

**THE BASIC STUDY REPORT
ON
INFECTIOUS DISEASES
IN
THE SOCIALIST REPUBLIC OF VIET NAM**

MARCH 1993

**JAPAN INTERNATIONAL COOPERATION AGENCY
MEDICAL COOPERATION DEPARTMENT**

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Preface

The Japan International Cooperation Agency (JICA) decided to dispatch a study team to survey current situation of epidemiology and control system of infectious diseases in the Socialist Republic of Viet Nam. A study team was headed by Dr. Susumu Nakata, Medical Officer, the Department of International Cooperation, National Medical Centre, and others in the team consisted of members from System Science Consultants, Inc., visited Viet Nam from December 13, 1992 to January 10, 1993.

The team exchanged views with the Vietnamese authorities concerned and conducted field visits in the country. Upon returning to Japan, further analysis was made on the data and information obtained and the present report has been prepared.

I hope that this report will serve for Japan's cooperation for infectious diseases control and thus contribute to promotion of public health in the Socialist Republic of Viet Nam.

I wish to express my sincere appreciation to the officials concerned of the Government of Viet Nam for the cooperation extended to the study team.

March, 1993

Sekai Nishino
Vice President
Japan International
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CONTENTS

	page
1. OBJECT OF MISSION	1
2. GENERAL INFORMATION	
2.1 The country	1
2.2 Health situation (health, social indices)	2
2.3 Health system	3
3. INFECTIOUS DISEASES	
3.1 Major infectious diseases	5
3.2 Briefs on the diseases	
1) Malaria	6
2) Dengue fever/Dengue hemorrhagic fever	8
3) Diseases under EPI programme	
(1) Poliomyelitis	9
(2) Diphtheria, pertussis, measles	10
(3) Tetanus	11
(4) Tuberculosis	11
4) Japanese encephalitis	12
5) Hepatitis B	13
6) Acquired Immune Deficiency Syndrome	14
7) Diarrheal diseases	14
8) Acute respiratory infections	15
9) Rabies	15
10) Leprosy	16
4. CONCLUSIONS	17
5. ACKNOWLEDGEMENTS	19
ANNEX 1- FIGURES AND TABLES	
ANNEX 2- REFERENCES	
ANNEX 3- LIST OF OFFICIAL CONTACTS	
ANNEX 4- ITINERARY	

1. OBJECT OF MISSION

The mission team visited Viet Nam from 14 December 1992 to 10 January 1993 with the objectives:

(1) to carry out basic studies on the infectious diseases prevailing in Viet Nam; and

(2) to submit a report to the Japan International Cooperation Agency (JICA).

The team, under the guidance of the Ministry of Health, paid visits to various health institutions and facilities to study the infectious diseases with special reference to the epidemiology, control activities and organizations.

2. GENERAL INFORMATION

2.1 The country

The Socialist Republic of Viet Nam lies between the north latitudes of 8°30'~23°22'; has the area of 331,688 km²; the length from the extreme north to the south ends is 1,650km; and the coastal line extends 2,260 km.

The population is about 66,700,000 with an annual increase rate of 2.2% (1991). The population density is about 199/km². The large cities, Hanoi (the capital) has some 2 million, Ho-Chi-Minh City 4 million, Hai Phong 1.5 million. The administrative divisions are made up of province (53 provinces in all), district (536 districts) and commune (10,084 communes). From the social and administrative convenience, the country is also largely divided into the north, central and south regions.

Ethnically, 80~90% are Vietnamese (Kin race); some Chinese and Kumer; and more than 50 minority tribes live in the mountainous areas.

In recent history, through the "Viet Nam war", the Socialist Republic of Viet Nam was founded in 1976, and the parliamentary system was established under the constitution promulgated in 1980.

Recently in 1986, economically the government adopted the "Doi Moi" (renovation) policy, which permits practicing private enterprises and businesses including private medical practitioners and pharmacies. At present, the country is under the 5th five-year development plan (1991~1995).

2.2 Health situation (health, social indices)

Population	:	66.7 million; annual increase 2.2%
Crude birth rate	:	29.9 per thousand population
Crude death rate	:	8.0 per thousand population
Life expectancy	:	66 years old (male 63.6; female 67.8)
Infant mortality rate	:	32.3 per 1,000 live births
Maternal mortality	:	1.05 per 1,000 live births

Main diseases causing deaths (1989):

malaria (mortality: 3.3 per 10,000 population);
 pneumonia (mortality: 1.07 per 10,000 population);
 cerebrovascular diseases;
 dengue hemorrhagic fever;
 cerebral injuries.

(WHO/WPRO/HIN, 1990)

Main immunization coverage rates (1990):

DPT	:	88%;
measles	:	89%;
poliomyelitis	:	88%;
BCG	:	94%.

Literacy (adult) rate	:	88%
Per capita GNP	:	US\$200 (estimate)
Health budget (1991)	:	VND 4,500 billion (4% of national budget)
Per capita health budget	:	US\$1.05
Health personnel (1989)	:	Total 249,000; doctors 70,199 (graduates: 23,787, assistant doctor: 46,412); nurses 84,260; midwives 14,016; pharmacists 5,791; pharmacy technicians 1,460.

2.3 Health system

At the central level, the Ministry of Health (MOH), in close collaboration with the major national health and medical institutions, executes the planning, budgeting, directing, evaluation and supply in all health programmes.

The local administration that is organized with the province, district and commune political units is responsible for the implementation of the programmes. Health policies are established by the Council of Ministers. The major health programmes are directed by the respective steering committees chaired by the Health Minister.

A unique feature in the health system is that (common with Lao PDR and Cambodia), traditionally the major national institutions concerned are responsible for being their executive centres of the respective health programmes as well as providing technical advice, operational research and staff training (e.g. NIHE with Polio, CDD programmes).

In each of the provinces, there is a provincial general hospital, and district hospitals, while for the preventive/health side, there are special administrative units of the individual programmes both in the provincial and district levels. In the hygiene and epidemiological activities, each province has a station (centre) for hygiene and epidemiology (and malaria), and each district has a brigade (team) of hygiene and epidemiology (and malaria).

The frontlines of all the health programme activities are with the commune health stations (centres). The health personnel deployments are generally as follows:

Province	:	Population	140,000 ~ 4 million;	No. of staff	40 ~ 60
District	:	Population	40,000 ~ 120,000;	staff	8 ~ 12
Commune	:	Population	2,000 ~ 25,000;	staff	3 ~ 6

Commune health station is staffed with an assistant doctor, nurses and midwives. In addition, each commune has some Community Health Workers, most of them are volunteers.

It is to be noted that in each health administration level, province, district and commune, there is people's committee, which is effectively contributing to planning, advising, promoting and monitoring all the programme activities.

The Government, under the current development plan (1991~1995), gives priority to the following six health areas:

- (1) development of Primary Health Care (PHC);
- (2) Maternal and Child care and Family Planning;
- (3) strengthening of medical care (diagnosis and treatment);
- (4) malaria control;
- (5) Expanded Programme on Immunization (EPI);
- (6) essential drugs and medical supplies.

3. INFECTIOUS DISEASES

3.1 Major infectious diseases

The control of infectious diseases is under the administration of the Department of Hygiene and Environment of MOH. There are more than 22 kinds of notifiable infectious diseases. Of these, from the view point of high morbidity and high mortality rates, MOH indicates 10 foremost diseases in a priority order:

- (1) Malaria
- (2) Dengue fever/Dengue hemorrhagic fever
- (3) Diseases of immunization programme
- (4) Japanese encephalitis
- (5) Hepatitis B
- (6) AIDS
- (7) Diarrheal diseases (of CDD)
- (8) Acute respiratory infections (ARI)
- (9) Rabies
- (10) Leprosy

The diseases of the immunization programme (EPI) include six diseases: poliomyelitis, diphtheria, pertussis, tetanus, measles, tuberculosis.

In controlling these infectious diseases, MOH emphasizes the following targets/points:

- (1) to eradicate poliomyelitis by 1995;
- (2) to eliminate neonatal tetanus by 1995;
- (3) the coverage of the universal child immunization (UCI) for children under one year old must be raised to 80%; and to reduce measles morbidity;
- (4) to procure the vaccines required for the immunizable diseases;
- (5) close cooperation between government and people in the disease control activities.

A special priority is given to the EPI programme. The recent years' nationwide efforts made have raised the UCI rates and remarkably decreased most of the targeted diseases. The coverage:

1986	1987	1988	1989	1990	1991
19%	39%	42%	60%	86%	87%

The maintenance of the high immunization coverage depends upon the regular procurement of the required amount of vaccines. Most of the vaccines are imported (except for BCG and partially DPT), and the cold chain equipment are generally worn-out. The situation is warning, calling for substantial and sustained collaborations.

Malaria has markedly increased recently causing high morbidity and mortality. Dengue fever/Dengue hemorrhagic fever and Japanese encephalitis cyclically occur to afflict children; diarrheal diseases and ARI cause children under 5 years high mortality.

3.2 Briefs on the diseases

1) Malaria:

The most important health problem in the country. The largest victims are young children and pregnant women, and it also gives serious damages to the labour forces of the development works.

National anti-malaria efforts have a long history. Earlier, an "eradication" programme was carried out, but "control" strategies have been adopted since early 1980's when various difficulties and constraints in the operations were increasing. The most serious technical problem is the resistance of *P. falciparum* malaria to antimalarial drugs.

In 1991, over one million cases and nearly 5,000 deaths due to malaria were reported (the morbidity rate gives 16.6‰ and the mortality 7 per 100,000 population).

The malaria situation may be mentioned that it has already reached the limit at which the available government resources are unable, technically and operationally, to control the disease.

The relative prevalence of *P. falciparum* (*P. f.*) has recently increased; it became 77% of all malaria infections in 1991 (the rest are mostly *P. vivax*). The *P. f.* infections are resistant to Chloroquine and Fansidar, and in some areas *P. f.* shows a level of resistance to Quinine. Malaria occurs all over the country except in the large cities. High incidence is reported from the central highlands, the northern mountainous area and the central coastal zone.

Different species of mosquito vectors (mainly *An. minimus*, *An. dirus*, *An. sundicus*), occur under the different epidemiological settings. The house spraying using the residual insecticides (mainly DDT) used to be the principal control measure. But the spraying was facing increased difficulties in securing continuous supply of the insecticides, maintaining its high coverage, and development of insecticide resistance in some vectors. Recently the regular spraying has been suspended, remaining only focal spraying for emergency or anti-epidemic purposes. Instead, the use of mosquito bednets impregnated with pyrethroid is being given importance.

Diagnosis of malaria that is to be followed immediately by the drug treatment is, of necessity, done mostly clinically without microscopical examination. The practice may give rise to over-diagnosis (leading to overuse of drugs). This problem calls for the increase and improvement of the blood examination laboratory facilities.

In spite of all these difficulties and constraints, the government with the Institute of Malariology, Parasitology and Entomology (IMPE), has developed innovative strategies in collaboration with WHO and other international agencies. The draft plan for 1993~1995 proposes the main objectives of:

- (i) substantial reduction of deaths due to malaria;
- (ii) reduction of epidemics;
- (iii) reduction of severe and complicated malaria; and
- (iv) reduction of the overall incidence of malaria.

Two unique major control measure are applied, i.e. the use of locally produced drug, artemisinin from the plant *Artemisia annua*, among other antimalarial, for the treatment of multi-drug resistant *P. f.* malaria; and the use of insecticide-treated mosquito bednets against the vector mosquito bites. Initially, as a pilot project, these measures will intensively be applied to some 5 million people living in the areas of high malaria prevalence.

The two measures (use of oral artemisinin and insecticide-treated bednets) had already been tested widely with good results. The government desires a production of some 1,000 kg of artemisinin (about 370,000 adult treatment doses) for 1992~1993; however, the amount of the production requires large funds. The bednets will be impregnated with pyrethroid (e.g. permethrin) at a dosage of 0.2 g/m², require re-treatment twice a year (by mobilizing community participation). Besides, there is a need for increased number of blood examination facilities (currently some 300 laboratories only are working but most of them require replacement of microscopes).

The malaria programme is operated under the technical and operational guidance of IMPE (which has two branch institutes). To implement the new plan, certainly require a large amount of international support.

2) Dengue fever/Dengue hemorrhagic fever:

These diseases (DF/DHF) caused by the Dengue virus occur in an endemo-epidemic form in the populated (urban) areas where and when the vector *Aedes aegypti* seasonally and abundantly occurs.

Every four to five years, an epidemic occurs in the urban areas, especially in the Mekong delta in the south and in the Red river area in the north. The disease mostly afflicts children and gives a high mortality. In the recent past, a great epidemic occurred in 1987, having recorded a total of 393,700 cases (637 per 100,000 population) and 1,449 deaths (2.3 per 100,000).

In 1991, 118,500 cases and 445 deaths were reported. Dengue disease occurs in July - November in the country but in the north the season is limited to August - October. It used to occur in large cities, but these days it has extended to many thickly-populated spots of the countryside.

The diseases are usually diagnosed on the clinical basis. Two facilities are available for the serological diagnosis and virus isolation, i.e. National Institute of Hygiene and Epidemiology (NIHE) in Hanoi and the Pasteur Institute in Ho-Chi-Minh City. There is no specific therapy, but recently the use of rehydration fluid (e.g. ORS) works effectively in reducing the disease mortality.

The vector has a tendency of breeding in water containers in and around the houses. Therefore, vector control is supposed to be effectively done by emptying

regularly all the water containers (once a week) in the community. But in reality the practice is difficult, allowing an epidemic when emergency measures are called out such as ULV insecticide spraying (using e.g. malathion). The use of vaccine (becoming available) remains to be seen in the near future.

3) Diseases under EPI programme:

(1) Poliomyelitis:

The country has planned, in collaboration with the WHO/WPRO programme, to eradicate the disease by the year 1995 and the Polio Eradication Initiative (PEI) programme has been in operation since 1991.

Since 1980, about 1,000 cases had been reported annually, and since 1985 the surveillance activities have been strengthened. The number of reported cases recently were 723, 612, 600 for 1990, 1991 and 1992 (until October). About 2/3 of these cases were reported from the south (of which relatively many from the Mekong delta). The 1990 statistics shows the district with polio case(s) reported are: 70% in the south, 38% in the central, 23% in the north and 29% in the mountain regions. Of the patients, 65% is children less than three years. The PEI surveillance include: the case detection (diagnosis), case/focus epidemiological investigations, laboratory examinations, immunization, reporting. The activities follow the WHO instructions with emphasis on regularity, quickness, completeness and accuracy.

In the clinical diagnosis, "flaccid" paralysis of the lower limb is taught as an important sign to all the staff concerned. The patients suspected are usually brought to the district or provincial hospital for hospitalization and diagnosis. Two laboratory facilities are available for serology, virus isolation and typing on the stool and/or throat secretion materials - NIHE (Hanoi) and Pasteur Institute (Ho-Chi-Minh City). According to the plan, 50% and 75% of the cases recorded in 1993 and 1995, respectively will have the laboratory testing.

The technical guidance and surveillance management in the PEI (as an integral part of the EPI programme) are the responsibility of the four institutes: NIHE (Hanoi) for the north (22 provinces); the Pasteur Institute (Nha Trang) for the central (10 provinces); the Pasteur Institute (Buon Ma Thuot) for the central

highland (3 provinces); and the Pasteur Institute (Ho-Chi-Minh City) for the south region (18 provinces).

