

FIELD STUDY REPORT OF A POLIO EXPERT TRAINING COURSE IN THAILAND AND LAO PDR

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March 1993

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PREFACE

The field study Polio Expert Training Course took place from 14th March to 4th April, 1993 in the Kingdom of Thailand and Lao People's Democratic Republic. This field study followed the 4th International Polio Expert Training Course held in Kumamoto in October, 1992 and three Japanese course graduates participated in the study.

As started in the WHO briefing concerning the Polio Eradication Program, Japan is requested to provide human resources in this field. Therefore we planned to study Thai and Laos EPI activities and to consider possible technology or system transfer.

This field study was organized by the Institute for International Cooperation (IFIC) in cooperation with the governments of Thailand and Lao PDR.

We hope that this report will be useful for future polio eradication experts.

Training Secretariat of IFIC

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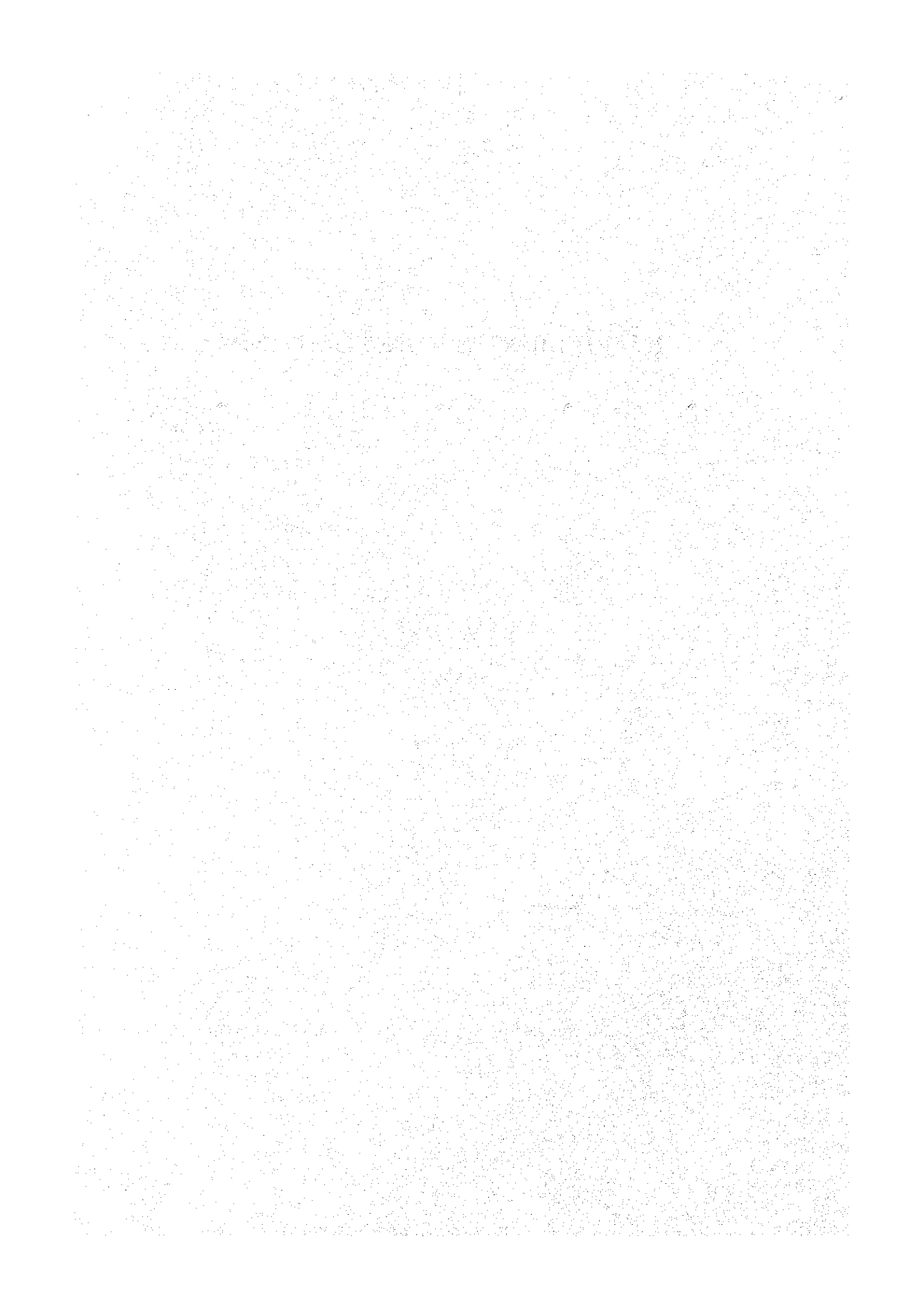
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II. FIELD STUDY IN THAILAND

KAZUO HIKITA



The Kingdom of Thailand

Kazuo Hikita

History

The first unified Thai kingdom flourished in the 13th century, and is usually considered that which was founded at Sukhothai in the northern part of the Central Plain.

Subsequently, the Thai state moved down the Chao Phraya valley to the city of Ayuthai, and extended southward to modern Malaysia and east into the lands hitherto dominated by the Khmer Empire. Rama I (1782-1809) designated Bangkok as a metropolis and established the Bangkok dynasty in 1782. The territory controlled by the Thai monarchy varied over time because of the influence of neighboring countries, but the country maintained comparative stability.

The 19th century European colonial influence in South East Asia began to threaten the independence of Thailand, as Britain and France ruled Indochina. France's encroachment into Laos and Cambodia and British influence in the Malay states ensured that Thailand maintained its political independence. Despite this political independence, Thailand was colonized in economic terms by especially the British. The British directly controlled four major commodities, rice, rubber, tin and teak, which were main products in Thailand's economy at the middle of the 19th century. The economic penetration of the country by the West, provoked a political conflict between the established monarchial order and new democratic groups within society. Ultimately, the absolute monarchy was overthrown in 1932.

Since that time, the current constitutional monarchy has continued to play an important role in the political and social problems of the Kingdom.

The present king, Bhumibol Adulyadej (Rama IV, 1970 ~), a descendant of the 9th monarchy (200 year old Chakri dynasty) is universally respected by the people of this country.

The monarchy has not continuously ruled the country since 1932. A military government was organized by military leaders, and achieved ruling status for a long time. They acted autocratically and derived their legitimacy from the monarchy.

There was a brief period of civilian controlled government, but numerous changes of government for the most part by bloodless coup d'etats allowed military rule to continue. However, in 1973 the last of the true military autocracies was overthrown by civilian power. Thereafter the military authority regained power through a violent coup d'etat in 1976. Since that time, however, the military leaders have understood the need to obtain civilian support for their government. After the general election of 1988, Chatchai Chonhavan became the country's first generally elected prime minister. It seemed that Thailand gained a steady foothold on democracy.

However in February 1991, another ministry group took power from this democratic government in a coup d'etat. The newly empowered generals referred to as the National Peacekeeping Council (NPC), appointed an interim government of respected technocrats led by Anand Panyarachun, who was not a military authority, until fresh elections were held in March, 1992. The NPC also attempted to construct a new constitution which would ensure their hold on power. When the pro-ministry parties turned on the army commander, General Suchinda

Kraprayoon, people took to the streets of Bangkok protesting the military government's policy.

Through the king's intervention, Suchinda stepped down and following elections in September 1992, Chuan Leekpai who was a leader of the Democrat Party and a man of humble character from the south region, was elected as the prime minister of Thailand.

Geography

The Kingdom of Thailand encompasses 514,000 km² slightly west of the major lowlands of the Indochinese Peninsula. The country is divided into 4 geographical regions (see map Fig. 1 and 2), central, northern, northeastern and southern region. The capital city, Bangkok, is located in the central region. The country is divided administratively into 72 provinces, 784 districts, 7,003 tamboons and 63,100 villages. (as of 1990)

Fig. 1 Thailand

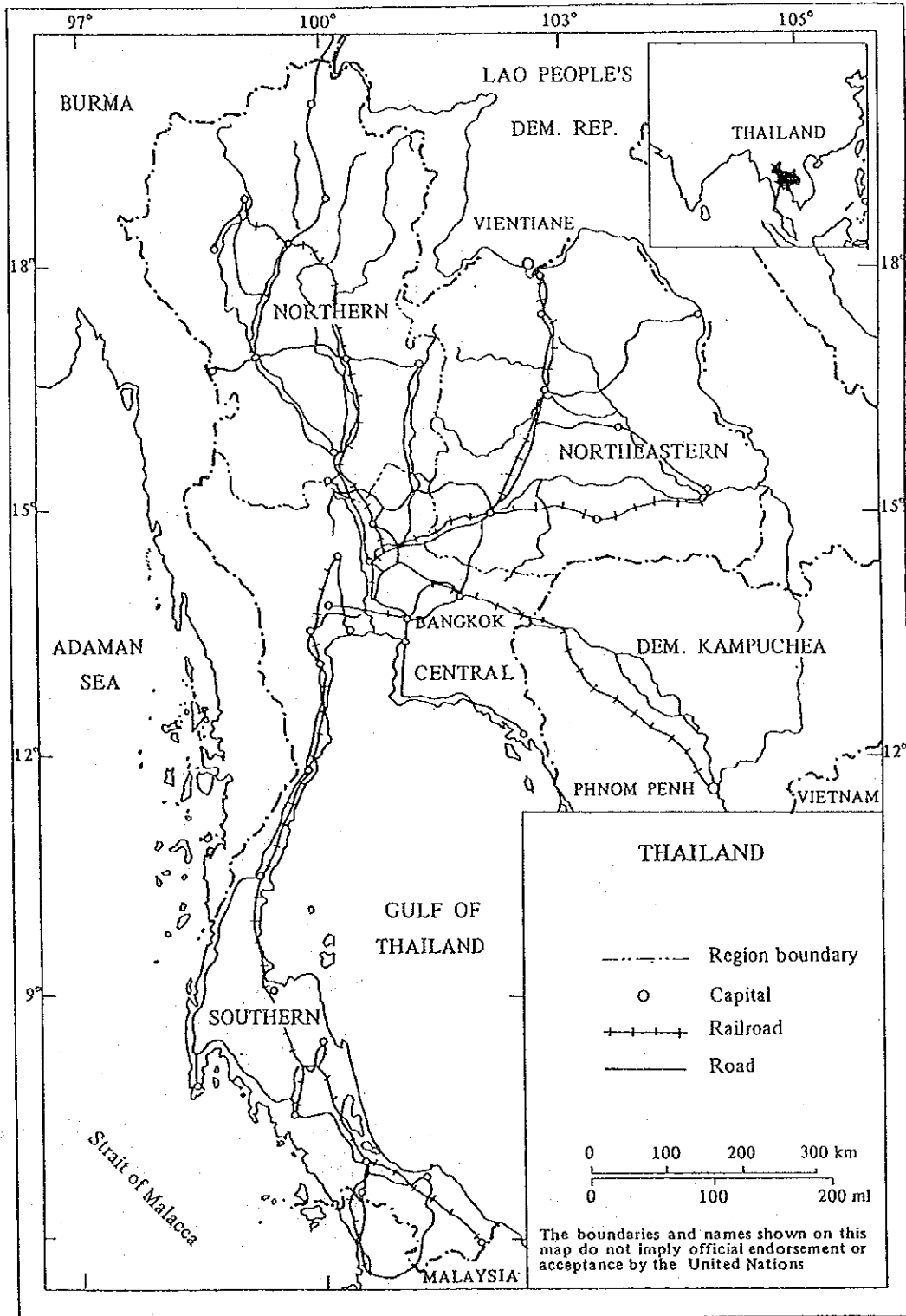
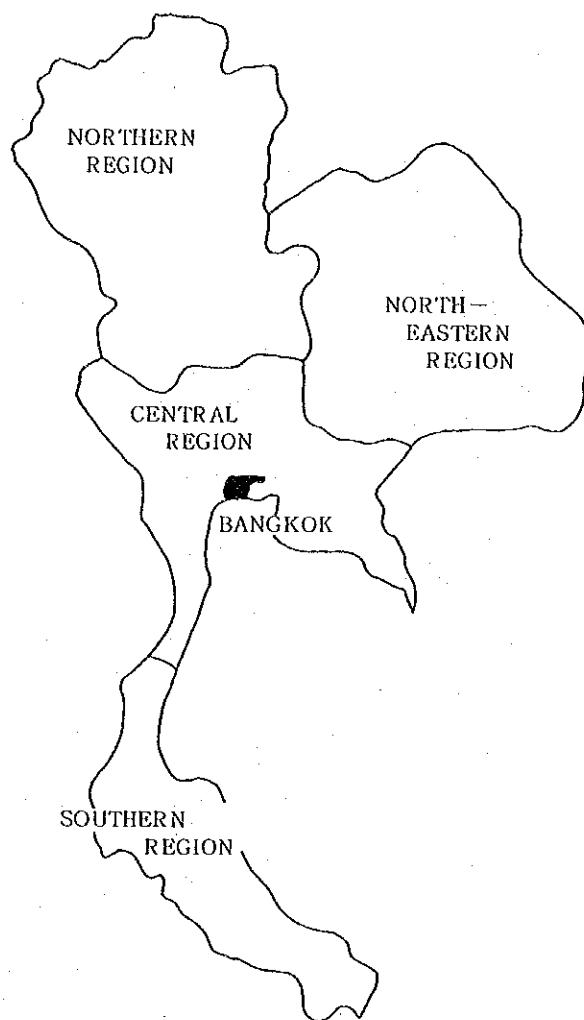


Fig. 2 Thailand



Temperatures

The rainy season begins in May and ends in September.

Table 1 Average Monthly Temperature Range (°C)

	Jan.	Feb.	Mar.	Apr.	May	Jun.
Bangkok	20-32	22-33	24-34	25-35	25-34	24-33
	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	24-32	24-32	23-32	24-31	22-31	20-31

Population

The population of Thailand is 59.4 million. The population's growth rate of is approximately 1.4 percent per year. The percentage of the population under 5 years of age has gradually decreased, whereas the 60 years or older age bracket significantly increased.

Table 2 Population and Its Characteristics, Thailand, 1947-2000

Characteristics	1947	1960	1970	1980	1984	1990*	2000*
Total population (thousands)	17,433	26,260	34,397	44,825	50,583	56,340	64,389
Dependency ratio	—	92	85	75	66	59.5	47.5
Percent of population under 5 yr.	—	10.2	16.4	12.1	—	11.1	8.9
Percent of population 60 yr. and over	—	4.5	5.1	5.3	—	6.1	7.5
Percent of population 15-60 yr.	—	52.2	49.8	56.4	—	60.5	65.0
Percent of urban population	—	12.5	13.2	17.0	17.5	18.7	20.5
Population per square kilometer	34	51	70	87	98	109	125

*); Estimate

Source; Health in Thailand, 1991

Judging from this data, Thailand's population in the year 2000 will consist of small numbers of youth and relatively large numbers of elderly. It is quite similar to Japan's current situation.

A second point of interest in Table 2 is the percentage of rural and urban populations. Until now more than 80 percent of the total population lived in rural areas. However people in rural areas are beginning to move to urban areas, increasing the urban population rapidly. Many social problems due to overpopulation in urban areas, i.e. housing problem and shortage, the widening income gap between rich and poor, traffic accidents, and drug addiction, are becoming more prevalent in Thailand.

Economy

The economic base of Thailand is agricultural products from rural areas, where more than 80 percent of the population lives. Light industry products such as textiles are also important commodities.

Table 3 Main Products, Thailand

Unit; ton

Product	1986	1987	1988	1989	1990
Rice	19,026	17,072	20,882	21,200	17,024
Rubber	790	921	975	1,180	1,200
Maiz	4,300	2,310	4,500	4,100	3,800
Tapioka	15,255	19,500	24,264	20,700	20,557
Sugar	24,441	27,200	36,670	33,560	40,500
Tin	23.3	20.5	19.4	20.4	20.0
Natural gas*	127,765	178,655	211,641	211,398	23,026
Cement	7,913	9,850	11,514	15,024	18,053

* Million cubic ft.

Source; Bank of Thailand, Monthly Bulletin

As shown in the Table 3, rice and sugar are the main agricultural products in Thailand. Mineral resources such as tin, natural gas, and cement, do exist, but amounts do not rank highly as chief exports of this country. Chief exports in 1990 were as follows.

Table 4 Chief Exports, Thailand in 1990

Unit; Millions of Thai Baht

Rice	27,770
Rubber	23,550
Tin	1,880
Maiz	4,144
Tapioka	23,136
Sugar	17,694
Prawn	20,454
Tobacco	1,842
IC	27,580
Textile goods	84,472
Others	343,081
Total	569,603

As shown in the GDP of Thailand in Table 5, during the last 20 years, the structure of industry in Thailand underwent rapid change due to the rapid growth in the industrial, manufacturing and service sectors reversed ratio of agriculture and industry.

Table 5

Unit: Billions Thai Baht

	1970	%	1989	%	1990	%
GDP at Market Prices	147.4		1,776.0		2051.2	
Agriculture	38.2	23.9	266.4	15.0	254.5	12.4
Industry	37.3	25.3	667.7	37.6	803.1	39.2
Manufacturing	23.5	15.9	453.3	25.5	535.4	26.1
Services, etc.	71.9	48.8	841.9	47.4	993.5	48.4

Source: World Bank, 1992

Among products of industry, particularly textile goods are of top quality and are exported to many countries including the U.S.A. and Japan. The government of Thailand obtains much foreign currency through these exports. As we can see in Table 6, Japan and the U.S.A. are Thailand's main trading countries. Thailand's trade with Japan and the U.S.A. constitute about 40 percent of total exports and 41 percent of total imports.

