	6,406.15	1,496.26	7,902.41	18.8	9.9
	(55.3)		(81.1)	(18.9)	(100)		
1984 3/	-	-	-	-	8,655.80	9.5	-
1985 3/	-	-	-	-	9,493.66	9.7	-
1986 3/	-	-	-	-	10,396.88	9.5	

Notes: 1/ Salaries are given as a percent of total recurrent expenditures.
2/ Total recurrent and capital investment expenditures are given as percents of total MOPH expenditures.
3/ Estimated.

Source: Health Planning Division, MOPH.

With respect to the MOPH budget projections for the Fifth Plan, it is instructive to compare estimates given over time (see Table 3.3). Whereas, a June 1981 estimate of the MOPH budget for the Fifth Plan was 59,105 million baht, a September 1983 estimate was only 43,101 million baht. Originally, it was estimated that the MOPH budget would increase by 15.5 percent annually over the Fifth Plan period. However, recent projections indicate that there will be only a 10.6 percent increase from 1984 to 1985 and a 9.5 percent increase from 1985 to 1986. These projected annual increases are lower than for 8 of the previous 9 years (1975 to 1983). These changes will require adjustments in the Fifth Plan health programs. For example, the MOPH has determined that there will be a slowdown in the expansion of hospital facilities in urban areas. To the extent that inflation is higher than budgetary increases, further reductions in MOPH existing and planned programs will have to be made.

TABLE 3.3
MOPH BUDGET PROJECTIONS
1982-1986

(Million Baht)

	1982	1983	1984	1985	1986	Fifth Plan Total
MOPH June 1981	8,292	10,112	12,003	13,569	15,128	59,105
MOPH April 1982	5,804	7,587	9,123	10,263	11,287	44,064
NESDB May 1982	6,406	7,221	8,569	10,626	12,833	45,651
NESDB August 1982	6,406	7,641	8,450	10,080	12,170	44,747
NESDB/BOB/MOPH Dec. 1982	6,437	7,435	8,587	9,918	11,455	43,832
Health Planning Division 9/83	6,652	7,902	8,656	9,494	10,897	43,101

Source: MOPH; NESDB.

Curative care activities claim from 56 to 59 percent of the total budget, disease control activities claim 18 to 19 percent, health promotion activities from 15 to 17 percent, training from 4 to 5 percent, administration about 2 percent, and medical research, food and drug control and health services support activities each receive from 0.5 to 1 percent (see Table 3.4).[4/]

It is estimated that actual expenditures Ministry-wide fall short of appropriations by 22 percent. The breakdown of the 1982 MOPH budget (Table 3.5) shows that expenditures for equipment and construction are those which most lag behind appropriations. The MOPH is currently undertaking a study to determine what changes need to be made to facilitate expenditure of the allocated budget.

TABLE 3.4
MOPH BUDGET BY TYPE OF ACTIVITY
1977-1983

(Million Baht)

Type of Service	1977	1978	1979	1980	1981	1982	1983
General Administration	60.56	52.30	79.15	94.59	114.86	128.82	134.16
	(1.7)	(1.8)	(2.0)	(2.1)	(2.1)	(1.9)	(1.7)
Curative Care	2,052.97	2,004.48	2,252.91	2,617.90	3,298.23	3,708.62	4,490.65
	(52.3)	(58.8)	(56.7)	(58.3)	(59.2)	(55.8)	(56.8)
Disease Control	604.31	612.77	753.33	841.95	1,011.15	1,214.52	1,425.42
	(18.9)	(18.0)	(18.9)	(18.7)	(18.2)	(18.3)	(18.0)
Health Promotion	552.28	502.30	64.03	633.06	778.99	1,121.43	1,319.97
	(15.7)	(14.8)	(15.8)	(14.1)	(14.0)	(16.9)	(16.7)
Training	133.99	188.55	175.09	194.69	230.56	353.82	374.56
	(3.8)	(4.7)	(4.4)	(4.3)	(4.1)	(5.3)	(4.7)
Medical Research	21.47	24.85	32.23	44.23	47.49	34.44	43.31
	(0.6)	(0.7)	(0.8)	(1.0)	(0.9)	(0.5)	(0.6)
Food/Drug Control	15.94	19.86	29.25	34.25	51.39	47.56	49.74
	(0.5)	(0.5)	(0.7)	(0.8)	(0.9)	(0.7)	(0.6)
Health Services Support	18.97	20.64	26.90	33.47	39.07	43.11	64.60
	(0.5)	(0.6)	(0.7)	(0.7)	(0.7)	(0.6)	(0.8)
TOTAL	3,520.61	3,405.77	3,976.91	4,494.58	5,571.79	6,652.32	7,902.11
	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Source: Health Planning Division, MOPH.

TABLE 3.5
BUDGETED VS. ACTUAL MOPH EXPENDITURES BY TYPE OF EXPENDITURE
1982

(Million Baht)

Type of Expenditure	Budgeted 1/	Actual 2/	Carry Over 2/	Returned to Treasury 2/
1. Salary	1,918.96	1,766.09	-	152.87
	(34.4)	(92.0)		(8.0)
2. Salary non-gazette	624.15	577.82	-	46.33
	(11.2)	(92.6)	-	(7.4)
3. Salary Temporary	29.27	24.18	-	5.09
	(0.5)	(82.6)		(17.4)
4. Honorarium	27.26	27.39	0.08	-0.21
	(0.5)	(100.5)	(0.3)	(-0.8)
5. Supplies	102.49	98.56	0.05	3.88
	(1.8)	(96.2)	(0.0)	(3.8)
6. Utilities	90.92	94.53	-	-3.61
	(1.6)	(104.0)		(-4.0)
7. Materials	1,001.77	867.34	84.65	49.78
	(18.0)	(86.6)	(8.5)	(5.0)
8. Equipment	175.67	56.06	91.49	28.12
	(3.2)	(31.9)	(52.1)	(16.0)
9. Construction	999.28	364.33	623.67	11.28
	(17.9)	(36.5)	(62.4)	(1.1)
10. Support	596.17	462.64	87.40	46.13
	(10.7)	(77.6)	(14.7)	(7.7)
11. Others	5.85	5.69	-	0.16
	(0.1)	(97.3)		(2.7)
Total	5,571.79	4,344.63	887.34	339.82
	(100.0)	(78.0)	(15.9)	(6.1)

Notes: 1. Budgeted expenditures are given as percentages of total MOPH expenditures.
2. Actual and carry over expenditures and monies returned to Treasury are given as percents of expenditures in that type.

Source: Health Planning Division, MOPH.

3. Private Expenditures for Support of Public Hospitals

A 1973 study documented the contribution of revenue from patient fees to the operating costs of provincial and district hospitals, and tambol health centers. These revenues comprised over 10 percent of total provincial health revenues in 52 of the 57 provinces studied, over 25 percent in 39 of the 57 provinces, and over 40 percent of total revenues in 22 of the 57 provinces.[5/]

A 1980 study provides additional information about the sources and uses of district hospitals and health center revenues. For example, revenues collected at 9 district hospitals accounted for over 35 percent of those hospital's total revenue, and at 4 of the facilities accounted for over 50 percent of revenue. Fees for drugs accounted for over 60 percent of total hospital-generated revenue at all 9 facilities, and for over 85 percent of revenue at 4 of the 9 facilities. Fees for X-rays, diagnostic services (i.e. lab test), food, rooms, donations or "other" services comprised from 0 to 13 percent of fee-generated revenues (see Appendix Tables 3.3 and 3.4).

The same study provides similar information about the revenues collected at tambol health centers. Revenues collected at 14 health centers accounted for 0 to 28 percent of the total revenue of these health centers, but at 10 of the 14 facilities these revenues equalled less than 10 percent of their total revenue. Payments for drugs comprised over 90 percent of the total revenues generated at all but 2 health centers (see Appendix Tables 3.5 and 3.6).[6/]

4. Government Financing of Health Service Fees for Special Groups

The RTG provides payment for fees levied at public health facilities for government employees and for the poor. These programs are described below.

One fringe benefit of all employees of the central government is support for most of their personal medical care and that of their immediate families (i.e. spouses, children and parents). If use is made of government hospitals or health centers, the full costs are paid by the employee's ministry to the public facility. If use is made of private clinics, hospitals, drugstores, or other providers of health care, the employee is reimbursed for about 50percent of the cost of the service, up to a certain maximum. These benefits are continued for certain retired government employees. Although each Ministry covers these expenses for its employees, the money comes from a central fund of the Ministry of Finance.[7/]

In an effort to ease the burden on the poor of payments for health services, the Free Medical Care Service Project (FMCSP) began in 1976 and was expanded throughout the country as a component of the RTG's Fourth Plan. The objectives of the project are to:

- Create equity in receiving medical care among the people.
- Improve the health status of the poor, especially in rural areas.
- Pave the way for national health insurance for the poor.
- Create positive attitudes in the poor regarding health services.

In 1979, the project's budget equalled 359 million baht, or about 6 percent of the total government budget spent on health in that year. Eighty-four percent of the FMCSP budget was distributed to all ministries and municipalities responsible for provision of health services to cover the costs of drugs at health centers; and the cost of drugs, diagnostic tests, examinations, surgery or deliveries at district and provincial hospitals. Ten percent of the budget covered the costs of services provided by mobile clinics and 6 percent the costs of radio outreach programs.

Persons or households eligible to receive FMCSP benefits are:

- Single persons with an income of less than B1,000/mo.
- Married couples with incomes less than B2,000/mo. and their children less than 20 years of age (and also those over 20 years who are mentally or physically handicapped).

Initially cards, entitling the holder to free care, were issued from Bangkok, however this policy changed so that the personnel at public health facilities decide who is eligible.[8/]

An MOPH study identified several problems with the project. These included: (1) the general public and service providers' lack of knowledge or misconceptions about the project, (2) the difficulty of health personnel in determining who is eligible for FMCSP benefits, and (3) the provision of approximately 10 percent of the cards to wealthier families.[9/] MOPH officials also commented that government hospital revenues have dropped since the start of the project and that utilization of the government facilities (particularly hospitals) has risen as a consequence of the reduction in the cost to patients of consuming medical care services.

Another study of the FMCSP determined that the project budget was allocated disproportionately to the relatively wealthier regions of the country. More specifically, in 1980, FMCSP per capita allocations were lowest in the North and Northeast Regions (where the largest percentage of the population is in poverty) and highest in the Central region and Bangkok. However, the same study found that 25 percent of the population in the Northeastern region received FMCSP benefits, 21 percent in the Central region, 17 percent in the Northern region and 10 percent in both the Southern region and Bangkok. Further, almost 40 percent of in-patients in the Northeastern region received FMCSP benefits, 37 percent in the Central region, 33 percent in the Southern region and 25 percent in the Northern region. In sum,

although a greater proportion of the population and of in-patients in the Northeast received FMCSP benefits than in any other region, a greater percentage of the poor in Bangkok or the Central region received FMCSP benefits. By almost all measures, the poor in the Northern Region benefit least from the FMCSP program.[10]

In view of the above problems, e.g. lack of basic understanding of the FMCSP by providers and patients, increases in hospital utilization, decreases in hospital revenues and inequitable distribution of benefits, the MOPH is considering making adjustments to the FMCSP. Formation of a MOPH Task Force to examine the problems and to consider alternative solutions might be an appropriate mechanism whereby new policies could be formulated.[11]

CHAPTER III NOTES

1. Ministry of Public Health (March 1982) Summary of Fifth Five Year National Health Development Plan, 1982-1986, Bangkok: Health Planning Division/MOPH, 12 pp.

2. World Bank (February 1983) Thailand, Review of the Health Sector, Washington, D.C.: World Bank, pp. 88, 92 (draft).

3. Brief descriptions of the health activities of other government agencies are given in Appendix IV.

4. Three-quarters of the MOPH budget is allocated to the Office of the Permanent Secretary, 9 percent to both the Department of Medical Services and the Department of Communicable Disease Control and 6 percent to the Department of Health. The Department of Medical Sciences and the Office of Food and Drugs will each receive less than 1 percent of the budget (see Appendix Table 3.1).

5. The study also suggested that:

   There is considerable variation between provinces in MOPH per capita expenditure, with some tendancy for wealthier provinces to receive higher per capita health MOPH expenditures.

   Per capita MOPH expenditure for improvement of provincial hospitals in most cases equalled or exceeded per capita MOPH expenditures for provincial and district health administration and improvement and expansion of other rural health facilities (for further details see Appendix Table 3.2).

   Molldrem, Vivikka (March 1975) A Look at Programs to Expand the Rural Health Delivery System in Thailand, 46 pp. (mimeo).

6. Ministry of Public Health (1980) Study of the Cost of Rural Health Facilities in Thailand, Bangkok: MOPH (in Thai).

7. Roemer, Milton, (1978) The Health Care System of Thailand, Bangkok: WHO.

8. Mills, Anne (September 18, 1980a) Health Services for Low Income Groups: Access to Free Medical Care, Bangkok: WHO, pp. 2-3.

9. Ministry of Public Health (March 1982) A Study on the Results of the Free Medical Care Service Project for Low Income Patients, 1980, Bangkok: Rural Health Division/MOPH, 167 pp. (in Thai)

10. Mills, Anne (September 18, 1980b) op. cit., pp. 14-19.

11. An alternative would be to continue to provide FMCSP benefits at tambol health centers which are closer to the rural poor (whereas hospitals are generally in wealthier towns) and which do not rely so heavily on patient fees for recurrent expenditures (as do hospitals). The financial implications of this alternative are described in: Mills, Anne (September 18, 1980a) op.cit., pp. 23-25.

CHAPTER IV
FERTILITY, MORTALITY AND MORBIDITY TRENDS

A. Fertility and Population Growth

Thailand's success in confronting the critical problem of high fertility and rapid population growth through a well organized and managed national family planning project has been widely documented. The total fertility rate (TFR) is approaching a level of 3, down from a 1960 level of between 6 and 7. The crude birth rate (CBR) has declined over 30 percent in the past decade, reaching a current level of between 25 and 30. The annual rate of population growth, about 3.2 percent in 1970, has dropped to near 2 percent and the RTG's 1986 target is 1.5 percent.[1/]

This fertility decline has resulted from a complex set of socioeconomic and other factors, but it is clear that the national family planning effort has had a decisive role. Nationwide, over 50 percent of married couples with a wife of childbearing age currently practice family planning (contraceptive prevalence survey - USAID), and rural-urban differences have almost disappeared. Eighty percent of family planning users receive services from government health facilities or personnel.[2/]

Besides its impact on fertility, high rates of contraceptive practice have most certainly played an important part in the apparent decreases in maternal and infant mortality observed over the past decade. Before 1970, over 30 percent of births were to mothers over age 35, often with a history of four or more previous pregnancies. These high-risk pregnancies have been greatly reduced. The increased age of marriage, the reduction in unplanned births and in the total number of children born, and the increased interval between births have greatly reduced the risks for mothers and infants.

Given the crucial contribution family planning has made to improving the health of mothers and infants, the team stresses the need to devote continuing effort and resources to improved and expanded family planning services and population programs. Further, the team wishes to underscore the importance of the Thailand's rural health delivery system for the provision of family planning services in rural areas.

B. Maternal Mortality and Morbidity

Mortality rates for women of childbearing age declined about 40 percent between 1960 and 1970, and appear to have continued to decline during the past decade. Current (1978) Ministry of Public Health (MOPH) data suggest that the maternal mortality is 1.2 deaths per 1,000 live births, while the World Bank suggests that after accounting for under reporting, the rate might be about 2 deaths per 1,000 live births.[3/]

However, data from special studies suggest that the maternal mortality rate is considerably higher in some areas. For example, a 1978 Ramathibodi Hospital study of all births in Bang Pa-In district found a maternal mortality rate of 5.4 deaths per 1,000 live births, and in the same study, the stillbirth rate was 8.9 stillborns per 1,000 births. Another study of 5,864

births in Sukhotai Province in 1982 showed a stillbirth rate of 12.2 stillborns per 1,000 births.[4] The causes of maternal death were not clearly specified in these studies, but are generally attributed to inadequate antenatal care, complications of delivery and puerpenum. The impact of recurrent infection (malaria, diarrhea episodes, etc.), iron deficiency anemia [5] and parasitic infection on maternal mortality have not been fully assessed.

Thai women, particularly in the rural areas, appear to seek antenatal care infrequently, and then only late in their pregnancies. In 1982, only about 30 percent of rural Thai women had at least two antenatal service contacts, as measured by records on two pre-natal tetanus toxoid (TT) injections. Special surveys of immunization coverage also indicate antenatal service coverage as low as 15 to 20 percent in some areas.[6] Thus, high-risk pregnant women are not identified at an early stage when potentially threatening conditions could be detected and dealt with. Moreover, early antenatal care is also a crucial factor in preventing fetal wastage, stillbirths, and infant mortality.

C. Infant and Child Mortality

Data on infant and child mortality in Thailand are often incomplete and need to be reviewed carefully to make a reasonably accurate estimate of the true situation. The infant mortality rate published by the MOPH in 1978 was about 23 deaths per 1,000 live births and is based on reporting from governent hosptials and facilities. However, national surveys by the National Statistics Office (NSO) have consistently found infant mortality to be higher. In 1974/75, NSO surveys suggested a national IMR of 56 deaths per 1,000 live births (with regional variations as low as 20 and as high as 96), down from a level of 86 for 1964/65. The NSO surveys suggest under-reporting of deaths to be 30 percent for all ages, and 42 percent in non-municipal areas. For infant deaths, the rate of under-reporting is estimated to be over 50 percent.[7]

The NSO Survey of Population found a mortality rate of 7.8 deaths per 1,000 children aged 1 to 4 years in 1974/75, down from a level of 10.8 in 1964/65, a change of almost 40 percent.[8] Assuming a further decline of 30 percent since 1975, the current mortality rate for children aged 1 to 4 years would be about 12.5 child deaths per 1,000 population. Applying the estimated rates of infant mortality and child mortality to the 1983 population of 50 million, it can be determined that almost one half of all mortality in the country falls in the under five age group, which comprises only 12.1 percent of the population. The heaviest concentration of deaths occurs in the under one year group (26 percent of total deaths). However, it is estimated that more than 90 percent of deaths in the pre-school age groups are preventable with currently available technology and services.

CHAPTER IV NOTES

1. World Bank (February 1983) Thailand, Review of the Health Sector, Washington, D.C.: World Bank, (draft) p. 26. It should be noted that the World Bank believes there are indications that the decline in Thailand's population growth rate may be leveling off, and thus that additional efforts and resources will be required to reach the RTG's annual population growth rate goal of 1.5 percent by 1990.

2. Ibid., p. 47

3. Ibid., pp. 2, 10-11.

4. Ministry of Public Health (April 1983) Current MCH Situation. Bangkok: Family Health Division/MOPH, p. 4 footnote.

5. Thirty to 80 percent of pregnant Thai women have been found to have hemoglobin levels below 12 and some as low as 8.

6. Ramaboot, Sawat (September 1983) Expanded Program on Immunization, 1981-1982, paper presented at the Rose Garden, September 12, 1983 (mimeo), p. 13.

7. National Statistics Office (September 1982) Vital Statistics Improvement Project in Thailand, Final Report, Bangkok: NEO, pp. 10,53.

8. Ibid., p. 51.

CHAPTER V
REVIEW OF SELECT MOPH PROGRAMS

Given the background information about the structure of the MOPH system presented in Chapter III, and fertility, mortality and morbidity trends in Chapter IV, more detailed descriptions and analyses are given in this chapter of select MOPH programs, particularly those which impact on the health problems of infants, children and mothers.

A. Primary Health Care Project

1. Description of the Problem

Budgetary constraints limit the extent to which the MOPH can increase coverage of the Thai population with health personnel, facilities, drugs and other supplies in order to move towards "Health for All by the Year 2000." Thus, the MOPH has elected to develop a cadre of village level volunteers to provide preventive, promotive and simple curative health services at village levels. In addition, these volunteers, with village committees, are responsible to develop and run revolving funds to generate additional revenues to support health-related activities. These efforts are described below.

2. MOPH Interventions

The Primary Health Care Project (PHCP) was initiated by the MOPH in the Fourth National Health Development Plan, and operates under the direction of the Office of Primary Health Care, within the Office of the Permanent Secretary of Public Health. The policies and activities of the project are proposed and coordinated with other departments of the MOPH and related sectors through the National PHC Advisory Committee. Implementation of the program is integrated into the Provincial and District Health Offices under the leadership of the Provincial Governor assisted by the PCMO. In addition to this nationwide effort, a separately funded PHC Project has been established under the Rural Poverty Eradication Program (RPEP) to provide PHC activities to villages in the 286 districts of the 8 provinces designated as poverty areas.

The objectives of the project are:

- To expand the coverage of health services, particularly among the underserved rural population.
- To utilize community resources and encourage community participation so as to solve local health problems and to establish self-help programs at the village level.
- To promote the dissemination of health information.
- To collect data reflecting the needs and health problems of communities.
- To promote the health status of the people who live in the rural areas as well as their own awareness of health problems and problem solving.

The principal strategy to achieve these objectives is the training of ten Village Health Communicators (VHCs) and one Village Health Volunteer (VHVs) in every village in the country. As of mid-1983, 357,109 VHCs and 38,300 VHVs have been trained, covering approximately 70 percent of the total villages in the country. The responsibilities of these volunteers are:

Village Health Coordinator

- Collect information regarding the health problem of villagers and about births, deaths, migration and pregnancies.
- Disseminate knowledge about the 8 essential elements of PHC.
- Assist in the coordination and implementation of health activities in the village.

Village Health Volunteer

The responsibilities of the VHV are the same as those of VHCs plus the following other services:

- Weigh pre-school children and distribute supplementary foods to malnourished children.
- Provide simple symtomatic medical care by using home remedies or medicines approved by the MOPH.
- Give first aid treatment for flesh wounds, fractures, burns, etc.
- Distribute birth control pills and condoms. (Theoretically, the women receiving the oral contraceptive have already been examined by the staff of government health facilities.)

The health volunteers are trained by tambol trainers in their communities. Tambol trainers are trained by district and provincial level trainers, who are trained by ministerial-level trainers, who are trained by ministerial trainers. Training materials consist of 52 self-instructional modules for each of the tasks/skills required of the volunteers. The training programs consist of pre-service (10 days for VHVs), and refresher courses.

The volunteers are expected to carry out their PHC tasks in addition to their usual work. Although not compensated by any salary, incentives for the VHVs have recently been initiated (e.g. receipt of part of the profit from the sale of drugs to villagers, per diems and health care kits during training courses, access to free care from health centers and government hospitals, and radio sets and bicycles to outstanding VHVs).

The MOPH has placed special emphasis on the development of local cooperatives managed by village health volunteers (see Appendix VI for descriptions of the cooperatives). Thus, the volunteers' role, over and above providing promotive, preventive and curative health services, is seen as one of generating local resources which can be used to resolve health problems.

In addition, the concept of PHC has evolved from a strictly health focus to one of broader community development. Instead of being viewed as a village-based extension of the government's rural health delivery infrastructure, the village volunteers are now seen as catalysts for involving the village community in many development activities, not only those directly related to the health sector. Senior MOPH leaders strongly articulated their belief that the village health volunteer program (which they refer to as the heart of the Primary Health Care Program), in cooperation with village and tambol planning committees, and are a means by which to stimulate villagers to recognize their own problems and to plan ways to resolve them using local resources.

In recognition of the fact that the health sector alone could not achieve the overall community development that is a necessary precursor and concomitant to individual health, a program of Basic Minimum Needs (BMN) has been developed under the leadership of the NESDB. This BMN approach is aimed at: integration of health into overall social development, stimulation of community participation, resource allocation and self-reliance, and stimulation of intersectoral coordination, through technical advisory groups of health, community development, agriculture workers and local teachers.

The Team believes that USAID should clearly understand what is meant by the PHC and BMN approaches, how they have evolved, the degree of commitment the RTG has for them, and the responsibility that the RTG has placed on the VHV as the vehicle upon which the PHC, and to a lessor extent, the BNM efforts ride.

3. Problems/Constraints

The performance of VHVs has been periodically evaluated and found to be unsatisfactory as a result of unrealistic expectations of the number of services they will perform on a voluntary basis, inappropriate and inadequate training for the number of subjects they are required to master, and inadequate support and supervision from the tambol health personnel. More specifically, the problems identified include:

At the Village Level

- Social preparation of communities is inadequate for communities to understand PHC. As a consequence, village level PHC activities are not planned and managed by the existing village organization but are planned by the central level.

- PHC activities at the village level are still carried out separately from overall developmental efforts, lacking intersectoral and intrasectoral coordination with development activities of other government sectors.

- Although the production of volunteers and trainers has been moderately successful in meeting targetted numbers, the effectiveness of the health volunteers is less than expected, as they tend to provide only the curative care activities demanded by the villagers.

- Recommended methods and criteria for selection of VHVs are not being followed in most cases.

- The incentives given to the health volunteers are inadequte to motivate many to continue their PHC work.

- Supervision and support by the tambol health personnel is inadequate because of inadequate financial provision, and training in supervision.

- The number of village drug cooperatives is markedly below targets as a result of poor preparation of the VHVs and communities.

Problems at the district and provincial levels are generic to many programs and will be discussed in Chapter VII.

At the MOPH level

- The National PHC Committee is not functioning effectively in terms of policy formulation, evaluation and intersectoral coordination of concerned sectors and organizations.

- Orientation of high level officials of health and related sectors towards PHC is inadequate because the PHC Office is short of staff and educational materials.

- Effective monitoring and evaluation of the PHC Project is lacking due to technical constraints.

- The management of logistics and health supplies is poor as a result of administrative and budgetary constraints.

4. Donor Assistance

UNICEF and WHO are currently the principal donors supporting the PHC program. UNICEF has budgetted US $4.95 million for the period 1982 to 1986 to support: 1) PHC training for 80,000 VHCs, 6,000 urban VHVs, 10,000 primary school teachers and 3,000 multisectoral workers, 2) refresher training for 3,000 VHCs and 3,000 VHVs, 3) printing expenses for 276 VHV self-learning kits and 50,000 performance guidelines, and 4) purchase of 46,000 VHV kits, 9,000 radios and 10 pick-up trucks.[1/] WHO will provide support for: 1) re-orientation of health and other sectoral personnel to PHC, 2) continuing education training for VHVs, 3) subsidies to revolving funds, and 4) research on appropriate communication process models for engendering village involvement in the planning, implementation and support of PHC activities.[2/]

Recently Japan added their support to PHC through provision of funds for the construction of the ASEAN Training Center for Primary Health Care (ATC/PHC) at Mahidol University and to PHC regional training centers. It is envisioned that the ATC/PHC will support health personnel in ASEAN countries to: 1) develop, test and promote PHC training and service models, 2) engage in

the development of appropriate PHC technology, and 3) carry out research related to: food and nutrition, health education, safe water supply, sanitation, immunizations, diagnosis and treatment of simple medical problems and injuries, essential drugs, family planning and MCH, occupational health and policy and management issues.[3/]

5. Recommendations

To avoid confusion of the PHC approach and the PHC project, the MOPH should reformulate documentation on PHC in such a way that it gives an overall picture of the PHC approach and of the role of the PHC project within a system oriented towards PHC.

The MOPH should strengthen the National PHC Advisory Committee and PHC committees of the Provinces.

The MOPH should allocate additional budgetary resources to the Office of PHC for additional personnel, office equipment and IEC materials on PHC. USAID might provide technical assistance to help determine what additional allocation is required.

The MOPH should develop an effective monitoring and evaluation system so that the Office of PHC, as well as each province, is able to effectively manage PHC activities and solve problems as they arise through existing resources or/and requesting additional support from other relevent sources. Training in program management for PHC is needed.

Health volunteer training with respect to key PHC inventions, as well as community participation and intersectoral coordination, requires review and modification. Continuing education for health volunteers and health staff at tambol and distric level in PHC should be included in this review. USAID could provide technical and financial support to develop training strategies to be applied in the pre-service and in-service training of volunteers and other health personnel at all levels. Additional support should go through the Office of PHC with collaboration from ATC/PHC and other educational institutions within and outside the country.

Strengthening of supervision and support to health volunteers by the tambol health staff is greatly needed. This could be accomplished by strengthening training in supervision and increased provision of MOPH budget for travelling expenses and incentives to health staff.

B. Nutrition Programs

1. Description of the Problem

Studies carried out in Bangkok and provincial hospitals indicate that 8 to 15 percent of babies born weigh under 2,500 grams, and about 2 to 3 percent weigh under 2,000 grams. Over half of all reported neonatal deaths were among low birth weight babies. Studies in other countries have shown that infant mortality in children with birth weights of between 2,000 and 2,500 grams is three times the rate of normal (over 2,500 grams) children, and that the mortality of infants with birth weights below 2,000 grams was over four times that of normal infants.[4/]

Repeated surveys have consistently confirmed that Protein Energy Malnutrition (PEM) in infants and pre-school children is a serious problem in Thailand, and one which has not significantly changed over the past decade. Nutrition survey [5/] have found 50 percent of the under-five population to be undernourished, with 12 to 15 percent falling in the more serious second and third degree categories. A 1980 survey found 59.5 percent of pre-school children to be malnourished in the Northeast, as compared with 53.6 percent in the Northern and 51.6 percent in the Southern regions. Other nutritional disorders, such as iron deficiency anemia, goitre and vitamin A deficiency are also widespread.