The immunization coverage using the oral polio vaccine (OPV) increased in recent years 1990~1992 under the nationwide PEI campaign. In 1991, the coverage rate (immunized three times, for less than one year old) reached 83% in the country and is being maintained. Besides, in those area in which a number of the cases occurred, one more vaccination at birth, in addition to the full three times, is recommended. Notwithstanding the high coverage rates, it has been noted with concern that among the diagnosed cases there are some fully immunized.

The OPV requirements for 1993~1995 are estimated yearly at some 30 million doses, i.e. about 10 million for the regular immunization, plus 15~20 million for PEI programme. The International Rotary Club has already, through UNICEF, pledged annually 11 million doses (costing a sum of US\$ 700,000).

The government desires to have the OPV's own production. In fact, OPV had been locally manufactured by NIHE since early 1960's under the ex-USSR's collaboration. NIHE wants to reestablish the OPV production and has a certain capacity for it. However, the quality (e.g. potency) of the product is yet to meet the WHO standard requirements. It is earnestly hoped for the country to be able to produce OPV as early as possible.

(2) Diphtheria, pertussis, measles:

These three diseases markedly decreased as the immunization coverage have been increased by strengthening the EPI programme since around 1985.

For Diphtheria, the year 1981~1986 recorded its morbidity rate, on an average, 4 per 100,000 population, but in 1989~1991 it came down to 1 per 100,000 population. The year 1991 recorded 442 cases and 49 deaths.

Pertussis shows a marked fall: its morbidity of 70~83 per 100,000 population in 1984~1986 has decreased to 10 per 100,000 population in 1990~1991. The year 1991 recorded 5,402 cases and 10 deaths.

Measles also showed a marked decrease in its morbidity: 120 per 100,000 population before 1986 became less than 15 per 100,000 population in

1990~1991. The change in the vaccination age from 9 months to 6 months may help reduce the morbidity. In 1991, 7,500 cases and 20 deaths were recorded.

The coverage of the vaccinations against the three diseases were particularly improved since 1987, having reached 80% in 1989; earlier it was less than 40%.

The vaccine requirement for DPT and measles amount to 10.6 million and 3.5 million respectively. Except for 2 million doses of DPT (the local production), the rest are all to be imported.

(3) Tetanus

The disease gives a high mortality but the immunization is very effective. The government aims to eliminate neonatal tetanus (NNT) by 1995 as in the polio case. The morbidity and mortality of tetanus of all age groups were 1.4~4.2 cases and 0.3~1.0 deaths per 100,000 population during 1986~1990.

As to NNT, the epidemiological investigations carried out in three provinces (one each in the north, central and south regions) indicated NNT cases of 6,000~15,000 incidence yearly in the country. In 1991, there were 67 NNT cases and 11 deaths reported. To control the disease, vaccination (with tetanus toxoid) of pregnant women is being promoted as the most effective measure. However the coverage has been rather low, so far about 20%. The plan is to immunize all pregnant women and women of reproductive age, but the resulting coverage has been limited, due partly to the shortage of the vaccine supply. The required total amount of tetanus vaccine is estimated to be 5.8 million doses.

(4) Tuberculosis (TB):

The national tuberculosis control programme that was established in 1986 has recently been expanded and strengthened to cover some 70% of the population. Generally, the TB problem is more in the southern provinces than in the north. In 1990 about 110,000 patients of all TB forms were recorded, of which 50,000 were pulmonary (sputum positive) TB (75 per 100,000 population). Yearly new pulmonary (sputum positive) TB incidence are estimated to be 30,000. The laboratory facility for the sputum bacteriological examination exists in the district health office.

The BCG immunization has been strengthened from 1988, and since 1989 the coverage has recorded over 90%. There was an observation that the high coverage of BCG seemed to have significantly protected children against tuberculosis meningitis.

TB cases are registered at the commune and district levels. Their treatment (mainly for pulmonary TB) are practiced at home, receiving the drugs from the health facilities.

In 1989, the international (WHO) standard 8-month treatment course was introduced. This Short Course Chemotherapy (SCC) has given a substantial rate of making the infectious cases negative (there is an observation of an average 87% negative conversion in the southern 38 districts). A popular course regimen is 2SRHZ/6EH (two months with streptomycin, rifampicin, isonicotinic-hydrazide, pyrazinamide and six months with ethambutol and isonicotinic-hydrazide). However, even the 8-months course is not easily accepted uniformly by the patients and the physicians (especially private practitioners). In reality, of the 30,000 new sputum (+) cases, some 3,000 are being treated with the course mainly due to the shortage of the drugs. The sputum (+) cases are treated free of charge, but the cost of the laboratory examination is chargeable.

The National TB control programme has its headquarters with the National Institute of TB and Respiratory Diseases, under which the programme of the southern provinces are administered by the Pham Ngoc Thack Hospital (Ho-Chi-Minh City). The vaccine BCG are manufactured by the IVAC (Nha Trang) and the Pasteur Institute (Ho-Chi-Minh City).

4) Japanese encephalitis (JE):

Since mid- 1960's "acute encephalitis syndrome (AES)" had been reported in the areas with paddy fields and hog raising. Later, nearly 70% of them were serologically identified as Japanese encephalitis.

The disease is a viral infection transmitted by the vector *Culex tritaeniorhynchus*. It prevails in an endemo-epidemic form, showing localized epidemics every 2~3 years. It often leaves serious sequelae. A high incidence occurred in 1983~1985 (morbidity 4.6~5.9 per 100,000 population). In 1991, 1,381 cases (2.5 per 100,000 population) and 67 deaths (0.1 per 100,000 population) were reported. Some 80% of the patients recorded are children less

than 9 years old. The disease prevails in the vector mosquito season April - August. The main epidemic areas are the Red river area of the north and the Mekong delta in the south. The pigs carry the virus and plays a role of amplifying the virus.

Diagnosis of the disease is clinically based. The NIHE has a reference laboratory where serological tests (haemoagglutination inhibition test, IgM-ELISA test, etc.) can be carried out.

In controlling JE, vector control is not realistic, and vaccination is deemed as the best measure. Since 1989, vaccine production has been underway in NIHE having obtained the Japanese expertise (BIKEN vaccine) through WHO. Having had field testing of the vaccine (in Dong Anh district), the production has just started in earnest. The plan is initially to manufacture some 500 litres of the vaccine to cover about 500,000 children of 1~3 years old in the selected district. The yearly requirement of the vaccine for the country is estimated to be 800,000 doses.

One big problem in vaccine production is the cost; chiefly for the procurement of a large number of mice.

5) Hepatitis B (HB):

In Viet Nam, Hepatitis B infection is highly endemic. Some 15% of the population are HB (HBsAg) carriers. There is a record that the age group of 30~34 years showed 18.2% HBsAg positive, and 11.6% of pregnant women were HBsAg positive. A recent NIHE study recorded HBsAg levels of 18.0% and 45.5% in the groups of blood donors and hepatitis patients respectively.

The government desires to have all the newborns immunized with HBV vaccine. Following the good coverage of the Universal Child Immunization (UCI) for infants that have recently been achieved, the government expects to place the vaccination in the UCI system. NIHE plans production of the plasma-derived HB vaccine, having already received the training on the vaccine production in Japan and procured some supplies and equipment including ultra-high speed centrifuges under the WHO support. A problem remains with the regular supply of the plasma (blood) materials with high HBsAg titer for the production. NIHE

also manufactures the HBsAg measuring test kits to be distributed to major hospitals, blood centres.

6) Acquired Immune Deficiency Syndrome (AIDS):

So far, no AIDS case has been detected. However, there have been 79 cases of HIV infection detected from more than 100,000 blood specimens examined. Most of the HIV positives are those from Thai areas (e.g. fishermen), and examined in the south (Ho-Chi-Minh City area). A surveillance network system has been set up within the health system and a careful vigilance is underway following the WHO advice.

7) Diarrheal diseases:

The national diarrheal disease control programme (CDD) to control diarrheal diseases of children less than 5 years started in 1982, and has been expanded and strengthened since 1987. Some 70% of all diarrheal diseases are reported from children <5 years with a high mortality. The CDD aims primarily to reduce children <5 years' deaths due to diarrhea, and secondarily to reduce its morbidity.

The main activities include: extension for the children to access the Oral Rehydration Salt (ORS); proper clinical management of cases; training of all health staff concerned and mothers. In 1992, the programme extends to 82% of the areas covering 92% of the children less than 5 years old.

ORS in bulk have mainly been provided by UNICEF. Besides, the Recommended Home-made Fluid (RHF) is also being used. Massive training activities (workshops, courses, meetings) are being held at various levels - province, district, groups of communes. The deaths due to diarrhea of the children <5 years was 1.24% in 1987; and reduced to 0.52% in 1989.

In the plan for 1993~1995, the CDD envisages 20% reduction in diarrheal deaths. The CDD programme has its headquarters in NIHE which technically directs CDD activities of the provincial, district and communal health facilities.

Individual disease-wise, there are bacterial and amoebic dysentery, viral infections, cholera, typhoid, and others.

8) Acute respiratory infections (ARI):

The national ARI programme commenced in 1987; since then, it has been expanding in collaboration with WHO and UNICEF. The principal programme objective is to reduce deaths due to ARI especially pneumonia of children less than 5 years old. The main activities and targets include: to reduce deaths due to pneumonia, correction of abuse of antibiotics and other drugs in relation to ARI, and promotion of the use of / access to the health facilities by ARI children.

A recent epidemiological studies on ARI indicated that children <5 years suffered on an average 2.5 ARI episodes per child per year; of those who suffered, 75% are non-pneumonia, 20% pneumonia, and 5% severe pneumonia. Generally, ARI problem is more in the north than in the south, and the operational problems remain in the mountainous zones.

In clinical diagnosis of pneumonia, the symptoms "fast breathing, chest indrawing" are emphasized. Pathogens include: *Streptococcus pneumonia*, *Haemophilis influenzae* and *Staphylococcus aureus*. Their sensitivities against the drugs in use are regularly monitored (the drugs include: cotrimoxazol, ampicillin, amoxillin, procaine penicillin).

In the training activities, emphasis is given on the diagnosis, clinical management, the use of antibiotics. An importance is accorded to mothers who often, due to innocence, allow child to die unnecessarily.

The ARI programme, with its head office in the National Institute of TB and Respiratory Diseases, is affiliated with the CDD and the breastfeeding programmes.

9) Rabies:

The disease gives a high fatality. Most cases are those bitten by dogs. 261, 317, 396, 425 cases have been recorded in the year 1987, 1989, 1990 and 1991, respectively.

It is to be noted that the reported number of persons who have received the post-exposure vaccination were relatively high: 142,300 in 1990 and 144,700 in 1991.

The vaccine in use (Fuenzalida type) and some antisera are manufactured by the IVAC (Nha Trang), NIHE (Hanoi) and the Pasteur Institute (Ho-Chi-Minh City).

Control of stray dogs is not possible at present.

10) Leprosy:

A national anti-leprosy programme has been working well with its main office in the National Institute of Dermatology. In 1991, 3,406 new cases had been recorded. And the total registered cases (those requiring chemotherapy) amounted to 18,342 (0.27% population); of these, multibacillary cases were 11,061 and paucibacillary cases 7,281. Relatively high incidence occurs in the Mekong delta and central highland areas.

Diagnosis are made by clinical and bacteriological examinations. The cases recorded are made through the spontaneous reporting 49%, notification 32%, mass examination 8% and contact examinations 10%. Since 1982, the multidrug therapy (MDT) has been introduced with favorable results.

Multibacillary cases are given the combination of dapsons, rifampicin, and clofazimine for two years, while paucibacillary cases are given dapsons and rifampicin.

Several international nongovernmental organizations (NGOs) including Sasakawa Health Foundation give support to the programme.

4. CONCLUSIONS

- 1) Viet Nam is under the 5th national five-year development plan. The Ministry of Health indicates six priority health areas:
 - (1) strengthening of primary health care;
 - (2) MCH and family planning;
 - (3) strengthening of medical cares;
 - (4) malaria control;
 - (5) Expanded Programme on Immunization (EPI);
 - (6) supply of essential drugs, medical supplies and equipment.
- 2) The government indicates, from those causing high morbidity and/or mortality, ten important infectious diseases (groups of diseases):

10 MAJOR INFECTIOUS DISEASES IN VIETNAM

PRIORITY	DISEASES OR SYNDROMES	CONCERNED INSTITUTIONS
1	Malaria	MOH (H&E), IMPE, ICRTM
2	DF/DHF (Dengue Hemorrhagic Fever)	NIHE, ICRTM
3	6 diseases of EPI (polio, diphtheria, pertussis, tetanus, measles, tuberculosis)	MOH (H&E)
4	JE (Japanese Encephalitis)	NIHE, ICRTM, Olof Palme
5	HBV (Hepatitis B Virus)	NIHE, ICRTM
6	AIDS (HIV)	MOH (H&E), NIHE, Blood Transfusion & Hematology Centre
7	Diarrheal Diseases (Typhoid, Cholera etc.)	NIHE, Pasteur HCMC
8	ARI (acute respiratory infection)	Institute of TB
9	Rabies	NIHE
10	Leprosy	Institute of Dermatology

- 3) Each of the infectious diseases requires specific control measures. Number of EPI diseases have recently decreased, due to the untiring efforts of government and people. The government plans to eradicate poliomyelitis and neonatal tetanus by the end of 1995.

The required vaccines are, mostly imported, except for BCG and rabies vaccines and some amount of DPT vaccines. The government is eager to produce the vaccines against polio, Japanese encephalitis and hepatitis B, in part or in its entirety.

- 4) Malaria shows the highest morbidity and mortality among the infectious diseases. Over 75% of malaria detected are *P. falciparum* infection, which shows multidrug resistance (as against chloroquine, Fansidar), the characteristics of which cause serious difficulties in the control operations. At present, the plan of action for 1993~1995 is being formulated; the plan calls for a large amount of international collaboration. The two programmes, CDD and ARI, aim primarily to reduce mortality due to the diseases of children under 5 years. The programmes emphasize early detection and effective treatment, correct use of antibiotics, and health education to mothers.

- 5) The disease control operations, in most diseases, form individual programmes of a vertical nature, each of which has well defined objectives, targets and operational formulae. To execute these programmes, the involved major national health institutes provide the technical guidance, operational research (including manufacturing of vaccines and diagnostic reagents) and staff training of the specific programme.

At the local levels, the trained programme managers or supervisors of the specific programmes are assigned in each province and district. However, all the programmes' field activities are practically imposed on the commune health stations (centres) staffed with 3~6 workers. They are assisted by the community health workers, most of whom are volunteers. At each administrative level, (province, district and commune), there is a people's committee on health, which is effectively contributing to the planning, implementation, promotion and monitoring of the programmes.

- 6) In response to the promotion and support by WHO and UNICEF, the health programmes currently being undertaken are many, each of them demanding a high coverage of quality operations. Most of them are of a vertical programme nature. Taking into account the poor salaries of the

personnel, the shortages of supplies and equipment and the poor facilities, it seems that the health activities in general are somewhat overextended and underfinanced. The situation certainly calls for, especially at the district (and provincial) level, good cooperation and coordination among the various health programmes, possible direction toward PHC- based integration, management skills and strong leadership.