Table 6 Total Amount of Exports and Imports, Thailand 1990

Country	Export	%	Import	%
Japan	101,453	17.2	259,208	30.7
U.S.A.	133,641	22.7	91,914	10.9
China	6,815	1.2	28,283	3.4
Hong Kong	26,535	4.5	10,625	1.3
Taiwan	9,573	1.6	44,166	5.2
Malayasia	14,702	2.5	28,680	3.4
Singapore	43,345	7.3	63,281	7.5
Indonesia	3,950	0.7	5,059	0.6
Lao PDR	—	—	—	—
Saudi Arabia	8,244	1.4	10,513	1.2
Iran	3,055	0.5	2,651	0.3
Holland	28,489	4.8	6,186	0.7
West Germany	30,382	5.1	41,460	4.9
England	23,923	4.1	19,999	2.4
Italy	10,766	1.8	10,885	1.3
Others	135,392	22.9	207,202	24.5
Total	589,813		844,448	

Unit: Millions of Thai Baht

Table 7 Balance of Payments, Thailand

	1970	1980	1986	1989	1990*
Exports of Goods and Services	1,171	8,575	12,316	26,880	31,476
Imports of Goods and Services	1,470	10,861	12,114	29,624	38,736
Balance of current Accounts			248	-2,506	-7,259
Unit; Millions of US \$	Source; World Bank, 1992			*); Estimate	

During the last 20 years, Thailand has experienced a 25-fold increase of more than 25 times made in both imports and exports, and its economy has steadily grown year by year, one should note, however, an increasing deficit in the balance of current accounts. (Table 7)

Similarly, Current GNP per Capita has increased from 210 US \$ in 1970 to 1420 US \$ in 1990, roughly 6.7 times. (Table 8) In addition, it seems that the financial condition is comparatively desirable because the scale of government finance gradually increases year by year without dependence of the government debt thought use of government loans. (Table 9)

Table 8 GNP per Capita, Thailand

	1970	1980	1986	1987	1988	1989	1990
GNP/Capita (US \$)	210	670	800	860	1,030	1,220	1,420
Population (thousands)	35,745	46,700	52,654	53,605	54,536	55,448	55,801

source; World Bank, 1992

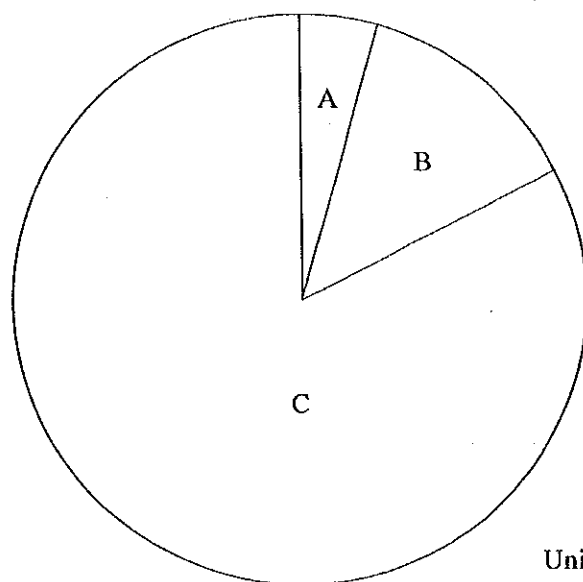
Table 9 Government Finances, Thailand

	1985	1986	1987	1988	1989	1990	1991	1992
Revenue*	213.4	218.0	227.5	243.5	285.5	335.0	387.5	460.4
Tax	141.9	146.2	176.1	224.9	238.3	359.2	347.5	416.3
Loans	47.0	46.0	42.0	42.0	23.0	25.0	-	-

*); The total budget

Unit; Billions of Thai Baht

Fig. 3 The Percentage of Expenditure
The Ministry of Public Health



A — Ministry of Health	24,345	(5.3%)
B — Ministry of Defense	68,811	(14.9%)
C — Others	367,244	(79.8%)
Total	460,400	

Unit; Millions of Thai Baht

In 1991, the expenditures of the Ministry of Defense were 15 percent of general government finances, while those of the Ministry of Health were 5.3 percent. In 1991/1990, the Ministry of Defense expenditures increased 13.6 percent and the Ministry of Health expenditures increased 18.4 percent. These figures demonstrate that Thailand's administration of the Health and Welfare is one of the nation's most important political issues.

Medical Situation in Thailand

According to statistics published by the United Nations in 1991, main health indicators of each country are as follows. (Table 10) This data concerning Thailand are similar to those of developed countries indicating that the health situation in Thailand is relatively good.

Table 10

(selected)

Country	Population million	Growth rate (%) 1990-95	Birth rate/ 1000	Death rate/1000	Life expectancy	Infant death rate (/1000)
The world	5,292.2	1.7	26	9	66	63
Developed country	1,206.6	0.5	14	10	75	12
Developing country	4,085.6	2.1	30	—	63	70
Asia	3,002.7	1.8	27	8	65	64
Japan	123.5	0.4	12	8	79	5
Southeastern Asia	444.8	1.9	28	8	63	55
Cambodia	8.2	2.2	37	15	51	116
Indonesia	184.3	1.8	27	8	63	65
Lao PDR	4.1	2.9	44	15	51	97
Malaysia	17.9	2.3	28	5	71	20
Philippine	62.4	2.3	30	7	65	40
Singapore	2.7	1.1	16	6	74	8
Thailand	55.7	1.4	20	7	67	24
Viet Nam	66.7	2.2	30	8	64	54
South Asia	1,200.6	2.3	33	11	59	91
Afghanistan	16.6	6.7	52	22	43	162
Bangladesh	115.6	2.7	41	14	53	108
Bhutan	1.5	2.3	38	16	50	118
India	853.1	2.1	31	10	60	88
Iran	54.6	2.0	33	7	67	40
Nepal	19.1	2.3	36	13	54	118
Pakistan	122.6	2.9	42	11	59	98
Sri Lanka	17.2	1.3	21	6	72	24

Source: Annual publication of the United Nations, 1991

When we compare health indicators from previous data and the latest data in Table 11, almost all indicators have improved or are improving year by year at a level correspondent with developed countries. Additionally, excluding Hemorrhagic fever and diarrhea, morbidity and mortality rates also improved.

Table 11 Public Health Statistics, Thailand

Key Health Index	Previous Data	Latest Data	Target in the 7th National Health Development Plan	WHO Target for HFA
Crude birth rate (/1,000 population)	25.9 (1980)	17.0 (1990)	-	-
Crude death rate (/1,000 population)	7.0 (1980)	4.5 (1990)	-	-
Population growth rate (/100 population)	1.9 (1980)	1.4 (1988)	1.2	-
Infant death rate (/1,000 livebirth)	48.6 (1980)	35 (1989)	23	50
Maternal death rate (/1,000 livebirth)	0.96 (1980)	0.4 (1989)	0.3	-
Average life expectancy				
Male	57.73	62.24	-	60
Female	61.57 (1970-1975)	66.19 (1985-1990)		
Morbidity rate of Haemorrhagic fever (/100,000 population)	92.8 (1980)	200 (1990)	85	
Morbidity rate of Encephalitis (/100,000 population)	5.16 (1980)	2.9 (1989)	1.5	
Morbidity rate of V.D. (/1,000 population)	5.58 (1982)	4.48 (1990)	3.5	
Morbidity rate of Malaria in controlled area (/1,000 population)	10.6 (1981)	5.2 (1990)	3	
Death rate of Malaria (/100,000 population)	8.6 (1981)	2.5 (1989)	1.5	
Death rate of Rabies (/100,000 population)	0.8 (1980)	0.32 (1990)	0	
Morbidity rate from T.B. (/1,000 population)	3.2 (1980)	2 (1989)	1.6	
Death rate from T.B. (/100,000 population)	14.24 (1980)	7.7 (1989)	7	
Death rate from diarrhea (/100,000 population)	0.9 (1980)	2.62 (1989)	1.5	
Doctor: population	1:4,843 (1988)	1:4,525 (1990)		
Dentist: population	1:32,129 (1988)	1:23,129 (1990)		
Nurse: population	1:1,065 (1988)	1:998 (1990)		

Source: Health in Thailand, 1991

Table 12 Death Rates from Leading Causes of Death (/100,000 Population)

Cause of death	1962	1967	1972	1977	1982	1988
Diseases of the heart	19.9	16.5	22.0	15.9	34.1	44.4
Malignant neoplasm	10.2	12.0	13.0	19.0	26.1	33.5
Accident and poisoning	19.1	26.2	28.9	34.6	33.5	30.5
Tuberculosis all forms	31.8	28.1	19.7	16.0	12.0	8.2
Pneumonia	28.9	19.6	21.8	12.8	9.6	6.3
Diarrhea disease	34.0	27.6	21.3	13.2	5.8	3.1
Malaria	24.3	12.9	10.8	10.9	7.8	2.7
Diseases of the stomach and duodenum	3.8	5.1	6.3	7.5	4.0	2.1
Nutritional deficiency			9.4	2.4	1.6	0.5
Diseases of pregnancy Teenage pregnancy	13.1	10.1	6.9	3.2	1.5	0.5

Source; Health in Thailand, 1991

Death rates of the diseases also show us that disease structure in Thailand reflects the pattern of developed countries with a high incidence of heart disease, malignancy and death due to traffic accidents. In addition, morbidity rates of vaccine preventable diseases have remarkably decreased since EPI program activity was started in Thailand. Incidence of diphtheria, tetanus in newborns, pertussis, poliomyelitis and measles are as follows. (Table 13)

Table 13 Vaccine Preventable Diseases

Key Health Index	Previous Data	Latest Data	Target in the 7th National Health Development Plan
Diphtheria (/100,000 population)	4.67 (1980)	0.17 (1989)	0.05
Tetanus in newborn (/100,000 population)	62.94 (1982)	31.07 (1989)	
Other type of tetanus	2.46 (1982)	1.5 (1988)	1.5
Pertussis	7.93 (1975)	1.9 (1989)	1
Poliomyelitis	1.06 (1975)	0.03 (1989)	100% decrease
Measles	57.11 (1982)	21.31 (1989)	15

Source; Health in Thailand, 1991

Organization of Public Health

The Ministry of Public Health is organized into six major components, referred to as the Office of the Permanent Secretary for Public Health, Department of Medical Service, Department of Health, Department of Communicable Disease Control, Department of Medical Sciences, and Food and Drug Administration. Each department has some kind of functional division. In particular, the ministry of the Permanent Secretary for Public Health directly supervises and controls each provincial health administration, including provincial public health offices, general hospitals, and community hospitals. Also district health offices covering each district and health centers mainly covering villages are directly supervised by provincial health offices. On the other hand, administration of immunizable diseases control has been carried out by the Division of General Communicable Diseases (G.C.D.), the Department of Communicable Disease Control (C.D.C.), referred to in Fig. 4.

Fig. 4 Organization of the Ministry of Public Health

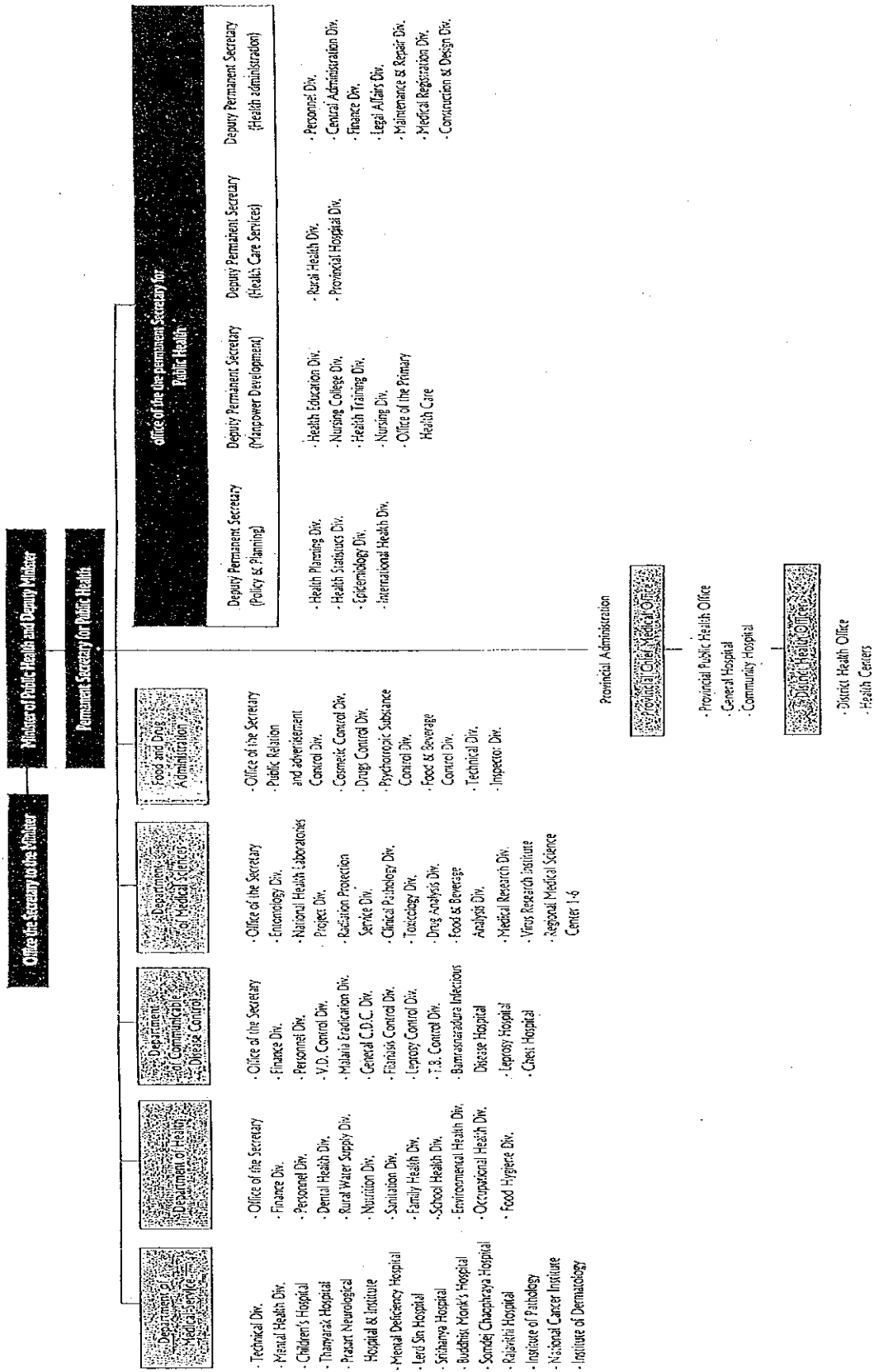
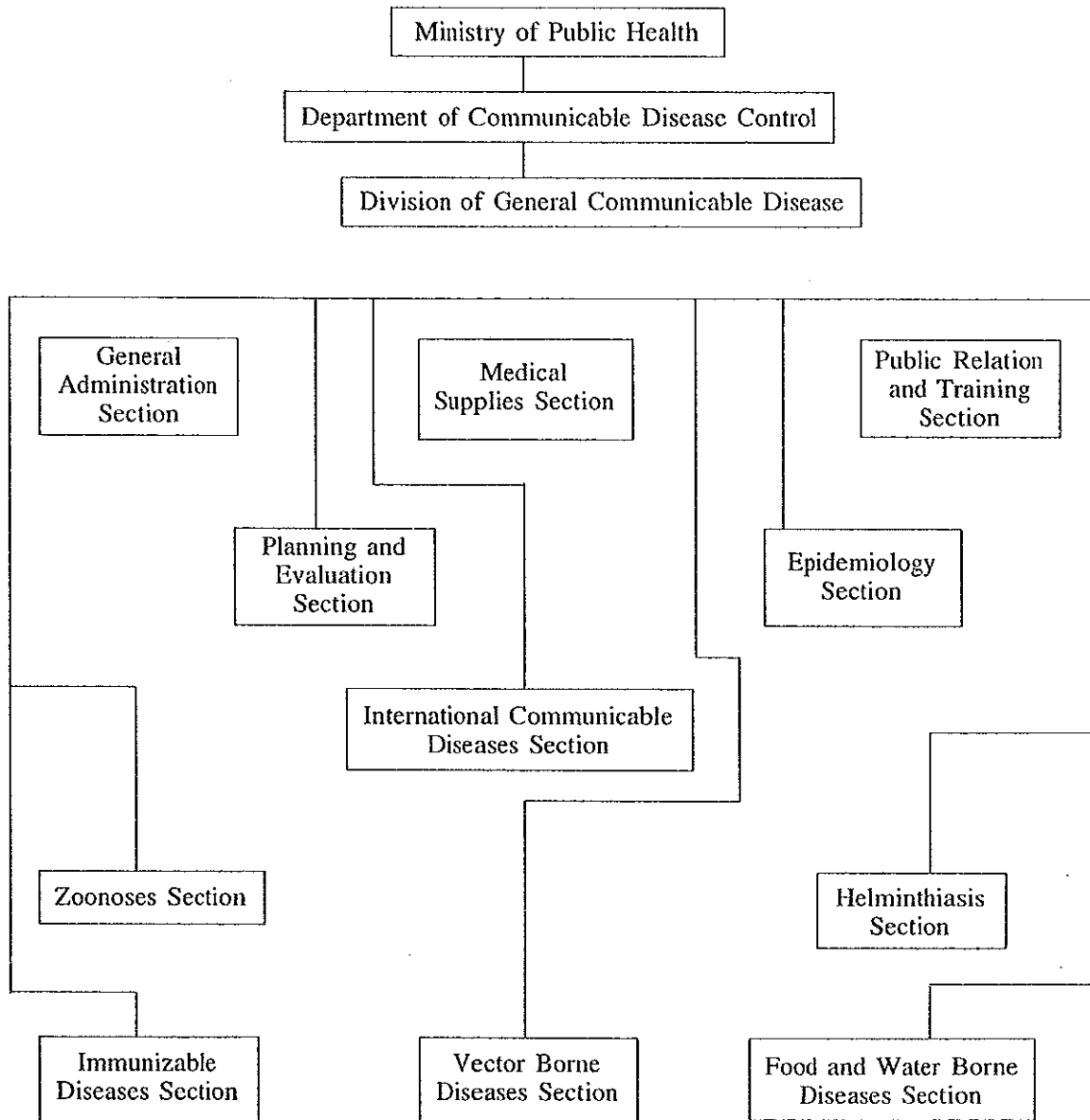


Fig. 5 Division of General Communicable Disease



Supplied by The Department of C.D.C.

When we summarize the organizational structure of the EPI in Thailand, we must first refer to data presented in Fig. 6.

There are two divisions concerned with the EPI program, administration (thick line) and technology (thin line).

Also, the situation of Public Health Care Facilities, the numbers of hospitals and health centers, are shown in Table 14.

