



*Thailand Health Profile*  
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# Thailand Health Profile 2001-2004

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## Preface

This report, Thailand Health Profile 2001-2004, is the fourth one ever published by the Ministry of Public Health of Thailand under the concept of Thai people's health being linked to all dimensions of the individuals, environment, and health services system. Therefore, to improve Thai people's health so that they all are healthy and have a long life, all such dimensions will have to be taken into account. During the time of preparation of this report, Thailand has implemented through half of its National Health Development Plan under the 9th National Economic and Social Development Plan (2002-2006). In order to make this report useful for drawing up policies and strategies for Health Development in the 10th National Economic and Social Development Plan on a timely basis, the data compiled include those for another two years in the following 13 chapters:

- Chapter 1 : Chakri Dynasty and Thai Public Health
- Chapter 2 : Thailand Country Profile
- Chapter 3 : National Health Development Plan under the 9th National Economic and Social Development Plan (2002-2006)
- Chapter 4 : Situations and Trends of Health Determinants
- Chapter 5 : Health Status and Health Problems of Thai People
- Chapter 6 : Health Service Systems in Thailand
- Chapter 7 : Administrative System of the Ministry of Public Health
- Chapter 8 : Major Public Health Programmes and Activities Implemented in Thailand
- Chapter 9 : Economic Dynamics and Health Implications
- Chapter 10: Health Systems and International Trade
- Chapter 11: Health Systems Reform and Decentralization
- Chapter 12: Civil Society and Health Development
- Chapter 13: International Health Development

The Ministry of Public Health hopes that this report would serve as a reference in enhancing the knowledge and understanding of all dimensions related to health, and lead to the promotion of partnerships for sustainable health development in the future.

## Acronyms

AEM	Asian Epidemic Model
AFP	Acute Flaccid Paralysis
AIDs	Acquired Immune Deficiency Syndrome
ANC	Ante-Natal Care
ARV	Antiretrovinal
BCG	Vaccine against Tuberculosis
BMA	Bangkok Metropolitan Administration
BMN	Basic Minimum Needs
CBR	Community-based Rehabilitation
CEO	Chief Executive Office
CMR	Child Mortality Rate
COPD	Chronic Obstructive Pulmonary Disease
CRI	Chulabhorn Research Institute
CSWs	Commercial Sex Workers
CUP	Contracted Unit of Primary Care
DALYs	Disability Adjusted Life Years
DHF	Dengue Haemorrhagic Fever
DoH	Department of Health
DPT	Vaccine against Diptheria, Pertussis and Tetanus
ECT	Election Commission of Thailand
EPI	Expanded Programme on Immunization
EQ	Emotional Quotient
FDA	Food and Drug Administration
FY	Fiscal Year
GDP	Gross National Product
GFATM	Global Fund to Fight Aids, Tuberculosis and Malaria
GMO	Genetically Modified Organisms
GMS	Greater Mekong Subregion
GPO	Government Pharmaceutical Organization
HB	Hepatitis B
HEC	Office of the Higher Education Commission
HIV	Human Immunodeficiency Virus
HSRI	Health System Research Institute

## Acronyms

IDu	Ingesting Drug Users
IFCS	Inter Governmental Forum on Chemical Safety
IMR	Infant Mortality Rate
KIB	Kunming Institute of Botany
KPI	Key Performance Indicator
MBDS	Mekong Basin Disease Surveillance
MDT	Multiple Drug Therapeutic(for leprosy)
MoPH	Ministry of Public Health
MTCT	Mother-to-Child HIV Transmission
n.a.	Not Available
NCCC	National Counter-Corruption Commission
NESDB	National Economic and Social Development Board
NHF	National Health Foundation
NHSO	Nation Health Security Office
NSO	National Statistical Office
OPV	Oral Polio Vaccine
ORT	Oral Rehydration Therapy
PCMO	Provincial Chief Medical Officer
PCU	Primary Care Unit
PHC	Primary Health Care
PMC	Primary Medical Care
PPHO	Provincial Public Health Office
SMC	Secondary Medical Care
STIs	Sexually Transmitted Infections
TDRI	Thailand Development Research Institute
TFR	Thai Research Fund
TMC	Tertiary Medical Care
TT	Tetanus Toxoid
UNICEF	United Nations Children's Fund
VHCs	Village Health Communicators
VHVs	Village Health Volunteers
WHA	World Health Assembly
WHO	World Health Organization
WTO	World Trade Organization

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# CHAPTER 1

## CHAKRI DYNASTY

### AND THAI PUBLIC HEALTH

The development of public health in Thailand has been associated with the monarchy institution since the Sukhothai period and in the Rattanakosin (Bangkok) period in particular. Thus, this chapter focuses on the relationships between the Royal House of Chakri Dynasty and the public health system in Thailand, which are phased into different eras as follows:

#### 1. The Era of Thai Traditional Medicine Revival (1782-1851)

The reigns of King Rama I through King Rama III (the first through third Kings) of the Rattanakosin period were a period of national **reconstruction** with efforts in **assembling various technical disciplines** for use as references for study and national development.

##### 1.1 The Reign of King Rama I (1782-1809)

King Rama I (Phrabat Somdet Phra Buddhayodfa Chulalok the Great) renovated Wat\* Photharam (Wat Pho), renamed it Wat Phra Chetuphon Wimon Mangklaram, and had traditional medicine formulas as well as body exercise or stretching methods assembled and inscribed on cloisters, walls. Regarding official drug procurement, the Department of Pharmacy (Krom Mo Rong Phra Osoth) was established, similar to that in the Ayutthaya period. The medical doctors who were civil servants were called **royal doctors** (*mo luang*) and other doctors who provided medical services to the general public were called **private doctors** (*mo ratsadorn* or *mo chaloei sak*).

##### 1.2 The Reign of King Rama II (1809-1824)

King Rama II (Phrabat Somdet Phra Buddhaloetla Naphalai) had traditional medicine textbooks gathered again by inviting all experts/practitioners to assemble indications of various medicines. Anyone having a good medicine formula was requested to present it to the King. Then the royal doctor department would select and inscribe the good ones in the **Royal Formulas for the Royal Pharmacy (Tamra Luang Samrab Rong Phra Osoth)** for the public's benefits.

In 1816, the King promulgated the Royal Pharmacists (Panakngarn Phra Osoth Thawai) Law, under which royal pharmacists had powers to seek medicinal herbs throughout the country; and no one could raise any objection. And thus they passed on the practices to their next generations.

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\* Wat means Buddhist monastery.

### 1.3 The Reign of King Rama III (1824-1851)

King Rama III (Phrabat Somdet Phra Nangklao Chao Yu Hua) renovated Wat Ratchaorasaram and had traditional medicine formulas inscribed on stone plates and stone columns around temple's verandas. With the royal command, Wat Phra Chetuphon was renovated once again and, in the Wat's compound, medicine formulas were inscribed on marble plates affixed to the walls of the temple and cloisters, describing the causes of diseases and how to cure such diseases. Rare medicinal herbs were planted so that the people could study and use for self-care without confining them for use only in any particular family. The Wat is thus considered the "first open university" in Thailand.

In 1828, the fifth year under the reign of King Rama III was regarded as the time that Western medicine began to play a key role in medical and health care in the country. The Western medical care including dangerous disease prevention was provided to the people. **Dr. Dan Beach Bradley**, generally known to the people as "Mo Bradley", an American Christian missionary who came to Thailand in 1835, **initiated a disease prevention** programme for the first time in the country with **smallpox inoculation**. Then, in 1838, the King advised the royal doctors to learn the inoculation techniques from Dr. Bradley in order to provide immunization services to civil servants and the public.

In 1849, Dr. Samuel Reynolds House, commonly known as **Mo House**, another doctor of the American missionary **introduced the use of ether as anaesthetic for the first time in Thailand**.

## 2. The Era of Civilization

During the reigns of King Rama IV, through King Rama VI, there were diplomatic relationships with Western countries and more Christian missions. The King visited foreign countries and brought back various kinds of civilization for application in the Kingdom, which steadily became modernized; so did the medical and health system.

### 2.1 The Era of King Rama IV (1851-1868)

During the reign of King Rama IV (Somdet Phra Chomklao Chao Yu Hua or King Mongkut), the Thai medical service was divided into two systems: traditional medicine and modern medicine.

Three American doctors (Drs. Bradley, House and Lane) lived in Thailand for a long time during that period. Dr. House played an active role in the control of cholera by using water mixed with tincture in treating the patients orally.

Although Western medicine was further expanded, for example to obstetric or childbirth services, it was unable to change the value of the people as Thai traditional medicine had been used culturally for several generations and was part of Thais' lifestyle

### 2.2 The Reign of King Rama V (1868-1910)

Previously, there was no public hospital to provide curative care to the people as only temporary hospitals were set up at various places to care for patients during epidemics. After the epidemic



subsided, the hospitals were abolished. King Rama V (Phrabat Somdet Phra Chulachomkloa or King Chulalongkorn) initiated a medical care programme for the poor by establishing a **Hospital Management Committee** in 1886 under the Chairmanship of the King's brother, Prince (Krommamuen) Siriwachsangkat. A hospital was constructed and completed in 1888 and named "**Siriraj Hospital**" in commemoration of his son, **Prince Siriraj Kakuttaphan**, who had died of dysentery. Later on, the King established a **Nursing Department** responsible for the management of Siriraj Hospital, replacing the Hospital Management Committee in 1889. The Department was then under the Ministry of Education (Krasuang Dharmmakon) with King's brother, Prince (Krommamuen) Damrong Rajanuparp, as the Director-General. During that period a number of major medical services events occurred:

In 1889, a medical school (Phaetthayakorn School) was established in Siriraj Hospital, whose curriculum included both Western and traditional medicine. And in 1895, the first **Medical Welfare Textbook (Tamra Phaetthayasat Songkhro)** covering both types of medical practices was published.

In 1896, a midwifery school was established with the personal funds of Queen Sri Patcharintara Boromarachininart in the Siriraj Hospital compound.

In 1897, a new edition of the **Medical Welfare Textbook** was published whose contents mostly dealt with Western medicine.

In 1905, a sanitation management programme was piloted for the first time, in Tambon Tha Chalom (subdistrict) of Samut Songkhram Province.

In 1907, two medical textbooks (medical literature or wetchasat wanna and medical welfare) were published and were considered the "first national medical and pharmaceutical textbooks".

A Medical Division was set up to take responsibility for the epidemic control and smallpox inoculation for the people outside the capital.

### **2.3 The Reign of King Rama VI (1910-1925)**

During the reign of King Rama IV (Phrabat Phra Mongkutkloa Chao Yu Hua or King Vajiravudh), a number of medical and health activities were initiated as follows:

In 1911, King Chulalongkorn Memorial Hospital was built with partial funding from the King's own accounts and the Thai Red Cross Society (then known as Sapha Unalom Daeng) was established.

In 1912, the Pasteur Institute was established to be responsible for the rabies prevention and control programme: and Vajira Hospital was established.

In 1914, under the Ministry of Interior, pharmacies (Osoth Sapha) were set up to provide curative care and dispense drugs; and later each pharmacy was renamed "Health Centre" (Suk Sala).

In 1916, the Nursing Department was renamed "Public Protection Department" (Krom Prachapiban) under the Ministry of Interior.

In 1916, Prince Chainat Narenthorn revised the medical education system by adding more clinical practices **while withdrawing traditional medicine** as the two systems were not compatible and it was difficult to identify knowledgeable Thai traditional medicine teachers who were willing to teach.



In 1917, the Army Medical School was established.

In 1918, the medical and sanitation programmes, previously under the Ministry of Interior and the Ministry of City Affairs (Nakhon Ban), were merged and named the Public Health Department on 27 November, with Prince Chainat Narenthorn as the first Director-General.

In 1920, the Queen Saovabha Memorial Institute was established: and the Thai Red Cross Society was registered as a member of the International Federation of Red Cross and Red Crescent Societies on 8 April.

In 1922, the Young Red Cross Division and the Nursing School were established under the Thai Red Cross Society.

In 1923, **the Medical Practice Act** was promulgated to control medical services and practices so that there would be no harm done by unknowledgeable or untrained practitioners.

### 3. The Era of Pioneering Modern Medical and Health Services (1917-1929)

the King's father, Somdet Phra Mahitalathibet Adulyadej Vikrom Phra Boromarajchanok (commonly known as HRH Prince Mahidol of Songkla), was the first Thai prince to become seriously interested in medicine and public health. That was because he had deemed that the medical and health services were not up-to-date; and the people were highly vulnerable to illnesses, particularly communicable diseases. With his firm resolution to provide modern medical care to the people, he dedicated himself to the foundation and development of medicine by resigning from the Royal Thai Navy and studying medicine and public health at Harvard University in the United States of America. He intended to bring back modern technology for developing the Thai medical and health care system. Through his steady perseverance, he graduated with a Certificate of Public Health and a Doctor of Medicine degree (cum laude). He then returned to Thailand to perform numerous medical and health activities that were extremely beneficial to the country and Thai people. He had donated funds for such medical programmes as construction of a medical school, a hospital and a dormitory for nurses. His personal financial support was used as fellowships for doctors and nurses to study abroad. He served as a Thai delegate in negotiation with the **Rockefeller Foundation** on assistance for Thai medical service development. His support for medical research involved the initiation of the medical research and investigation programme at Siriraj Hospital. Besides, he had participated in teaching medical and nursing students, and served as a medical resident at Siriraj Hospital and Chiang Mai's McCormick Hospital. He had supported maternal and child health (MCH) services by modifying Vajira Hospital as a large maternal hospital to serve as a training centre for nurses, midwives, public health nurses, social welfare workers and traditional birth attendants, so that there would be more MCH personnel.

Throughout his life, HRH Prince Mahidol had undertaken activities to promote the nation's medical and health services that are greatly beneficial to all Thai citizens. It was the foundation of the Thai public health system that has resulted in steady and sustainable development, similar to that in other civilized nations. Due to his prestige and ingenuity, he was named "**the Father of Thai Modern Medicine**"; and the University of Medical Sciences mainly producing medical and health the personnel was renamed "**Mahidol University**" in commemoration of his good deeds.

## 4. The Era of the Conception of the Ministry of Public Health

### 4.1 The Reign of King Rama VII (1925-1934)

During the reign of King Rama VII (Phrabat Somdet Phra Pokkloa Chao Yu Hua, commonly known as King Prajadhipok), a **ministerial rule** on modern and traditional medical practices was enacted, specifying that:

A. **Modern medical practitioners** were those who used healing arts based on knowledge from international textbooks that had progressed through studies, research, and experiments of scientific experts worldwide.

B. **Traditional medical practitioners** were those who used healing arts based on the observations and skills that had been verbally passed on from previous generations or the ancient notebooks with no scientific backups.

In 1926, the Public Health Department was reorganized and divided into 13 divisions, namely, Administration, Finance, Advisors, Editing, City Protection, Engineering, Health, Pharmacy, Narcotics, Mental Illness Hospital, Sanitation Promotion, City Sanitary Doctors, and Vajira Hospital.

### 4.2 The Reign of King Rama VIII (1934-1946)

During the reign of King Rama VIII (Phrabat Somdet Phra Chao Yu Hua Ananda Mahidol), Prime Minister Field Marshall Plaek Pibulsongkram issued an order in 1942 appointing a Committee on Medical Reorganization, which proposed the establishment of a Ministry of Public Health to the Cabinet and then to the Parliament. Later on the Ministries and Departments Reorganization Act (Amendment No. 3) of B.E. 2485 (1942) was promulgated, under which the present-day Ministry of Public Health was established.

Regarding medical services, more studies were conducted on herbal medicine during 1942-1943 while World War II was expanding to Southeast Asia, resulting in drug shortages. Professor Dr. Ouy Ketsingh conducted a study on antimalarial herbal medicine at Sattahip Hospital. After the war ended, the problem of drug shortages remained, the government decided to set a policy for the MoPH Government Pharmaceutical Organization (GPO) to also produce herbal medicines.

### 4.3 The Reign of King Rama IX (1946-present)

**4.3.1 His Majesty King Bhumibol Adulyadej (Rama IX)**, the present King, has been interested in and concerned about of the well-being, particularly health conditions, of all citizens. His Majesty has made a great resolution to make all Thai people happy by initiating numerous projects including those on disease prevention, health promotion, curative care and rehabilitative services. All Thai citizens highly appreciate his graciousness. Even foreigners also realize and appreciate his health initiatives as evidenced by **WHO's presentation of the Health For All Gold Medal** in 1992 and the presentation of Gold Medal of Appreciation by the International Commission on Iodine Deficiency Disorder Control, for his advice on the concept and direction for disseminating iodized salt to prevent iodine deficiency. Besides, in 2001 the Franklin and Eleanor Roosevelt Institute and the World Committee on Disability presented His Majesty with a Franklin

Delano Roosevelt International Disability Award in recognition of Thailand's achievements of major targets of the UN's global plan of action on persons with disabilities. Some major public health activities that have been graciously supported/initiated by His Majesty are as follows:

**(1) The Establishment of the Ananda Mahidol Foundation**

The Ananda Mahidol Foundation was established because of His Majesty's interest in the welfare and well-being of the Thai people as it has been deemed that experts in advanced technical knowledge are required for national development. Thus, those with outstanding academic records should be promoted and supported to study abroad in certain fields with the expectation that, upon graduation, such people will return to serve the country in their respective field of study. On a pilot scale, the initiative was financed with the Ananda Mahidol Fund in 1955.

Later, on 3 April 1959, His Majesty decided to change the Fund's name and status to "The Ananda Mahidol Foundation" and donated 20,000 baht of his personal funds as an endowment, in commemoration of his elder brother, the late King Ananda Mahidol (King Rama VIII), **and awarded a first scholarship for studying medicine abroad.**

The Foundation's objective is to promote and support advanced studies with scholarships for qualified bachelor's degree graduates from any Thai university. The scholarship recipients, who are outstanding technically and morally, will further their advanced studies abroad; then upon graduation return to transfer such knowledge to a younger generation in an effort to help develop the nation. Several research institutes have been established for returnees to undertake research studies in the country.

His Majesty, who founded the Foundation, has served as its honorary president; and the first 10-member Executive Committee of the Foundation was chaired by the late Princess Mother (Somdet Phra Srinagarindra Baromarajanai). At present, the Executive Committee comprises 18 members under the chairmanship of Her Royal Highness Princess Maha Chakri Sirindhorn.

Since 1959-2003 the Foundation has awarded over 287 scholarships for overseas studies, out of which 227 have graduated and returned and another 60 are still studying. Among the returnees, 71 are medical doctors and 5 dentists; and among those studying, 4 are medical doctors and 5 dentists. The returnees have taken turns appearing on the television programme entitled "**One of the Royal Initiatives: Human Capital Building Project**", on Channel 9, MCOT, every Saturday at 20:30 hours. Its purpose is to disseminate their knowledge and experiences to the public.

**(2) The Establishment of the Rajapracha Samasai Foundation**

In 1954, His Majesty the King granted a permission to show the movie of his personal life at Chaloe Krung Theatre and gave all the proceeds of 444,600.50 baht for the construction of the **Ananda Mahidol Building** at Siriraj Hospital in commemoration of the late King Ananda Mahidol. An additional 1,558,561 baht from his private funds and public donations was given for the construction. The building was inaugurated by His Majesty on 9 June 1957.

Upon completion of that building at Siriraj, there was a funding leftover of 175,065.75 baht. At the request for funding of the then Public Health Minister for **building an institute for personnel training** and

research on leprosy at Phra Pradaeng Hospital in the amount of one million baht, His Majesty gave the remaining funds to initiate such activities for leprosy patients.

On 16 January 1958, Their Majesties the King and Queen graciously presided over the foundation stone laying ceremony at Phra Pradaeng Hospital. Upon completion of the building, at the MoPH's request, His Majesty named the place "**Rajapracha Samasai Institute**". The King had also been concerned about the education of lepers' children who were not infected, but isolated in a nursery of the Department of Health. Then **Rajapracha Samasai School** was established for this purpose with the initial royal funds of one million baht. The King presided over the school opening ceremony and later on visited it again several times. At present, the school has its own foundation (separate from the Rajapracha Samasai Foundation) and has been transferred to the Department of General Education, taking other students, similar to other schools of the Ministry of Education.

### **(3) The Establishment of the Prince Mahidol Award Foundation under the Royal Patronage**

The Prince Mahidol Award Foundation under the Royal Patronage was established on 1 January 1992 to commemorate the 100th anniversary of the birth of His Royal Highness Prince Mahidol, the King's father. In addition to serving as a remembrance to him, the Foundation aims to disseminate the reputation of Prince Mahidol, who performed numerous medical and health activities that were extremely beneficial to the country. With his personal funds, a number of doctors and nurses were sent for advanced study abroad, and a medical school building and a hospital (common ward) building were constructed. He served as a Thai delegate in negotiation with the **Rockefeller Foundation** on assistance for Thai medical service development. All his efforts were the foundation on assistance for the Thai medical system, resulting in its advancements similar to those in other civilized nations at present. Thus, he was named "the Father of Thai Modern Medicine and Public Health". In remembrance of his good deeds, the "Mahidol Award Foundation under the Royal Patronage" was established and later renamed "Prince Mahidol Award Foundation under the Royal Patronage" on 28 July 1997.

Two awards are given each year to individuals demonstrating outstanding contributions to the advancement of medicine and public health throughout the world. The Foundation Committee is at present chaired by HRH Princess Maha Chakri Sirindhorn.

Between 1992 and 2003, Prince Mahidol Awards were given to 37 individuals or institutions, 18 of whom had outstanding contributions in the field of medicine and 19 in public health.

### **(4) Iodine Deficiency Control Project**

As His Majesty the King has been so concerned about the problem of iodine deficiency disorders, the Iodine Deficiency Control Project is regarded as one of the top priority projects of the MoPH. In 1991, the King initiated a pilot project in Samoeng District of Chiang Mai Province to distribute iodized salt for preventing iodine deficiency disorders such as goitre and mental retardation. Furthermore, he has been interested in developing an appropriate technology for small-scale iodized salt producers and supported Chiang Mai Technical College to develop a medium-size iodizing machine, which is currently being used nationwide.

Later, His Majesty a study on “**salt route**” to find out about the salt production and distribution system across the country. The results have been used by the MoPH in assisting iodized salt producers appropriately.

On the occasion of the 50th Anniversary (Golden Jubilee) of His Accession to the Throne in 1996. His Majesty bestowed iodized salt the MoPH for further distribution to the people nationwide. With the royal permission, the Golden Jubilee emblem was printed on each bag of the salt; thus, the salt was called “**royally bestowed salt**”. His interest and support have stimulated awareness and cooperation among various agencies concerned in all sectors of Thai society, resulting in the project success nationwide.

**4.3.2 Her Majesty Queen Sirikit** has always supported the King,s health projects. **The Queen serves as the President of the Thai Red Cross Society** and as a patron of associations and foundations involved in health activities such as **the Foundation for the Blind, the Foundation for the Mentally Retarded, and the Foundation for the Deaf**. Importantly, Her Majesty is the patron of the **Polio Immunization Campaign Project**, which has steadily reduced the polio incidence. the disease is expected to be eradicated in Thailand in the near future. Besides, Her Majesty was Presented with the **Lindbergh Award** on 16 May 1995 from the Charles A and Anne Morrow Lindbergh Foundation for her internationally recognized work on “**creating a balance between technology and nature**”. She was the first lady to receive such an award.

In addition, Her Majesty the Queen has been supporting and participating in other health activities as follows:

(1) **Royal Medical Services Project**. During Her Majesty’s stay at one of the royal residences outside Bangkok, the Queen will have a mobile medical unit, comprising royal doctors, Red Cross personnel and royal staff, provide medical care to the people to the extent possible and refer the severe cases to hospitals.

(2) **Village Doctors Project**. Her Majesty has initiated the “village doctors project” to enable villagers to help each other. Selected village volunteers were trained in the village doctors course with living allowances provided by the project. Upon completion, each trained village doctor was given a bag of medical supplies and returned to his own village to provide primary care before referring a severe case to a doctor. The project has been very beneficial to local villagers.

(3) **Royal Patronage of Patients**. The Queen has been patronizing poor patients in terms of medical care, living allowances, children’s educational allowances, and appropriate occupational support.

To commemorate the auspicious occasion of the 72nd Birthday Anniversary (6th 12- month Cycle) of Her Majesty Queen Sirikit, on 12 August 2004, the MoPH has initiated and implemented several major projects as follows:

(1) **Eye and Heart Project in Commemoration of Her Majesty the Great Queen’s 72nd Birthday Anniversary**. The project plans to perform 7,200 heart surgeries and 100,000 cataract surgeries.

(2) **Food Safety Project for Her Majesty the Mother of the Land**. The project’s aim is provide the people with safe food that is free from pathogenic and chemical contamination, by developing a



system for the quality control and assurance of food production, and monitoring the food chain so that it is up to the international standards.

(3) Disability Correction Surgery, Physical Rehabilitation and Eye–lens Replacement for Leprosy Patients Project in Commemoration of Her Majesty Queen Sirikit’s 6th Cycle Birthday. Its aim is to perform 72 surgeries on leprosy patients to correct and rehabilitate their physical disabilities, especially for those who have suffered from complications with defects in the hands, feet and face. It will provide eye–lens replacement surgery on 72 cataract/leprosy patients.

(4) The Establishment of Centres for Helping Children and Women Victims of Violence Crisis Project in Commemoration of Her Majesty Queen Sirikit’s 6th Cycle Birthday. The project aims to set up 76 centres to help children and women who are victims of violence in all regional hospitals nationwide.

(5) Public Mental Health Promotion Project in Commemoration of Her Majesty Queen Sirikit’s 6th Cycle Birthday. The project aims to educate the public and communities about mental health promotion and to help them to live a mentally happy life.

(6) Tuberculosis Eradication Project in Commemoration of Her Majesty Queen Sirikit’s 6th Cycle Birthday. The project plans to do a proactive case finding and provide treatment for 72,000 tuberculosis cases until they all are cured.

**4.3.3 Her Royal Highness the Princess Mother** (Somdet Phra Srinagarindra Baromarajanani), the late mother of the King, was one of the important members of the Royal Family who had undertaken or supported numerous activities related to the public health as follows:

(1) In 1956, the Princess Mother began to patronize the Foundation for Assistance of the Disabled by donating her personal funds for the operations of the Foundation and seeking support from local and international individuals as well as agencies concerned for persons with disabilities.

(2) In 1963, the Princess Mother began to patronize the Foundation for Lepers in Lampang Province by donating her personal funds for the construction of Jitaree School building and a dormitory and providing financial support for the children of lepers as well as for the operations of the school. Consequently, the quality of life of lepers’ children and people with poverty has been much improved.

(3) In 1967, the Princess Mother accepted the New Life Foundation under her patronage in order to help rehabilitate the disabled lepers.

(4) In 1969, **Mobile Medical Corps (Por Or Sor Wor mobile medical units)** were set up, comprising volunteer doctors, dentists, nurses, health workers and volunteers from both central and provincial levels. The units have been providing curative, preventive, promotive and rehabilitative care to the people in remote areas.

(5) In 1973, a **Volunteer Flying Doctors** Unit was launched and later on became a **Radio Medical Services Unit** that provided medical consultation to remote health centres via radio communications in 25 provinces. Since 1976, the MoPH had undertaken similar services for other provinces. In 1996, they were all transferred to be under the MoPH.

(6) In 1974, HRH the Princess Mother established the **Princess Mother's Medical Volunteer Foundation** and bestowed a first endowment of one million baht. The Royal Thai Government as well as public and private agencies from within and outside the country have provided financial support and medical supplies to the Foundation.

In 1986, a specialized medical services project was initiated to provide surgical care for patients with cataract, cleft lip and cleft palate, prosthetic/orthotic services, rheumatic heart disease and impacted tooth.

(7) Dental health services of the Mobile Medical Corps include the following:

(7.1) Activities on the National Dental Health Day, 21 October each year.

(7.2) Mobile dental services, two mobile dental service vans were provided to the provinces with Mobile Medical Corps to provide dental services to the people.

(7.3) Dental health surveillance activities among students in primary schools and border patrol police-operated schools.

(7.4) Campaigns on "clean teeth, good gum" as part of the merit-making to benefit the late Princess Mother, on her death date, 18 July each year.

(8) In 1992, HRH the Princess Mother donated her personal funds of 500,000 baht to establish an Artificial Legs Foundation and HRH Princess Galyani Vadhana also donated another 750,000 baht to produce artificial legs for poor people regardless of race or religious belief.

Besides, the Princess Mother had also financially supported research studies of various individuals and institutions to strengthen their scientific and technological capacity in the fields of health sciences, chemistry and pharmacy.

In recognition of her prestige and devotion for health promotion of Thai people, in 1990 the World Health Organization presented the Princess Mother with "**The Health For All Gold Medal Award**". Furthermore, on 21 October 2000, UNESCO honoured the Princess Mother as a world leader in public service in the fields of education, applied science, and human, social and environmental development. In addition, on the 100th birthday anniversary, the Princess Mother was named "**the Mother of Thai Public Health**",

**4.3.4 Her Royal Highness Princess Galyani Vadhana Krom Luang Naradhiwas Rajanagarindra**, the King's elder sister, is the President of the **Kidney Disease Foundation** of Thailand, and has supported curative care, prevention of kidney and urinary tract diseases, and research as well as dissemination of knowledge on such a disease.

Besides, the Princess has continued supporting projects initiated by the late Princess Mother. She has also served as the Honourary President of the Princess Mother's Medical Volunteer Foundation since 18 August 1995. She has also had outstanding contributions to the international mental health promotion and drug dependence prevention programmes, giving importance to young childhood development (being a patron of the Young Children in Slums Foundation and several other foundations), making donations for setting up supplementary food funds, and providing books and toys for enhancing child development according to their age. In recognition of her reputation and contributions, the South-East Asia Regional office of the

World Health Organization presented her the WHO/SEARO Award on 19 August 2003.

**4.3.5 His Royal Highness Crown Prince Maha Vajiralongkorn is the Honourary President of the Crown Prince Hospitals Foundation.** The Crown Prince presided over the foundation stone laying and opening ceremonies of all 21 Crown Prince Hospitals (district-level hospitals in remote areas). With great interest in health activities, he regularly visits the hospitals and gives advice to the MoPH on how to improve hospitals, efficiency and quality for the people's benefit.