- 7) Each programme, as it expands, demands a larger budget and must maintain the high coverage achieved, e.g. EPI programme. A larger international support is needed.
- 8) Among other developing countries, Viet Nam is one whose health system is provided with the trained, disciplined and devoted personnel and supported by the united efforts of government and people at all administrative levels.

Therefore, the provision of some incentive (including an improvement of salaries) and essential supplies and equipment (including drugs, vaccines, and facilities) would bring about great health achievements. From this viewpoint, it is strongly felt that international cooperation is an effective investment. It is to be noted that the success in any health programme that is operated in Viet Nam gives positive impact on the neighboring countries, i.e. Laos and Cambodia which have similar health problems/activities.

5. ACKNOWLEDGEMENTS

The JICA mission team, the authors of this report wishes to express sincere gratitude to the Ministry of Health, the concerned institutions and health facilities and their staff for making the mission possible. Our special thanks go to the Department of Hygiene and Environment for all the assistance and facilities kindly accorded to the team.

DIỆN TÍCH, DÂN SỐ VÀ MẬT ĐỘ DÂN SỐ

S.T.T	TÊN ĐƠN VỊ HÀNH CHÍNH	DIỆN TÍCH (Km ²)	DÂN SỐ (Người)	MẬT ĐỘ (Người/Km ²)
	CẢ NƯỚC	330222	63637846	193
1	THỦ ĐÔ HÀ NỘI	913	1999060	2189
2	TP. HỒ CHÍ MINH	2029	3934000	1939
3	TP. HẢI PHÒNG	1503	1448000	963
4	TỈNH HÀ GIANG	1831	461839	59
5	TỈNH TUYÊN QUANG	5800	564528	97
6	TỈNH CAO BẰNG	8445	566000	67
7	TỈNH LẠNG SƠN	8187	611000	75
8	TỈNH LAI CHÂU	17069	438000	26
9	TỈNH LÃO CAI	7500	470000	62
10	TỈNH YÊN BÁI	6625	530000	80
11	TỈNH BẮC THÁI	6494	1033000	159
12	TỈNH SƠN LA	14468	682000	47
13	TỈNH VINH PHÚ	4824	2016513	418
14	TỈNH HÀ BẮC	4609	2061000	447
15	TỈNH QUẢNG NINH	5938	814000	137
16	TỈNH HÀ TÂY	2169	2086926	962
17	TỈNH HÒA BÌNH	4697	670000	142
18	TỈNH HẢI HƯNG	2255	2440000	955
19	TỈNH THÁI BÌNH	1495	1632000	1092
20	TỈNH NAM HÀ	2423	2435995	1005
21	TỈNH NINH BÌNH	1388	787877	568
22	TỈNH THANH HÓA	11138	2991000	269
23	TỈNH NGHỆ AN	16449	2415425	147
24	TỈNH HÀ TĨNH	8053	1166107	193
25	TỈNH QUẢNG BÌNH	8398	646413	77
26	TỈNH QUẢNG TRỊ	4888	458453	94
27	TỈNH THỪA THIÊN - HUẾ	5056	890560	176
28	TỈNH QUẢNG NAM - ĐÀ NẴNG	11989	1739000	145
29	TỈNH QUẢNG NGÃI	5825	1054000	181
30	TỈNH BÌNH ĐỊNH	6075	1234000	203
31	TỈNH PHÚ YẾN	5178	640000	124
32	TỈNH KHÁNH HÒA	4626	823000	178
33	TỈNH NINH THUẬN	3530	406732	115
34	TỈNH BÌNH THUẬN	7892	812547	103
35	TỈNH KON TUM	13000	230000	18
36	TỈNH GIA LAI	12000	654365	54
37	TỈNH ĐẮC LẮC	19800	974000	49
38	TỈNH LÂM ĐỒNG	9953	639000	64
39	TỈNH SÔNG BÉ	9859	939000	95
40	TỈNH TÂY NINH	4030	791000	196
41	TỈNH ĐỒNG NAI	5872	1564571	266
42	TỈNH LONG AN	4355	1121000	257
43	TỈNH ĐỒNG THÁP	3391	1337000	394
44	TỈNH AN GIANG	3493	1793000	513
45	TỈNH TIỀN GIANG	2377	1484000	624
46	TỈNH BẾN TRE	2225	1214000	546
47	TỈNH VĨNH LONG	1487	957281	643
48	TỈNH TRÀ VINH	2363	951638	402
49	TỈNH CẦN THƠ	3022	1614350	584
50	TỈNH SÓC TRĂNG	3138	1067167	340
51	TỈNH KIÊN GIANG	6358	1198000	188
52	TỈNH MINH HẢI	7697	1562000	203
53	TỈNH BÀ RỊA-VŨNG TÀU	2047	587499	287

*Theo số liệu điều tra dân số ngày 1-4-1989

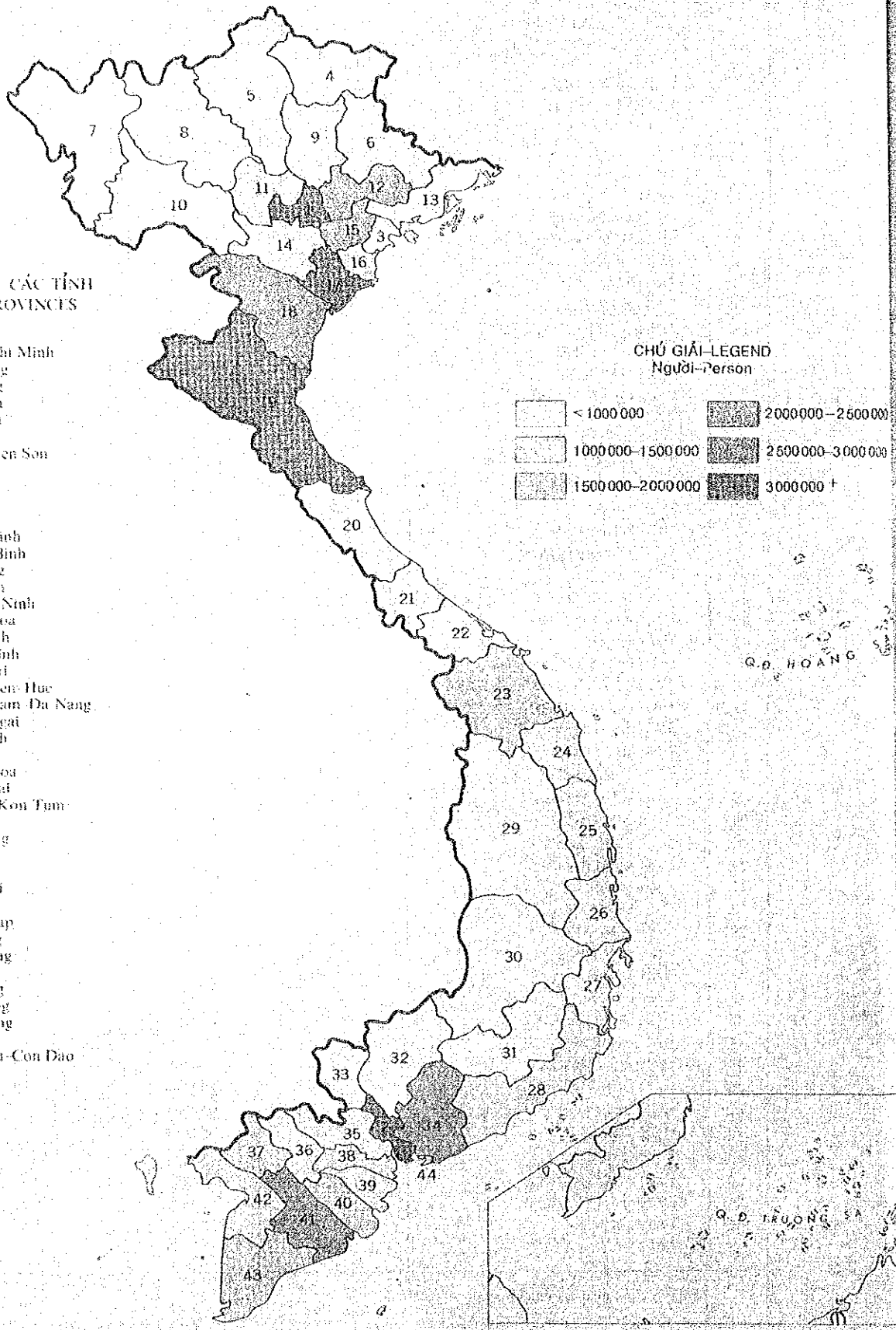
TỔNG SỐ DÂN SỐ TOTAL POPULATION

DANH SÁCH CÁC TỈNH LIST OF PROVINCES

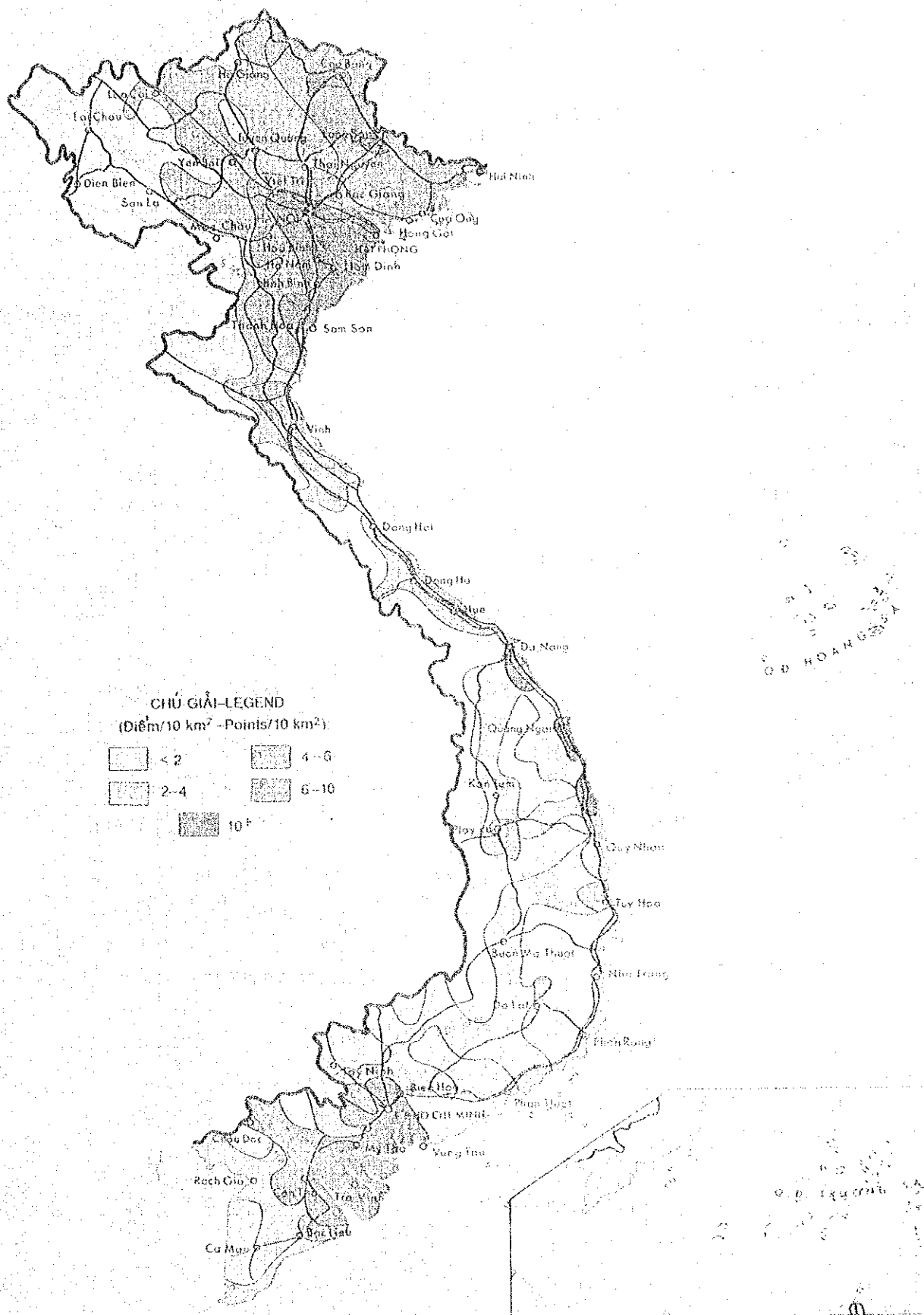
1. Hà Nội
2. TP. Hồ Chí Minh
3. Hải Phòng
4. Cao Bằng
5. Hà Tuyên
6. Lạng Sơn
7. Lai Châu
8. Hoàng Liên Sơn
9. Bắc Thái
10. Sơn La
11. Vĩnh Phú
12. Hà Bắc
13. Quảng Ninh
14. Hà Sơn Bình
15. Hải Hưng
16. Thái Bình
17. Hà Nam Ninh
18. Thanh Hóa
19. Nghệ Tĩnh
20. Quảng Bình
21. Quảng Trị
22. Thừa Thiên Huế
23. Quảng Nam Đà Nẵng
24. Quảng Ngãi
25. Bình Định
26. Phú Yên
27. Khánh Hòa
28. Thuận Hải
29. Gia Lai - Kon Tum
30. Đắk Lắk
31. Lâm Đồng
32. Sông Bé
33. Tây Ninh
34. Đồng Nai
35. Long An
36. Đồng Tháp
37. An Giang
38. Tiền Giang
39. Bến Tre
40. Cửu Long
41. Hậu Giang
42. Kiên Giang
43. Minh Hải
44. Vũng Tàu - Côn Đảo

CHỮ GIẢI-LEGEND Người-Person

	< 1000 000		2000 000 - 2500 000
	1000 000 - 1500 000		2500 000 - 3 000 000
	1500 000 - 2000 000		3 000 000 +