Fig. 6 Organization Structure of EPI

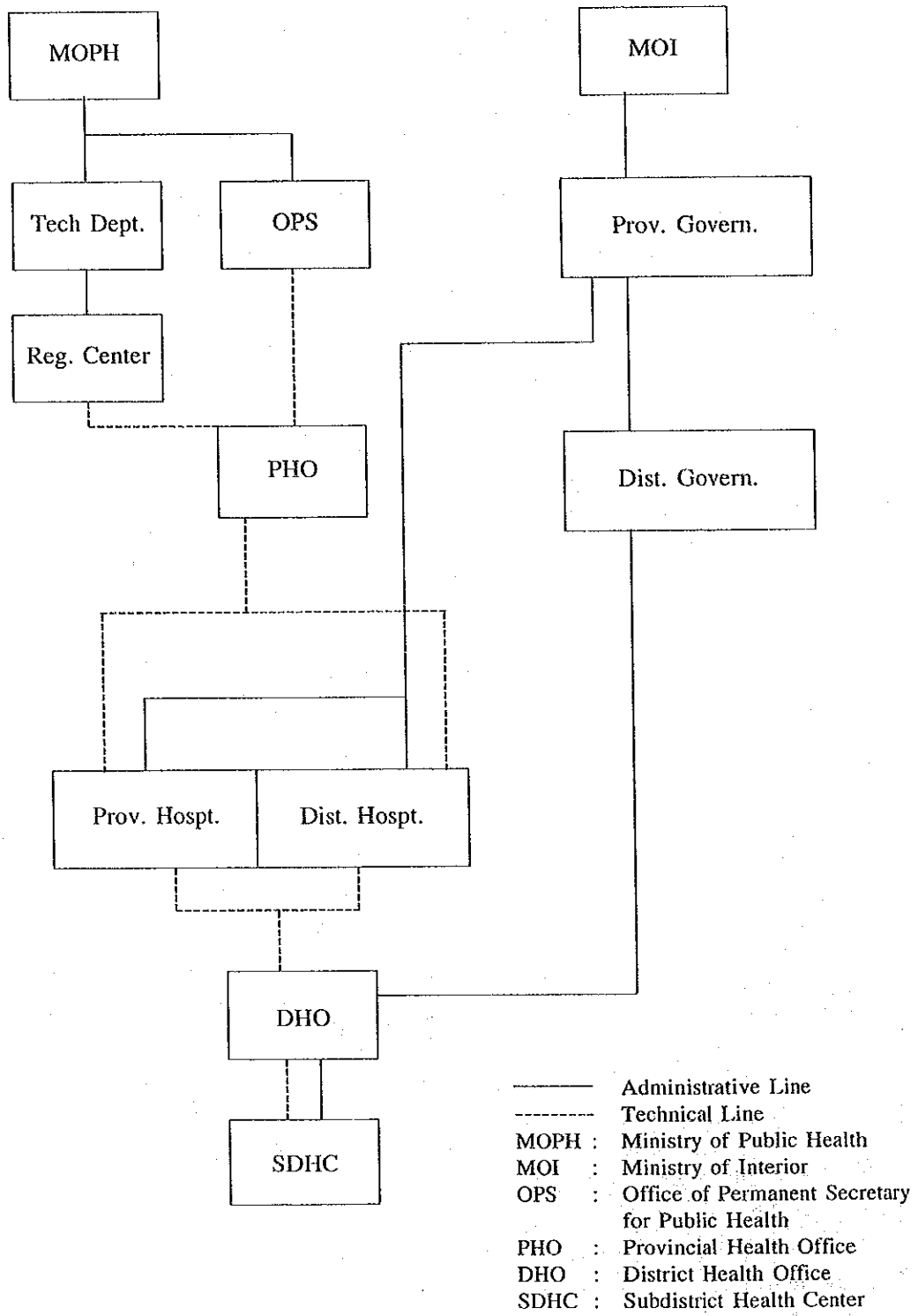


Table 14 Public Health Care Facilities, Thailand

1990

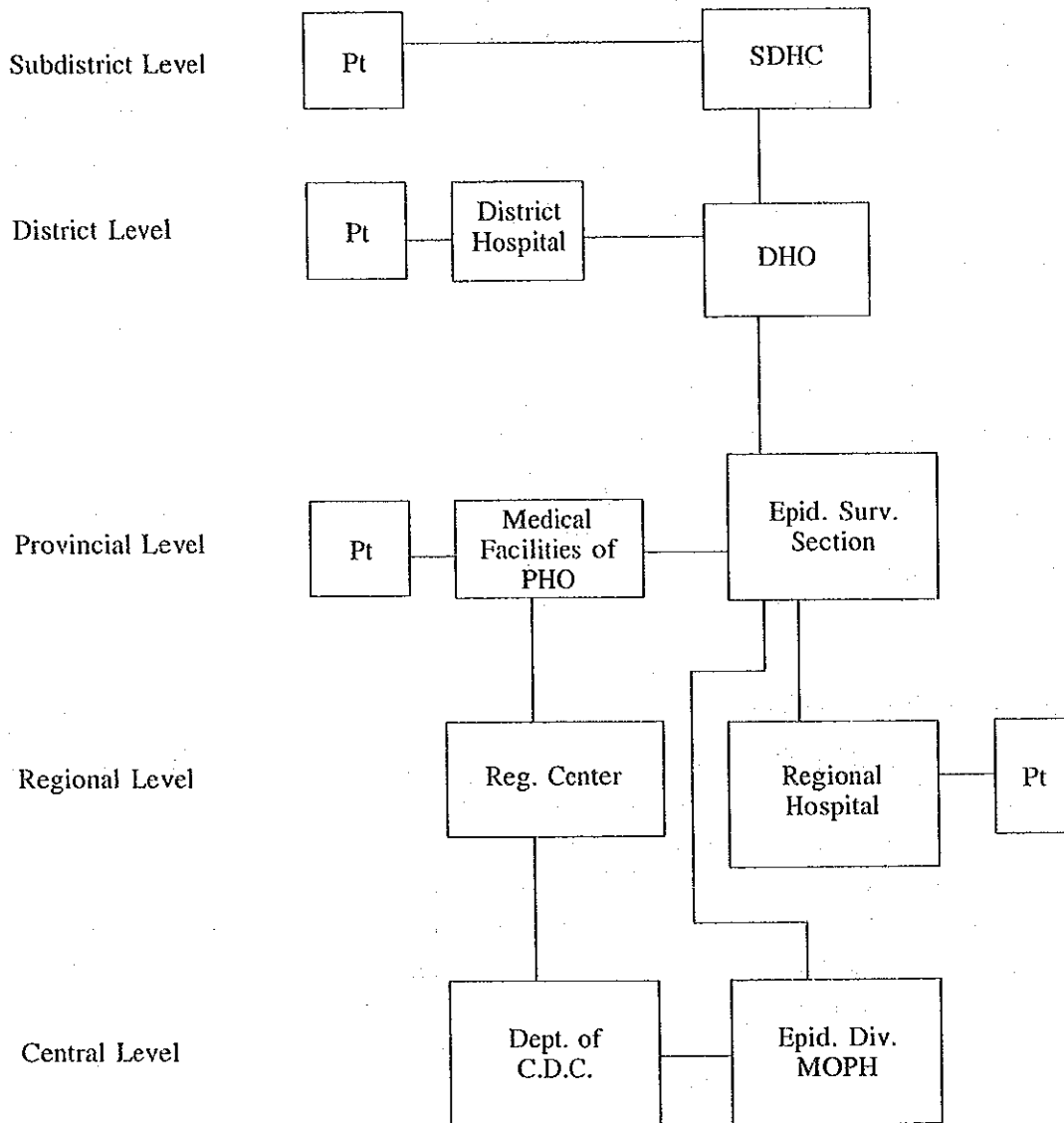
Administrative Division	Public Health Care Facilities	Number	Size No. of beds
Bangkok Metropolitan Administration	University Hospitals	5	1,000 - 2,300
	Special Institutions	22	150 - 500
	General Hospitals	32	300 - 1,000
4 Regions	Univerwsity Hospitals	4	600 - 1,000
	Regional Hospitals	17	500 - 1,000
72 Provinces	General Hospitals	72	150 - 500
784 Districts	Community Hospitals & Extended O.P.D.	680	10 - 90
7,003 Tambons	Health Centers	7,874	--
63,100 Villages	Drug Cooperatives	33,602	--

Source; Health in Thailand, 1991

Epidemiological Surveillance

National epidemiological surveillance concerned with approximately 60 notifiable diseases, including poliomyelitis, is run by the Epidemiological Division which is under the Office of Permanent Secretary, Ministry of Health. Responsible persons of all health facilities must report any notifiable diseases to the Provincial Health Office, District Health Office or directly to Epidemiological Division. If there is an outbreak of a notifiable disease, investigation and control activities are immediately carried out by all staffs within the health services. (Fig. 7)

Fig. 7



Poliomyelitis in Thailand

In Thailand the first five year national health development plan was started in 1961. The present 7th five year health plan has been in effect since 1992. For further details about the five year national health plans, refer to "Health in Thailand," published by the Health Education and Health Planning Division, the government of Thailand.

Problems of eradication of poliomyelitis in Thailand are closely related to the successful National Plan and the incidence of polio has gradually decreased. During the first through the third National Health Plan (1961-1976), the construction and expansion of health facilities was emphasized, and during this time many national central institutes, district hospitals and health centers were constructed throughout the country.

During the 4th to 6th National Health plans, the completion of Primary Health Care (PHC) was emphasized as main policy, thus EPI program activities officially began in 1977 during 3rd five-year National Health Plan. The program to eradicate poliomyelitis in Thailand started in 1988 when WHO declared its intention to eradicate polio throughout the world.

Immunization schedule

Table 15 presents an immunization schedule for oral polio vaccine (OPV) with vaccinations against other diseases, including, Hepatitis B, Diphtheria, Tetanus toxoid and Pertussis, Mumps, measles and Rubella, and Japanese encephalitis.

Table 15 Vaccination Program, Thailand

Age	Vaccine	Comment
0 mo.	BCG, HBV1	HBV1 should be done as soon as possible
2 mo.	DPT, OPV1 HVB2	In case Hepatitis B carrier mother HVB2 should be done at 1 mo.
4 mo.	DPT, OPV2	
6 mo.	DPT, OPV3, HVB3	
9 - 12 mo.	MMR1	
1.5 Yr.	DPT, OPV4 JEV1, JEV2	JEV1, JEV2 are 1 - 2 wwk. interval and JEV3 at 1 yr. later
4 - 6 yr.	DPT, OPV5	
12 - 16 yr.	MMR2, DT	

HBV ; Hepatitis B vaccine

DPT ; Diphtheria, Tetanus toxoid, and Pertussis vaccine

OPV ; Oral Polio vaccine

MMR ; Mumps, Measles, and Rubella vaccine

JEV ; Japanese Encephalitis

Incidence of Poliomyelitis and OPV coverage

As shown in Fig 8 and Table 16, the higher the coverage of OPV3 increased, the more the incidence of poliomyelitis decreased, and the incidence of polio during the last 6 years has remained comparatively controlled without epidemics. Total vaccination coverage, including DPT, BCG, Polio vaccine, and Tetanus toxoid exceeded 80 percent in 1990. However, cases of poliomyelitis continue to occur. Thailand is not yet wholly free of polio despite a more than 90 percent vaccination coverage by OPV3.

Table 16 Reported cases of Poliomyelitis

Year	No. of cases
1987	25
1988	11
1989	19
1990	4
1991	7
1992	12

Clinical and Laboratory Diagnosis of Poliomyelitis

Now in Thailand, all cases are clinically diagnosed by well trained pediatricians and pediatric neurologists at regional and provincial hospitals. Two fecal specimens from a patient of acute flaccid paralysis (AFP) are collected after 1 to 2 day intervals and sent to the National Institute of Health for laboratory examination. These results are released to health facilities throughout the country by the Department of Communicable Disease Control, Ministry of Public Health.

Although there is no problem with virological culture and isolation, the National Institute of Health can not distinguish the intratypic differentiation between vaccine associated virus and wild type virus. If this is necessary, specimens or isolated polio virus will be sent to the C.D.C. in Atlanta, U.S.A.

Fig. 8 Immunization Coverage, OPV3

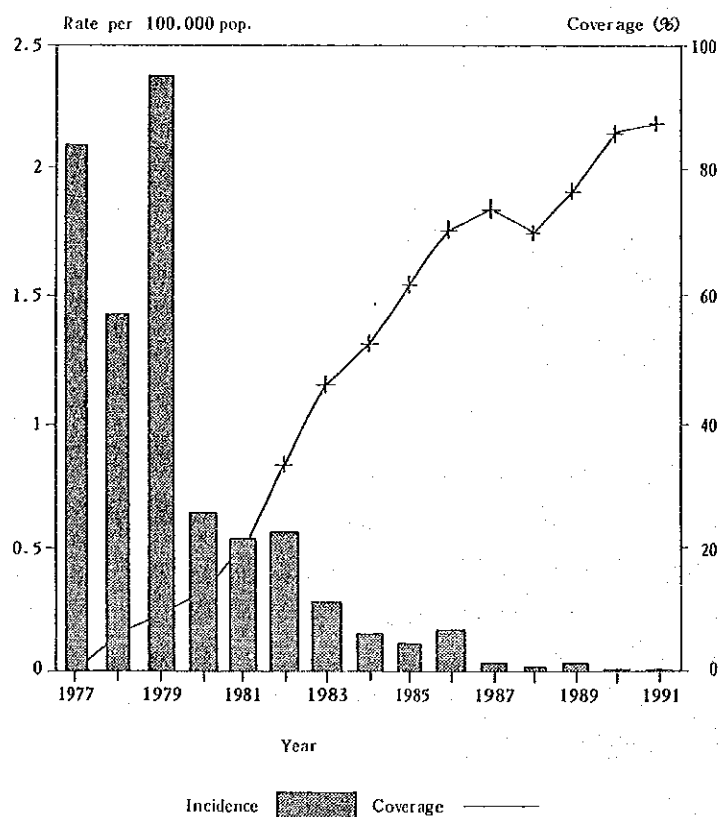
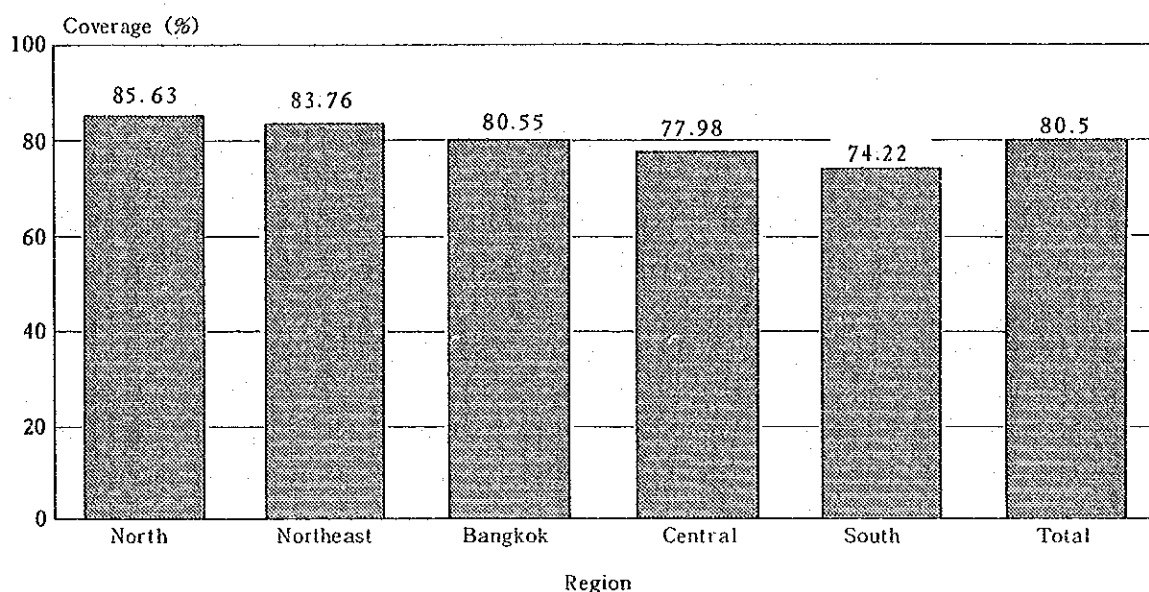


Fig. 9 Coverage % Fully Immunized children by Region



Source : GCD/CDC coverage Survey, 1990

Vaccine Supply and Its Quality Control

BCG, DPT vaccine and Tetanus toxoid are produced domestically in Thailand, but other vaccines, especially viral vaccines like OPV, are almost completely donated by UNICEF, and other organization. Polio vaccine for EPI program activities are administrated to target children free of charge. More than 80 percent of the funding for these EPI program activities comes from government finance, and any shortage of funds is compensated by Rotary and other organizations. However, UNICEF stopped supporting EPI activity in 1992 because of Thailand's advanced economy. The sources of EPI funds from 1988 to 1990 are shown in Table 17.

Table 17 EPI Funding, 1988 - 1990

Source	1988	1989	1990
Government	1,721,156	2,134,241	2,634,796
UNICEF	222,458	288,237	218,275
WHO	2,260	-	16,681
Rotary	11,040	85,612	238,869
JICA	96,000	-	-
Total	2,052,914	2,508,090	3,108,621

Source; GCD Division, The Department of CDC

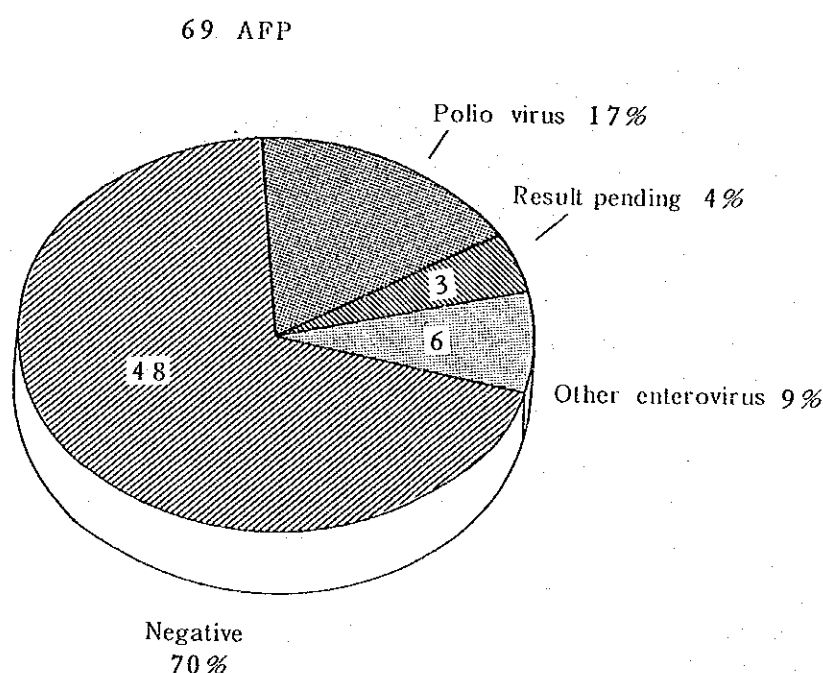
Surveillance and monitoring of the cold chain system is reviewed and monitored by staff of regional offices at random points throughout the country. Finally, after being tested by Food and Drug Administration, Ministry of Public Health, vaccines are distributed to every province and district. Some vaccines are collected at random, and these samples are sent to the Department of Medical Science for potency evaluation.

Poliomyelitis in 1992, Thailand

According to the Department of the Communicable Disease Control, the government of Health, there were 12 confirmed cases of poliomyelitis in 1992 among 84 cases of AFP throughout the country.