**4.3.6 Her Royal Highness Princess Maha Chakri Sirindhorn (Somdet Phra Debaratrasuda Sayamborommarjakumari)** is particularly interested in improving the nutritional status of children and youths. Thus, several royally initiated projects have been launched such as the Agriculture for School Lunch Project, aiming to help improve health and nutritional status of children in remote areas particularly in border patrol police-operated schools. Later on, the Ministry of Education has adopted this approach and got it replicated in all other schools nationwide. Besides, the Princess has supported the Project on Nutritional Status Improvement for Children under 5 and the Child Development Centres with her personal funds.

To promote child growth and development, the Princess has initiated the Nutritional and Health Promotion for Mothers and Children in the Remote Areas Project. Its aim is to provide the knowledge on nutrition and health services to pregnant women, lactating mothers, and children aged 0-3 years, and to improve nutritional status of mothers so that they will have health newborns and babies who will grow up and develop up to their full potential.

In addition, the Princess serves as the Chairperson of the National Committee on Iodine Deficiency Control. With her leadership and support, the iodine deficiency problem has been reduced to the level that it is no longer a public health problem.

The Princess has also given advice on how to use the information technology for improving the potential of children living in the remote areas, who are disadvantaged in terms of education, sick children and the disabled to make use of IT equipment for learning purposes. This effort, with herself serving as the Chairperson of the project's steering committee, will help such people to develop their quality of life and provide them with an equal opportunity for education.

**4.3.7 Her Royal Highness Princess Chulabhorn** has been playing an outstanding role as a scientist. Her reputation is internationally recognized and she was awarded the Einstein Gold Medal from UNESCO. The Princess has contributed to several medical and health development activities and established the Chulabhorn Foundation to assist in medical and health education. The Chulabhorn Research Institute was also established by the Princess as a centre for scientists to conduct research studies aimed at developing scientific products or findings that will be beneficial to the nation and resolve urgent health, environmental and agricultural problems. Besides, the Institute has also implemented the Chulabhorn Village Development project in the southern provinces of Nakhon Si Thammarat and Surat Thani, whose aim is to improve environmental conditions and well-being of the people, based on the primary health care concept and self-reliance approach.

**4.3.8 Her Royal Highness Princess Somsawalee** has continuously performed royal



functions initiated by Their Majesties the King and Queen, particularly those related to social development. She has been involved in activities of the Sai Jai Thai Foundation since 1975 by visiting and boosting morale of military and police officers, volunteers and civilians who were injured in the fight against terrorists and admitted at various hospitals. She has been elected a member of the Foundation Committee.

Regarding medical and health activities, Princess Somsawalee is particularly interested in the HIV/AIDS problem as evidenced by the fact she always presides over the Thian Song Chai (Candlelight in the Mind) Festival almost every year if she is not engaged in any other more important function. The festival has been held by the Thai Red Cross Society and the Wednesday Friends Club (a club of people living with HIV/AIDS) on 1 December, the World AIDS Day, every year since 1991 with the aim of enhancing good understanding among the HIV-infected and uninfected people. It also aims to show to society as a whole that HIV-infected people are not dangerous to the public; an infected person can be healthy and beneficial to the family and society. Her kindness has also been extended to all other Red Cross projects such as the Prevention of Mother-to-Child Transmission of HIV Project and the Friends Help Friends While in Difficulties Project.

Besides, the Princess has performed other duties on behalf of HRH Princess Maha Chakri Sirindhorn at graduation ceremonies, conferring degrees or certificates to the graduates of MoPH Nursing Colleges, at the new auditorium of Suan Amphorn, as well as privately-run Mission and Christian Nursing Colleges almost every year. She sometimes presides over the opening ceremony of the Disabled Persons Day exhibition at Suan Amphorn. With her concern over the well-being of the elderly, she has visited elderly people at Bang Khae Home for the Elderly, making them extremely delighted.

## CHAPTER 2

# THAILAND COUNTRY PROFILE

### 1. Location, Territory and Boundary

The Kingdom of Thailand is situated in the continental Southeast Asia, just north of the equator, and is part of the Indochina Peninsula (Figure 2.1).

**Figure 2.1** Map of Thailand



Its shape is like a long-handled dipper made of coconut shell or an ancient axe, covering an area of about 514,000 square kilometres. It is the third largest country among the Southeast Asian nations, compared with Indonesia and Myanmar. The borders around Thailand are totally about 8,031 kilometres long, of which 5,326 kilometres are inland and the other 2,705 kilometres are coastlines (including 1,840 kilometres of coastlines of the Gulf of Thailand and 865 kilometres on the Andaman seaside).

In the North, the northernmost part of Thailand is in Mae Sai District of Chiang Rai Province, bordered by Myanmar and the Lao People's Democratic Republic.

In the South, the southernmost part is in Betong District of Yala Province, bordered by Malaysia and the Gulf of Thailand.

In the East, the easternmost part is in Phibun Mangsahan District of Ubon Ratchathani Province, bordered by the Lao People's Democratic Republic and Cambodia.

In the West, the westernmost part is in Mae Sariang District of Mae Hong Son Province, bordered by Myanmar, the Andaman Sea, and the Strait of Malacca.

The whole Kingdom is in the same time zone, seven hours ahead of the Greenwich Mean Time.

## 2. Topography and Climate

**2.1 Topography.** Thailand can be topographically divided into three different areas:

**2.1.1 The plains.** Mostly the plain areas are in the Central Region of the country, i.e., basins of the Chao Phraya River and its tributaries (Ping, Wang, Yom and Nan), and the Mae Klong, Phetchaburi, Bang Pakong, Thachin, and Pa Sak rivers.

**2.1.2 The highlands.** Highland areas are mostly in the Northeast, i.e., the Korat Plateau, and the plains along the Mun and Chi rivers.

**2.1.3 The mountains.** Mostly it is mountainous in the North and the Southeast which cover the Ranges of Daen Lao, Luang Phra Bang, Thanon Thongchai, Phetchabun, and Tanao Si.

**2.2 Climate.** Thailand has three types of climate as follows:

**2.2.1 Tropical rain climate** in the coastal areas in the East and the South, with heavy rainfalls all year round and tropical rain forests.

**2.2.2 Tropical monsoon climate** in the southwestern and southeastern coasts with monsoons and a very high average annual rainfall.

**2.2.3 Seasonal tropical grassland or savannah climate** with a lot of heavy rains in the southwest monsoon season and dryness in the cold season covering most regions of the country, particularly the Central Region, the North and the Northeast.

Prevailing winds include the southwesterly monsoon from about mid-May through October and the northeasterly monsoon from November through February.

In summary, Thailand has pleasant geographic and climatic conditions, without severe natural disasters like volcanic eruptions, earthquakes, or cold weather.

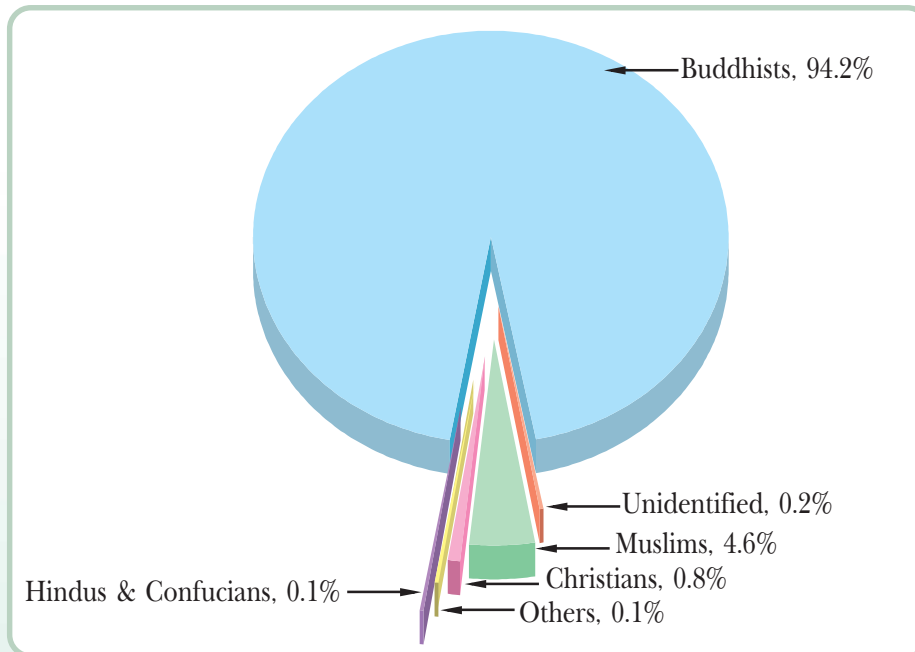
### 3. Population, Language and Religions

The population of Thailand is 63.08 million (2003); almost all residents (99.3%) are of Thai nationality and the rest are of other nationalities such as Chinese, Myanmar and Lao.

For communication purposes, the Thai language is officially and commonly used for speaking and writing, while English tends to play a greater role particularly in the business sector.

Most of Thai people are Buddhists (94.2%), followed by Muslims (4.6%) and others (Figure 2.2).

**Figure 2.2** Religions of Thai People



**Source:** Population and Housing Census 2000, National Statistical Office, 2002.

### 4. Economy

In the past, the Thai economy was agrarian with mostly subsistence farming for household consumption and no commercial or export purposes. Regarding industry, the production was previously of local or village handicraft type. Later on in 1856, Thailand entered into the Bowring Treaty with England and other treaties with other Western countries, economic businesses began. Since then, people's lifestyles in both urban and rural areas have changed to those of industrial manufacturing for import substitution and eventually for exports. The Thai economic system began to shift to the economic development era with National Economic and Social Development Plans, i.e., from the 1st Plan (1961-1966) through the current 9th Plan (2002-2006). Overall, Thailand is a free-market economy and has been a member of the World Trade Organization (WTO) since 1 January 1995.

As a result of economic development, the Thai economy grew at an average rate of 7.8% annually during the past three decades, particularly during the period 1986-1990 with an average annual growth of 10.5% and during the period 1991-1995 of 8.3%. The growth had made Thailand become a middle-income country. Later on during the period 1996-1997, an economic crisis erupted, Thailand had to seek assistance from the International Monetary Fund (IMF) in the form of US\$17.2 billion loans with a number of economic structural reform terms and conditions.

During the economic crisis, the Thai economic growth contracted considerably, i.e. -1.7% in 1997 and -10.8% in 1998, but recovered to over 4% during 1999-2000 and slightly dropped to 2.1% in 2001, and most recently has been rising to over 5% since 2002. Such growth has been due to the expansion of domestic consumption, private sector investments, exports, and partly to the grassroots-level economic stimulus measures of the present government (Table 2.1). As a result, the government could repay all the IMF loans on 31 July 2003, **two years before the repayment due dates.**

**Table 2.1** Economic Growth of Thailand, 1997-2004

Year	Economic growth rate (%)
1997	- 1.7
1998	- 10.8
1999	4.2
2000	4.6
2001	2.1 <sup>P</sup>
2002	5.4 <sup>P</sup>
2003	6.3 <sup>c</sup>
2004	7.0 <sup>c</sup>

**Source:** Thai Economy, Third Quarter, and Trends for 2003-2004, Office of the National Economic and Development Board.

**Notes:** <sup>P</sup> Preliminary figures

<sup>c</sup> Estimated figure

### **Economic Trends for 2004**

The National Economic and Social Development Board of Thailand has forecast that the Thai economy will continue to grow in 2004 as a result of the recovery of global economy, especially in Thailand's export markets such as the United States of America and Japan. The continuous implementation of the government's economic growth stimulus measures and low-interest financing schemes will result in the economic growth remaining high at the 7% level, the inflation rate rising to 2.4%, and a current account surplus of US\$ 8.7 billion or 5.3% of the gross domestic product (GDP).

## **5. Thai Administrative System**

Thailand is a democratic country, having the King as Head of the State, a constitutional monarchy under the Constitution of the Kingdom of Thailand of B.E. 2540 (1997), promulgated on 11 October 1997. The Constitution is regarded as the first people's constitution of the nation.

The Constitution establishes three independent powers, namely, the Legislative, the Executive, and the Judiciary powers. Under the Constitution, a number of independent public agencies have been established for scrutinizing and counterbalancing such powers. Such agencies include, for example, the Office of the National Counter-Corruption Commission (NCCC), the Office of the Election Commission of Thailand (ECT), the Office of the National Human Rights Commission and the Constitutional Court.

On the Legislative side, under the Constitution the first nationwide senatorial election of 200 senators was held in 2000, and in early 2001 the first general election of the members of the House of Representatives (members of parliament or MPs) was held for 400 constituency MPs and 100 party-list MPs.

Thailand's administrative system, according to the Country's Administration Act, B.E. 2534 (1991), as amended No. 5 of B.E. 2545 (2002), comprises three major administrative categories as follows (Figure 2.3).

## 5.1 Central Administration

5.1.1 The King is Head of the State, exercising the legislative power through the National Assembly or parliament, the administrative or executive power through the Cabinet, and the judicial power through the Courts of Justice.

5.1.2 The Cabinet or Council of Ministers is the governmental body responsible for administrative or governmental functions, under the parliamentary system. According to the Constitution, the government requires a majority vote in the parliament and is checked including balanced by the National Assembly.

5.1.3 The central administrative system, according to the Reorganization of Ministries and Departments Act of B.E. 2545 (2002), consists of 20 ministries as follows:

- (1) Office of the Prime Minister
- (2) Ministry of Defence
- (3) Ministry of Finance
- (4) Ministry of Foreign Affairs
- (5) Ministry of Tourism and Sports
- (6) Ministry of Social Development and Human Security
- (7) Ministry of Agriculture and Cooperatives
- (8) Ministry of Transport
- (9) Ministry of Natural Resources and Environment
- (10) Ministry of Information and Communication Technology
- (11) Ministry of Energy
- (12) Ministry of Commerce
- (13) Ministry of Interior
- (14) Ministry of Justice
- (15) Ministry of Labour
- (16) Ministry of Culture
- (17) Ministry of Science and Technology



- (18) Ministry of Education
- (19) Ministry of Public Health
- (20) Ministry of Industry

In each ministry, there are some departments and non-departmental agencies, totaling 156 in all ministries. Agencies under the Ministry of Defence are under the restructuring process under the law relating to the administration of the Ministry of Defence, which has to be finished within two years, according to section 55 of the 2002 Ministries Reorganization Act. In addition, there are another nine departmental level state agencies, not being under the Prime Minister's Office or any ministry, namely, the Office of His Majesty's Principal Private Secretary, the Bureau of the Royal Household, the Office of National Buddhism, the Office of the Royal Development Projects Board, the Office of the National Research Council, the Royal Institute, the Royal Thai Police, the Anti-Money Laundering Office, and the Office of the Attorney-General.

## **5.2 Provincial Administration**

The provincial governmental functions mean functions of various ministries and departments as delegated to the regional or provincial level, under the supervision of the provincial governor with assigned officials from various central administrative agencies. Certain provincial administrative functions only are carried out by provincial level officials with delegations from the central administration. Such functions, however, are subject to scrutiny and revision by relevant central level agencies that have the final decision-making authority.

According to the provincial administration law, the provincial administration consists of 75 provinces (Changwat), 795 districts (Amphoe) and 81 subdistricts (King Amphoe).

## **5.3 Local Administration**

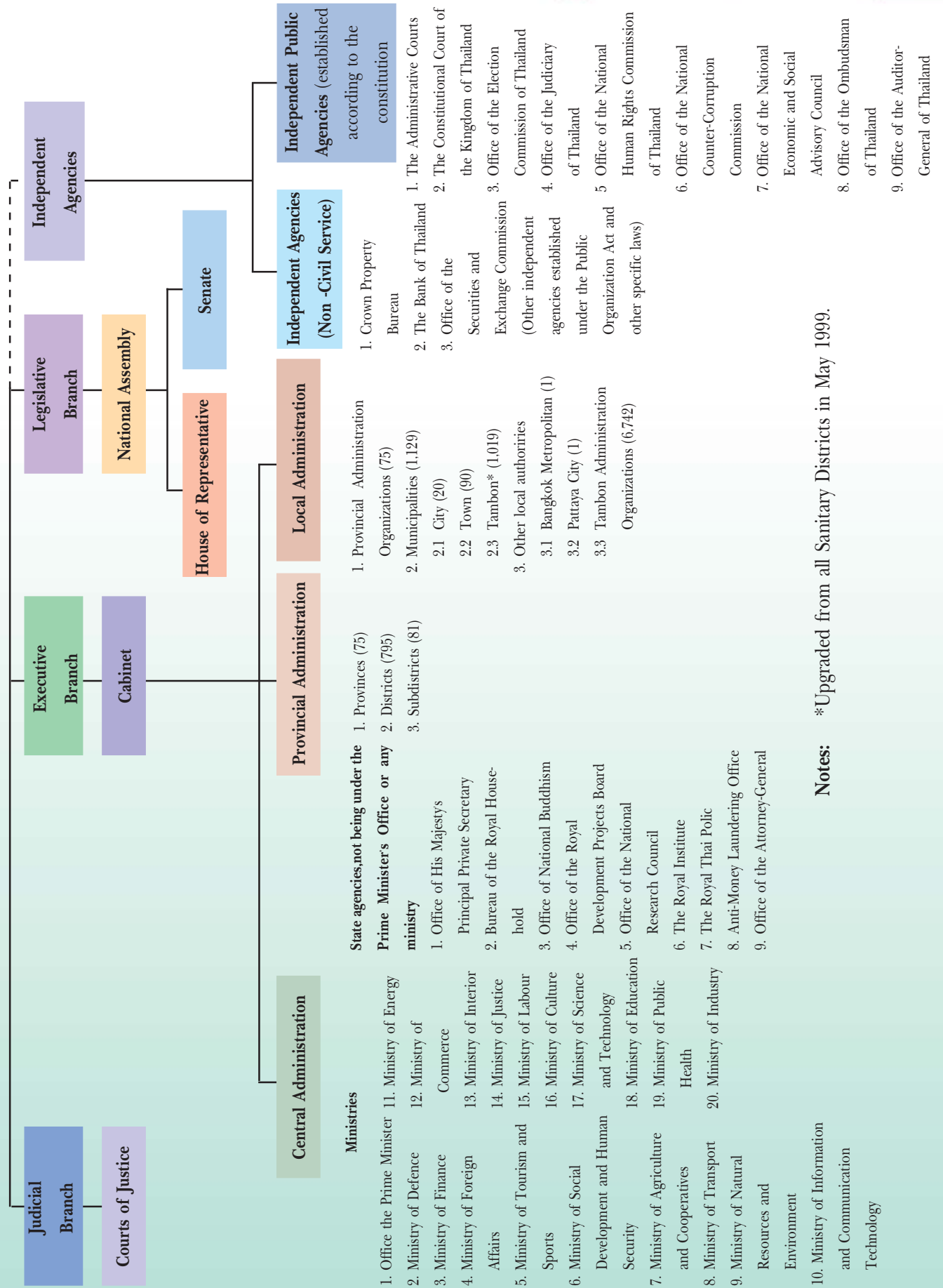
Local administration means autonomous administrative authority of the people in each administrative locality, under the law, with at least four characteristics as follows:

- 5.3.1 Being a juristic person.
- 5.3.2 Having all or some local administrators or local council members elected by the people.
- 5.3.3 Having their own revenue and budget.
- 5.3.4 Having administrative autonomy under the laws.

In Thailand, there are four types of local administrative bodies, namely, Provincial Administration Organizations (75), Municipalities (1,129), and other types of local authorities as designated by law, i.e. Bangkok Metropolitan Administration (1), Pattaya City (1), and Tambon Administration Organizations (6,742; Tambon is a commune or a group of about ten villages).



Figure 2.3 National Administrative System of Thailand



**Notes:** \*Upgraded from all Sanitary Districts in May 1999.



# CHAPTER 3

## NATIONAL HEALTH DEVELOPMENT PLAN UNDER THE 9TH NATIONAL ECONOMIC AND SOCIAL DEVELOPMENT PLAN (2002-2006)

### 1. The Conceptual Framework of the National Health Development Plan under the 9th National Economic and Social Development Plan (2002-2006)

The 9th Plan continues focussing on the concept of “human-centred” development approach in a holistic manner adopted in the 8th Plan; and His Majesty the King’s philosophy of “sufficiency economy” has been adopted as a guide for the development of Thai people’s health including the overall health system.

Conceptually, under the 9th Plan, “health” is regarded as the state of physical, mental, social and spiritual well-being that is interrelated holistically. Therefore, to improve people’s health status, it is necessary to develop the entire system that is linked to several other elements, i.e. individual, environmental (economic, social, political, physical, and biological), and health service system (see Chapter 4), including active participation of all sectors of society.

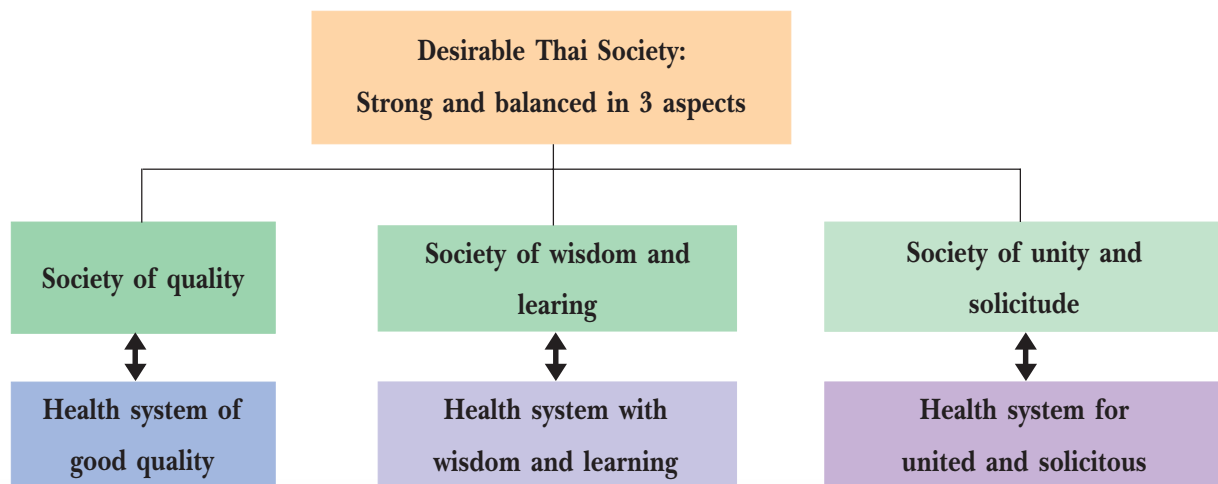
### 2. The Image of the Thai Health System

The current National Economic and Social Development Plan specifies the “vision of desirable Thai society” that it is a strong society with a balance of three aspects, i.e. society of quality, wisdom/learning, and unity/solicitude. Thus, health as part of society has to be strong and balanced in such three aspects.

The Steering Committee on National Health Development has set a desirable “image” of the Thai health system as follows (Figure 3.1):

*“A proactive health system that emphasizes health promotion of the people, in parallel with a satisfactory health insurance system, so that the people will have access to health care that is solicitous and of good quality when necessary; whereas all sectors of society at all levels have potential and participate in the creation and management of the health system according to the sufficiency economy philosophy, through learning and utilization of Thai and international wisdom in a well-informed manner, so as to make Thai society survive in a self-reliance and healthy manner in the global society that is interconnected and extensively influential to each other.”*

**Figure 3.1** The Image of the Thai Health System



- Proactive health system with holistic development
- Health services of good quality and efficiency
- Having health security to live happily and die with dignity
- Having good governance in managing health-related factors
- All sectors of society are strong, participating and self-reliant in health

- Using knowledge and wisdom as a base
- Using Thai and international wisdom in a well-informed manner
- Research and development for health innovation
- Society of health-conscious and health-promoting culture
- All systems lead to learning about health

- Health system that is equitable and respects human being
- Health security that is reliable with good coverage, equality and equity
- Rights and equality in having access to health care
- Provision of welfare to the poor, underprivileged and affected

**Source:** National Health Development Plan under the 9th National Economic and Social Development Plan (2002-2006).

### 3. Vision of People's Health Development

*“All Thai citizens have security to live a happy life in a healthy condition, with access to health care in an equitable manner, in a family, community and society that is self-sufficient in terms of health, with potential, learning and participation in managing health problems, using international and Thai wisdom in a well-informed manner.”*

#### 4. Core Mission: Mobilization of resources from the entire society for promoting health (all for health)

The 9th National Health Development Plan focuses on the “**mobilization of resources from the entire society for promoting health**” by creating health consciousness in all sectors of society, and providing an opportunity for them all to participate and use their potential in the development process to make a healthy society.

#### 5. Objectives of the Health Development Plan under the 9th National Economic and Social Development Plan (2002-2006)

5.1 To create a proactive health system that aims at promoting healthy conditions, protecting safety of life and health, in terms of food safety and security, environmental and occupational safety, consumer protection and disease prevention.

5.2 To create a security system for protecting people’s health from the negative impacts of economic, social, and developmental activities, and to create an insurance system for the people to have access to quality health care with universal coverage on an equitable basis, particularly for the poor and underprivileged.

5.3 To strengthen individuals, families, communities and society to have the potential for self-care and health promotion, using the learning and participatory approach in the setting up and management of health systems.

5.4 To set up mechanisms and measures for creating, seeking and increasing the potential for screening knowledge and technology for health development, emphasizing research and development in the utilization of international and Thai wisdom in a well-informed manner for self-reliance in health.

#### 6. Targets of the Health Development Plan

Principal targets at the end of the National Health Development Plan during the 9th Plan Period (2002-2006) are as follows:

**Table 3.1** Targets and Situations under the National Health Development Plan during the 9th Plan Period, 2002-2006

Target	situation	Source of data
<b>1) Targets for health impact</b>		
(1) Reduce infant mortality rate to not exceeding 15 per 1,000 live births	24 per 1,000 live births (2002)	The World Bank
(2) Reduce low birth weight rate (newborn <2,500 grams) to not exceeding 7%	8.9% (2002)	Dpt. of Health
(3) Reduce maternal mortality ratio to not exceeding 18 per 100,000 live births	13.7 per 100,000 live births (2003)	Bureau of Policy & Strategy
(4) Increase life expectancy at birth:		NESDB
• Female, to 77 years	• Female 74.9 years	} (2000-2005)
• Male, to 72 years	• Male 67.9 years	
<b>2) Targets for reduction of health problems</b>		
(1) Reduce mortality rate due to rabies by 50% each year	0.02 per 100,000 population (2003)	Bureau of Epidemiology
(2) There is no case of poliomyelitis	None (2003)	Bureau of Epidemiology
(3) Reduce neonatal tetanus death rate to not exceeding 1 per 100,000 population	0.01 per 100,000 population (2003)	Bureau of Epidemiology
(4) Reduce malnutrition among children aged 0-5 years to not exceeding 7%	8.7% (2003)	Dpt. of Health
(5) Reduce HIV infection prevalence rate		
- in conscripts to not exceeding 1%	0.6% (second batch, 2003)	AFRIMS
- in women of reproductive age to not exceeding 1%	1.1% (2003)	Dpt. of Health
(6) Reduce mortality rate from accidents to not exceeding 50 per 100,000 population	56.9 per 100,000 population (2003)	Bureau of Policy & Strategy
(7) Reduce mortality rate due to cardiovascular disease to not exceeding 90 per 100,000 population	27.7 per 100,000 population (2003)	Bureau of Policy & Strategy
(8) Reduce mortality rate due to cancer to not exceeding 40 per 100,000 population	78.9 per 100,000 population (2003)	Bureau of Policy & Strategy
(9) Reduce morbidity rate due to dengue haemorrhagic fever to not exceeding 20 per 100,000 population	99.56 per 100,000 population (2003)	Bureau of Epidemiology

Target	situation	Source of data
(10) Control the prevalence of tuberculosis in infectious stage so that it does not exceed 60 per 100,000 population	42 per 100,000 population (2003)	Dpt. of Disease Control
(11) Reduce acute diarrhoea morbidity rate to not exceeding 1,000 per 100,000 population	1,719.49 per 100,000 population (2003)	Bureau of Epidemiology
(12) Reduce malaria morbidity rate to not exceeding 1 per 1,000 population	0.64 per 1,000 population (2003)	Dpt. of Disease Control
(13) Reduce leptospirosis morbidity rate to not exceeding 10 per 100,000 population	7.79 per 100,000 population (2003)	Bureau of Epidemiology
(14) Reduce mental stress problems to not exceeding 50%	57.7% among employed people 59.8% among the unemployed	} (Sept 2000) Dpt. of Mental Health
(15) Reduce the rate of attempted or complete suicide to not exceeding 33.5 per 100,000 population	36.41 per 100,000 population (2001)	
<b>3) Targets of health promotion</b>		
(1) At least 80% of children aged 0-5 years have growth development according to their age	71.6% (1999)	Dpt. of Health
(2) At least 60% of the people exercise regularly - male 32.8% - female 25.4% (2004)	29.1% among people aged 11 and above :	National Statistical Office
(3) Reduce smoking rate among people aged 15 years and above to not exceeding 21%	21.6% among people aged 11 and above: - male 44.1% - female 2.9% (2003)	National Statistical Office
<b>4) Targets of health care accessibility</b>		
(1) All citizens have health security	94.3% (2004) Statistical Office	National



## 7. Strategies and Tactics for Health Development

### 7.1 Development Strategies

To achieve the objectives and targets of health development that will lead further to achieving the desirable **image** of Thai society and health system, the following seven development strategies have been formulated and used during the 9th Plan Period (Figures 3.2 and 3.3):

Strategy 1: Development of management system for health

Strategy 2: Development of health security and service quality

Strategy 3: Development of basic factors for good health and health promotion

Strategy 4: Development of people's health behaviours and potential as well as strength of civic groups for health

Strategy 5: Development of health knowledge and technology

Strategy 6: Management of human resources for health

Strategy 7: Development of country's competitiveness in health

### 7.2 Development Tactics

For the above strategies, the following **tactics** have been specified.