MẬT ĐỘ ĐIỂM DÂN CƯ
DENSITY OF POPULATION POINTS

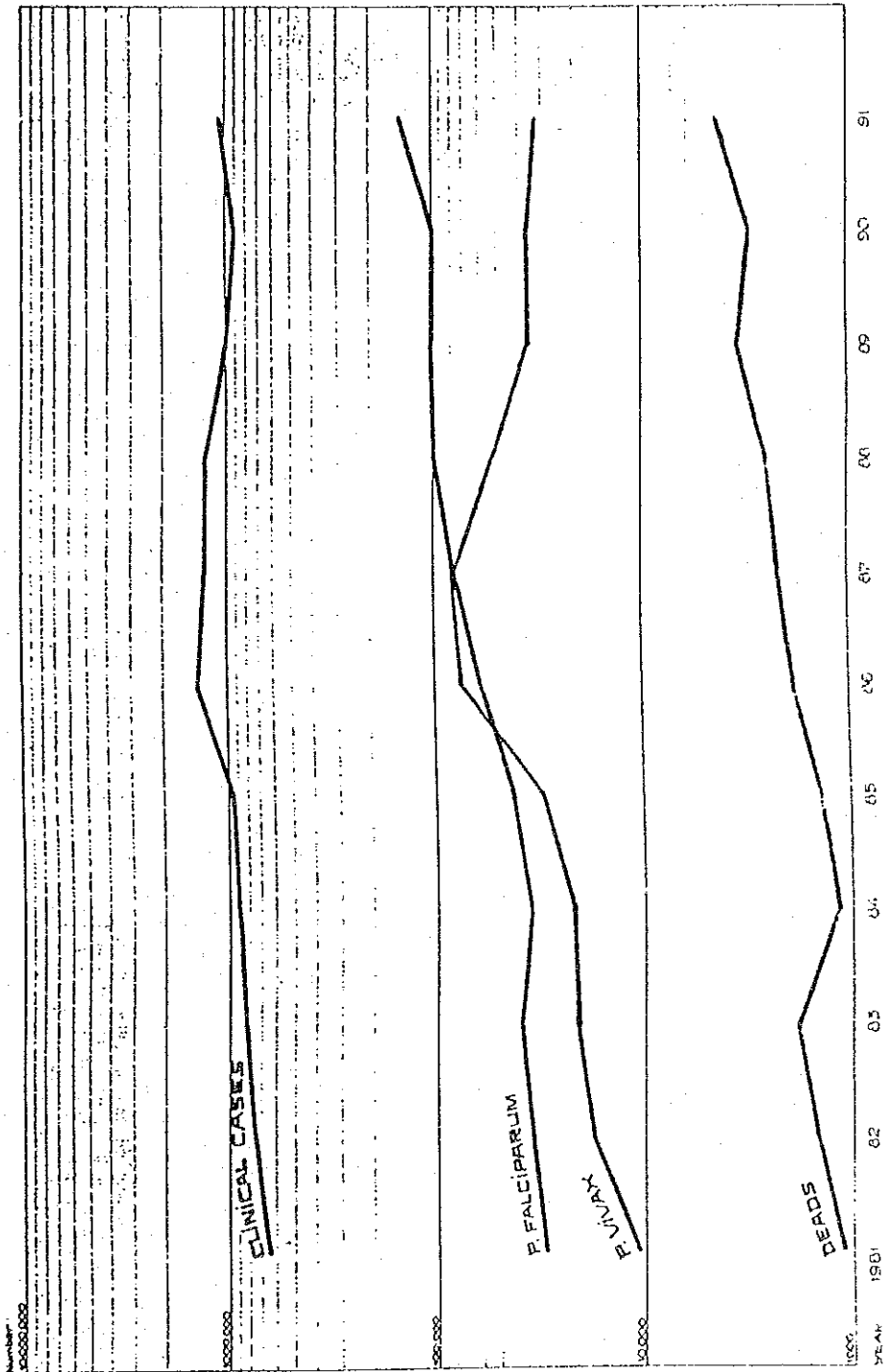


CASES AND DEATHS OF COMMUNICABLE DISEASES,
VIET NAM, 1988, 1989 AND 1990

DISEASES	1988		1989		1990	
	Cases	Deaths	Cases	Deaths	Cases	Deaths
Cholera	315	6	104	0	358	4
Plague	189	6	374	37	405	20
Typhoid and Paratyphoid fever	5998	32	4950	25	3792	9
Dysenteric Syndrom	107967	314	114318	107	40439	80
Diarrhoea	362415	616	196261	183	199434	171
Diphtheria	916	101	369	40	528	70
Whooping Cough	21314	34	7969	28	4084	4
Meningococcal Meningitis	1595	133	734	67	1671	109
Tetanus	1535	370	849	196	964	175
Poliomyelitis	731	25	384	12	376	18
Chickenpox	21314	34	4682	0	3231	0
Measles	22209	40	10242	6	7221	61
Encephalitis	2557	222	1200	118	916	95
Dengue Hemorrhagic Fever	62852	395	23232	362	37569	255
Infectious Hepatitis	15676	29	14967	142	5933	9

Health statistic bureau
Department of Planning
Ministry of Health

NUMBER OF MALARIA CASES IN VIETNAM (FROM 1981-1991)



CASES AND DEATH OF MALARIA BY YEARS

Year	Cases	Deaths	Number of outbreak
1980 *	412971	1097	20
1981	658161	1152	53
1982	747228	1344	82
1983	835612	1659	88
1984	880713	1256	105
1985	964849	1413	100
1986	1424910	1838	77
1987	1274034	2133	107
1988	1310387	2465	108
1989	963999	3439	96
1990	1056427	3340	85
1991	1091251	4646	144

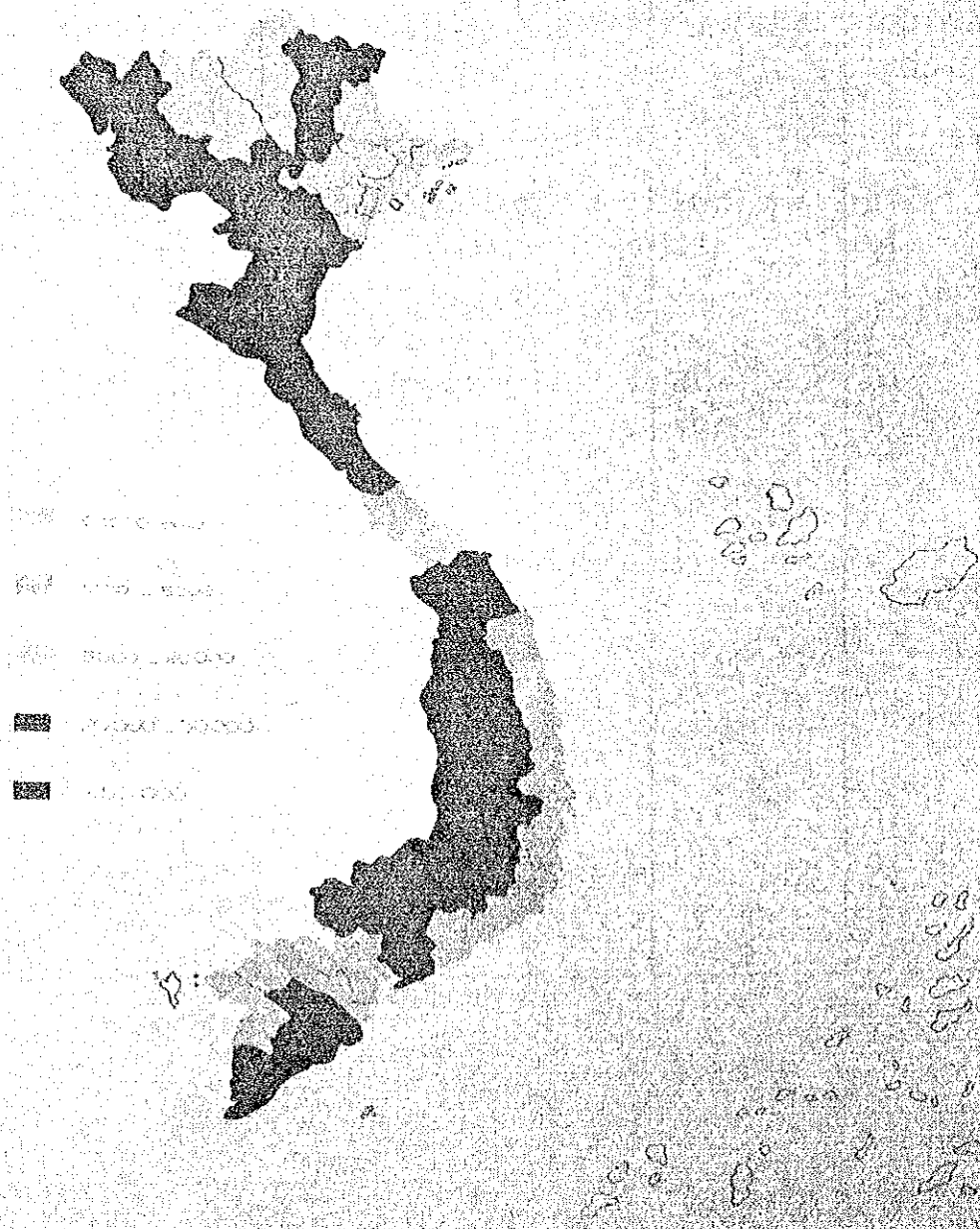
(6)

* 1980: Dates during first 9 months.

RESISTANCE OF P.FALCIPARUM TO VARIOUS DRUGS
(From 1986 - 1990)

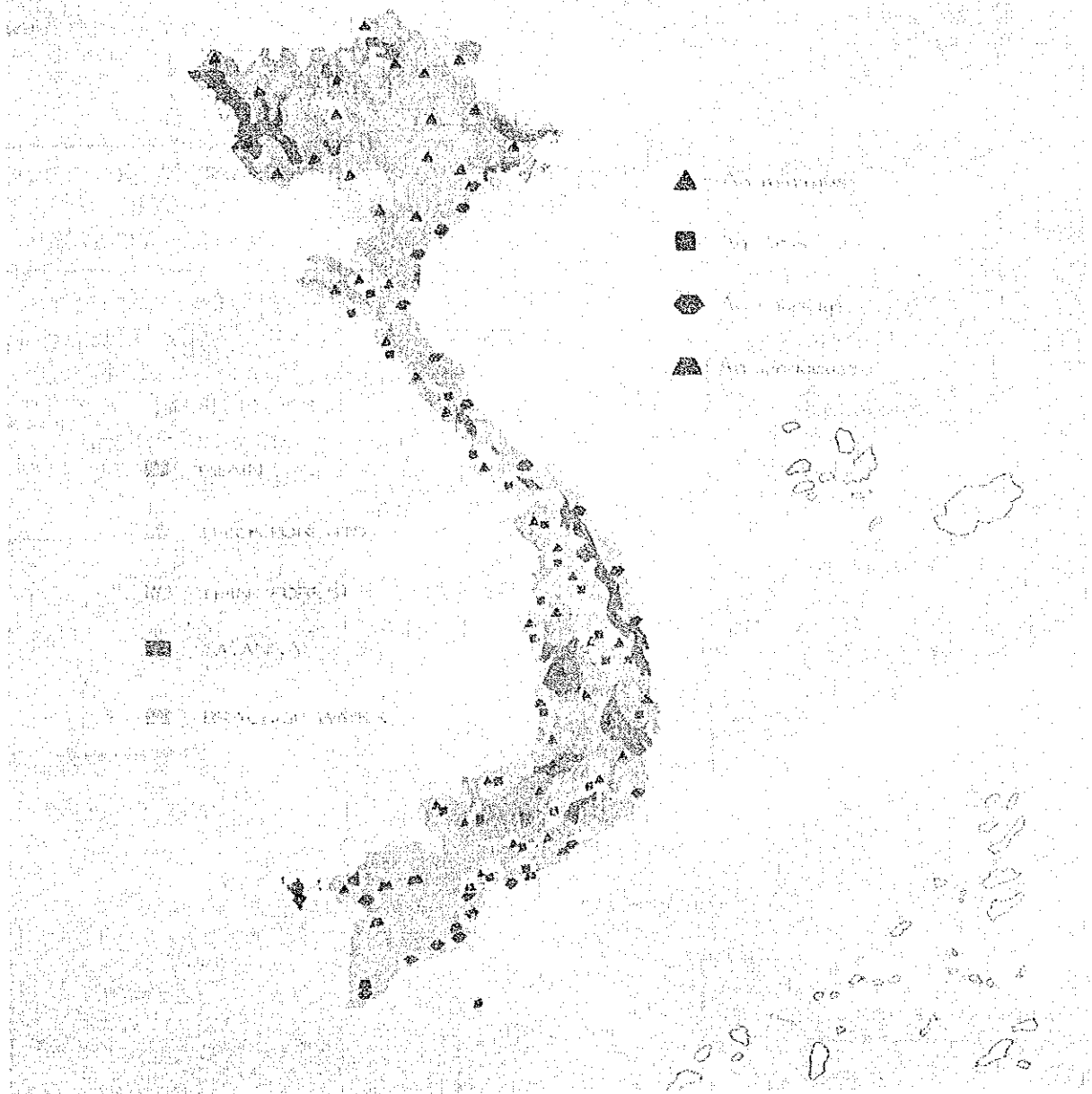
NO. LOCALITIES TESTED	NO. TESTED	DRUG	METHODE	RESISTANCE RATE (%)
16	195	<i>Choloroquine</i>	In vitro	84.6
10	193	(-)	In vivo	78.2
10	76	<i>Amodiaquine</i>	In vitro	25
8	102	(-)	In vivo	23.6
9	71	<i>Quinine</i>	In vitro	4.2
3	72	<i>Fansidar</i>	In vivo	75
16	179	<i>Mefloquine</i>	In vitro	1.1
10	274	(-)	In vivo	14.7

No. OF MALARIA CASES IN 1991 BY PROVINCES



DISTRIBUTION OF

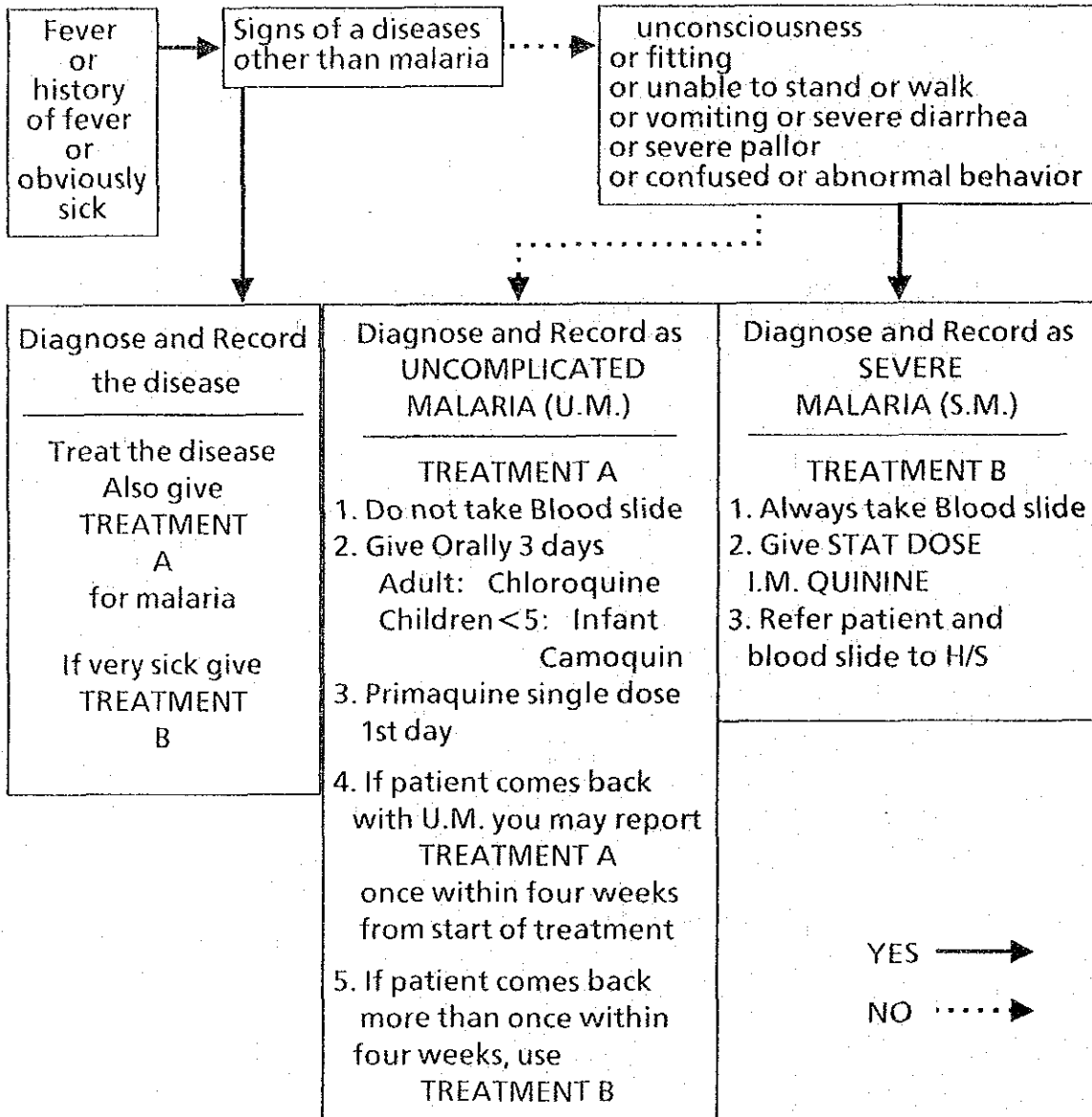
An. minimus · *An. dirus* · *An. subpictus* · *An. sundaticus*