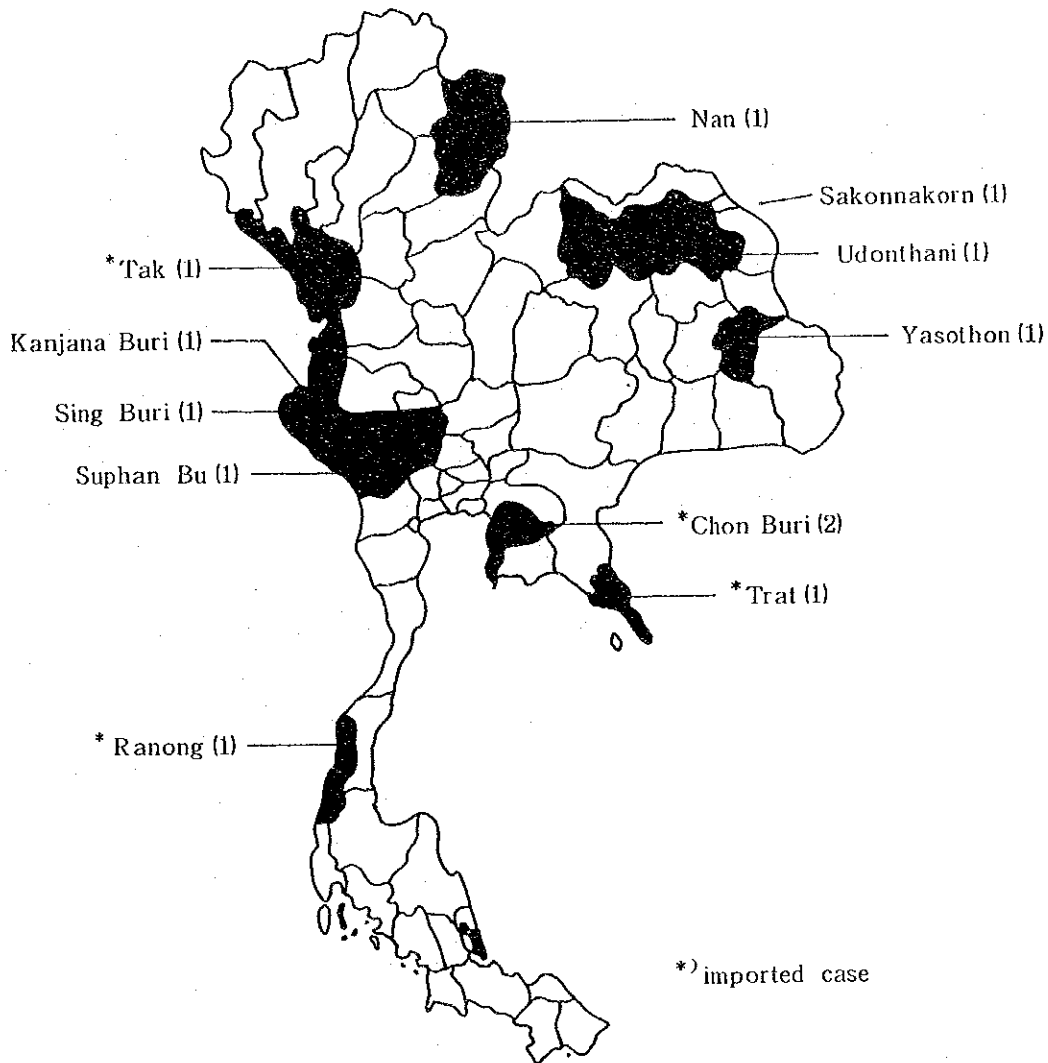
Stool specimens were collected from 69 patients with AFP during the year and sent to the National Institute of Health in Thailand, which was constructed with support from Japan. The doctors tried to isolate polio viruses from these specimens at this institute. Out of 69 patients of AFP whose specimens were collected, polio viruses were isolated from those of 12 patients. The results from about 69 cases of AFP is shown in Fig. 10.

Fig. 10 Laboratory Results, 1992 Total Surveillance Report



In addition, the geographical distribution of 12 confirmed polio cases are drawn below Fig. 11. The number in parentheses represents number of patients, and 5 marked cases (*) which were reported from 4 provinces as imported cases. These cases were controlled soon after patients were informed by health facilities. Moreover Polio viruses type 1 were isolated from all patients.

Fig. 11 Confirmed Cases of Poliomyelitis by Province, Thailand, 1992



Conclusion

What we see about the health and welfare in Thailand is not the medical situation of a developing country but one consistent with the remarkable economic development of an advanced nation over the last 20 years.

Economic and financial backing has rapidly improved the level of administrative activities, health and welfare, and health services. Therefore, the incidence rates of many kinds of communicable disease have steadily decreased year by year and public health in Thailand has gradually made progress through the efforts of the National Health Development Plan.

Incident rates of Poliomyelitis in the other diseases of EPI activities has been reduced rapidly via high vaccination coverage. Paralleling the Development of C.D.C., Ministry of Public Health, total vaccination coverage of the EPI program has reached more than 80 percent of the country,

while the vaccination coverage of Polio exceeds 90 percent.

As long as the endeavors are continued, we certainly believe this country will achieve a great deal of success in the administration of the health and welfare programs.

However, some challenges remain. These are questions which unsolved since we visited Thailand.

First, this country is not yet free from polio despite the extremely high vaccination coverage of poliomyelitis. The wild-type polio virus still occurs in the country, and if the health programs cease the forward advance but a moment, the epidemic of poliomyelitis may suddenly occur. Therefore, we believe it necessary to pay greater attention to the following 3 points:

- 1) The problem of imported cases of poliomyelitis
- 2) The possibility of the pocket outbreaks in growing urban populations not reached by vaccination programs.
- 3) The problem of vaccination of polio in private facilities

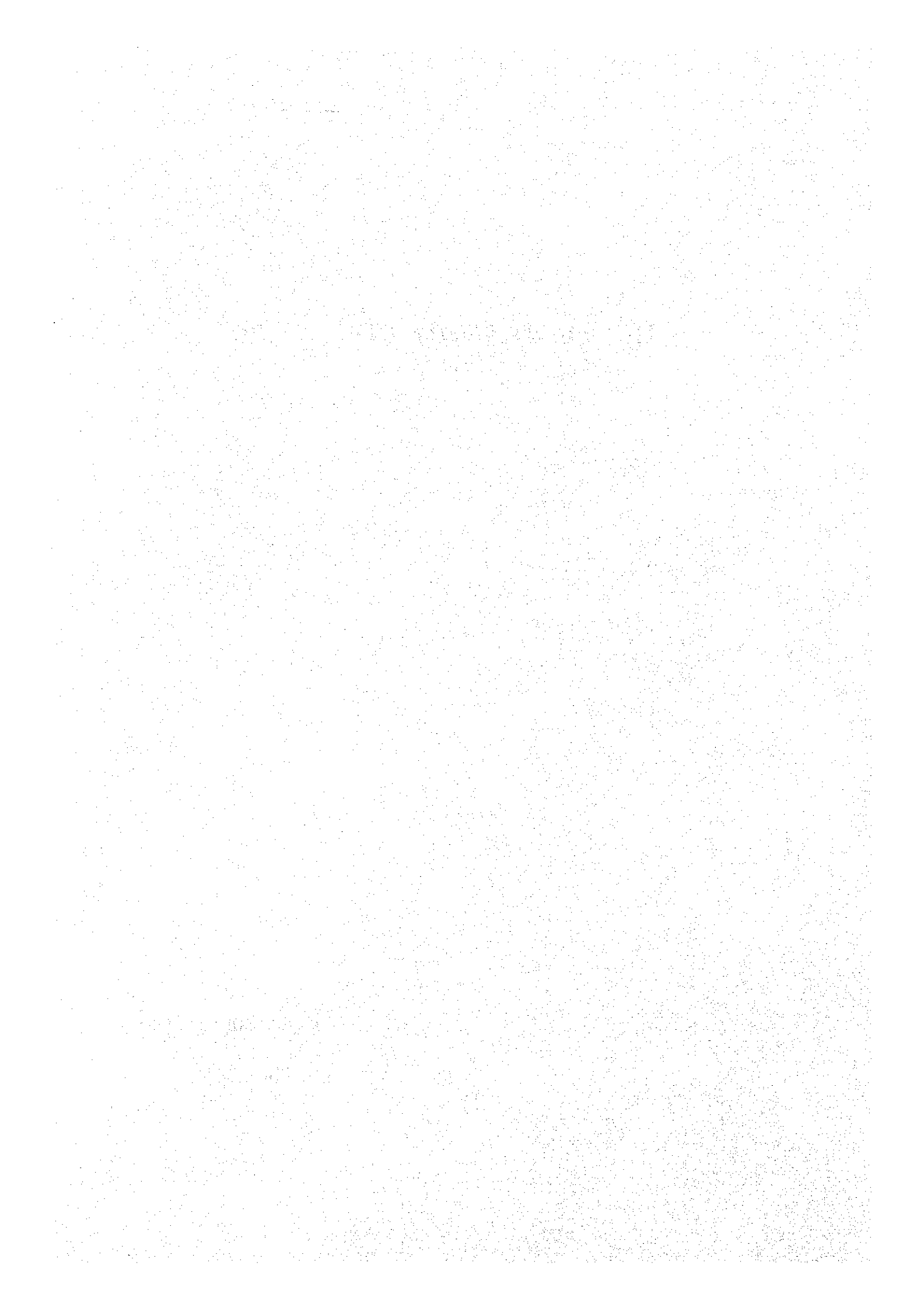
In countries surrounding Thailand, especially Lao PDR and Cambodia, poliomyelitis is currently uncontrolled, leaving a great possibility that the polio virus can be brought from surrounding countries into Thailand. If many pocket outbreaks occur even within Thailand, epidemics of poliomyelitis may break out at any time. The concentration of populations in big cities and insufficient surveillance and control of private vaccination could lead to the pocket outbreak in the future.

We are confident that satisfactory solutions to these concerns will be resolved in a short time.

III. FIELD STUDY IN LAO PDR

KAZUTOSHI NAKASHIMA

DAIRIKU HOZUMI



I. Schedule of Field Study in Lao PDR

March 24 (Wed)	Arrival in Vientiane by QV423 at 19:00	
25 (Thu)	08:30 - 09:30	WHO Office, Vientiane Briefing by Dr. Nesbit (WHO Programme Officer for EPI) "EPI/Polio Eradication Policies and Surveillance in Lao PDR"
	09:35 - 09:45	Courtesy Call to Dr. Cannon (WHO Representative, Vientiane)
	10:00 - 10:30	Ministry of Health (MOH) Dr. Som Ock (Deputy Chief of the Cabinet) Courtesy Call to Prof. Vannareth (Minister of Health) or Dr. Khamphay (vice-Minister of Health)
	10:40 - 10:45	National Institute of Hygiene and Epidemiology (NIHE) Courtesy Call to Dr. Sithat (Director)
	10:50 - 11:50	Briefing by Dr. Somthana (National EPI Manager) "EPI Situation and Polio Eradication Activities in Lao PDR"
	13:15 - 14:20	UNICEF Office, Vientiane Coutesy Call to Ms. Sutherland (UNICEF Representative, Vientiane)
	14:30 - 15:30	Briefing by Dr. Mayavin (UNICEF Programme Office for EPI) "UCI Goal and Strategies in Lao PDR, and Supply Management"
	16:00 - 16:30	Courtesy Call to Embassy of Japan
26 (Fri)	08:30 - 10:15	MCH Clinic, National Mahosot Hospital
	10:30 - 11:30	MCH Hospital, Institute of Mother and Child Health (IMCH)
	14:15 - 15:45	Visit to National Rehabilitation Center Briefing by Dr. Souphanh "Clinical Aspect of Poliomyelitis in Lao PDR"
	16:00 - 17:00	Visit to EPI Facilities: NIHE Central Vaccine Stock and Warehouse
27 (Sat)	08:30 -	Field Studies on EPI/Polio Eradication Activities 2 Commune Dispensaries in Hat Sayfong District Khoksay and Thapha (or other if not available)
28 (Sun)	07:00 -	Leave Vientiane for Thakhek in Khammouane Province by Road Stay in Thakhek
29 (Mon)	08:30 -	Visit to Khasmmouane Provincial Health Office: Chief Health Officer, EPI, PHC, MCH, JICA PHC Office etc. Visit to Hospital: MCH Clinic, Rehabilitation, Pediatrics, Labo etc.
	14:30 -	Field Visit to 1 Dispensary in Thakhek Stay in Thakhek
30 (Tue)	07:00 -	Leave for Mahaxay
	08:30 -	Field visit in Mahaxay District Hospital, Dikspensary and 2 Villages
	16:00 -	Leave for Nakay
	18:00 -	Stay in Nakay
31 (Wed)	08:00 -	Field visit in Nakay Health Facilities and Villages District Hospital, Dikspensary and 2 Villages
	15:00 -	Leave for Thakhek
	18:00 -	Stay in Thakhek
April 1 (Thu)	07:00 -	Leave Thakhek
	08:30 - 09:30	Field visit in Hinboun, District Hospital
	18:00 -	Arrival in Vientiane
2 (Fri)	09:30 - 11:30	Wrap-up Meeting at NIHE
3 (Sat)	Departure for Bangkok by TG691 AT 12:35	

II. General Information

(1) Geography

The Lao People's democratic Republic (Lao PDR) is a land locked country, bordered by China, Vietnam, Cambodia, Thailand and Myanmar. It is almost completely covered by the mountains, especially in the north where an extension of the Himalayan Mountains enters from China. It is located almost entirely in the sloped basin of the Mekong river, the common border with Thailand. (Fig. 1)

The country covers an area of 236,800 km² and is the least populated country of continental southeast Asia with a estimated population of 4,170,000 in 1991. It shows an unequal geographical distribution in terms of demography. Approximately 60% of the population concentrated in the plains of Vientiane, Khammouane, Savannakheth, and Champasack. On the other hand, many ethnic groups exist throughout the country.

(2) Demography

A National Census was conducted in 1985 and gave some detailed figures of health statistics. Afterwards some pilot studies have offered the latest figures. (Fig. 2)

Some demographic data provided by the Ministry of Health of Lao P.D.R. are as follows:

crude birth rate	41 per 1000 (1991)
crude mortality rate	10 per 1000 (1991)
natural growth rate	26 per 1000 (1992)
Infant mortality rate (IMR)	104 per 1000 (1992)
Under 5 mortality rate	156 per 1000 (1992)
Maternal mortality rate	653 per 100000 (1992)
Life expectancy at birth	50 (1992)
children < 1 year	4% of the total population
children 9-23 months	5% of the total population
women 15-45 years	17% of the total population
pregnant women	4% of the total population

High crude birth rate and high mortality rate of all ages provide the typical triangle shape of the population pyramid. (Fig. 3, 4)

Fig. 1 Lao PDR, Elevation

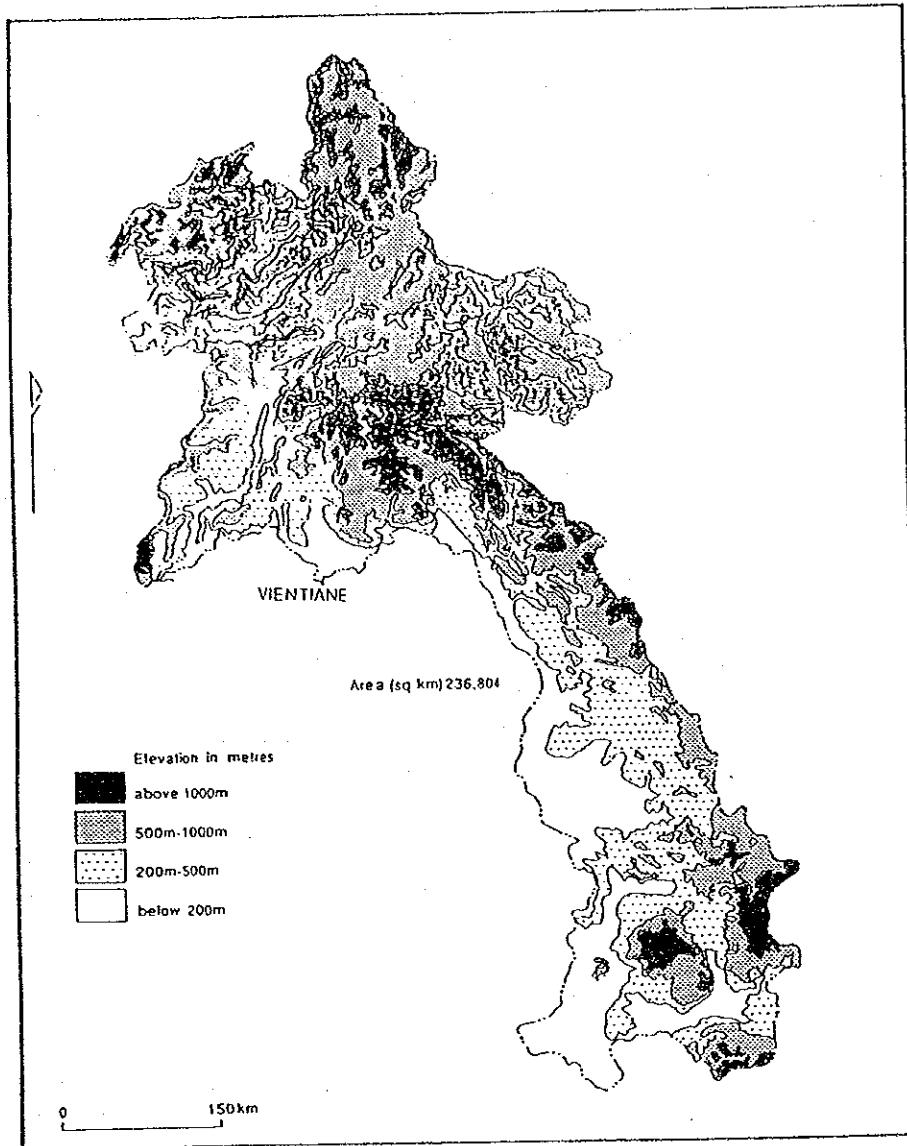


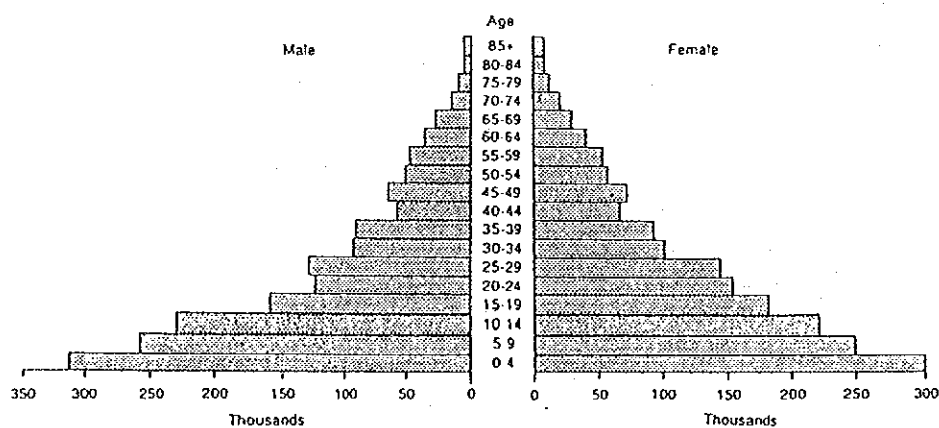
Fig. 2 Population by Age and Sex, 1985

	Total ('000)	Male ('000)	Female ('000)	Sex ratio
0-4	620 (17)	316	304	104
5-9	511 (14)	261	250	104
10-14	454 (13)	232	223	104
15-19	345 (10)	162	183	88
20-24	282 (8)	126	155	81
25-29	278 (8)	132	146	90
30-34	199 (6)	96	104	92
35-39	188 (5)	93	94	99
40-44	128 (4)	60	68	89
45-49	141 (4)	68	74	92
50-54	111 (3)	53	58	92
55-59	102 (3)	50	53	93
60-64	79 (2)	39	40	98
65-69	58 (2)	30	28	106
70-74	37 (1)	17	20	88
75-79	22 (1)	11	12	92
80-84	14 (0)	6	8	79
>85	13 (0)	5	8	71
TOTAL	3,585 (100)	1,757	1,828	

Note: Figures in brackets are percentages.