#### Strategy 1: Development of management system for health

- 1) Revise the management system leading to good governance.
  - (1) Establish the management, information, and budgeting systems according to the results-based approach
  - (2) Adopt the management approach emphasizing the proactive health development concept
  - (3) Coordinate and enhance partnerships and networking with domestic and international agencies
  - (4) Reorienting the role from being "operators" to "supervisors and supporters"
- 2) Develop and create a checks-and-balances mechanism in society.
  - (1) Campaign on consciousness, values, ethics, and principles
  - (2) Develop a mechanism of checks and balances
  - (3) Support counter-corruption efforts by:
    - Revising rules and regulations that will minimize the use of personal judgement
    - Setting up guidelines for actions against corruption
    - Raising public awareness against corruption
- 3) Revise relevant laws.
  - (1) Revise relevant laws that will support the management system
  - (2) Serve as a core agency in pushing for the legislation of the National Health Act and the Health Promotion Foundation Act (enacted in 2001)
  - (3) Develop guidelines for the decentralization of powers

## **Strategy 2: Development of health security and service quality**

- 1) Support the development of health insurance systems including the payment systems so that they all are efficient and uniform, with clear legal measures.
- 2) Develop primary care facilities in both urban and rural areas with a good-network involving intermediate- and high-level healthcare facilities.
- 3) Develop healthcare facilities so that their qualities are in accordance with the Thai or international standards.
- 4) Promote the use of herbal medicines and Thai traditional medicine in public and private healthcare facilities.
- 5) Develop the emergency medical service system at the national and provincial levels, with regional/general hospitals serving as the centres.
- 6) Set up a system for foreign workers to have access to health insurance with premium payments.

## **Strategy 3: Development of basic factors for good health and health promotion**

- 1) Push for the adoption of provisions on health promotion, prevention/control of health problems, and development of basic factors in the national health development law, including the setting up of a mechanism, policy, measure and process for health promotion at the national level in a holistic manner according to the changes in economic, social and political situations.
- 2) Develop a system or network for the surveillance, prevention/control, and monitoring of health problems according to the changing situations.
- 3) Promote the knowledge, ethics, and responsibility of the private sector, particularly the operators in the manufacturing sector, to be conscious of the quality of their products and responsible for the health and environmental impacts of their operations.
- 4) Develop the health information system so that it is up to date and links to other relevant agencies, provide an opportunity for other individuals or agencies to easily access and use the information, and promote a mechanism for the dissemination of correct information to target population on a timely basis as necessary.

## **Strategy 4: Development of people's health behaviours and potential as well as strength of civic groups for health**

- 1) Create the values for society members to emphasize and realize the importance of health consciousness and healthy lifestyle, based on the self-reliance and self-care principles, and develop the potential related to the building of knowledge, standards, technology and innovation, involving all sectors concerned, for the promotion of learning process in health.
- 2) Promote/develop the private sector, especially operators of the manufacturing sector to be conscious of the quality of their products and responsible for the health and environmental impacts of their operations.

3) Create opportunities for learning and developing healthy life-skills at the individual, family, community and societal levels.

4) Develop the environmental factors that will facilitate health behaviour development at the individual, family, community and institutional levels.

5) Develop systems/mechanisms and partnerships/networks of public participation in health development.

6) Develop a quality and efficient information system as well as a community health surveillance system.

7) Develop the potential of communities for health promotion, disease prevention/control, health rehabilitation, and consumer protection, using local wisdom and appropriate technology.

### **Strategy 5: Development of health knowledge and technology**

1) Develop the technical management system for health research that will help technical officers and researchers in their efforts in building the body of knowledge in health in various disciplines in terms of both quantity and quality.

2) Assess the potential of agencies under the MoPH in conducting research studies on health promotion as a whole.

3) Create a mechanism for technical officers and researchers to adhere to the ethical principles in doing research, particularly the system for monitoring research on humans.

4) Place a particular emphasis on the creation and coordination of participation of all domestic and international health partners in all sectors in developing the research system as well as researchers and research work.

5) Promote the creation of management decision-making on the basis of information and knowledge related to health that can be verified.

6) Promote the strengthening of the system for controlling, monitoring, and assessing the research achievements and results utilization.

7) Support/push for the establishment of an autonomous/flexible agency that will help to set up a system/mechanism for the management of knowledge and wisdom for health in a full-cycle manner.

8) Develop a system for the dissemination of research information or findings and body of knowledge so that it is convenient for the public to have access to and use such information or knowledge.

### **Strategy 6: Management of human resources for health**

1) Establish an agency or a ministerial/central committee to be responsible for monitoring and setting up mechanisms, criteria, principles, and conditions for developing policies and plans on the production, development, and management of health workforce, possibly by merging health workforce agencies under the MoPH according to the national health manpower policies.

2) Establish and develop a central database of health workforce of the MoPH in such a way that it is of good quality, accurate and up to date, covering all agencies concerned, and having linkages with all

other central and local databases; a core agency should be set up for this purpose and another agency or a private firm may be contracted to collect and process the data.

3) Support the production of health personnel so that the categories, quantities, qualities, and specific qualifications are consistent with the needs and necessity for the health service system reform of the country.

4) Revise the personnel management system so that it is more flexible and efficient, including:

- Performance assessment system
- Incentive and compensation system
- Utilization and distribution system consistent with the needs and for problem-solving in each locality
- Personnel (in-service) development system in response to the decentralization policy
- Monitoring and assessment system that is transparent and accountable.

5) Develop a personnel development plan aimed at raising the knowledge, capability, skills, righteousness, morality, attitudes, and values for service provision consistent with continuous health service system development efforts.

6) Create and support the building of new knowledge as well as technology suitable for the changing health problems and situations.

7) Provide technical advice to agencies and healthcare facilities in the health system as well as to the communities and localities.

### **Strategy 7: Development of country's competitiveness in health**

1) Develop the personnel potential to be capable of supporting system operations in an efficient manner.

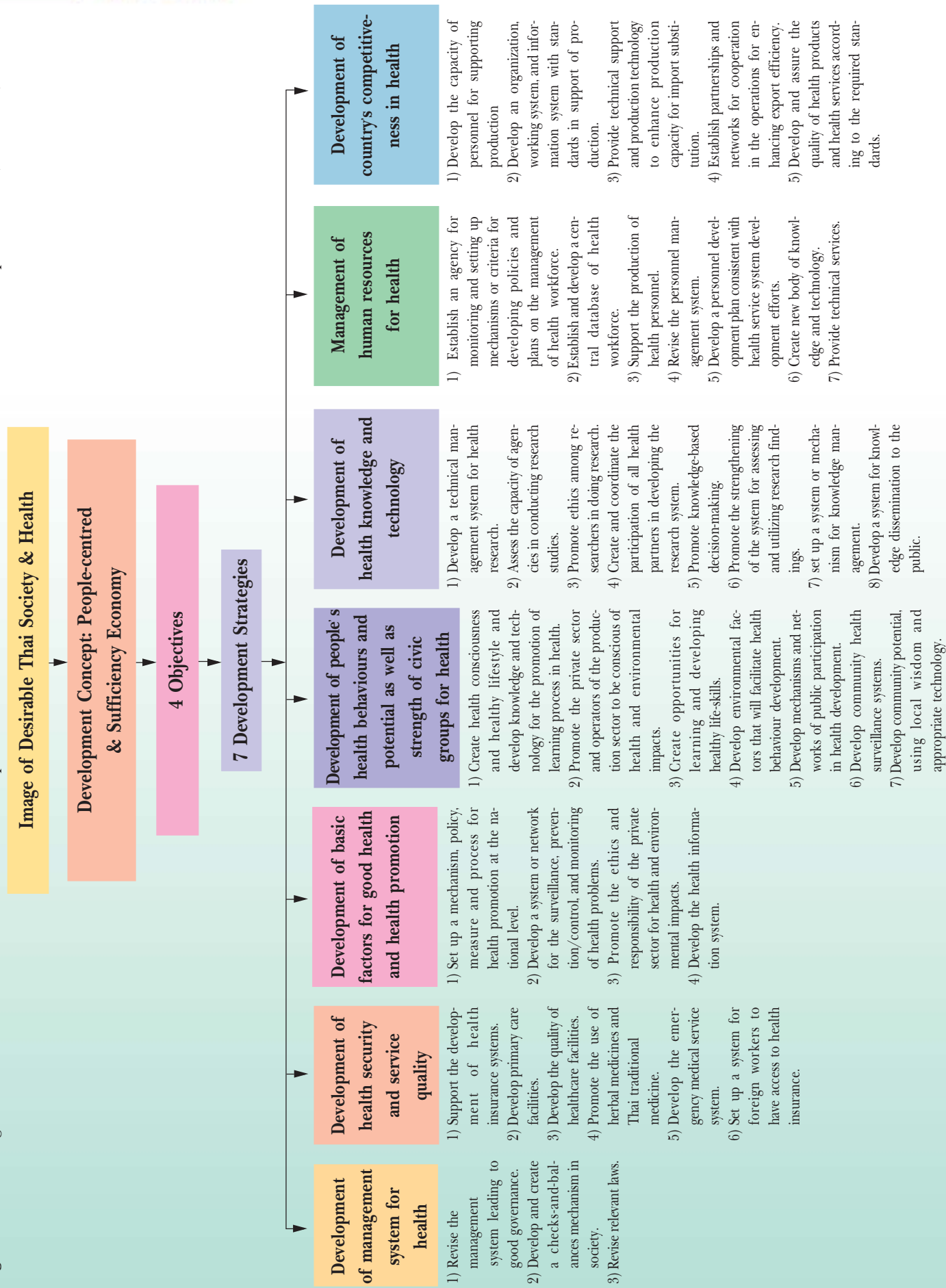
2) Develop an organization, working system, and information system with work standards in support of the production of health products.

3) Promote and provide technical support related to the production technology to enhance the capacity for the production of health products for import substitution.

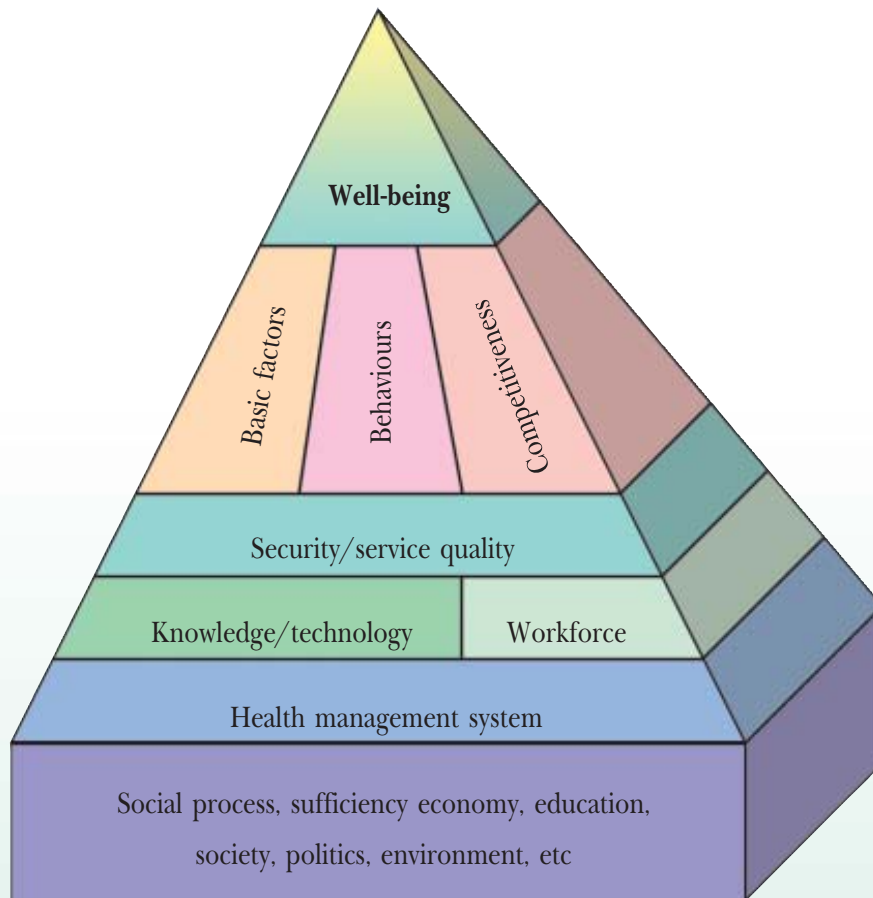
4) Establish partnerships and networks for cooperation in the operations for enhancing export efficiency.

5) Develop and assure the quality of health products and health services according to the international standards and those of trading partners.

Figure 3.2 Strategies and Tactics in the National Health Development Plan under the 9th National Economic and Social Development Plan (2002-2006)



**Figure 3.3** Strategies in the 9th Plan of MoPH under the National Economic and Social Development Plan (2002-2006)



## 8. Structure of Programmes/Projects in The 9th National Health Development Plan (2002-2006)

The 9th National Health Development Plan consists of three programmes and 13 sub-programmes (Figure 3.4).

**Figure 3.4** Structure of Programmes and Sub-programmes in the 9th National Health Development Plan (2002-2006)





## 9. Evolution of National Economic and Social Development Plans

Thailand initially had a 6-year medium-term national development plan beginning in 1961, followed by 5-year plans. The first three plans aimed to develop the economy, so they were called National Economic Development Plans. Later, when social problems became more apparent, coupled with more civic/political movements, the plans have been changed to “National Economic and Social Development Plans” since the 4th plan period.

The key features of the 1st through 9th National Economic and Social Development Plans (NESDP) and the Health Development Plans (HDP), and the plan achievements are shown in Table 3.2.

**Table 3.2** Key Features and Achievements of the 1st through 9th National Economic and Social Development Plans and the Health Development Plans

Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
1st Plan 1961-1966	Emphasis on economic development, particularly investment in the construction of basic infrastructure (communication and transportation systems, dams for irrigation and hydro-electric energy, public utilities, etc.) for promoting private sector investment.	Emphasis on expansion of health infrastructure or facilities, i.e. provincial hospitals and health centres, for providing basic services in health development	<ul style="list-style-type: none"> <li>Economic growth continued: average annual growth of 8%</li> <li>Current account surpluses; foreign reserves for 1966 increased to US\$ 800 million</li> <li>Mae Klong and Mae Nam Nan Projects were launched</li> <li>Electricity began to be transmitted from the Yan Hee Project and the Lignite-fired Power Plant in Krabi.</li> <li>Highways construction projects were launched.</li> </ul>	A number of new hospitals were built, especially provincial-level hospitals to cover all provinces; health promotion and disease prevention/control programmes were successful as targeted; but medical and nursing personnel shortages remained a problem in the rural areas.
2nd Plan 1967-1971	Continuation of the efforts as in the 1st Plan, expanding the coverage of all government development programmes in all provinces, especially in the remote or backward areas; special projects were implemented by several ministries and departments, such as regional development project, accelerated rural development project, and farmers assistance projects, etc.	Acceleration of medical and health personnel production; improvement of health services by expanding the scope of services in rural areas; deployment of compulsory government services for new medical graduates for the first time beginning in 1965.	<ul style="list-style-type: none"> <li>During the last stage of the 2nd Plan, the first economic recession occurred due to foreign economic factors, American military spending in Thailand, and decreased foreign investments; however, average annual GDP growth was 7.5%</li> <li>Income disparities among different population groups and localities.</li> </ul>	Achievements were similar to those in the 1st Plan; production of doctors and nurses was not as planned; achievements of immunization activities were higher than those in the 1st Plan; the rate of BCG vaccination increased three-fold; curative care coverage increased to 11% of the

Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
			<ul style="list-style-type: none"> <li>Two-fold increase in electricity production; length of roads increased by 38%; irrigated land areas increased from 9.7 million rai to 13.3 million rai (1 acre = approx. 2 1/2 rai).</li> </ul>	<p>population; coverage of district health facilities increased from 42.3% to 54.9% of all districts.</p>
3rd Plan 1972-1976	<p>Emphasis on the same direction with income-gap reduction strategies:</p> <ul style="list-style-type: none"> <li>Maintaining economic stability through controlling currency amount in circulation, controlling prices of goods essential for daily life, export promotion, and restructuring of imports</li> <li>Revising economic structure, raising production levels, accelerating exports, import substitution, shifting investment funds in construction projects to infrastructure development projects</li> <li>Distributing income and social services by reducing population growth rate, distributing economic and social services to rural areas, improving agricultural and credit institutions, and stabilizing prices of agriculture products.</li> </ul>	<p>Emphasis on maternal &amp; child health, family planning, communicable disease control, and curative care improvement &amp; expansion. Pilot projects were carried out on environmental health development, using the community participation approach. <b>The policy on free medical services for the poor was first implemented in 1975.</b></p>	<ul style="list-style-type: none"> <li>Fluctuation of global financial system beginning in 1971, devaluation of US dollars, higher prices of food and raw materials, petroleum product prices rising four-fold, high inflation, and high unemployment in developing countries.</li> <li>In Thailand, inflation was highest; economic stagnation, slow financial expansion in public and private sectors, low investment, and construction stagnation were apparent; however, the government used several monetary and financial measures, resulting in the problems being resolved with a GDP growth of 7.1% annually and per capita income increasing 4.1% annually.</li> <li>Irrigated land areas increased to 20.6 million rai, but the water was actually provided to only 0.3% of such land, mostly in the central plains.</li> <li>The length of roads increased to 31,087 km; population growth dropped from 3.1% in 1971 to 2.6% in 1976; 56% of school-age children were outside schooling system.</li> </ul>	<p>The population growth rate (per 1,000 population) dropped from 31.5 (1971) to 26.1 (1976) and the crude death rate (per 1,000 population) declined from 11.6 in the 2nd Plan to 10.9 in the 3rd Plan. The production of health personnel was lower than the targets. Compulsory government services requirements for doctors began in 1972, resulting in a significant increase in the number of doctors serving in the rural areas. Health services expanded but were not as planned, in terms of the numbers of beds and health facilities, and the EPI coverage. Of all districts, 70% had a first class health centre each and 68.5% of all tambons (sub-districts) had a second class health centre each.</p>

Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
4th Plan 1977-1981	<ul style="list-style-type: none"> <li>• Emphasis on economic recovery of the country, expanding agricultural production to resolve poverty problem, improving industrial production for export, distributing income and expanding employment in provinces, deploying measures for stimulating industrial growth, and controlling balance of payments and budget deficiency.</li> <li>• Acceleration of the improvement of key resources management of the country, using natural resources, particularly land, water, forest, and mineral; expediting land reforms; allocating water resources; conserving high sea waters; exploring and developing energy reserves in the Gulf of Thailand and the eastern coast of the South.</li> </ul>	<p>Emphasis on resolving and reducing gaps in health problems, provision of integrated health services to all the people. <b>In 1979, the goal of Health for All by the Year 2000 was adopted, using primary health care strategies.</b></p>	<ul style="list-style-type: none"> <li>• GDP growth was still high at 7.1% per year, but changes in production structure had resulted in a low annual per capita income of the people in the agricultural sector at 11,464 baht (1980), whereas that for the entire country was 29,949 baht, and 5 times lower than that in the industrial and commercial sectors, and 2 times lower than that in the service sector.</li> <li>• Rapid rises in crude oil prices and Thailand's dependence on foreign energy (75%) resulted in an annual trade deficit of 45 billion baht or 7.6% of GDP (the deficit was 13 billion baht/yr or 5.1% of GDP in the 3rd Plan); people's income could not keep up with the rising cost of living; inflation was 11.6% per annum.</li> <li>• One-third of rural population was poor; 70-80% rural schoolchildren did not receive adequate diet.</li> </ul>	<p>Prevalence of certain communicable diseases, such as plague and small-pox, declined to the levels that they are no longer health problems. Rural people's health status was still poor due to unhygienic environmental conditions, lack of water supply, and improper health behaviours. Regarding health services, district hospitals were established to replace medical &amp; health centres; basic immunization programme began in 1978; and training of village health communicators (VHCs) and village health volunteers (VHVs) began in 1977.</p>
5th Plan 1982-1986	<p>Adoption of new national economic development policies:</p> <ul style="list-style-type: none"> <li>• Using the area-based approach in programme and project formulation aimed at achieving practical results in both public and private sectors</li> </ul>	<p><b>Emphasis on establishing district hospitals in all districts;</b> upgrading all midwifery stations to be health centres; using the primary health care approach and community participation in the forms of community funds; beginning to</p>	<ul style="list-style-type: none"> <li>• Global economic and financial situation was rather critical with a long period of economic recession, beginning during the second oil crisis; as a result, all countries had to adjust themselves for survival; industrialized countries began to use the trade protection policy.</li> </ul>	<p>Establishment of district level community hospitals, covering 85.2% of all districts, and of health centres, covering 97.9% of all sub-districts (tambons). The production of medical and nursing personnel reached 93.6%</p>

Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
	<ul style="list-style-type: none"> <li>• Focussing on maintaining the country's financial and economic stability by mobilizing savings, creating financing disciplines, and economic restructuring.</li> <li>• Focussing on balances in solving economic and social problems of the country.</li> <li>• Emphasizing the solution of poverty problems in rural/backward areas, designating 286 target districts and sub-districts.</li> <li>• Emphasizing the translation of plan into action, using the new approach in rural development administration in 1984.</li> <li>• Emphasizing the role of and cooperation from the private sector.</li> </ul>	<p>conduct surveys on basic minimum needs (BMN), resulting in health development being part of overall national development.</p>	<ul style="list-style-type: none"> <li>• The government had to use strict monetary/financial measures including the baht-devaluation policy; with the decrease in oil prices and low interest rates, the economic recovery was as targeted.               <ul style="list-style-type: none"> <li>- Trade balance and current account deficits dropped to 54 billion baht and 34.9 billion baht, respectively (to 5.6% and 3.6% of GDP).</li> <li>- Inflation dropped to only 2.8%.</li> </ul> </li> <li>• Poverty eradication project was implemented in 12,562 villages.</li> <li>• The economic crisis had resulted in 1 million people unemployed (3.5% of labor force); savings were not as expected; dependency on foreign investment; and increases in foreign debts.</li> </ul>	<p>and 93.8% of the targets, respectively. The training of VHCs and VHVs achieved 126.9% and 119.6% of the targets, respectively. The establishment of village drug funds achieved 232.2% of the target.</p>
6th Plan 1987-1991	<ul style="list-style-type: none"> <li>• Emphasis on economic expansion and maintaining monetary and financial stability by mobilizing domestic savings, limiting public sector spending, and encouraging private sector's role in development efforts.</li> <li>• Emphasis on development of labour skills and quality of life.</li> <li>• Emphasis on increasing the role of civic organizations in localities in the</li> </ul>	<p>Expansion of health facilities to cover all target areas; emphasis on public participation in health development and campaigns against HIV/AIDS so that it would not impact on national security; and launching of the health insurance or security concept.</p>	<ul style="list-style-type: none"> <li>• GDP expanded on average at 10.5% each year; economic structure was open to international market; proportion of international trade rose to 80% of GDP (from 60% in 1986).</li> <li>• Monetary and financial status of the country was stable; foreign reserves rose to almost US\$ 17 billion; foreign debts dropped from 38.5% to</li> </ul>	<p>Life expectancy at birth increased to 62.8 years and 64.8 years for males and females, respectively; maternal mortality and infant mortality rates decreased; health facilities were expanded to cover all districts and sub-districts (tambons); attaching importance to emerging health problems such as AIDS, accidents, heart diseases, cancer and mental health.</p>

Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
	<p>development of natural resources and environment.</p> <ul style="list-style-type: none"> <li>• Launching of the master plan on science and technology development.</li> <li>• Review of the role of the public sector in development.</li> <li>• There were state enterprise development plans.</li> <li>• Emphasis on revising production and marketing structure of the country so that it was more widely distributed.</li> <li>• Emphasis on using existing basic services to the maximum extent possible.</li> <li>• Development of cities and specific areas, distributing modernization to provincial areas.</li> <li>• Expansion of rural development activities to cover the entire country.</li> </ul>		<p>34% of GDP; financial balance was on the positive side for the first time since 1988 as the revenues collected were higher than expected.</p> <ul style="list-style-type: none"> <li>• Inflation rose from 2.5% in 1987 to 6% in 1991.</li> <li>• Per capita income rose from 21,000 baht in 1986 to 41,000 baht in 1991, but imbalances were noted in several aspects as follows:               <ol style="list-style-type: none"> <li>(1) For the top 20% high-income group, their income proportion rose from 49.3% in 1975/76 to 55.6% in 1987/88.</li> <li>(2) Severe shortages of basic services.</li> <li>(3) The gap between domestic savings and investment tended to increase.</li> <li>(4) There were problems of Thai society adjusting itself to economic changes.</li> <li>(5) Deterioration of natural resources and environment.</li> <li>(6) The government system could not adjust itself on a timely basis and it could not respond to economic and social changes of the country, resulting in brain drain problems.</li> </ol> </li> </ul>	



Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
7th Plan 1992-1996	<p>Emphasis on the following:</p> <ul style="list-style-type: none"> <li>• Maintaining continuous and stable economic growth</li> <li>• Distribution of income and development to provincial and rural areas</li> <li>• Development of human resources, quality of life and environment.</li> <li>• Improvement in legal system for development of state enterprises and civil service</li> </ul>	<p>Emphasis on the following:</p> <ul style="list-style-type: none"> <li>• Development of health centres to be a contact point of Health-for-All efforts; and development of health facilities' quality.</li> <li>• Provision of health security for all Thai citizens.</li> <li>• Improvement in service quality and resolution of brain-drain problems (personnel resigning to work in the private sector).</li> </ul>	<ul style="list-style-type: none"> <li>• GDP growth on average was 7.8% each year for the past 30 years; per capita income rose to 68,000 baht in 1996; proportion of poor people dropped to only 17.6%.</li> <li>• Widening of income gap: per capita income in the Northeast was 12 times lower than that in Bangkok and vicinity; top 20% high-income group had an income share of 59.5% (1992) while the bottom 20% low-income group had only 3.8%.</li> <li>• Of all rural villages, 97.7% had electricity; 75% of urban households and 32% of rural households had piped water supply; roads connecting provinces, districts and sub-districts were 210,000 km long; roads in villages were 123,400 km long; compulsory education enrolment rate was as high as 97.7%.</li> <li>• As much as 1 million rai of forest areas was destroyed each year; cultivation areas were eroded, resulting in the water in waterways being polluted and unusable; environmental deterioration with poor air quality (polluted with dust).</li> <li>• Values of human being were overlooked; negligence of Thai local wisdom and basic lifestyle.</li> </ul>	<p>Health facilities at all levels were scattered to cover all urban and rural areas, but with severe shortages of manpower, especially doctors as private hospitals were rapidly expanding in urban areas. The population growth rate dropped to 1.3% in 1996. Health insurance schemes covered 45.5% of all Thai citizens. Immunization, particularly basic immunization for children under one, covered over 80% of the target population, resulting in substantial declines in morbidity due to such diseases.</p>

Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
8th Plan 1997-2001	<p>Emphasis on human resources development as a major objective. With the economic crisis in 1997, the development plan was revised accordingly.</p>	<p>Emphasis on the following:</p> <ul style="list-style-type: none"> <li>• Development of human potential in health, particularly health behaviours.</li> <li>• Expansion of health security coverage with quality and efficient care.</li> <li>• Development of health industries.</li> </ul>	<ul style="list-style-type: none"> <li>• Better expansion of basic educational opportunity, but the problems of educational inequalities remained unresolved, especially between rural and urban areas, and in terms of quality, which was inferior to those in other Asian countries.</li> <li>• Unemployment was high, compared with the rate during the pre-crisis period; standard of living declined, resulting in a higher proportion of population with poverty.</li> <li>• Economic recovery from the crisis, resulting in the economy being more stable.</li> <li>• Decline in export competitiveness of the country, especially with respect to science and technology, resulting in the country being disadvantaged compared with those of trading rivals.</li> <li>• Overall, the environmental quality remained a problem.</li> </ul>	<p>Overall health status was better (higher life expectancy); health insurance coverage rose to 71% in 2001; maternal and child health conditions as well as child malnutrition problem improved; emerging diseases could be prevented and controlled.</p>
9th Plan 2002-2006	<p>Focus on people-centred and balanced development approach, especially in individual, social, economic and environmental aspects; setting up a good management system at all levels, based on the sufficiency economy</p>	<p>Emphasis on:</p> <ul style="list-style-type: none"> <li>• Holistic health system development;</li> <li>• Universal coverage of health security for all citizens;</li> <li>• Development of health service quality.</li> </ul>	<ul style="list-style-type: none"> <li>• The Thai economy expanded at a rate of 5.4% in 2002.</li> <li>• Programmes on poverty reduction and income distribution have resulted in poor people having a higher opportunity in economic and social development.</li> </ul>	<ul style="list-style-type: none"> <li>• Health centres serve as a primary care unit (PCU) in providing health care to the people in the community in a holistic and continuous manner; more than 5,946 PCUs are currently</li> </ul>



Plan No.	Key features		Achievements of development	
	NESDP	HDP	NESDP	HDP
	philosophy, for national development and administration.		<p>ment, and a lower proportion of poor people.</p> <ul style="list-style-type: none"> <li>• Country's competitiveness is higher.</li> <li>• Thai society is aware of development and utilization of social capital.</li> </ul>	<p>operating nationwide.</p> <ul style="list-style-type: none"> <li>• Universal health care scheme was expanded to cover 94.3% of the entire population in 2004.</li> <li>• Networks for folk medicine have been established; herbal medicines have been developed with standard quality.</li> </ul>

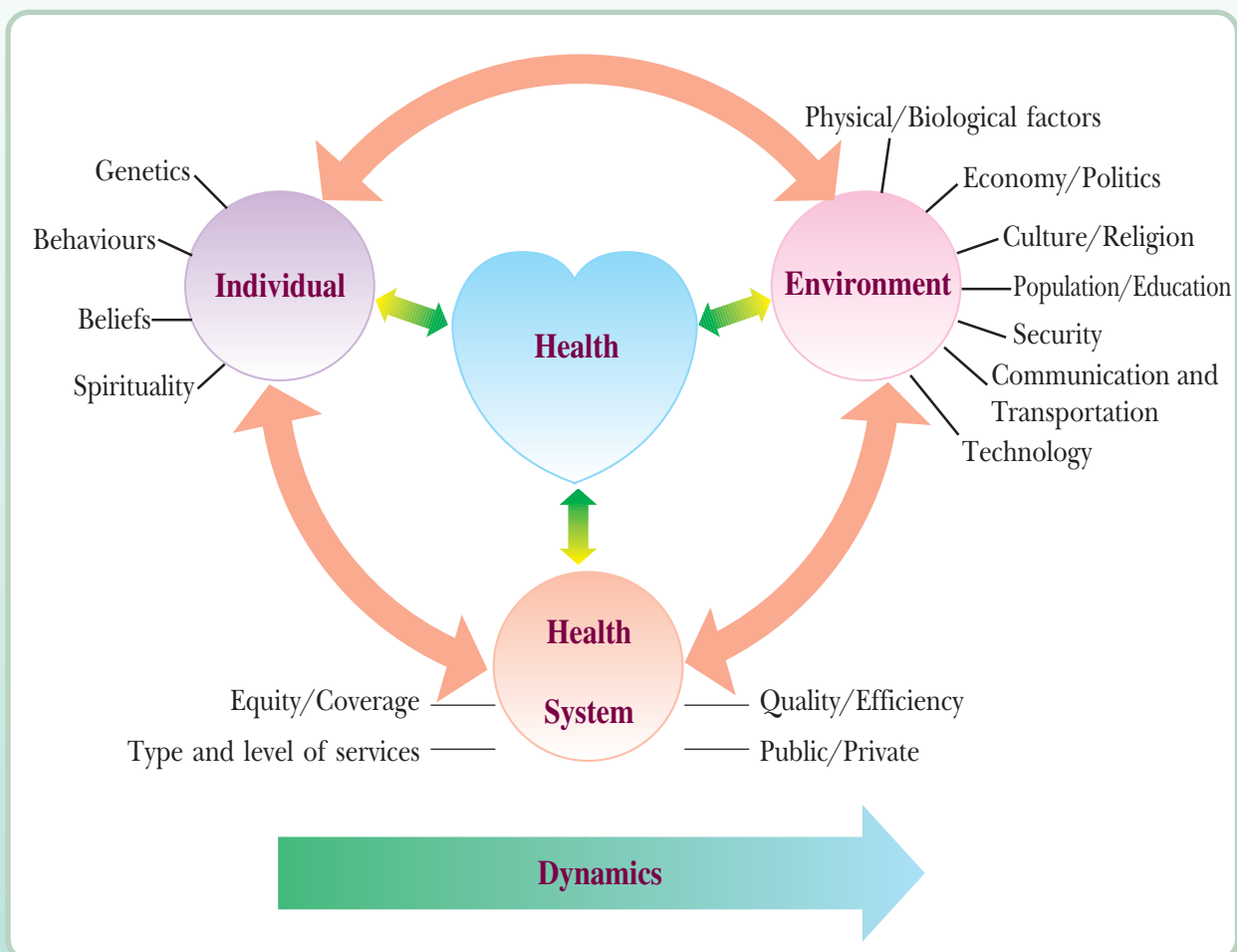
- Sources:** (1) Adapted from the 50th Anniversary of the Establishment of the Ministry of Public Health.  
 (2) Poldej Pinprateep. Towards Being Thais with Community Empowerment: A Conceptual Framework for the Formulation of the 9th National Economic and Social Development Plan, 1999.  
 (3) Report on the Results of Operations under the 8th National Economic and Social Development Plan (1997-2001), Office of the National Economic and Social Development Board.  
 (4) National Economic and Social Development: Two Years of Changes, Office of the National Economic and Social Development Board.