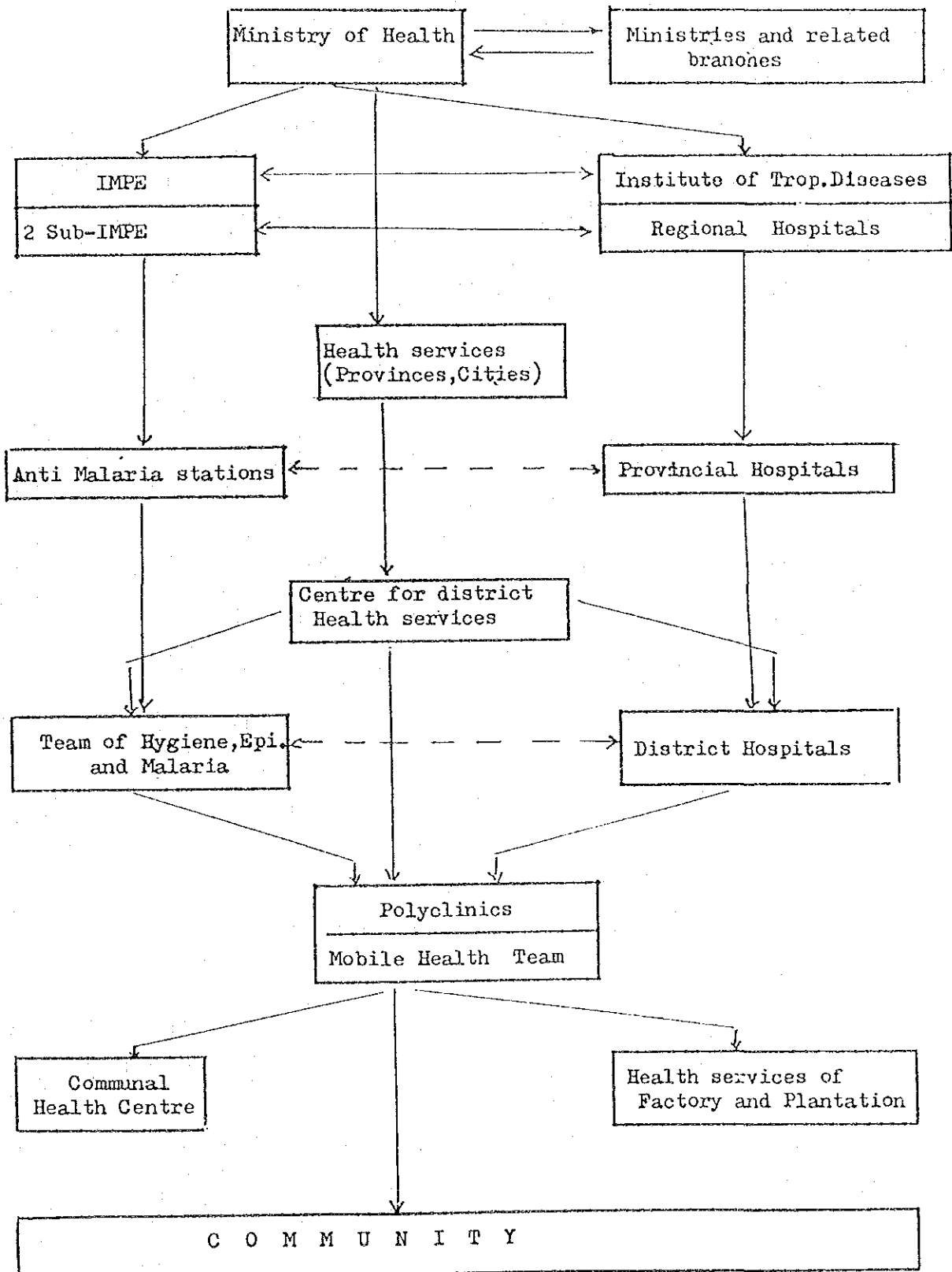
MALARIA

DIAGNOSTIC AND TREATMENT CHART FOR AID POST ORDERLIES
AND COMMUNITY HEALTH WORKERS

BEFORE YOU DECIDE TO DIAGNOSE AND TREAT MALARIA, CHECK FOR:



MALARIA
ORGANIZATIONAL CHART.



MORBIDITY AND MORTALITY OF 6 CHILDHOOD DISEASES

(Per 100.000 inhabitants)

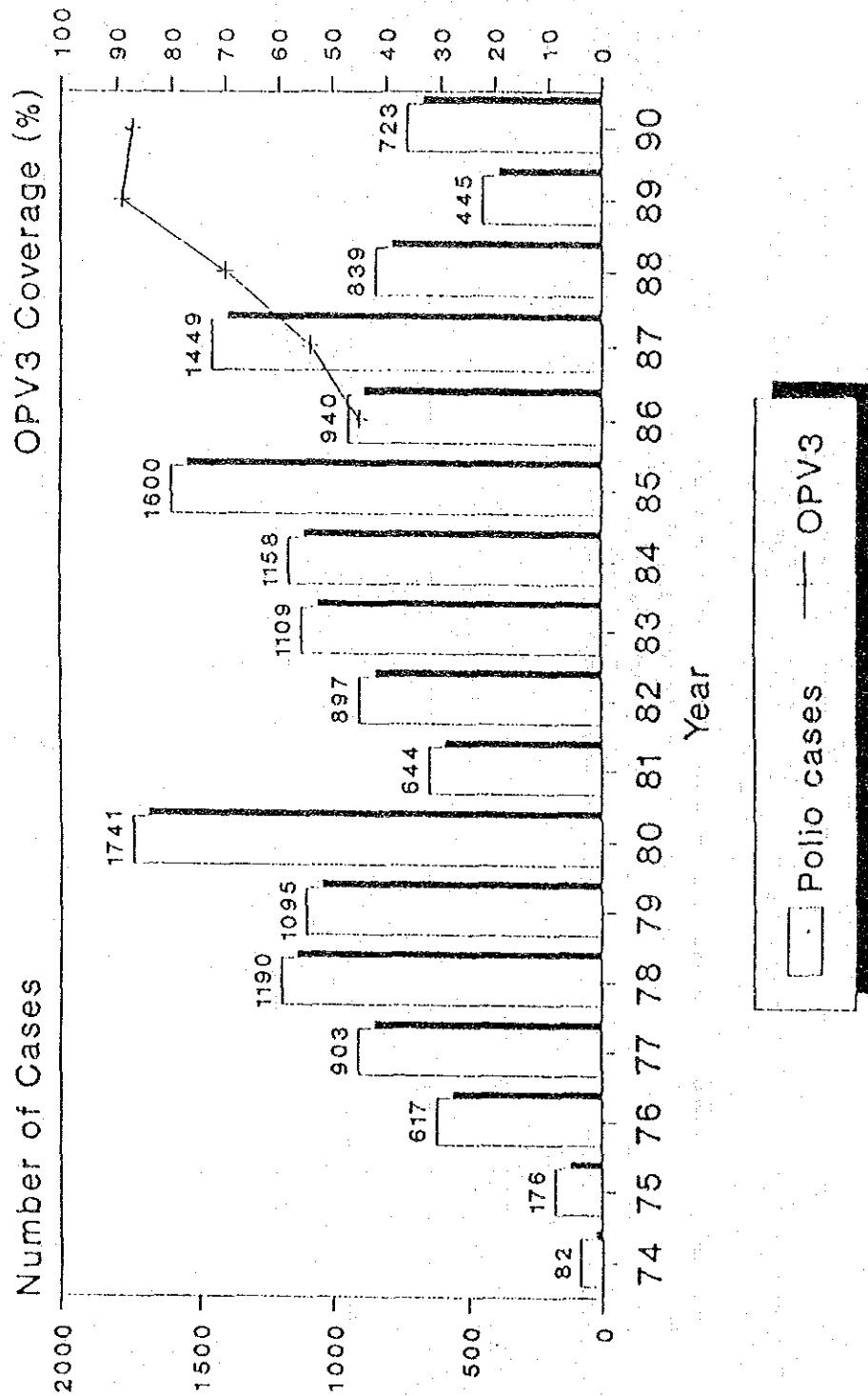
DISEASES	1976	1980	1984	1988	1990
Diphtheria					
case	3.50	2.10	4.07	1.55	0.77
Death	0.50	0.56	0.50	0.20	0.09
Whooping cough					
case	102.90	149.50	84.36	34.17	6.18
Death	0.20	0.06	0.06	0.09	0.04
Poliomyelitis					
case	1.20	2.70	1.97	1.32	0.59
Death	0.06	0.20	0.08	0.05	0.02
Measles					
case	199.90	120.60	149.50	36.75	13.15
Death	0.70	0.56	0.70	0.06	0.04
Tetanus					
case	3.10	3.80	2.35	3.40	0.48
Death	0.90	0.80	0.45	0.73	0.31
Tuberculosis					
case	80.00	120.00	150.00	90.00	85.00
Death					

Sources : Environment hygiene Department and
Health Statistics - Informatic Dept. of MOH

TAGJ-1A Reported Cases of EPI diseases, and rates per 100,000 total population
Vietnam, 1985-1992 (through June)

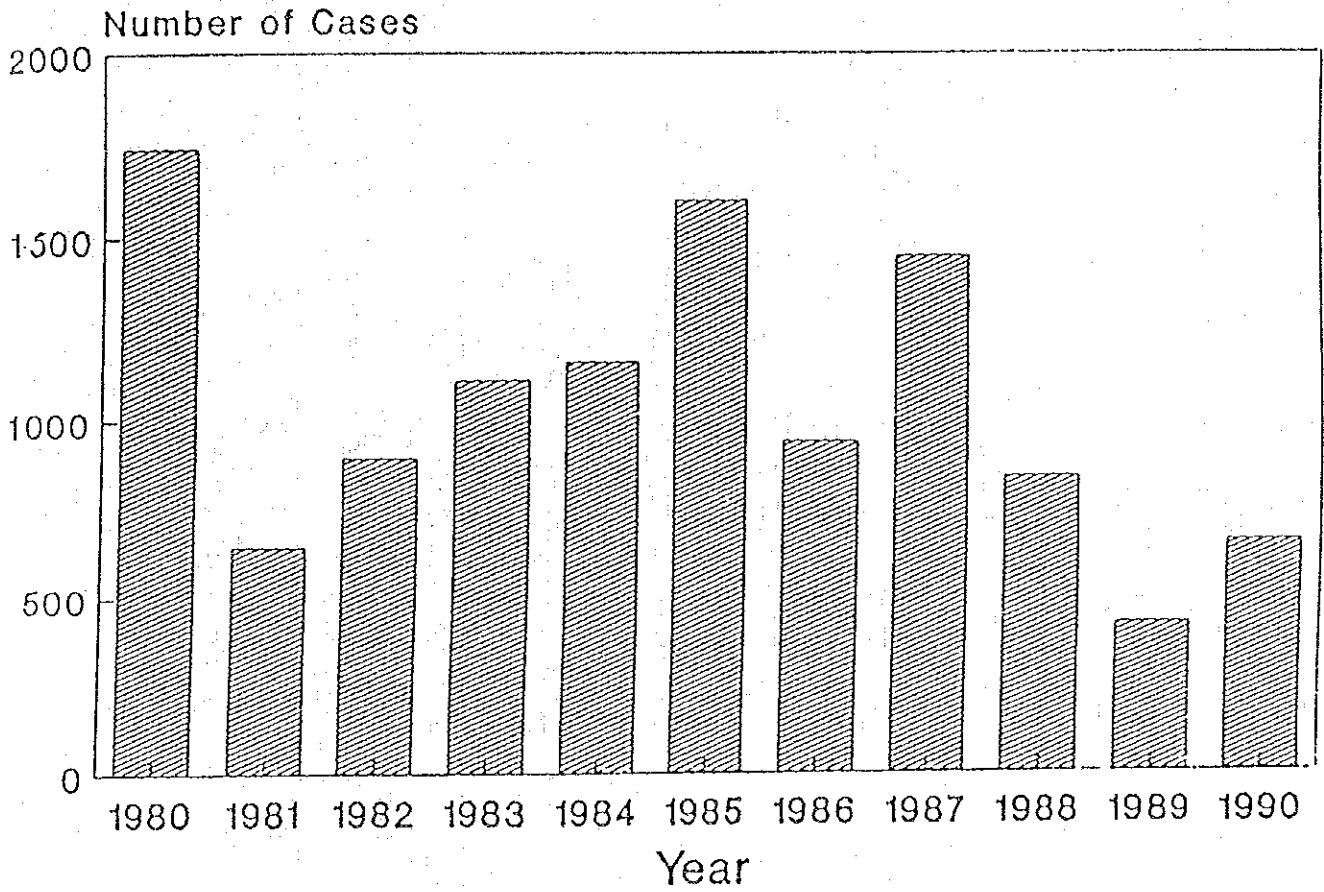
Year	Polio Cases Rate	Measles Cases Rate	Pertussis Cases Rate	Tetanus Cases Rate	NNT Cases Rate
1985	1,600 2.68	82,231 137.09	44,011 67.01	1,658 2.77	
1986	938 1.55	68,463 117.59	43,981 75.54	1,532 2.51	
1987	1,449 2.33	30,460 48.99	30,498 49.05	1,581 2.54	
1988	839 1.32	23,308 36.75	21,672 34.17	2,158 3.40	
1989	427 0.66	22,332 34.67	11,281 17.51	1,703 2.67	
1990	723 0.95	8,175 13.17	4,095 6.14	315 0.47	313 0.16
1991	612 0.86	9,874 14.31	4,669 6.76	559 0.84	334 0.17
1992	407 0.57	8,617 12.31	1,336 1.90	386 0.55	125 0.13