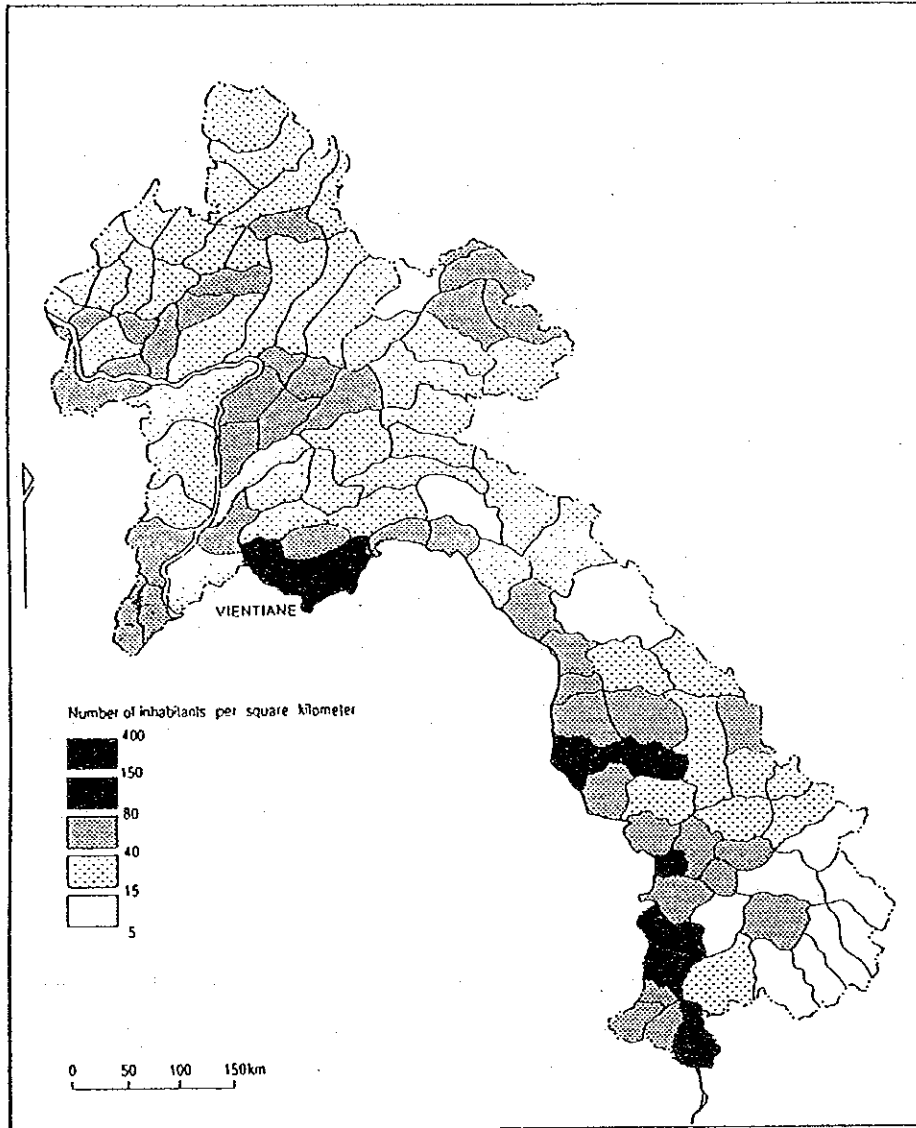
Source: Lao PDR, Population Census, 1985.

Fig. 3 Lao PDR Population Pyramid, 1985



Source: Lao PDR, Population Census, 1985.

Fig. 4 Lao PDR, Population Density by District



(3) Transportation

Due to the geographical features of the Lao PDR and its low population density transport is limited. Improvements are slowly taking place, as the government has put great emphasis on this sector. The transportation priority is to link provincial towns and district centers to each other, so that year-round access becomes possible by plane, car or boat. The National Transportation Plan now under preparation targets this achievement by the year 2000. Efficient intra-district transportation is unlikely for some time, particularly during the rainy season when a number of villages are completely isolated.

The different modes of transportation (road, river and air) do not compete, except perhaps between Vientiane and Savannakhet and to a lesser extent between Vientiane and Luang Prabang where road traffic is frequently restricted. (Fig. 5)

(4) Economy

According to the 1990 World Development report (World Bank 1990c), in 1988 the Lao PDR was the tenth poorest country in the world, with a GNP per capita of US\$ 180. For 1991, it was US\$ 202.

The Lao economy is highly dependent on agriculture (mainly rice production and livestock) and forestry, and has a very weak industrial sector. In terms of the 1988 World Bank data, the share of GDP of Agriculture, Industry and Services are 61, 14 and 25% respectively while the share of labor force of the same sectors are 89, 3 and 8% respectively.

(5) Political and administrative structure

Since 1975 the Lao PDR has been governed by a socialist government under the leadership of the Lao People's Revolutionary Party (LPRP). As in many other one-party political systems, two overlapping structures are responsible for defining and implementing the policies of the country: the Lao People's Revolutionary Party and the government. The scheme of the structure is provided as an annexed figure.

Administratively, the country is divided into 17 provinces including the Vientiane Municipality, and further divided into 133 districts with approximately twelve thousand villages. (Fig. 6, 7)

Fig. 5 Lao PDR, National Transport Networks

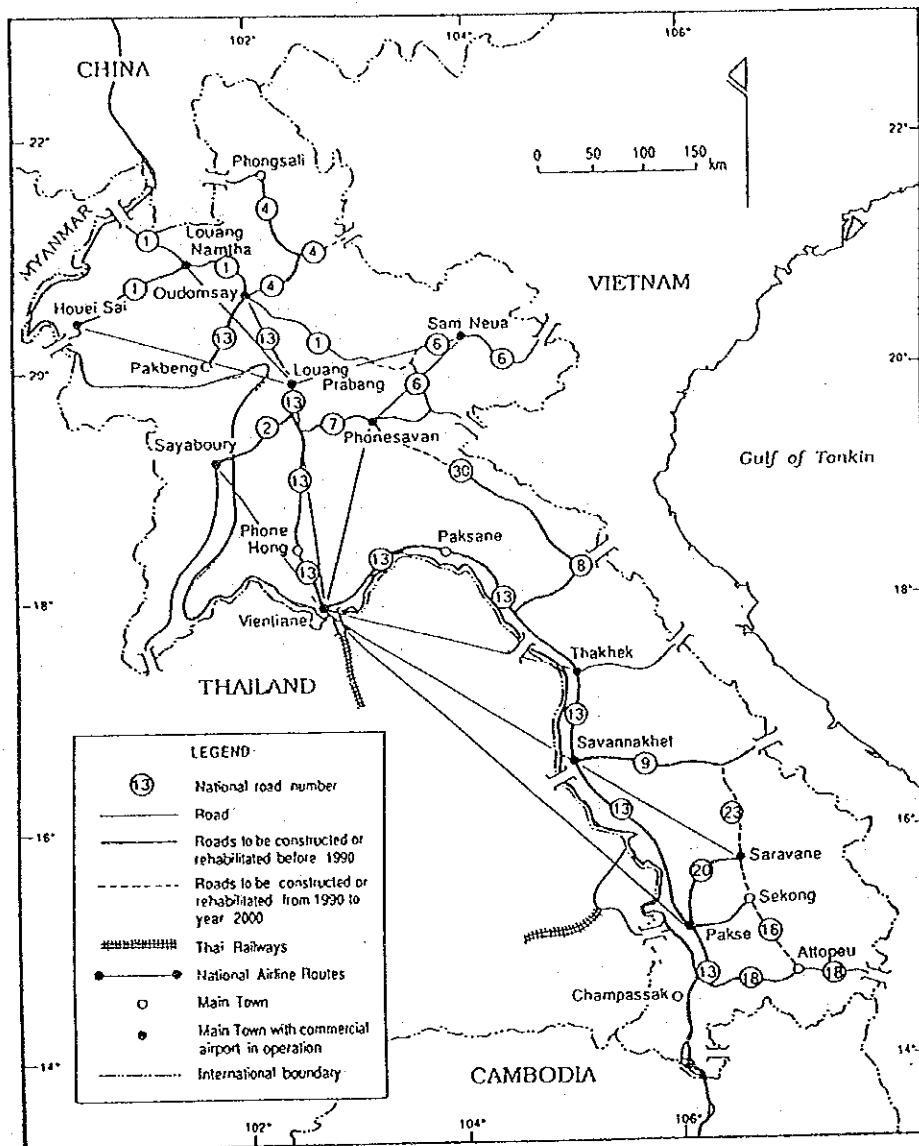


Fig. 6 Structure of the Government of the Lao PDR

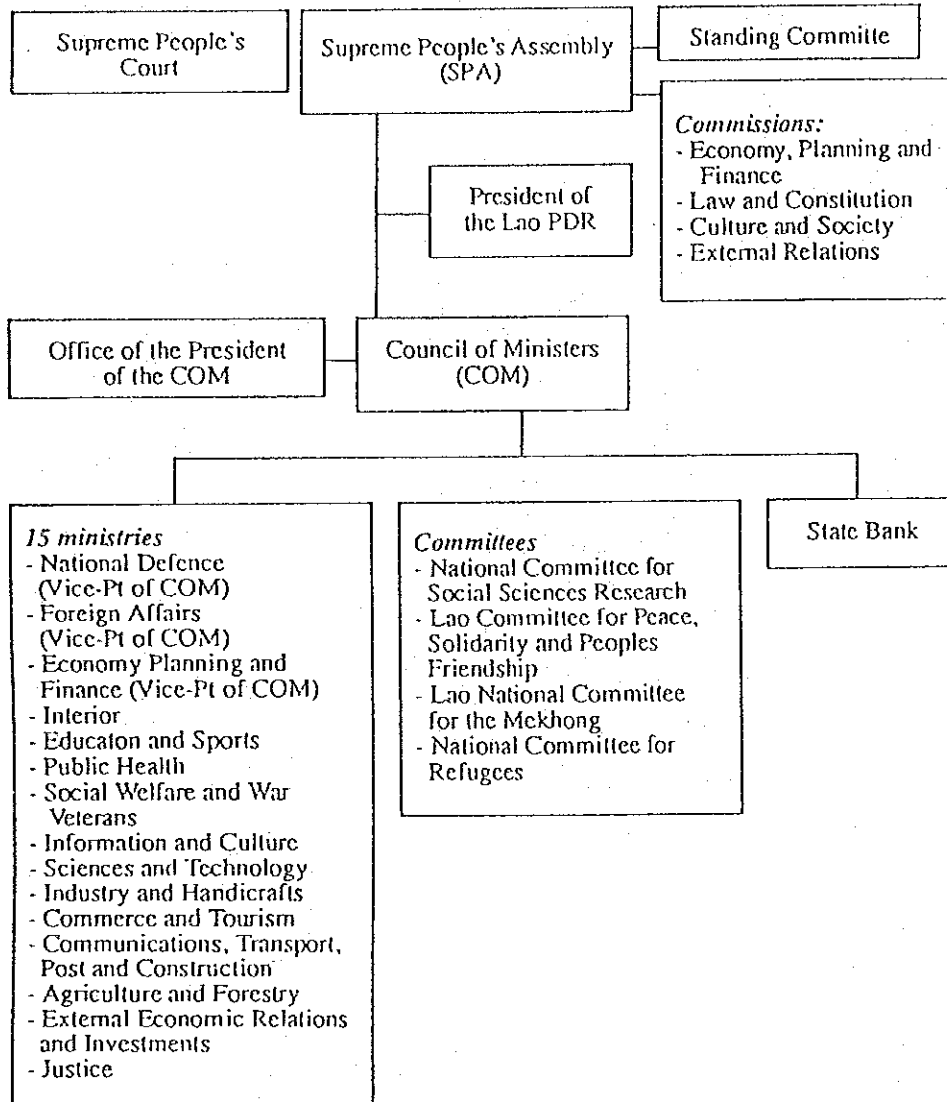
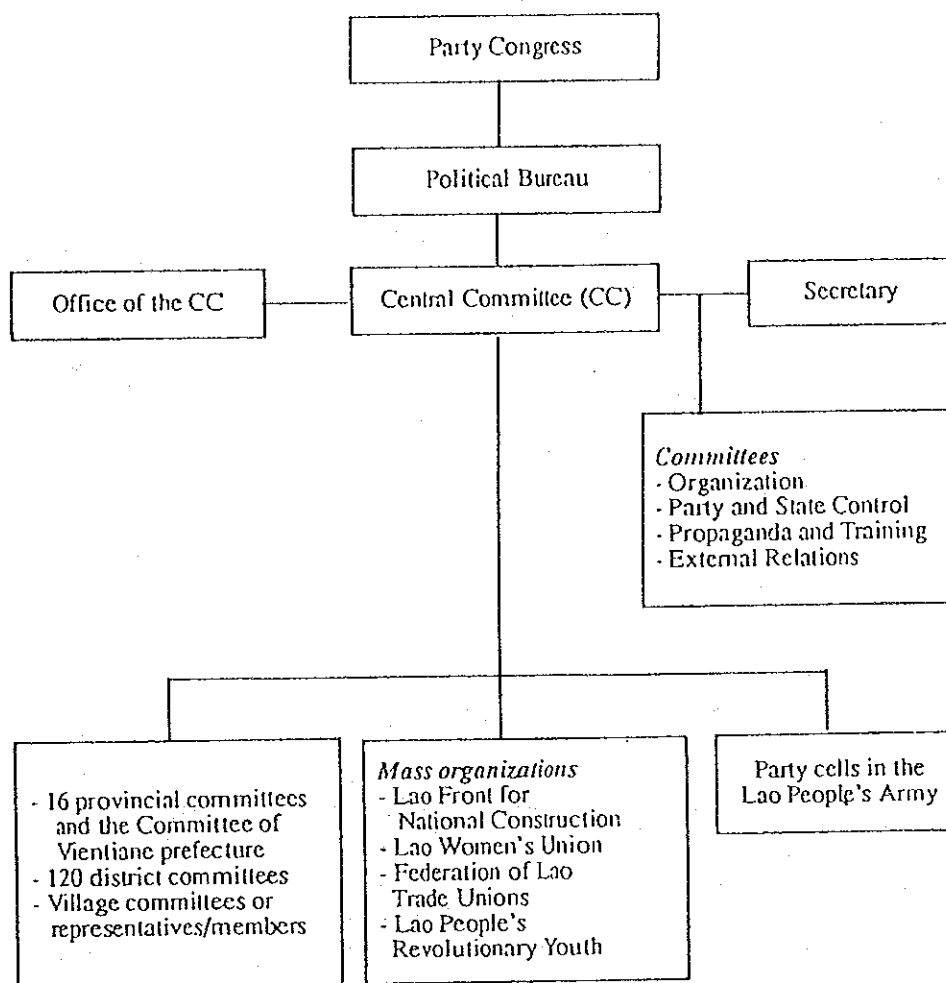


Fig. 7 Structure of the Lao People's Revolutionary Party



III. Overview of Health Services

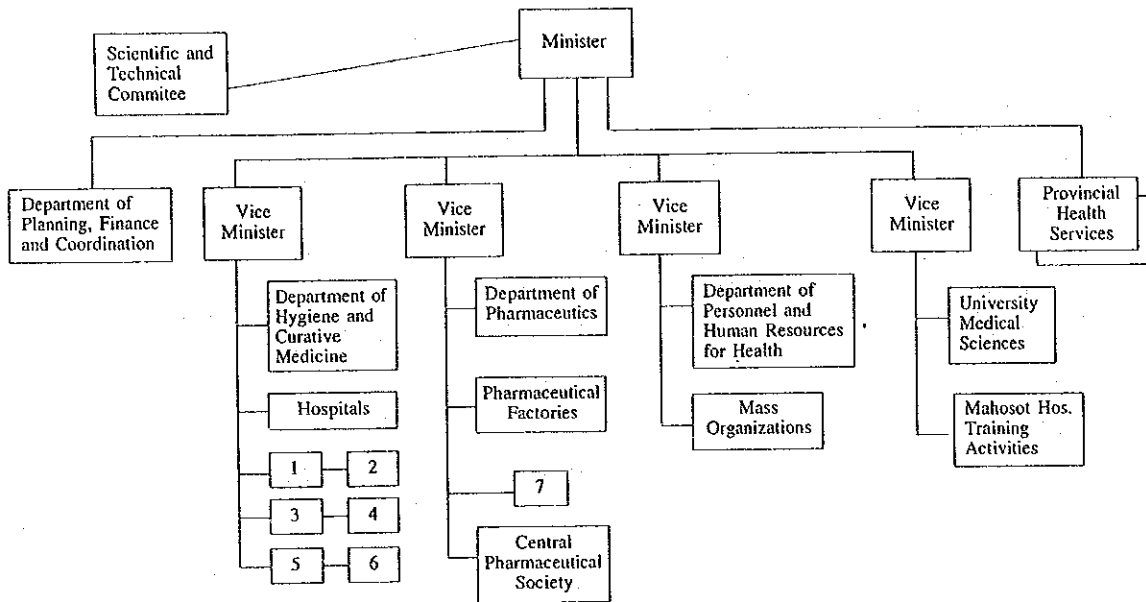
(1) Health organization and administration

The ministry of Health is divided into four sections which are each supervised by four vice ministers. Under the Department of Hygiene and Curative Medicine, the National Institute of Hygiene and Epidemiology is in charge of all EPI activities. (Fig. 8)

(2) Health facilities

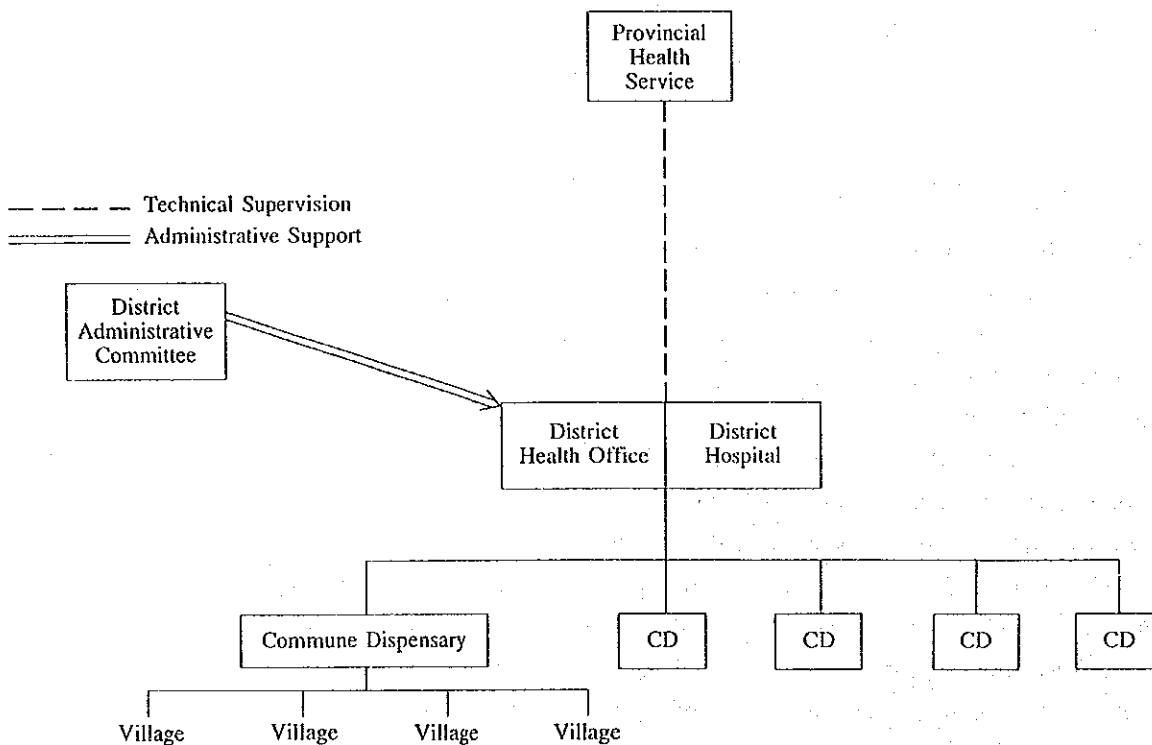
There are 128 central provincial and district hospitals which theoretically work as the active centers for preventive and curative activities. They also share the responsibilities for EPI activities with the district health centers under the supervision of provincial health office. For remote areas, an average of eight dispensaries serve one district. National policy is to strengthen the function and responsibility at the district level to allow the development of action plans suited to the various conditions in each district. However, a large proportion of district hospitals and dispensaries are out of function from a practical point of view, because of the lack of human resources, budget, training programs, etc. (Fig. 9)

Fig. 8 Lao People's Democratic Republic Ministry of Public Health



- | | |
|--|--|
| 1. Institute of Malaria & Parasitic Diseases. | 4. Institute of Maternal and Child Health. |
| 2. National Institute of Hygiene & Epidemiology. | 5. Dermatology and Leprosy Center. |
| 3. Institute of Health Education & Public Information. | 6. Institute of Traditional Medicine. |

Fig. 9 Organization of District Health Services Lao PDR



IX. Situation Analysis of EPI Activities

(1) Historical overview

First launched in 1982, the EPI activities in Lao PDR have shown gradual progress in each year. The programme commenced in 1982 in with pilot projects 2 provinces and has since expanded into all 17 provinces. A few districts have not yet commenced immunization activities. However, at the village level, many people in remote areas far from the central health facilities in the district haven't had any access to EPI activities.