The disease cycle of malnutrition-infection-malnutrition is well documented. For undernourished children, episodes of diarrhea, measles, or upper respiratory infection (URI) become more serious problems, with enhanced risk of complications and mortality. At the same time, diarrhea, URI or measles may send a marginally normal child into a malnourished category. Consequently, the high level of PEM is a serious problem in itself, as well as acting as a major contributing factor in childhood mortality and morbidity.

There are three factors most strongly associated with malnutrition: low household incomes, inappropriate dietary/feeding behaviors and high levels of parasitic infection. Each of these are discussed in more detail below.

A 1982 study found that income constraints limited the average nutritional intake of sampled households. Low family intake was found to be one of the main causes of malnutrition in children. A 1973 study concluded that a family with an income less than 1,000 baht per month was at risk of malnutrition, as this level of income was not adequate to meet minimal nutrition requirements for an average family. Sixty-four percent of the total households in Thailand fell under this income level in 1973.[6/]

Several factors are likely to affect poor households' ability to acquire sufficient food in the future. First, the supply of land which can be newly put under cultivation is limited. Thus, increases in agricultural production are limited by the extent to which more intensive application of labor and other factors can increase production. Demand for agricultural goods will increase as a function of increasing population size, and of demands for earnings from agricultural exports to provide foreign exchange for fuel and

other industrial imports. Thus, without price controls, market prices for agricultural goods will increase, making it more difficult for poor households to purchase food, and more attractive to sell rather than consume their output.

Inappropriate dietary/feeding behaviors result from women's preference for easy deliveries, and the early weaning of children born to urban women who work. In a 1973 survey, 61 of women reported not increasing food intake during pregnancy (and 9 percent reported restricting food intake) in order to have small infants and thereby reduce the risk of a painful or complicated delivery.[7] Urban mothers who work substitute infant formulas, sweetened, condensed milk and other foods for breastmilk. A 1979 study of infants in Bangkok hospitals found a significantly higher frequency of diarrhea in bottlefed than breastfed infants.[8] Another non-optimal feeding practice is the introduction of Thai infants to solid foods (usually rice and pre-masticated banana) in the early months of life. These foods are difficult for infants to digest, are low in protein, and may lower infant's appetite for breastmilk, thus reducing suckling frequency, and hence mother's milk production. Further the solid foods are more likely to be contaminated and thus lead to diarrhea.[9]

2. MOPH Inteventions

The Fourth Plan (1977-1981) was the first 5-year plan to officially address the problem of malnutrition in Thailand. A Food and Nutrition Committee was formed to consider the malnutrition problem, with representation of the Ministries of Agriculture and Cooperatives, Education, Health and Interior. The following interventions were selected for implementation: provision of food supplements to children (from 6 to 60 months years old) in low income families, construction of Child Nutrition Centers (CNCs), provision of nutrition education to mothers through mobile units, promotion of breast feeding, production and distribution of iodized salt, and training of health and nutrition personnel.[10]

However, several of these interventions were found to be ineffective. For example, most of children admitted to CNC's were not malnourished nor were from poor families. Further, the children attending the CNC's were between 3 to 6 years of age, already past the critical age group when malnutrition is prevalent. The provision of supplementary food at the CNCs was irregular and only met 30 percent of the total requirements. Moreover, there was duplication of effort due to the lack of a single, responsible agency for overall coordinating and monitoring.

Other shortcomings in the RTG's nutritional programs observed during the Fourth Plan include: 1) lack community awareness regarding nutritional problems, 2) the public health care system only served approximately 20 percent of the population and concentrated on primarily curative services and thus was not the most effective vehicle for providing nutrition assistance, 3) the four sectors (i.e. agriculture, community development, education and health) concerned with nutritional matters did not co-ordinate their efforts, and d) there was no person in villages, tambols, districts and provinces who was responsible for nutrition activities.

In the Fifth National Food and Nutrition Plan, new nutrition program strategies were developed based on the self-reliance principle of Primary Health Care. Nutrition interventions are to be targetted to pregnant and lactating mothers and infant and pre-school children with special emphasis on those with second or third degree malnutrition. School age children are also a group of concern. Specific aspects of the new strategy are as follows.

Nutritional Surveillance. VHCs and VHVs are trained to weigh infants and pre-school children by using a simple beam scale. A growth chart based on Thai standards is issued to illustrate the different degrees of malnutrition. Thus, the VHC, VHV, or the villagers themselves, should be able to record and interpret the nutritional status of the children in the village and recognize those that are malnourished.

Promotion of Breastfeeding. The promotion of breastfeeding has been effectively carried out and more than 80 percent of rural mothers now breastfeed their babies beyond one year of age. More effort must still be made to educate urban mothers about the benefits of breastfeeding, and to all mothers regarding their own nutritional requirements during lactation and the problems associated with early substitution of rice/bananas for breastmilk in the feeding of their babies.

Local Supplementary Food Production and Distribution. In the past, the RTG made efforts to develop, produce, and distribute protein-rich foods to alleviate protein malnutrition. These food mixtures were high in protein but relatively low in fat content. Furthermore, these foods were centrally produced in Bangkok, and due to logistical problems were usually unavailable to low income groups in rural areas.

During the current Fifth Plan, several supplementary food mixtures have been developed by the Institute of Nutrition, Mahidol University (INMU). These mixtures are low cost, high protein and high energy supplementary foods which can be grown and processed at the village level. Nutrition revolving funds are being created for the purpose of supporting the production costs of the supplemental foods (see Appendix VI for description of the nutrition revolving funds.). As of August 1983, 1,668 villages had started producing supplemental foods. Sixty-three percent of these are in the Northeast and 57 percent had started revolving funds to maintain production efforts (see Table 5.1).

VHVs and VHCs, under the village committee, are responsible for the problem identification, nutrition education, supplementary food production and revolving fund activities described above.

TABLE 5.1
INSTITUTION OF LOCAL SUPPLEMENTARY FOOD PRODUCTION
AND NUTRITION REVOLVING FUNDS
AUGUST, 1983

Region	No. of Villages			
	Suppl. Food Production		Nutrition Funds	
	Existing	In Preparation	Existing	In Preparation
Northeast	1,057	-	488	-
North	300	-	270	-
Central	150	2	80	-
South	161	1	120	2
Total	1,668	3	958	2

Source: Valgasevi, A. (September 1983) Personal communication.

3. Problem and Constraints

Several problems with the present nutrition program were communicated to the assessment team and are given below.

Overall, Thailand's nutrition programs seem to emphasize the identification and treatment of malnourished children, rather than the prevention of malnutrition. None of the five sub-committees of the National Committee on Food and Nutrition (MCH, Food Technology, Research and Training, Communications and Education, and Food and Nutrition Planning) are given the task of examining agricultural production, food availability and prices.

At the service delivery level, weighing, revolving fund and education activities rely on the willingness of volunteers to obtain scales from the tambol health center, organize and conduct the weighing sessions, administer revolving fund activities and distribute the food supplements. The volunteers' work is not always co-ordinated with that of agricultural extention and home economic workers. The number of supervisory and administrative personnel at the provincial and district level focusing on nutritional problems and programs is limited.

With respect to weighing activities, often the name, age and weight of children weighed by VHVs are inaccurate. Weighing activities are carried out irregularly because scales must be picked up at tambol health centers and are not available in villages.

With respect to the locally-produced supplemental foods, the texture and taste of the foods are not always acceptable to children between one to two years of age. The amount of supplemental food distributed to second and third degree malnourished children is insufficent to alter the child's nutritional status, and is often substituted rather than added to the foods in the child's diet, or is consumed by adults The production of supplemental foods is irregular (e.g. during the farming season there is not time for food processing). The shelf life of the supplement is too short to allow for storage to distribute during the farming season.

Institution of the nutrition revolving funds is behind schedule (i.e. only 1,668 had been started as of August 1983, in comparison to the 8,000 targetted to have been completed by the end of 1983). Many are decapitalizing, possibly as a consequence of primarily deriving their revenues from sale of the food to families with malnourished children.

Finally, nutrition educational programs are based primarily on the distribution of printed materals. Although 90 percent of Thai households have radios, there are only two fifteen minute nutrition education spots per week. Further, education alone may not be sufficient to alter women's preference for smaller infants to ease deliveries, or for early weaning to allow them to return to work.

4. Donor Assistance

AID is currently supporting village-level nutrition activities (e.g. nutrition education, weighing and growth charts, supplemental food production and distribution) as part of the Extended Rural Primary Health Care Expansion Project. UNICEF is also a major donor in the nutrition area with plans to provide US $3.2 million from 1982 to 1986 for the provision of materials (i.e. 25,000 scales, 6 million growth charts, seeds and other agricultural implements for 8,000 villages, audio-visual aids, and vehicles) and grant assistance to train 3,000 multisectoral officials and to develop IEC materials. Australia, IDRC, New Zealand and WHO are providing smaller grants for improvements in supplementary food production and processing.

5. Recommendations

USAID's Office of Population, Health and Nutrition should work with the USAID Office of Agriculture to develop an intersectoral food and nutrition strategy. The two offices should encourage the Food and Nutrition Committee to develop policies and program interventions oriented towards the prevention of malnutrition (e.g. increased food production, improved distribution, improved education on appropriate feeding practices). Technical or financial support might be required to insure these policy and program recommendations are incorporated into Thailand's planning and budgeting process. Information on the subsidiziation of rice distribution, price controls on other food stuffs, the development of "fair price shops" and government discount brands of food[11/] should be updated, especially evaluation of these government programs vis a vis improvements in nutritional status and targetting of these programs to the urban and rural poor at risk of malnutrition. Use of AID's Nutrition IQC might be utilized for such a review.

Technical assistance should be provided to assist in the development of educational inputs regarding: 1) nutrition during pregnancy, 2) proper breastfeeding and weaning practices, 3) supplementary food production and use, 4) basic family nutrition and 5) early identification of poor growth patterns and malnutrition. Special attention should be given to developing educational messages that are effective in altering the bases for traditional beliefs and practices. Financial asssistance might be provided for the purchase of radio and television spots and the printing of booklets and posters. Technical assistance could be provided to assist the MOPH in identifying private sector for profit firms which would contribute for radio and TV time as a public service, and non-profit groups which might raise private funds for educational efforts.

Financial assistance should be provided to increase the supply of weighing scales at the village level. These inputs might be given as incentives to villages that have over 70 percent of households purchasing shares in drug or nutrition co-operatives.

Finally, AID might provide technical and financial assistance for the following areas of research: 1) identification of methods to create awareness of nutritional needs, 2) improvement of the acceptability and shelf life of food supplements, 3) determination of ways to integrate an intersectoral nutrition program into the overall village development process, 4) development of methods to increase nutritional and overall food production, 5) development of a cheap weaning food for middle income groups and for urban areas unable to produce their own foods, 6) determination of the distribution patterns of food within the household itself, 7) determination of the extent, severity and determinants of low birth weight in rural areas of Thailand, and 8) to follow up PRICOR research findings about the nutrition revolving funds.

C. National Control of Diarrheal Disease Program

1. Description of Problem

Diarrheal diseases appear to be the leading cause of morbidity in Thailand. Various estimates of the frequency of diarrhea among children under five suggest an average of 1 to 2 episodes per child per year, or a total of about 6,000,000 to 12,000,000 episodes nationwide.[12/] The suggested overall mortality rate from diarrhea is 0.5 percent and about 2 percent in hospitalized cases.[13/] However, recent WHO reports suggest that the mortality rate from diarrhea has recently fallen to under 5 deaths per 1,000 children and that the number of severely dehydrated cases presenting to hospitals has declined as well.[14/]

Factors associated with mortality from cases of diarrhea would include traditional practices in some areas to withhold food and water, and malnutrition. About 56 percent of deaths in hospitalized cases of children with diarrhea were in children who were malnourished.[15/] Factors associated with diarrheal morbidity include use of contaminated water supplies or food, and poor infant and child hygiene. Levels of intestinal parasitism are generally quite high with 80 to 85 percent of the population bearing at least one parasite (often several different ones).

2. MOPH Interventions

Certainly key interventions to reduce the incidence of diarrhea and the prevalence of parasitic diseases are water supply and sanitation systems. Since many government agencies are involved in water supply and sanitation efforts, in addition to the Enviornmental Health, Rural Water Supply and Sanitation divisions of the MOPH, the RTG's water supply and sanitation programs are discussed separately in Chapter VI.

The MOPH program primarily responsible for diarrheal disease control activities is the National Control of Diarrheal Disease Program (NCDDP). At the ministerial level, the NCDDP is managed by the Communicable Disease Control (CDC) department and by the provincial and district health officers at those levels. The three main objectives of the NCDDP are: 1) to reduce mortality from acute diarrheal diseases as well as diarrhea-related malnutrition (especially in children under 5 years of age) by means of oral rehydration therapy (ORT), 2) to reduce morbidity from acute diarrheal diseases in children under 2 years of age by promotion of maternal and child health care practices, and 3) to conduct operational research in order to develop improved tools and strategies.

The first two objectives are accomplished through training of health personnel in the benefits and use of ORT and through distribution of ORS through health centers, village drug cooperativs and VHV's. Provincial chiefs of the health promotion section who are responsible for MCH and nutritional programs have also received NCDDP training. These provincial chiefs in turn train and supervise MCH workers (nurses and midwives).

Routine surveillance is done entirely by existing health facilities down to the tambol level. Stool samples, water and foods suspected as souces of infection are collected by health workers and sent to provincial health laboratories to identify the enteric pathogens. With the supervision and coordination of provincial staff, teams of 3 to 4 local health officers are sent into the reported epidemic areas to provide control measures.[16/]

Oral rehydration salts (ORS) packets are purchased from the GPO by the CDC department and distributed to all health facilities (except provincial hospitals which produce them on their own) and to village health volunteers, for free distribution or sale in the drug cooperatives (4.5 baht per 750 ml. packet). In 1982, 1.85 million packets of ORS were supplied to the NCDDP (77 percent of the total ORS produced by the GPO). This amount equalled 98 percent of the total amount of the NCDDP's projected ORS requirement for 1982 (assuming 30 percent coverage of all children under five with one episode per child requiring ORS). Several private sector firms also produce and widely distribute ORS packets which sell for 6 baht per 200 ml. packet.[17/]

Although the NCDDP did not reach its coverage target for children with access to ORT, the increase from 12 percent coverage in 1981 to 30 percent in 1982 suggests that NCDDP targets may be met in the next few years (See Table 5.2).

TABLE 5.2
TARGETS AND ACHIEVEMENTS OF NCDDP
1981-1982

Program Target	Fiscal Year 1981 Target	Fiscal Year 1981 Achievement	Fiscal Year 1982 Target	Fiscal Year 1982 Achievement
1. Operation Target				
- Access of ORS for Children under 5 year of age.	40%	12%	50%	30%
- ORS usage rate in diarrheal children under 5 year of age.	20%	12%	30%	20%
2. Problem reduction target (in children under 5)				
- Mortality reduction	13%	8%*	20%	13%*
- Reduction of hospital attendance.	20%	12%*	30%*	25%*

*By estimation.

NCDDP activities proposed for 1984 to 1985 include: 1) supporting provinces in training provincial medical staff, peripherial health workers and VHVs on the management of diarrhea by ORT, 2) strengthening health education activities through radio, television network and schools, 3) conducting reasearch on the use of homemade fluid in the treatment of early cases of diarrhea, 4) studying the role of the commercial sector in the production and distribution of ORS, and 5) improving the reporting system for the NCDDP program.[18/]

3. Problems/Constraints

The following problems/constrains with respect to the NCDDP were identified by a recent WHO review.

- Training of MOPH staff in CDD, at the provincial, health center and village levels, has been much slower than targetted levels.

- Existing health facilities do not receive enough ORS from the GPO, and coverage varies in different areas.

- Information needed for planning and evaluation, especially concerning diarrhea mortality, and morbidity, and the use of ORS, is not available through existing reporting systems.

- Linkage and coordination between the NCDDP and the RTG units responsibile for the Water Decade program and the Nutrition and MCH programs are weak.

- Overuse of anti-diarrheal drugs and antibiotics in the treatment of diarrhea.

- Only a very limited supply of CDD-oriented educational leaflets and posters have been distributed.

- Insufficient information has been collected to determine if continued breastfeeding and other feeding during diarrheal episodes is related to a decreased incidence of diarrhea-induced malnutrition.

- Commercially produced ORS comes in many different sizes, possibly leading to inappropriate mixing if mothers do not read instructions.

4. Donor Assistance

WHO and UNICEF have been supporting the NCDDP since its inception in 1979. WHO is supporting NCDDP training activities in clinical case and program management, ORS production at the GPO in cottage-scale industries amd provincial hospitals, survey and operations research, and assistance to strengthen laboratory diagnosis of enteric pathogens. WHO's direct support for the prevention and control of diarrheal disease will equal US $58,000 for 1984 and 1985. However additional support equalling at least US$ 25,000 will be available to the CDD through other WHO projects. UNICEF provided funding of US $75,000 in 1982 for purchase of ORS production equipment for the GPO. This support is in addition to the RTG's budgetary support of 12.78 million baht (US $555,652) for 1984 and 1985.

5. Recommendations

It appears that the current diarrheal disease control efforts of the MOPH with WHO and UNICEF assistance and of the private sector in distributing ORS, have already achieved significant reductions in infant and child mortality from diarrhea. Given WHO's leadership role in the NCDDP, USAID might support the NCDDP by providing ad hoc technical assistance via the centrally-funded PRITECH project. Technical assistance could be provided at the request of NCDDP staff for unanticipated program needs which require a quick response, or for the program needs identifed below.

USAID could provide assistance to strengthen the NCDDP's educational outreach programs, especially utilizing mass media to improve the hygenic and diarrhea treatment behaviors of households. USAID should consult with NCDDP staff and WHO to determine how training of peripheral health workers could be increased and made more effective. In addition to promoting use of ORT though household preparation of home solution, USAID should determine if the GPO will require additional ORS mixing and packaging equipment in order to produce the ORS required by the program. Finally USAID, through the PRITECH or WASH projects, could support a study of the current and future role of private sector pharmaceutical companies in production and distribution of ORS, propagation of ORT messages through advertising, and the standardization of ORS to 2 (or at most 3) sizes of packets.

D. Expanded Program on Immunization

1. Description of the Problem

Although neonatal tetanus accounts for only 17 deaths per 100,000 live births in official MOPH statistics, results from the National Childhood Mortality Survey indicated that about 20 percent of all infant deaths (or 500 per 100,000 live births) were a result of neonatal tetanus. Thus, less than 10 percent of all neonatal tetanus mortality is reported to the public health service.[19/] The high level of neonatal tetanus is associated with the generally low immunization coverage of pregnant women (less than 30 percent coverage with a two-dose antenatal regimen of tetanus toxiod).[20/] The MOPH stated that about 40 percent of all tetanus reported is neonatal tetanus.

The National Childhood Mortality Survey suggests that over 8 percent of mortality in children under two years of age resulted from complications of measles.[21/] MOPH staff from the Expanded Program on Immunization (EPI) stated that the reporting of measles has greatly increased in recent years, and that substantial proportions of pneumonia, upper respiratory infection cases and diarrhea (to a lesser extent) in pre-school children are complications of measles. Most officials stated that overall mortality for measles is generally low, but among infants under age one, the disease is more serious.

Diphtheria, pertussis and non-neonatal tetanus appear to be problems of decreasing importance, probably linked to the relatively increasing coverage of infants and under-fives with the trivalent DPT immunization. However, although coverage is increasing, the rate of completion for all three DPT doses is less than 25 percent.

World Health Organization (WHO) surveys have indicated that although 85 percent of poliomyelitis cases are in children under age five, the rate per 100,000 has decreased from 2.7 in 1979 to 0.6 in 1982. Even though levels of completion of the three doses of oral polio vaccine (OPV) are low (less than 40 percent coverage), they have progressively increased in the past several years.22/

While specific data about tuberculosis in mothers and under-fives were not readily available, CDC Department officials indicated that tuberculous meningitis, a very severe disease in children, has become relatively rare, and that tuberculosis (TB) infection in pre-school children is diminishing. Specifically, only 13.9 percent of the 418 cases of tuberculous meningitis reported in 1980 occurred in the under-five population. This finding corresponds to very high levels of coverage (75 percent) of infants with BCG vaccination.23/24

2. MOPH Interventions

The Expanded Program on Immunization (EPI) was begun as a nationwide program in 1977. Budgetary allocations to the EPI program equalled US $1.1 million in 1981 and US $1.5 million in 1982 for vaccines, cold chain equipment, per diem and travel allowances, training and research. At the central level, the Department of Communicable Disease Control (CDC) is responsible for EPI planning, supply of all vaccine and equipment, monitoring, supervision, coordination, training, operational research and evaluation. However, the actual immunization work is carried out by the provincial and municipal health services as an integral part of their regular MCH tasks. Provincial/District hospitals with reliable refrigeration, offer immunization clinics on specified days of the week. Peripheral clinics, lacking reliable refrigeration, offer clinics on a certain day each month. Mobile clinics are conducted every 4 to 6 months for more remote communities.

The CDC Department makes annual estimates of nationwide vaccine requirements. Vaccines are ordered at least 6 months in advance with specified schedules of delivery. DPT and tetanus toxoid (TT) vaccines are manufactured domestically by the GPO. The GPO was to have begun producing dT vaccines by 1983 and it purchases BCG vaccines from a private firm. Viral vaccines (OPV and Measles) are obtained from UNICEF, or are imported by the GPO. Data available to the team suggest that the EPI program may experience shortages in vaccine supply if plans to start, or step up, the GPO's production of DPT, dT AND TT vaccines are not achieved and/or if UNICEF only provides 1 million doses annually of each vaccine.

From the GPO central cold rooms and freezer, vaccines are shipped to provincial health offices. From the provincial health office, vaccines are distributed to District Health Offices where they are stored in electric

refrigerators until the health center/midwifery clinics' scheduled immunization sessions. Vaccines are transported to these facilities by vaccine carriers capable of maintaining required temperatures for up to two days. Frequent testing of biological activity, carried out by the CDC department, suggest that the cold chain is maintained.

Motivation and education of pregnant women and new mothers as to the value of immunizations is the responsibility of the nurse-midwives, VHVs and VHCs. For the VHVs, this responsibility has been delineated in training and operational handbooks as: 1) information dissemination, 2) regular compilation of names of eligible children and pregnant women, 3) making appointments for immunization clinics, 4) helping to organize and supervise outreach sessions, 5) follow-up of drop-outs, and 6) assisting in surveillance of EPI target diseases.

3. Problems/Constraints

Although vaccine coverage of the under-one population with BCG and first doses of DPT and OPV is over 50 percent, drop-out rates for the second and third doses of DPT and OPV are high. Coverage of pregnant women is low, only 41 percent of women who sought antenatal care (20 to 30 percent of pregnant women) received the first dose of TT and only 30 percent received the second (see Table 5.3).

A WHO survey found that of mothers of children who were not fully immunized, 52 percent lacked information about the importance of doing so, 44 percent were prevented by some "obstacle" (undefined) and 4 percent were indifferent. The same study identified health personnel as the source of information about immunizations for 84 to 87 percent of mothers, VHVs and VHCs as sources for 0 to 4 percent, neighbors and relatives for 0 to 6 percent and mass media for 2 to 5 percent.[25] Thus, VHVs and VHCs are not contacting nor motivating mothers to get immunizations. The "obstacles" women faced in obtaining complete immunizations possibly include time conflicts (e.g. other child care, agriculture activities) or travel logistics. However, these obstacles might be surmounted if mothers and families were aware of the necessity to complete the immunization series in order to gain immunization benefits.

The provision of immunizations at the periphery is limited by the lack of reliable refrigeration in health centers. Funds to provide electric refrigerators to facilities newly connected to an electrical grid are limited. Although vaccine supply is generally reliable, importation of OPV has often lagged behind schedule, and stocks of vaccine at the center are limited by the lack of adequate cold room storage space. Although tests of vaccine potency have indicated that the vaccines meet WHO standards, the testing is performed by the firm (GPO) which manufactures the vaccine.

TABLE 5.3
REPORTED NUMBER VACCINATIONS AND POPULATION COVERAGE
1981-1982

Target Population Vaccine	1981 No. Vaccinated	1981 Coverage (%)	1982 No. Vaccinated	1982 Coverage (%)	Fifth Plan Target
Children under one year					
(N = 1,175,086)					70%
BCG	825,413	71	859,932	73	
DPT I	766,585	66	802,907	68	
DPT II	603,275	52	632,556	53	
DPT III	-	-	249,792	21	
OPV I	414,341	36	680,706	58	
OPV II	301,080	26	504,512	43	
OPV III	200,380	19	397,279	34	
Pregnant women					
(N = 1,196,899)					60-70%
TT I	441,957	37	493,795	41*	
TT II	311,413	26	360,298	30*	
1st year primary school children					
(N=1,534,355)					80%
dT I	-	-	768,819	50	
dT II	-	-	426,625	28	
dT booster	-	-	260,736	17	
BCG	-	-	272,082	17	

* Percent of those seen for antenatal care, not of all pregnant women who are at risk.

Although epidemiological surveillance of the immunizable diseases is to be done routinely by health workers, the data recorded at peripheral units is not accurate, nor analyzed at that level and incorporated into future program efforts. Records of participation in immunization sessions are often incomplete and are not used to develop follow-up strategies. These weaknesses may result from the lack of EPI training for tambol level workers. Although the EPI program has trained provincial and district health personnel, by and large these personnel have not then trained health center personnel because of insufficient resources and administrative support. There is no protocol for issues to be covered during supervisory visits, and thus systematic problem identification and resolution is not undertaken.

Finally, personnel and office space for EPI efforts at the central (and doubtless at the more peipheral levels), is limited.

4. Donor Assistance

UNICEF and WHO are the principal donors supporting the EPI program. If UNICEF's requested budget for 1982 to 1986 is fully funded, then UNICEF will be providing 100 percent of the MOPH's request to UNICEF for vaccines and refrigerators. UNICEF will also provide funding for surveillance surveys, printing of field worker's manuals, and EPI training for provincial and district health personnel. Equipment for DPT production (US $500,000) appears on UNICEF's noting budget.[26/] WHO support to EPI will primarily consist of technical support in training, epidemiological surveys, and evaluation and assessment activities.

5. Recommendations

Although UNICEF and WHO are already supporting the EPI program, there are additional "gaps" where AID assistance might lead to measurable increases in immunization coverage and completion.

Clearly educational imputs are needed to develop the population's awareness of the benefits of complete immunization. Given the current minor role being played by VHVs and VHCs in informing mothers about immunization benefits and services, development of mass media approaches to provide information about the value of immunizations and to announce dates for immunization clinics should be supported. In addition, AID should collaborate with the EPI program and WHO to develop guidelines for provincial and district personnel regarding training and supervision of tambol level workers,[27/] taking into account the time and budgetary constraints facing provincial and district personnel and the need to combine such EPI directed efforts with NCDDP and other tasks related to the operations of the peripheral health system. Support should be given to determine the personnel and budgetary requirements of implementing the birth certificate and reminder card system more widely in urban and rural areas. The centrally-funded PRITECH projects might be utilized to provide the above assistance to the EPI program.

USAID should determine with EPI and UNICEF staff the likelihood that UNICEF's provision of vaccines will adequately supplement those produced by the GPO to supply EPI program needs. USAID should also inquire if funds for the DPT production equipment on UNICEF's noting budget have been identified. Inquiry should be made as to estimates of future requirements for electric refrigerators and temperature monitoring equipment for existing refrigerators and cold boxes.[28/] Analysis should be undertaken of the recurrent budgetary requirements of the EPI program for the next 5 to 10 years and the government and donors' roles in supporting these recurrent costs.

CHAPTER V NOTES

1 UNICEF (January 1982) Thailand, Recommendation for UNICEF Assistance 1982-1986, Submission to the 1982 UNICEF Executive Board, Bangkok, UNICEF.

2. SEARO/WHO (—) Detailed Country Programme and Budget for 1984-1985, Thailand, New Delhi: SEARO.

3 Moto, T. (September 1983) Personal communication, JICA.

4. Ministry of Public Health (April 1983) Current MCH Situation, p. 5.

5. Nutrition suveys in Thailand have used the Gomez classification for PEM (weight for age) on the basis of body weight as a percentage of mean reference body weight (Harvard standard).

6. It would be desirable to have updated information about the incidence of poverty and its correlation with malnutrition. Although it would be possible to inflate the poverty level to 1983 values, income data is not available after 1975/6. Baker, J. (1983) Determinants of Malnutrition in Thailand, Bangkok: Population Council (draft), pp. 13-14.

7. World Bank (February 1983) Thailand, Review of the Health Sector, Washington, D.C.: World Bank (draft), p. 25.

8. Baker, J. (1983) op.cit., p. 11.

9. Ibid., p. 7.

10. Ibid., p. 17.

11. Stewart, M. Dworkin, D. and Rogers, B.L. (1980) Review of Health, Population, Nutrition Activities in Thailand, Washington, D.C.: APHA, pp. 25-27.