## CHAPTER 4

# Situations and Trends of Health Determinants

As health becomes more complex due to its association with numerous factors, Thailand's health situations and trends require a wider range of analysis and synthesis of changes in individual and environmental factors of all dimensions that determine health problems as well as the health services system (Figure 4.1).

**Figure 4.1** Health Linkage and Dynamics



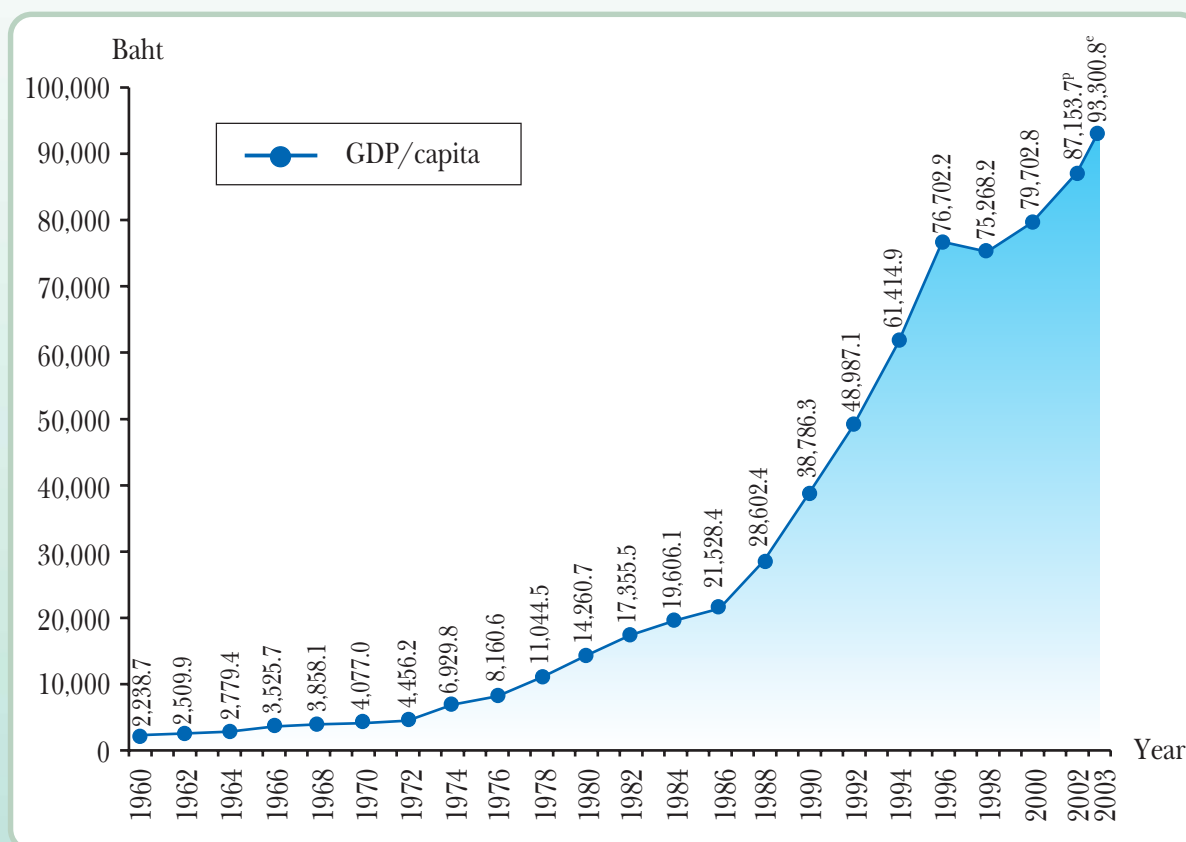
## 1. Economic Situations and Trends

### 1.1 Economic Growth

Over the past three decades, the average annual economic growth was higher than 7% and before 1997 the gross domestic product (GDP) per capita increased 28-fold, in particular after 1986 (Figure 4.2). Such a rapid economic growth resulted in a decline in poverty, as evidenced in the drop in the proportion of the indigent from 57% in 1962 to 17.0% in 1996.

In 1997, Thailand experienced a serious economic crisis, resulting in a sharp decline in the annual economic growth from 7% before the crisis to -1.7% in 1997 and -10.8% in 1998 (Figure 4.4). The crisis drastically affected the GDP per capita (Figure 4.2). Moreover, the devaluation of the baht against US dollars has resulted in a greater decline in the exchange rates and GDP per capita in dollar terms (Figure 4.3). Simultaneously, the proportion of the poor has climbed from 17.0% in 1996 to 21.3% in 2000 (Figure 4.5). As the economic recovery began in 2002, the proportion of people living under the poverty line has dropped steadily to 15.5% in that year (Figure 4.5).

**Figure 4.2** Gross Domestic Product per Capita, 1960-2003 (Market Prices)

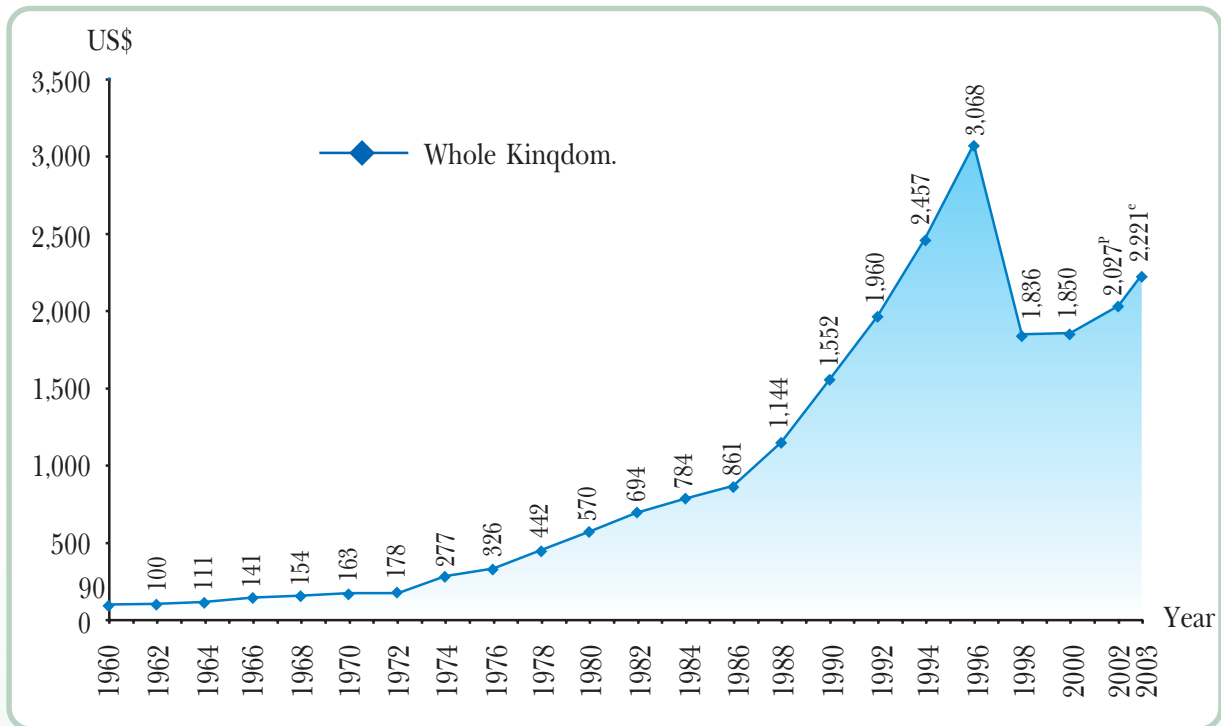


**Source:** Office of the National Economic and Social Development Board (NESDB).

**Notes:** 1. <sup>P</sup> Preliminary figure; <sup>C</sup> estimated figure.

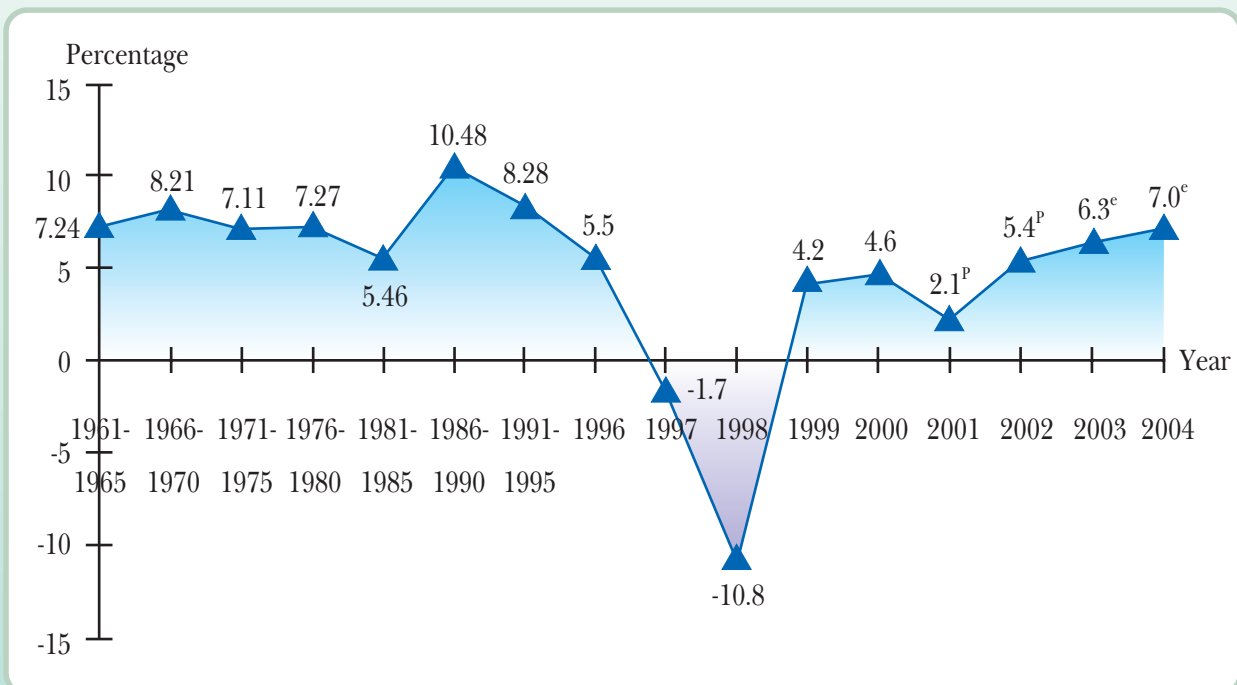
2. Since 1994, the data on GDP have been adjusted.

**Figure 4.3** Gross Domestic Product per Capita in US Dollars, 1960-2003



**Source:** Office of the National Economic and Social Development Board.

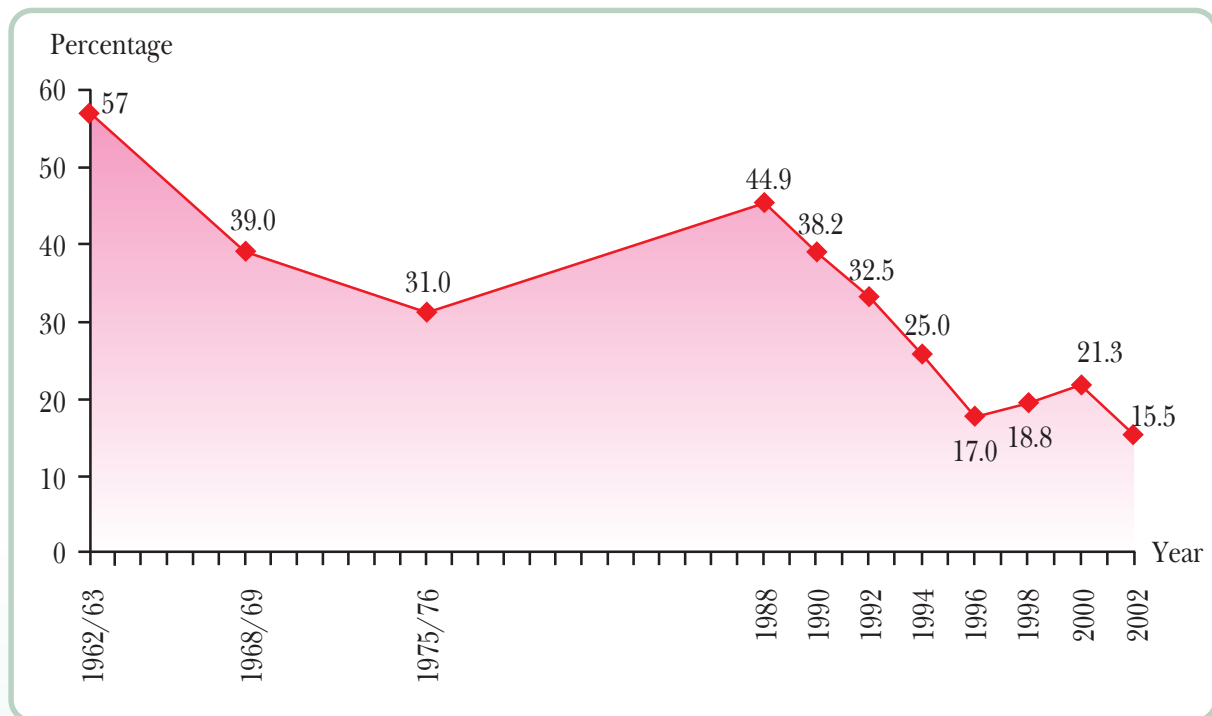
**Figure 4.4** Economic Growth Rate in Thailand, 1961-2004



**Source:** Office of the National Economic and Social Development Board.

**Notes:** <sup>P</sup> Preliminary figure; <sup>c</sup> estimated figure

**Figure 4.5** Proportion of People Living below Poverty Line in Thailand, 1962-2002



**Sources:** Data for 1962/63-1975/76 were derived from Ouay Meesook. *Income, Consumption and Poverty in Thailand, 1962/63 to 1975/76*.

Data for 1988-2002 were derived from the Household Socio-Economic Survey of the National Statistical Office(NSO), analyzed by the Bureau of Economic Development and Income Distribution, Office of the National Economic and Social Development Board.

- Notes:**
1. The study on poverty in each period had a different assumption.
  2. As a result of the revision of the poverty line computation method for the period 1988-2002, the poverty level is higher.

The 1997 economic downturn mainly resulted from an infrastructure drawback and its influential determinants, which were not efficiently managed; and there were no suitable measures to cope with such problems. Major determinants included large amounts of short-term foreign debts, private sector investments in non-productive businesses (particularly in the real estate sector, automobile industries, petrochemical industries and **private hospitals**), weak production structure and foreign capital dependence, liberalized monetary policy without any effective monitoring and inspection system, including inefficiency of the public sector management system.

To maintain overall economic stability, Thailand adopted the managed float exchange rate system on **2 July 1997** and requested financial and technical assistance from the International Monetary Fund (IMF) on **14 August 1997**. That was the beginning of the financial crisis, which rapidly affected neighbouring countries and other regions due to globalization effects. Since the economic crisis, Thailand has adopted measures for stabilizing exchange rates, maintaining the optimum interest and inflation rates, and pursuing active fiscal policy and financing measures for liquidity problem alleviation, such as budgeting measures, cost-cutting and spending control measures, etc. These measures, therefore, resulted in economy recovery, i.e. in 1999 the economic growth was recorded at 4.2%, and slowed down to 2.1% in 2001, but rose again to 5.4% and 6.3% in 2002 and 2003, respectively. Such growth resulted from three major driving forces: the implementation of

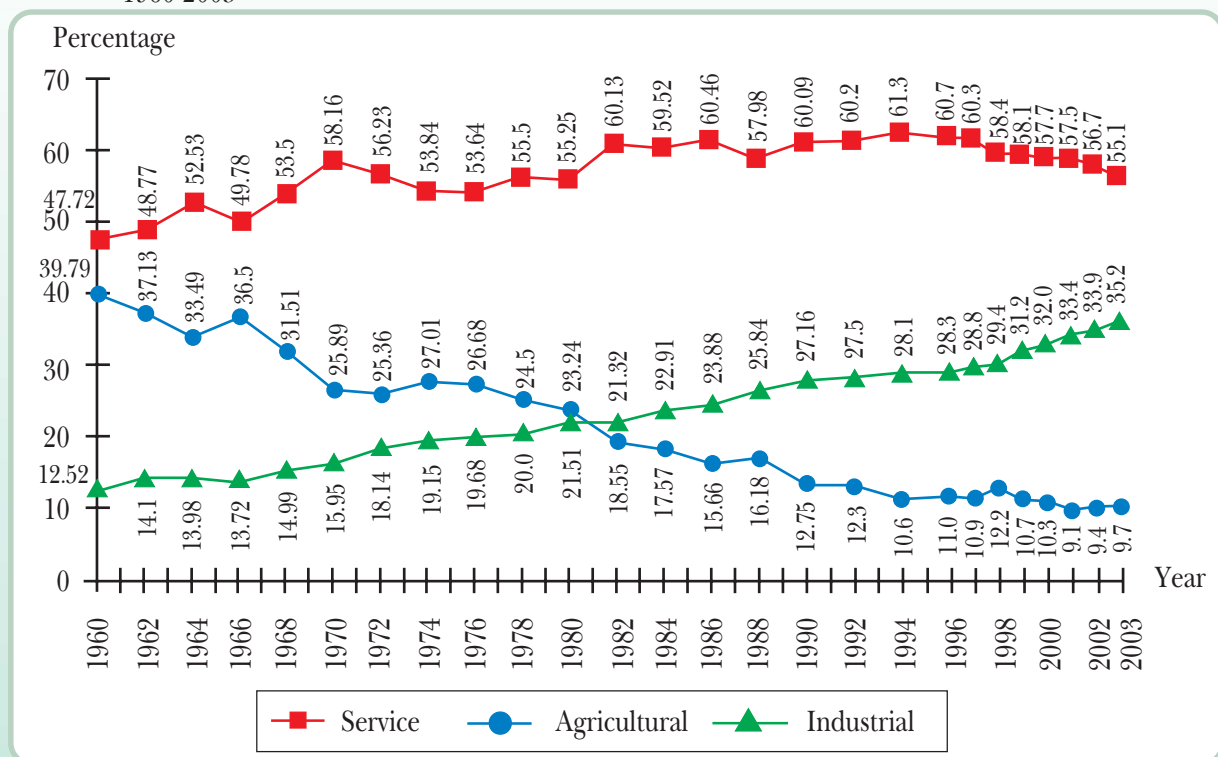
domestic economic stimulus policy and measures, grassroots-level financial support for enhancing the potential and opportunity of the poor, and increased exports. The National Economic and Social Development Board has projected that Thailand's economy will continue to grow at 7.0% in 2004 (Figure 4.4).

## 1.2 Economic Structure

The Thai economic structure has been transformed in the industrial and service sectors more than in the agricultural sector (Figure 4.6). It is noted that since 1990 until the 1997 crisis, the production structure of the agricultural, industrial and service sectors had almost never changed.

As a result of the economic crisis, a severe shrinkage of the industrial sector led to a greater mobilization of labour force to the agricultural sector, i.e. the expansion rate in the agricultural sector dropped by 3.2% only, while that in the industrial sector declined by 11.1% in 1998. But in 1999-2000, there was a recovery sign of the agricultural and industrial sectors as seen from the expansion rates of 2.0-4.9% and 6-12.3% in the two sectors, respectively. For 2003, the agricultural sector growth rose by 10.3%, whereas that for the industrial sector rose by 6.8%.

**Figure 4.6** Proportion of Economy in the Agricultural, Industrial and Service Sectors, as a Percentage of GDP, 1960-2003



**Source:** National Income of Thailand, 4th Quarter (4/2003). Office of the National Economic and Social Development Board.

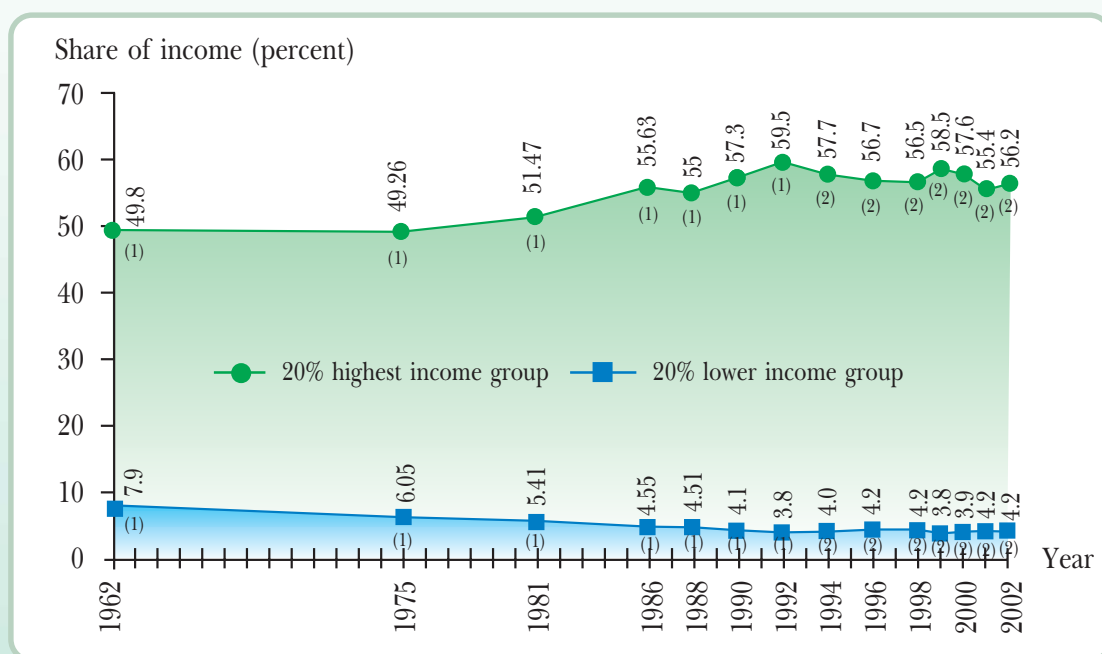
## 1.3 Income Distribution and Poverty

Although the Thai economy is expanding, the gap between the rich and the poor is widening. In 1962, the highest income group (one-fifth of the entire population) had a 49.8% share of the national income. Such a share rose to 56.7% in 1996, while the lowest income group (one-fifth of the entire population) had a national income share of only 7.9% in 1962, falling to 4.2% in 1996 (Figure 4.7). The income distribution was slightly better during 1994-1996.

During the economic crisis, the income distribution became more inequitable. The 20% lowest income group had their income proportion declining from 4.2% in 1996 to 3.9% in 2000, while the 20% highest income group had their income proportion rising from 56.7% to 57.6% during the same period. But in 2001-2002, the trend of income distribution improved slightly (Figure 4.7). The income disparity between the richest and the poorest groups dropped from 14.8-fold in 2000 to 13.4-fold in 2002. Regarding poverty, even though the proportion of poor people dropped steadily, such a proportion in the rural areas is 3 times greater than that in the urban areas (Table 4.1). It was evident that most of the indigent people were farmers and farm workers. The rising proportion of the indigent in Thailand was however lower than that of other Southeast Asian countries (Table 4.2). Nonetheless, in terms of income distribution inequalities, Thailand's is higher than those in many other countries in Southeast Asia (Table 4.3).

As a result of the economic crisis, the people's income reduced, especially in the low-income groups. But after the economic recovery in 2002, the rate of income growth in the low-income group was higher than that among the high-income group (Report on National Economic and Social Development: Two Years of Changes. NESDB, 2003).

**Figure 4.7** Share of Income of Thai People, Classified into 5 Groups by Income Level



	Year													
	1962	1975	1981	1986	1988	1990	1992	1994	1996	1998	1999	2000	2001	2002
20% lowest income group	7.9	6.05	5.41	4.55	4.51	4.1	3.8	4.0	4.2	4.2	3.8	3.9	4.2	4.2
20% highest income group	49.8	49.26	51.47	55.63	55.0	57.3	59.5	57.7	56.7	56.5	58.5	57.6	55.4	56.2
Income disparity value	6.3	8.1	9.5	12.2	12.2	14.0	15.6	14.4	13.5	13.5	15.4	14.8	13.2	13.4

**Sources:** <sup>(1)</sup> Data for 1962-1992 were derived from NESDB and TDRI.

<sup>(2)</sup> Data for 1994-2002 were derived from the Household Socio-Economic Survey of the National Statistical Office, analyzed by the Bureau of Development Evaluation and Dissemination, Office of the National Economic and Social Development Board.



**Table 4.1** Proportion of Population Living below Poverty Line by Locality, 1962-2002

Year	Urban area	Rural area	Whole country
1962/63	38	61	57
1968/69	16	43	39
1975/76	14	35	31
1988	25.2	52.9	44.9
1990	21.4	45.2	38.2
1992	14.1	40.3	32.5
1994	11.7	30.7	25.0
1996	7.3	21.3	17.0
1998	7.5	23.7	18.8
2000	8.7	27.0	21.3
2002	6.7	19.7	15.5

**Sources:** Data for 1962/63-1975/76 were derived from Oey Meesook. Income, Consumption and Poverty in Thailand, 1962/63 to 1975/76.

Data for 1988-2002 were derived from the Report on Household Socio-Economic Surveys of the National Statistical Office, analyzed by the Bureau of Development Evaluation and Dissemination, Office of the National Economic and Social Development Board.

**Note:** For 1988-2002, the proportion of people with poverty was higher due to changes in the computation method.

**Table 4.2** Thailand's Proportion of Population Living below Poverty Line Compared to Those in Other Southeast Asian Countries

Country	Poverty proportion (percent)			
	Year of survey	Based on each country's definition of poverty	Year of survey	Based on PPP of <\$1/day
Cambodia	1999	35.9	2000	34
Indonesia	2002	18.2	2000	8.0
Laos	1998	46.0	2000	31.5
Malaysia	1999	8.1	2000	0.0
Philippines	2000	34.2	2000	12.7
Thailand	2000	14.2	2000	3.5
Vietnam	1998	37.0	2000	9.1

**Sources:** 1. Data on proportion of population living below poverty line for each country were derived from "Key Indicators 2003": Education for Global Participation. Asian Development Bank, 2003.

2. Data on proportion of population with an income of less than US\$ 1 per day (PPP) were derived from "Situation and Data on Poverty". Office of the National Economic and Social Development Board.

**Note:** Purchasing power parity (PPP) is the adjustment of purchasing potential so that each country has an equal purchasing power.