An accelerated programme was started in 1987 in eight districts in the Vientiane Municipality and one district in Savannakheth province and showed high coverage. In 1990 Subnational Immunization Day (SNID) was started in the Vientiane Municipality and one district of Savannakheth, and extended to 24 districts in 1991. Furthermore the third SNID was performed in 47 districts in 1992.

(2) Immunization strategies

The strategy emphasizes community participation, microplanning, phased expansion of activities, more effective use of manpower and integration of EPI and maternal and child health activities. In order to provide the most suitable operation, they adopted the district strategy, emphasizing four strategies for implementation:

- Fixed Center
- Outreach
- Mobile Team
- NID's

(2.1) District Strategy

The district is considered the functional unit for EPI activities. In each district the capability should exist to plan and manage an immunization programme which delivers immunization services through health facilities (fixed centers) and outreach and mobile activities to all villages.

The immunization programme will include those activities which are part of the regular programme and special supplementary activities such as the National Immunization Days.

It is recognized that there can be a large variation between districts and that each district is unique. However there are also many similarities, particularly with regard to the organization of the health care system, the political structure, and the various organizations present in the district.

In order to provide EPI activities effectively all villages categorized as being in zones as follows:

- Zone 0 This zone contains villages within 3 kilometers of a fixed center for immunization.
- Zone 1 This zone contains villages in which a vaccinator from the fixed center can conduct a vaccination session in one day by walking, riding a bicycle or rowing a canoe to the village and back.
- Zone 2 This zone contains villages in which a vaccinator from the fixed center can conduct a vaccination session in one day by using a motorbike, motor boat, or taking public transport to go and return from the village.

Zone 3 This zone contains villages in which the vaccinator from the fixed center cannot travel to, conduct a vaccination session, and return to the fixed center in one day.

Some of villages in districts presently with EPI programs session are under this zoning system. However, there are a large number of villages left without even zoning classification.

(2.2) Strategy for Delivery of Immunization Services

The delivery of immunization services can occur either from health facilities, fixed centers or from mobile or outreach teams.

(2.2.1) Fixed centers

The health authority has been making an effort to make the fixed centers with refrigerators provide vaccinations every day, but this is not well-understood even in at the provincial level in some cases. For example, the Mahaxay district hospital in Khammouane province we visited, supposed to be a fixed center, has a well-working refrigerator, but they do not provide vaccines as a fixed center. They do not open a vaccine vial when mothers bring their children targeted for EPI there. They only provide vaccines by means of mobile teams or outreach.

The MOH considers the function of health facilities as follows:

- District hospital
 - to provide regular vaccination sessions at the maternal and child health clinic
 - to make vaccinations available on a daily basis for all clinics and inpatients
 - to provide vaccination services for villages at least within a 3 kilometer radius
- Dispensary

to provide vaccination services for villages at least within a 3 kilometer radius on a monthly basis

(2.2.2) Outreach/mobile

For vaccination delivery to remote areas in zones 1 to 3, outreach/mobile teams should be utilized.

Zones 1 and 2

Vaccinators from the district hygiene station would be assigned full-time to outreach/ mobile vaccination activities. A vaccinator would be responsible for approximately 20 villages, in which he would have to conduct vaccination sessions every 2 to 3 months.

Dispensaries which have sufficient staff can also be responsible for villages in zones 1 and 2. Vaccine along with icepacks can be provided regularly from the district capital or ice can be procured.

Zone 3

A 2-man team would be responsible for a number of villages. Each village would be visited every 2 to 3 months and vaccination sessions conducted.

(3) Vaccine procurement

Children Vaccine Initiative indicates that Lao PDR is a country which needs continuous donor support for vaccine.

The major supplier of vaccine has been UNICEF. In 1992, for the routine activities, vaccine was supplied by Rotary International, while WHO has given financial support for SNID.

(4) Cold chain and logistics

According to the national policy, cold chain from the central level to the dispensary level should be as follows:

- Central level: One large cold room donated by JICA and several freezers keep vaccines for at most six months
- Provincial level: freezer at each province for a total of three-month stock
- District level: Refrigerator is provided for district storage with six-week vaccine stock
- Dispensary level:
 - center with refrigerator: supplied vaccine weekly / monthly
 - center without refrigerator: supplied vaccine by cold box regularly (monthly)

From the practical point of view, some provinces don't have any freezer. Under such conditions, they are not supposed to keep vaccines for more than six weeks. The MOH has been providing refrigerators to district level and dispensaries supported by UNICEF. However they sometimes don't work as expected. In the Nakay district, there was a newly supplied refrigerator, but it had consumed twice the amount of fuel as UNICEF estimated. Therefore it was out of work when we visited.

(5) Present status of vaccine implementation

(5.1) Current Immunization Coverage

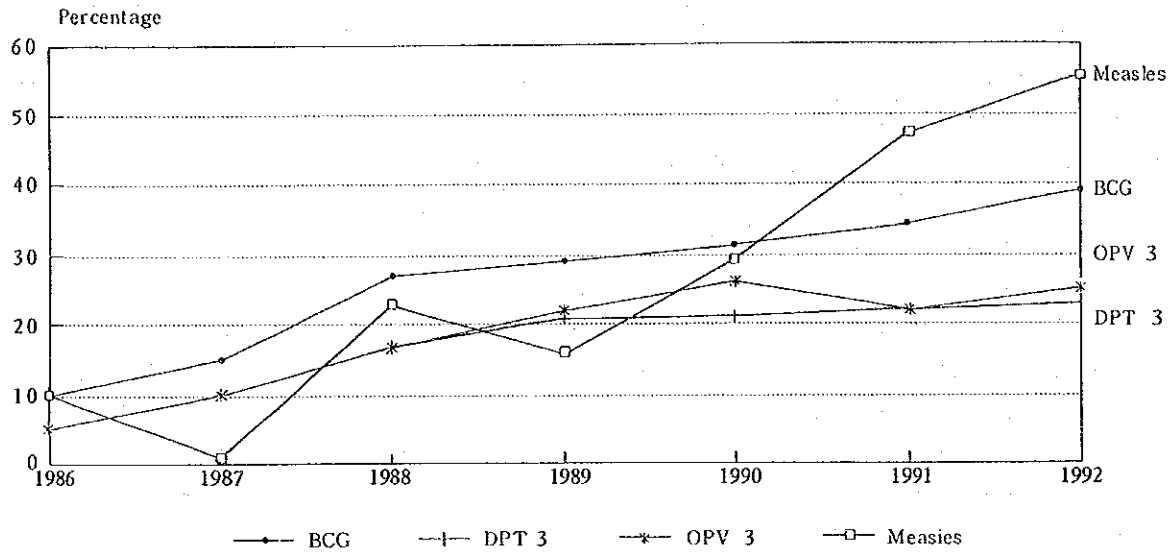
Vaccine	1988	1989	1990	1991	1992
Vaccine	27	29	31	34	37
DPT3	17	21	21	22	25
OPV3	17	22	26	22	29
MEASLES	23	16	29	47	51
TETANUS	5	4	11	13	17
TT2	4	4	10	12	18

data in % (Fig. 10)

• SNID in 1991

The second SNID was operated in 24 districts in 1991. The concept of SNID or NID is to provide vaccine to all children in the targeted age (under 5 years) regardless their vaccination history. 21% of the total population during 0 - 4 years were in the selected 24 districts in the second SNID. Among 21% of all children under 5, 76% were immunized with OPV during that campaign. (Fig 11, 12) The third SNID was performed in 4189 villages in 48 districts in 1992. During that session 76% of the targeted children there were immunized by OPV. (Fig. 13)

Fig. 10 Immunization Coverage, Lao PDR 1986 - 1992



Source: Routine reporting
1992 (9 months, Jan-Sep '92)

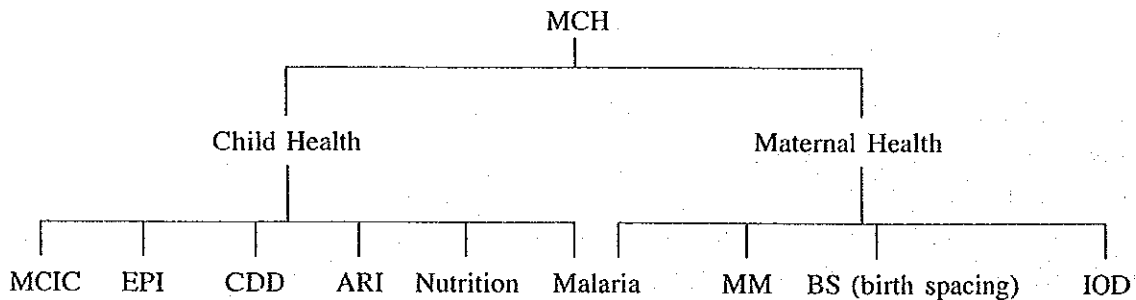
(5.2) Present status of health facilities we visited

The government has been making a great effort to set up an effective health system all over the country. However situations are quite different between Vientiane Municipality and the others.

* National level

- Institute of Mother and Child Health (IMCH)

MCH services started by support of UNICEF in 1989. Since then NGOs have supported these support this activities separately in provincial units. Therefore IMCH is trying to integrate their different policies. Their policy is that MCH should consists of two categories: child health and maternal health, with each category divided into several sections as shown the chart below:



The recent development of a score card system allows MCH staff to evaluate district dispensaries, but this system cannot be evaluated at present.

- National Mahosot Hospital MCH clinic

This hospital plays an very important role as one of the central hospitals in the country.

According to the four nurses working at the clinic, people in center of the Vientiane Municipality are willing to come for EPI session as well as other MCH activities. They did not show concrete figures concerning EPI activities such as coverage or family lists, but the situation seemed to be rather good.

* Vientiane Municipality
District level

Fig. 11 Population Targeted and Immunized during NID's in Lao PDR, 1991

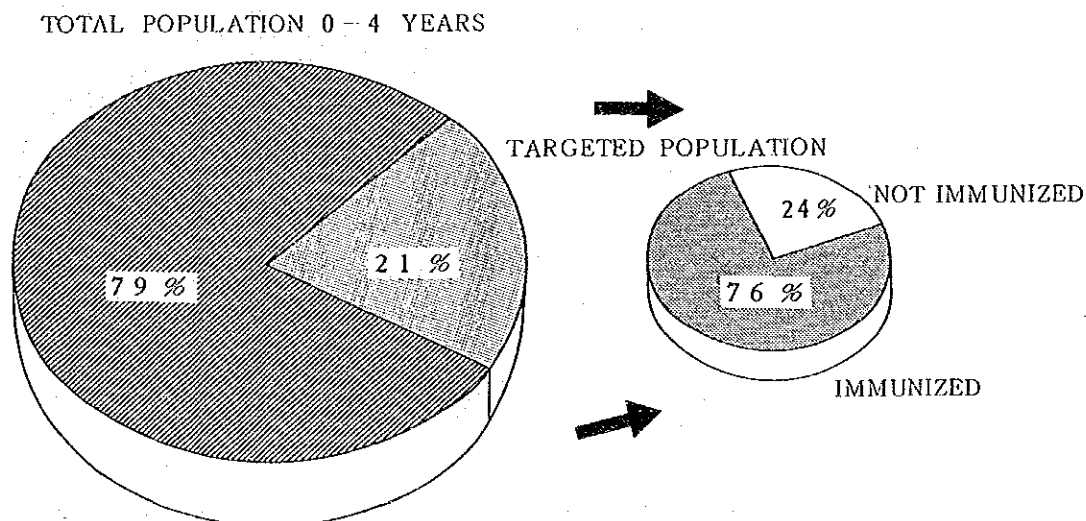


Fig. 12 Coverage during NID's, 1991 Oral Polio Vaccine

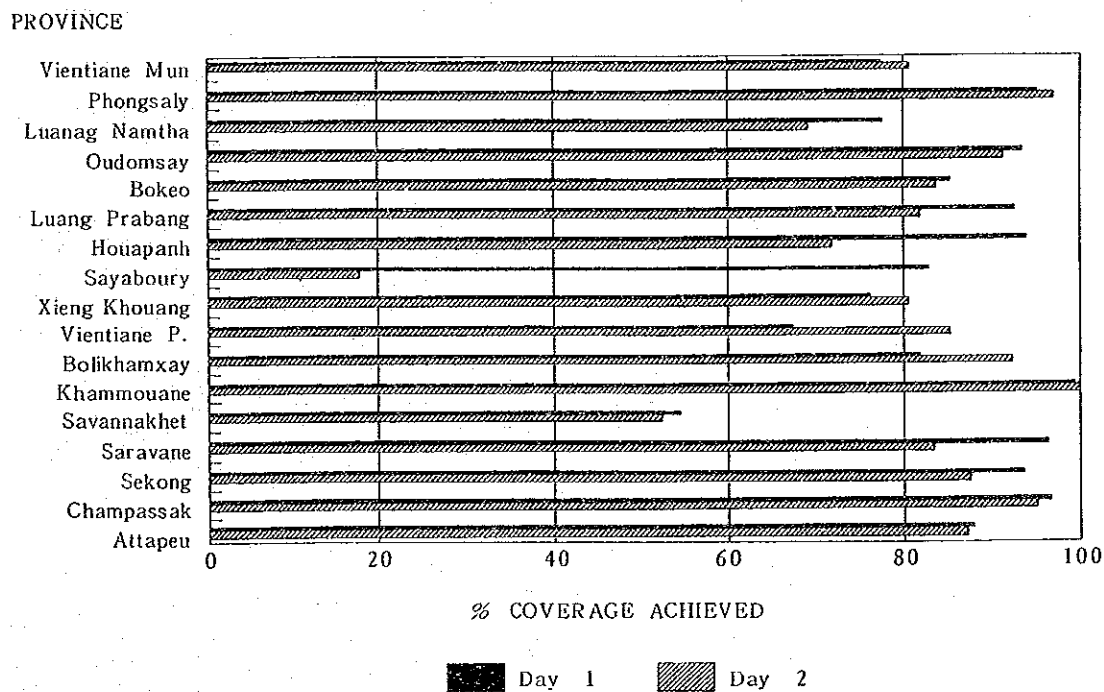


Fig. 13 Output of Districts Conducting Vaccination Days, 1992

No.	Province	District	Number villages	DAY 1						DAY 2					
				Villages reached		OPV		DPT	Measles	Villages reached		OPV		DPT	Measles
				%	Coverage under 1 (%)	Coverage under 5 (%)	Coverage under 1 (%)	Coverage under 2 (%)	%	Coverage under 1 (%)	Coverage under 5 (%)	Coverage under 1 (%)	Coverage under 2 (%)		
1	Vientiane M.	Ohartabour	37	100	48	73	46	33	100	33	75	31	9		
		Skothaborg	59	97	100	3	4	100	51	65	38	14			
		Saysetta	54	96	71	2	3	100	79	93	3	2			
		Syrtarak	40	100	15	15	10	100	12	32	7	3			
		Nasayong	55	100	42	16	21	100	42	52	19	10			
		Savtany	126	100	37	32	20	100	42	41	33	13			
		Hatsayfong	75	100	46	21	7	100	42	50	14	5			
		Fratath	38	100	41	36	65	100	69	91	48	17			
		TOTAL	484	99	51	58	21	39	44	59	22	9			
		2	Phongsaly	Phongsaly	92	100	79	90	9	20	100	111	120	12	30
Bon Neue	68			100	80	0	9	100	97	130	14	10			
TOTAL	160			100	79	6	16	100	106	124	13	22			
3	Luangrancha	Namita	65	97	90	77	39	97	35	39	33	19			
		Sng	111	19	5	14	23	19	17	20	15	9			
		TOTAL	176	48	56	46	31	48	26	30	24	14			
4	Outdomsay	Xay	174	100	65	6	27	102	80	92	40	42			
		Beng	94	100	98	69	8	113	120	102	23	11			
		TOTAL	268	100	78	30	20	106	95	96	34	30			
5	Bokeo	Houtsay	144	88	73	5	13	88	68	61	4	8			
		Thoroung	60	96	85	8	27	88	93	74	4	6			
		TOTAL	204	90	80	6	17	88	75	65	4	7			
6	Luang Prabang	Luang Prabang	128	100	96	9	7	100	91	95	2	4			
		Pak Ou	80	100	85	22	44	100	106	103	27	13			
		Ckhomphet	93	92	86	51	70	92	91	107	70	27			
TOTAL	301	96	91	21	29	98	96	100	23	12					
7	Sayabouri	Sayabouri	115	78	58	17	21	78	58	91	11	9			
		Pieng	72	76	88	31	25	78	77	86	26	8			
		TOTAL	187	78	64	22	23	78	66	89	17	9			
8	Houaphanh	Samneue	145	100	87	7	7	100	85	51	3	0			
		Vierxay	114	95	109	10	12	95	84	76	4	1			
		TOTAL	259	99	96	8	9	99	84	62	3	1			
9	Xiang Khuang	Pek	77	100	80	3	2	100	77	74	2	2			
		Kam	134	93	92	6	10	93	87	89	4	10			
		TOTAL	211	97	85	4	5	97	81	80	3	5			

Output of Districts Conducting Vaccination Days, 1992

No.	Province	District	Number villages	DAY 1						DAY 2					
				Villages reached		OPV		DPT	Measles	Villages reached		OPV		DPT	Measles
				%	Coverage under 1 (%)	Coverage under 5 (%)	Coverage under 1 (%)	Coverage under 1 (%)	Coverage under 2 (%)	%	Coverage under 1 (%)	Coverage under 5 (%)	Coverage under 1 (%)	Coverage under 2 (%)	
10	Vientiane P.	Phone Hong	103	100	91	99	0	0	0	0	100	82	90	43	15
		Keo Oudom	30	100	71	94	0	0	0	0	100	68	90	27	11
		Touaktom	63	100	71	90	0	0	0	0	98	66	85	67	23
		TOTAL	196	100	80	94	0	0	0	0	99	73	88	51	18
11	Bothdamay	Paksane	76	100	52	66	31	44	0	0	100	65	78	12	3
		Thapahad	33	100	72	80	7	0	0	0	100	88	93	40	40
		Pakkading	61	100	70	67	41	36	0	0	100	65	70	0	1
		TOTAL	100	100	70	67	41	36	0	0	0	73	79	16	12
12	Overmouare	Thahtek	133	100	45	93	16	42	0	0	100	102	135	102	80
		Nong Bok	68	?	0	0	0	0	0	0	100	118	133	0	28
		Sebongtay	50	?	0	0	0	0	0	0	0	0	95	0	64
		TOTAL	251	53	23	47	8	21	0	0	80	90	128	51	60
13	Savamakiet	Kiertabouri	129	100	47	55	4	2	0	0	100	91	63	3	2
		Orempore	160	100	113	93	14	11	0	0	100	108	92	0	0
		Songkore	153	100	62	65	12	12	0	0	100	72	80	5	5
		TOTAL	442	100	71	70	9	8	0	0	100	91	76	3	2
14	Saravane	Saravane	179	100	92	84	0	0	0	0	100	101	84	0	0
		Vavv	63	88	96	94	0	7	0	0	98	101	99	8	5
		TOTAL	235	99	93	87	0	2	0	0	100	101	89	2	1
15	Campassak	Pakse	40	100	87	66	31	28	0	0	100	87	66	31	7
		Sanamsombon	83	100	86	84	19	26	0	0	100	62	77	10	2
		Khong	131	100	156	88	61	23	0	0	100	138	67	36	12
		Champassack	92	100	84	79	30	31	0	0	98	80	85	29	9
		Chortong	116	100	134	99	10	7	0	0	100	90	90	15	4
		TOTAL	462	100	113	84	30	22	0	0	102	93	77	24	7
16	Sekong	Laman	60	87	97	101	58	31	0	0	87	167	106	80	35
		Thataeng	54	96	134	96	43	14	0	0	96	84	101	22	21
		TOTAL	114	91	115	99	50	23	0	0	91	135	95	51	28
17	Actaou	Samkysay	20	100	0	177	0	5	0	0	100	346	81	7	8
		Saramoay	49	45	0	156	0	21	0	0	43	252	59	12	14
		TOTAL	69	65	0	167	0	12	0	0	65	0	71	0	11
TOTAL			4189	94	73	76	18	21	0	75	78	20	12		

- Hat Sayfong District Health Office

Data for this district provided by the office were as follows:

Population 66, 137 male 44% female 56%

households 12,255 75 villages

mortality rate 17‰ growth rate 29‰

Health Network

1 hospital (10 beds)

9 health centers

3 health posts: each post serves 2 - 3 villages

1 health post: serves for 1 village only

All facilities have electricity, but some don't have any refrigerator.