12. World Bank (February 1983) op. cit., p. 9.

13. Country Review of Control of Diarrheal Disease Program, 1981-1982, Thailand, (mimeo), p. 2.

14. World Health Organization (21-31 March 1983) Diarrheal Disease Control Programme, Comprehensive Programme Review Report, Bangkok: WHO, p. 29.

15. Country Review, op.cit., p. 6.

16. Ramaboot, S. (—) NCDDP- Thailand, Bangkok: CDC/MOPH, p. 2.

17. World Health Organization (21-31 March 1983), op. cit., p. 127.

18. Ramaboot, S. (—), op. cit., p. 6.

19. World Bank (February 1983) op. cit., p. 8.

20. Ramaboot, S. (September 1983) op. cit., p. 13.

21. World Health Organization (November 1982) Review of EPI and Selected PHC Activities in Thailand, Summary Report of the Joint Government/WHO/UNICEF Review Team, 23 August - 10 September 1982, New Delhi: SEARO, (SEA/EPI/38), p. 22.

22. Ibid., p. 27.

23. Ramaboot, S. (September 1983) op. cit., p. 13.

24. TB is a major source of morbidity and motality Thailand, and one of the leading ten causes for hospitalization. The National Tuberculosis Survey (1977) indicated that the prevalence of infection in the population is about 1.4 percent, and that mortality is 0.6 deaths per 1,000 population. The survey indicated a substantial decrease in morbidity and mortality over the past 15 years (i.e. TB attributable deaths went from a rate of 15.8 per 100,000 population in 1977 to 11.8 in 1981), but levels of infection remain high, and TB remains an important problem in the working population.

25. World Health Organization (November 1982) op. cit., pp. 31, 33.

26. UNICEF (January 1982) op. cit., pp. 270-284.

27. Training should include lessons demonstrations and practice in: record keeping, vaccine administration, identification, enrollment and follow-up of target children and women, and cold chain equipment use and maintanence.

28. Although it is recognized that EPI's first priority should go to providing BCG, DPT, OPV, and measles vaccines to under-fives, and TT to women of childbearing age, the EPI program in the future may wish to consider adding DPT and OPV booster immunizations at school exit and TT immunization of men at the time of draft registration and physical examination.

CHAPTER VI
WATER SUPPLY AND SANITATION

The provision of potable water and the sanitary disposal of excreta are fundamental to the control a wide variety of communicable diseases, (e.g. diarrheal diseases). The RTG's water supply and sanitation targets for the Fifth Plan are: 2 liters of safe drinking water per person per day and hygienic latrines for 60 percent of the population. The safe drinking water target may be difficult to achieve as present coverage is low and there appears to be little perceived need for "safe" drinking water sources. Water-seal latrine coverage appears to be growing rapidly and there are relatively few constraints to prevent this from continuing. Thus, more emphasis in this chapter has been given to water supply than excreta disposal issues, programs and problems.

A. Piped Water

1. Coverage

Approximately 700 systems currently deliver piped water to 3 percent of the rural population.[1/] Fifty percent of these systems use surface sources, some of which have heavy fecal contamination. In systems using surface sources, the safety of the delivered water must be considered suspect if user preference or system failure results in the lack of chlorination. Delivered piped water using groundwater sources can generally be considered safe. However, contamination is possible due to bacterial growth in storage tanks, or to infiltration into distribution lines when pressure is not maintained in the system (e.g. during flooding when distribution lines are submerged under contaminated water).

Most of the rural piped water systems are owned by local authorities. Operation, maintenance and revenue collection activities are conducted by the villagers. Technical support for repairs is provided upon request, on a reimburseable basis, to all villages with populations over 2,000, by the Provincial Waterworks Authority (PWA) and to smaller villages by the Rural Water Supply Division (RWS) of the MOPH.

The long term goal of the PWA is to own and operate all piped water systems in villages with more than 1500 people. Budget constraints and the focus on expansion of presently owned systems in urban communities of more than 5,000 population have allowed the PWA to construct only 14 rural, piped systems per year.[2/] This coverage is expected to increase to 25 rural systems a year by 1984. Considerable donor assistance from the World Bank, OECF, UNDP and GTZ is going into infrastructure development and the overall expansion effort.[3/]

The RWS installs piped systems (28 in 1982/83) for communities with less than 2,000 population. They also intend to rehabilitate (through inputs of materials, training and education) about 40 smaller systems no longer in service.[4/] This effort, requiring about US $5,000 to 10,000 per system, will depend on donor funding which has not yet been identified.

The Provincial Water Division (PWD), Department of Public Works (DPW), is installing 5 to 10 piped water systems per year. The PWD estimates that approximately 40 percent of their deep wells with handpumps (more than 3,000) have sufficient capacity to warrant installation of submersible pumps. The pumps could increase the yield of many of these wells more than tenfold, providing ample water for piped systems.

Piped systems are also being constructed in the Rural Job Creation Program (RJCP). These systems are built independent of the PWA, RWS, and PWD, by local contractors with support from village labor.

2. Technical Constraints

Installation of piped water technology in the rural sector is limited to larger villages because of economies of scale. However, the rate of expansion could be increased within existing budget constraints, if more appropriate technologies were utilized and the following cost optimization measures implemented.

Reducing storage tank costs. Storage tasks could be constructed at significantly lower elevations if systems were designed for lower flow rates at the tap and if they were located near the center of villages where optimal hydralic efficiency could be achieved. These changes, depending upon village preference and site availability, would allow for the use of local, rather than contract labor for construction of these tanks. Lower storage tanks would also reduce energy-related and other operating costs to the community. Alternatively, it may in some cases be more cost-effective to eliminate the community storage tank altogether and periodically pump water directly to households where it could be stored in rainwater cisterns.

Slow sand filtration vs. rapid sand filtration. Depending on local conditions, slow sand filtration may provide significantly more cost-effective treatment of water than rapid sand filtration. Long term sedimentation or horizontal prefiltration can provide enough reduction in the turbidity of surface waters to make slow sand filtration feasible. In an analysis of water supply options in the Northeast region of Thailand, it was estimated that treatment of surface water using long term sedimentation followed by slow sand filtration would be about 30 percent cheaper than rapid sand filtration.[5] The Asian Institute of Technology (AIT) has demonstrated the effectiveness of using horizontal prefiltration and slow sand filtration for the treatment of relatively turbid surface water (e.g. from the Chao Phraya River).[6] In a study by the PWA it was determined that horizontal prefiltration, followed by slow sand filtration, can be less expensive than rapid sand filtration.[7] However, additional studies are required to determine the cost-effectiveness of the two technologies, given different initial water qualities and assumptions about the allocation of capital costs, operation and maintance costs, and inflation and interest rates.

Slow sand filtration is also preferable to rapid sand filtration for health reasons. Failure of slow sand filtration systems, (though less likely given the greater simplicity in system components) has less serious potential health consequences. Slow sand filtration will remove amoebic cysts,

bacteria, and viruses more effectively than rapid sand filtration without chemical treatment (the latter often occurs because of feeder equipment failure, chemical supply shortages or plant operator's choice).

Alternative distribution systems Alternative designs for water distribution systems are available that control total daily flow rates to consumers and eliminate the need for expensive meters. It has been estimated that the distribution system cost to each household could be reduced by about 20 percent using a restricted flow system (i.e. Barangay Type III-A).[8/] However, the social acceptability of such systems has not been determined.

3. Financial Constraints

The RTG is providing drilled wells, open shallow wells and ponds to communities on request, without charge. It also provides free pump repair service and maintenance checks for most of the drilled wells. On the other hand, communities must raise 20 to 33 percent of capital costs and 100 percent of operating costs for piped water systems built by the RTG. The availability of free alternative source waters may be depressing consumer demand for piped water. Thus, the rate of installation of piped water systems depends not only on the availability of government resources, but also on policies regarding consumer sharing of capital and recurrent costs.

4. Management Constraints

Many existing water supply and treatment plants operate inefficiently. Personnel lack understanding of the physical operation and maintenance of these systems and the planning and budgeting skills necessary to finance the system. Over 50 piped systems of 269 surveyed have been shut down because of system failure or operating deficits.[9/] The RWS has offered to assist smaller communities in rehabilitating their systems. However, previous experience with unreliable service and the availability of other source waters make it difficult for these communities to raise the revenue necessary to bring these systems back on line. Other communities are willing to raise similar amounts of capital to share in the costs of installing new systems.

5. Policy Constraints

The three agencies involved with piped systems have conflicting policies on the question of system ownership. The long term goal of the PWA is to own and operate all piped systems in Thailand in order to provide a more cost-effective and quality control system network that will deliver large quantities of clean water to the maximum number of consumers. On the other hand, the RWS and the PWD give the responsibility of ownership and management of a system to the village following its installation.

In addition, the three agencies assume technical support responsibilities for many of the same systems but are not coordinating their efforts. At present, this does not appear to be a problem since technical support is given upon village request. However, as more systems are installed, responsibilities will need to be specifically defined to avoid overlap and to maximize the effective use of limited budgetary funds.

B. Nonpiped Water

1. Coverage

Rural communities not served by piped systems receive their drinking water from deep and shallow wells, reservoirs, ponds, rivers, canals, and rainwater catchments. In a 1976 household survey by the National Statistics Office (NSO), it was reported that 41.4 percent of the rural population received their drinking water from public wells, 36.2 percent from private wells, 1 percent from piped water systems, and 21.2 percent from other sources. No distinction was made between deep, shallow covered (i. e. with a handpump) or shallow unprotected wells. Other investigations in Thailand have indicated that most shallow-wells in Thailand are dug and unprotected.[10/] In a 1979 MOPH survey of 2,239 households in rural areas of 20 provinces, the following breakdown of sources used for drinking water was determined: 68 percent of the population used rainwater when it was available, 22 percent used deep wells, 17 percent used shallow private wells, 36 percent used shallow public wells, 14 percent used river or canal water, 4 percent used piped water, 3 percent used reservoirs and 5 percent relied on other sources. Sixty-three percent of the households using rainwater did so for less than 4 months of the year. Twenty-one percent of the households were more than 500 meters away from the souce they used.[11/]

Water obtained from deep wells and shallow covered wells is probably safe. However, the potential for fecal contamination in shallow wells increases with household density and latrine use. Water obtained from open wells and surface sources (except for springs), should be considered suspect of contamination and therefore unsafe. Rainwater is itself safe, but may be contaminated through unsanitary collection or storage. If the MOPH survey is representative of the national population, it appears that more than 25 percent of the population is using safe drinking water.[12/]

Numerous agencies are involved with providing and maintaining (mainly repair or restoration) domestic water supplies to the rural sector. Table 6.1 characterizes the different sources of drinking water that had been built by government agencies through the Fourth Plan. The projected development of rural water supply resources under the Fifth Plan is given in Table 6.2.

If Fifth Plan targets are met, more than 50,000 drilled wells will have been installed in Thailand (45,000 since 1972). Assuming that there are 50 households per well and 6 people per household, this represents a potential distribution of safe water to over 8 million people (considering well life and downtime due to pump repair). Much of this water however, may not be used for drinking because of taste preference for other sources.

A major effort is now underway by the MOPH (sponsored by UNICEF) to improve the water quality of about 1,000 existing ponds and shallow wells. This program will consist of sanitizing shallow wells and installing low cost handpumps. Considering that more than 50 percent of the rural sector obtains its drinking water from shallow wells, many of which are unprotected and contaminated, the potential health impact of such a strategy could be considerable.

TABLE 6.1
NON PIPED RURAL DOMESTIC WATER SUPPLIES BY AGENCY
1981

Type of Water Supply	Agency						TOTAL
	MRD	PWD	ARD	MOPH	DOLA	OTHER	
Drilled Well	15,227*	2,336	4,578	1,697			23,838
Dug well with hand pump	- -	- -	1,505 (drilled)	- -	16,576 (driven)	- -	18,071
Dug Well	-	-	-	-	22,899	13,075	35,974
150 m^3 Catchments	-	-	-	-	2,675	-	2,675
Ponds	-	-	913	-	-	-	913
Reservoirs	-	-	336	-	-	-	336
Schools	-	-	-	17,992	-	-	17,992
Rain water cisterns 400 gal.	-	-	-	-	40,500	-	40,500
Rain water cisterns**	-	-	-	187,667	-	-	187,667

* Corrected value from GWD.
** Data from MOPH.

MRD: Mineral Resources Department
PWD: Public Waterworks
ARD: Office of Accelerated Rural Development
MOPH: Ministry of Public Health
DOLA: Department of Local Administration

Source: abstracted from Summary of Achievements of Domestic Rural Water Supplies by Agency - 1981, NESDB.

TABLE 6.2
ANNUAL INVESTMENT PLAN UNDER THE PROVISION OF POTABLE WATER IN RURAL AREAS PROGRAM
1982-1986

(Million Baht)

	1982		1983		1984		1985		1986		Total	
	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget
WATER RESOURCE DEVELOPMENT												
1.1 Wells												
MRD												
Deep	900	78.4	900	87.1	900	95.8	900	105.4	900	115.9	4,500	482.6
Moderately deep	1,250	81.0	1,250	90.0	1,250	99.0	1,250	108.9	1,250	119.8	6,250	498.7
PWD												
Deep	627	45.1	650	57.0	1,000	92.0	1,250	126.5	1,500	166.9	5,027	487.5
ARD												
Deep	1,095	69.3	1,035	76.0	1,080	86.4	1,300	114.4	1,300	125.8	5,810	471.9
Moderately deep	125	0.9	150	1.0	250	1.7	250	1.9	250	2.1	1,025	7.6
DOH												
Moderately deep		28.2	200	36.0	1,000	49.5	1,100	59.9	1,200	71.9	4,878	245.5
Shallow driven		0.1	50	0.2	100	0.5	300	2.0	350	2.5	830	5.3
DOLA												
Shallow dug		4.0	1,0977	4.7	1,000	5.	1,000	5.7	1,000	6.3	5,077	25.9
DCD												
Shallow dug	58	0.3	50	0.3	50	0.3	50	0.3	50	0.4	258	1.6
1.2 Well Maintenance												
MRD												
Hand pump	13,200	33.0	14,900	37.3	16,800	42.0	18,700	46.6	20,600	51.5	84,200	210.4
Motor pump	500	0.9	700	1.3	750	1.4	800	1.5	850	1.6	3,600	6.7
Improve deep wells	500	3.3	500	3.6	500	3.9	500	4.2	500	4.5	2,500	19.5

(Million Baht)

	1982		1983		1984		1985		1986		Total	
	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget
PWD												
Hand pump	3,900	10.5	4,000	13.0	4,500	15.2	5,080	18.0	5,570	22.7	23,056	79.4
Improve deep wells	200	0.7	525	3.0	600	3.9	720	4.7	860	5.6	2,905	17.9
ARD												
Hand pump	3,729	9.3	4,750	11.8	6,000	15.0	7,000	17.5	8,000	20.0	29,479	73.6
Improve deep wells	156	1.0	200	1.3	200	1.5	300	1.9	300	2.0	1,156	7.7
DOH												
Well and pump repair	2,361	1.4	2,400	1.5	3,200	2.2	4,000	3.2	4,000	4.3	16,761	12.6
1.3 Water Resource Improvement												
MRD												
Water Use Management	55	1.3	60	1.6	60	1.7	60	1.9	60	2.1	295	2.6
Water quality improvement	10	0.2	10	0.3	20	0.4	20	0.4	20	0.5	80	1.8
PWD												
Water supply systems	1	0.3	8	1.8	50	11.5	50	12.6	50	13.8	159	40.0
DOH												
Village water supplies	23	11.2	5	4.2	30	25.5	150	135.0	175	180.3	383	356.3
PWA												
Rural water supplies	14	45.5	23	64.6	25	84.1	75	303.3	75	364.0	212	861.5
1.4 Others												
ARD												
New Ponds (10,000 m^3)	53	14.5	30	8.1	180	59.4	195	72.0	202	85.0	660	239.0
Pond Dredging	81	41.8	59	25.7	126	123.4	141	143.01	151	160.0	558	493.9
Other New Ponds	67	228.5	43	153.3	42	168.0	47	215.0	52	265.0	251	1,029.8
DOH												
School supplies	1,498	29.9	400	12.0	1,500	45.5	1,500	52.5	1,500	60.0	6,398	199.4
Family rainwater tank	300	0.9	500	1.5	5,000	4.5	7,000	8.7	8,000	12.0	20,800	27.6

(Million Baht)

	1982		1983		1984		1985		1986		Total	
	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget
DOLA												
150 m^3 tanks	80	7.9	30	8.6	30	9.0	30	9.9	30	10.0	150	45.4
400 gal. tanks	1,000	3.0	1,000	3.0	1,000	3.5	1,000	3.8	1,000	4.2	5,000	17.5
Pond/logoon dredging	156	7.9	90	7.9	200	11.1	200	12.2	200	13.4	846	52.5
1.5 Other Projects												
NSC												
Drilled wells	276	4.5	320	21.9	350	27.7	356	30.5	350	33.11	1,646	117.7
Dug wells	63	0.3	230	1.4	360	4.8	360	5.3	360	5.8	1,373	17.6
Maintenance	-	-	-	-	105	0.6	105	0.7	105	0.8	315	2.1
Civil Defense Volunteer Village												
Water Resources Dev.	-	-	24	38.4	24	38.4	24	38.4	24	38.4	96	153.6
DOLA												
Small scale resources	262	61.2	600	67.0	600	133.0	600	160.0	600	187.0	2,662	608.2
RID												
Small scale irrigation	466	1,015.5	500	1,345.0	500	1,545.0	500	1,775.0	500	2,040.0	2,466	7,720.5
DOH												
Poverty Area Development Projects												
Monastery, schools	700	17.5	500	17.5	500	17.5	500	20.0	500	22.5	2,700	95.0
Family rainwater tanks	1,500	4.5	1,500	4.5	3,000	10.5	3,000	12.0	1,683	7.5	10,683	39.0
Village Development Project												
Monastery, schools	75	3.0	50	2.0	50	2.0	50	2.0	50	2.0	275	11.0
Secretariat of Prime Minister: Rural Employment Generation Project												
Misc. Water Sources	8,759	623.8	-	925.0	-	1,016	-	-	-	-	-	-

(Million Baht)

	1982		1983		1984		1985		1986		Total	
	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget	Target	Budget
DOLA												
Peoples Irrigation Project	150	15.9	95	15.8	60	19.0	-	22.8	-	27.4	-	108.9
DCD												
Provincial Dev. Plan rainwater tanks	-	-	-	-	182	5.1	182	5.1	182	5.1	346	15.3
Dug wells	-	-	-	-	-	-	144	0.6	144	0.6	280	1.2

Notes:
1. All figures are funds for construction, exclusive of administrative and directive expenses.
2. Figures of 1982 are factual.
3. Figures of 1983 are according to plans for which funds have been appropriated.

Source: NESDB (February 1983) Guidelines for the Provision of Domestic Water Supply in Rural Areas, Bangkok: Subcommittee on Water Resources Planning, CIPO/NESDB.

Extensive water resource development is underway through the RJCP under the Secretariat of the Prime Minister. In 1983, 2,578 ponds, 3,251 shallow wells, and 687 drilled wells (some of which included piped systems) have been constructed by local contractors and village labor.

The Sanitation Division of the MOPH is promoting the construction of locally financed, rainwater catchment containers (1.0 m^3 and 3.5 m^3) and household filters. Village craftsmen are being trained to build these units to sell at about 500 to 800 baht and 2000 to 3000 baht for rainwater catchments and 200 to 300 baht for home filters. The MOPH will also give target villages 15,000 baht to start revolving funds from which money can be borrowed to finance the construction of these containers and filters as well as latrines and biogas units. Tambol council members and health officers are being trained to manage and finance these funds and to promote the program. The target for the Fifth Plan is to train 43,250 council members, 17,000 village craftsmen, and 1,697 tambol health officers. The long term goal is to provide over 6 million households with at least one of each of the units by the end of the Sixth Plan. (Further description and evaluation of these revolving funds is found in Chapter VI.)

2. The "Master Plan"

A Decade Plan for the Provision of Rural Drinking Water Supply and Sanitation is now being developed by the Center for Integrated Plan of Operation (CIPO) of the NESDB and funded by the Asian Development bank (ADB). The AIT has been subcontracted for 18 months (starting May 1983) to assist CIPO in preparation of the plan. A Task Force comprised of representatives from RTG agencies and chaired by the Director of CIPO, has been established to assist in supervising the AIT contract (see Appendix III for a list of members of the Task Force).

The water supply component of the "Master Plan" will consider the Thai population living outside the service area of the Metropolitan Waterworks Authority (Bangkok), the PWA (including all existing rural piped water systems to which it provides technical support), and about 50 piped private water supply concessions. The sanitation component will cover all communities lacking sewer facilities.

The Master Plan development project is composed of five phases. Phase 1 will evaluate the results of previous programs, determine the demand of the population for domestic water and sanitation facilities up to 1991, define rural health conditions and evaluate the effect of improved water supply and sanitation, assess technical options and costs and provide recommendations for optimizing village level implementation. Phases 2 and 3 will consist of collecting and analyzing additional field data needed to meet the objectives of Phase 1. Phase 4 will establish criteria to determine the priorities for program implementation and develop of a detailed implementation strategy. These criteria will include an assessment of user affordability, user need (projected and perceived), likelihood of community participation in system implementation, implementation capabilities of the agencies involved, and regional, provincial, and district priorities of the RTG. Phase 5, will involve development of a 5 year investment program. This will delineate

institutional responsibilities, cost estimates, definition and role of beneficiaries, definition of system ownership and responsibility, development of operation and maintenance plans, a plan for procuring required hardware and services, financial analyses, and benefit-cost analyses.

The Australian Development Agency Bureau has provided a grant to the NESDB for the purpose of developing three provincial master plans, within the general framework of the AIT Master Plan, for the small scale water supply sector in three provinces in the Northeast (Khon Kaen, Maha Sarakham, and Roi Et). The project will be implemented by an Australian team and NESDB counterparts in close coordination with the AIT. Cooperative efforts will be coordinated through the provincial governor to the provincial offices of the participating agencies (MOPH, ARD, MRD, DOLA, DCD). NESDB anticipates that this project will provide significant input to the formulation and implementation of the National Master Plan on Rural Water Supply and Sanitation from a "bottom up" perspective.

A Technical Support Team has been established among UNDP, WHO, UNICEF and IBRD representatives to coordinate their efforts regarding assistance to the RTG in water supply and sanitation activities.

3. Technical Constraints

Many different water supply schemes are being promoted without knowing their effect on health status (e.g. reduced morbidity from diarrheal and other water borne diseases). Implementation strategies that are being promoted may not be the most cost-effective. For example, the relative health benefits of using rainwater catchments vs. improved, shallow dug wells with handpumps, or open shallow wells and home sand filters, is not known. Nor is it known if it makes any difference if rainwater catchments are poorly managed. There are no specific criteria that allow different drinking water supply technologies and how they are actually utilized to be evaluated for their relative impact on health. Worldwide, very little work has been done on these questions, particularly the effect on health status of using marginally safe water. In Thailand, predictive relationships between water quality indicator parameters (e.g. total coliforms, fecal coliforms) and reductions in diarrheal morbidity and/or malnutrition as a function of different water supply schemes could be developed which would allow for such evaluation.

Existing monitoring capabilities are not adequate for evaluation of the quality of drinking water available from different technologies and management schemes. Quality assurance methodologies need to be developed and practiced in laboratories to ensure that the data reported is reliable.

Large RTG resources are currently committed to the operation and maintenance of handpumps. The annual pump maintenance costs per drilled well are high (reported by one agency to be almost equal to the capital cost of the pump). Most of the drilled wells with hand pumps are maintained free of charge (including spare parts) by the agencies responsible for their initial installation. Villages are responsible for basic maintenance such as greasing and tightening of loose bolts while agencies make larger repairs upon village requests or during routine inspection. According to agency officials, high maintenance costs can be attributed to the use of handpumps that have structurally weak components or inadequate village maintenance.[13/]

Most of the wells with handpumps probably provide safe water. However, the extent to which this water is used for drinking varies greatly depending upon the availability of better tasting alternative source waters, some of

which may be contaminated. High iron content is generally the cause of "bad tasting" well waters in Thailand. Simple technologies could be developed for application in the home (e.g. filter devices) or at the well site (e.g. a replaceable ion exchange resin at the outlet of the handpump) which would make the water more palatable. In-country expertise is available to develop, evaluate, and promote such technologies, but efforts to do so appear to be relatively small.

The home slow sand filter currently being promoted by the MOPH has great potential for improving the acceptability of well water for drinking. However, its effectiveness for improving taste and for removing pathogens from contaminated waters may be significantly improved under operating conditions different than those now being promoted or practiced. For example, using only sieved sand (currently a mixture of sieved and coarse sand is used) would improve iron and pathogen removal, however at a decreased flow rate. Testing and evaluation methodologies for assessing such technologies, and their acceptance by villagers under a variety of conditions, need to be established. Existing resources at the regional sanitation centers appear too limited to these analyses.

4. Financial/Management Constraints

Currently, well installation and maintenance are provided free by the RTG. Since their resources are limited, shared community financing through matching funds and/or assumed greater maintenance responsibility would allow for extension of existing coverage. The MOPH has already demonstrated that transferring maintenance responsibilities, including part replacement costs, can greatly reduce the maintenance cost burden to the RTG. The success of shared community financing will hinge on village management capabilities and the adoption of similar or complementary policies by the different RTG agencies involved with water systems.

Although the opportunities exist, there is little private sector involvement with drinking water technologies in most village communities. Potential areas of involvement include: a) evaluation, development, and manufacture of an optimum handpump and a submersible motor pump, b) development and marketing of simple on-well site iron removal technologies, c) development and marketing of home treatment devices for removing pathogens and/or iron and d) expanded marketing of existing tube well installations with simple handpumps and their maintenance.

5. Knowledge and Attitudinal Constraints

On the village level there is a strong demand for additional water sources but little perceived need for "safe" water. This appears to have a significant influence on the preference, home management, and market demand for different drinking water supply options. Good tasting, contaminated surface waters are often preferred over poorer tasting, but safe well waters. Without a perceived need for safe water, little market demand can be expected for homefilters for treating contaminated water.

The MOPH is providing health education at the village level using radio, television, posters, and human services. However, the effectiveness of this effort in promoting understanding of the value of safe water and of technologies available for obtaining it, appears to have had only limited success. Evaluation of existing efforts is needed to determine how the behavioral impact of these programs can be improved. Assistance in the design of more effective marketing strategies could be sought from the private sector.

A major project is now underway that should address some of the above concerns. The MOPH and the DCD, through funding from UNICEF, will be conducting social preparation activities in water and sanitation for village leaders, village development committees and interested women's groups. The project will also include community involvement with the construction and maintenance of deep wells and handpumps, and in the decision-making on the selection of appropriate technologies for providing safe water.

6. Policy Constraints

In the past, the RTG has committed extensive resources to the installation and maintenance of deep wells and relatively fewer resources to the development and sanitary improvment of shallow wells (e.g. sanitization and installation of simple handpumps). This appears to be changing given the MOPH projects under way and the Rural Job Creation Program. The optimum strategy for promotion of both well technologies has not yet been determined.

Many of the drilled wells that have been installed are underutilized because of the limited yield available with the existing handpumps. Conceivably, 20 to 40 percent of all deep wells now in operation with handpumps could be installed with submersible pumps, resulting in a more than tenfold increase in yield from the same well. Many of these systems could have distribution system piping installed. This could provide safe water at a relatively low cost per volume. Existing government policy is to restrict agency purchase of submersible pumps (which are not currently manufactured in Thailand) and to promote use of handpumps (which are manufactured in Thailand). Submersible pumps have relatively low capital and recurrent costs if correctly installed.

C. Sanitation

1. Coverage

In the 1976 NSO household survey, 23.4 percent of the rural population used water-seal latrines and 13 percent used pit privies. An MOPH household survey (1979) found that 32.3 percent used water-seal latrines and 9.1 percent used pit privies. Ninety-five percent of households not using a latrine reported going "to the bush", 3.5 percent shared with other households and 1.5 percent disposed in water sources. In March 1983, the MOPH reported that 42.3 percent of the rural households had water-seal latrines. Latrine coverage appears to be growing rapidly under the promotion of the MOPH. Most of the water-seal latrines that already exist appear to be well kept and sanitary. However, latrine coverage in different villages varies from 20 to over 95 percent, depending on community wealth, past subsidy from the RTG or donor institutions.

The Sanitation Division of the MOPH is promoting latrine construction under the same revolving fund program previously described for rainwater catchment containers and home sand filters. Until recently the double vault latrine and the water-seal latrine were both being promoted under the 5th Plan. However, because of apparent social unacceptability, only the water seal latrine is now being promoted. A small number of biogas units are also being promoted to a select population.

2. Constraint Analysis

The major constraints to increased latrine coverage are the lack of a perceived need for latrines, and adequate financing. Many villagers own relatively expensive rainwater cisterns but have no latrine. Villagers often prefer having a rainwater cistern before a latrine, even if water is already available nearby from a public well. Latrine construction may be more rapidly promoted if financing for purchase of a cistern through the village revolving fund is contingent upon simultaneous financing for the acquisition of a latrine.