**Table 4.3** Income Share of the Population in Southeast Asian Countries, 2000

Country	20% highest income group	20% lowest income group	Discrepancy (times)
Thailand	57.6	3.9	14.8
Singapore	48.9	5.1	9.6
Malaysia	54.3	4.4	12.3
Indonesia	41.1	9.0	4.6
Philippines	52.3	5.4	9.7

**Source:** IMD. The World Competitiveness Yearbook, 2003.

### 1.4 Global and Regional Economic Cooperation

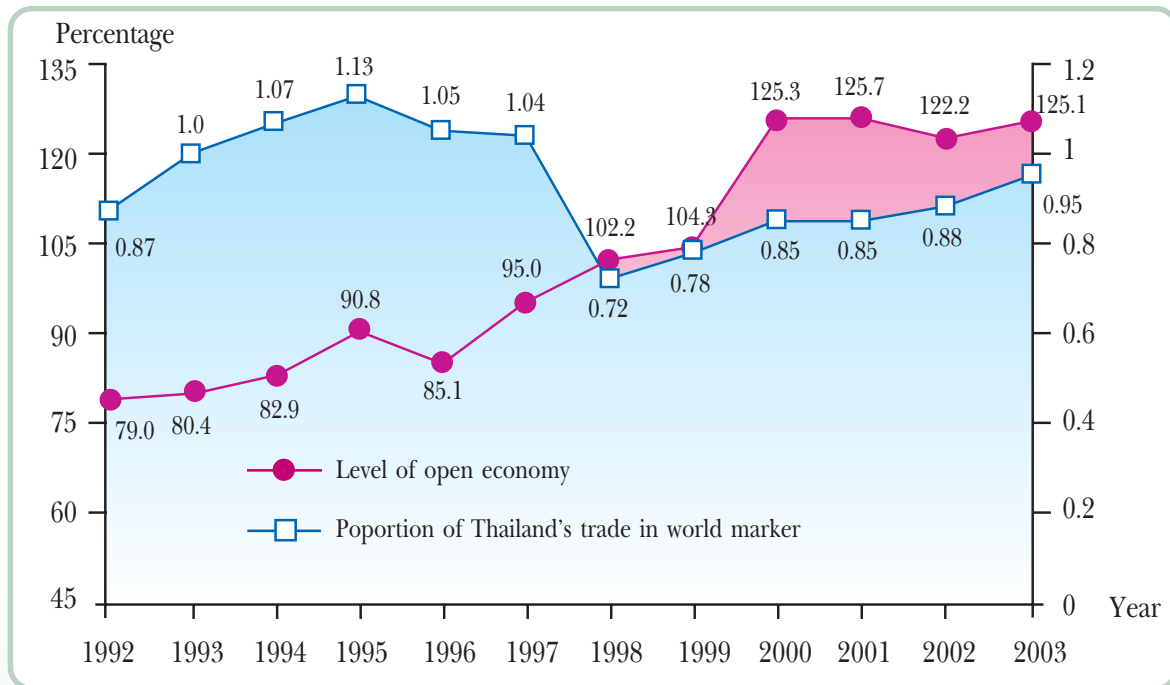
In the globalization era, the world has entered into the free trade system and consolidated regional trade organizations so as to establish negotiating power for competition. This has resulted in movements in establishing economic cooperation mechanisms, in which Thailand is involved, such as the ASEAN Free Trade Area (AFTA), the Asia-Pacific Economic Cooperation (APEC), the Asia-Europe Meeting (ASEM), the Southern Triangle Economic Cooperation, and the Mekong Committee (for development cooperation among six countries). In other regions, such organizations include the North America Free Trade Area (NAFTA) and the European Community (EC). At the global level, there are international trade agreements coordinated by the World Trade Organization (WTO). This has tremendously led to greater liberalization and competition. In particular, developed countries have generated new non-tariff barriers, such as environmental measures, child labour employment, human rights, anti-dumping duty (AD) or countervailing duty (CVD).

The Asian economic crisis has led to the increased economic cooperation among Asian countries such as the Bangladesh-India-Myanmar-Sri Lanka-Thailand Economic Cooperation (BIMST-EC) and the Forum for East Asia-Latin America Cooperation (FEALAC). In particular, Thailand has focused on the expansion of free trade policies in the form of bilateral agreement with several other countries to minimize trade barriers such as the Thailand-China, Thailand-India, Thailand-Bahrain, Thailand-Australia, and Thailand-Japan bilateral trade agreements.

### 1.5 International Trade

The volume of Thailand's international trade has risen markedly taking into account the rapidly rising levels of trade liberalization. The proportion of export/import/service values to GDP has risen from 79.0% during the pre-crisis period to 125.1% after the crisis (Figure 4.8) as a result of trade liberalization and the production for export promotion policy, which has been implemented continuously for over three decades. Due to such liberalization, the share of Thai goods in the world market is only 0.9% of the world market values, resulting in an imbalance in the Thai economy being vulnerable to variation of the world economy as it has to rely mainly on the markets in only a few other countries. Thus, Thailand needs to urgently review its new production sectors with high potential in the world market such as medical and health care, particularly health care business, so as to generate more revenue for the nation.

**Figure 4.8** Level of Open Economy and Proportion of Thailand's Trade in the World Market, 1992-2003



**Sources:** (1) The Bank of Thailand.

(2) Department of International Trade Negotiations, Ministry of Commerce.

(3) Office of the National Economic and Social Development Board.

**Notes:** Level of open economy = (values of exports, imports and services / GDP) x 100

$$\text{Proportion of Thailand's trade in world market} = \frac{\text{Values of Thai exports} \times 100}{\text{Values of world exports}}$$

Such economic changes affect the Thai health system as follows:

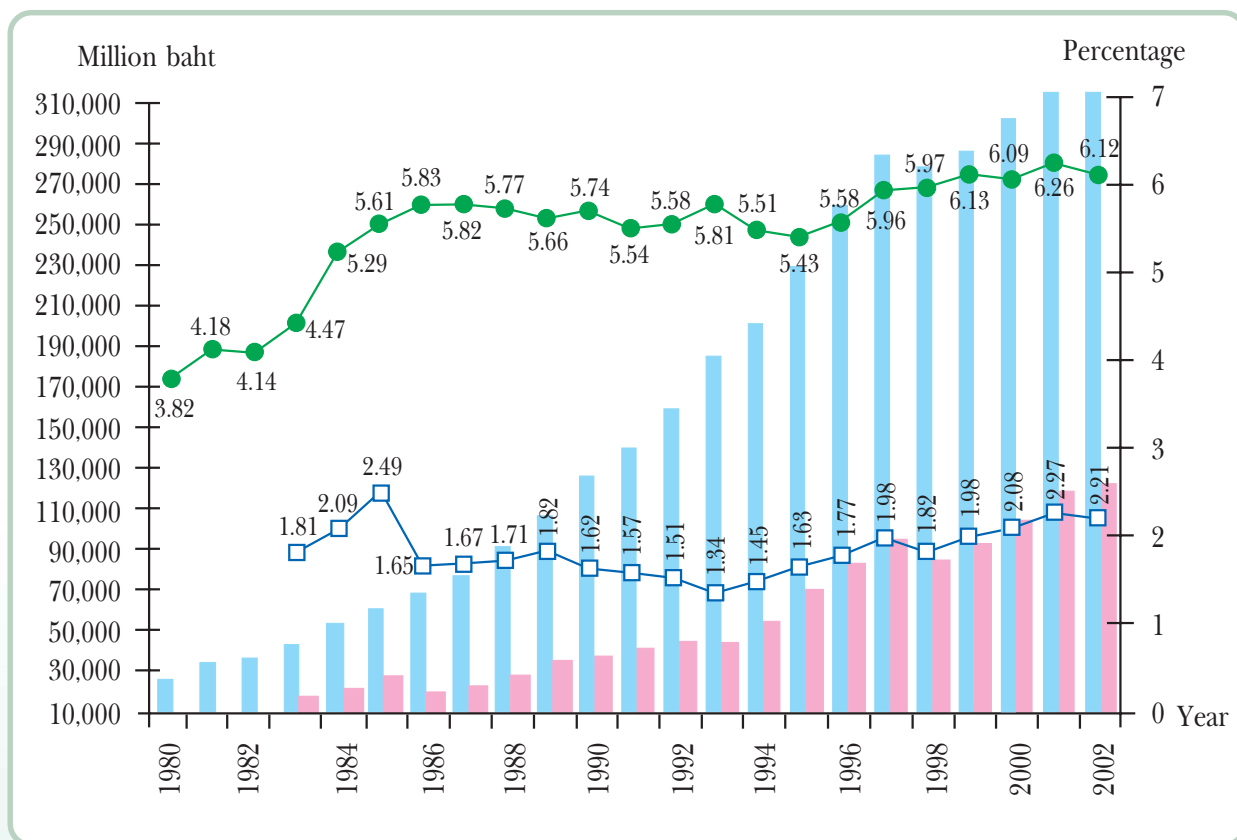
**(1) Rising Health Expenditure.**

Based on the overall national health account data derived from NESDB, the national health account has been rising from 3.8% of GDP in 1980 to 6.1% in 2002; 34.1% in the public sector and 65.8% in the private sector (Figures 4.9, 6.35 and Table 6.48). The 2001 study on the national health account of the International Health Policy Programme revealed that the expenditure on health accounted for 3.51% of GDP; 58.0% in the public sector and 42.0% in the private sector. Evidently, the discrepancy between these two systems was the expenses in the private sector. The estimates based on NESDB data would be almost twice those derived by using the survey data from the National Statistical Office (NSO).

In terms of equality of health spending burden, it was found that in 2002 the poor had a higher health spending burden relative to their income, **1.6 times higher than that of the rich**. This inequality has fallen from 6.4 times in 1992 as a result of the implementation of the universal health care scheme, started in 2001, resulting in a drop in household health spending (Figure 4.10). In particular, the decline was most apparent during the period 2000-2002.

The spending on drugs has been found to increase very rapidly; much more than that for overall health care (Table 4.4 and Figure 4.11).

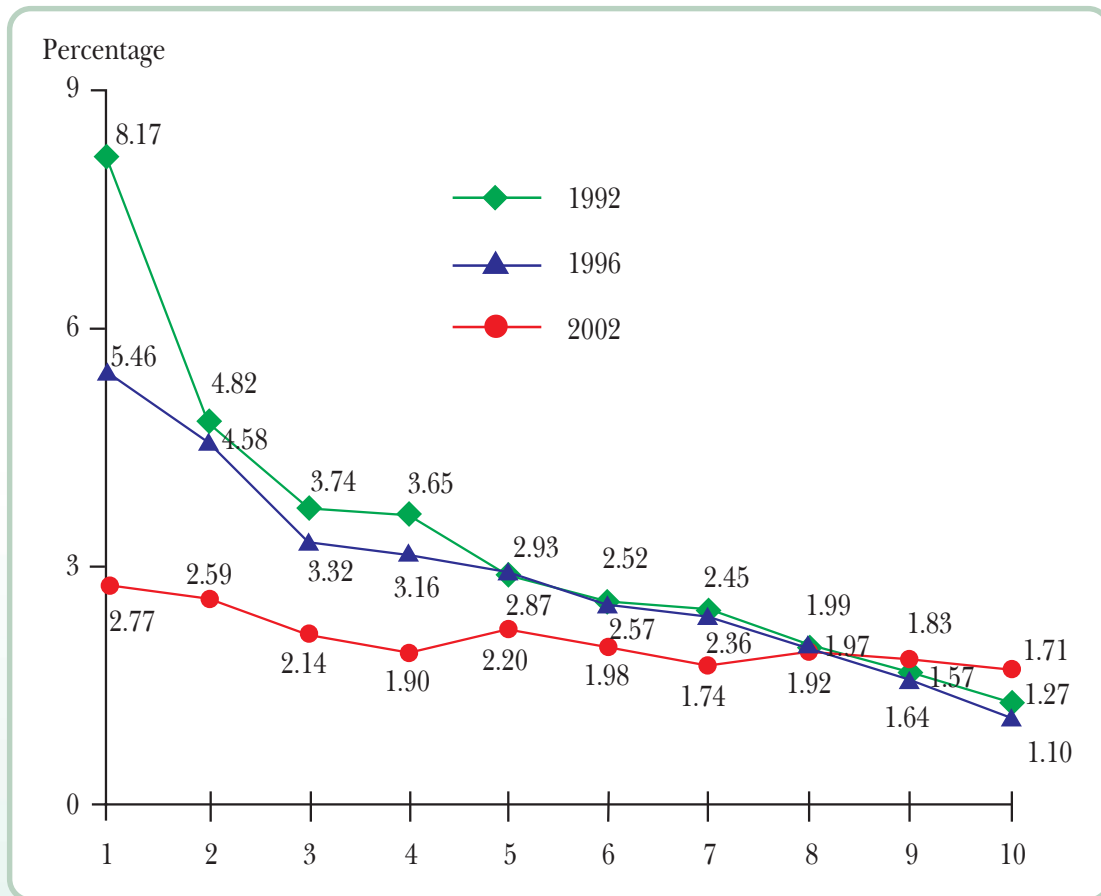
**Figure 4.9** Expenditures on Drugs and Health in Relation to GDP, 1980-2002



- Health, current market prices
- Drugs, current market prices
- Health, % GDP
- Drugs, % GDP

**Source:** Table 6.50 in Chapter 6.

**Figure 4.10** Percentage of Households' Health Expenditures, Compared to Income in 1992-2002



Year	Income deciles										Discrepancy between group 1 and group 10
	1	2	3	4	5	6	7	8	9	10	
1992	8.17	4.82	3.74	3.65	2.87	2.57	2.45	1.99	1.64	1.27	6.4
1994	7.56	4.75	4.49	3.60	3.26	3.03	2.53	2.32	2.03	1.26	6.0
1996	5.46	4.58	3.32	3.16	2.93	2.52	2.36	1.97	1.57	1.10	5.0
1998	4.22	3.07	2.95	2.90	2.59	2.43	1.94	2.00	1.57	1.23	3.4
2000	4.58	3.67	3.29	2.78	2.38	2.22	2.06	1.68	1.55	1.27	3.6
2002	2.77	2.59	2.14	1.90	2.20	1.98	1.74	1.92	1.83	1.71	1.6

**Source:** Chitpranee Vasavid. Analysis of data from the Household Socio-Economic Survey, 2002. National Statistical Office.

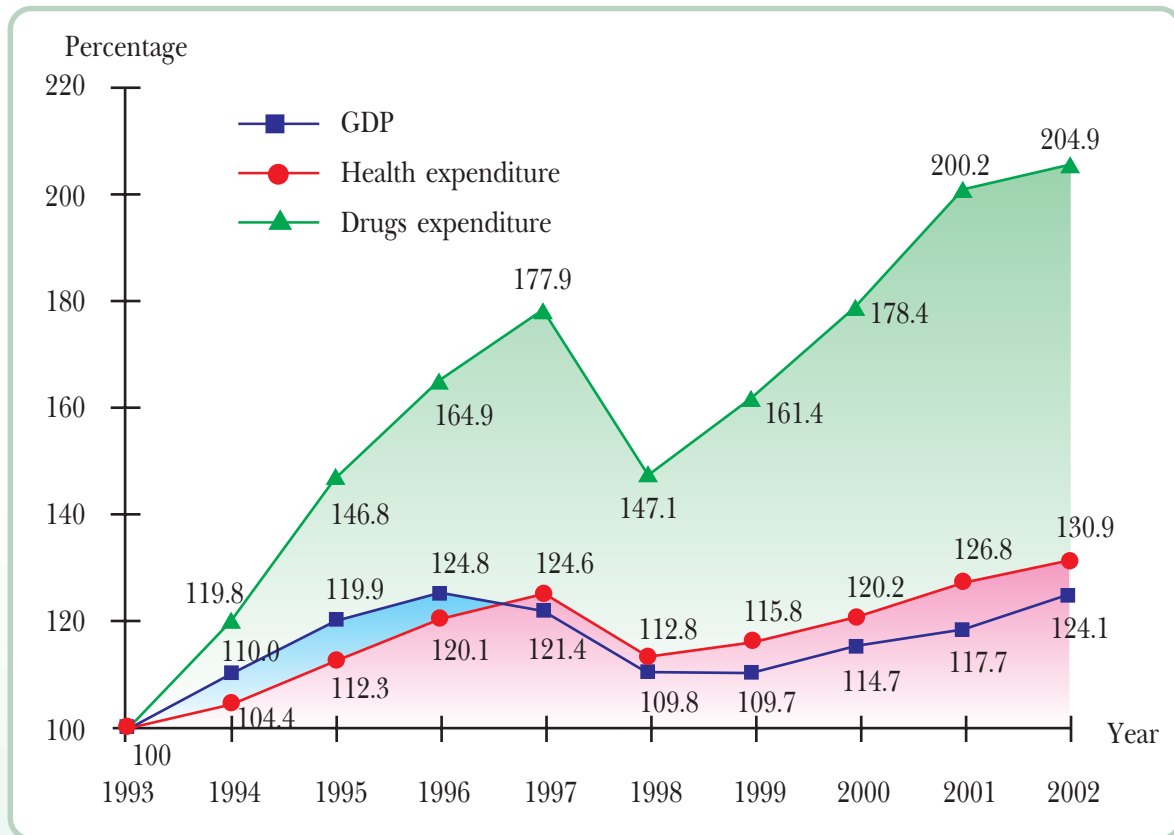
**Table 4.4** Growth of Real-Term Expenditures on Drugs and Health and GDP, 1993-2002 (1993 Price = 100)

Year	GDP	Health expenditure	Drug expenditure
1993	100.0	100.0	100.0
1994	110.0	104.4	119.8
1995	119.9	112.3	146.8
1996	124.8	120.1	164.9
1997	121.4	124.6	177.9
1998	109.8	112.8	147.1
1999	109.7	115.8	161.4
2000	114.7	120.2	178.4
2001	117.7	126.8	200.2
2002	124.1	130.9	204.9
Average annual growth rate (10-year period)	2.43	3.03	8.29

**Source:** Table 6.50 in Chapter 6.

**Note:** For comparison purpose, health expenditure for 1993 was set at 100.

**Figure 4.11** Growth of Real-Term Expenditures on Drugs and Health and GDP, 1993-2002 (1993 Price = 100)



**Source:** Table 4.4 in Chapter 4.

**Note:** For comparison purpose, health expenditure for 1993 was set at 100.

## (2) Roles of the Public and Private Sectors in Health Care Delivery.

During the bubble economy, the demand for private sector health care rose rapidly. When considering the number of doctors, the proportion of doctors in the private sector climbed from 6.7% in 1971 to 20.5% in 1996. The rise was most rapid during the period 1992-1996, resulting in a serious public-to-private sector brain drain. In 1997, just prior to the economic crisis, 21 community hospitals had no doctors at all.

After the economic crisis, with the people's declined purchasing power, the utilization of private health facilities dropped markedly, resulting in a reduction of revenue in the private sector. The people who could not afford private health services turned to state-run health facilities and some to drugstores for self-medication. Overall, in the beginning of the economic crisis, the numbers of outpatients and inpatients at public health facilities went up, but sluggishly rose during the following period (Tables 4.5 and 4.6). Meanwhile, the number of clients at private health facilities dropped (Table 4.7), corresponding to the results of the study conducted by Weerasak Phuthasri and colleagues (2003) which showed that the numbers of outpatients and inpatients had a tendency to decrease, especially in over-50-bed private hospitals (Table 4.8). But since 2001 the government has implemented the universal health care policy, more outpatients but fewer inpatients have been attending public facilities.



**Table 4.5** Number of Outpatient Visits at Public Health Facilities, Fiscal Years 1992-2003

Fiscal year	Regional/general hospitals		Community hospitals		Health centres and CHPs		Total	
	No. of visits (millions)	Change (percent)	No. of visits (millions)	Change (percent)	No. of visits (millions)	Change (percent)	No. of visits (millions)	Change (percent)
1992	11.21		19.00		22.26		52.47	
1993	12.02	+ 7.2	21.01	+ 10.6	23.63	+ 6.2	56.66	+ 8.0
1994	12.61	+ 4.9	23.60	+ 12.3	27.74	+ 17.4	63.95	+ 12.9
1995	14.62	+ 15.9	26.18	+ 10.9	32.43	+ 16.9	73.23	+ 14.5
1996	15.49	+ 6.0	28.00	+ 7.0	35.39	+ 9.1	78.88	+ 7.7
1997	16.78	+ 8.3	29.57	+ 5.6	41.53	+ 17.3	87.88	+ 11.4
1998	18.15	+ 8.2	33.93	+ 14.7	44.54	+ 7.2	96.62	+ 9.9
1999	19.41	+ 6.9	36.71	+ 8.2	46.86	+ 5.2	102.98	+ 6.6
2000	20.44	+ 5.3	40.16	+ 9.4	51.80	+ 10.5	112.40	+ 9.1
2003	23.03	+ 12.7	43.70	+ 8.8	62.39	+ 20.4	129.12	+ 14.9

**Source:** Bureau of Health Service System Development, Department of Health Service Support.

**Note:** In FYs 2001-2002, due the restructuring of the MoPH, the data were inaccurate and cannot be shown.

**Table 4.6** Number of Inpatients at Public Health Facilities, Fiscal Years 1992-2003

Fiscal year	Regional/general hospitals			Community hospitals			All types of hospitals		
	Million cases	Change (percent)	Change in admissions (percent)	Million cases	Change (percent)	Change in admissions (percent)	Million cases	Change (percent)	Change in admissions (percent)
1992	1.66		+ 17.8	1.79		+ 9.4	3.78	+12.5	
1993	2.00	+ 0.5	+ 16.6	1.89	+ 5.6	+ 9.0	3.89	+11.8	+ 2.9
1994	2.08	+ 4.0	+ 16.5	2.13	+ 12.7	+ 9.0	4.21	+11.6	+ 8.2
1995	2.35	+13.0	+ 16.1	2.24	+ 5.2	+ 8.6	4.59	+11.3	+ 9.0
1996	2.46	+ 4.7	+ 15.9	2.39	+ 6.7	+ 8.5	4.85	+11.2	+ 5.7
1997	2.56	+ 4.1	+ 15.3	2.44	+ 2.1	+ 8.3	5.00	+10.8	+ 3.1
1998	2.59	+ 1.2	+ 14.3	2.85	+ 16.8	+ 8.4	5.44	+10.4	+ 8.8
1999	2.62	+ 1.2	+ 13.5	2.82	- 1.1	+ 7.7	5.44	+ 9.7	0.0
2000	2.56	- 2.3	+ 12.5	2.92	+ 3.5	+ 7.3	5.48	+ 9.0	+ 0.7
2001	2.74	+ 7.0	+ 12.1	3.17	+ 8.6	+ 7.1	5.91	+ 8.8	+ 7.8
2002	2.41	-12.0	+ 8.7	2.76	- 12.9	+ 4.1	5.17	+ 5.5	-12.5
2003	2.50	+ 3.7	+ 10.9	2.89	+ 4.7	+ 6.6	5.39	+ 8.1	+ 4.3

**Source:** Bureau of Health Service System Development, Department of Health Service Support.

**Table 4.7** Numbers of Outpatient Visits and Inpatients at Private Health Facilities, Fiscal Years 1991-2002

Fiscal year	No. of private health facilities surveyed	Outpatient visits		Inpatients		Change (percent)
		Number (millions)	Average visits/hospital/yr	Number (millions)	Average cases/hospital/yr	
1991	257	2.24	8,716	0.50	1,946	+22.3
1992	268	2.52	9,403	0.64	2,388	+25.4
1993	263	2.82	10,722	0.67	2,548	+23.7
1994	322	3.79	11,770	0.85	2,640	+22.4
1995	357	4.29	12,017	0.97	2,717	+22.6
1996	358	4.95	13,827	1.63	4,553	+32.9
1997	358	4.45	12,430	1.58	4,413	+35.5
1998	373	5.17	13,860	1.62	4,343	+31.3
1999	374	4.58	12,246	1.47	3,930	+32.1
2000	331	4.14	12,507	1.48	4,471	+35.7
2001	323	4.97	15,387	1.71	5,294	+34.4
2002	320	4.03	12,594	1.54	4,812	+38.2

**Source:** Report on Health Resources, Bureau of Policy and Strategy, MoPH.

- Notes:**
1. Private health facilities include private hospitals and polyclinics.
  2. The reported numbers are approximately 5 times lower than those revealed in the NSO survey.

**Table 4.8** Average Numbers of Outpatient Visits and Inpatients in Private Hospitals, 1996-2000

Type of patients	Total	Size of hospitals				Change between 1997 and 2000		
		< 50 beds	51 - 100 beds	101 - 200 beds	>200 beds	Size of hospital	Outpatient Percent	Inpatient Percent
• 1996								
- Outpatients (visits)	70,953	23,454	66,880	137,866	276,785	< 50 beds	- 9.1	- 32.8
- Inpatients (cases)	6,305	2,018	5,857	12,251	26,238			
• 1997								
- Outpatients (visits)	70,024	22,086	65,750	141,308	283,699	51-100 beds	+ 8.3	- 16.9
- Inpatients (cases)	6,250	2,015	6,828	11,685	23,037			
• 1998								
- Outpatients (visits)	65,096	20,605	67,897	131,958	256,849	101-200 beds	+ 3.2	- 24.0
- Inpatients (cases)	5,017	1,605	5,643	9,990	18,678			
• 1999								
- Outpatients (visits)	67,409	19,838	73,608	140,495	267,076	> 200 beds	- 10.6	- 25.7
- Inpatients (cases)	4,564	1,330	5,397	9,050	17,272			
• 2000								
- Outpatients (visits)	66,407	20,070	71,184	145,799	253,485	All sizes	- 5.2	- 26.9
- Inpatients (cases)	4,569	1,353	5,671	8,875	17,121			

**Source:** Weerasak Phuthasri et al. Report on a Study of the Role and Adjustments of Hospitals in Thailand Before and During the Economic Crisis (1996-2001), 2003.

**Note:** The analysis of private hospitals' conditions is based on the database of the Survey on Private Hospitals of the National Statistical Office.

**(3) Mental Health Problems are on the Rise.**

Intensive competition during the bubble economic period resulted in a rising prevalence of mental disorders. Moreover, the economic crisis also resulted in a higher unemployment rate, leading to an increasing trend of suicidal ideation. Eleven surveys on people's mental health conditions during the economic crisis, conducted from September 1997 to September 2000, revealed that the prevalence of those with stress and suicidal ideation among the unemployed was higher than that among the employed and general public (Department of Mental Health, MoPH). And even though the crisis has been over, mental health problems remain more prevalent, particularly psychosis, rising from 440.1 per 100,000 population in 1997 to 519.6 per 100,000 population in 2001 (see the section on mental health indicators in Chapter 5).

**(4) Government Budget for Health.** During the period of economic boom, the Ministry of Public Health's budget increased to 7.7% of the national budget. Most of the budget was previously expended on investments. But during the economic crisis, the government budget for health had a declining trend, especially for investments. Since 2001 the government has implemented the universal health care policy and the government health budget, particularly the operating budget, has risen steadily. As a result, the proportion of overall MoPH budget has risen to 7.6% in 2004 (see details in Chapter 7).

**(5) Investments in Health Technology.** The great expansion in health technology investments has slowed down since the 1997 economic crisis (see additional details in section 1.3.2 Medical and Health Technology in Chapter 6). During the economic boom, plenty of medical technologies were imported with duty exemptions, particularly medical equipment according to the investment promotion policy. This led to competition in purchasing high-cost medical equipment, resulting in the clustering and utilizing of medical technology not in alignment with the national economic development. In 1988, for instance, in Bangkok Metropolis there were 10 CT scanners per one million population, a proportion greater than that in the United Kingdom which had only 6.3 machines per one million population. The proportion (machines per one million population) rose rapidly to 15.7 in 1994 and further increased slightly to 15.9 in 1999 for Bangkok. For the entire country, the proportion was only 4.5 in 1999 (Table 4.9). The investment on high-cost medical devices slowed down after the economic crisis occurred.

**Table 4.9** Number of CT Scanners in Developed Countries Compared to Those for Thailand and Bangkok, 2003

Country	No. of CT scanners (per million population)
Japan (1996)	69.7
U.S.A. (1990)	26.9
Italy (1997)	14.6
France (1997)	9.7
United Kingdom (1990)	6.3
Thailand (1995)	2.0
Thailand (1998)*	3.9
Thailand (1999)	4.5
Thailand (2003)*	4.2
Bangkok Metropolis (1988)	10.0
Bangkok Metropolis (1994)	15.7
Bangkok Metropolis (1998)	14.8
Bangkok Metropolis (1999)	15.9
Bangkok Metropolis (2003)*	13.3
Provinces (1999)	3.3
Provinces (2003)*	3.1

**Sources:** Wongduern Jindawatthana et al. Expensive Medical Devices in Thailand: Distribution and Access, 2000.

\* Data from the Radiation and Medical Devices Division, Department of Medical Sciences.

**(6) Industrial Sector's Expansion. The expansion in this sector at a rate higher than that in the agriculture sector has resulted in the following situations:**

**(6.1)** Greater migration of labour force from the agricultural sector to the industrial sector in urban areas has resulted in the problems of family institution deterioration, stress, crime, traffic congestions, drug abuse and environmental health. In particular, slums and solid wastes are becoming serious problems in large cities nationwide. The number of urban slums has risen from 1,587 in 1994 to 1,802 in 1997 and to 2,265 in 2000, or by 13.5%, and 25.7%, respectively, mostly in Bangkok and vicinity. A survey on demographic and social characteristics of slums in 17 provinces including those around Bangkok and others with a large number of slums in various regions in 1998 revealed that more than 50% of such slums had a drug abuse problem, mostly related to "ya ba" or methamphetamines and volatile solvents (Report on the Survey of Demographic and Social Characteristics of Slums in the Provinces around Bangkok and Other Regions, 1998, National Statistical Office). This is only one of the problems that reflects the people's health status and quality of life.

**(6.2) Health problems associated with working conditions and occupational health.** In 2003, the working-age population was 34.7 million, 54.1% of the total population: 15.6 million in the agricultural sector, 15.8 million in the industrial and service sectors, 2.6 million in the public sector, and 0.7 million in other sectors, generally in both formal and informal systems.