PHC services

4 villages out of 75 are under operation of PHC, which yields a coverage of 5%.

EPI services

regular administration in 1992

full immunization 43%

OPV3 97.3%

DPT3 68%

SNID in '92

89% in the first round, 91% in the second round are immunized by OPV.

Family lists (inhabitants registration list) are checked every month, covering almost 100% of the real residents.

In terms of regular administration, the coverage was still low, but it has been progressing year by year. When it comes to SNID, health facilities are organized fairly well. The coverage was high.

- Dispensaries in Hat Sayfong district

We visited two dispensaries in the district, Khoksay and Thapha dispensary. Both of them worked as fixed centers. The coverages of regular administrations are still not high. The coverages of OPV3 under 1 yr. in 1992 were 58% in Khoksay and 74% in Thapha. SNID showed the high coverage in 1992. In Khoksay, the coverages of polio were 100% in the first round and 79.6% in the second round. In Thapha, 90.6% in the first round and 103% in the second round. In Thapha, they said the coverage in the second round exceeded 100% because of immigration.

- * Khammouane province

- Khammouane provincial health office

Information about Khammouane province

Population: 239,049 villages: 886 district: 8

Health manpower in whole province

30 M.D. pharmacies

140 medical assistant

27 midwives

total workers including the number above: 830

Priority of the health services there

1. Preventive

- EPI
- Water supply

2. Curative

Common diseases

1. malaria: highest in mortality as well as morbidity in hospital during these 7 years
2. diarrhea
3. ARI

Case report of poliomyelitis

They mentioned that no case had been seen these 2 or 3 years.

EPI activities of Khammouane province

EPI activities started in 1985 in 5 districts and has been expanded 6 districts. Since 1989 support by the national government has strengthened the EPI systems in terms of adequate equipment, training staffs. At present, out of a total of 886 villages, only 281 villages are accessible to EPI activities. The zoning of those 281 villages are as follows:

Zone	No. of villages	No. of residents
Zone 0	39	28289
Zone 1	71	25069
Zone 2	36	14876
Zone 3	123	36893

The rest are now without even zoning or EPI activities, and the majority of them are thought to be in remote areas far from the fixed center. But the 281 villages includes those which have SNID only without routine immunization. In terms of routine vaccination, the number comes down to 103.

The coverage by each vaccine antigen is as follows: 36.5% in DPT3, 36.3% in OPV3, 44.6% in BCG, 12.7% in TT2.

SNID was performed in 3 districts along Mekong the river: Thakhek, Nongbok, Hinboune. It marked high coverage in % as follows:

	Thakhek		Nongbok		Hinboune	
	1st round	2nd round	1st	2nd	1st	2nd
Polio	87.3	80	95.6	87.7	73.6	93.4
DPT	79.2	69.4	95.3	94	56.8	58.8
Measles	63	36	76.2	23	43.3	49

- Mahaxay district hospital & district health office

Fifty-three staff worked at the hospital, and 31 at the health office. They were responsible for 34,199 people of 158 villages in 10 communes. But only 3 communes were under operation of EPI.

In terms of implementation, vaccine was not provided at fixed center, but by the mobile team/outreach.

- Hinboune district hospital

There were five EPI staff, including three trained personnel, and four MCH staff, one trained. They covered 45,486 people in 178 villages, 16 communes. Immunization sessions were available in 57 villages of 5 communes. A refrigerator was provided, but immunization sessions were not held even once a week. Again, only the mobile team/outreach system were used.

- Dam Donh zone dispensary

There were 13 staff including 1M.D. and 1M.A., who covered 30 villages in 3 communes. They had a good refrigerator and were supposed to be a fixed center from which vaccines would be provided. However they provided vaccines by way of mobile team or outreach approach, not as a fixed center. Even though someone had been trained to be an EPI manager, he did not make any progress. They did not even do village zoning.

- Nakay health center

A district hospital was under construction, so a temporary health center had been set up. A refrigerator was supplied by UNICEF two months before, and vaccines were supplied for their first session. There was a well-trained EPI manager on hand. However they had not provided any vaccine, because the fuel for refrigerator had been consumed within 5 weeks in spite of UNICEF is estimated 2 month supply. Even in those 5 weeks, they had not made a session.

(6) Surveillance

A routine surveillance system was not established in Lao PDR. As the first stage of a surveillance system, a sentinel surveillance system was established in 1989 utilizing district and provincial hospitals. In 1992, 34 centers from nine of the seventeen provinces were included in that system. They were supposed to send a report to NIHE once a month. Reports were monitored for completeness and timeliness.

However from the practical point of view, the system did not work well. Reports tended to be late. At the same time, the quality of sentinel sites were not good. Limited human resources, budget and means of communication, were app.

In 1991 eight cases of AFP were reported and three cases were confirmed. In 1990, 18 cases confirmed by clinical diagnosis were reported. But the number was not considered to reflect the real figure. From the pilot study in Champassak WHO estimated 590 cases occurred in 1990. (Fig. 14, 15)

Provincial health stations send an investigation team to collect the fecal specimen once they receive an AFP report. The specimen is supposed to be sent to NIH in Thailand by way of NIHE. However very limited areas were covered by the system.

Fig. 14 Reported Incidence of EPI Target Diseases by Health Facilities 1985 - 1990, Lao PDR

Disease	Year					
	1985	1986	1987	1988	1989	1990
Measles	1492	1367	2580	1418	2793	2168
Polio	523	182	480	228	91	18
Pertussis	2881	286	980	2523	271	856
Diphthteria	23	37	189	23	14	9
Total Tetanus	88	43	37	32	44	27
Tuberculosis	4258	1514	3468	5783	2952	2087

Fig. 15 Estimates of Disease Morbidity and Mortality 1990, Lao PDR

Based on Estimate of 166.800 New borns

Disease	Current Level of Immunization			
	Expected Cases	Expected Deaths	Prevented Cases	Prevented Deaths
Measles	108032	2161	41087	821
Poliomyelitis	581	35	253	15
Pertussis	112890	1129	20510	205
Diphthteria	1353	102	315	23
Childhood TB	136	122	31	28
Neonatal Tetanus	755	604	79	63

(7) Rehabilitation

A National Rehabilitation Center was established in 1968. It was connected with other rehabilitation units in provincial hospitals as a center of rehabilitation activities. Severely affected polio patients should be sent to it, and provided rehabilitation activities for an average of three months. The total number of patients admitted since 1968 was 1500.

(8) Cooperation with other agencies

• Interagency Coordinating Committee

In February 1992 the senior staff of EPI from NIHE and delegates of UNICEF and WHO project staff started the first Interagency Coordinating meeting in order to improve the coordination between the three above mentioned organizations and to solve together issues related to the EPI activities. After JICA and Rotary international joined monthly meetings were held.

WHO's basic strategies were: 1. high coverage, 2. additional administration including NIDs, 3. surveillance, 4. outbreak response. They emphasized NIDs. WHO officer Dr. Nesbit mentioned that eradication of poliomyelitis by the year 1995 in Lao PDR is very difficult to achieve, as the health infrastructure seemed to be worse than in Cambodia. The district hospitals did not function well. Therefore those who lived in communities would not go to the official health facilities when sick, preferring, to go to the private sectors such as pharmacies or traditional exorcism or to stay home.

Dr. Nesbit also mentioned that WHO tried to develop infrastructure and improve the cold chain, while especially emphasizing staff training.

On the other hand, UNICEF's officer Dr. Malyavin said it was important to build up capacity to carry on. Their priorities include: 1. to increase coverage and to sustain supplies of all vaccines, 2. TT, 3. polio eradication. He said he would not positive to NIDs, because they have many things else to do according to priority: nutrition problems, CDD, ARI, health system improvement, malaria control, water supply and related issues.

The policies of the agencies had some differences, but all share the final target of administering vaccine to all children.

EPI activities involved the Lao Women's Union, the National Front for Country Edification, the District Administrative Committee, the Youth Organization, monks, teachers and others.

X. Comment

We learned the basics of EPI in Kumamoto last October and November. We saw how much impact the NID campaign could make after reviewing an example of PAHO's success. EPI activities are cost-effective as well. But the real situation in Lao PDR is more difficult and complicated than I'd expected.

Although many organizations support EPI activities and the MOH has made great efforts to it, they face many difficulties. From an economic point of view, they have support limited resources. A small population and a low GNP or GDP limit the national budget for EPI and for building up, transportation and related infrastructure.

Geographical characteristics also make supplying vaccines difficult. Many places are isolated for as long as six months during the rainy season. Sixty percent of the national road network is useless then. In the remote areas, limited water supply and malaria are serious problems. They cannot reach health facilities.

Despite the severe conditions mentioned above, Lao PDR hopes to achieve polio eradication by 1995 as a member of the WPRO region. In order to reach this global goal and maintain high coverage of Eph antigens, continuous external support is needed.

I consider NID to be a key point of polio eradication. Through this campaign health infrastructure can be developed, personnel can be trained, and the transmission of disease can be stopped. Infrastructure should be utilized for routine immunization and surveillance programs.

We visited many health facilities in the Laos PDR. Some administered routine immunization, even then they made high coverage in SNIDs when they have.

Education and demand creation are also important. They should be involved in SNIDs.

Japanese support is indispensable to EPI activities in Lao PDR at present. They are rushing to the goal of polio eradication by 1995, which is the regional goal of WPRO to which Japan belongs. The neighboring countries and these countries should support EPI in Laos. It may progress slowly coming certain years because of the severe present situation.

XI. Acknowledgments

This field trip was my first chance to know the real situation concerning EPI. It was a very fruitful experience for me. Much of the content and data in this report comes from papers from NIHE and a report "Children and Women in the Lao People's Democratic Republic" from UNICEF. We appreciate all the persons who assisted during our visit: people at NIHE, MOH, especially Dr. Somthana Douangamala for sparing valuable time to help us, Dr. Richard Nesbit at WHO, Dr. A. Malyavin at UNICEF, personnel of PHC JICA staff; and last but not least, Dr. Toru Chosa the EPI specialist from JICA, for arranging the schedule and helping us in many respects.

Comment

Dairiku Hozumi

Since EPI activities were launched in 1982 in Laos, numerous efforts have been made to improve the health situation by focusing on the health system as a whole as well as the EPI program. This effort has resulted in a gradual increase in the national immunization coverage in Laos; in 1986, 10% of all children under one year of age were immunized with BCG and 5% with both DPT3 and OPV3. In 1992 the immunization coverage for these three antigens has increased to 37% for BCG, 25% for DPT3, and 29% for OPV3. However, this improvement has not been sufficient, as the immunization coverage in Laos still remains one of the lowest in the Western Pacific Region.

The new Plan of Action of the Government of Laos sets a target of 80% immunization coverage for all EPI antigens by the year 1995. In order to accomplish this ambitious goal, the EPI program in Laos has to overcome many difficulties - namely a lack of resources, low population density, ethnic diversity, low accessibility to health facilities, low level of social infrastructure, insufficient social mobilization, and a harsh climate, especially during rainy season. In spite of these problems, there is some hope; the fact that over 70% of all children in 24 targeted districts were successfully immunized during the National Immunization Days (NIDs) suggests a high potential for this country to achieve the goal if a continuous effort is made with the cooperation of the public, the government, and international organizations.

As a conclusion to this field report, I would like to discuss the following two subjects. The first is social mobilization and communications. The latter is the importance of interagency and intersectoral cooperation. Both were often discussed during the trip by government officials from Laos, experts from international organizations, and participants of this field training.

1. Social Mobilization and Communication

Immunization has been seen as a "technology-oriented" intervention requiring little behavioral change on the side of recipients. However, this is a short-sighted view and in order to attract those who have no or little motivation to immunize their children, one must look much more closely at cultural and behavioral values and perceptions to generate interest. For example, during our field trip to Nakay district, we encountered mothers who had never heard of immunization and consequently never immunized their children. During the NIDs in 1992, in some areas in the Vientiane province, fewer mothers brought their children to vaccination sites on the second day as compared to the first day. This is because for them the rice harvest was more important than immunizing their children.

Although the importance of an educational approach for EPI activity at the community level has been recognized by the authorities in Laos, the quality and quantity of information available at this level is severely limited. There are marked differences in knowledge about immunization between different population groups. For example, mothers in the Vientiane Municipality are more likely to have a better idea about immunization than mothers in rural villages. This variation might be explained by the availability of information in the cities as compared to the rural areas.

In Laos, about 85% of the population lives in the rural areas, where access to health

education and information is severely limited. In order to achieve the goal of the National Action Plan by 1995, it is crucial to create demand for immunization among this population. The government is now trying to increase the availability of information in rural areas by utilizing the Lao Women's Union, schools, the Youth Organization, religious groups, and monks. However, because of the shortage of resources, the activities of these organizations are not sufficient.

In the Vientiane municipality, during the NIDs, extensive use was made of newspapers, radios, loudspeakers, televisions and banners. On the contrary in rural areas, the opportunities to utilize the media were limited to the distribution of posters. In spite of the extensive campaign in Vientiane Municipality, the coverage during the NIDs turned out to be less than the national average. This experience indicates that the availability for information is not the only important factor in EPI education. The quality and quantity of information needs to be adequate for the community level to avoid confusion and misunderstanding.

A simple message such as "Immunization is Good", if no additional information is given, can cause misunderstandings. For instance, in Bangladesh, many mothers did not immunize their children because they are afraid of side effects. In another instance, some Bangladesh mothers do not consider polio as a disease or preventable disease so that the simple message would have never mean any thing to them. If a health educator is not aware of these cultural beliefs, there can exist a significant communication gap between the villagers and the educator, and the villagers will not see the importance of the immunization.

At the beginning stage of EPI implementation in rural areas, a survey of disease perception and/or knowledge, attitude, and practice towards immunization would be beneficial to develop or improve existing educational methods. Moreover, because the resources are more limited in rural areas, it is also important to identify the source of information (for example vaccinator, T.V., etc.) among villagers. It is more cost-effective to improve the skills and knowledge of the prime sources of information (e.g. vaccinators) than spending money on less effective sources of information. According to the survey results, the training course can be upgraded to accommodate community needs. The involvement of NGOs would be helpful to carry out the survey, since the survey does not demand a huge sample size and some NGOs have experience in this field in other countries.

As mentioned earlier, NTDs play a significant role in increasing the immunization coverage in a short period of time. However, because this strategy is expensive, and given the severely limits resources, the sustainability of this strategy over a long term is doubtful. To increase the coverage of routine immunization sessions, NTDs could serve as a means of educating people for the future.

Throughout our field training, the priority of controlling malaria and ARI in primary health care was pointed out by local physicians and village leaders. The study conducted in Bangladesh showed that measles immunization offers a high potential for mortality reduction (as high as 36% for ages 1 - 4 years) by reducing not only deaths caused by measles itself, but also by reducing the incidence of ARI and Diarrhea as a secondary symptoms of measles. This would be a supportive information to convince people of the value of immunization.

Improvement of communications between central and peripheral health facilities is also

critical. In Namdonh district, the EPI manager was not aware of the zoning system and the health facility was not functioning as a fixed center, although the health center has an easy access to the provincial vaccine storage. At the Nakay district hospital, there was a shortage of gas for the refrigerator. Because the EPI manager of the district failed to reorder gas promptly.

Frequent reporting from the peripheral level to the central level and constant feed back from the central level is necessary to establish trust and good health services between each level of the health system. The communications and management of the health system is expected to be improved as a result of the EPI manager training course on management and budgeting, scheduled for 1993.

2. The Importance of Interagency and Intersectoral Cooperation

In February 1992, the Interagency Coordinating Committee was organized. Participants in this committee are NTHE, WHO UNICEF, JICA and other organizations when personnel are available. Monthly meetings are held, which provide organizations the opportunities to discuss and coordinate prospective activities of each organization.

Collaboration between domestic governmental organizations is essential. At the central level, integration of EPI program and MCH services has occurred as a result of collaboration between the National Institute of Hygiene and Epidemiology and the Mother and Child Health Care Institute. At Mahosot Hospital in the Vientiane Municipality, the MCH clinic is also serving as a fixed center for immunization. This collaboration between health agencies should be encouraged.

Unfortunately, during the field trip to Khammouane province, this type of collaboration was rarely observed. The MCH card, which includes immunization status, is one of the important tools for integrated activities, but sometimes it is not used in rural communities. Uncollaborated activities are more typical of the current health system, which is characterized by an unclear distribution of roles and responsibilities between vertical and horizontal structures. MCH services, EPI activities, and health education activities should be integrated more closely at the community level.

Although the importance of interagency collaboration has been recognized, the involvement of organizations belonging to the other ministries is more difficult. Particularly the role of the Ministry of Education is essential to involve school children in educating themselves and their family members regarding immunization.

Conclusion

This report has focused on the importance of communications and interagency cooperation for the improvement of the national EPI program of Laos. Most items discussed here have likely been discussed by the Interagency Coordinating Committee and within the National Institute of Hygiene and Epidemiology. One must be aware that these two subjects are only part of the many problems to be solved in order to accomplish the goal of the National Action Plan by 1995.