Technologies are being introduced which may not be sufficiently understood by villagers to fully appreciate their benefits. For example, double vault aqua-seal latrines appear to be unpopular because of the "need to handle excreta". A better understanding of this technology, excreta in its decomposed state, and the economic benefits from excreta use, might significantly affect the demand for this type of latrine.

Biogas units appear generally unpopular because of their high capital cost, taste preference for charcoal cooked food and difficulties in maintainance. Promotion of biogas may be improved with better training of owners in operation and maintenance. Developing awareness of the contributions of this technology to deforestration control, nutrient conservation and improved sanitary conditions, might make its ownership more popular.

D. Recommendations

AID should coordinate its efforts with the NESDB and the Technical Support Team (including the UNDP, WHO, UNICEF, and the IBRD) to determine where assistance to the Rural Water Supply and Sanitation Master Plan may be appropriate. Specific assistance needs identified in this assessment are given below.

Technical Assistance

Technical assistance should be provided to determine how rural water supply and sanitation schemes can be expanded. Possible areas of opportunity include: (a) evaluation, selection, and manufacture of optimal handpumps for different lifting capacities and a submersible motor pump, (b) development and marketing of simple at well-site iron removal treatment technologies, (c) development and marketing of home treatment devices for removing pathogens and/or iron and (d) expanded marketing of existing shallow tube well technologies with simple handpumps. Provide investment capital to encourage entrepreneurs to undertake the above ventures.

Provide technical assistance to improve education of village communities on the relationship between contamined drinking water and disease transmission, preventive measures and simple low cost options for obtaining, safe water. Improve and expand monitoring to determine the effectiveness of different educational strategies (e.g., television, radio, communication via MOPH human services network).

Provide technical support to the National Environmental Board in the design of a national drinking water quality survey.

Training

Support training for the staff of Environmental Health and Sanitation Divisions to incorporate quality assurance methologies in all laboratories responsible for analyzing and reporting drinking water quality data.

Support training to MOPH Regional Sanitation Division staff to improve evaluation and promotion of appropriate technologies. Training should have social, economic and technical components.

Provide training to improve cost optimization design and analytical capabilities of personnel within agencies responsible for designing piped water systems vis a vis alternative technologies.

Support training in the operation and maintenance, management, budgeting, and financing of village owned and operated piped systems.

Research

Support studies to establish predictive relationships between diarrheal morbidity and other health indicators as a function of use of different water supply schemes and different water qualities (as measured by water quality indicators such as total coliforms, fecal coliforms).

Support a study to determine how government maintenance costs for handpumps could be minimized. Issues that need to be addressed include: selection and distribution of optimum handpumps, increase community responsibility in maintenance, community financing and interagency cooperation.

Assess the costs and benefits of replacing handpumps with submersible pumps in existing high yield deep wells. Issues to be considered include: operation and maintenance, increased delivery of safe water, acceptability of this water for drinking, incorporation of technologies to make the water more palatable, the feasibility of associated piped distribution systems, and shared community financing.

Support the PWA to study the cost-effectiveness of slow sand vs. rapid sand filtration treatment for piped water systems.

Study the feasibility of village self-financed or partially subsidized shallow driven well technologies, including the installation and maintenance of small handpumps. This technology may be an appropriate option for small

groups of households in areas with high water tables. Linkage with simple home slow sand filters may be a cost-effective strategy in areas with otherwise unpalatable water.

Support research through the provision of technical assistance and funds, for the development and evaluation of appropriate water supply and sanitation technologies. Several technologies have already been developed that require further evaluation, and possibly modification, before they should be promoted for wide scale use. These include horizontal prefiltration followed by slow sand filtration (developed by AIT), a home filtration device using coke and burnt rice husk to remove iron (developed by PWD), and a home slow sand filter to remove pathogens and iron (developed by MOPH).

Financial Assistance

Provide financing to the RWS for the rehabilitation of the 40 to 50 village-owned systems no longer in service. The RWS has estimated that this effort would require about US $5,000 to $7,000 per system for physical improvements, training and education.

Provide loan assistance to increase the initial capitalization and coverage of village revolving funds for water supply and sanitation technologies. Provide technical assistance to develop guidelines to villages for the efficient and equitable distribution of loan funds.

CHAPTER VI NOTES

1. USAID/Thailand (June 1983) Provincial Waterworks Authority Institutional Development Project Paper, Bangkok: USAID (Project No. 493-0331), plus update on systems constructed by the RWS and PWD since the PWA was established (1979).

2. Chooprasert, Wanchai (September 26, 1983) Personal communication.

3. Loans from AID and JICA for the extension of PWA's operations are pending approval.

4. Karnkaew, Chetpan (September 30, 1983) Personal communication.

5. Arbuthnot, J. and Thomas R, H. (July 1981) Village Water Supply and Sanitation in Northeast Thailand, Rosslyn, VA, WASH (OTD No. 38), pp. 40-49.

6. Publications by Tranh, N.C. (1975, 1977, 1978, 1981, 1982, 1983). Some questions remain regarding the range of turbidity for which horizontal prefiltration followed by slow said filtration is the most cost-effective technology, i.e. increasing water turbidity will increase the frequency (and hence cost) with which filters must be cleaned and/or replaced.

7. Provincial Waterworks Authority (October 1982) Slow Sand Filtration Research and Demonstration Project, Bangkok: PWA, 78 pp.

8. Arbuthnot, J. and Thomas, R. H. (July 1981) op. cit, pp. 35-37.

9. Karnkaew, Chetpan (September 30, 1983) Personal communication.

10. National Institute for Development Administration (September 1978) Evaluation of Rural Water Supply Projects in Thailand, Bangkok: NIDA, 178 pp.

11. Ministry of Public Health (March 1982) Community Household Survey on Environmental Health Conditions, Perceived Sicknesses and Utilization of Health Service Resources, Bangkok: Health Planning Division/MOPH, 59 pp.

12. The MOPH estimate that 25 percent of the population uses safe water is much higher than NIDA estimate (1976) of 9.3 percent. The NIDA estimate was based on assumptions about water use for existing facilities as of the end of the Fourth Plan. Data from the 1982 census of water supply and sanitation facilities conducted by Mahidol University (not available as of September 1983) should provide clarification of this issue.

13. In the UNDP-World Bank evaluation of handpumps in developing countries, the "Korat 608" handpump (which is one of the more popular in Thailand) was rated as "robust and potentially suitable for community water, supply, good for pump performance and reliability, but poor for ease of maintenance".

CHAPTER VII
SYSTEMIC ISSUES

In the process of reviewing MOPH programs in Primary Health Care, Nutrition, Expanded Program on Immunization, Control of Diarrheal Disease and Water Supply and Sanitation, several systemic weakness and issues were identified which might benefit from AID assistance. The issues identified include: Health Planning and Management, Health Financing and Bio-Medical and Health Services Research.

A. Health Planning and Management

1. Description of the Problem

Assessment team members observed that data concerning the extent, severity and causation of major health problems, and management information concerning the performance of the health system, are often inadequate. For example, mortality data on infants and pre-school children, are highly under reported, making the extent and severity of many problems difficult to accurately assess. Most of the data provided were numerators with little emphasis on rates which could give meaning to the numbers presented. Finally, many of the health officials interviewed could not readily produce the key demographic, health problem, and program performance data which one would expect a health manager to have readily at hand.

The epidemiology and statistics branches of the MOPH have made great efforts to improve data availability and quality of data, and their staff are aware of current shortcomings. However, at the provincial level and below, the quality of the data was particularly poor, and there appeared to be minimal understanding among peripheral health staff of the problems with the data.

Another problem which received considerable attention in a variety of documents and during team field visits, is the lack of effective health management at the district level. This was attributed to the lack of adquate training in planning and management for district personnel, the lack of adequate budget for DHO tasks, the lack of incentives for continuing education, and conflicts between the physician-in-charge of the community district hospital and the district health officer.

One district health officer interviewed suggested that DHOs should be given full responsiblity for all public health activities in the district, and should be provided with adequate transport and budgetary resources to carry out their programs and supervisory responsibilities effectively. It seemed clear to the assessment team that some clarification of management responsibilities at the district level is needed.

2. Recommendations

Given the RTG's commitment to the Primary Health Care approach which decentralizes responsibility and has as its major component village level health workers, it is vital that an adequate supporting structure be present to insure the functioning and thus potential impact of such a village-based system. Given the short time that the team had to accomplish its task, it was not possible to identify specific management areas in which assistance was needed. For this reason the team recommends that a health management needs assessment be performed in order to clearly articulate specific management weaknesses and appropriate training interventions.

At all levels in the MOPH, the need for management training was voiced with recurrent consistency, especially for workers at the district level and below. While some management training programs are currently in progress, curricula and training programs should be strengthened and expanded. Projected areas of curricular emphasis are:

- Information systems and data analysis for health management.
- Financial management of health facilities and public health programs.
- Logistics and supply management.
- Supervision and on-the-job training support.
- Program/performance monitoring and evaluation.

Although the number of trainees is potentially large, the team felt that it is important that training be done by highly skilled, experienced trainers located at a limited number of centers, possibly giving short courses through mobile training teams. This approach would maintain a high level of quality in the training. Experience in the PHC volunteer training program has shown the difficulties of maintaining consistency and quality of training as responsiblity is shared among a large number of minimally trained trainers.

Toward these ends, the Division of Health Planning has proposed the establishment of a new National Health Management Training Institute with regional training sites to serve the specific management training needs of the MOPH. Consideration should also be given to the AID proposed Thai Development Institute which could provide the RTG with additional capacity in policy formulation, planning and administration in all sectors, including health. Alternatively these same objectives might be achieved through expansion and improvement of existing facilities such as the MOPH Regional PHC Training Centers. Management schools in Thai universities, and management training firms in the private sector, might also be resources which could be tapped for assistance with MOPH management training needs. The Management Education Institute (IMET), currently receiving funding by AID, might be provided additional funds to work on a consultant basis with existing/new managment training facilities. Finally, it is recommended that there be health management courses in government schools of Medicine, Nursing, Midwifery and Sanitation.

B. Health Financing

1. Description of the Problem

At present, the RTG is at a "crossroads" with respect to policy decisions about the financing of public health services. The central government's allocation to the health sector is not likely to increase from its historical level of about 5 percent of the total government budget and about 0.8 percent of GDP. GDP growth for the 1980's is projected at slower rates (from 5.5 to 6.0 percent per annum) than during the 1970's, thus slowing the growth of government revenues and hence revenues for the health sector.

At the same time, the emphasis of the Fifth Plan on the alleviation of poverty and the provision for Basic Minimum Needs would indicate a need for more resources in the health sector in order to expand and strengthen health services coverage in poverty areas and to upgrade the quality of the existing PHC system. National and provincial level budgetary data indicate that budget allocations are skewed in favor of medical care services, leaving less than a third of resources available for rural public health sevices. District health offices lack sufficient budget for the travel and per diem expenses required to provide adequate supervision to tambol health centers, and in turn to VHVs and VHCs.

Several externally funded projects to expand Thailand's system of public health facilities and personnel and to provide contraceptives, have already ended, or will shortly end. There are scattered reports that the RTG's health budget has insufficient funds to staff the new facilities at approved levels, to maintain equipment and to pay for supervisory per diems and other transportation expenses. Future donor financing from AID, Japan and the World Bank will be offered on various concessionary and market rate loan terms. The RTG has historically been reluctant to utilize loan financing for health sector projects and will likely continue to be so in view of Thailand's projected increasing debt service burden.

The MOPH has recognized the need to consider alternative sources of financing for the provision of public health services. A variety of revolving fund schemes (e.g. nutrition, drug and water supply and sanitation funds) have been started and are currently under evaluation by the NESDB with funding from AID. The MOPH is developing an additional revolving fund, the "MCH Development Fund" to generate revenues for antenatal, delivery and postnatal services and immunizations. However, questions about the viability, equity and efficiency of these schemes, and the impact of levying charges on the demand for health services (particulary preventive) remain to be answered. The government is also considering cutting back on the benefits provided by the Free Medical Care Services Project, which has lead to reductions in hospital revenue from fees for drugs and other services. To date, little evaluation has been done of the FMCSP which could guide decision makers in the policy changes needed.

2. Recommendations

In view of the RTG's interest in improving community financial support for the provision of cost-effective public health services, and USAID's strong interest in assisting countries to develop self-sustaining, health care programs, it is recommended that technical and financial support be provided for:

- Further studies of the community revolving funds to follow-up on issues/questions identified by the current NESDB/PRICOR research.

- Study of the MOPH's ability to finance the recurrent costs of previous and current donor efforts.

- Assessment of the cost-effectiveness of village-level health volunteers as compared to alternative means (e.g., public media, drugstores in the private sector) whereby the functions of the volunteers might be carried out. Assessment should be made of whether the actual output of the VHVs and VHCs is of greater benefit than the costs of training and supervising them.

- Research into the efficiency of the operations of RTG hospitals and health centers, and the efficiency and equity of their revenue generating activities. Assessment of possible changes in the FMCSP should be pilot tested prior to widespread implementation.

Answers to many of the above questions may require funding of pilot project efforts. AID should provide support for the study of such pilot efforts.

AID should also encourage the formation of, and provide support to, a "Health Economics and Financing Policy Study Group" involving both the MOPH and NESDB. Such a group might be developed within the Health Policy Study Center at Mahidol University. Consideration should also be given to the placement of health economists within the Health Policy Study Center and the Health Planning Division of MOPH. Ideally Thai economists could be recruited for such positions. In addition, expatriate economists might be recruited as advisors on a temporary basis.

Finally, AID should provide assistance to formally instituting health economics and financial managment courses into the curriculum for health and managment professional training at Thai universities, in an effort to develop cadres trained in these disciplines.

C. Bio-Medical and Health Service's Research

1. Description of Research Needed

Research is need to help find solutions to operational and technical problems of delivering health services in Thailand. Research problems have been identified throughout this paper. Additional bio-medical research topics include:

- Acute respiratory diseases, which are a major cause of infant and child morbidity in Thailand.

- Malaria-related subjects, specifically vector control and identification, vector and host surveillance, and drug trials and resistance studies.

Additional health services research topics identified include:

- Examination of the viability, efficiency, and equity of existing/new cost-recovery efforts (revolving funds, hospital patient fee structures, physician/nurse/pharmacist registration fees, tax structure on import of essential drugs, etc.).

- Examination of possible health-related interactions between private and public sector and methods of coordination between them.

2. Constraints

Financial support for health-related research (e.g. from the National Research Council, universities or large hospitals) is limited. A significant proportion of financial support in the past has been provided by external sources (e.g. AID, WHO, CIDA, Rockefeller Foundation, etc.) but these sources have recently reduced their support for health research in Thailand.

3. Recommendations

AID should consider development of a research grants project to fund both basic and applied health research in Thailand. For example, monies could be granted to an existing institution such as the National Advisory Board of Disease Control and Prevention for basic research. Applied/ operational reseach monies could be channeled through the ASEAN Regional Training Center for Primary Health Care, the MOPH Health Science Research committee or the National Reseach Council. In designing strategy for such a project, it would be is important to strike a balance between basic and applied reseach to obtain the greatest informational gains. Alternatively, AID could provide technical assistance to strengthen the ability of Thai research councils and universities to raise public and private funds to support research. The project should also support activities which would more widely and effectively disseminate the research findings of RTG, AID and other donor-financed health reseach. Consultation with the WHO should be undertaken in the research area in order to avoid duplication of activities.

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APPENDIX I

PERSONS INTERVIEWED BY MEMBERS OF THE ASSESSMENT TEAM

Bangkok

Dr. Amorn Nondasuta (Permanent Secretary of Public Health)
Dr. Pirote Ningsanonda (Director General, Department of Health)
Dr. Pricha Desawadi (Director, PHC Office)
Dr. Prayura Kunasol (Director, Epidemiology Division)
Dr. Kong Suwanarat (PAFU)
Dr. Chawalit Sanikitrungruang (Nutrition Division)
Dr. Thavaj Chayaniyayodhin (Epidemiology Division)
Dr. Sawat Ramaboot (EPI and CDD)
Khun Kanchit (Planning Division)
Dr. Wichit Mathurosapat (Director, General Communicable Disease Division)
Khun Methi Chancharuporn (PHC Office)
Khun Santi (PHC Office)
Khun Chetpan Karnkaew (Director, Rural Water Supply Division)
Khun Thira Tasanathep (Sanitation Division)
Dr. Sirikun Isiranaga (Family Health Division)
Dr. Nantha Uamkul (Family Health Division)
Dr. Mike Benenson (AFRIMS)
Dr. Krasae Chanawongse (Mahidol University, Faculty of Public Health)
Dr. Damrong Boonyuen (Director, Health Planning Division)
Khun Pisamai Chandavimol (Health Planning Division)
Khun Paisal Prigsang (Director, Sanitation Division)
Dr. Prayong Temchavala (Health Planning Division)
Khun Orathip Tanskul (NESDB)
Khun Visit (NESDB)
Dr. Chertsak Ratanacharn (Health Planning Division)
Khun Pricha Chulavachaha (UNICEF)
Dr. Boonyarak Ningsanonda (NESDB)
Dr. Yongyoot Satjavanich (Director, Government Pharmaceutical Organization)
Dr. N.C. Thanh (Asian Institute of Technology, Master Plan Coordinator)
Dr. M.R. Chalermsook Boonthai (Director, Health Statistics)
Khun Charoen Chamthaisong (Senior Hydrogeologist, Ground Water Division, Department of Mineral Resources)
Dr. Wanchai Chooprasert (Planning Director, PWA)
Khun Niyom Niyamonusorn (Chief, PWSD)
Khun Pannarai Kwantackit (Technical and Environmental Planning, NESDB)
Khun Chamnien (Department of Community Development)
Khun Charamporn (Department of Community Development)
Khun Songkram (Department of Local Administration)
Khun Preena Leepattanaphan (ARD, Ministry of Interior)
Dr. Roger Chical (Programme Coordinator and Representative, WHO)
Mr. Walter McCanne (WHO)
Mr. Van Branteghem Rox (Programme Officer, UNDP)
Mr. David W. Shideler (Masters Candidate)

Lampang

Dr. Uttana Vejosoth (Provincial Hospital Director)
Khun Priaow (Phamacist)
Khun Benja (Chief, Health Promotion Division, PHO)
Khun Panee (Acting Chief, CDC Section, PHO)
Khun Saman Nimnuan (Chief, Health Education & Training Section, PHO)
Khun Songsak Sritoomma (Director, Sanitation Center, Region 5)
Khun Tok (Chief Sanitary Engineer for Lampang Project)
Khun Wichien (Rural Water Supply Center, Region 4)
Dr. Sommai Yasamut (Head, Dept. of Community Medicine, Provincial Hospital)
Khun Tawatchai Trakulphanichkit (District Health Officer, Jae Hon District
Jae Hom District Hospital Staff
Ban Sah Health Center Staff

Korat

Khun Sawai (Vice Governor, Korat Province)
Dr. Paichit Pawabutr (PCMO)
Dr. Samak Srichariya (Director, Technical & Health Service Promotion Office)
Khun Pisavong Chinavong (Head, Health Education & Training)
Khun Paitoon Mahothorn (Head, Planning & Evaluation)
Khun Sumonpon (Nutrition Supervisor)
Khun Praserd Silapanond (District Health Officer, Sung Noen)
Khun Yongyut Klinprathum (Head, Sanitation Section)
Khun Pateep Sinibhodi (Director, Sanitation Center, Region 3)
Khun Chairat Hinthong (Director, Rural Water Supply Center, Region 2)
Khun Prathom (Deputy District Officer, MOI)
Sungnoen District Hospital Staff

Ban Mak Greakao Village Council Members
Staff of Mahidol University Community Health Training Center

Chiang Mai

Dr. Pian Chiowanich (Pediatrics Department, Chiang Mai University)
Mr. Stanley Zankel (UNFPA, Mae Chaem Health Development Project)

WASHINGTON, D.C.

Mr. Larry Brown, PRE/AID/W
Dr. Charles Myers, Harvard Institute for International Development
Mr. William Nance, ASIA/PTB, AID/W
Mr. David Radel, PHN, World Bank

APPENDIX II

APPENDIX TABLES

APPENDIX TABLE 3.1
ESTIMATED ALLOCATION OF MOPH BUDGET BY DEPARTMENT
1982-1986

(Million Baht)

Department-MOPH	Budget Projections 1982	1983	1984	1985	1986	Total	% of Total
Office of Permanent Secretary	4,733.29	5,515.13	6,483.69	7,503.52	8,681.43	32,917.06	75.10
(annual percent change)		(+16.5)	(+17.6)	(+15.7)	(+15.7)		
Department of Medical Services	681.27	758.59	744.58	846.70	964.65	3,995.79	9.12
		(+11.4)	(-1.9)	(+13.7)	(+13.9)		
Department of Medical Sciences	56.32	67.91	80.70	94.15	109.69	408.77	0.93
		(+20.6)	(+18.8)	(+16.5)	(+16.5)		
Department of Health	363.53	415.18	489.74	568.26	658.94	2,495.65	5.69
		(+14.2)	(+18.0)	(+16.0)	(+16.0)		
Department of Communicable Disease Control	558.14	650.84	756.89	868.55	997.52	3,831.94	8.74
	(+16.6)	(+16.3)	(+14.8)	(+14.9)	(+14.9)		
Office of Food and Drug	44.29	26.90	31.31	36.70	42.92	182.12	0.42
		(-39.3)	(+16.4)	(+17.2)	(+17.0)		
Estimated Total	6,436.84	7,434.55	8,586.91	9,917.88	11,455.15	43,831.33	100.00
(percent increase)		(+15.5)	(+15.5)	(+15.5)	(+15.5)		
Revised Estimate	6,652.32	7,902.41	8,656.80	9,493.66	10,396.88		
(percent increase)		(+18.8)	(+9.5)	(+9.7)	(+9.5)		

Source: Health Planning Division, MOPH.

APPENDIX TABLE 3.2

Per Capita Expenditures on Health Versus Ability to Pay, by Pro

Region and Province	(1) Percent of Employment outside agriculture[1] (1970)		(2) Per Capita Total MOPH Expenditure[2] 1973		(3) Per Capita MOPH Expenditures on Improvement of Provincial Hospitals[3] 1973	(4) Per capita MOPH Expenditures on Provincial and District Health Adm. & Improvement & Expansion of Health Centers[4] 1973		(5) Non-budgeted per capita Expenditure (revenues f hospitals & health cent contributio etc)[5] 1	
	%	Rank	Baht	Rank	Baht	Baht	Rank	Baht	Ra
Region 1									
Bangkok (Phra Nakhon)	91.67	1	1.02	67	0.00	1.01	67	na	x
Saraburi	27.93	12	20.92	13	15.78	4.02	51	19.92	3
Ayutthaya	37.89	9	11.78	36	4.43	6.50	20	3.54	46
Pathum Thani	34.04	10	16.88	20	8.24	8.50	10	2.95	46
Lopburi	23.31	19	13.17	31	7.04	6.12	25	8.92	19
Chai Nat	16.02	35	13.02	32	6.83	6.19	22	12.42	8
Singburi	22.64	23	15.31	26	13.57	1.44	65	8.81	21
Nonthaburi	49.43	4	16.25	24	10.35	5.67	32	3.77	45
Ang Thong	22.78	20	17.06	19	8.96	7.84	14	8.16	24
Region 2									
Chonburi	40.24	8	14.19	29	6.78	6.96	17	10.76	14
Chachoengsao	22.73	22	11.58	40	5.49	5.81	29	na	x
Rayong	23.56	17	18.76	16	10.56	6.54	19	na -	x
Chantaburi	22.77	21	32.17	5	16.19	8.64	9	23.57	2
Trat	23.97	16	29.39	7	13.60	13.97	2	19.03	4
Prachinburi	16.64	33	10.91	43	5.43	4.74	42	12.76	7
Nakorn Nayak	19.61	27	18.72	17	8.41	7.50	15	23.67	1
Samut Prakan	61.89	2	11.80	35	5.73	5.80	30	4.11	43
Region 3									
Ubon Ratchathani	8.51	56	11.64	39	4.69	5.12	39	11.95	10
Nakorn Ratchasima	14.50	39	9.93	46	6.27	3.45	58	5.30	34
Buriram	5.75	62	7.31	59	2.77	4.26	48	5.26	35
Surin	5.96	61	6.62	54	2.55	3.03	61	0.83	54
Sri Saket	4.19	66	6.91	52	2.30	4.22	49	na	x
Chaiyaphum	6.29	60	6.65	53	3.06	2.91	62	4.54	41
Yasothorn[6]	na	x	9.53	48	2.83	6.44	21	5.02	36

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APPENDIX TABLE 3.2 (continued)

Region and Province	Percent of Employment Outside agricultural (1970)		Per Capita Total MOPH Expenditures[2] 1973		Per Capita MOPH Expenditures on Improvement of Provincial Hospitals[3] 1973	Per capita MOPH Expenditures on Provincial and District Health Adm. & Improvement & Expansion of Health Centers[4] 1973		Non-budgeted per capita Expenditures (revenues from hospitals & health centers contributions etc.)[5] 73	
	%	Rank	Baht	Rank	Baht	Baht	Rank	Baht	Rank
Region 4									
Udorn	11.13	47	6.43	65	2.72	2.76	63	4.98	37
Khon Kaen	10.47	50	7.38	57	3.15	3.84	54	8.78	22
Maha Sarakham	4.43	65	7.50	56	2.23	4.32	46	5.72	33
Roi Et	4.98	64	7.15	60	3.38	3.83	53	5.84	31
Kalasin	5.34	63	8.38	52	2.85	5.12	39	0.45	55
Nakorn Phanom	8.28	57	10.03	44	5.71	4.66	45	6.21	23
Sakorn Nakorn	7.42	58	9.89	47	3.60	4.20	50	4.77	39
Nong Khai	10.50	49	11.66	30	5.09	6.17	23	4.82	38
Loei	6.52	59	19.35	15	10.85	7.98	13	4.60	40
Region 5									
Lampang	16.60	x	na	x	na	na	x	na	x
Chiang Mai	23.42	18	13.52	30	5.91	6.73	18	3.36	47
Mae Hong Son	12.22	45	24.33	10	20.60	3.35	59	na	x
Lamphun	15.24	36	10.23	45	4.92	5.30	37	4.23	42
Prae	14.99	38	16.29	23	9.37	5.60	33	11.24	13
Nan	9.02	55	18.34	18	12.08	5.44	34	12.07	9
Chiang Rai	9.72	53	7.53	55	3.97	3.04	60	0.89	53
Uttaradit	13.81	43	7.84	54	6.26	1.27	66	9.81	17
Region 6									
Phitsanulok	14.27	41	19.62	14	13.12	5.04	41	16.84	5
Sukhotai	10.99	48	11.69	37	6.85	3.41	56	0.12	58
Tak	17.03	31	27.32	8	22.14	4.27	47	13.15	6
Kampaeng Phet	9.50	54	9.10	49	5.61	3.40	57	7.35	27
Uthai Thani	10.14	51	16.36	22	5.66	8.39	11	11.48	11
Nakorn Sawan	19.46	28	11.02	42	4.81	5.32	36	10.47	15
Phichit	13.15	44	7.24	59	2.18	4.67	44	1.89	49
Petchabun	43.76	x	na	x	na	na	x	na	x
Region 7									
Nakorn Pathom	26.82	14	8.48	51	2.18	5.97	28	na	x
Suphanburi	15.09	37	4.98	66	3.40	1.48	64	na	x
Kanchanburi	20.76	25	12.52	33	5.90	6.12	25	6.93	28
Ratchaburi	30.54	11	21.93	12	-14.61	5.30	37	1.60	50

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APPENDIX TABLE 3.2 (continued)

Region and Province	Percent of Employment outside agriculture[1] (1970)		Per Capita Total MOPH Expenditure[2] 1973		Per Capita MOPH Expenditures on Improvement of Provincial Hospitals[3] 1973	Per capita MOPH Expenditures on Provincial and District Health Adm. & Improvement & Expansion of Health Centers[4] 1973		Non-budgeted per capita Expenditures (revenues from hospitals & health centers contributions etc.)[5] 1973	
Region 7 (continued)	%	Rank	Baht	Rank	Baht	Baht	Rank	Baht	Rank
Petchaburi	27.54	13	7.86	53	3.71	3.94	52	6.15	29
Prachuab Khiri Khan	25.42	15	12.14	34	6.27	5.69	31	5.97	30
Samut Songkhram	42.08	5	7.15	60	0.00	6.17	23	0.18	57
Samut Sakorn	42.27	7	14.44	27	7.81	6.06	27	3.81	44
Region 8									
Nakorn Sri-Thammarat	14.02	42	8.57	50	2.06	3.80	55	1.49	51
Krabi	11.90	46	33.37	3	21.60	11.31	5	8.85	20
Phuket	57.90	3	24.74	9	15.19	8.73	8	-n.a.	x
Phang Nga	34.20	x	n.a.	x	n.a.	n.a.	x	0.35	56
Ranong	45.44	6	45.62	1	27.88	17.73	1	n.a.	x
Chumphorn	18.30	30	15.82	25	7.35	8.38	12	9.98	16
Surat Thani	16.33	x	n.a.	x	n.a.	n.a.	x	n.a.	x
Region 9									
Songkhla	19.80	26	40.25	2	33.56	5.43	35	9.79	18
Phattalung	9.81	52	14.42	28	5.21	9.09	7	1.46	52
Trang	19.40	29	11.12	41	5.61	4.68	43	7.57	26
Sathun	14.41	40	22.50	11	11.17	10.76	6	5.77	32
Pattani	16.72	32	16.56	21	7.48	7.10	16	7.73	25
Yala	21.61	24	30.72	6	18.28	12.28	4	n.a.	x
Narathiwat	16.38	34	32.30	4	19.86	12.29	3	11.46	12

Source: Molldrem, Vivikkn (March 1975) A Look at Programs to Expand the Rural Health Delivery System in Thailand, pp. 8-10, (mimeo).