**(6.2.1) Labour force in the formal sector.**<sup>1</sup> In 2003, there were 9.8 million workers in the formal sector (or 28.4% of total workforce), including civil servants, state enterprise employees, and employees of business workplaces with 10 or more workers. Most of the workers completed only primary education, thereby not being able to protect or take care of themselves from occupational problems. The rate of employees with occupational injuries had a tendency to rise, i.e. from 2% in 1976 to 4.7% in 1993, then began to stabilize and decline to 3.0% in 2003. But the rate of work-related fatalities has been declining from 44.9 per 100,000 workers in 1979 to 11.19 per 100,000 workers in 2003 (Table 4.10 and Figure 4.12). However, the rate is considered to be relatively high, compared with those in developed countries. For instance, the work-related fatality rate per 100,000 workers is only 1.3 in the U.K. and only 4 in Finland (Choochai Supawongse. *Environmental Situation and Its Impact on Health in Thailand*, 1996).

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<sup>1</sup> Labour in the formal sector means the labour market that has a clear organizational or structural system of employment, recruitment, contracting or definite employment contract period, and welfare and social security with a specified line of command and responsibilities for each type of labour.

**Table 4.10** Numbers and Rates of Occupational Deaths and Injuries in Workers, 1974-2003

Year	No. of workers covered	No. of workers injured	Rate of injuries (percent)	Death		Disability		Loss of some organs		Temporary absenteeism	
				No.	Rate	No.	Rate	No.	Rate	No.	Rate
1974	272,848	3,200	1.2	95	34.8	-	-	401	146.9	2,704	991.0
1975	349,814	4,605	1.3					n.a.			
1976	496,700	10,136	2.0					n.a.			
1977	570,000	15,335	2.7					n.a.			
1978	590,640	19,134	3.2	209	35.4	9	1.5	1,119	18.9	17,797	3,013.2
1979	659,041	24,370	3.7	296	44.9	8	1.2	1,104	16.8	22,962	3,484.1
1980	745,513	25,334	3.4	294	39.4	13	1.7	1,191	16.0	23,836	3,197.3
1981	797,270	27,723	3.5	314	39.4	10	1.3	1,275	16.0	26,124	3,276.7
1982	824,565	28,323	3.4	279	33.8	14	1.7	1,085	131.2	26,945	3,267.8
1983	873,059	33,213	3.8	272	31.2	5	0.6	514	62.3	32,422	3,713.6
1984	994,190	39,182	3.9	315	31.7	20	2.0	1,305	131.3	37,542	3,776.1
1985	1,091,318	39,119	3.7	315	28.9	18	1.7	1,159	106.2	37,627	3,447.8
1986	1,179,812	37,445	3.2	285	24.2	10	0.8	978	82.9	36,172	3,065.9
1987	1,232,555	42,811	3.5	315	25.6	10	0.8	1,158	93.9	41,328	3,353.0
1988	1,346,203	48,912	3.6	282	20.9	7	0.5	1,179	87.6	47,444	3,524.3
1989	1,661,651	62,766	3.8	373	22.5	15	0.9	1,582	95.2	60,796	3,658.8
1990	1,826,995	80,065	4.5	640	35.0	30	1.6	1,509	82.6	77,886	4,263.1
1991	2,751,868	102,273	3.9	581	21.1	9	0.3	2,141	77.8	99,542	3,617.3
1992	3,020,415	131,800	4.4	740	24.5	15	0.5	2,010	66.5	129,035	4,272.1
1993	3,355,805	156,543	4.7	980	29.2	10	0.3	5,436	161.9	150,122	4,473.5
1994	4,248,414	186,394	4.4	863	20.3	23	0.5	4,548	107.0	180,960	4,259.5
1995	4,903,736	216,525	4.4	940	19.2	17	0.4	5,469	111.5	209,909	4,280.6
1996	5,425,422	245,616	4.5	962	17.73	18	0.3	5,042	92.93	239,574	4,416.1
1997	6,084,822	230,376	3.8	1,033	16.97	29	0.4	5,272	86.64	224,042	3,681.9
1998	5,418,182	186,445	3.4	784	14.47	19	0.3	3,692	68.14	181,956	3,358.1
1999	5,679,567	172,087	3.0	627	11.04	14	0.2	3,437	60.51	168,009	2,958.1
2000	5,417,041	179,566	3.3	620	11.45	16	0.3	3,516	64.91	175,414	3,238.2
2001	5,884,652	189,621	3.2	607	10.31	20	0.3	3,510	59.65	185,484	3,152.0
2002	6,541,105	190,979	2.9	650	9.94	14	0.2	3,424	52.54	186,891	2,857.2
2003	7,033,907	210,673	3.0	787	11.19	17	0.2	3,821	54.32	206,048	2,929.35

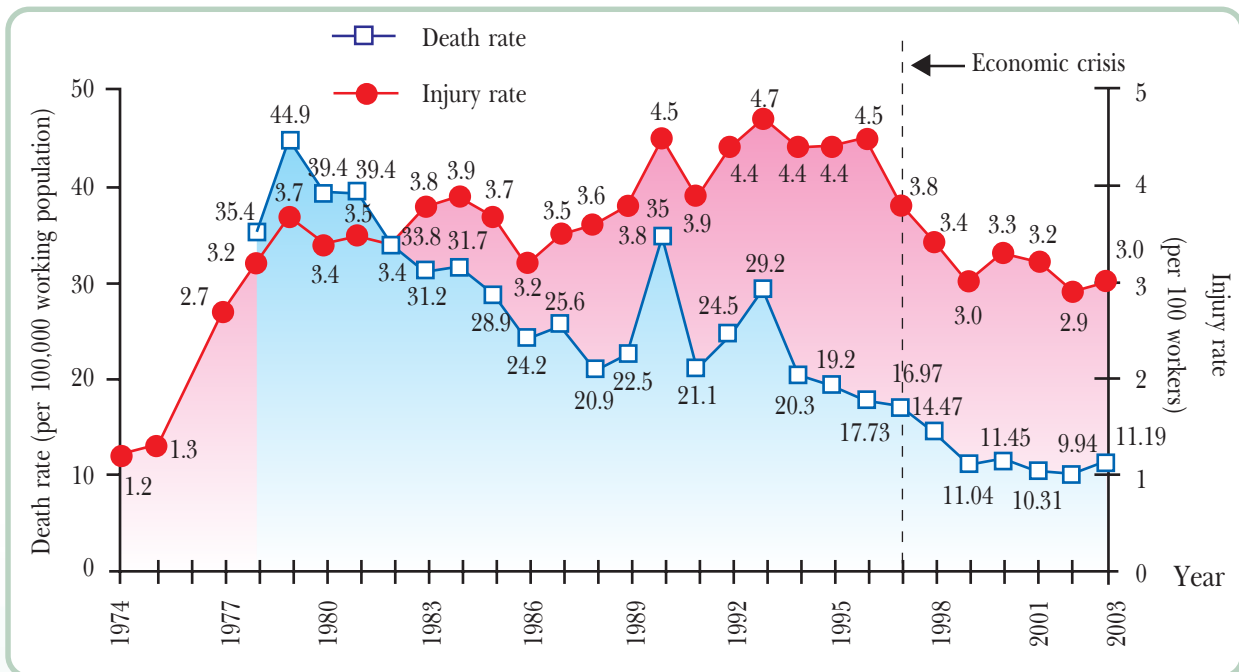
**Source:** Ministry of Labour.

**Notes:** (1) n.a. = Data not available.

(2) Except for the rate of injuries, other rates are per 100,000 workers.



**Figure 4.12** Rates of Deaths and Injuries Due to Occupational Hazard Exposure, 1974-2003



Source: Ministry of Labour.

**(6.2.2) Labour force in the informal sector.<sup>2</sup>** In 2003, there were 24.8 million workers in the informal employment system (71.6% of total labour force), including those in the agricultural sector, the self-employed, home-based workers, etc. A survey on workers who do the work at home as hired by a certain business revealed that such workers had problems related to occupational safety; the rate rising from 2.8% in 1999 to 33.2% in 2002. Most of such problems were related to eye-sight, working position and dust (Reports on the Surveys of Home-based Work, 1999 and 2002. National Statistical Office).

**(7) Trade liberalization and international economic cooperation** have led to increased trade competition and protection partially affecting health products and services industries (see Chapter 10).

## 2. Educational Situations and Trends

### 2.1 Educational System

According to the National Education Act, B.E. 2542 (1999), proclaimed on 20 August 1999, the education reform has been implemented to expeditiously provide 12-year basic education, covering 6-year primary education, 3-year lower secondary education and 3-year upper secondary education. The compulsory education is extended from 6 years to 9 years, together with tuition fee exemption for years 10-12. Also, the Act provides an opportunity for educational institutions to be able to offer and manage any pattern of education based on their own needs, i.e. formal and non-formal education, or even free-style education.

Nonetheless, Thailand's school enrollment rates of school-age population in primary and secondary education are still lower than those in some other Asian countries and in all European and American countries (Table 4.11).

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<sup>2</sup> Labour force in the informal sector means the labour market that lacks systems for employment, welfare, and protection under the social security law.

**Table 4.11** Enrollment Rates of School-Age Population in Basic Educational System in Various Countries, 2001/2002

Primary education enrollment		Secondary education enrollment	
Country	Rate (percent)	Country	Rate (percent)
<b>WHO/SEAR</b>		<b>WHO/SEAR</b>	
Sri Lanka	105.0	Sri Lanka	82.0 <sup>1</sup>
Maldives	96.0	India	59.7 <sup>1</sup>
Indonesia	92.0	Thailand	55.0 <sup>1</sup>
Bangladesh	87.0	Nepal	54.6 <sup>1</sup>
Thailand	86.0	Indonesia	47.0
India	83.0	Bangladesh	44.0
Myanmar	82.0	Myanmar	35.0
Nepal	70.0	Maldives	31.0
Bhutan	16.0 <sup>1</sup>	Bhutan	5.0 <sup>1</sup>
North Korea	n.a.	North Korea	n.a.
<b>ASEAN</b>		<b>ASEAN</b>	
Malaysia	95.0	Brunei	81.9 <sup>1</sup>
Vietnam	94.0	Singapore	75.6 <sup>1</sup>
Philippines	93.0	Malaysia	69.0
Indonesia	92.0	Vietnam	65.0
Singapore	91.4 <sup>1</sup>	Philippines	56.0
Brunei	87.9 <sup>1</sup>	Thailand	55.0 <sup>1</sup>
Thailand	86.0	Indonesia	47.0
Cambodia	86.0	Myanmar	35.0
Laos	83.0	Laos	31.0
Myanmar	82.0	Cambodia	21.0
<b>World (top ten)</b>		<b>World (top ten)</b>	
Sweden	102.0	Japan	101.0
Norway	101.0	Sweden	99.0
Belgium	101.0	Canada	98.0
Iceland	101.0	Norway	95.0
United States	101.0	United Kingdom	95.0
United Kingdom	101.0	Finland	95.0
Finland	100.0	France	92.0
Canada	100.0	Netherlands	90.0
Netherlands	100.0	Switzerland	88.0
France	100.0	Austria	88.0

**Sources:** Human Development Reports, 2002-2004.

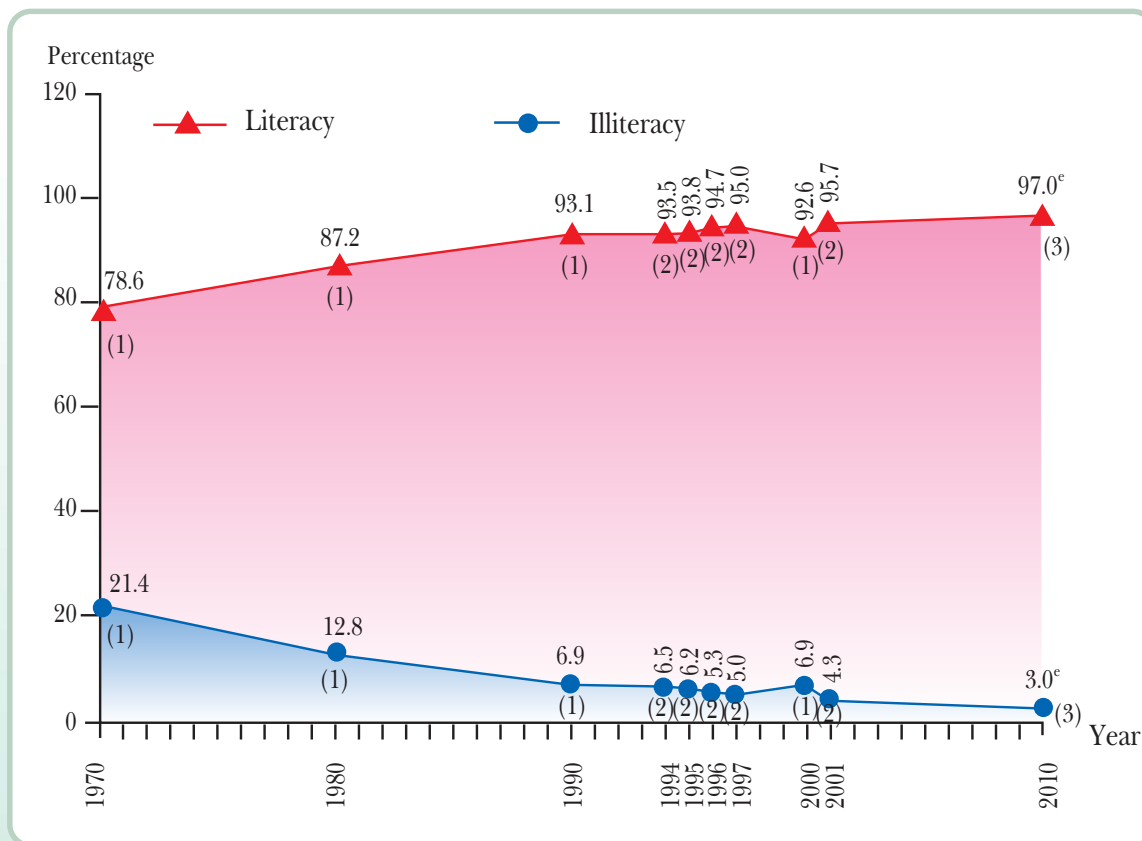
**Note:** <sup>1</sup> Data for 1998. The listing of countries is done in order of their enrollment rates.

## 2.2 Knowledge, Capability and Skills of Thai People

### 2.2.1 Literacy Rate

The literacy rate among Thai population aged 15 and over rose from 78.6% in 1970 to 95% in 1997. The trend, however, reversed after the economic crisis (Figure 4.13), but slightly rose to 95.7% in 2001. Yet, the rate remains much higher than the average for other developing countries (74.5%). Although Thailand's literacy rate ranks first among the 10 ASEAN member countries,<sup>3</sup> its illiteracy rate was recorded at 4.3% in 2001. It is estimated that the literacy rate will be as high as 97% in 2010.

**Figure 4.13** Literacy and Illiteracy Rates of Thai Population Aged 15 and over, 1970-2010



**Sources:** (1) Data for 1970, 1980, 1990 and 2000 were derived from the Population and Housing Censuses. National Statistical Office.

(2) Data for 1994-1997 and 2001 were derived from UNDP, Human Development Reports, 1997-2003.

(3) UNESCO, Principal Regional Office for Asia and Pacific. Literacy in Asia and the Pacific.

<sup>3</sup> UNDP, Human Development Report, 2003.

Nevertheless, when considering the reading rate among the Thai people, it was found that only 35.4 million people (61.2%) read regularly, and on average for 2.99 minutes per day (Table 4.12).

**Table 4.12** Percentage of Thai Population Aged 6 Years and Over Who Read Regularly, by Reading Period, Region of Residence, Sex and Age Group, 2003

Administrative region, sex and age group	Percentage of reading population <sup>1</sup>	Time spent on reading <sup>2</sup> (minutes/day)	
		Per person (entire population)	Per reading person
<b>Reading</b>	61.2	2.99	67.49
<b>Non-reading</b>	38.8	-	-
<b>Administrative region</b>			
Urban	74.4	5.94	69.28
Rural	54.7	1.67	64.79
<b>Sex</b>			
Female	57.7	2.18	65.10
Male	64.8	3.83	68.97
<b>Age group</b>			
6 - 9	77.4	n.a.	n.a.
10 - 14	90.0	1.28	68.99
15 - 24	80.4	3.47	79.67
25 - 59	54.3	2.84	59.28
60 and over	24.4	4.43	84.72

**Sources:** <sup>1</sup> Report on the Reading of Population Survey, 2003. National Statistical Office.

<sup>2</sup> Report on the Reading Time of Population Survey, 2001. National Statistical Office.

**Notes:** <sup>1</sup> Population aged 6 years and over.

<sup>2</sup> Population aged 10 years and over.

### 2.2.2 Learning Rate

The learning rate of Thai people is still rather low at only 58.7% (2003) and there are wide disparities between those for the regions and between urban and rural residents (Table 4.13). Besides, a survey on children and youths revealed that, in 2002, such people had the capacity and skills in foreign languages and computer use of less than 50% (Table 4.14).

**Table 4.13** Learning Rate of Thai People, 1992-2003

Unit: Percent

Region and area	1992	1996	1997	1998	1999	2000	2001	2002	2003
Urban	57.1	60.0	61.7	65.2	65.4	66.4	67.5	68.6	70.0
Rural	36.5	41.0	42.2	45.3	46.9	48.1	49.4	50.8	52.9
Region									
- Central	41.0	48.2	49.4	50.9	52.1	54.1	52.4	53.2	58.6
- North	36.2	38.6	40.7	43.3	43.5	45.0	46.6	48.2	49.9
- Northeast	39.6	44.1	45.0	48.6	51.0	51.7	54.8	55.7	56.5
- South	43.6	47.5	48.5	52.6	53.8	54.3	56.3	58.7	58.7
- Bangkok	61.6	64.8	66.8	72.5	72.1	72.6	73.1	73.7	75.7
Whole country	42.3	47.1	48.5	51.8	53.0	54.1	55.3	56.6	58.7

**Source:** Data from the Workforce Survey (3rd Round) of the National Statistical Office, analyzed by the Bureau of Development Evaluation and Dissemination, NESDB.

**Note:** Learning rate is the level of literacy and basic computation required for daily livelihood; to attain such a level, a person should have had 5-6 years of formal schooling or equivalent.

**Table 4.14** Percentage of Children and Youths Aged 11-24 Years With Computer and Language Capability by Area, Region, 2002

Unit: Percent

Capability	Whole country	Area		Region				
		Urban	Rural	Bangkok	Central	North	Northeast	South
- Computer use	41.3 (6.4 million)	42.7	33.7	38.5	45.5	48.0	30.3	37.4
- Language for communication purposes	29.2 (4 million)	34.1	27.0	31.4	29.6	34.3	18.0	49.4
- English	82.4	89.9	78.2	94.3	95.3	92.1	75.0	64.0
- Chinese	1.5	2.1	1.1	2.9	1.3	0.9	2.3	0.5
- Other	16.1	8.0	20.7	2.8	3.4	7.0	22.7	35.5

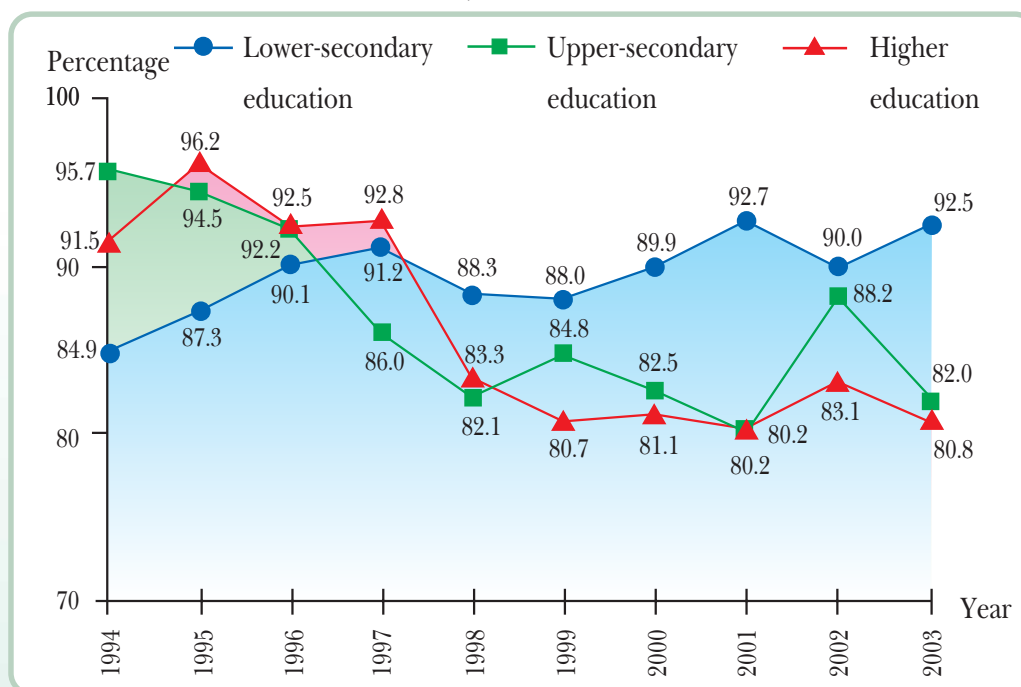
**Source:** Report on the Survey of Children and Youths, 2002. National Statistical Office.

## 2.3 Education Opportunities

### 2.3.1 Educational Continuation

The rates of students continuing their education from primary to lower-secondary, from lower to upper-secondary, and from upper-secondary to higher education tended to be rising during the pre-economic crisis period. But the rates dropped during the crisis and rose again after the crisis was over (Figure 4.14).

**Figure 4.14** Rates of Educational Continuation by Educational Level, Academic Years 1994-2003



**Source:** Office of the Education Council, Ministry of Education.

With the higher rate of educational continuation, coupled with an increase in the average duration of education among Thai population aged 15 and over from 6.6 years in 1996 to 7.8 years in 2003 (Table 4.15), the proportion of labour force (2003) with primary schooling has dropped to 63.8%. It has been projected that the proportion of workers with primary education will drop further to only 39.9% in 2020, while those with higher education will rise from 11.9% in 2003 to 22.5% in 2020 (Table 4.16).

**Table 4.15** Average Years of Schooling for Thai People, 1996-2003

Age group	Years of schooling							
	1996	1997	1998	1999	2000	2001	2002	2003
15-21 years	8.8	9.0	9.3	9.4	9.5	9.6	9.7	9.8
15-59 years	7.2	7.4	7.6	7.7	7.8	7.7	7.8	7.9
60 years and over	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
Average (15 years+)	6.6	6.8	7.0	7.1	7.2	7.4	7.6	7.8

**Source:** Reports on Thai People's Educational Attainment, 2000 and 2003. Office of the Education Council, Ministry of Education.

**Note:** An estimate for 2003.



**Table 4.16** Structure (Percentage) of Labour Force by Educational Level, 1995-2020

Educational level	1995 <sup>(1)</sup>	1997 <sup>(1)</sup>	1999 <sup>(1)</sup>	2001 <sup>(1)</sup>	2002 <sup>(1)</sup>	2003 <sup>(1)</sup>	2010 <sup>(2)</sup>	2020 <sup>(2)</sup>
Primary and lower	78.0	75.2	69.8	66.3	65.6	63.8	55.9	39.9
Lower-secondary	8.9	10.1	12.0	12.7	13.0	13.7	14.7	14.6
Upper-secondary	3.3	3.6	5.0	6.2	6.8	7.2	8.7	14.3
Vocational	4.7*	4.8*	5.0*	3.4*	3.3*	3.3*	6.6	8.7
Higher	5.1	6.2	8.2	11.3	11.3	11.9	14.1	22.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

**Sources:** <sup>(1)</sup> Data for 1995-2003 were derived from the Reports of the Workforce Surveys 3rd Round, 1995-2003. National Statistical Office.

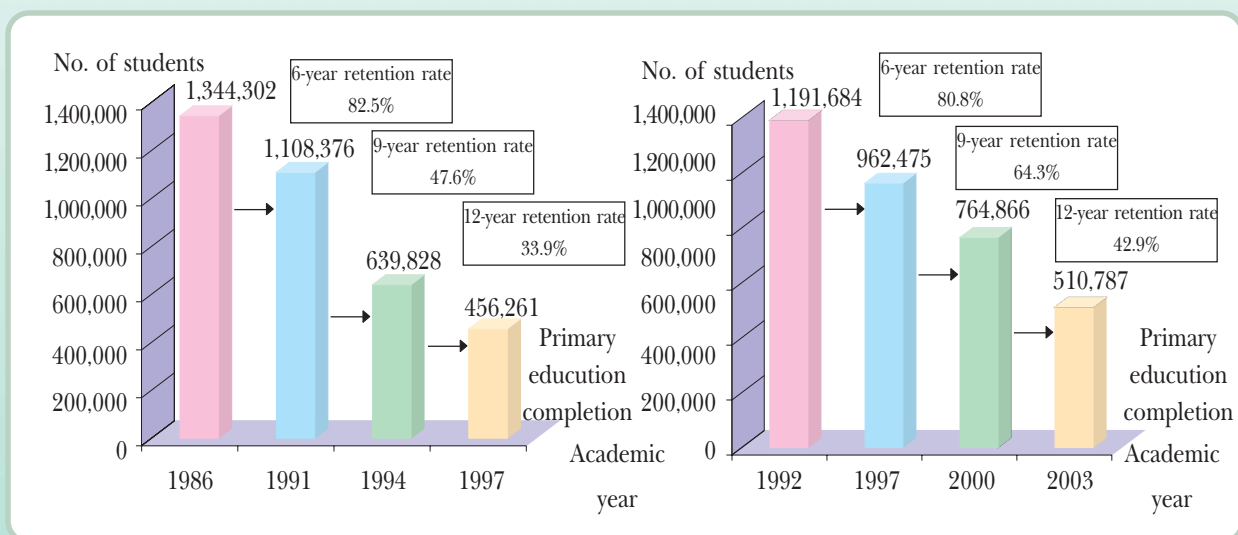
<sup>(2)</sup> Data for 2010-2020 were derived from the Report on Thailand's Social and Economic Trends. Thailand Development Research Institute

**Note:** \* Including graduates from vocational and teacher-training colleges for 1995-2000

### 2.3.2 Education Retention Rate

The students retention rates have been improving, essentially for the primary educational level, but the rises for those at the lower-secondary and upper-secondary educational levels are rather slow. The 12-year retention through upper-secondary education is only 42.9% (Figure 4.15).

**Figure 4.15** Comparison of Student Retention Rates, Academic Years 1986-1997 and 1992-2003



**Source:** Office of the Education Council, Ministry of Education.

## 2.4 Quality of Education

The Thai educational system tends to focus on memorization rather than strengthening of analytical skills for problem solving and self-study, resulting in low educational achievements below 50% for both primary and secondary levels. Thai children's capability is weaker in terms of rational and systematic analysis and synthesis (Table 4.17). Besides, the Thai educational system cannot compete with those in other countries as evidenced in the results of the academic Olympics contest. In the contest, Thai students' mathematics and science capabilities were lowest among the five Asian countries participating in the event, except for 2002-2004 when Thailand was ranked fourth, better than Singapore and Vietnam (Figure 4.16). Most Thai students have a problem with answering a question that requires the application of knowledge for further analysis and problem solving, and the measuring of process skills. As a result, a lot of Thai people lack the skills for analysis which is a basis for creating life-skills, leading to failure or inability to resolve a problem or situation related to health risks.

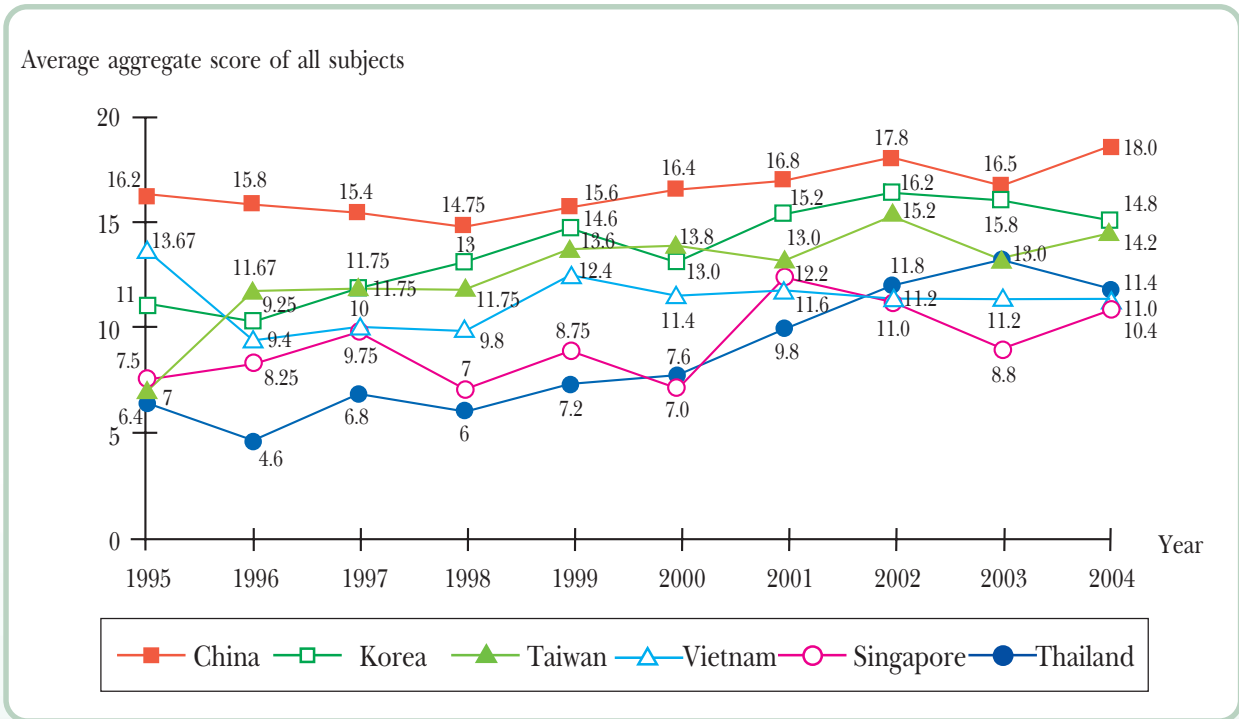
**Table 4.17** Learning Achievements and Attitudes of Primary and Secondary School Students, 2000-2003

Educational level		Average score (percent)			
		Mathematics	Science	Thai language	English
1. Primary	2001	46.9	n.a.	54.3	49.6
	2002	49.9	n.a.	50.6	47.4
	2003	41.7	42.4	45.2	41.1
2. Lower-secondary	2000	31.2	40.4	53.0	38.9
	2001	32.4	n.a.	46.3	38.9
	2002	39.1	n.a.	46.7	45.3
	2003	35.0	38.1	54.0	37.9
3. Upper-secondary	2003	34.0	48.8*	44.5	39.1
Educational level		Computational	Analytical	Language capability	
				Learning attitude	
- Upper-secondary	2000	38.3	43.1	37.2	
	2001	41.7	39.6	38.7	
	2002	38.0	42.9	39.2	
	2003	38.9	38.3	40.7	

**Source:** Office of the Basic Education Commission, Ministry of Education.

- Notes:**
1. Assessments of students' learning achievements for primary and lower-secondary levels, 2001-2002, in three subjects: Thai language, English and mathematics.
  2. For 2000-2003, the assessments of upper-secondary school students' learning attitudes were undertaken in three aspects: computational, analytical and language capabilities.
  3. For 2003, there was also an assessment of learning achievements for upper-secondary school students.
  4. \* For physical/biological sciences.