The progressive decline in the availability and quality of health care services in the past has resulted in a lack of confidence in the government health system among the public. This lack of confidence might be the most difficult obstacle to the expansion of EPI program country-wide. However, it is also true that a successful EPI can rebuild the public confidence in the whole

health system in Laos. The first step in the Lao Government's shift in national health policy from Western curative medicine to primary health care approach will be the EPI activities.

Acknowledgements:

I wish to acknowledge all of those who contributed to making our field training possible and successful - especially Dr. Somthana of the National Institute of Hygiene and Epidemiology; Dr. Chosa of JICA who planned our visit within Laos and who gave us both classroom and practical instruction; and JICA personnel in Japan and Thailand who helped us complete our trip safely and smoothly. The experience I gained during this trip was very impressive and informative.

日 本 語 版 要 約

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琉球大学医学部医学研究科

細菌学教室 中島 一敏

タイ・ラオスポリオ研修報告書

1. 研修派遣団員構成

足田和夫 国立病院医療センター国際医療協力部
中島一敏 琉球大学医学部細菌学教室
穂積大陸 順天堂大学皮膚科学教室

2. 派遣目的

平成4年10月12日より同年11月30日にわたり熊本国立病院にて行なわれたポリオ対策専門家研修コースの一環として日本人参加者については、ポリオ対策を中心としたEPI活動の実際を開発途上国において実地に理解を深めるという目的で平成5年3月14日より同年4月4日までタイ・ラオスの二ヶ国を訪問した。

3. タイ王国現地研修報告

3-1 派遣日程 (タイ)

3月14日 (日)	15:25	来タイ (TG641)
3月15日 (月)	8:45	JICA事務所 阿部信司 所長表敬
	9:30	在タイ国日本国大使館 表敬
	11:00	保健省感染症対策局一般感染症課との協議 (Dr. Vason Pinyowiwat 他)
	14:00	保健省感染症対策局一般感染症課との協議
3月16日 (火)	9:00	WHO (Dr. E. B. Dobersytn タイ駐在代表)
	11:00	UNICEF
	14:00	Rotary International Thailand
3月17日 (水)	10:00	プライマリーヘルスケア訓練センター (マヒドン大学サラヤ校)
3月18日 (木)	7:30	コンケンへ移動 (TG210)
	8:25	コンケン着
	10:00	コンケン県保健事務所
	13:30	コンケン・ジェネラル病院
	15:00	公衆衛生プロジェクト
3月19日 (金)	8:00	ウドンタニへ移動 (陸路)
	10:00	ウドンタニ着
		ウドンタニ県保健事務所
		ウドンタニ・ジェネラル病院
3月20日 (土)		地区保健事務所
		フィールド視察
	19:00	バンコクへ移動 (TG219)
	19:55	バンコク着
3月21日 (日)		
3月22日 (月)	11:00	国立衛生研究所プロジェクト (於・ノンタブリ)
3月23日 (火)	9:00	JICA事務所報告
	10:30	保健省感染症対策局一般感染症課
3月24日 (水)	16:00	離タイ (QV423)

要 旨

タイ国は、『貧しいが飢える事はない』と言われた比較的豊かな国であり帝国主義列強の強い影響を受けていた時期を除いて、最近20年間の経済発展は特に目覚ましい。産業の中心は農業生産だが、繊維製品の輸出は特出している。この経済的発展を基礎に広く社会資本が除々に充実され、病院、保健所などが量質ともに改善されると同時に、衛生問題、伝染病や下痢疾患のコントロール、栄養問題、ワクチン接種拡大計画などへの国家的な積極的取り組みが開始されその成果を上げて来た。

EPI計画はタイ国では、1977年第4次国家保健5カ年計画から開始され当時5%程度だった予防接種率は1992年度には80%を越える接種率に上昇した。またポリオワクチン接種率は90%を越えている。昨年のポリオ患者はタイ国全土で12名。内輸入症例が5例。分離された野生株は1型だった。ポリオサーベイランスに関しては、私たちが訪問したコンケン県の末端の地区病院では約2000人のワクチン接種人口に対して90%を越える接種率を維持し、村々に住むワクチン対象者の状況をほぼ正確に把握しているようで、被接種者の管理もよく出来ていた。しっかりした末端までのサーベイランスシステムがほぼ出来上がっており、ポリオ患者ゼロの日も間近いものと思われる。

ただ、僅かに問題なのはタイ国を囲む地続きの国々がまだポリオ患者多発国であり、ポリオ野生株の侵入の危険性は今もなお持続しているということである。タイ国への研修訪問で私たちが感じた『もうポリオは終わった。』と言う関係者の話から感じる印象は、まだまだ危険な考えではないだろうか。ラオス、カンボディア、ミャンマー、ヴィエトナムのポリオ問題はタイ国自身の問題であり、昨年の輸入症例5例の意味するものは今もなお絶えず野生株ポリオウイルスが周辺諸国から持ち込まれているということである。国境地域の村々の予防接種率の維持とサーベイランスを強化する事と、可能な限りタイ国自身が周辺諸国へ保健衛生上の積極的援助を行うよう期待したい。

もう一つ気になることがある。それは都市部のポリオワクチン接種が私立病院や私立診療所に多くがまかされている事である。急速な近代化政策と経済発展のためタイ国は新たな種々の社会問題を抱えており、都市部と農村部の広がる格差の問題や、都市部へ流入する人口問題は重要な課題である。急速に拡大する人口をかかえる都市部でワクチン接種を私的機関にゆだねることは、ワクチン接種者と非接種者との把握が曖昧になり非接種者の集団（ポケット）を作るリスクが高くなる。周辺諸国には野生株がまだ沢山おり、いつ侵入してくるか分からない状態にある国で『ポケット』を作ることは非常に危険である。今一層、都市部でのサーベイランスシステム強化を期待したい。

3. 2 面談者リスト (タイ)

Division of General Communicable Diseases	
Department of Communicable Diseases	
Ministry of Public Health	Dr. Vason Pinyowiwat
	Dr. Sughitra Nimmannitya
Regional Adviser	
UNICEF East Asia & Pacific Region	Dr. Lay Maung
Deputy Director	
National Institute of Health	Dr. Chuninrudee Jayabasu
Project-Leader,	
Thai NIH Project, JICA	
National Institute of Health	Dr. Komi Kanai
Deputy Director	
Asean Institute for Health Development	
Mahidol University	
Thailand/Khon Kaen	Dr. Orapin Singhadej
Director	
Regional CDC Office	Dr. Kriangsak Vaeteewoolacharn
Representative to Thailand	
World Health Organization	Dr. E. B. Doberstyn
	Dr. Frits Reijnsbach De Haan
	Mr. G. T. Presthus
Governor	
Rotary International	Mr. Noraseth Pathmanand
	Mr. Pornlert Saikasem
Udonthani Provincial	
Chief Medical Officer	Dr. Nitas Raiyawa

4. ラオス人民民主共和国現地研修報告

4-1 活動概要

- 1) ラオスの首都であるビエンチャンにて、保健省、国立衛生疫学研究所(National Institute of Hygiene and Epidemiology ; 以下 N I H E)、国立母子保健研究所、WHO、UNICEF等を訪問しそれぞれの機関のEPI活動に対する取り組みについての説明を受けた。
- 2) 国のEPI活動の責任者であるDr.Somthana, JICAの医療協力専門家でラオス滞在の帖佐医師の指導のもとに、メコン河沿いに位置するカムワン県を訪問、県病院、県のHealth Office、また、郡部に属する地域を訪問しEPIの現場を視察した。

4-2 派遣日程 (ラオス)

3月24日(水)	ビエンチャン到着
25日(木)	WHO訪問 ラオス保健省副大臣表敬訪問 国立衛生疫学研究訪問 UNICEF訪問
26日(金)	国立マホソット病院MCHクリニック 母子保健研究所MCH病院 国立リハビリテーションセンター
27日(土)	フィールドスタディ : Khoksay, Thaphaの保健所訪問
28日(日)	Khammouane県のThakhekへ移動
29日(月)	Khammouane県Province Health Office県病院 Thakhek近郊の保健所訪問
30日(火)	Mahaxay郡病院、近郊の村を訪問 Nakay郡病院訪問
31日(水)	Nakay近郊の村訪問
4月1日(木)	Hinboun郡病院 Vientianeへ移動
2日(金)	国立衛生疫学研究所 日本大使館表敬訪問
3日(土)	バンコクへ移動

4-3 全体状況

1975年に社会主義国家として出発したラオスは、東南アジア地域の中で人口の面では一番、面積ではカンボディアに次いで小さな国である。(人口424万人、国土面積368,000平方キロメートル/1991年現在) 国土は陸に閉ざされており、その国境は中国、ミャンマー、タイ、カンボディア、ヴィエトナムに接する。特にタイとは国境を形成しているメコン河を介して、文化的、歴史的に強いつながりがある。

1985年の国勢調査によると、その人口の85%は村落部に居住し、人口増加率は2.9%、15才以下が総人口の50%を占めている。女性の45%は妊娠可能な年令域である15-45才に属している。幼児死亡率(Infant Mortality Rate:IMR)、五才以下死亡率(Under 5 year Mortality Rate: U5MR)共に高く、IMRは109/1000、U5MRは159/1000となっている。

熱帯モンスーンに属するラオスは5月から10月までの雨期と、11月から4月にかけての乾季とがあり、灌漑のされているメコン河流域においては二期作が行なわれており、経済的に比較的恵まれているが、そのほかの地域では雨期を中心とした一期作であり人々の暮らしはより貧しい。国内の交通手段は陸路、空路、河川を利用した水路があるが、中心である陸路の発達も国全体で見ると0.055/平方キロメートルと立ち遅れており、特に雨期にはそのうちの40%が使用不能な状態となる。この立つ遅れはE P I活動に大きな影響をもたらしている。

これらに加え、低い人口密度、70に及ぶ多数の民族間での言語、習慣の違いがこの国の社会経済の発展を阻んでいる。

国の保健衛生状況は世界の中でももっとも立ち遅れており、地方の保健サービス施設の多くが実際には機能していない。医療従事者の数は公式には十分以上であるが、教育の不足、予算の不足などの要因により、特に地域病院では十分なサービスが行なわれていない。これらのことが住民の間での、保健サービス施設に対する信用を失わせるといった結果につながっている。

4-4 ラオスのE P I活動概要

ラオスにおけるE P I活動は1982年に二つの県(Province)の10の郡(District)にて、パイロットスタディという形で開始された。1992年現在この活動は、17ある県のすべて、130の郡のうち121にて実施されている。1993年内にはすべての郡において活動が開始されることになっている。1995年までにすべての予防接種率を80%以上にすると言うことを国の目標として活動が行なわれているが、予防接種率はBCG=34%、DPT3=22%、OPV3=22.4%、TT2=13.4%、Measles=48%とWHOのWestern

Pacific Regionの中でももっとも低い国の一つである。

E P I 活動は、ラオス保健省にとってもっともプライオリティの高い活動の一つであり、多様な国際機関との協力と共に、ラオス政府内においてもすべての部署の協力が望まれている。

基本的に E P I 活動は、NIHEのEPIUnitによって行なわれている。

4-4-1 E P I 活動の基本方針

1991年に設定された郡を一つの活動の基本単位とする方針が取られている。これは郡ごとに予防接種活動を計画し、実行することができるということが前提となっている。Out Reach、Mobile Team、住民の参加、期間を区切った活動目標の設定、有効的な人材の活用、M C H 活動との協力、Cold Chainの設置、改良、トレーニングなどが郡を単位とし実施される。

郡内の村落は以下のように分類される。

Zone 0: Fixed centerの周囲 3 km以内に属する村落

Zone 1: VaccinatorがFixed Centerより徒歩、自転車、カヌーなどの交通手段にて一日以内に往復し予防接種を行なうことのできる地域に位置する村落

Zone 2: VaccinatorがFixed Centerよりバイク、モーターボート、公共の交通機関（バスなど）などの交通手段にて一日以内に往復し予防接種を行なうことのできる地域に位置する村落

Zone 3: VaccinatorがFixed Centerよりどのような交通手段にても一日以内に往復し、予防接種を行なうことができない地域に位置する村落

それぞれの地域では次のような手段で予防接種を行なう。

Fixed Center:

郡病院や定期的にワクチンの供給を受ける保健サービス施設

M C H 活動の一環として定期的な（基本的には毎日）予防接種を行なう。また、住民の予防接種に対する意識を高めるため、その重要性を村の委員会、ラオ女性同盟、新生児を持つ母親などと話し合うことも活動の一つ

Out reach:

Zone 1、2においては、District Hygiene Station からのVaccinator がOut reach 活動を行なう。一人のVaccinator は約20の村を担当し、一つの村は2～3カ月ごとに予防接種を行なう。

Mobile Team:

Zone 3においては二人のVaccinator を一つのチームとして、一つの村あたり2～

3カ月ごとに予防接種を行なう。

Mobile Team, Out Reachとともに予算不足、交通手段の不備などのため地域によっては年4回の活動予定が2回になってしまうことも多い。またこの基本方針自体も地方によっては未だ理解されていないところがあり、マネジメントについてのトレーニングが待たれるところである。

これらの活動に当たって、各村では、村の委員会、ラオ女性同盟と協力し、村民にEPI活動のことを知らせ、また新生児のリスト作成、妊婦、母親に対する公報を行ない協力をする事となっている。

4-4-2 SubNational Immunization Days (予防接種の日)

上に述べた通常接種のほかに、ラオスでは1990年より予防接種の日を定めてOPV、Measlesの予防接種を行なっている。1991年～92年の予防接種の日には17県の24の郡においてOPV、Measlesの接種が行なわれた。今回の活動では、対象となった0～4歳の人口の77%が二回のOPVを受けた。

ラオス国内での、接種率を短期間に上昇させるためにも、この活動は拡大されていく予定であり、1992年～93年には48の郡にてOPV、Measles、DPTの接種が行なわれた。95年までにはすべての郡においてこの予防接種の日が行なわれる予定である。

4-4-3 サーベイランスシステム

サーベイランスシステムは1984年に4県にて開始された。現在では、9県の34の保健サービス施設にて、レポートシステムが活動している。このシステムにてEPIの6疾病を含む16の疾病について発生状況が報告されることとなっているが、この中に92年よりAFPが含まれることとなった。このシステムについてはTimelinessとCompletenessについてモニターされているがその達成率はまだまだかなり低くより一層のトレーニングによるレポートシステムの強化と拡大が必要とされている。

報告されたAFPに対する症例調査は県の衛生局(Provincia Hygiene Stations)局員によって行なわれる。WHOのガイドラインに従い二つの便のサンプルが症例より取られ、確認のためにタイの研究所に送られることとなっている。1992年には9の症例が報告され、4症例について、サンプルが集められた。

4-4-4 Cold Chain

Cold Chainは1992年に強化された。で電力供給のあるすべての地域において、Cold Chain は設置され、また6県においてはガス式冷蔵庫が新たに配備された。1993年中にはケロシン式の冷蔵庫はすべてガス式に置換される予定である。しかしながら、地域によっては、ガスタンクの供給が一定に行なわれておらず、Cold Chain管理者の教育が必要とされている。また、交通が途絶える雨期のガスの供給をどのようにするかという対策も必要である。

4-4-5 Resources

E P I活動のためラオス政府、地方行政ともに資金援助を増加させつつあるが、国内で準備できる資金は限られており、とくにOut Program等の実行費用が欠乏している。国のE P I活動が拡大するに従い、より外部からの資金援助が必要とされる。

外部からの援助は、UNICEF、WHO、JICA、Rotary International 等によってなされている。Rotary International によって供給されるO P Vを除き、通常接種で使用されるワクチンはUNICEFによって供給されている。1992年の予防接種の日で使用されたO P VについてはWHOより供給がなされた。

1992年2月よりこれらの組織間での関係を密にするためInteragency Coordinating Committee が組織された。

4-4-6 リハビリテーション

現在、ラオスには6のリハビリテーション施設があり、ポリオに関しては複雑な機能障害を持つ患者が入院の対象となっている。職業訓練等は行なわれておらず、改善が望まれる。

4-5 コメント

ラオスは、日本の所属する西太平洋地区(WPRO:Western Pacific Regional Office)の構成メンバーであり、同地区の掲げる目標である「1995年までのポリオ撲滅」に向かってE P I活動を整理中である。

しかし、ラオスにおけるE P I活動はいまだ発展途上である。定期接種でいえば、BCG、DPT、OPV、MEASLES、TETANUSのどのワクチン接種率もほとんど30%以下であり、辛うじて麻疹ワクチンが50%を保っているのみである。確かに、接種率は年々向上しているもののその勾配は緩やかで、遅々としたものであ

る。WHO、UNICEF、ROTARY INTERNATIONAL、JICAなどのサポートをうけ、ラオス政府もEPI活動に力を注いでいるのだが、飛躍的な効果はまだあげられていない。

狭い国土、少ない人口、低い人口密度、国土の大部分を占める山地に散らばった少数民族、低い農業生産性と乏しい地下資源、自由競争力のない産業、たちおくれた市場経済などにより、人口当たりのGNPが僅か200ドルと、全世界でワースト10にはいる最貧困の一つに指定されている。

その苦しい財政事情により、EPI、保健衛生に関するあらゆるインフラ形成が立ち後れている。通信、交通、電力（時にはガスや灯油）、水の供給など数え上げればきりが無い。

ワクチン購入の予算も不十分、cold chainも充分にいきわたっておらず、国内輸送は陸路、空路、水路を問わず発展途上である。陸路の60%が雨期には使用不可能となり、多くの村村が孤立してしまう。田舎では電気はおろか十分な飲み水も確保できない。実際、タケクの保健衛生の第一の優先事項は、十分な水を確保することであった。また、EPIスタッフは十分なトレーニングを受けておらず、ワクチン管理、接種も正しく行なえない。

サーベイランスは、とにかくまだまだである。Sentinel surveillanceのシステムは一応あるものの、ラオスの一部しかカバーしておらず、timeliness, completeness不十分であった。UNICEF、WHOによると、症例報告数は、実数の約10分の1程度でしかないとのことであった。

このような状況の中、1995年までにポリオを撲滅するのは、困難かもしれない。ワクチン接種率が80%を越える、症例数が激減するなど、目に見えて成果が現れるのはもうしばらくしてからになるとおもわれる。ある程度のインフラが整備されないことには一定の成果をあげるのは困難であろう。

現在のラオスにおいて、最も早く効果をあげる方法は、National Immunization Day (NIDs)の実施であろうと思われる。NIDsが流行の防止に非常に効果があるということはアメリカ大陸での経験から実証済みであるし、ラオスにおいては、EPI活動に必要なインフラ形成の原動力になることも考えられる。

ただし、NIDsには莫大な予算が必要となる。1995年までに、本当にラオス全土で実施できるかも確かではない。しかし、現在、ラオスのEPI活動は、NIDsに力を注いでいる。もし、1995年までにポリオが撲滅できるとすれば、NIDs無くしてはあり得ないであろう。

ラオスのEPI活動は、困難な点も多く一朝一夕で効果は期待できないであろう

が、1995年（全世界では2000年）の目標は、WPROの（もしくは世界の）共通の目標でもある。日本は、同じWPROの一員としても、その活動を支援する立場にあり、継続的な協力が望まれる。

JICA