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APPENDIX TABLE 3.3
SOURCE OF DISTRICT HOSPITAL INCOME
1980

(Baht)

Type of Facility Name	RTG Budget (% of Total)	In-Kind Budget (% of Total)	Revenues Collected (% of Total)	Total (100%)
60 Bed Hospitals				
That Panom	1,958,802 (46.8)	29,033 (0.7)	2,195,880 (52.5)	4,183,715 (100.0)
Panasnikom	1,512,080 (19.3)	3,114,369 (39.8)	3,193,244 (40.8)	7,819,693 (100.0)
30 Bed Hospitals				
Chomthong	1,579,782 (55.0)	252,940 (8.8)	1,038,109 (36.2)	2,870,831 (100.0)
Tha Boh	1,730,008 (47.5)	75,334 (2.1)	1,833,173 (50.4)	3,638,515 (100.0)
Phanom Sarakham	1,824,733 (58.6)	50,425 (1.6)	1,238,022 (39.8)	3,113,180 (100.0)
Chawang	1,796,115 (46.1)	71,518 (1.8)	2,031,472 (52.1)	3,899,105 (100.0)
10 Bed Hospitals				
Sa	831,643 (57.8)	14,958 (1.0)	593,441 (41.2)	1,440,042 (100.0)
Wathana Nakhon	904,603 (46.6)	174,879 (9.0)	861,353 (44.4)	1,940.835 (100.0)
Hua Sai	702,060 (47.6)	32,775 (2.2)	741,290 (50.2)	1,476,125 (100.0)

Source: Ministry of Public Health (1980) Study of Cost of Rural Health Facilities in Thailand, Bangkok: MOPH, pp. 183-5, (in Thai).

APPENDIX TABLE 3.4
SOURCE OF DISTRICT HOSPITAL GENERATED REVENUE
1980

(Baht)

Type of Facility Name	Drugs	X-Ray	Diagnostic Services	Food	Room	Donation	Other	Total (100%)
60 Bed Hospitals								
That Phanom	2,021,086	58,385	13,055	-	31,550	3,000	68,804	2,195,880
	(92.0)	(2.7)	(0.6)	(0)	(1.4)	(0.1)	(3.1)	(100.0)
Panasnikom	2,500,863	87,870	137,502	38,280	76,560	2,105	350,065	3,193,244
	(78.3)	(2.8)	(4.3)	(1.2)	(2.4)	(0.1)	(11.0)	(100.0)
30 Bed Hospitals								
Chomthong	902,815	22,520	9,540	-	24,440	-	78,794	1,038,109
	(87.0)	(2.2)	(0.9)	(0)	(2.3)	(0)	(7.6)	(100.0)
Tha Boh	1,179,952	191,370	179,440	-	35,100	3,972	243,339	1,833,173
	(64.4)	(10.4)	(9.8)	(0)	(1.9)	(0.2)	(13.3)	(100.0)
Phanom Sarakham	1,018,098	44,970	15,025	-	70,800	14,350	74,779	1,238,022
	(82.2)	(3.6)	(1.2)	(0)	(5.7)	(1.2)	(6.0)	(100.0)
Chawang	1,732,450	44,745	14,925	17,240	34,480	125,002	62,630	2,031,472
	(85.3)	(2.2)	(0.7)	(0.8)	(1.7)	(6.2)	(3.1)	(100.0)
10 Bed Hospitals								
Sa	494,495	17,910	290	-	-	5,451	75,295	593,441
	(83.3)	(3.0)	(0.1)	(0)	(0)	(0.9)	(12.7)	(100.0)
Wathana Nakorn	713,953	2,040	30,520	-	-	16,250	98,590	861,353
	(82.9)	(0.2)	(3.5)	(0)	(0)	(1.9)	(11.4)	(100.0)
Hua Sai	655,680	8,350	6,360	-	-	70,000	900	741,290
	(88.5)	(1.1)	(0.9)	(0)	(0)	(9.4)	(0.1)	(100.0)

Source: Ministry of Public Health (1980) Study of Cost of Rural Health Facilities in Thailand, Bangkok, MOPH, pg. 184, (in Thai).

APPENDIX TABLE 3.5
SOURCE OF HEALTH CENTER INCOME
1980

(Baht)

Regional Location / Facility Name	RTG Budget: Money (% of Total)	RTG Budget: Supplies (% of Total)	Revenues Collected (% of Total)	Total (100%)
Northern Region				
Mae Ka	61,194 (65.1)	22,564 (24.0)	10,266 (10.9)	94,024 (100.0)
Ban Klang	89,154 (57.5)	23,200 (15.0)	42,822 (27.6)	155,176 (100.0)
Thum Tong	122,210 (75.5)	37,499 (23.2)	2,110 (1.3)	161,819 (100.0)
Muang Jang	51,590 (79.3)	11,681 (18.0)	1,772 (2.7)	65,043 (100.0)
Northeast Region				
Ban Kok	65,751 (85.3)	7,897 (10.3)	3,394 (4.4)	77,042 (100.0)
Kok Sawai	79,990 (49.8)	54,397 (33.9)	26,150 (16.3)	160,537 (100.0)
Ban Mab Kruad	21,510 (36.7)	31,116 (53.0)	6,033 (10.3)	58,659 (100.0)
San Song Yang	59,700 (68.3)	21,786 (24.9)	5,925 (6.8)	87,411 (100.0)
Central Region				
Kok Kanun	54,420 (83.9)	10,459 (16.1)	- (0)	64,879 (100.0)
Prachantakham	101,100 (82.8)	18,190 (14.9)	2,841 (2.3)	122,131 (100.0)
San Phu Dad	27,620 (54.1)	23,144 (45.3)	336 (0.6)	51,100 (100.0)
Sala Naresuan	48,280 (81.1)	10,886 (18.3)	386 (0.6)	59,552 (100.0)

Regional Location Facility Name	RTG Budget Money (% of Total)	 Supplies (% of Total)	Revenues Collected (% of Total)	Total (100%)
Southern Region				
Ban Tha Rua	98,960 (83.3)	17,288 (14.5)	2,570 (2.2)	118,818 (100.0)
Pho Sadet	60,770 (83.7)	11,440 (15.8)	359 (0.5)	72,569 (100.0)

Source: Ministry of Public Health (1980) Study of Cost of Rural Health Facilities in Thailand, Bangkok: MOPH, pp. 186-8, (in Thai).

APPENDIX TABLE 3.6
SOURCE OF HEALTH CENTER GENERATED REVENUE
1980

(Baht)

Regional Location Facility Name	Drugs (% of total)	Donation (% of total)	Other (% of total)	Total (%)
Northern Region				
Mae Ka	10,156 (99.3)	-	70 (0.7)	10,266 (100.0)
Ban Klang	34,584 (80.8)	2,988 (7.0)	5,250 (12.3)	42,822 (100.0)
Thum Tong	2,110 (100.0)	-	-	2,110 (100.0)
Muang Jang	1,772 (100.0)	-	-	1,772 (100.0)
Northeast Region				
Ban Kok	3,146 (92.7)	-	248 (7.3)	3,394 (100.0)
Kok Sawai	25,000 (95.6)	-	1,150 (4.4)	26,150 (100.0)
Ban Mab Kruad	6,033 (100.0)	-	-	6,033 (100.0)
San Song Yang	5,925 (100.0)	-	-	5,925 (100.0)
Central Region				
Koh Kanun	-	-	-	-
Prachantakham	1,171 (41.2)	1,418 (49.9)	252 (8.9)	2,841 (100.0)
San Phu Dad	336 (100.0)	-	-	336 (100.0)
Sala Naresuan	386 (100.0)	-	-	386 (100.0)

Regional Location Facility Name	Drugs (% of total)	Donation (% of total)	Other (% of total)	Total (%)
Southern Region				
Ban Tha Rua	2,385 (92.8)	185 (7.2)	-	2,570 (100.0)
Pho Sadet	359 (100.0)	-	-	359 (100.0)

Source: Ministry of Public Health (1980) Study of Cost of Rural Health Facilities in Thailand, Bangkok: MOPH, pg. 187, (in Thai).

APPENDIX III

Task Force - Rural Drinking Water Supply and Sanitation Decade Plan

I. Task Force Members:

1. Mr. Savit Photiwihok Centre for Integrated Plan of Operations (CIPO) National Economic and Social Development Board Office of the Prime Minister	Chairman
2. Mr. Niyom Niyamanusorn Public Works Department Ministry of Interior	Member
3. Mr. Preena Leepattanaphan Office of Accelerated Rural Development Ministry of Interior	Member
4. Mr. Chetpan Karnkaew Department of Health Ministry of Public Health	Member
5. Mr. Paichit Pattanophat Department of Mineral Resources Ministry of Industry	Member
6. Mr. Yuwat Vuttimethi Department of Community Development Ministry of Interior	Member
7. Mr. Prapansakdi Rengphol Royal Irrigation Department Ministry of Agriculture and Cooperatives	Member
8. Mr. Suthi Suthisomboon Secretariat Office Rural Job Creation Committee	Member
9. Mr. Pairoj Suchinda Rural Development Project Division National Economic and Social Development Board Office of the Prime Minister	Member
10. Mr. Somchet Taeracoop Centre for Integrated Plan of Operations National Economic and Social Development Board Office of the Prime Minister	Member

/...

11. Mr. Auek Channaravong — Member
Centre for Integrated Plan of Operations
National Economic and Social Development Board
Office of the Prime Minister

12. Mr. Suranan Kauluang — Member & Secretary
Centre for Integrated Plan of Operations
National Economic and Social Development Board
Office of the Prime Minister

13. Miss Pannarai Khantakit — Member & Secretary
Technology Environmental Planning
National Economic and Social Development Board
Office of the Prime Minister

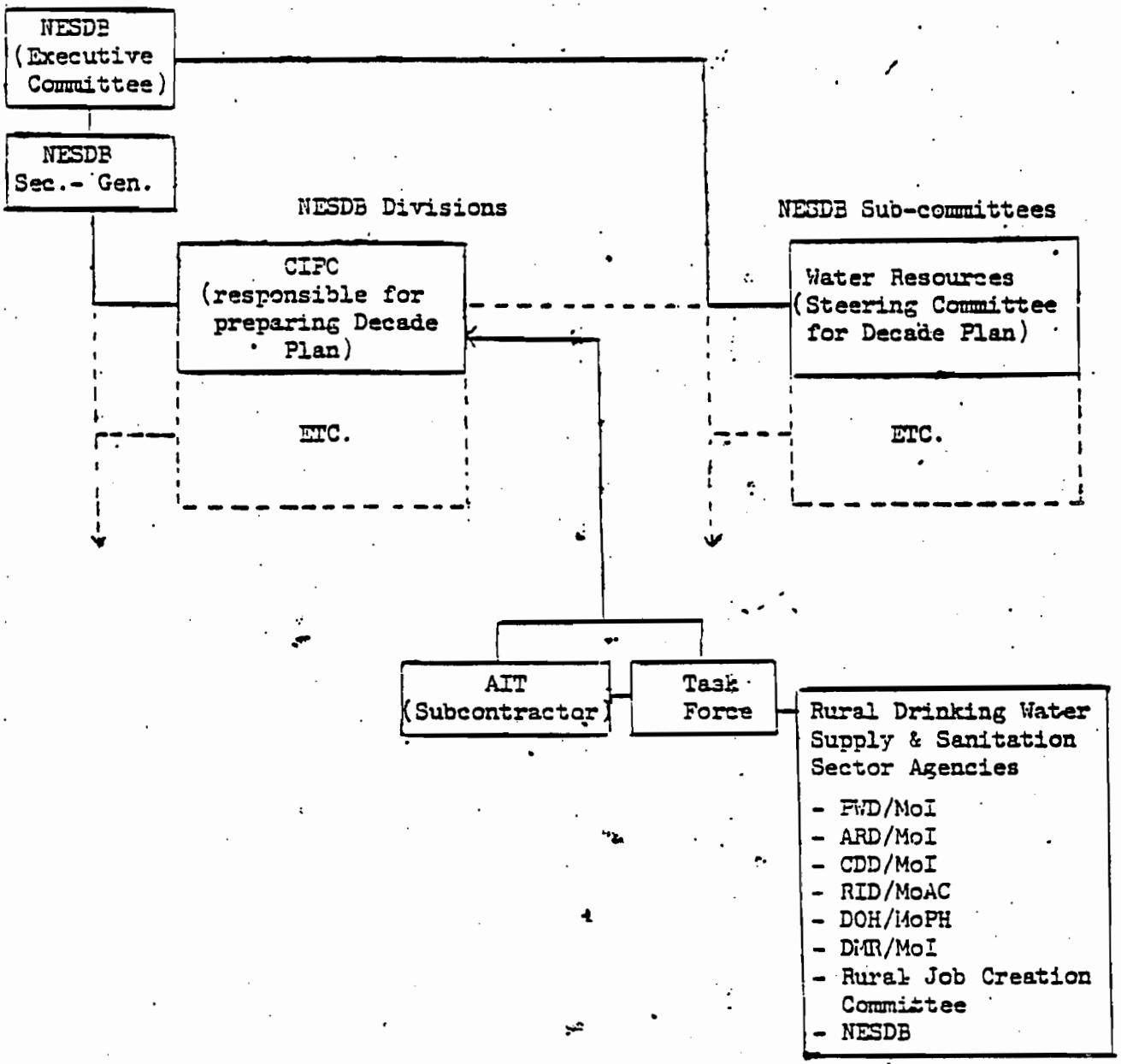
14. Mr. Pitak Chitchak — Member & Secretary
Centre for Integrated Plan of Operations
National Economic and Social Development Board
Office of the Prime Minister

II. Task Force Terms of Reference (in brief)

- to assist and supervise the AIT work for the Decade Plan;
- to coordinate among the Government agencies concerned with the study; and
- to take care of other matters related to the Decade Plan as directed by the Secretary-General of NESDB.

The Task Force will carry out this function under the supervision of the Water Resources Planning Sub-committee and the Task Force should report on the progress of the work on the Decade Plan by AIT to the Secretary-General, NESDB, through CIPO periodically until the work is completed.

Organigramme relating to the Management of the Decade Plan



APPENDIX IV

NON-MINISTRY OF PUBLIC HEALTH ACTIVITIES IN THE HEALTH SECTOR

Ministry of Interior (MOI)

The Department of Local Administration of the MOI was the public agency originally responsible for the provision of health services to provinces, districts, tambols and villages. Under this Ministry, a tambol doctor was selected by the villagers and responsible to the District Office to oversee environmental sanitation efforts, encourage vaccinations and provide first aid. Most tambol doctors were traditional healers, but in 1950 they began to receive brief courses of training on elementary hygiene by the MOPH. Today there are approximately 5,000 tambol doctors who receive a stipend of B200/month from the MOI.

Municipalities also have physicians salaried by the MOI who are responsible for supervising environmental sanitation and communicable disease control. Often municipal doctors operate small public first aid stations, serve as coroner to investigate suspicious deaths and are responsible for any public systems of water supply or sewage disposal. Municipal physicians in Bangkok report directly to the Bangkok Metropolitan Administration (BMA) while in other municipal areas these physicians report to the Provincial Governors.

The Department of Public Welfare under the MOI also provides services oriented toward social assistance including some health services. The Department of Labor in the MOI inspects factories for occupational hazards.

Ministry of Defense

The Ministry of Defense hospitals provide medical/surgical/ outpatient services to the military, often their dependents, and veterans with military-related disabilities. An Institute of Pathology, and military medical and nursing schools, are also run by this Ministry.

Ministry of Education.

While primary schools in municipalities fall under the MOI, rural primary and all secondary schools are under the responsibility of the Ministry of Education. In all schools, especially secondary level, some instruction is offered in personal hygiene and other aspects of health education. Immunizations are also given to students at primary schools by the MOPH.

The State University Bureau is responsible for medical schools, other facilities training health professionals and the affiliated teaching hospitals.

The Ministry of Agriculture and Cooperatives is involved in vaccination of animals and the prevention and control of zoonotic disease and the enforcement of laws pertaining to the use of pesticides which may be harmful to humans. The ministry also runs a veternary hospital.

In the Office of the Prime Minister are the following government bodies which have functions related to the health system.

- The Bureau of the Budget has final authority over appropriations to the MOPH.

- The Civil Service Commission (CSC) controls establishment of all new categories of health personnel and determines salary levels.

- The National Statistics Office (NSO) collects and analyzes data on births, deaths, demographic trends, household expenditures on health, and other pertinent data.

- The National Environmental Board is responsible for surveillance of major projects which may create hazards that endanger the public health.

- The National Economic and Social Development Board (NESDB) has final approval over Five Year Plans initially drafted and submitted by the MOPH.

- The Department of Technical and Economic Cooperation (DTEC) which coordinates financial (grant) and technical support from international donor sources.

The Ministry of Industry has responsibilities involving worker safety in industrial facilities and the control of environmental pollution by factories.

Ministry of Finance

Under this Ministry are the Bank of Thailand, the National Tobacco Monopoly and other "state enterprises". Almost all of these enterprises provide some type of health service to their employees and several operate special hospitals for their workers.

The Ministry of Communication runs the hospitals of the State Railway and the Port Authority of Thailand.

The Thai Red Cross Society runs the Chulalongkorn Hospital, a nursing school and the Pasteur Institute which produces vaccines and sera.

APPENDIX V
REVIEW OF INFORMATION ON HOUSEHOLD EXPENDITURES FOR HEALTH

Estimates from the Health Planning Division, MOPH indicate that from 80 to 85 percent of total expenditures for health are made by households, in comparison to 15 to 20 percent made by the government.

Data from the Socio-Economic Surveys of 1970/1 and 1975/6 provide information on average household expenditures in Bangkok for 1) hospitals and doctors, 2) dentists and eye doctors, and 3) medicines and vitamins, by per capita household income groups. On average, Bangkok households in 1971 spent 151 baht per month for health-related services or supplies. Average monthly household health expenditures increased with income, as did the percentage of households in an income class that utilized any one of the sevice providers. Finally, a greater percentage of households in any income groups purchased medicines (or vitamins) than purchased either physician, hospital, dentist or eye doctor services (see Table A5.1).

Similar information for municipal and non-municipal areas in the Central Region of Thailand show that households in municipalities in the Central Region spent 147 baht per month on average for health-related services or supplies. Households in non-municipal areas spent 89 baht per month. Average monthly household health expenditures in both municipal and non-municipal areas and in the data do not clearly show that the percent of households utilizing any particular provider increased with income. However, a greater percentage of households in any income group purchased medicines (or vitamins) than purchased either physician, hospital, dentist or eye doctor services (see Table A5.2).

A 1979 survey of 2,986 households in the 20 provinces of the Accelerated Family Planning and Health Project provided information about households' health expenditures in total, and to different health providers. In the municipal areas surveyed, 60 percent of the households consuming some sort of medical service, paid 30 or fewer baht per month. Only 9 percent spent more than 100 baht. Forty-two percent of expenditures went to private hospitals or clinics, 36 percent to private drug sellers, 14 percent to government hospitals, 5 percent to tambol health centers 3 percent to traditional healers, and less than half of one percent to mobile clinics. In the rural areas surveyed, 75 percent of the households consuming some sort of medical service, paid 30 or fewer baht per month. Again, only 9 percent spent more than 100 baht. Fifteen percent of these rural households' health expenditures went to private hospitals or clinics, 47 percent to drug sellers, 9 percent to government hospitals, 21 percent to tambol health centers, 8 percent to traditional healers and 1 percent to mobile clinics (see Table A5.3).

TABLE A5.1
MONTHLY EXPENDITURES ON HEALTH BY PER CAPITA HOUSEHOLD INCOME GROUPS
BANGKOK, 1972

Per Capita Hsehld. Income (Annual)	Hospitals & Doctors	Dentists & Eye Doctor	Medicines & Vitamins	Total
2,300 Baht or Less				
(1) Average Expenditure	127	-	44	84
(2) % of Households	22	2	43	54
2,301 to 3500 Bahts				
(1) Average Expenditure	162	-	40	104
(2) % of Households	24	3	36	53
3,501 to 5,000 Baht				
(1) Average Expenditure	185	128	50	122
(2) % of Households	25	4	44	59
5,001 to 8,000 Baht				
(1) Average Expenditure	184	145	57	139
(2) % of Households	28	5	46	61
8,001 to 18,000 Baht				
(1) Average Expenditure	282	367	77	231
(2) % of Households	29	7	47	63
More than 18,000 Baht				
(1) Average Expenditure	204	644	127	430
(2) % of Expenditure	32	16	51	70
All Incomes				
(1) Average Expenditures	201	263	57	151
(2) % of Households	26	5	43	59

Notes:

(1) Mean household expenditures, for households having expenditure, during the survey month on each expenditure category. (Not computed for sample of less than 20 households.

(2) Households with non-zero expenditures on item as percent of all households in income group.

* Expenditures include the inputed value of items home-produced, bartered or received free. An asterisk (*) following the share of expendiutes on a given item indicates that at least 20 smaple households have imputed expenditures on that item.

Source: Socio-Economic Survey: Thailand 1971.

TABLE A5.2
MONTHLY EXPENDITURES ON HEALTH BY PER CAPITA HOUSEHOLD INCOME GROUPS
CENTRAL REGION, THAILAND
1973

Annual Per-Capita Household Income	MUNICIPAL AREAS Expenditures on Health and Medical Care: Hospitals & Doctors	Dentists & Eyedoctors	Medicines & Vitamins	Total	Annual Per-Capita Household Income	NON-MUNICIPAL AREAS Expenditures on Health & Medical Care: Hospitals & Doctors	Dentists & Eyedoctors	Medicines & Vitamins	Total
2,400 Baht or Less					1,100 Baht or Less				
(1) Average Exp.	115	32	38	67	(1) Average Exp.	125	15	44	69
(2) % of People	15	3	37	48	(2) % of People	14	1	46	56
2,401 to 3,500 Baht					1,101 to 1,740 Bhat				
(1) Average Exp.	235	154	56	156	(1) Average Exp.	135	-	42	68
(2) % of People	26	2	36	53	(2) % of People	13	-	56	58
3,501 to 5,100 Baht					1,741 to 2,440 Baht				
(1) Average Exp.	167	96	68	121	(1) Average Exp.	135	84	53	89
(2) % of People	21	2	36	51	(2) % of People	19	2	49	61
5,101 to 8,000 Baht					2,441 to 3,700 Baht				
(1) Average Exp.	213	76	43	120	(1) Average Exp.	168	68	50	94
(2) % of People	21	2	40	53	(2) % of People	19	1	56	64
8,001 to 15,000 Baht					3,701 to 6900 Baht				
(1) Average Exp.	383	602	67	273	(1) Average Exp.	164	108	54	115
(2) % of People	26	2	33	48	(2) % of People	25	4	47	61
More than 15,000 Baht					More than 6,900 Baht				
(1) Average Exp.	294	320	110	256	(1) Average Exp.	154	105	92	136
(2) % of People	20	12	39	55	(2) % of People	18	2	50	60
All Incomes					All Incomes				
(1) Average Exp.	229	205	56	147	(1) Average Exp.	148	90	51	89
(2) % of People	21	3	37	51	(2) % of People	18	2	50	60

Notes:

(1) Mean household expenditures, for households with expenditures on that item during the survey month. (Not computed for samples of less than 20 households.).

(2) Households with non-zero expenditures on item as percent of all households in income group.

Source: Socio-Economic Survey: Thailand 1971-1973

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APPENDIX TABLE A5.3
EXPENSES INCURRED IN THE TREATMENT OF ILLNESSES
BY PLACE OF SERVICE AND LOCATION OF HOUSEHOLD
1979

Expenses	Urban								Rural								Total Urban/ Rural	%
	Self treatment (buy drug from drug-store)	gov't health center	gov't mobile unit	gov't hospital	Private hospital	Private clinic	Other healers	Total/ Urban	Self treatment (buy drug from drug-store)	gov't health center	gov't mobile unit	gov't hospital	Private hospital	Private clinic	Other healers	Total/ Rural		
Baht 1 - 5	87	1	-	-	-	5	2	95 8.9%	489	43	-	1	-	3	17	553 15.4%	648	13.90
5 - 10	105	6	-	2	-	6	7	126 11.9%	337	71	-	5	1	10	31	455 12.4%	581	12.47
10 - 20	102	1	-	12	2	18	7	142 13.4%	366	154	1	20	4	35	48	628 17.5%	770	16.52
20 - 30	61	20	-	40	16	231	3	371 34.9%	323	255	6	121	17	261	74	1057 29.4	1428	30.64
50 - 100	15	3	2	23	2	105	3	153 14.4%	79	73	-	66	8	127	39	392 10.9%	545	11.70
more than baht 100	7	3	-	41	6	37	3	97 9.1%	54	44	4	95	14	63	33	307 8.5%	404	8.67
free of charge	3	12	-	22	1	7	5	50 4.7%	3	86	15	16	-	4	23	147 4.1%	197	4.23
not known, no answer	7	3	1	10	3	3	2	29 2.7%	23	13	2	11	1	4	4	58 1.6%	87	1.87
Total	387 36.4%	49 4.6%	3 0.3%	150 14.1%	30 2.8%	412 38.8%	32 30%	1063 100%	1674 46.5%	739 20.5%	28 0.8%	335 9.3%	45 1.3%	507 14.1%	269 14.1%	3597 9.3%	4660	100

Source: Ministry of Public Health (March 1982) Community Household Survey on Environmental Health Conditions, Perceived Sicknesses and Utilization of Health Service Resources, Bangkok: Health Planning Division, MOPH, pg. 72.

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APPENDIX VI
DESCRIPTION OF PHC REVOLVING FUNDS

Community revolving funds have been established in Thailand (primarily in the Northeastern Region), by local initiative or with inputs provided by a central ministry of the RTG. Some funds are single purpose funds, others support multiple activities in Primary Health Care, and others support multiple activities in health, community development and agriculture.[1/] Many villages have more than one fund and the MOPH is considering combining all of the four health-related funds into one fund, under a prepaid insurance type arrangement.[2/]

A. Drug Cooperatives

The purpose of the drug cooperatives is to provide basic drugs in Thai villages. The MOPH initiates drug funds by giving newly trained VHV's 700 to 1,000 baht of drugs, depending on the percent of households which buy shares in the fund. Households can buy from 1 to 10 shares at 10 baht per share. Drugs are purchased at wholesale prices from the Government Pharmaceutical Organization (GPO) and a markup of 30 percent is permitted. The profits generated from this margin are used to pay transportation expenses, to compensate the person who manages the drug fund, and are distributed as dividends to fund shareholders. The VHVs are trained in recordkeeping in order to carry out financial accounting and stock management tasks. Another individual in the village acts as an auditor of the fund's accounts.

Results from a pretest of the NESDB study of community revolving funds found that over 90 percent of 101 drug funds located in the Northeastern and Southern regions reported making a profit. The mean reported working capital of the 51 drug funds in the Northeast was 4,233 baht (median 3,003 baht), and in the funds in the South (n=50) was 2,508 baht (median 1,504 baht). Many of these funds supported one or more PHC activities. Problems reported to the team included delays in re-supply from the GPO, poor management and decapitalization of some funds, and competition from private drug stores.

B. Nutrition Funds

The purpose of the nutrition revolving funds is to raise sufficient revenues from sale of food supplements (made from locally grown grains: rice, beans and sesame), to 1) distribute the supplement free or at a subsidized price to families with second and third degree malnourished children, and to 2) allow for the purchase of grains to continue to produce the supplement. To initiate a nutrition revolving fund, the RTG provides: 1) 3,000 to 4,000 baht for the initial purchase of grains, and/or seeds to produce them locally, 2) food processing and packaging equipment, 3) plastic food packaging bags, and 4) training of village volunteers in nutrition surveillance activities, ORS treatment, food supplement processing and packaging, accounting and fund management. Villages are expected to donate the labor required to process and distribute the food, administer the revolving fund and in some cases to buy shares in the fund. It is the responsibility of the VHVs to identify the second and third degree malnourished children and to distribute 10 packages (50 grams each) of the supplement every 10 days for a 6 month period. The same packages may also be sold for 1 baht.[4/]

Information provided to the team indicated that many of the nutrition funds are decapitalizing and in some areas that the production of the beans and sesame has stopped because of insufficient demand from the fund. Other problems include the diversion of the supplementary foods from children under-five to older children or adults, and the short shelf-life of the food which requires frequent input of time for its processing.