**Figure 4.16** Results of Olympic Scientific Knowledge Contest of Students from Thailand and Other Asian Countries, 1995-2004



**Source:** Office of the Education Council, Ministry of Education.

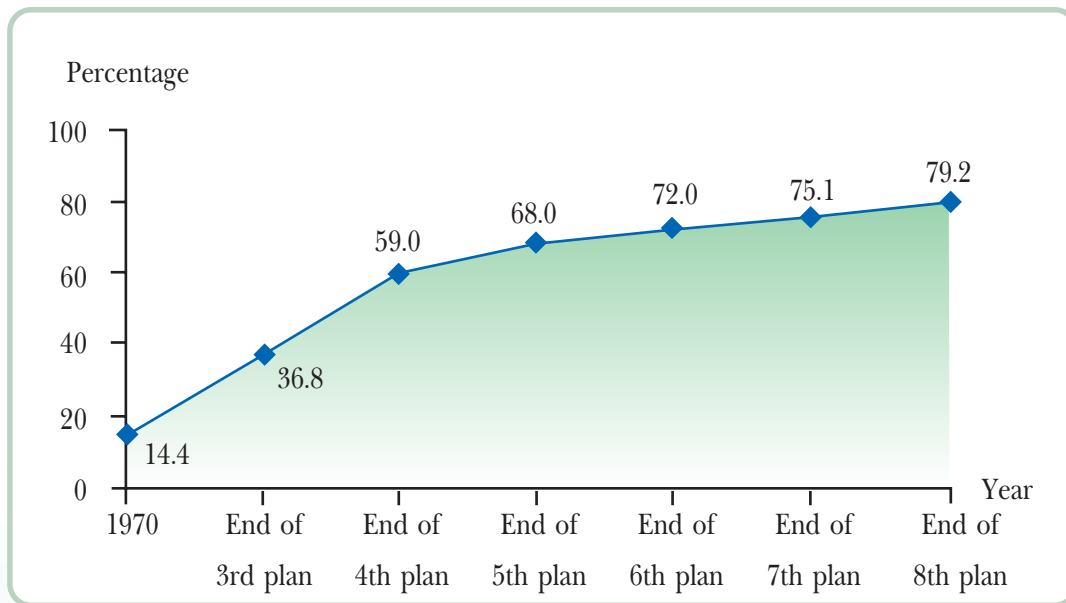
**Note:** Average aggregate score of all subjects means an average score of 5 subjects (mathematics, chemistry, physics, biology and computer science) for each year.

### 3. Situations and Trends of Population, Family and Migration

#### 3.1 Population Structure

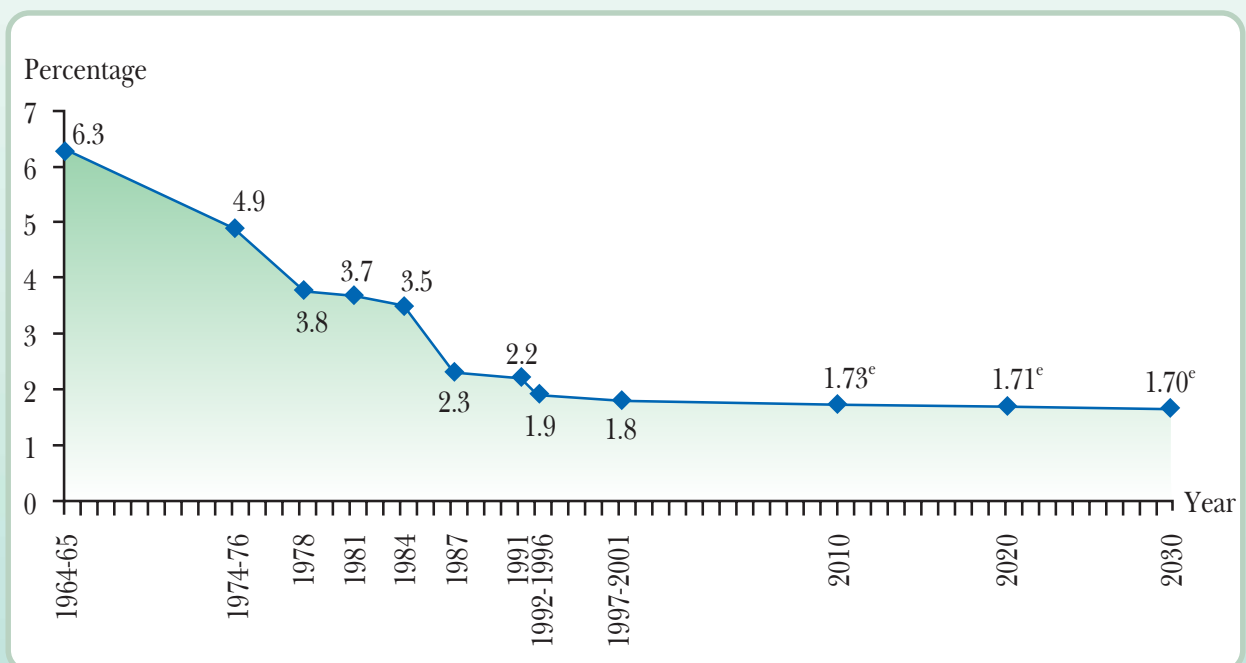
The success in Thailand's family planning campaigns has led to an increase in the contraceptive prevalence rate from 14.4% in 1970 to 79.2% in 2001 (Figure 4.17), resulting in a drastic reduction in the total fertility rate (Figure 4.18). And as a result, the population growth has continuously dropped from 3.2% prior to 1970 to 0.8% in 2001. It has been projected to keep on declining to 0.53% in 2020 (Figure 4.19). The decrease in population growth rate has affected the quantity and age structure of the population. Thailand will have a population of 72.3 million in 2025 (Figure 4.20), while the proportion of children aged 0-14 tends to drop whereas the working-age and elderly proportions are likely to escalate (Figure 4.21). This describes the phenomenon of declining dependency ratio for children but rising for the elderly. Though the overall dependency ratio keeps falling until 2010, it will rise again due to a greater proportion of the elderly (Figure 4.22). This will result in a change in Thailand's Population Pyramid from wide-base to narrow-base, similar to those in developed countries (Figure 4.23).

**Figure 4.17** Contraceptive Prevalence Rate for Thailand Since the Beginning of the Family Planning Programme Until 2001



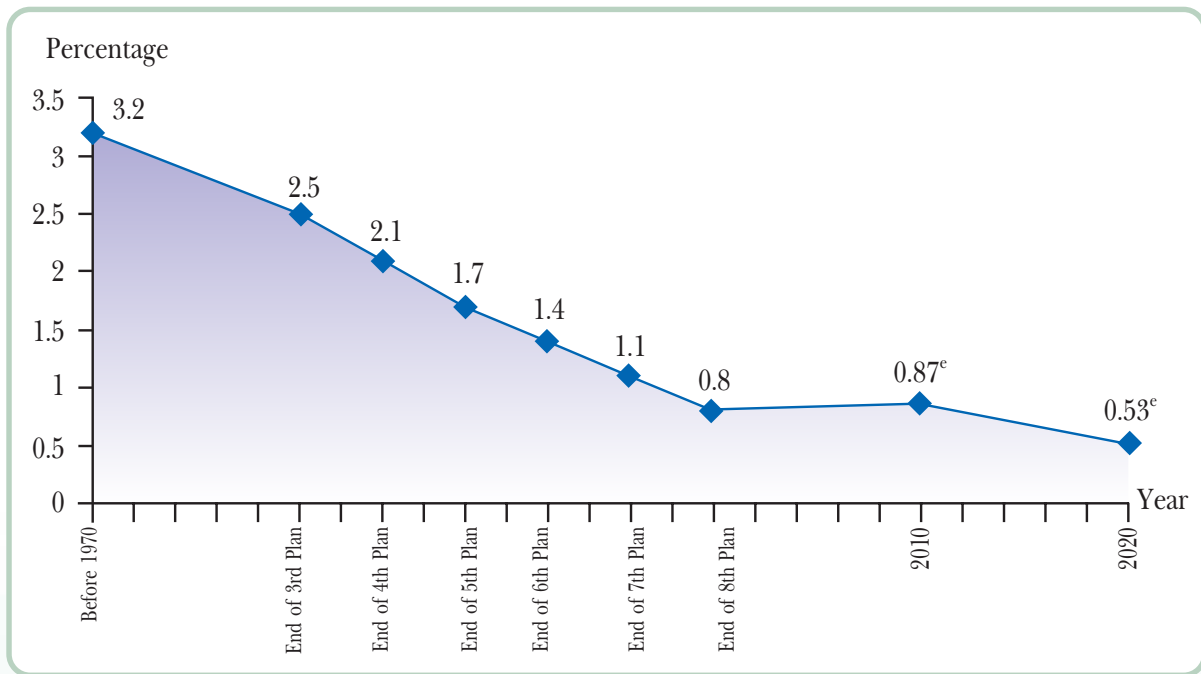
**Source:** Bureau of Health Promotion, Department of Health.

**Figure 4.18** Total Fertility Rate for Thailand and Projections, 1964-2030



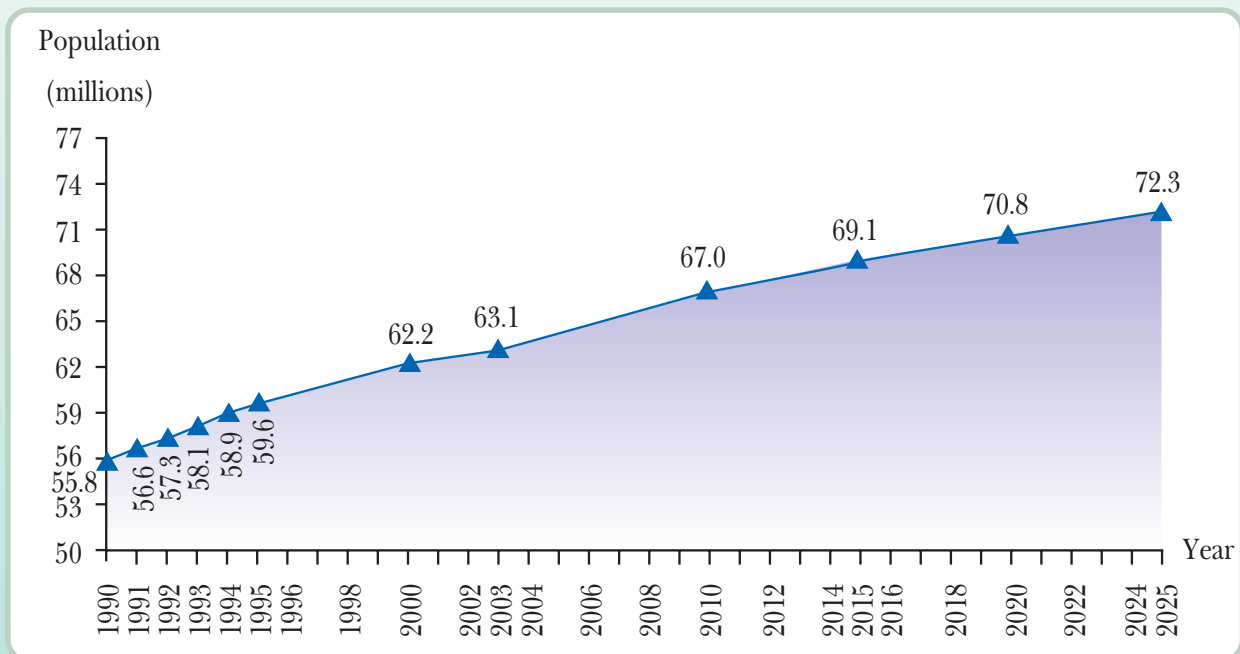
**Source:** Institute of Population and Social Research, Mahidol University.

**Figure 4.19** Population Growth Rate and Projection, Thailand, 1970-2020



**Sources:** (1) Data before 1970 were derived from Nippon Debavalya, Before Getting the 1970 Population Policy.  
 (2) Data for end of the 3rd-8th Plans were derived from the Department of Health, MoPH.  
 (3) Data for 2010-2020 were derived from Population Projections, Thailand, 1990-2020, NESDB.

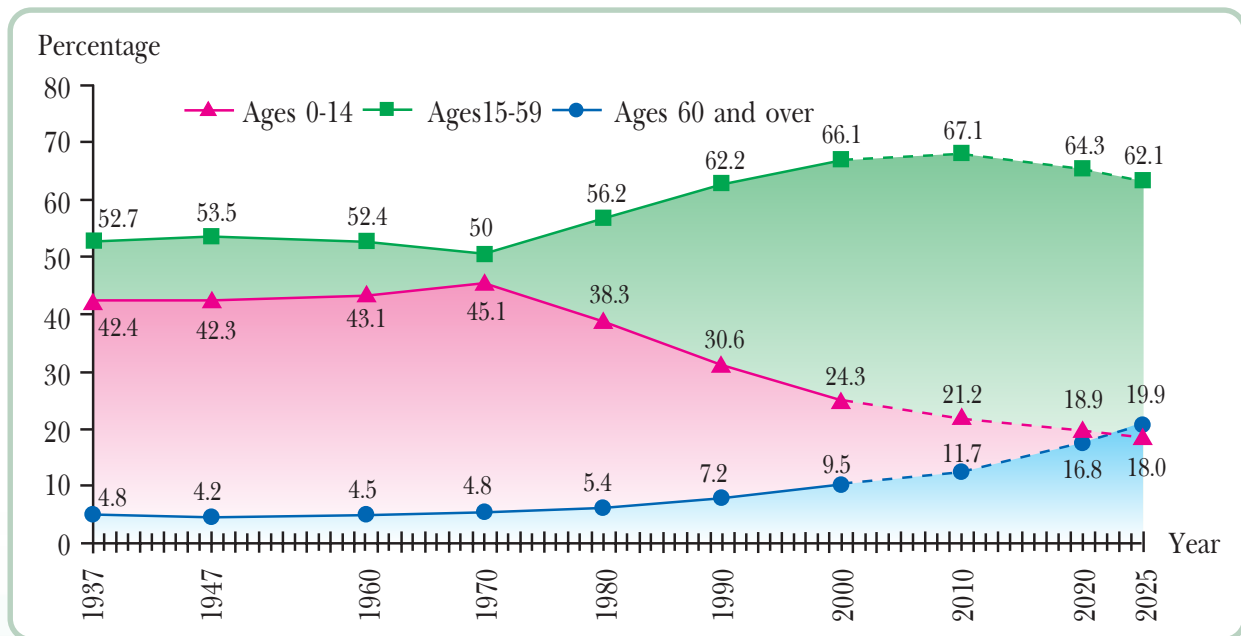
**Figure 4.20** Projection of Population Thailand, 1990-2025



**Source:** Population Projections, Thailand, 2000-2025, NESDB.

**Note:** For 2003, data were derived from the Bureau of Registration Administration, Ministry of Interior.

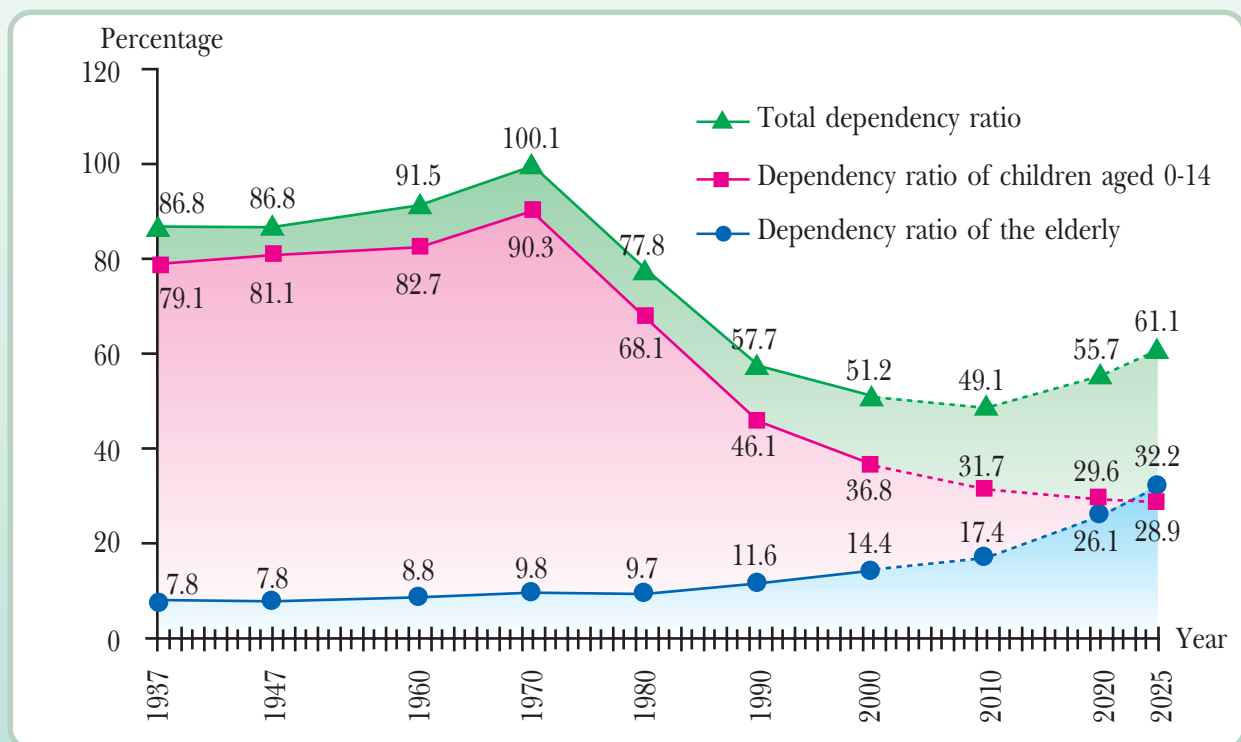
**Figure 4.21** Proportion of Population by Major Age Group, 1937-2025



**Sources:** (1) Data for 1937, 1947, 1960, 1970, 1980, 1990 and 2000 were derived from the Population and Housing Censuses. National Statistical Office.

(2) Data for 2010, 2020 and 2025 were derived from Population Projections, Thailand, 2000-2025. NESDB.

**Figure 4.22** Population Dependency Ratio, 1937-2025

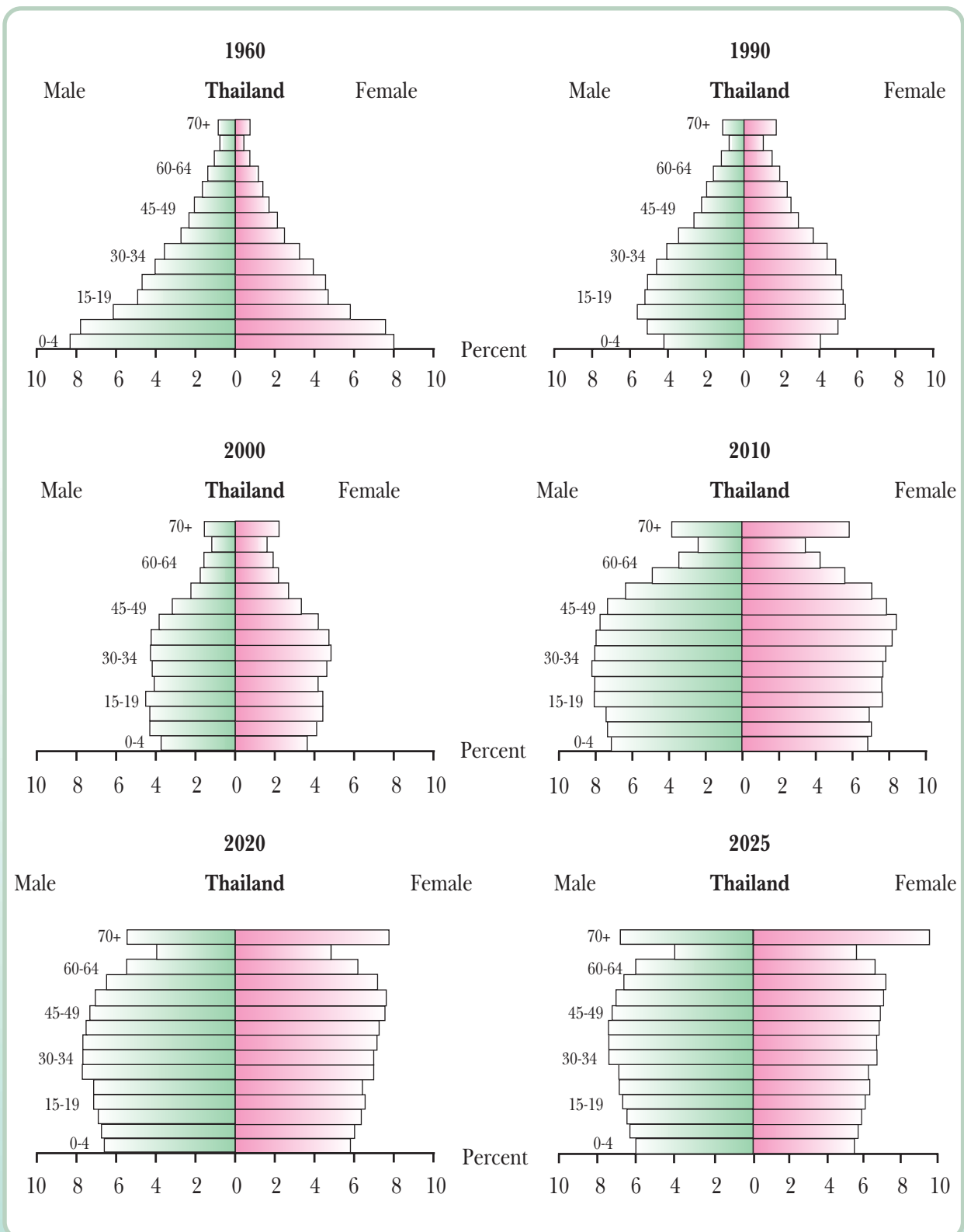


**Sources:** (1) Data for 1937, 1947, 1960, 1970, 1980 and 1990 were derived from the Population and Housing Censuses. National Statistical Office.

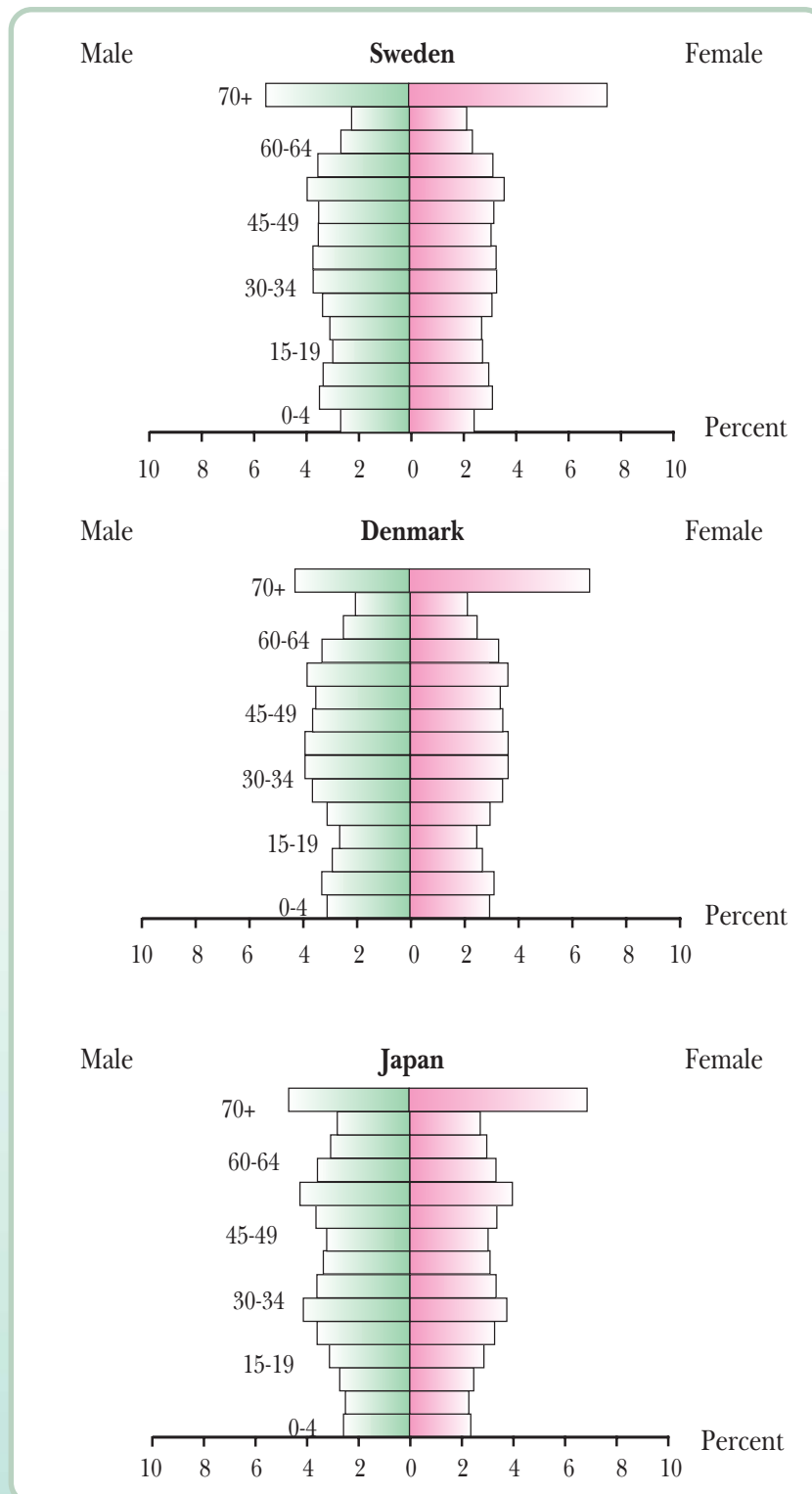
(2) Data for 2010-2025 were derived from Population Projections, Thailand, 2000-2025. NESDB.



**Figure 4.23** Population Pyramids of Thailand in 1960, 1990, 2000, 2010, 2020, and 2025 Compared to Those in 1999 for Sweden, Denmark and Japan



**Figure 4.23** Population Pyramids of Thailand in 1960, 1990, 2000, 2010, 2020, and 2025 Compared to Those in 1999 for Sweden, Denmark and Japan (Cont'd)

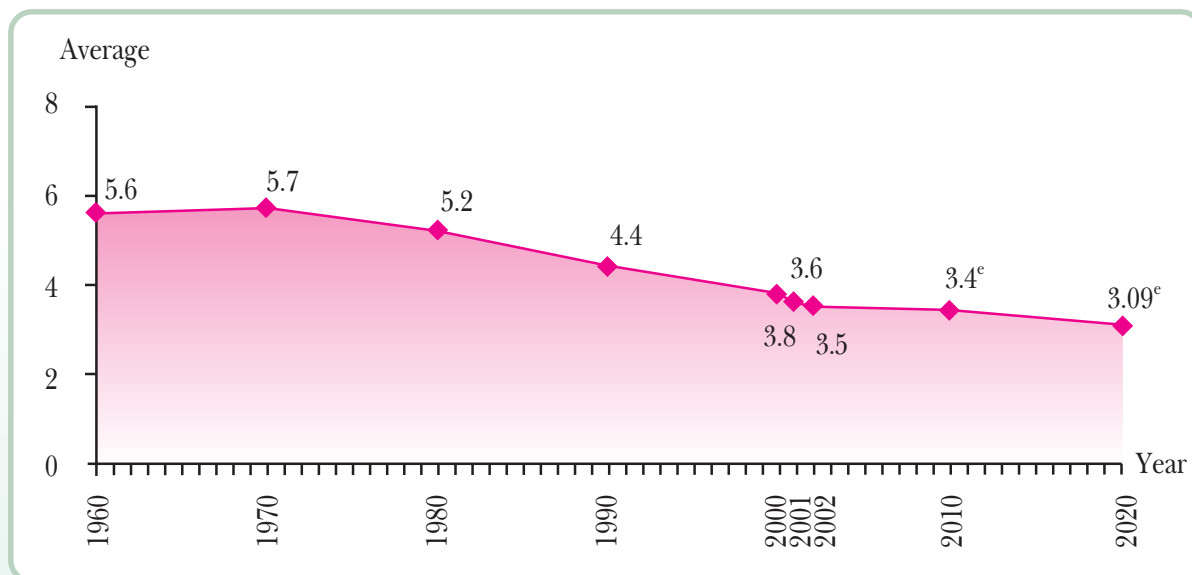


**Sources:** (1) Data for 1960, 1990 and 2000 were derived from the Population and Housing Censuses. National Statistical Office.  
 (2) Data for 2010, 2020 and 2025 were derived from the Projection of Thai Population, 2000-2025, NESDB.  
 (3) United Nations (1999). World Population Prospects: 1998 Revision, Volume II: Sex and Age.