Polio Cases and OPV3 Coverage in Vietnam, 1974-1990



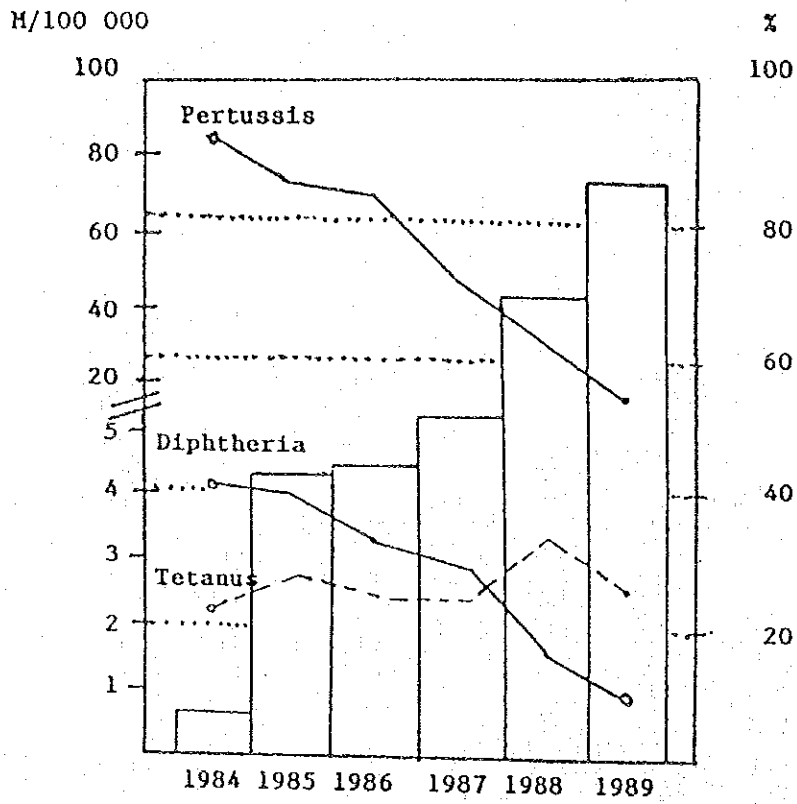
(Source: WPRO CEIS)

POLIOMYELITIS - VIET NAM, 1985-1990*
REPORTED CASES BY YEAR



*1990 Provisional Data

CORRELATION BETWEEN THE INCIDENCE OF PERTUSSIS, DIPHTHERIA
AND TETANUS AND THE COVERAGE BY DPT-PT- AND TT VACCINE



Vaccine Requirements, Vietnam 1992-1995
(thousand doses)

	1992	1993	1994	1995
Required doses	BCG	4,931	4,574	4,594
	DPT	11,431	10,603	10,650
	MSL	3,820	3,534	3,550
	TT	4,930	7,500	11,000
	OPV	11,430	10,603	10,650
	OPV*	8,400	15,752	25,955
Local Production	BCG	4,000	5,000	5,000
	DPT	1,860	2,000	3,000
	TT	2,000	2,000	3,000
	OPV*	3,000		
Importation	BCG	700	0	0
	DPT	8,600	8,603	7,650
	MSL	3,820	3,534	3,550
	TT	3,340	5,500	8,000
	OPV	11,100	11,000	11,000
	OPV*	Open	Open	Open

(cont'd).

Import Costs (1,000 USD)	BCG	72.6	0	0	0
	DPT	643.0	643.0	550.0	484.0
	MSL	764.0	706.8	710.0	716.0
	TT	135.7	223.4	325.0	505.8
	Total	1,615.3	1,573.2	1,585.0	1,705.8
	OPV	900.0	964.9	969.0	969.0
	OPV*		1,378.3	2,271.0	2,277.6
	Total OPV		2,343.2	3,240.0	3,246.6
	Funding available	UNICEF	1,224.2	700.0	700.0
		FINNIDA	350.0		
	Shortfall		873.2	1,005.0	
	Rotary (OPV)	974.0	724.0	710.0	
	Shortfall (OPV*)		1,619.2	2,536.6	

OPV* = Amount of vaccine needed for supplementary immunization strategy. Could be obtained by 2 possible ways: 1) imported bulk OPV to be processed in vials locally with technical/financial support from WHO and/or other donors; or 2) imported TOPV with international financial support.

Resources Provided for EPI, 1991-1995

Agency, Organization	1991	1992	1993	1994	1995	Remarks
National Sources (VND)	2.1 bill	5 bill	5 bill	5 bill	5 bill	EPI, local production
UNICEF (USD)	2.2 mill	2.3 mill	2.3 mill	2.3 mill	2.3 mill	EPI
ROTARY (USD)	710,000	710,000	710,000	710,000	710,000	OPV
WHO (USD)	114,800	30,000	-	20,000	-	training, staff, evaluation
FINIDA (USD)	-	350,000	-	-	-	DPT-TT

Note: 1 USD = 10,000 VND (approx.)

VACCINATION COVERAGE 1992

	PROVINCE	BCG	OPV-3	DPT-3	MEASLES	FULLY	TT	UP TO
	ALL COUNTRY	74,62	69,00	68,92	71,36	63,24	21,95	
	NORTHERN	77,00	74,48	74,44	75,12	73,56	25,61	
	CENTRAL	80,65	75,13	75,62	77,03	76,03	25,08	
	HIGHLAND	74,29	55,65	55,44	57,10	54,34	20,48	
	SOUTHERN	69,05	60,88	60,51	65,77	62,53	16,13	
	CATEGORY A	78,54	78,37	78,58	79,01	77,76	35,90	
1	Hà Nội	99,89	99,41	99,41	98,94	98,93	43,29	11.92
2	Hải Phòng	74,10	74,86	74,88	76,81	75,37	38,25	9.92
3	Hà Tây	71,39	72,89	72,70	78,04	76,26	35,88	10.92
4	Thái Bình	85,06	81,60	81,60	83,23	83,19	43,60	10.92
5	Nam Hà	82,40	81,38	81,51	81,52	81,09	44,90	10.92
6	Ninh Bình	85,62	81,74	81,51	81,36	80,19	47,64	10.92
7	Hải Hưng	74,12	75,79	75,83	75,88	73,85	26,90	9.92
8	Vĩnh Phú	86,82	81,72	80,17	80,23	79,45	48,32	10.92
9	Hà Bắc	75,56	78,70	80,22	78,26	77,60	30,54	10.92
10	Thanh Hóa	75,27	75,44	75,03	74,95	74,75	41,86	10.92
11	Hà Tĩnh	92,09	85,00	86,39	85,58	82,30	38,45	10.92
12	Quảng Bình	80,53	74,26	74,26	75,97	73,31	45,62	10.92
13	Quảng Trị	80,03	74,25	74,80	71,86	70,27	35,81	10.92
14	Thừa Thiên	81,13	76,13	76,11	74,52	73,42	28,06	10.92
15	Q.Nam-D.Nang	80,84	73,69	77,32	82,36	82,20	29,70	10.92
16	Bình Định	79,21	74,37	74,37	80,76	80,76	41,29	10.92
17	TP. Hồ Chí Minh	55,19	73,97	73,97	69,62	67,15	18,05	10.92
18	Tiền Giang	80,68	75,67	75,67	76,24	75,19	32,84	10.92
19	Bà Rịa-Vũng Tàu	94,87	81,83	84,04	82,29	71,94	15,85	8-10/92
	CATEGORY B	74,37	62,20	61,98	65,67	62,73	16,22	
1	Bắc Thái	74,53	64,31	64,26	64,30	64,20	21,45	10.92
2	Quảng Ninh	76,86	77,67	78,39	77,93	77,27	23,39	10.92
3	Nghệ An	75,76	69,05	69,36	69,86	69,05	25,12	10.11.92
4	Hòa Bình	76,50	71,62	72,88	73,20	69,16	1,36	11.92
5	Quảng Ngãi	83,76	76,64	76,35	76,65	75,95	18,09	10.92
6	Khánh Hòa	74,19	69,41	68,94	70,60	69,29	14,90	10.92
7	Phú Yên	84,00	81,30	80,10	72,30	71,60	11,84	10.92
8	Bình Thuận	71,75	69,23	69,05	69,24	67,81	5,70	10.92
9	Ninh Thuận	99,48	91,55	91,22	95,96	92,68	10,13	15.11.92
10	Long An	82,88	75,97	75,98	70,51	68,50	17,45	10.92
11	Đồng Nai	77,16	66,56	66,70	63,88	61,88	13,16	10.92
12	Mình Hải	58,77	17,48	17,18	36,95	22,13	7,91	9.92
13	Vĩnh Long	67,08	54,33	54,69	57,02	55,85	25,86	10.92
14	Trà Vinh	74,94	59,78	61,14	62,66	59,65	19,50	10.92
15	Sông Bé	93,08	79,50	74,33	79,89	78,39	26,37	11.92
16	Đồng Tháp	45,66	21,40	21,23	50,63	45,74	5,75	9.92

VACCINATION COVERAGE-1992

	PROVINCE	BCG	OPV-3	DPT-3	MEASLES	FULLY	Tt	UP TO
	CATEGORY C	68,33	60,46	60,03	64,52	61,81	16,96	
1	Tuyên Quang	66,11	57,93	58,35	56,90	53,39	1,26	20.10.92
2	Hà Giang	43,89	56,25	55,17	39,46	46,48	1,33	9.92
3	Cao Bằng	73,24	66,60	65,56	63,82	58,60	23,39	11.92
4	Lạng Sơn	43,02	42,02	41,82	50,03	41,32	14,70	5.10.92
5	Lai Châu	75,50	68,73	68,58	74,29	67,97	14,17	15.11.92
6	Yên Bái	67,52	66,32	65,26	65,27	67,74	8,23	11.92
7	Lào Cai	76,54	59,14	59,78	76,19	59,51	5,69	11.92
8	Sơn La	70,72	58,77	58,71	59,76	58,71	17,24	11.92
9	Daklak	82,20	60,76	60,76	62,03	60,76	27,94	10.92
10	Gia lai	60,27	44,92	44,57	47,26	43,00	10,41	10.92
11	Kon tum	79,91	64,02	63,33	63,74	58,76	16,82	11.92
12	Lâm Đồng	82,84	71,02	71,18	74,52	70,63	9,48	11.92
13	Tây Ninh	46,84	45,72	44,25	55,37	55,13	4,79	9.92
14	An giang	84,31	79,63	79,50	87,68	86,32	37,75	11.92
15	Bến Tre	50,48	43,64	43,60	43,04	41,64	16,04	9.92
16	Sóc Trăng	88,14	77,71	75,95	91,94	85,09	18,69	11.92
17	Cần Thơ	82,20	77,11	75,94	84,34	83,45	29,29	11.92
18	Kiên Giang	43,70	39,32	39,40	42,80	42,40	4,11	10.92

VIETNAM
SUMMARY OF VACCINE REQUIREMENTS FOR ROUTINE EPI
1992 -1999
(Ref. HQs Memo CF/PD/PRO/1992-005 dated August 28, 1992)

		1991**	1992	1993	1994	1995	1996	1997	1998	1999
Surviving Infants (1,000)		1,956	1,967	1,977	1,986	2,002	2,022	1,990	2,063	2,106
Required doses (1000 doses)	BCG	3948	4931	4574	4594	4631	4677	4605	4774	4871
	DPT	7699	11431	10603	10649	10736	10843	10674	11067	11291
	Measles	2566	3810	3534	3550	3579	3614	3651	3689	3764
	TT	3115	5339	5790	6667	6735	6780	6810	7283	7847
	OPV	10000	10552	10603	10649	10736	10843	10674	11067	11291
	OPV*		879	15000	21000	22000	23000	24000	25000	26000
Local production (1,000 doses)	BCG	2000	4000	5000	5000	5000	5000	5000	5000	5000
	DPT	1000	1860	2000	3000	4000	6000	8000	10000	12000
	Measles	0	0	0	0	0	0	0	0	0
	TT	1000	2000	2000	3000	3000	4000	5000	7500	8000
	OPV	3000	3000	0	3000	3000	4000	4000	5000	5000
To be Imported (1000 doses)	BCG	1948	700	0	0	0	0	0	0	0
	DPT	6699	9571	8603	7649	6736	4843	2674	1067	0
	Measles	2566	3810	3534	3550	3579	3614	3558	3689	3764
	TT	2115	3339	3790	3667	3735	2780	1810	0	0
	OPV	10000	11000	11000	11000	11000	11000	11000	11000	12000
	OPV*	-	-	15000	18000	19000	19000	20000	20000	21000
Cost of Imported Vaccines in US\$1,000 including 20% freight	BCG	122.7	72.6	0	0	0	0	0	0	0
	DPT	381.8	660.4	619.4	596.6	565.8	435.9	256.7	108.8	0
	Measles	400.3	731.6	720.9	766.8	816.0	867.4	896.6	973.9	1038.9
	TT	63.5	130.2	159.2	165.0	179.3	141.8	97.7	0	0
	TOTAL	968.3	1594.8	1499.5	1528.4	1561.1	1445.1	1251.0	1082.7	1038.9
***	OPV	690	932	990	1056	1122	1188	1254	1320	1512
	OPV*	-	-	1350	1728	1938	2052	2280	2400	2646
Total	OPV	690	932	2340	2784	3060	3240	3534	3720	4158
Funding Government available UNICEF (US\$1,000) Other donors		750	1150	750	750	750	700	700	600	600
Shortfall		18.3	0	449.5	528.4	561.1	445.1	251.0	82.7	38.9
Rotary		415.4	936.5	724	738	713	-	-	-	-
Shortfall			0	1616	2046	2347	3240	3534	3720	4158

* Additional vaccine for polio eradication activities

Polio dose zero not included.

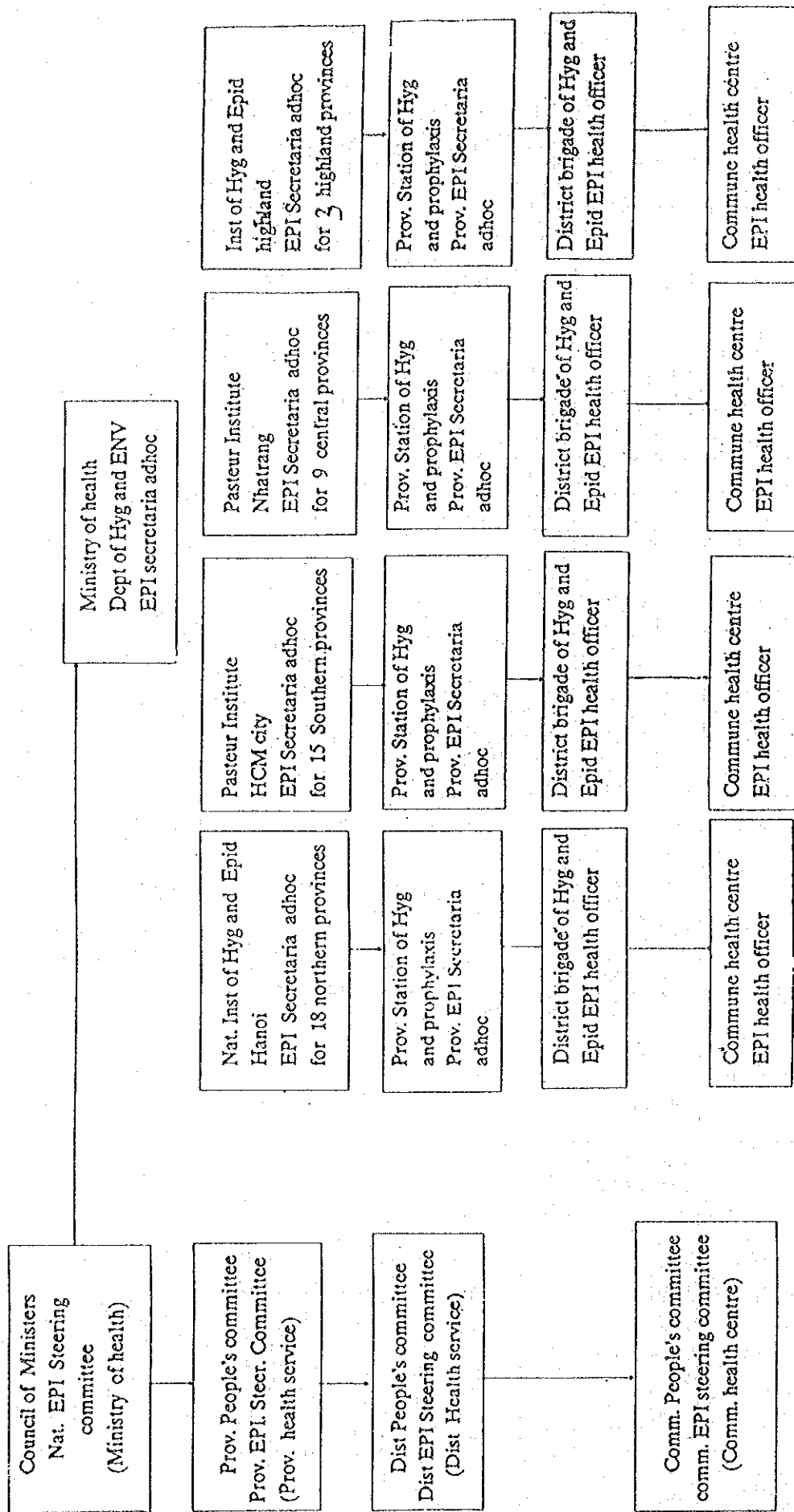
** Historical

*** Cost of imported vaccines estimated on the basis of 1992 prices given by Supply Division Copenhagen, with an estimated per cent annual increase (according to HQ's guidelines).