Information from pretests associated with the NESDB study of PHC revolving funds suggests that many of the nutrition funds are decapitalizing. For example, of 49 nutrition funds in Northeast Thailand, and 51 nutrition funds in Northern Thailand, less than 50 percent reported making a profit. Mean and median working capital for the nutrition funds in the Northeast were 2,554 and 2,998 baht respectively. Mean and median working capital for the nutrition funds in the North was 2,509 and 2,998 baht respectively. Many of these funds are also active in promoting other PHC and development activities.[5/] Since the operation of the nutrition revolving funds is one of the primary interventions to deal with the problem of malnutrition in Thailand, the operation of these funds warrents closer review.

C. Water Supply and Sanitation Funds

Initiation of water supply and sanitation revolving funds requires both inputs from the government and from village households. In addition to explaining to villages the concept of the revolving fund, the government provides 10,000 baht cash from which household loans can be made, and 5,000 baht worth of molds and other equipment required for the construction of rainwater cisterns, jars and water-seal privies. The government also provides training to village craftmen in the construction of the technologies, and to VHVs and VHCs in fund management, accounting, maintenance of the cisterns and privies, and sanitation promotion. If funds are available, village households can borrow from the revolving fund to pay the village craftsmen for any of the technologies they wish to purchase. The household must repay the loan within a time period and at an interest rate negotiated with the village committee.[6/]

The estimated prices of the water supply and sanitation technologies are 300 to 800 baht per 1.0 m^3 water jar, 2,000 to 3,000 baht per 3.5 m^3 rainwater cistern, 200 to 300 baht per household filter, and 500 baht per latrine slab. The cost of the materials used by the village craftmen in constructing the technologies is less than the prices quoted above, the difference constituting a payment for the craftsman's labor. In some cases the costs of maintaining the technologies are covered by the revolving fund.

NESDB data on 48 sanitation funds in the Central Region found only 42 percent reported making a profit. This problem may be due to the fact that many (27 percent) of the funds did not charge interest for the water supply and sanitation loans. The mean and median working capital for these funds were 12,291 and 10,012 baht.[7/]

One goal of the RTG, is to provide one of the technologies to 6 million households by 1991. If it is assumed that one revolving fund is started in each of the 17,000 villages where the village craftsmen are to be trained,

then each craftsman must construct 353 of the technologies total, to reach 6 million households by 1991. If it is also assumed that all the craftsmen were trained as of January 1982 and continued working though December of 1991, then each one must construct and sell on average of 35.3 technologies per year. However, if all the monies in the revolving funds (10,000 baht) are loaned out for 1 year periods primarily for 3.5 m^3 water cisterns (2,000 baht), then only 5 can be built in 1982, increasing to 13 per year in 1991. In contrast, if the monies are loaned out primarily for smaller water catchments (300 baht), then 20 could be built in 1982 and 52 in 1991. 8/

The above analysis illustrates that achievement of the government's goal will depend upon the selection of technologies for which the revolving fund monies are used. (Reports to the team indicated that in many funds the monies have been loaned for the construction of the larger water collection cisterns.) In addition, more systems could be built if the initial capitalization of the revolving funds was higher, the interest rates charged were higher and/or the period for repayment of loans was shorter. Thus, consideration should be given to: 1) determining how additional capital could be provided to these revolving funds, and to 2) developing guidelines to village committees concerning the allocation of revolving fund monies to the different technologies, and the setting of interest rates and lengths of repayment for villagers with different incomes and desiring different sized loans.

D. MCH Development Fund

The MCH Development Fund is the newest community financing effort being implemented on an experimental basis in 8 villages. The fund resembles a pre-paid insurance plan in that families who pay a premimum are entitled to 8 visits to government facilities to receive either antenatal or postnatal care and counseling, immunizations and coverage of certain portion of delivery costs. Premiums are 100 baht for families with up to 1 child, and 200 baht for families with more than 1 child (including families with 1 child when the mother is pregnant). Thus, if families make 8 visits during a year the cost per visit ranges from 12.5 to 25 baht per visit.9/

Although these premiums may seem reasonable since villagers spend 20 to 30 baht for a private consultation with a tambol health center worker, data from a 1973 survey of Bangkok, and municipal and non-municipal areas of the central region, indicated that households on average spent only 151, 147 and 89 baht per year respectively for all medical expenses during the year.10/ If these expenditures are inflated using the CPI, then these average expenditures would equal only 270, 262, and 159 baht respectively in 1982. Data from a 1979 survey indicated that at least 14 percent of urban, and 20 percent of rural, households spent less than 100 baht per year for health services from all providers and that at least 26 percent of urban, and 32 percent of rural, households spent less than 200 baht per year for health services from all providers.11/

The above analysis, although rough, does suggest that many Thai households may be unable to pay the MCH fund premium, or unwilling to divert a large proportion of their medical care expenditures to pay for services which are

largely preventive in nature. At present, there seems to be little perceived need for such services as only 30 percent of women seek prenatal care, fewer seek postnatal services, and levels of coverage of the under-five population for the first doses of DPT, OPV and DT vaccines were only 68, 58, and 50 percent in 1982 when the vaccines are provided free of charge. The MCH funds do have the positive feature that once households have enrolled, families have an incentive to utilize all of the eight visits to which they are entitled, in order to derive the most benefit for their expenditure.

In view of the above, careful evaluation of the MCH Development Funds is warrented prior to their broader implementation. The evaluation should determine if the current premium structure discriminates against poor families, and if families that enroll use more or fewer MCH services than previously, or than non-enrolled families. Consideration might be given to 1) developing a sliding scale for MCH fund premiums, or 2) including the MCH benefits for families purchasing shares in drug cooperatives and raising the markup on drugs to cross-subsidize payment for MCH program costs.

APPENDIX VI NOTES

1. Tanskul, Orathip (August 1982) Community Financing of Primary Health Care Activities in Nutrition and Sanitation: A Policy Study, A proposal submitted to PRICOR by the National Economic and Social Development Board, Bangkok: NESDB, p. 20.

2. Nondasuta, Amorn (September 1983) Personal communication.

3. Myers, Chip (November 17, 1983) Memorandum to Orathip Tanskul summarizing information about 249 revolving funds in Thailand. Cambridge, Mass.: HIID, pp. 15-18. The memorandum contains other detailed information not summarized in this appendix.

4. Tanskul, Orathip (August 1982) op. cit., p. 21 and 23.

5. Myers, Chip (November 17, 1983) op.cit., p. 6-11

6. Tanskul, Orathip (August 1982) op. cit., p. 23-25.

7. Myers, Chip (November 17, 1983) op. cit., pp. 12-14.

8. The figures given in the water supply and sanitation revolving fund example are based on the assumptions that interest on the loans is 10 percent per annum, and that all of the principle and interest is repaid 12 months after the loans are made.

9. Isiranaga, S. and Uamkul, N. (Septemberr 1983) Personal communication.

10. Chiswick, C. U. (February 3, 1976) Household Expenditure Patterns by Income Level, Statistical Tables for Bangkok and (September 13, 1976) Household Expenditure Patterns by Income Level, Statistical Tables for the Central Region: Urban and Rural, Washington, D.C.: World Bank.

11. Ministry of Public Health (March 1982) Community Household Survey on Environmental Health Conditions, Perceived Sicknesses and Utilization of Health Service Resources, Bangkok: Health Planning Division/MOPH, p. 72.

APPENDIX VII
DONOR ASSISTANCE TO THE HEALTH SECTOR

Substantial external resources have been given to Thailand over the past two decades for support of family planning, health, nutrition and water supply and sanitation efforts. Table A7.1 indicates the allocation of on-going grant and loan support as of 1982, from 12 bilateral and 7 multilateral donors, to 10 different types of activities. Key donors are the Agency for International Development (AID), Japanese International Cooperation Agency (JICA), United Nations Childrens Fund (UNICEF), World Health Organization (WHO) and the World Bank. Descriptions of the current and planned activities of these 5 donors follow below. (Details about support from all 19 external sources in 1982 are given in Appendix VII.A.)

A. Agency for International Development (AID)

AID's current programs include a 5.5 million loan for short-term training and research/evaluation activities in the World Bank's Population Project. Some of these monies have recently been reprogrammed to support the development of nutrition revolving funds, community production of infant supplementary foods and other innovative nutrition activities. This support is scheduled to end in FY 1984. In FY 1982, AID also committed $8.5 million grant and $9.7 million loan financing to a second Population Planning Project to assist the RTG in maintaining, extending and strengthening family planning information and services nationwide, with particular emphasis on the subdistrict level and low performance provinces and districts. This project is scheduled to end in FY 1987. AID's support to the MOPH's malaria program ($4.5 million for 1979 to 1983) is being extended to the end of 1984 for support of malaria control, training, management, supervision, research and IEC activities. Further AID support for malaria research and control related activities is under consideration. AID expects to make a $6 million loan in FY 1984 to the Provincial Water Works Authority (PWA) which is responsible for the construction and maintenance of piped water systems to communities of greater than 1,500 population. In addition to these bilateral projects, AID has several centrally-funded project activities in Thailand. For example, the PRICOR project is supporting NESDB research on PHC revolving funds.

B. Japanese International Cooperation Agency (JICA)[1/]

JICA as of September, 1983 had five on-going population, health, nutrition or water supply and sanitation projects. The first of these is Japan's assistance to the Department of Health, MOPH for family planning activities in Nakhon Sawan Province. Japan's inputs have consisted of technical assistance (1 long term and 6 short term advisors), training fellowships (6), and machinery and equipment (e.g. A-V equipment and contraceptives). This project began in 1974 and is scheduled to end in 1984.

A second project, the Provincial Health Center Project in Chanthaburi Province (with the Department of Medical Sciences, MOPH) began in 1976 and is slated to end in 1984. Project activities include development of new, and upgrading existing, laboratory services; epidemiological surveys in the

TABLE A7.1
DONOR ASSISTANCE FOR HEALTH, WATER SUPPLY AND SANITATION ACTIVITIES, THAILAND
1982

	Public Health Administration	Population	Nutrition	Tuberculosis	Other Communicable Disease	Maternal and Child Health	Nursing	Other Health Services	Environmental Sanitation	Medical Education and Training	Medical Research	Malaria Research and Eradication
Australia	X							X	X			
Canada								X				
France										X		
Federal Republic of Germany						X		X	X		X	
Israel										X		
Italy	X											
Japan				X		X	X	X	X		X	X
Netherlands								X				
New Zealand									X	X		
Norway	X											
United Kingdom								X				
UNFPA		X						X		X		
UNEP									X			
UNFDAC								X				
WHO	X				X	X		X	X			X
UNDP (OPE)									X			
USAID	X	X	X			X		X	X	X		X
UNICEF			X		X				X			
World Bank		X	X				X	X				

Source: Development Assistance Group for Thailand (1982) Nineteenth Compendium of Development Assistance to Thailand, 1982, Bangkok: UNDP, pg.

project area; in-service training to physicians, nurses, lab technicians, and other health personnel; and the construction of tube wells and piped water systems. Japan is providing technical assistance (59 long term and 35 short term advisors), training fellowships (44) and equipment.

Japan also has a Nursing Education Project to upgrade the quality of nursing education and to refocus it on rural health needs. Under this third project, Japan financed the construction of a new nursing school in the Maha Sarakham Province, including equipment, as well as provided technical assistance (6 long term and 15 short term advisors) and training fellowships (11).

The fourth project, the Primary Health Care Development Project, started in 1982 and is planned to continue until 1986. This project will provide funds for the construction of and equipment for the ASEAN Training Center for Primary Health Care (ATC/PHC) at the Salaya campus of Mahidol University and for support to four PHC regional training centers at Chon Buri, Khon Kaen, Nakhon Sawan and Surat Thani. It is envisioned that the ATC/PHC will support health personnel in ASEAN countries to 1) develop, test and promote PHC training and service models, 2) engage in the development of appropriate PHC technology, and 3) carry out reserch related to: food and nutrition, health education, safe water, supply, sanitation, immunizations, diagnosis an treatment of simple medical problems and injuries, essential drugs, family planning and MCH, occupational health and policy and management issues. Other Japanese inputs include technical assistance (2 long term and 9 short term advisors) and training fellowships (5).

As of September 1983, a US $2 million grant from JICA to the Provincial Water Supply Division of the Public Works Department for the purchase of 7 drilling rigs was pending approval.2/ An additional US $6 million in loan funding for the Provincial Waterworks Autority (PWA) to establish a national training center and equipment repair workshops for FY 1984 to FY 1986 was also pending approval.3/

A JICA representative was not able to comment on other future Japanese commitments to Thailand in the population/family planning, health, nutrition or water supply and sanitation areas. However, NESDB estimates that US $35 million of loan financing for projects in these areas will be available from Japan beginning FY 1986.

C. United Nations Children's Fund (UNICEF)4/

The Thailand Program Office for UNICEF requested US $35.9 million of UNICEF assistance for the period 1982 to 1986. However, UNICEF's Executive Board only approved US $17.9 million for the same period, leaving a shortfall of an equal amount to that approved. UNICEF hopes that its financial picture will improve so that it is able to provide funds up to the initial planned level.

Of UNICEF's ten program areas, four are related to health, (e.g. Primary Health Care (PHC), Expanded Program of Immunization (EPI), Food and Nutrition and Rural Water Supply and Sanitation). UNICEF support for PHC was approved

at US $2.5 million (US $4.95 million was requested) for the provision of supplies (VHV kits, radios and trucks) and grant money for the training or retraining of VHCs, VHVs, primary school teachers, and government officials, and for the printing of VHV performance guides and self-instructional materials.

UNICEF support for EPI was approved at US $1.3 million (US $1.87 million was requested) for the provision of vaccines, cold chain equipment, DPT production equipment, expenses related to surveillance surveys, printing of EPI field worker's manuals and EPI training for provincial and district level health personnel. UNICEF's requested budget for EPI supplies equalled nearly 100 percent of the MOPH's requests.

UNICEF support for Rural Water Supply and Sanitation activities was approved at US $2.9 million (5.7 million was requested) for: spare parts for handpumps, well drilling equipment, and supplies for well construction, piping systems, bamboo-reinforced systems, water-seal latrines and improvement of existing water systems. UNICEF grant monies will also support surveys of existing systems, social preparation activities for villagers and village leaders, training of well maintenance personnel and for development of IEC/promotional materials on the importance of safe water and sanitation.

Finally, UNICEF support for Food and Nutrition activities was approved at US $1.8 million (US $3.2 million was requested) for the provision of weighing scales, seeds, groth charts, audio-visual aids, other IEC materials, trucks and motorcycles and for the nutrition training of village leaders and multi-sectoral officials.

Details about UNICEF's planned inputs can be found in Appendix VI.B.

D. World Health Organization (WHO)[5/]

WHO plans to assist in 13 project areas over the period 1984 and 1985 with a total two-year budget of US $3.8 million. Nearly 30 percent of this amount (US $1.1 million) is under the "Organization of Health Systems Based on Primary Health Care Project." The objective of this project is to extend the coverage of effective PHC activities and to progressively give maximum responsibility to communities for the planning and extension of district and village PHC activities. In the project, WHO will provide technical assistance, and support for training of district and tambol level staff, resarch on a variety of topics and subsidies to 220 villages for development of village revolving funds (US $892) and other activities (US $3,000 total per village). Another 22 percent of WHO's budget for Thailand (US $5.8 million) is under the "Managerial Process for National Health Development Project" which supports the WHO office in Bangkok, the Social Development Project at NESDB, the National Advisory Board for Disease Prevention and Control/MOPH and the Center for Policy Studies at Mahidol University. Details about the above and other WHO projects can be found in Appendix VI.C.

E. World Bank (IBRD)[6/]

The World Bank's Population Project, consiting of US $3.1 million of Norwegian grant funds and US $30.0 million IDA funding from the governments of Australia, Canada and the United States, began in 1978 and is scheduled to end

in late 1983. This project has financed the construction of over 400 rural health facilities, 10 national level training facilities, and the provision of contraceptives, audio-visual equipment and IEC materials to strengthen the delivery of family planning and primary health care services. The project has also supported the development of a community-based nutrition program.

At the present time, the World Bank and the RTG (principally the MOPH and the NESDB) have begun discussions abut a World Bank loan to support improvements in:

- Service provision in provinces (both poverty and non-poverty) with low measures on selected health, nutrition and family planning indicators,
- Health education strategies (e.g. mass media) and materials,
- Training,
- Drug logistic systems and essential drug production, and
- Planning, management, supervision and evaluation capabilities.

The loan would also be used to support research on the development of innovative activities in all of the above areas.7/ NESDB estimates the World Bank loan for the above activities will equal US US $35 million beginning FY 1986.8/

The World Bank has also provided US US $40 million in loans to the PWA for the rehabilitation and expansion of the piped network and connections of 125 existing waterworks. The project is funded for FY 1983 and FY 1984.

APPENDIX VII NOTES

1. Moto, Tomi (September 30, 1982) Personal communication, JICA.

2. Dawansuwan, T., (October 4, 1983) Personal communication.

3. USAID/Thailand (June 1983) Provincial Waterworks Authority Institutional Development Project Paper, Bangkok: USAID, 52 pp. plus appendices (Project No. 493-0331).

4. UNICEF (January 1982) Thailand, Recommendation for UNICEF Assistance 1982-1986, Submission to the 1982 UNICEF Executive Board, Bangkok: UNICEF, 289 pp. plus annexes (draft).

5. Searo/WHO (July 1983) Detailed Programme for 1984-85, Thailand, New Delhi: SEARO, pp. 261-279 (SEA/RC 36/3).

   SEARO/WHO (-) Detailed Country Programme for 1984-1985, Thailand, New Delhi: SEARO, 72 pp.

6. World Bank (February 1983) Thailand, Review of the Health Sector, Washington, D.C.: World Bank, pp. 101-102.

7. Radel, D. (September 1, 1983) Personal Communication.

8. Several government officials spoke with the assessment team concerning the prospect of a World Bank loan in health. Their opinions ranged from strong resistance to definite interest in the proposition.

APPENDIX VII.A

SUMMARY OF EXTERNAL ASSISTANCE FOR
POPULATION, HEALTH, NUTRITION AND WATER SUPPLY AND SANITATION
1982

Source: Development Assistance Group for Thailand (1982) Nineteenth Compendium of Development Assistance to Thailand, 1982, Bangkok, UNDP, pp. 92-100.

STATISTICAL STATEMENTS OF TECHNICAL ASSISTANCE, BY COUNTRY, U.N. AGENCY

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributi US$
		No.	MM	No.	MM	Description	Cost $	
AUSTRALIA* (Period 1 July 1981 to 30 June 1982)								
9. Home Economics and Nutrition	ASEAN Protein Project: Preparation of low-cost protein food	-	-	-	-			270,703
	ASEAN Food Wastes Project: Utilization of waste materials	-	-	-	-			221,536
Health								
1. Public Health Administration	Medical and Dental Services:							
	Primary Health Care Planning Mission: Preparation of PHC inputs to Ministry of Public Health	4	8	-	-			83,289
	P.M.V.F.D. - Radio District Hospitals: Carry-over costs	-	-	-	-			5,071
8. Other Health Services	ASEAN Population Project: Various sub-projects, NESDB/ Community Development Department	-	-	-	-			233,892

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
CANADA (Fiscal Year covering the period 1 April 1981 to 31 March 1982)								
Assistance on Government to Government basis								
. Other Education and Cultural Activities	The Canadian Red Cross Society To integrate Red Cross youth programmes into school/university curricula; to provide out-of-school youth with vocational training courses Duration: 1982 - 1983							CIDA contri. 6,394 Total: 21,886
Health and Sanitation								
8. Other Health Services	Family Planning Programme The provision of experts to carry out research and evaluation studies related to the ongoing Thai Government Family Planning Programme Duration: 1978 - 1982							16,097
	Public Health and Family Planning Research and Evaluation Studies Improving Thailand's family planning and public health research and evaluation capabilities through provision of short-term consultants							20,325

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributi US$
		No.	MM	No.	MM	Description	Cost $	
	Planned Parenthood Federation Duration: January 1982 - December 1984							
5. Community Development	Anglican Church of Canada To train rural women workers to help rural women in their communities to enhance nutrition and health in their families Duration: May 1982							18,732 Total: 25,756
International Development Research Centre (IDRC)								
Home Processed Legumes	Khon Kaen University - 3 years							72,926
Fertility Regulation Methods	Mahidol University - 2 years							50,081
Integrated Population Programmes	Population and Community Development Association - 2 years							39,317
Industrial Health	Mahidol University - 2 years							54,227
Water Supply Survey	Mahidol University - 1 year							34,837
Rural Water Supply and Sanitation	Asian Institute of Technology - 2 years							106,341
Roof Catchment	Khon Kaen University - 2 years							37,235

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
Skin Diseases	Ministry of Public Health - 1½ years							42,845
Groundnut Dryers	Khon Kaen University - 2 years							96,260
DENMARK								
Fellowships	The 65 fellowships granted in 1982 dispersed within the following sectors: Dairying 44 Science 10, Health Services 4, Industry/Technology 3, Marine Biology 2, Forestry 1 and Administration 1.	-	-	65	124			211,000
FRANCE								
Health and Sanitation								
10. Medical Education and Training	Nuclear Medecine	2	6	2	21			

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributi US$
		No.	MM	No.	MM	Description	Cost $	
FEDERAL REPUBLIC OF GERMANY								
2. Land and Water Use, Farm Machinery and Tools	Thai-German Underground Water Supply Promotion Project: Location of Water Resources and Construction of Wells. Begin 1976, completed 1980. Fellowship Programme continuing.	-	-	-	-	Vehicles, equipment		1,100,000
Health and Sanitation								
6. Maternal and Child Health	Pediatric Surgery Services in North and Northeast Thailand. Begin 1980, ended February 1982.	1	2	-	-			60,000
8. Other Health Services	Village Family Planning and Health Care, Project in North and Northeast Thailand. Begin 1980, extended until 1983.	1	12	-	-			520,000
	Training Programme in Community Medicine, Khon Kaen University. Begin 1977, continuing	-	-	-	-	Vehicles, teaching and laboratory equipment		280,000
	Training of Health Care Personnel, University of Khon Kaen: Upgrading of village health workers. Begin 1981, continuing until 1983.	-	-	-	-	Financial contribution		180,000

1/ Figures for the year 1982 only.
2/ Overall total of fellowships/man months, starting in 1982.
3/ Overall Contribution for duration of Project.
Conversion at the rate of US$ 1 = 2.50 DM

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
8. Other Health Services	Public Health Research Institute, Drug Analysis Division: Pharmaceutical-chemical control and analysis. Begin 1967, ended in 1976. Fellowship Programme continuing.	-	-	3	42.5	Laboratory supplies		1,354,458
11. Medical Research	SEAMEO/Tropmed Centre, Faculty of Tropical Medicine, Mahidol University: Nutritional Research (Regional Project). Begin 1978, continuing until end of 1983.	1	4	-	-			1,080,000
Miscellaneous	Special fellowships for medical training at Berlin	-	-	4	72			
ISRAEL								
Health and Sanitation								
10. Medical Education and Training	Study Tour on Consortium Programme	-	-	1	0.5			4,900
	Diabetic: Ramathiphordi Hospital	1	0.25	-	-			2,500
ITALY								
Health and Sanitation								
1. Public Health						Medical Equipment	850,000	850,000

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
JAPAN								
Health and Sanitation								
3. Tuberculosis	Fellowship	-	-	4	10.5			
6. Maternal and Child Health	Family Planning, Project, Nakornsawan (1974-1982)	2	2	2	1	Vehicle, etc.	511,535	
	Advisory Team for the above Project	4	4	-	-			
8. Other Health Services	National Cancer Institute Project (1976-1982) After-Care Cooperation	5	5	-	-	Parts	8,493	
	Promotion of Provincial Health Service Project, Chantaburi and Cholburi (1976-1984)	12	82	3	21	Serum bovine copy machine, etc.	41,699	
	Advisory Team for the above Project	2	2	-	-			
	Nursing Education Project (1980-1982)	7	27	5	28	Color TV, VTR, copy machine, etc.	245,795	
	Fellowship	-	-	13	32.5			
	ASEAN Primary Health Care Development Project	1	2	2	1			
	Consultation Mission for the above Project	7	7	-	-			

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
8. Other Health Services	Basic Design for ASEAN/Primary Health Care Centre Construction Project	18	18	-	-			
	Expert for Leprosy, Department of Communicable Disease Control	2	2	2	9			
	Equipment for Chulalongkorn Hospital Medical School	-	-	-	-	Medical equipment	35,416	
9. Environmental Sanitation	Master Plan for Bangkok Sewerage System Project	6	6	1	3			
	Master Plan for Bangkok Solid Waste Disposal System Project	10	20	4	9			
	Feasibility Study for Flood Protection and Drainage Project in Suburban Bangkok	5	5	-	-			
	Expert for DDS, BMA	2	24	-	-	Water sampler, etc.	25,571	
	Expert for Water Quality and Pollution Control, NEB	1	12	-	-	Flat bed recorder, medicine, etc.	14,071	
	Expert for Metropolitan Water Supply Project, MWA	2	14	-	-	Books	5,508	
	Expert for Provincial Water Works, PWA	3	36	-	-	Books, etc.	7,119	
		-	-	6	18.5			

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributio US$
		No.	MM	No.	MM	Description	Cost $	
11. Medical Research	Fellowship	-	-	10	47.5			
Emergency Relief Programme	Medical Service for Kampuchean Refugees Project	153	475	-	-	X-Ray apparatus vehicle, etc.	57,236	
Emergency Relief Programme	Evaluation Team, etc. for the above Project	40	40	-	-			
	Feasibility Study and Basic Design for Water Supply for Kampuchean Refugees Camps Project	13	39	-	-			
	Basic Design Survey for Environmental Improvement Project for Affected People in Border Area	3	3	-	-			
Volunteer								
5. Medical Research	Volunteer for Laboratory Techniques for Leprosy	1	3	-	-			

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributi US$
		No.	MM	No.	MM	Description	Cost $	
NETHERLANDS								
Health and Sanitation								
8. Other Health Services	Water Supply Project for Seven Thai-Kampuchean Border Provinces	-	-	-	-			66,500
NEW ZEALAND (Period 1 April 1982 to 31 March 1983)								
9. Home Economics and Nutrition	Food technology	-	-	3*	28*			17,630
Health and Sanitation								
10. Medical Education and Training	Dentistry	-	-	1*	5*			5,090
	Nursing	-	-	1*	6*			2,050
	Blood banking	-	-	1*	7*			2,640
	Surgical nutrition	-	-	1*	6*			2,430
	Physiology	-	-	1	2			1,692
	Design and contract supervision, Health Sciences Centre, Khon Kaen (10 years)	5	35	-	-			442,720
* Covering the period January - December, 1982.								
NORWAY								
Health and Sanitation								
1. Public Health Administration	Non-technical Assistance:							
	Joint Norwegian/UNICEF project	-	-	-	-			214,000
	Technical Assistance:							

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
UNITED KINGDOM								
Health and Sanitation								
8. Other Health Services	Co-operation between Khon Kaen and Nottingham Universities (short term visits)	1 2	- -	- -	- -			
	Ministry of Public Health's Community Water Supply Project	1	-	-	-	Equipment		
	Research Institute for Health Sciences					Equipment		
Training				58	-			
UNITED NATIONS (UNFPA)								
Health and Sanitation								
1. Public Health Administration	Fellowship in family planning for key national personnel	-	-	-	-			126,580
8. Other Health Services	Research and training to improve family planning services delivery	-	-	-	-	Expendable Vehicle Office Equip.	5,600 8,000 900	123,800

(UNFPA)

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
3. Other Health Services	Expansion of family planning services and support of the NFPP infrastructure	-	-	-	-	Expendable Medical Contraceptives	3,500 25,000 56,000	181,993
	Creation of integrated health and family planning delivery systems adapted to special cultural and socio-economic conditions prevalent among northern hill tribes	1	12	-	-	Expendable Medical Vehicles Office Equipment	9,985 5,301 2,009 6,944	141,000
	Health development and population growth in rural Thailand	-	-	-	-	Expendable	1,515	22,000
10. Medical Education and Training	Training programme for various types of personnel involved in family planning services	-	-	-	-	Expendable	3,400	234,900
Public Administration, Economics, Finance and Social Welfare								
5. Community Development	National family planning communication and motivation programme to increase the demand for family planning services	-	-	-	-	Expendable Audio-visual Vehicles Office Equipment	8,037 39,000 22,500 1,300	334,000
							TOTAL	1,726,081

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
Agriculture								
8. Agricultural Extension	Development of population education training concept for agricultural extension workers	1	12	-	-	Expendable Audio-visual Office Equipment	652 2,500 671	307,543
Education								
8. Other Education and Cultural Activities	Development of a population education programme by the Ministry of Education to implement population education programmes introducing population concept into Thai life	-	-	-	-	Expendable Equipment	3,572	164,966
	Development of training modules to improve training capacities and capabilities in the field of population and development extension	-	-	-	-	Expendable Equipment	968	89,300
UNIDO								
Fellowships	Training Programme on Environmental Control in Chemical and Pharmaceutical Industries			2	1.5			5,500

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
UNITED NATIONS (UNEP)								
Health and Sanitation								
9. Environmental Sanitation	Technical Assistance on Waste Water Management Plans for Songkhla and Hat Yai Municipalities	1	4					20,866
	Technical Assistance in investigating modern offshore mining techniques in order to minimize the environmental impact mainly from slime dispersion	1	1.5					11,468
	Travel fellowship for participation in the ASEAN/UNEP Study Tour cum Technical Workshop on Air Quality Monitoring and Management, Singapore, 10-13 November 1982			2				2,112
	Financial support for participation in IAEA/IMO/UNEP Technical Committee Meeting on Methodologies for Assessment of Sea Dumping of Radioactive Wastes, Vienna, Austria, 30 August - 3 September 1982			1				2,200

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributi US$
		No.	MM	No.	MM	Description	Cost $	
UNITED NATIONS (UNFDAC)								
Health and Sanitation								
8. Other Health Services	Drug Dependence Research							
	Drug Dependence Research Project is the continuation of the first phase of operations, initiated in January 1977 by the UNFDAC in collaboration with the Royal Thai Government in							
8. Other Health Services	the development of a national policy and plan for treatment and prevention of drug dependence							
	Administrative support						21,230	86,500
						Supplies	8,000	8,000
						Equipment	27,500	27,500
	Miscellaneous							20,000

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribut US$
		No.	MM	No.	MM	Description	Cost $	
	<u>Treatment/Training</u> Drug Dependence Treatment, Prevention and Training in Thailand, the operations started 1 June 1981 for a period of 4 years. The project is executed by WHO, implemented by the Department of Medical Services, Ministry of Public Health. The project is aim to reduce the massive health damage occurring from wide spread use and abuse of narcotic drugs.							
	Fellowship (professional)			2	6			21,600
	Fellowship (for study and observation tour)			3	20 days			
						Supplies/ equipment (training)	5,725	5,725
						Supplies/ equipment (laboratory analysis and psychological testing)	25,000	25,000

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
UNITED NATIONS (WHO)								
Health and Sanitation								
1. Public Health Administration	Planning Management and Information Systems Development (THA SPM 001)	2 + 4	16 + 30	20	82	Equipment Subsidies	10,000 65,000	245,850
	Strengthening of planning management and information systems development at all Levels in Support of Primary Health Care							
	Development of Primary Health Care (THA PHC 001)	3	18	8	16	Grants	156,300	186,900
	Expand primary health care programmes to serve all villages in Thailand; develop Health Service System Mechanism to support - PHC and promote community participation in the maintenance of drug cooperatives							
	Development of Occupational Health (THA WKH 001)	-	-	2	6	Subsidy	134,000	27,200
	Promotion of the health of industrial and agricultural workers							
	Development of Care of the Aged, Disability Prevention and Rehabilitation (NEW) (THA ADR 001)	-	-	2	2	Grant	8,200	17,000

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributic US$
		No.	MM	No.	MM	Description	Cost $	
1. Public Health Administration	Promotion of the provision of adequate health care services to the elderly in the community disability prevention to rehabilitation							
	Development of Expanded Programme on Immunization (THA EPI 001)	1	1	-	-	Grants	22,500	27,000
	Expansion of the immunization programme through increased coverage and improving managerial and operational aspects							
	Prevention of Blindness (THA PBL 001)	-	-	2	2	Equipment Grants	4,500 8,500	17,000
	Reduction of the incidence of blindness in rural areas through PHC and training in community-oriented public health opthalmology							
	Development of Vector Biology and Control (THA VBC 001)	1	1	2	2	Equipment Grants	8,000 4,500	21,000
	Study of Vectors, resistance to insecticides and conduct of training courses							
	Development of Appropriate Technology for Health (including	-	-	1	2	Subsidy	20,000	25,900

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
1. Public Health Administration	Development of appropriate technology including health record system for use in PHC and the strengthening of district and provincial health service laboratories							
	Country Health Programming (THA CHP 001)	1	12	-	-	Grants Miscellaneous	161,000 104,000	334,000
	Collaboration activities through the WHO Programme Coordinator and the RTG/WHO, Coordinating Committee for planning implementation and evaluation of health programmes, support provided in promoting the coordination of resources for health development and in strengthening national capability for the managerial process for national health development							
	Development of Health Manpower Planning and Management (THA MPM 001)	-	-	-	-	Equipment	3,800	44,500
	Development of health manpower policy planning in support of HFA 2000 and strengthening of health manpower management							

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contributi US$
		No.	MM	No.	MM	Description	Cost $	
1. Public Health Administration	Promotion of Training (THA PTR 001) Reorientation of training programmes of health personnel towards task and community oriented educational programmes	-	-	4	8	Grants	3,450	26,450
	Curricula and Faculty Development (THA EDS 001) Promotion of teaching staff to apply a systematic approach to educational planning and processes, development of education curricula and evaluation methodology	1	1	2	13	Equipment Grants	5,000 10,000	38,300
5. Other Communicable Disease	Development of Epidemiological Surveillance (THA ESD 003) Improvement of the quality and extent of epidemiological surveillance of communicable diseases in Thailand and the training of physicians in applied methods of field epidemiology	3	3	7	39	Grants for training	32,900	119,500
	Filariasis Control (THA MPD 002) Control of filariasis in epidemic rural areas by strengthening	-	-	1	3	Grants	8,114	11,314

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
5. Other Communicable Disease	Bacterial, Viral and Mycotic Diseases Control (THA BVM 001)	-	-	2	8	Equipment Grants	15,000 1,500	30,486
	Promotion of Control programmes for bacterial, viral and mycotic diseases such as STD, TB and Diarrhoeal diseases							
6. Maternal and Child Health	Development of Maternal and Child Health (THA MCH 007)	-	-	-	-	Subsidy	12,000	12,000
	Promotion of MCH as an integral part of PHC							
	Integration of Nutrition into Primary Health Care (THA NUT 004)	-	-	-	-	Grant	21,000	21,000
	Development of community based supplementary food production and processing activities							
	Development of Health Education (THA HED 001)	2	9	10	21	Grants for educational activities	28,000	56,100
	Strengthening of health education activities through intersectoral cooperation and community participation							
3. Other Health Services	Promotion of Research (THA RPD 002)	2	2	1	12	Grants	39,000	64,800

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
8. Other Health Services	Strengthen the coordination mechanism for health research; national expertise in research design and methodology and research capability of health personnel in rural areas. Promotion and support health research to achieve HFA 2000. (ongoing)							
	Development of Drug Policies and Management (THA DPM 001)	1	1	-	-	Grants	12,500	17,000
	Formulation and implementation of national drug policies and strategies to achieve HFA 2000							
	Development of Pharmaceuticals and Biologicals (THA PHB 001)	-	-	2	13	Equipment	8,900	28,900
	Upgrade the biological analysis of pharmaceuticals for quality control drugs and expand production of vaccine in support of EPI							
	Development of Mental Health (THA MNH 001)	-	-	-	-	Subsidies	17,000	17,000
	Integration of mental health activities to PHC							
	Development of Cancer Control	1	1	3	3	Grants	8,000	25,800

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Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
8. Other Health Services	Strengthen early detection and diagnosis in the prevention and control of cancer and the integration of control activities to PHC							
	Development of Cardiovascular Diseases Control (THA CVD 001) Promotion and strengthening of community oriented activities for the prevention and control of CVD	1	1	2	2	Grant	7,400	20,700
	Development of a Training and Demonstration Centre for Oral Health (THA ORH 002) Establishment of a regional training and demonstration centre for oral health	-	-	-	-	Equipment	17,000	17,000
9. Environmental Sanitation	Development of Environmental Health Management including including Impact Assessment (THA EHP 002) Promotion and upgrading of the standard of village sanitation development and the development of environmental management policies	1	1	-	-	Equipment Grants	7,000 15,000	31,300

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
9. Environmental Sanitation	Development of Food Control (THA FSP 001) Strengthening of food sanitation and control programmes	-	-	-	-	Grants	13,900	13,900
	Development of National Health Information System (THA HST 001) Development of health information system to support planning, administration monitoring and evaluation of PHC implementation and to establish a PHC information system	1	6	4	26	Equipment Grants	17,000 29,500	60,200
	Development of Health Legislation (THA HLE 001) Promotion of training in health legislation	-	-	-	-	Equipment Grants	1,200 7,700	9,000
12. Malaria Eradication	Malaria Control (THA MPD 001) Maintain long term Control of malaria in Thailand with emphasis on community development	3	36	11	22	Supplies and equipment Grants	10,000 20,700	232,750

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribut US$
		No.	MM	No.	MM	Description	Cost $	
UNITRD NATIONS DEVELOPMENT PROGRAMME (UNDP/OPE)								
Health and Sanitation								
12. Malaria Eradication	THA/81/001 - Control of Malaria Mosquitoes in Stationary and and Moving Waters	-	-	-	-			
	In-service Training							3,318
UNITED NATIONS (UNESCO)	UNFPA-funded Population Education Programme			International Long-term 1 Study Local	3 Tours personnel training	Equipment Printing Sub-contract (Radio, programmes)	10,929 106,864 18,736	291,260

Field of Activity	Nature and Duration of Project	Experts		Fellowships		Commodities/Equipment		Donor Contribution US$
		No.	MM	No.	MM	Description	Cost $	
UNITED STATES OF AMERICA								
Health and Sanitation								
6. Maternal and Child Health	Population II provides assistance to RTG family planning programme							9,800,000 (loan) 8,500,000
8. Other Health Services	BMHP Treatment and Rehabilitation Project Assistance to the Bangkok Metropolitan Health Department in establishing an out-patient narcotics treatment and rehabilitation system; Final year of a five-year project			12	12	Computing equipment	30,000	445,000
						Vehicles	45,000	
						Office equipment	17,680	
						Lab. and clinic equipment	71,900	
						Audiovisual	27,900	
	ONCB Administrative Support Project Assistance to the Office of the Narcotics Control Board to enable it to conduct wide-ranging coordination of RTG narcotics control efforts					Vehicles	15,000	50,000
						Audiovisual	5,500	
						Communications	1,500	
						Office equipment	21,815	

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APPENDIX VII.B

UNICEF ASSISTANCE TO THAILAND
1982-1986

Source: UNICEF (January 1982) Thailand, Recommendation for UNICEF Assistance 1982-1986, for submission to the 1982 UNICEF Executive Board, Bangkok: UNICEF, pp. 270-284.

PRIMARY HEALTH CARE

Description	Total	General Resources 1982	1983	1984	1985	1986	Noting 1982	1983	1984	1985	1986
						in US$ thousand					
Supplies & Equipment											
- 46,000 VHV kits	1,000.0	50.0	75.0	100.0	125.0	150.0	50.0	75.0	100.0	125.0	150.0
- 9,000 radios	300.0	10.0	20.0	30.0	40.0	50.0	10.0	20.0	30.0	40.0	50.0
- 10 pick-up truck	40.0	-	-	12.0	8.0	-	-	-	12.0	8.0	-
Sub-total supplies & equipment	1,340.0	60.0	95.0	142.0	173.0	200.0	60.0	95.0	142.0	173.0	200.0
Freight	100.0	5.0	7.0	10.0	15.0	13.0	5.0	7.0	10.0	15.0	13.0
Cash Grant											
- Training new 80,000 VHCs	800.0	40.0	60.0	80.0	100.0	120.0	40.0	60.0	80.0	100.0	120.0
- Refresher Training Course for 30,000 VHCs/3,000 VHVs	200.0	10.0	15.0	20.0	25.0	30.0	10.0	15.0	20.0	25.0	30.0
- Training 3,000 local health/and multi-sectoral workers	100.0	6.0	8.0	12.0	10.0	14.0	6.0	8.0	12.0	10.0	14.0
- Training 6,000 urban VHVs	60.0	4.0	5.0	6.0	7.0	8.0	4.0	5.0	6.0	7.0	8.0
- Training 10,000 primary school teachers	300.0	10.0	20.0	30.0	40.0	50.0	10.0	20.0	30.0	40.0	50.0
- Technical inputs and consultation	20.0	20.0	-	-	-	-	-	-	-	-	-

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Description	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
				In US$ thousand							
- Seminars, group-interaction for 3,000 officials	400.0	-	100.0	-	100.0	-	100.0	-	100.0	-	-
- IEC : 50,000 copies of performance guidelines	20.0	-	20.0	-	-	-	-	-	-	-	-
- IEC : 276,000 sets of self-learning packages for VICs/VIHVs	1,610.0	80.0	130.0	150.0	210.0	240.0	850.0	115.0	150.0	180.0	270.0
Sub-Total for Cash Grant	3,510.0	170.0	350.0	298.0	492.0	462.0	255.0	223.0	398.0	362.0	492.0
TOTAL	4,950.0 (2,500.0)	235.0	460.0	450.0	680.0	675.0	320.0	325.0	550.0	550.0	705.0

EXPANDED PROGRAMME OF IMMUNIZATION

Description	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
				in US$ thousand							
Supplies & Equipment											
- Vaccines : DPT, OPV, BCG, DT 5 million does of each	725.0	90.0	120.0	140.0	160.0	215.0	-	-	-	-	-
- BCG 11,250 Vaccination sets	120.0	10.0	20.0	20.0	30.0	40.0	-	-	-	-	-
- Refrigerator freezer (14 cu.ft.)	30.0	15.0	15.0	-	-	-	-	-	-	-	-
- Refrigerator (10 cu.ft.)	40.0	8.0	8.0	8.0	8.0	8.0	-	-	-	-	-
- Cold boxes	50.0	10.0	10.0	10.0	10.0	10.0	-	-	-	-	-
- Vaccination carriers	75.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-
- Refrigerator repair tool kits	15.0	-	8.0	7.0	-	-	-	-	-	-	-
- Supplies & equipment for DPT Production	500.0	-	-	-	-	-	-	-	500.0	-	-
Sub-total for supplies & equipment	1,555.0	148.0	196.0	200.0	223.0	288.0	-	-	500.0	-	-
Freight	200.0	22.0	25.0	26.0	27.0	30.0	-	-	70.0	-	-
Cash Grant											
- Expenses for periodic cluster surveys	60.0	-	10.0	12.0	18.0	20.0	-	-	-	-	-
- Printing 20,000 copies of EPI manual for field workers	8.0	-	2.0	2.0	2.0	2.0	-	-	-	-	-

Description	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
						in US$	thousand				
- Training of provincial CDC and HCE Chief as well as municipal health	15.0	-	15.0	-	-	-	-	-	-	-	-
- Training of district hospital officer and district health, practical nurses	32.0	-	32.0	-	-	-	-	-	-	-	-
Sub-total for cash grant	115.0	-	59.0	14.0	20.0	22.0	-	-	-	-	-
TOTAL	1,870.0 (1,300.0)	170.0	280.0	240.0	270.0	340.0	-	-	570.0	-	-

RURAL WATER SUPPLY AND SANITATION

	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
		in US$ thousand									
Supplies and Equipment											
1. Supplies for well construction (1,000 wells)											
- Handpumps (L)	160.0	8.0	12.0	16.0	20.0	24.0	8.0	12.0	16.0	20.0	24.0
- G.I Casing pipe (L)	270.0	14.0	20.0	27.0	34.0	40.0	14.0	20.0	27.0	34.0	40.0
- G.I slotted pipe (L)	100.0	5.0	8.0	10.0	12.0	15.0	5.0	8.0	10.0	12.0	15.0
2. Spare parts for handpumps (L)	56.0	2.0	5.0	6.0	6.0	7.0	5.0	6.0	6.0	6.0	7.0
3. Drilling rigs (L)	200.0	-	50.0	50.0	-	-	-	50.0	50.0	-	-
4. Supplies for well drilling equipment											
- Tools and equipment for percussion rigs	20.0	5.0	5.0	-	-	-	5.0	5.0	-	-	-
- Tools and equipment for direct rotary rigs	60.0	-	15.0	15.0	-	-	15.0	15.0	-	-	-
- Drilling bits	40.0	-	20.0	-	-	-	20.0	-	-	-	-
- Drilling mud	15.0	8.0	-	-	-	-	7.0	-	-	-	-
5. Equipment for well development											
- Air compressors	50.0	-	30.0	20.0	-	-	-	-	-	-	-
- Electro/gas welding outfits	10.0	-	10.0	-	-	-	-	-	-	-	-
- Mud pumps	75.0	-	55.0	20.0	-	-	-	-	-	-	-
- Sieve analysis with lab kits	5.0	-	5.0	-	-	-	-	-	-	-	-
- Water chemical analysis test kits	2.0	-	2.0	-	-	-	-	-	-	-	-

	Total	General Resources 1982	1983	1984	1985	1986	Noting 1982	1983	1984	1985	1986
					in US$ thousand						
6. Operating tools											
- Tools for drillers	3.0	-	3.0	-	-	-	-	-	-	-	-
- Tools for maintenance and follow-up teams	2.0	-	2.0	-	-	-	-	-	-	-	-
- Tools for mechanical workshops	5.0	-	5.0	-	-	-	-	-	-	-	-
- Tools for caretakers	30.0	6.0	6.0	6.0	6.0	6.0	-	-	-	-	-
7. Equipment for training drillers and operators											
- E-logging equipment	4.0	-	4.0	-	-	-	-	-	-	-	-
8. Supplies for piping systems											
- Distribution pipes	900.0	20.0	45.0	90.0	135.0	160.0	20.0	45.0	90.0	135.0	160.0
- Water meters	450.0	10.0	25.0	45.0	65.0	80.0	10.0	25.0	45.0	65.0	80.0
- Fittings and tools	90.0	5.0	5.0	10.0	10.0	15.0	5.0	5.0	10.0	10.0	15.0
- Electrical motors	440.0	10.0	25.0	45.0	60.0	80.0	9.0	19.0	52.0	60.0	80.0
- Windmills	210.0	5.0	10.0	20.0	35.0	35.0	5.0	10.0	20.0	35.0	35.0
- Solar cells and accessories	45.0	-	3.0	4.0	7.0	8.0	-	3.0	4.0	7.0	9.0
9. Supplies and equipment for improvement and quality of existing water systems											
- Handpumps	50.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
- Motor pumps for shallow wells rehabited	60.0	15.0	15.0	-	-	-	15.0	15.0	-	-	-

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	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
					in US$	housand					
- Tools and spare parts for 10,000 wells	200.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
11. Supplies and equipment for demonstration of 1,000 bamboo-reinforced concrete cisterns											
- Casing ø 2.00 x 0.60 m.	40.0	2.0	3.0	4.0	5.0	6.0	2.0	3.0	4.0	5.0	6.0
- Concrete mixers	40.0	2.0	3.0	4.0	5.0	6.0	2.0	3.0	4.0	5.0	6.0
- Plumbing tools	90.0	5.0	7.0	9.0	11.0	13.0	5.0	7.0	9.0	11.0	13.0
12. Sanitary water-sealed latrines	350.0	10.0	20.0	30.0	40.0	50.0	20.0	30.0	40.0	50.0	60.0
13. Supplies and equipment for improvement and construction of school water supply systems with OMPEC	450.0	20.0	30.0	40.0	50.0	60.0	30.0	40.0	50.0	60.0	70.0
Sub-total for S & E	4,522.0	177.0	473.0	496.0	526.0	630.0	227.0	346.0	462.0	540.0	645.0
14. Transport											
- 4 Trucks for rigs	28.0	-	7.0	7.0	-	-	-	7.0	7.0	-	-
- 14 Pick-up trucks: - 5 for maintenance teams - 7 for provincial medical centres - 2 for Rural Water Supply Div.	56.0	-	12.0	16.0	-	-	-	12.0	16.0	-	-
2 micro-bus for follow-up, supervision and technical training	10.0	-	5.0	5.0	-	-	-	-	-	-	-
- 2 Sedans for regional supervision	10.0	-	-	-	-	-	-	10.0	-	-	-
Sub-total	104.0	-	24.0	28.0		-	-	29.0	23.0	-	

	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
					in US$ thousand						
15. Freight	345.0	20.0	35.0	35.0	35.0	40.0	25.0	30.0	35.0	40.0	50.0
16. Cash Grant											
- Development and conduct of mapping of existing rural water supply and sanitation systems in 37 provinces	20.0	20.0	-	-	-	-	-	-	-	-	-
- Conduct of details survey on the work ability of water and sanitation systems in 6 provinces	20.0	20.0	-	-	-	-	-	-	-	-	-
- Survey of existing primary school water supply to be conducted by OHPEC with technical assistance from Department of Health	9.0	9.0	-	-	-	-	-	-	-	-	-
- Social preparation for selected 9,000 local leaders to be done by the Department of Health	150.0	5.0	10.0	15.0	19.0	24.0	5.0	10.0	15.0	21.0	26.0
- Social preparation for villagers in order to achieve community participation for the construction and maintenance of deep wells to be done by community development and PHC networks	150.0	5.0	10.0	15.0	19.0	24.0	5.0	10.0	15.0	21.0	26.0
- Training of 3,000 villagers to be caretakers of the newly constructed deep wells	50.0	3.0	4.0	5.0	6.0	7.0	3.0	4.0	5.0	6.0	7.0
- Demonstration construction of 1,000 bamboo-reinforced concrete cisterns	150.0	6.0	10.0	12.0	20.0	25.0	5.0	10.0	15.0	21.0	26.0

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	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
						in US$	housand				
- Development and production of promotional materials on the importance of clean water for drinking and household consumption	90.0	-	9.0	14.0	20.0	-	-	11.0	15.0	21.0	-
- Development and production of promotional materials on sanitation	90.0	-	10.0	15.0	20.0	-	-	10.0	15.0	20.0	-
Total for cash grant	729.0	68.0	53.0	76.0	104.0	80.0	18.0	55.0	80.0	110.0	85.0
GRAND TOTAL	5,700.0 (2,900.0)	265.0	505.0	635.0	665.0	750.0	270.0	460.0	600.0	690.0	780.0

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FOOD AND NUTRITION

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	Total	General Resources					Noting				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
					in US$ thousan						
Supplies and Equipment											
25,000 scales	325.0	40.0	40.0	40.0	40.0	60.0	-	20.0	35.0	50.0	-
Seeds, animals, fish, fertilizers, cooking utensils for 8,000 villages	1,200.0	40.0	80.0	120.0	160.0	200.0	40.0	80.0	120.0	160.0	200.0
Seeds, animals, fish, fertilizers, cooking utensils for 1,000 primary schools	250.0	15.0	20.0	25.0	30.0	35.0	15.0	20.0	25.0	30.0	35.0
Audio-visual aids	20.0	-	-	20.0	-	-	-	-	-	-	-
Sub-total for S & E	1,795.0	95.0	140.0	205.0	230.0	295.0	55.0	120.0	100.0	240.0	235.0
Transport											
4 Pick-up trucks	18.0	-	-	9.0	9.0	-	-	-	-	-	-
70 Motorcycles	32.0	-	-	-	16.0	16.0	-	-	-	-	-
Sub-total for transport	50.0	-	-	9.0	25.0	16.0	-	-	-	-	-
Freight	15.0	-	-	6.0	5.0	4.0	-	-	-	-	-
Cash Grant											
Printing 6 million of growth charts	300.0	10.0	20.0	30.0	40.0	50.0	10.0	20.0	30.0	40.0	50.0
Training of 50,000 village leaders in community preparation action	375.0	20.0	30.0	45.0	50.0	60.0	20.0	30.0	30.0	40.0	50.0

	Total	General Resources					Rolling				
		1982	1983	1984	1985	1986	1982	1983	1984	1985	1986
		in US$ thousand									
Training 3,000 home farming/multi-sectoral officials	165.0	20.0	30.0	35.0	40.0	40.0	-	-	-	-	-
Production cost and technical input for development of IEC material	500	25.0	40.0	50.0	60.0	75.0	25.0	40.0	50.0	60.0	75.0
Sub-total for cash grant	1,340.0	75.0	120.0	160.0	190.0	225.0	55.0	90.0	110.0	140.0	175.0
GRAND TOTAL	3,200.0 (1,800.0)	170.0	260.0	380.0	450.0	540.0	110.0	210.0	290.0	380.0	410.0

APPENDIX VII.C

SUMMARY OF WHO PROGRAM ACTIVITIES
AND BUDGET FOR THAILAND
1985-1986

Sources: SEARO/WHO (-) Detailed Country Programme for 1984-1985, Thailand, New Delhi: SEARO, 72 pp.

SEARO/WHO (July 1983) Detailed Programme Budget for 1984-1985, New Delhi: SEARO, pp. 261-279 (SEA/RC 36/3).

PROGRAMME 2.3.1 HEALTH SITUATION AND TREND ASSESSMENT

Objectives

To collaborate with the Government in the collection of data essential for the planning and evaluation of strategies for Health for All by the Year 2000 within the context of primary health care through strengthening the existing system of vital statistics and epidemiological data collection; expansion of this system to district, tambon and village levels and epidemiological surveillance to all health centres; designing of systems of information collection and analysis that will function at all levels, including villages with self-managed primary health care; computerization of the collection, storage, retrieval and processing of vital statistics and epidemiological data, in order to make these data more rapidly available and effectively used in the management of national health development; improvement of the training and ability of qualified personnel in epidemiology and vital statistics at all levels, and the coordination of the vital statistics and epidemiology reporting systems with activities for health promotion and care and disease prevention and control.

Proposed Activities

Support will be provided for improving and extending both the vital statistics information system and epidemiological surveillance, especially to the village level, in the context of self-managed primary health care; developing a computerized data collection, storage, analysis and retrieval system in order to make information available in time and more readily, and more effective in health planning, management and evaluation; conducting workshops/refresher courses for training different categories of health personnel, at both the provincial and district levels, in the health information system, epidemiological surveillance, general and applied epidemiology and computerization; continuing the field epidemiology training programme, and carrying out field research in the application of micro-computers at the provincial/district levels, the epidemiology of deafness, the utilization of health information in "village self-managed PHC", etc.

PROGRAMME 2.3.2 MANAGERIAL PROCESS FOR NATIONAL HEALTH DEVELOPMENT

Objective

To collaborate with the Government in strengthening and developing the joint management of the national and WHO programme so as to have the maximum impact on the social goal of HFA/2000 through the identification, coordination and best possible use of all available resources and specifically that of WHO.

Proposed Activities

Support will be provided for strengthening the RTG/WHO Coordination Committee and its managerial mechanism through subsidies and technical staff in support of the managerial process for national health development and in relation to the bottom-up development of the health system from the villages; using the Programme Budgeting Exercise and its management system to support inter and intrasectoral action and integrated development in the framework of the national policy of decentralization; implementing, monitoring, evaluating and documenting the Programme Budgeting Exercise, its decentralized management system and its products in order to show its impact on the planning and evaluation of the WHO/national programme and on inter and intrasectoral action and coordination; bringing together the best national experts and knowledge in health and development policy in order to plan health system infrastructure, development of health, science and technology, and programme implementation through joint

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Country: THAILAND

Title of Project: Health Situation and Trend Assessment

Project No: THA HST 001

Funds: REG

Programme Classification: 2.3.1 Health Situation and Trend Assessment

(Related project THA ESD 003)

Components		1984		1985		1984-85
		m/m	$	m/m	$	$
1. COMPUTERIZATION and SYSTEMS ANALYSIS						
TSA						
1.1 National consultant on computerization			5,000		5,000	10,000
1.2 National Consultant on Systems analysis			4,000		4,000	8,000
1.3 Software			5,000		5,000	10,000
Local Cost Subsidies						
Field Research						
1.4 Application of micro computer at Provincial/District levels			-		6,000	6,000
1.5 Utilization of health information in "village self managed PHC"			10,000		10,000	20,000
1.6 Application of 12HFA indicators			10,000		10,000	20,000
Training						
1.7 Health information system Development and M.I.S.						
- Workshop			5,000		5,000	10,000
- Seminars			5,000		5,000	10,000
- Refresher Courses (4)			20,000		20,000	40,000
1.8 Computerization For local Personnel			10,000		-	10,000
Fellowships						
1.9 Demography	(R)	1/12	10,900	1/12	10,900	21,800
1.10 Biostatistics (M.S.)	(RC)	1/12	3,000	1/12	3,000	6,000
1.11 Study Tour on Computer Applications	(R)	3/3	8,400	3/3	8,400	16,800

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THA ESD 003 - Health Situation and Trend Assessment

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
2. EPIDEMIOLOGICAL SURVEILLANCE					
2.1 Supplies & Equipment		24,000		24,000	48,000
Local Cost Subsidies					
Seminars on:					
2.2 Surveillance worker (four each year)		12,000		12,000	24,000
2.3 For Health Officers Provincial Supervisors		3,800		3,800	7,600
2.4 District Officers		5,000		5,000	10,000
Training					
2.5 Epidemiology Field Training		33,000		33,000	66,000
Fellowships					
2.6 Computer Science MSc Course at AIT Bangkok (IC)		12,000		-	12,000
3. EPIDEMIOLOGY OF DEAFNESS					
Local Cost Subsidy					
3.1 Field research in epidemiology		10,000		10,000	20,000
Total		196,100		180,100	376,200
To be obtained from Extra Budgetary Sources					
- Consultant (CDD Atlanta)	2/6m	24,000	2/6	24,000	48,000
- Fellowship ER	2/6m	19,500	2/6	19,500	39,000
- Computer hardware		50,000		50,000	100,000
Subsidy for Research Grant on Epidemiology of Cancer		10,000		10,000	20,000
					207,000

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Project No. THA MPN 001 (THA CHP 001) | Funds: REG | Programme Classification: 2.3.2 Managerial Process for National Health Development

Components		1984		1985		1984-85
		m/m	$	m/m	$	$
1. OFFICE OF WPCR						
1.1 WPCR	P6	1/12	74,400	1/12	74,400	148,800
1.2 Adm. Officer	P3	1/12	53,800	1/12	53,800	107,600
1.3 Adm. Assistant	BK9	1/12	13,400	1/12	13,400	26,800
1.4 Secretarial Assistant	BK8	1/12	13,400	1/12	13,400	26,800
1.5 Secretarial Assistant	BK7	1/12	10,800	1/12	10,800	21,600
1.6 Secretarial Assistant	BK6	1/12	9,700	1/12	9,700	19,400
1.7 Secretarial Assistant	BK6	1/12	9,700	1/12	9,700	19,400
1.8 Driver	BK4	1/12	8,800	1/12	8,800	17,600
1.9 Driver	BK3	1/12	7,500	1/12	7,500	15,000
1.10 Common Services			22,750		22,750	45,500
1.11 Temporary Assistance			5,000		5,000	10,000
2. RTG/WHO Coordinating Committee						
2.1 Management Officer	P4	1/12	74,400	1/12	74,400	148,800
Subsidy						
2.2 Committee operations			50,000		50,000	100,000
2.3 Social Development Project			10,000		10,000	20,000
2.4 National Advisory Board for Disease Prevention and Control			40,000		40,000	80,000
2.5 Centre for Policy studies (Mahidol)			20,000		20,000	40,000
2.6 Digestive tank on health development (concensus building from policies to operations)			20,000		20,000	40,000
Total (for amount only)			443,650		443,650	887,300

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PROGRAMME 2.3.3 HEALTH SYSTEMS RESEARCH

Objectives

To collaborate with the Government in strengthening the technical capability of the staff of the Ministry of Public Health concerned in the area of health system/services research, including operational research, and promoting the development and implementation of health systems research for the primary health care programme and all related areas of health system infrastructure, health sciences and technology.