EPI TARGET POPULATION FOR 1990-1995

Figure/Year		1990	1991	1992	1993	1994	1995
Total Population		66324	67871	69420	70948	72512	74370
Children under 1	Total number	2043	2056	2069	2079	2088	2105
	No. of surviving	1943	1956	1967	1977	1986	2002
	be immunized	1634	1645	1655	1663	1671	1684
Children 12-23 months of age	Number	2026	2039	2051	2061	2071	2087
	Booster for DPV & DPT	1823	1835	1846	1855	1864	1878
	be immunized with measles	405	408	410	412	414	417
Children 24-35 months of age	Number	2009	2022	2034	2044	2053	2069
	No. need to be immunized for DPV	1808	1820	1831	1840	1848	1863
Children 35-47 months of age	Number	1992	2005	2017	2027	2036	2052
	No. be immunized with OPV	1793	1805	1815	1824	1833	1847
Children 48-59 months of age	Number	1975	1988	2000	2010	2019	2035
	No. be immunized with OPV	1778	1789	1800	1809	1817	1831
Pregnant women	Number	2374	2396	2416	2434	2451	2477
	No. be immunized with TT	950	1198	1449	1703	1961	1981
Women of children bearing age	Number	12336	12624	12912	13196	13487	13833
	No. be immunized with TT	2374	2396	2416	2434	24512	2477

EPI ORGANIZATION IN VIETNAM.



VIET NAM SUPPLEMENTARY OPV REQUIREMENTS AND PROJECTED SHORTFALL, 1992-1995
(DOSES IN THOUSANDS AND COSTS IN US DOLLARS)

GOVERNMENT CALCULATED REQUIREMENTS:

YEAR	1992	1993	1994	1995	TOTAL
OPV ORI REQ.	600.0	450.0	450.0	350.0	1,850.0
OPV ORI US\$	50,400	37,800	37,800	29,400	155,400
OPV NID REQ.	7,795.0	15,302.0	25,505.0	25,683.0	74,285.0
OPV NID US\$	654,780	1,285,368	2,142,420	2,157,372	6,239,940
TOTAL REQ.	8,395.0	15,752.0	25,955.0	26,033.0	76,135.0
AVAIL.	1,130.2	0.0	0.0	0.0	1,130.2
SHORTFALL DOSES	7,264.8	15,752.0	25,955.0	26,033.0	75,004.8
SHORTFALL US\$	610,243	1,323,168	2,180,220	2,186,772	6,300,403

WHO CALCULATED REQUIREMENTS:

YEAR	1992	1993	1994	1995	TOTAL
OPV ORI REQ.	1,469.0	1,501.3	1,534.3	1,568.1	6,072.7
OPV ORI US\$	123,396	126,109	128,881	131,720	510,107
OPV NID REQ.	24,519.4	25,058.8	25,610.1	26,173.5	101,361.8
OPV NID US\$	2,059,630	2,104,939	2,151,248	2,198,574	8,514,391
TOTAL REQ.	25,988.4	26,560.1	27,144.4	27,741.6	107,434.5
AVAIL.	1,130.2	0.0	0.0	0.0	1,130.2
SHORTFALL DOSES	24,858.2	26,560.1	27,144.4	27,741.6	106,304.3
SHORTFALL US\$	2,088,089	2,231,048	2,280,130	2,330,294	8,929,561

1992 Demographic data:

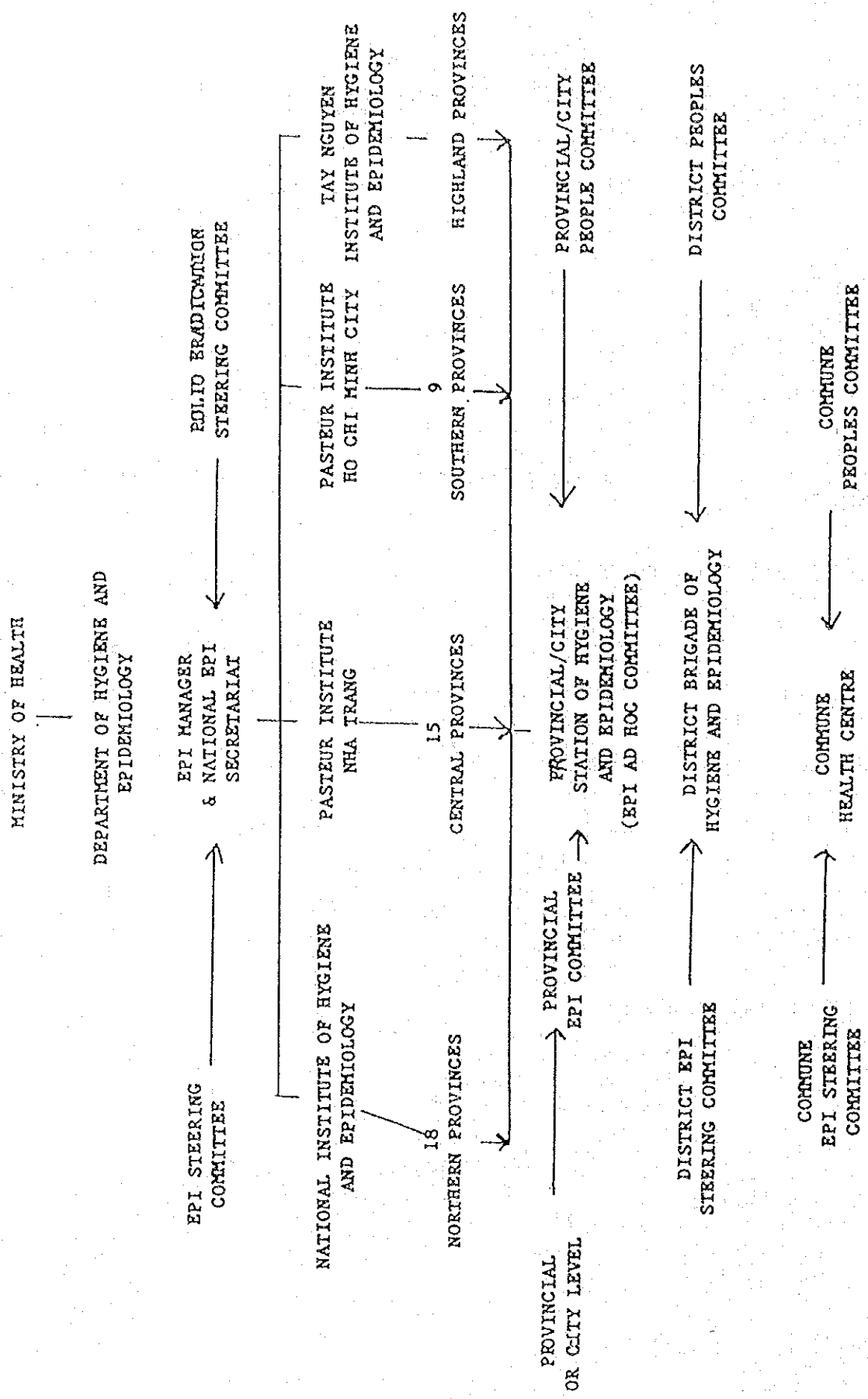
Total population: 69.420 million
 Newborns: 2.069 million
 Surviving infants: 1.967 million
 Pregnant women: 2.416 million

NOTES:

- * Estimated vaccine cost is US \$0.084 per dose, including 20% PFI (US \$0.07 per dose for the vaccine alone)
- * Figures for 1993 to 1995 not adjusted for inflation

VTNOPV95.WK1*

ORGANIZATION CHART OF EPI AND POLIO ERADICATION PROGRAMME



DISTRIBUTED COLD CHAIN AND VACCINATION EQUIPMENT FOR THREE REGIONS
FROM 1981 TO FEBRUARY 1990

ITEMS	UNIT	NORTH	CENTRAL AND HIGHLAND	SOUTH	TOTAL
1. Refrigerator	unit	234	71	103	408
2. Freezer	unit	186	70	105	361
3. Cold box	unit	1 257	380	618	2 255
4. Ice packs for cold box	unit	11 690	5 180	9 688	26 458
5. Vaccine carrier	unit	13 491	4 573	6 328	24 392
6. Ice packs for vaccine carrier	unit	31 619	5 694	8 820	46 133
7. Voltage stabilizer	unit	290	113	187	590
8. Maintenance equipment	set	18	7	16	41
9. Thermometer	set	18 780	5 041	4 572	28 399
10. Tray	unit	11 234	3 600	5 020	19 854
11. Vaccination equipment	unit	69	61	115	245
12. Forceps	unit	12 500	5 590	7 610	25 700
13. Autoclave	unit	4 190	1 520	2 070	8 500
14. Injection needles	unit	1 290 943	288 001	400 942	1 979 886
15. Syringes	unit	307 262	108 251	152 827	568 340

ESTIMATED FUNDS FOR EPI 1991 - 1995

ITEMS	BUDGET (ESTIMATED)
1. Cold chain equipment	1 204 300 USD
2. Vaccination equipment	1 117 500 USD
3. Vaccine	15 082 618 USD
4. Transport means	860 000 USD
5. Others	540 000 USD

GRAND TOTAL	18 804 418 USD

NOTE: The above figures are calculated, based on
 "Draft of EPI Plan of Actions for 1991 - 1995"

TUBERCULOSIS PROBLEM

SITUATION

Bacillary Incidence : 75/100,000
(Annual Risk of Infection 1.5%)

- * 50,000 pulmonary bacillary cases for the whole country.
- * Total of all forms : 110,000

CASE DETECTION:

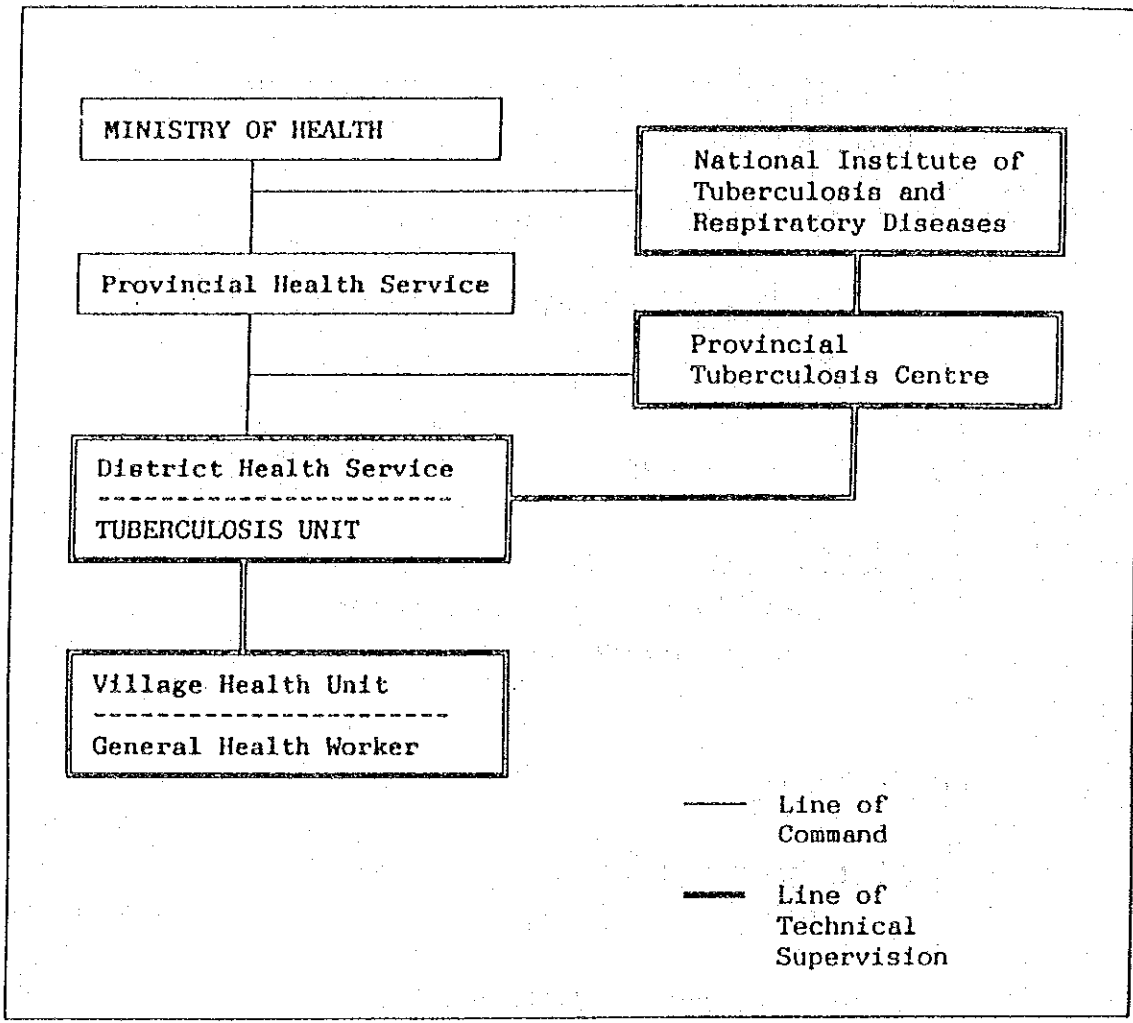
40,500 patients per year
30,000 bacillary cases (45/100,000)
10,500 non bacillary

CURE RATE:

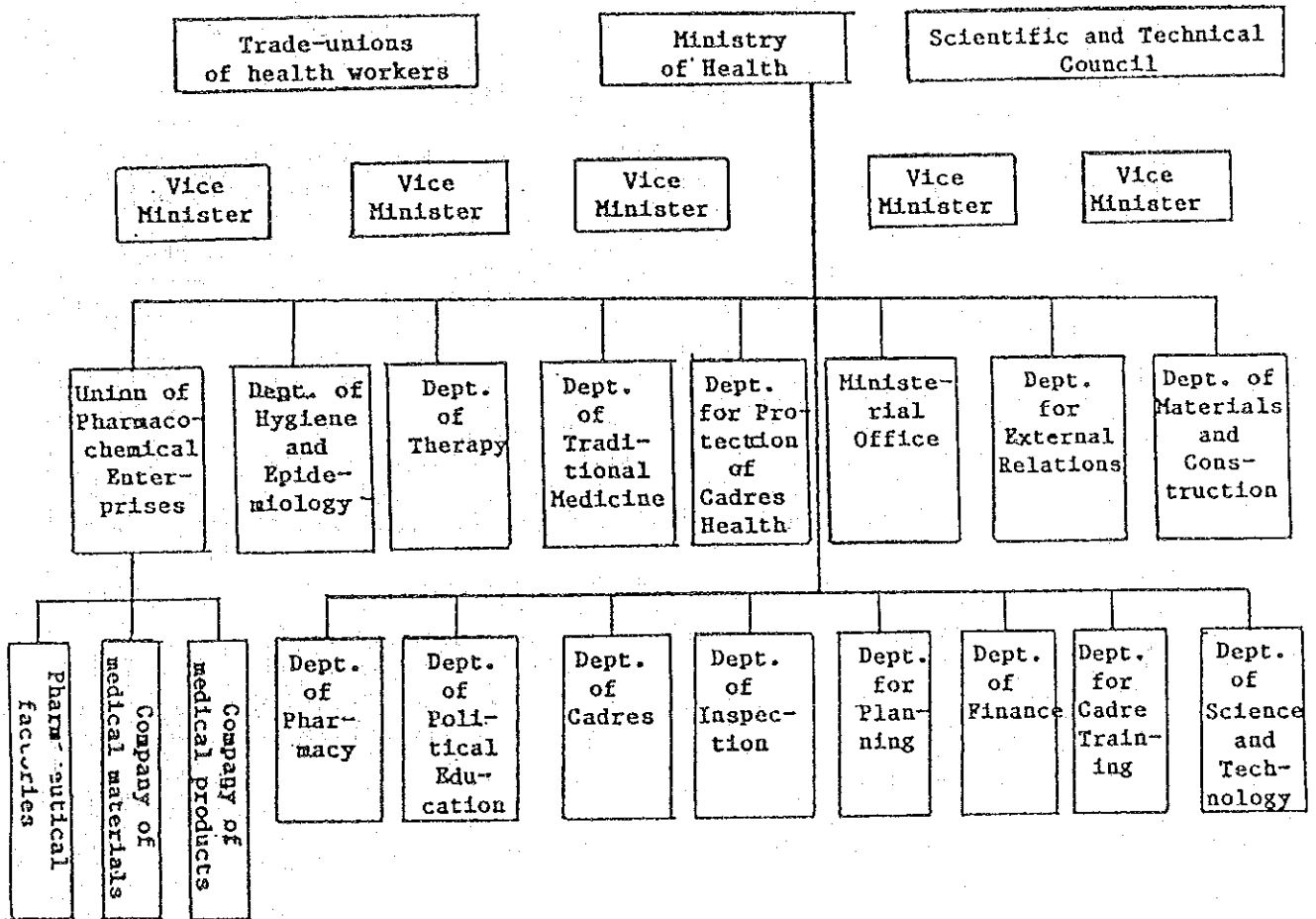
Standard regimen 3SHZ/6S2H2
65% negativation

Short course 2SHRZ/6HE
87% negativation

Organisation chart of the national tuberculosis program in Vietnam



ORGANIZATIONAL SCHEME OF THE MINISTRY OF HEALTH OF
THE SOCIALIST REPUBLIC OF VIET NAM



LIST OF RESEARCH INSTITUTES

Institutes with hospital beds:

1. Hanoi National Institute of Ophthalmology
2. Hanoi Institute of Traditional Medicine
3. Hanoi Institute of Tuberculosis
4. Hanoi Institute of Oto Rhino Laryngology
5. Hanoi Institute for the Protection of Mothers and Newborn Babies
6. Institute for the Protection of Children
7. Ho Chi Minh City Institute of Traditional Medicine and Pharmacy
8. Hanoi National Institute of Dermatology (with leprosy beds)

Other establishments:

9. Hanoi Institute of Materia Medica
10. Hanoi Institute of Medicament Control
11. Hanoi Institute of Malariology, Entomology and Parasitology
12. Hanoi National Institute of Hygiene and Epidemiology
13. National Institute of Medical Expertise (Hanoi)
14. Nha Trang Pasteur Institute
15. Da Lat Institute for Vaccines Production
16. Ho Chi Minh City Pasteur Institute
17. Tay Nguyen Institute of Hygiene and Epidemiology
18. Ho Chi Minh City Institute of Hygiene
19. Subdivision of Ho Chi Minh City Institute for Medicament Control
20. Subdivision of Ho Chi Minh City Institute for Malariology, Entomology and Parasitology
21. Subdivision of Qui Nhon Institute of Malariology, Entomology and Parasitology
22. Subdivision of Ho Chi Minh City Institute of Materia Medica
23. Institute of Nutrition
24. Military Academy of Medicine (103) Ha dong, Ha Son Binh Province.

Other Research Units:

1. Unit for Antibiotics Research
2. Unit for Aromatic Essence Research
3. Unit for Animal Organs-Products Research
4. Unit for Bee-Products Research
5. Unit for Mineral Waters Research
6. Unit for Radioactive Products Research
7. Research Unit for the standardization of chemical reagents
8. Research Unit for toxic chemicals products
9. Unit for Panax Giseeng Research

HEALTH BUDGET 1991

(In thousand dong Vietnam)

	1986	1987	1988	1990
National budget	120 790 700	514 937 486	2 839 718 937	9 186 370 000
Health budget	3 995 779	16 021 399	110 111 200	367 719 000
BUDGET ALLOCATIONS				
1. Scientific research	21 572	81 246	528 442	1 482 005
- Central level	13 501	39 468	251 771	1 242 455
- Provincial level	8 071	41 778	276 671	239 550
2. Training	242 053	810 467	3 833 747	22 155 217
- High level/University education	86 875	309 058	1 333 444	
- Secondary medical schools	132 313	434 860	327 309	
- Technical worker training	1 332	6 482	20 718	
- Other	21 533	60 067	45 822	
3. Treatment and Prevention	3 681 130	14 990 843	103 570 417	338 641 358
- Prevention	427 915	1 424 290	10 920 671	32 578 890
- Treatment	2 836 677	11 484 330	73 761 016	213 952 967
- Control of Social diseases	13 497	494 172		
- Family planning	63 211	266 815	1 888 895	
- Health Units of other Ministries	156 125	531 406	3 637,667	51 843 996
- Other	183 705	789 830	13 362 168	40 265 505
4. Managment	51 024	138 843	2 178 594	5 440 420
- Central level	6 531	16 234	203 607	937 380
- Provincial level	44 493	122 609	1 974 987	4 503 040
PERCENTAGE OF H.BUDGET OF TOTAL BUDGET (%)	3.31 %	3.11 %	3.88%	4.00 %
Health budget per capita (Dong Vietnam currency)	65.39	256.17	1 727.97	5 551.90

Source: Finacial Department of MOH

HEALTH BUDGET OF PROVINCES 1990

PROVINCES	TOTAL	Prevention	Treatment	Sanatorium	Family Planning	Other
TOTAL	444 842 298	24 232 722	174 426 541	3 612 168	11 063 650	8 995 068
<i>North Mountains & Midland</i>	36 044 611	5 907 791	25 673 122	687 497	1 985 800	1 750 401
Hà Tuyen	3 570 681	753 429	2 366 486	97 245	169 974	13 547
Cao Bang	2 468 803	375 302	1 760 536		70 077	262 888
Lang Son	2 480 376	864 804	1 556 161	1 800	19 558	497 263
Lai Chau	2 480 376	606 188	1 242 781	77 793	98 079	455 535
Hoàng Lien Son	3 748 977	923 680	2 550 881	46 096	204 901	23 419
Bắc Thái	3 632 644	488 107	2 850 275	50 460	243 791	11
Bắc Lào	3 143 855	564 371	2 328 373	44 777	28 544	177 790
Quảng Ninh	4 453 001	672 301	3 516 448	146 989	107 205	10 149
Vinh phũ	5 601 935	439 549	4 560 371	155 647	362 166	84 202
Hà Bắc	3 964 753	220 060	2 940 810	66 781	681 505	55 597
<i>Red River Delta</i>	46 084 102	4 564 611	35 469 256	1 446 219	3 656 100	947 916
Hà Nội	14 354 077	728 181	12 456 168	613 038	396 636	160 054
Hải Phòng	7 619 734	763 364	5 947 357	78 730	535 602	294 681
Hà Sơn Bình	6 129 205	358 411	4 444 862	188 991	743 269	393 672
Hải Hưng	7 607 384	870 959	6 080 813	247 307	365 805	42 500
Thái Bình	1 949 824	870 753	332 098	92 830	654 143	
Hà Nam Ninh	8 423 878	972 943	6 207 958	225 323	960 645	57 009
<i>Central Coast of Northland</i>	26 080 450	4 811 762	19 413 488	85 433	1 051 472	718 295
Thanh Hoá	7 789 322	840 928	6 285 353		329 454	333 587
Nghe Tinh	11 750 161	2 043 458	9 211 054	36 610	379 412	79 627
Quảng Bình	2 279 877	649 618	1 146 346	2 530	201 150	280 233
Quảng Trị	2 344 796	455 566	1 734 737	46 293	93 325	14 875
Thừa Thiên-Huế	1 916 294	822 192	1 035 998		48 131	9 973
<i>Central Coast of Southland</i>	30 324 715	3 224 914	23 616 123	517 188	1 505 712	1 460 778
Quảng Nam-Đà Nẵng	11 051 818	1 479 690	8 935 118	110 451	364 104	162 455
Quảng Ngãi	3 442 292	286 133	2 611 547	59 497	172 505	312 610
Bình Định	4 662 354	447 639	3 561 976	107 600	342 502	202 637
Phu Yên	2 633 687	403 052	1 984 634	59 579	151 379	35 043
Khánh Hòa	3 229 993		2 434 368	96 514	207 247	491 864
Thuan Hai	5 304 571	608 400	4 088 480	83 547	267 975	256 169
<i>Central Highland</i>	13 408 510	2 147 240	8 322 005	124 544	339 234	2 475 487
Giáo Lai-Kon Tum	6 757 878	679 527	3 504 829	46 861	152 870	2 373 791
Đăk Lăc	4 279 267	769 919	3 313 025	33 669	100 499	62 155
Lâm Đồng	2 371 365	697 794	1 504 151	44 014	85 865	39 541
<i>North-East of Southland</i>	70 518 761	3 667 404	61 932 547	751 287	2 525 332	1 642 191
TP. Hồ Chí Minh	54 773 704	1 749 879	50 078 616	728 429	1 101 776	1 115 004
Sông Bé	4 329 273	737 554	2 690 541		565 865	335 313
Tây Ninh	3 286 403	453 145	2 357 311		449 346	26 601
Đồng Nai	6 984 596	577 625	5 893 143	22 858	325 697	165 273
Vũng Tàu-Con Đảo	1 144 785	149 201	912 936		82 648	
<i>Mekong River Delta</i>	47 521 757	7 403 085	33 103 335	2 064 646	2 539 076	2 411 615
Long An	4 475 911	713 339	3 272 807	231 349	153 429	104 987
Đông Tháp	5 157 001	1 487 795	3 257 040	23 369	359 532	29 265
An Giang	2 934 780	1 981 948	179 379	773 453		
Tiền Giang	7 014 687	705 099	5 744 960	39 919	302 563	222 146
Bến Tre	4 097 474	323 856	3 480 842	12 680	149 555	130 541
Cần Long	4 472 743	371 253	2 923 989		617 473	560 028
Hậu Giang	9 725 170	1 009 795	6 909 189			
Kiên Giang	3 391 286	478 513	2 111 748	218 796	227 185	355 044
Mĩnh Hải	6 252 705	331 487	5 223 381	294 347	215 665	187 825

Source : Financial Department - MOH

REFERENCES

- Health Statistics of Viet Nam 1986~1990, MOH
- UNICEF Viet Nam: Briefing Document, January 1992
- WHO/WPRO/HIN, Rev/Oct 1992: Country Health Information Profile
- UNFPA: Viet Nam Programme Review & Strategy Development Report (1990)
- MOH: National EPI and Polio Eradication Steering Committee,
National EPI Review Meeting for 1991 and Acceleration of 1992 Plan
- WHO/WPRO/EPI/RPT(2)92/INF/8, Country Report of Viet Nam (1992)
- WHO/WPRO Mission Report: RS/90/0074 (EPI/PEI);
RS/90/0392 (EPI/PEI);
RS/90/0202 (PEI);
RS/91/0436 (EPI/PEI);
RS/91/0286 (JE);
RS/91/0472 (PEI);
RS/91/0090 (EPI/PEI);
RS/91/0637 (EPI/PEI);
RS/90/0432 (EPI/PEI);
RS/91/0572 (EPI);
RS/92/0176 (CDD, EPI);
RS/92/0206 (ARI);
RS/91/0721 (DF/DHF);
RS/92/0228 (Leprosy, TB)
- SIDA Evaluation Report: 1992/3 DOI MOI AND HEALTH

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- Wed. December 16, 1992, Hanoi Health Service,
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Cho Ray Hospital,
Institute of Tropical Diseases
- Tue. December 22, 1992, Sub- IMPE (HCMC),
National Institute of Hygiene and Public Health,
HCMC Health Service
- Wed. December 23, 1992, Long An Province Health Centre
- Thu. December 24, 1992, HCMC - Nha Trang
- Fri. December 25, 1992, IVAC,
Pasteur Institute (Nha Trang)

Sat.	December 26, 1992	Sui Dao Farm (IVAC)
Sun.	December 27, 1992	Nha Trang - Da Nang
Mon.	December 28, 1992	Da Nang - Hue, Thua Thien-Hue Province Health Service
Tue.	December 29, 1992	Quang Dien District Health Centre, Thua Thien-Hue Province Hygiene and Epidemiology Centre Hue - Da Nang
Wed.	December 30, 1992	Da Nang Province Health Service
Thu.	December 31, 1992	Da Nang - Hanoi (VN-312)
Fri.	January 1, 1993	Data Analysis
Sat.	January 2, 1993	Hanoi - Quang Ninh Monkey Island (NIHE)
Sun.	January 3, 1993	Quang Ninh - Hanoi
Mon.	January 4, 1993	MOH; Dept. of Organization and Manpower. Centre for Statistics and Information. Dept. of Pharmaceutical Management. Dept. of Equipment and Facilities. Bach Mai Hospital. Institute of Dermatology and Venereal Diseases.
Tue.	January 5, 1993	Institute of Tuberculosis and Respiratory Diseases Institute of Drug Quality Control National Institute of Hygiene and Epidemiology Thanh Nhan Hospital
Wed.	January 6, 1993	Institute of Malariology, Parasitology and Entomology WHO Olof Palme Institute for the Protection of Children's Health. UNICEF

Thu.	January 7, 1993	Report Writing
Fri.	January 8, 1993	Embassy of Japan MOH; Dept. of Hygiene and Environment
Sat.	January 9, 1993	Data Analysis
Sun.	January 10, 1993	Hanoi - Bangkok (VN-831)
Mon.	January 11, 1993	Bangkok - Tokyo (TG-640)

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