Proposed Activities

Support will be provided for promoting the development and implementation of health systems research in regard to primary health care and all other related areas through the organization of workshops/seminars and the provision of grants.

PROGRAMME 2.4.0 ORGANIZATION OF HEALTH SYSTEMS BASED ON PRIMARY HEALTH CARE

Objectives

To collaborate with the Government in extending coverage within effective PHC activity and in progressively giving maximum responsibility to the community for the planning and execution of district and village projects related to the elements of primary health care and other basic health activities.

Proposed Activities

Support will be provided for promoting activities that contribute directly or indirectly to the progress of the PHC approach; implementing the complementary strategies, undertaking the training of village volunteers and other village manpower, pursuing village primary health care technical development, and actual development of community organization and self-managed systems and sharing of experience among villages; undertaking the training of health centre nurse-midwives, health workers and other workers in the basic techniques of PHC; provincial pharmacists and district health officers in chemical food safety, and the community in malaria control strategy; producing ORS locally at the district level in support of the diarrhoeal diseases control programme; conducting investigations and research and testing methods on how to involve the community in the prevention and control strategies against prevalent diseases and in maternal and child health and family planning; undertaking research on appropriate communication process models for village self-managed activities in PHC; developing a simplified micro-planning and implementation process to provide the villages with simple methods and principles that would be totally acceptable to them; conducting survey research on contaminants in weaning and baby foods in the villages and training health officers in appropriate esearch methodology; supplying seeds of medicinal plants to the villagers in order to develop the use of traditional remedies for complementing at low cost the list of western drugs; technical managerial coordination and support to the ASEAN PHC Centre, and training national workers in research on food contaminants.

Country: Thailand

Title of Project: Development of Health Syst
Research

Project No. THA HSR 002 (New)

Funds: REG

Programme Classification: 2.3.3
Health System Research

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
1. Local Cost subsidy for seminar/ workshop on health services Research project		5,000		5,000	10,000
2. Visiting Scientist Grant (ER)	1/1	7,000	1/1	7,000	14,000
3. Grant for health system research to support primary health care programme		10,750		10,750	21,500
Total (for amount only)		22,750		22,750	45,500
To be obtained from extra budgetary resources					
Research grants for Health System Research		100,000		100,000	200,000

Country: Thailand

Title of Project: Development of Village self managed Primary Health Care

Project No. THA PHC 002 (New)

Funds: REG

Programme Classification 2.4.0 Organization of Health Systems based on Primary Health Care

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
1. SSA					
1.1 Project Manager	1/12	6,000	1/12	6,000	12,000
1.2 Deputy Project Manager	2/24	7,200	2/24	7,200	14,400
1.3 Accountant	1/12	3,600	1/12	3,600	7,200
1.4 Secretary Typist	1/12	3,600	1/12	3,600	7,200
SUBSIDIES					
2 Subsidy to 220 villages (see Annex 1 for details)		330,000		329,700	659,700
3. Health Centers Staff Training (see detail Annex 2)		23,750		23,750	47,500
4 District Health Office & Hospital staff training		11,500		11,500	23,000
5. Malaria PHC support Community involvement in Malaria Control (see details Annex 3)		14,000		14,000	28,000
6. Production of ORS in 25 district hospitals Equipment & Ingredients		12,000		12,000	24,000
7. Community involvement in TB Leprosy Control Management of Acute					
7.1 Respiratory infections & EPI		20,000		20,000	40,000
7.2 MCH/FP (Model Parents)		20,000		20,000	40,000
7.3 Dental Health		10,000		10,000	20,000
7.4 NCD Control		10,000		10,000	20,000
7.5 Blindness Prevention		5,000		5,000	10,000
					contd...

THA PHC 002 - Development of Village self managed Primary Health Care

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
8. Research on Appropriate Communication Process Models for Village self-managed PHC		7,400		9,100	16,500
9. Development of Simplified micro planning methods & implementation management processess for Village self managed PHC		30,500		30,500	61,000
C.1 Survey research on contaminants in weaning and baby food in the villages (300 samples)		4,500		4,500	9,000
C.2 Training on the techniques of food safety		1,000		1,000	2,000
1.1 Traditional Medicine-Provision of medicinal plant seed for growing in rural areas		6,000		6,000	12,000
1.2 Support to training in Ayurvedic Medicine		3,000		3,000	6,000
ASEAN PHC Centre		10,000		10,000	20,000
FELLOWSHIPS					
3 Food contaminants/research	1/1	4,500	1/1	4,500	9,000
SUPPLIES AND EQUIPMENT					
General		5,000		5,000	10,000
Vehicle and other supplies required for community involvement in Filariasis Control		16,000		16,000	32,000
Total		564,550		565,950	1,130,500

ANNEX 1

THA PHC 002 - Development of Village self-managed Primary Health Care

PROGRAMME 4

Average financial inputs per Village - Breakdown

	US$
- Subsidy to Cooperative	892
- Training	535
- Promotion/Education	596
- S&E	442
- Travel in Country	535
US$	3,000

ANNEX 3

THA PHC 002 - Development of Village self-managed Primary Health Care

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
Malaria staff subsidy for field study of community participation in 10 model village		7,000		7,000	14,000
Workshop for PHC approach for malaria control (Health Officers and Malaria Officers)		5,000		5,000	10,000
Strengthening and role expansion of Malaria Volunteers in high risk areas		2,000		2,000	4,000
Total		14,000		14,000	28,000

ROGRAMME 2.5.0 HEALTH MANPOWER

Objectives

To collaborate with the Government in strengthening PHC-based health servi at the district level and below through the training and reorientation health personnel and conducting relevant health manpower research, and furt strengthening the Ministry of Public Health and other institutions thro training in advanced techniques in the health and medical fields.

Proposed Activities

Support will be provided for the promotion of research and studies essent for health manpower planning and development; pre-service training of auxili health personnel by developing training curricula for eight categories auxiliaries (viz., practical nurses, nurse anaesthetists, dental hygienis assistant pharmacists, junior sanitarians, medical laboratory technicians, medical radiologists); strengthening of health manpower management thro inservice training and orientation for provincial supervisors and tambon hea personnel, and development of essential manuals and textbooks; developing cumulative degree programme for district doctors and a health literat library service, and promoting PHC and appropriate technology through mobilization of existing personnel, i.e., medical technologists, clini epidemiologists, etc.; development and strengthening of national competence certain specialties to cope with existing and or growing problems, and prepare for the development of certain fields such as non-communicable disea through the exposure of personnel to up-to-date/ innovative technologies, the organization of training courses to motivate tambon health personnel in target areas towards behavioural and attitudinal change activities in order create constructive teamwork in the development of and support to villa managed PHC activities.

PROGRAMME 2.6.0 PUBLIC INFORMATION AND EDUCATION FOR HEALTH

Objective

To collaborate with the Government in increasing the health knowledge of people through health education and information activities, with emphasis improvement of the communication aspects of the community involvement proces

Proposed Activities

Support will be provided for strengthening national expertise through impro technical know-how in communication areas at the central level and by support campaign activities and community involvement in village-managed primary hea care; creating and promoting popular awareness of health problems and, particular, the role of women in PHC, through the organization of campaigns national and community levels, in connection with the "model parents" compor of MCH/FP; reorientation workshops/seminars for tambon workers and supervi to take responsibility for promoting community activities in the villa managed PHC.

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Country: Thailand

Title of Project: Development of Health Manpower

Project NO: THA HMD 005 (NEW)

Funds: REG

Programme Classification: 2.5.0 Health Manpower

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
SUBSIDIES					
Health Manpower Planning					
1. Research in health manpower planning & development		15,000		15,000	30,000
Health Manpower Production					
2. Curriculum development for 8 categories of medical and health staff		42,000		42,000	84,000
Health Manpower Management					
3. Development of manuals & Textbooks for medical & health personnel		10,000		10,000	20,000
4. Collaborative activities of centre for Health Manpower Development		5,000		5,000	10,000
5. Development of Cumulative degree programme for district doctors (Mahidol University)		10,000		10,000	20,000
6. Health literature library information service (Mahidol)		5,000		5,000	10,000
7. Community diagnosis curriculum Development (Mahidol)		10,000		-	10,000
8. Promotion of involvement of clinical epidemiologists in support to PHC (Mahidol)		10,000		10,000	20,000
9. Training of Tambol personnel in medical & health services delivery		7,800		5,000	12,800
10. Training in Urban and rural PHC for Hospital Directors		5,000		5,000	10,000
11. Seminar-Accident Prevention		5,000		5,000	10,000
12. Seminar- Cancer Prevention and Control		5,000		5,000	10,000
13. Seminar-mental & Neurological disorders		5,000		5,000	10,000
14. Seminar - Rehabilitation		5,000		5,000	10,000

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Project No: ThA HMD 015 (NEW) . Funds: REG Programme Classification: 2.5.0

Health Manpower

Components		1984		1985		1984-85
		m/m	$	m/m	$	$
Fellowships						
15. Training in Hospital Administration (Thai Red Cross Society & Navy Medical Department)	UK	2 /12	34,800			34,800
16. Training in Medical Education - Pramongkutklao Medical College	ER	1 / 2	8,600			8,600
17. Training in Toxicology (Army department of Medical Science)	ER	1 / 6	12,500			12,500
18. Training in International Health	ER	1 / 12	19,300	1 / 6	12,500	31,800
19. Accident Prevention	ER	1 / 1	5,000	1 / 1	5,000	10,000
20. Geriatrics (Australia)	ER	1 / 12	19,300			19,300
21. Care of the Elderly	ER	1 / 1	5,000	1 / 1	5,000	10,000
22. Mental and neurological disorders	ER	1 / 1	5,000	1 / 1	5,000	10,000
23. Rehabilitation	ER	1 / 1	5,000	1 / 1	5,000	10,000
24. Cardio Vascular Diseases (train a team of 4 to Japan or New Zealand)	ER	4 / 4	20,000			20,000
25. Sexually Transmitted Diseases (CDC Atlanta)	ER	1 /4	9,400			9,400
26. Short Course on TB Control in Japan	ER	1 / 3	7,900			7,900
27. Laboratory work in TB Control in India	R			2 / 6	7,800	7,800
28. P.H.C. study tour in China for 6 CD Control Senior Officers	ER			6 /12w	12,000	12,000
29. Health Legislation	ER	1 / 12	19,300	1 /12	19,300	38,600
Total			310 900		198,600	509,500

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Country: Thailand

Title of Project: Development of Health Education

Project No: THA IEH 001 (THA HED 001)

Funds: REG

Programme Classification 2.6.0 Public Information and Education for Health

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
SSA					
1. National Part-time Consultants in Communication for National Campaigns & for community involvement activities	1/6	900	1/6	900	1,800
2. Subsidies National Campaigns on - Social preparation for self managed PHC - Role of women in self managed PHC		10,000		15,000	25,000
3. Grant for Seminar to improve performance of tambol workers & supervisors in order to support village self managed PHC		5,000		-	5,000
4. Training in Communication techniques for health personnel at tambol levels to promote community involvement in self managed PHC (budget provided in project THA HMD 001)					
5. Research on appropriate communication process models for village self managed PHC (budget provided in THA PHC 002)					
6. Supplies and Equipment - 1-tube video camera with portable recorder: 2 sets - Video recorder-VHS: 1 set - U-matic cassette tape c-30:40 sets - VHS cassette tape C-120 20 sets		12,000		7,000	19,000
Total (for amount only)		27,900		22,900	50,800

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PROGRAMME 3.7.0 RESEARCH PROMOTION AND DEVELOPMENT

Objectives

To collaborate with the Government in the work of the Research Committee on Health; strengthening the capability of health personnel concerned in the area of research planning, coordination, design and methodology and utilization of research results; and supporting relevant actual mission-oriented research and research-cum-action projects which are designed to support the village "self-managed" primary health care programme and the related programme in the areas of health system infrastructure and health science and technology.

Proposed Activities

Support will be extended for the promotion of activities intended to develop/strengthen research planning coordination, design and methodology for supporting PHC development, specifically the "Self-managed" PHC programme and related programmes through the conduct of workshops for provincial and district health staff on research strategy design and methodology, and a national conference for high-level professional health staff on health research to support PHC; provision of support to the various activities of the Research Committee of the Ministry of Public Health; Technical Service Agreement grants for training actual mission-oriented research and research-cum-action projects to develop the design, methodology and management of research projects through actual research activities corresponding to problems to be solved in the community, in the entire supportive health system infrastructure and in the field of health science and technology; and the training of national staff in the fields of research epidemiology and research management.

PROGRAMME 3.9.1 MATERNAL AND CHILD HEALTH, INCLUDING FAMILY PLANNING

Objective

To collaborate with the Government in developing well-trained manpower in specific fields dealing with population problems and family planning services.

Proposed Activities

Support will be provided for training of national personel in communication/education/media.

PROGRAMME 3.11.1 COMMUNITY WATER SUPPLY AND SANITATION

Objective

To collaborate with the Government in providing developmental support to simple, low-cost and effective piped water supply and sanitation projects planned, executed and managed by the communities themselves as a part of primary health care.

Proposed Activities

Support will be provided to primary health care "training and development centre" villages to plan, implement and manage piped water supply systems to meet their own needs in a self-reliant and sustained manner.

Project No. THA RPD 002 Funds: REG Programme Classification: 3.7.0

Research Promotion and Development

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
Subsidy					
1. Workshops on Research Strategy Design and Methodology twice a year		10,000		10,000	20,000
2. Publication of reports of above for wider distribution		2,000		2,000	4,000
3. National Conference on Health Research to support Primary Health Care		5,000		-	5,000
4. Publication of report of above for wider distribution		1,000		-	1,000
5. To support the work of Research Committee		10,000		10,000	20,000
6. For mission-oriented research and research cum-action to support primary health care programme and related programmes		18,700		16,100	34,800
Fellowships					
7. Epidemiology Research (ER)	1/12	19,300		-	19,300
8. Research management (ER)	1/12	19,300		-	19,300
Total (for amount only)		85,300		38,100	123,400
To be obtained from Extra budgetary sources					
SSA grants for mission oriented search cumaction projects to impliment regular budget inputs as per 4 above)		50,000		50,000	100,000

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Country: Thailand

Title of Project: Community Piped Water Supply an
Sanitation
Programme Classification: 3.11.1

Community Water Supply and Sanitatic

Project No: THA CWS 001 (New)

Funds: RB

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
1. Workshop on basic minimum needs on water supply and sanitation		5 000		-	5 000
2. Subsidy for village planned, executed and managed piped water supply (8 projects)		23 700		47 800	71 500
Total: (for amount only)		28 700		47 800	76 500

PROGRAMME 3.12.1 . CLINICAL, LABORATORY AND RADIOLOGICAL TECHNOLOGY FOR HEALTH SYSTEMS BASED ON PRIMARY HEALTH CARE

Objectives

To collaborate with the Government in improving health laboratory activities by emphasizing external quality control and technical supervision; promoting the development of appropriate technology for virology in regional health laboratories; reducing the morbidity and mortality from arthropod-borne diseases and implementing vector control through community participation; providing information about toxic substances and the related health services throughout the country; and promoting, developing and strengthening radiation protection work, the repair and maintenance programme for domestic instruments, and appropriate techniques in the field of radiation protection.

Proposed Activities

Support will be provided for the continuation of the clinical chemistry project at Chulalongkorn University; development of appropriate technology in various priority areas, especially for PHC, by Mahidol University; organization, by the Department of Medical Sciences, of workshops in the fields of microbiology, haematology and vector control; organization of training courses in rabies diagnosis, toxic substances and vector control, and the development of a manual on the technique of specimen collection relating to the above training course; conduct of research in viral diseases in 200 children per year in order to improve therapeutic methods so as to obtain prompt results in the framework of the PHC programme; study of viruses causing acute respiratory infections,

PROGRAMME 3.12.2 ESSENTIAL DRUGS AND VACCINES

Objective

To collaborate with the Government in support of the village "self-managed PHC" programme by promoting the rationalization of safe and economical use of drugs at the PHC level; controlling the ever-increasing and widespread problem of 'Ya-chud', particularly at the village level, and establishing an appropriate drug distribution network for PHC for the efficient and continuous supply of essential drugs.

Proposed Activities

Support will be provided for the rationalization of drug use through the training of health officers, pharmacists from the district upwards and village health volunteers, publication, dissemination and appropriate supervision, follow up and evaluation; revision, publication and distribution of the essential drug list; continuation of work on drug formularies; organization of a workshop on post-marketing surveillance of drugs; conduct of research on drug logistics and supplies in coordination with the Government Pharmaceutical Organization, and the training of national personnel in the radioimmunoassay of pharmaceutical preparations.

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Country: Thailand

Title of Project: Development of Approp: Technology for Health (including Health Laboratories)

Funds: REG

Project No. THA CLR 001 (THA ATH 001)

Programme Classification: 3.12.1 Clinical Laboratory & Radiological Technology for Health Systems based on PH

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
SUBSIDIES **UNIVERSITIES**					
1. Chulalongkorn					
1.1 Clinical chemistry project		7,000		7,000	14,000
2. Mahidol					
2.1 Grant to Mahidol University to develop appropriate technology		10,000		10,000	20,000
3. Medical Sciences					
Workshops					
3.1 Microbiology		3,000		3,000	6,000
3.2 Hematology		3,000		3,000	6,000
3.3 Vector Control		3,000		3,000	6,000
Training					
3.4 Rabies diagnosis		1,500		1,700	3,200
3.5 Tambol for in toxic substance		1,000		1,000	2,000
3.6 Vector Control		2,000		2,000	4,000
Preparation of Manuals					
3.7 Manual on toxic substance		1,200		1,200	2,400
3.8 Manual for specimen collection of viral diseases		1,500		1,500	3,000
Study (Research)					
3.9 Viral disease in 200 children/year		5.500		5,500	11,000
3.10 Radiation protection survey in district hospitals/clinics		9,000		9,000	18,000
3.11 Acute Respiratory Infections		5,000		5,000	10,000
Fellowship					
3.12 Study tour on preparation of preserved micro organisms ER	1/1	6,000		-	6,000
3.13 Study tour on preserved blood cell ER	1/1	6,000		-	6,000
3.14 Training on identification of intoxicating substances in body ER	1/3	7,900			7,900
3.15 Training in Enteric bacteriology ER			1/3	7,900	7,900
S & E					
3.16 1 vehicle		7,900			7,900
3.17 Technical laboratory equipment		21,300			21,300
TOTAL (for amount only)		101,800		60,800	162,600

Country: Thailand

Title of Project: Development of Appropria
Technology for Health
(including Health Laborator

Project No. THA CLR 001
(THA ATH 001)

Funds: REG

Programme Classification: 3.12.1
Clinical Laboratory & Radiological
Technology for Health Systems based on PHC

Components		1984		1985		1984-85
		m/m	$	m/m	$	$
From Extra Budgetary Resources Fellowships						
1. Study tour on Virology laboratory management	ER	1 x 1½	6,500			6,500
2. Study tour on viral diarrhoea	ER			1 x 1½	6,500	6,500
3. Study tour of laboratories in acute respiratory disease	ER	1 x 1½	6,500	1 x 1½	6,500	13,000
4. Training course in Mycology				1 x 3	7,900	7,900
5. Study tour on Vector and Rodent Control	R	2 / 2	4,000	2/2	4,000	8,000
6. Study tour on advance therapeutic calibration of Radiology	ER	2 / 4	17,200			17,200
S & E modern Radiotherapy Dosimeter			12,000			12,000
Total			46,200		24,900	71,100

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Country: Thailand

Title of Project: Promotion of Essential Drugs Distribution and Rationalizat: of Drug uses at the PHC level

Project No. THA EDV 001 (THA DPM 001)

Funds: REG

Programme Classification: 3.12.2 Essential Drugs & Vaccines

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
Rationalization of drug use SUBSIDIES					
1. Training					
i. Health officers, pharmacists from district upwards and the VH Volunteers					
ii. Publication and dissemination of information (manual)	-	5,000	-	9,500	14,500
iii. Supervision, follow up & evaluation					
1, Revision of essential drug list, Publication and distribution	-	2,500	-	2,500	5,000
.. Research on drug, logistics/& supplies in coordination with G.P.O	-	2,000	-	3,000	5,000
. Work on drug formularies		5,000		5,000	10,000
Workshops on Post Marketing urveillance of Drugs		5,000		5,000	10,000
Total		19,500		25,000	44,500

PROGRAMME 3.12.3 DRUG AND VACCINE QUALITY, SAFETY AND EFFICACY

Objectives

To collaborate with the Government in controlling the quality of drug use in provincial areas and strengthening the capability of regional laboratories in the microbial safety test; expanding the laboratory for biologicals in quality control and standardization for ensuring the quality, safety, potency and efficacy of vaccines and sera in order to support the national expanded programme on immunization; and promoting the use of medicinal plants and traditional medicines in the community through the PHC programme.

Proposed Activities

Support will be provided for strengthening the capability of the regional laboratory Center by expanding its area of services for microbial safety tests for toxicity, pyrogen and sterility through the provision of laboratory equipment and training of the drug analysts working in the provincial area in the field of microbial safety test; arranging a study tour on regional quality control and laboratory management in countries in which regional laboratories have been established and efficiently organized for modern and traditional drugs, with a view to improving the regional laboratory activities; an observation study for the quality control of bacterial and viral vaccines in order to ensure efficient quality control of vaccines and sera, both locally-produced and imported; and an observation study tour in China and India for obtaining information and strategies in utilizing traditional medicine; technology for processing, finishing and preservation of traditional medicine, and techniques for harvesting, drying and storing exchange seeds.

PROGRAMME 4.13.3 MALARIA

Objective

To collaborate with the Government in maintaining the long-term control of malaria in the forested and hilly areas of the country with malaria eradication as the ultimate goal in the remaining areas through the community involvement approach.

Proposed Activities

Support will be provided for planning and implementing malaria control activities through the primary health care approach, based on an understanding of the epidemiology of drug-resistant falciparum parasites and the application of behavioural and technical approaches evaluated through the use of applied field research; utilization of local expertise in malaria control at village level and the hospital treatment of severe malaria, carrying out programme evaluation and lecture tours in highly malarious areas; conducting a number of workshops and conferences aimed at updating technical knowledge in the areas of epidemiology and entomology for malaria staff and at promoting intersectoral cooperation with the universities and governmental bureaux concerned; providing a training - a study tour - in epidemiology to a national staff member in order to strengthen the planning and evaluation capability of the programme; and promoting and strengthening the primary health care approach to malaria control through a field study of community participation in 10 model villages and consolidation of the position and role expansion of malaria volunteers in high-risk areas.

Country: THAILAND

Project No: THA DSE 001 (THA PHB 001)

Funds: REG

Pharmaceuticals and Biologicals

Programme Classification: 3.12.3 Drug and Vaccine Quality, Safety and Efficacy

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
Fellowships:					
Drug					
1. Regional Laboratory Management for modern and traditional drugs in India and Indonesia (R)	1/2	4,200	1/2	4,200	8,400
2. Training in Radio Immunoassay of Pharmaceutical preparations (ER)	1/6	12,500		-	12,500
Vaccine					
3. Quality control of bacterial vaccines (ER)	1/3	7,900		-	7,900
4. Quality control of viral vaccines (ER)			1/3	7,900	7,900
Traditional Medicine					
5. Managerial and study tour strategies to utilize T.M. in PHC and exchange of information (ER)			1/2	5,300	5,300
6. Technique for harvesting, drying and storing plants (R)	1/3	3,900			3,900
7. Technology for processing and preservation (R)	1/3	3,900			3,900
Supplies and Equipment					
8. Microbial safety tests		7,000		7,200	14,200
9. National standards and reference preparations for biologicals		9,000		-	9,000
Subsidy for					
10. Training Drug analysts from district hospitals		2,500		-	2,500
Total (for amount only)		50,900		24,600	75,500
Extra Budgetary Resources					
Fellowships					
Study in Instrumental Method of Analysis (ER)			1x1	19,300	
S & E Lyophilised machine		15,000		15,000	
		15,000		34,300	

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Project No: THA MAL 001 (THA MPD 001) | Funds: REG | Programme Classification: 4.13.1 Malaria

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
1. Senior Malariologist	1/12	74,400	1/12	74,400	148,800
2. Short Term Consultant	1/2	10,000			10,000
National Consultants/TSAs					
3. National Expert (including Subsistance and Management Support)*	1/2	4,000	1/2	4,000	8,000
4. Supplies and Equipment		5,900		5,900	11,800
Subsidies					
5. In service training and seminars		18,250		18,250	36,500
6. For Secretary/Drivers	2/24	1,000	2/24	1,000	2,000
Fellowships					
7 MSc/MPH Epidemiology (ER)	1/12	19,300			19,300
8. Study Tour (R)	10/10	28,000	1/1	19,600	47,600
Total		160,850		123,150	284,000

*This includes US$1,000 a year for coordinator to assist national experts in

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PROGRAMME 4.13.6 DIARRHOEAL DISEASES

Objectives

To collaborate with the Government in reducing substantially the mortality from acute diarrhoeal diseases as well as diarrhoea in the malnourished, especially in children under five years of age, by means of oral rehydration therapy through PHC, including increased production and availability; reducing morbidity from acute diarrhoeal diseases in children under five years of age by health education in maternal and child care practices, strengthening the surveillance and control of epidemics and improving safe water supply and environmental sanitation through PHC; and conducting the mortality-morbidity and ORT coverage survey in two provinces.

Proposed Activities

Support will be provided for training peripheral health workers in target areas on clinical aspects, programme management and surveillance for CDD in which they will be prepared as supervisors and trainers of VHV; establishing ORS cottage-scale production units and strengthening laboratory facilities through national consultant services; evaluating the morbidity, mortality and ORT coverage in four provinces, and conducting in-country study tours in CDD.

Country: Thailand

Title of Project: Prevention and Control of Diarrhoeal Diseases

Project No. THA CDD 001 (New)

Funds: REG

Programme Classification: 4.13.6 Diarrhoeal Diseases

Components	1984		1985		1984-85
	m/m	$	m/m	$	$
SUBSIDIES					
1. Training courses for Peripheral health workers		18,350		18,350	36,700
2. Evaluation of ORT coverage in (4 provinces)		3,000		3,000	6,000
SSA (National STC for):					
3. Cottage scale production of ORS/ SSA	1/2	1,000		-	1,000
4. Strengthening of lab. facilities in district hospitals/SSA	1/2	1,000	-	-	1,000
5. Typist /SSA	1/12	1,000	1/12	1,000	2,000
6. Fellowship (R)	2/½	3,000	2/½	3,000	6,000
7. Fellowship-study tour in Thailand (IC)	4/4	3,200	3/3	1,800	5,000
Total (for amount only)		30,550		27,150	57,700

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