### 3.2 Family Structure and Relationship

The family structure has become complex in various forms with a tendency to change from an extended family to a nucleus family. The average family size has dropped to 3.5 persons in 2002 and is expected to drop further to 3.09 persons in 2020 (Figure 4.24). Beginning to appear are one-person households and those with one household head living with a single offspring; the proportion rising from 16.1% in 1996 to 26.1% in 2002 (Household Socio-Economic Survey, National Statistical Office).

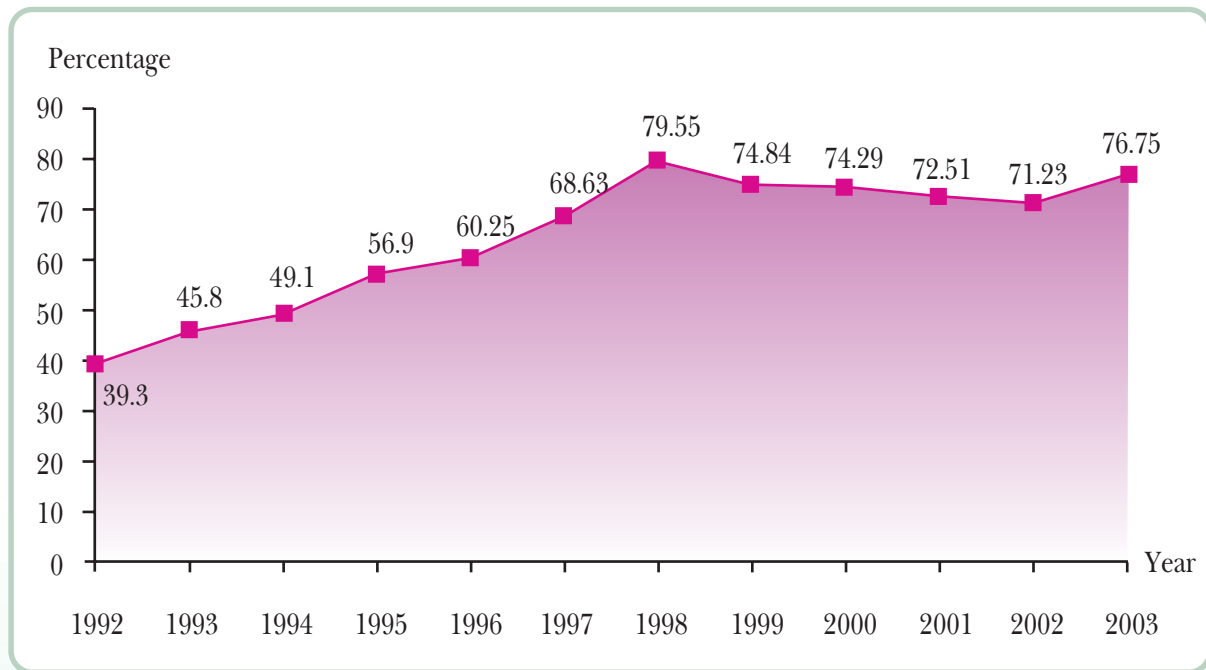
**Figure 4.24** Average Family Size and Projections, Thailand, 1960-2020



**Sources:** (1) For 1960-2000, Population and Housing Censuses. National Statistical Office.  
 (2) For 2001-2002, Household Socio-Economic Surveys. National Statistical Office.  
 (3) For 2010-2020, Reports on Trends in Thailand's Economic and Social Status. Thailand Development Research Institute.

The national development under the capitalist economy focussing on industrial development as well as materialistic development and competition has changed the Thai family livelihood. More and more women have to work outside the home to financially support the family, resulting in family members having less time for talking and helping each other. Thus, the family relationship has become weakened as evidenced by the higher rate of divorces, in relation to new marriages, rising from 10.5% in 1994 to 24.6% in 2003. It is noteworthy that even though the population is growing, the number of marriages each year has fallen to 328,356 couples in 2003 (Bureau of Registration Administration, Ministry of Interior). This is due to rising numbers of delayed marriages and cohabitation without wedding registration. Besides, child-rearing patterns have also changed; more pre-school-age children are raised outside the family. A study conducted by NSO in 2002 revealed that as high as 53.3% of children aged 3-5 years were looked after at nurseries, day-care centres, or schools and only 28.6% of them were raised by their own parents. This is consistent with the rising rate of 3-5-year-olds attending pre-elementary school from 39.3% in 1992 to 76.75% in 2003 (Figure 4.25).

**Figure 4.25** Rate of Children Aged 3-5 Years Attending Pre-elementary School, 1992-2003



**Source:** Education Statistics in the Schooling System. Ministry of Education.

Such a change in the family structure and relationship has an impact on the Thai health system as follows:

**3.2.1 More family violence deteriorating women and children’s physical and mental health status.** As a lot of people cohabiting without any marriage registration or traditional wedding, they are not prepared to live a marriage life, lacking family-life and problem-solving skills. Whenever a problem arises, more people tend to end up with physical or mental assaults and sexual abuse. A survey on 2,408 women and children in Bangkok and its vicinity and in another 14 provinces across the country conducted by the Rajabhat Institute at Suan Dusit in 2002 revealed that among the women and children who were assaulted, 62.8% were inflicted by their own family members. Among women, 47.9% were sexually abused and 23.0% were mentally oppressed. For children, 36.1% were physically assaulted, 32.7% were sexually abused and 27.3% were forced to do hard work. Another study, conducted by the Institute of Population and Social Research of Mahidol University in 2000, on 2,816 women aged 15-49 years in Bangkok and a province (province B) in the upper part of the nation’s central region, revealed that 23% and 34% of women in Bangkok and province B, respectively, had ever been assaulted by their spouses. This has resulted in a poor physical and mental health condition and a high rate of women taking analgesics (Table 4.18).

**Table 4.18** Percentage of Women with Health Problems When Assaulted, 2000

Health problem	Assaults, Bangkok		Assaults, Province B	
	Sexual or physical (percent)	Sexual and physical (percent)	Sexual or physical (percent)	Sexual and physical (percent)
<b>1. Health problems during the past four weeks</b>				
- Problem of walking	20	25	16	14
- Problem with daily routines	17	25	21	25
- Illness or uneasiness	25	29	27	31
- Problem with memory and concentration	32	35	30	36
<b>2. Use of medication during the past four weeks</b>				
- Sleeping pills	6	7	11	15
- Analgesics	35	49	52	63
<b>3. Hospital care during the past year</b>				
- Hospitalization	12	15	10	10

**Source:** Kritaya Archavanitkul et al. Report on Violence in Marriage Life and Women's Health. Institute of Population and Social Research, Mahidol University, 2003.

**3.2.2 Lack of appropriate child-rearing practices leading to a rather low level of development and intelligence and health problems.** This is because most parents have no time to closely look after their children; and they have to take children to the educational system with teachers taking care of them while parents are at work. Some have to leave their children at a child-care centre, which might be substandard; and some child caregivers have no spiritual linkages with the children, having an adverse effect on the level of development and intelligence of Thai children and youths. A cross-sectional study on 9,488 children aged 1-18 years in 2001, using a development screening test and an intelligence quotient test by age group, revealed that for children under 6 only 63% had normal and faster-than-normal development levels and most of children aged 6-18 had a rather low IQ (Table 4.19). This is why there are a lot of health problems such as homosexuality, HIV/AIDS, drug abuse in adolescents, and mental health. The 2002 report of the Department of Mental Health on mental health services for children aged 0-15 years revealed that 25,871 children/adolescents had mental health and psychiatric problems; among them, as high as 36.8% (9,523 cases) had a behavioural abnormality of mental development.

**Table 4.19** Levels of Development and Intelligence of Thai Children and Youths, 2001

Development level		Intelligence quotient		
Level	Children aged 1-<6 yrs. (percent)	Level	Children aged 6-<13 yrs. (percent)	Children aged 13-18 yrs. (percent)
- Slower than normal	7.1	- Lower than normal	4.6	7.5
- Rather slow	29.9	- Rather low	62.9	58.7
- Normal	43.1	- Normal	28.3	27.2
- Rather fast	15.1	- Rather high	3.7	6.1
- Faster than normal	4.8	- Higher than normal	0.5	0.5

**Source:** Chanpen Choprapawon. Prospective Cohort Study in Thai Children Project. A document distributed in the 10th Anniversary Exhibition of the Thai Research Fund, 2003

**Note:** Figures were estimated using the weighting technique based on the population of each region.

### 3.2.3 More children and elders are abandoned.

Due to a lack of family warmth and a rising rate of divorces as well as an economic hardship, more children and elderly people are abandoned, particularly during the 1998-1999 economic crisis and even during the post-crisis period, there has been no declining trend (Table 4.20). In actuality, there have been more and period, there has been more children and elders abandoned as evidenced by the rising numbers of street children and orphans.

**Table 4.20** Numbers and Proportions of Abandoned Children and Elders, 1993-2003

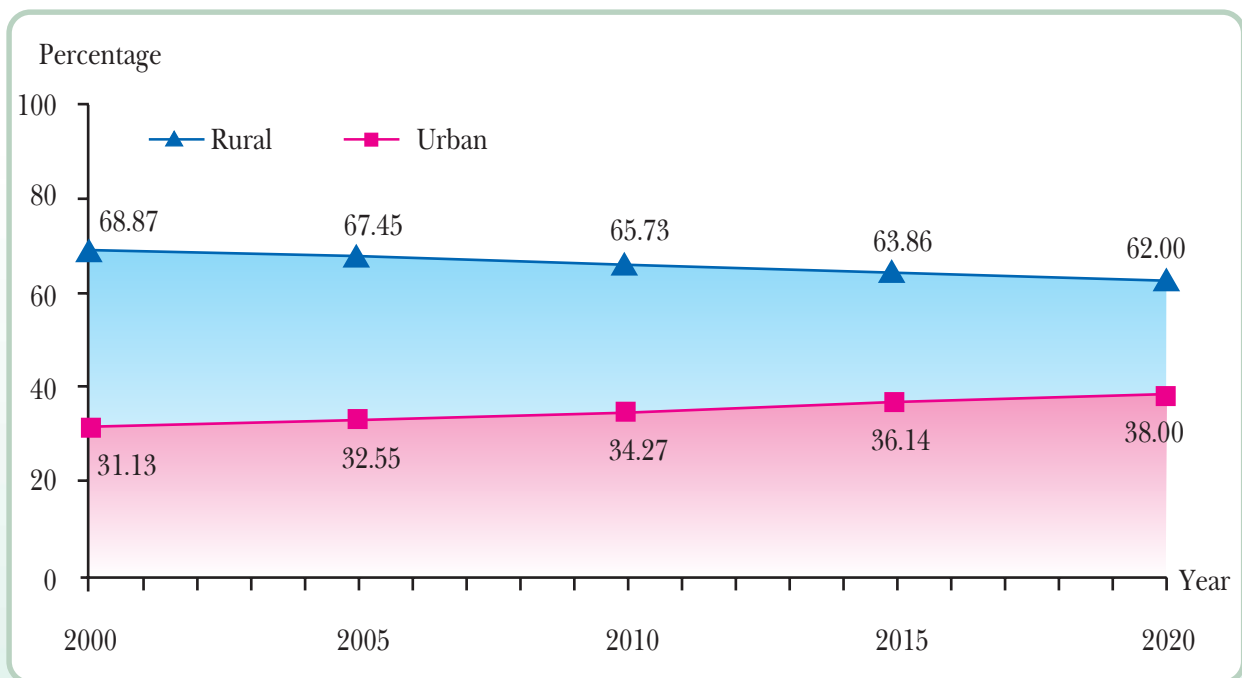
Year	Children abandoned		Elders abandoned	
	Number	Proportion per 100,000 children	Number	Proportion per 100,000 elders
1993	5,605	30.33	2,141	51.30
1994	5,748	31.19	2,200	49.11
1995	5,736	31.22	2,311	51.60
1996	5,896	32.25	2,504	53.50
1997	6,049	33.38	2,624	53.83
1998	6,341	35.15	2,619	51.47
1999	6,262	35.00	2,652	50.33
2000	6,096	34.42	2,896	53.41
2001	6,151	35.11	2,804	49.94
2002	6,110	35.24	2,884	49.33
2003	6,192	35.71	2,991	51.16

**Source:** Central Affairs Division, Department of Social Development and Welfare.

### 3.3 Rural-to-Urban Migration

The national development with industrialization emphasis plays a major role in causing rural people to migrate to cities to seek jobs in the industrial and service sectors. The proportion of rural-to-urban migrants was 31.13% of all migrants in 2000; and it has been forecast that, in 2020, 38% of the total population will reside in urban areas (Figure 4.26). Most of the migrants will move to Bangkok, followed by to Bangkok's vicinity, as well as to the eastern seaboard area.

**Figure 4.26** Projection of Urban and Rural Populations, Thailand, 2000-2020



**Source:** Population Projections, Thailand, 2000-2025, NESDB.

The 1997 economic crisis resulted in the shutdown or downsizing of a lot of business operations. This led to a reverse of labour force mobilization from urban to rural domiciles, particularly to the Northeast and the North. In 1997, the migration of Thai population from urban to rural areas was as high as 37.2% of all migrants, while only 13.4% migrated from rural to urban areas. After the economic expansion in 2002, the proportion of urban-to-rural migration dropped to only 33.0% but the rural-to-urban migration rose to 19.2%, particularly from the Central Plains, the North and the Northeast (Table 4.21).



**Table 4.21** Percentage of Migrants by Type of Migration and Current Residential Region, 1992-2002

Type of migration	Total	Current residential region				
		Bangkok	Central	North	Northeast	South
All migrants	100.0	100.0	100.0	100.0	100.0	100.0
Urban → urban	16.6	30.3	23.1	13.2	10.9	14.7
Rural → urban						
1992	15.5	n.a.	n.a.	n.a.	n.a.	n.a.
1994	15.0	78.4	9.8	10.0	6.9	14.4
1997	13.4	74.1	10.5	8.8	5.9	15.9
2002	19.2	67.0	21.1	14.1	9.6	18.6
Unknown <sup>1</sup> → urban	0.7	2.7	0.5	0.9	0.3	0.6
Rural → rural	28.4	-	29.8	31.4	28.2	40.5
Urban → rural						
1992	32.2	n.a.	n.a.	n.a.	n.a.	n.a.
1994	33.4	-	28.2	38.1	47.0	20.9
1997	37.2	-	32.0	39.6	55.5	20.3
2002	33.0	-	24.9	38.0	47.2	24.3
Unknown <sup>1</sup> → rural	2.1	-	0.6	2.4	3.8	1.4

**Sources:** Data for 1992, 1994, 1997 and 2002 were derived from the Reports on Surveys of Population Migration, 1992, 1994, 1997 and 2002. National Statistical Office.

**Note:** <sup>1</sup> Including immigrants from foreign countries

Due to more rural-to-urban migration, the migrants have to change their rural lifestyles and adopt urban lifestyles. This has led to health problems in some workers who cannot properly adjust themselves to the changing conditions; such problems are mental disorders, peptic ulcer, hypertension, and certain diseases or conditions commonly found in urban slums, i.e., child malnutrition, diarrhoea and tuberculosis. In addition, most of the migrant workers working in factories are more likely to be exposed to occupational diseases related to industrial chemicals, such as cancer and chemical poisoning. A number of them have to live in an unhygienic environment and some of those who are involved in commercial sex are at increased risk of contracting and spreading HIV/AIDS.

The increasing rural-to-urban migration has created problems of mega-cities requiring a suitable urban development planning approach; health services have to be provided to cover all target groups of population.

### 3.4 Transnational Labour Migration

Recently, there has been more transnational labour migration. More Thai workers tend to seek jobs overseas; the number of workers rose from 61,056 in 1990 to 202,296 in 1995, but dropping to only 147,769 after the economic crisis in 2003 (Bureau of Overseas Workers Administration, Department of Employment; the number would be much greater if illegal workers were taken into account). At present, they are more likely to go to work in Taiwan, Singapore, Malaysia, and the Middle East. Nevertheless, a lot of foreign workers have migrated to work in Thailand, both legally and illegally, especially low-wage labourers from neighbouring countries such as Myanmar, Laos, China and Cambodia. Since 2003, the government has allowed the registration of alien workers. As of 31 July 2004, there were 1,269,074 registered workers: 905,881 (71.4%) from Myanmar; 181,614 (14.3%) from Laos; and 181,579 (14.3%) from Cambodia. The provinces with the highest numbers of workers from Myanmar are Bangkok, Tak, Samut Sakhon, Chiang Mai, and Ranong, each having 55,000 to 127,000 workers (Department of Employment).

As Thailand has had more and more alien workers, particularly along the borders, several infectious diseases are widespread such as malaria, diarrhoea, HIV/AIDS, poliomyelitis, and anthrax. Certain diseases that Thailand could once be able to control have re-emerged, such as filariasis; it was reported that 3% of Myanmar workers along the border were carriers of such a disease.

#### 4. Quality of Life of Thai People

The United Nation Development Programme (UNDP) has developed a Human Development Index (HDI), a quality of life measurement, based on social factors (education, life expectancy at birth and economic factors - GDP per capita). In 1990, the quality of life of Thai people stood at the “moderate” level, ranking 74th (HDI = 0.715) among 173 countries worldwide, and fourth among ASEAN member states after Singapore, Brunei and Malaysia. In 1995, the HDI ranking of Thailand rapidly jumped from 74th in 1990 to 59th among 174 nations, and stayed at the “high” level, ranking third (HDI = 0.838) among ASEAN nations, after Singapore and Brunei (Table 4.22). The major factor attributable to the higher ranking is its high level of economic growth.

After the economic crisis, the quality of life of Thai people worsened between 1998 and 2002; Thailand’s HDI dropped from “high” to “moderate” level (HDI = 0.745-0.768) and the ranking fell from 59th to 66th-76th among 174 countries and fourth among ten ASEAN member states, after Singapore, Brunei and Malaysia (Table 4.22).

**Table 4.22** Human Development Indexes for Thailand and Some Other Countries, 1990-2002

Group and country	1990		1995		1998		1999		2000		2001		2002	
	Actual rank	HDI value	Actual rank	HDI value	Actual rank	HDI value	Actual rank	HDI value	Actual rank	HDI value	Actual rank	HDI value	Actual rank	HDI value
WHO/SEAR														
Thailand	74	0.715	59	0.838	76	0.745	66	0.757	70	0.762	74	0.768	76	0.768
Sri Lanka	86	0.663	90	0.716	84	0.733	81	0.735	89	0.941	99	0.730	96	0.740
Maldives	112	0.497	95	0.683	89	0.725	77	0.739	84	0.743	86	0.751	84	0.752
Indonesia	108	0.515	96	0.679	109	0.670	102	0.677	110	0.684	112	0.682	111	0.692
Myanmar	123	0.390	131	0.481	125	0.585	118	0.651	127	0.552	131	0.549	132	0.551
India	134	0.309	139	0.451	128	0.563	115	0.571	124	0.577	127	0.590	127	0.595
Bhutan	159	0.150	155	0.347	142	0.483	130	0.471	140	0.494	136	0.511	134	0.536
Nepal	152	0.170	152	0.351	144	0.474	129	0.48	142	0.490	143	0.499	140	0.504
Bangladesh	147	0.189	147	0.371	146	0.461	132	0.47	145	0.478	139	0.502	138	0.509
DPR Korea	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ASEAN														
Singapore	43	0.849	28	0.896	24	0.881	26	0.876	25	0.885	28	0.884	25	0.902
Brunei	44	0.847	35	0.880	32	0.848	32	0.857	32	0.856	31	0.872	33	0.867
Malaysia	57	0.790	60	0.834	61	0.772	56	0.774	59	0.782	58	0.790	59	0.793
Thailand	74	0.715	59	0.838	76	0.745	66	0.757	70	0.762	74	0.768	76	0.768
Philippines	92	0.603	98	0.677	77	0.744	70	0.749	77	0.754	85	0.751	83	0.753
Vietnam	115	0.472	122	0.560	108	0.671	101	0.682	109	0.688	109	0.688	112	0.691
Indonesia	108	0.515	96	0.679	109	0.670	102	0.677	110	0.684	112	0.682	111	0.692
Myanmar	123	0.390	131	0.481	125	0.585	118	0.651	127	0.552	131	0.549	132	0.551
Cambodia	148	0.186	140	0.422	136	0.512	121	0.541	130	0.543	130	0.556	130	0.568
Laos	141	0.246	136	0.465	140	0.484	131	0.476	143	0.485	135	0.525	135	0.534
World (top ten)														
Japan	1	0.983	1	0.960	1	0.935	1	0.939	1	0.942	1	0.944	1	0.956
Canada	2	0.982	2	0.946	2	0.934	2	0.936	2	0.941	2	0.942	2	0.946
Norway	3	0.979	3	0.943	3	0.929	3	0.936	3	0.940	3	0.941	3	0.946
Switzerland	4	0.978	4	0.943	4	0.929	4	0.936	4	0.939	4	0.939	4	0.943
Sweden	5	0.977	5	0.942	5	0.927	5	0.935	5	0.939	5	0.938	5	0.942
U.S.A.	6	0.976	6	0.942	6	0.926	6	0.934	6	0.939	6	0.937	6	0.942
Australia	7	0.972	7	0.941	7	0.925	7	0.932	7	0.936	7	0.937	7	0.941
France	8	0.971	8	0.940	8	0.925	8	0.931	8	0.935	8	0.937	8	0.939
Netherlands	9	0.970	9	0.939	9	0.924	9	0.928	9	0.933	9	0.932	9	0.938
U.K.	10	0.964	10	0.936	10	0.918	10	0.925	10	0.930	10	0.932	10	0.936

Sources: Human Development Report, 1993-2004.

Since 1994, UNDP has additionally developed a “Human Poverty Index” (HPI) to reflect the national performance of developing countries in improving their population’s quality of life, based on the percentage of population dying before the age of 40, the percentage of illiterate adults, and the percentage of people deprived of health care. In 1995, Thailand’s HPI was 11.9, ranking second among Asian developing countries (Table 4.23).

During the economic crisis, the HPI of Thailand rose to 18.7 due to an increase in the number of poor people; but after the crisis was over, the Thai HPI improves, dropping to 13.1 in 2002 (Table 4.23).

**Table 4.23** Human Poverty Indexes for Thailand and Some Other Countries, 1995-2002

Group/ Country	1995			Group/ Country	1997			Group/ Country	1999			Group/ Country	2002		
	HDI rank	Group rank	HDI value		HDI rank	Group rank	HDI value		HDI rank	Group rank	HDI value		HDI rank	Group rank	HDI value
<b>WHO/SEAR</b>				<b>WHO/SEAR</b>				<b>WHO/SEAR</b>				<b>WHO/SEAR</b>			
Thailand	59	1	11.9	Thailand	29	1	18.7	Thailand	21	1	14	Thailand	22	2	13.1
Indonesia	96	2	20.2	Indonesia	46	4	27.7	Indonesia	38	4	21.3	Indonesia	35	3	17.8
India	139	5	35.9	India	59	6	35.9	India	55	6	34.3	India	48	6	31.4
DPR Korea	-	-	-	DPR Korea	-	-	-	DPR Korea	-	-	-	DPR Korea	-	-	-
Sri Lanka	90	3	20.6	Sri Lanka	33	2	20.4	Sri Lanka	31	3	18	Sri Lanka	36	4	18.2
Maldives	-	-	-	Maldives	43	3	25.4	Maldives	25	2	15.8	Maldives	17	1	11.4
Myanmar	131	4	27.5	Myanmar	55	5	32.3	Myanmar	43	5	28	Myanmar	45	5	25.4
Bhutan	155	6	44.9	Bhutan	70	7	41.8	Bhutan	-	-	-	Bhutan	-	-	-
Nepal	-	-	-	Nepal	85	9	51.9	Nepal	77	8	44.2	Nepal	69	7	41.2
Bungladesh	-	-	-	Bungladesh	73	8	44.4	Bungladesh	73	7	43.3	Bungladesh	72	8	42.2
<b>ASEAN</b>				<b>ASEAN</b>				<b>ASEAN</b>				<b>ASEAN</b>			
Singapore	28	1	6.5	Singapore	-	-	-	Singapore	-	-	-	Singapore	6	1	6.3
Malaysia	-	-	-	Malaysia	18	1	14.2	Malaysia	13	1	10.9	Malaysia	-	-	-
Thailand	59	2	11.9	Thailand	29	3	18.7	Thailand	21	2	14.0	Thailand	22	2	13.1
Philippines	98	3	17.7	Philippines	20	2	16.3	Philippines	23	3	14.7	Philippines	28	3	15.0
Indonesia	96	4	20.2	Indonesia	46	4	27.7	Indonesia	38	4	21.3	Indonesia	35	4	17.8
Brunei	-	-	-	Brunei	-	-	-	Brunei	-	-	-	Brunei	-	-	-
Vietnam	122	5	26.1	Vietnam	51	5	28.7	Vietnam	45	6	29.1	Vietnam	41	5	20.0
Myanmar	131	6	27.5	Myanmar	55	6	32.3	Myanmar	43	5	28	Myanmar	45	6	25.4
Cambodia	140	8	39.9	Cambodia	-	-	-	Cambodia	78	8	45	Cambodia	74	8	42.6
Laos	136	7	39.4	Laos	66	7	38.9	Laos	66	7	39.9	Laos	66	7	40.3

**Sources:** Human Development Reports, 1998-2004.

**Note:** For 1995, HDI was used instead as HPI was not used for ranking purposes for that year.

Since 2002, UNDP has used the Human Achievement Index (HAI) to measure the extent to which Thailand has been able to develop human resources at the regional and provincial levels. The measurement is based on eight dimensions: health, education, employment, income, residence and the environment, family life and community, transport and communications, and participation. As the HAI covers several dimensions, it can better reflect the development level than the HDI. For 2003, it was found that Thailand's HAI was at the middle level (0.6163); the highest level being noted for the central region and Bangkok's neighbouring provinces, whereas the HAI for the Northeast and North was lowest. However, by province the HAI for Phuket was highest (Table 4.24).

**Table 4.24** Human Achievement Indexes by Region and for Top Five Provinces, 2003

HAI by region		HAI by province			
Region	HAI rank	HAI value	Province	HAI rank	HAI value
Whole Kingdom		0.6163	Phuket	1	0.7175
Bangkok	1	0.6731	Nonthaburi	2	0.7060
Five provinces around Bangkok	2	0.6627	Chon Buri	3	0.7006
East	3	0.6429	Nakhon	4	0.6804
Central	4	0.6352	Pathom		
West	5	0.6259	Songkhla	5	0.6788
South	6	0.6178			
North	7	0.5868			
Northeast	8	0.5379			

**Source:** Human Achievement Report, Thailand, 2003. UNDP.

## 5. Values, Beliefs and Culture

### 5.1 Consumption and Lifestyle Values

The 2003 ABAC Poll survey on spending of students/teenagers in Bangkok revealed that 43.7% of them liked to buy brand-name goods and 33.5% of them based their selection criteria on product's model and "high taste". This has resulted in Thai people's overspending and consuming unnecessary items, some of which might be hazardous to health such as tobacco, alcohol and narcotics.

The media tends to play a role in shaping Thai people's lifestyle and leisure-time spending, particularly television and the Internet, while radio seems to be less significant in this regard (Table 4.25).

**Table 4.25** Leisure-Time Spending of Thai People by Administrative Region, 2001

Time spending category	Time spent by each person, hours/day		
	Municipal areas	Non-municipal areas	Whole country
- Watching TV or VDO tapes	3.2	2.7	2.9
- Searching info from the Internet	2.0	1.7	1.9
- Going to sports, movies, music events	1.7	1.8	1.8
- Socializing	1.8	1.7	1.7
- Doing hobbies	1.6	1.5	1.6
- Playing games	1.7	1.5	1.6
- Playing sports	1.5	1.5	1.5
- Listening to music/radio	1.5	1.4	1.4

**Source:** Report on Survey of Leisure-Time Spending among People Aged 10 Years and Over. National Statistical Office.

## 5.2 Beliefs and Culture

A survey on the participation of 2,177 Thai Buddhists aged 15-20 years in 14 representative provinces nationwide in religious activities, conducted by the Rajabhat Institute at Suan Dusit in 2003, revealed that 39.4% of them went to a Buddhist monastery once or twice a year; 76.2% never prayed prior to sleeping at night. Besides, a lot of them lacked morality and tended to compete with, or took advantage of, each other or were more likely to become individualistic in trying to seek more political and financial powers. And unfortunately, the Thai culture relating to solicitude and respect for seniority tends to be diminishing to the level that a plan on conserving Thai culture has to be developed.



## 6. Political and Administrative Situations and Trends

### 6.1 Political System

Thailand has changed its political system from the absolute to constitutional monarchy since 1932. Since then, 16 constitutions have been enacted while the latest one is the Constitution of the Kingdom of Thailand, B.E. 2540 (1997), promulgated on 11 October 1997; and it is regarded as **the first constitution of people**. Over a period of over 70 years, there have been 11 coups d'etat as well as nine rebellions, including 53 cabinets, both democratically elected and appointed. Although the Thai political system has been struggling, four highlighted waves of changes and problems are yet of notice.

**6.1.1 The Thai political system has been more democratic than in the past**, but its instability is rather high as coalition governments often have cabinet reshuffles, resulting in frequent conflicts among coalition parties.

The last general election held in January 2001 might be regarded as the new dimension that almost half the members of the House of Representatives (members of parliament, MPs) were elected from a single large party, leading to only three parties forming the coalition government, which is thus quite

stable. With the development of democratic processes, political powers have shifted from certain groups of military officers and civil servants to businessmen/politicians. It is expected that in the future there would be only one large political party running the administrative branch of the country.

**6.1.2 Thai political parties have never had a stable structure and true representation of the people.** Therefore, they are under the influence of major capitalists and are dominated by political businessmen who are major financiers sponsoring political candidates in running campaigns in general elections.

**6.1.3 The Thai political system encounters a number of behavioural hassles,** such as vote buying, power abuse for self-interests, corruption and lack of political ethics. A study conducted by Professor Pasuk Phongpaichit and colleagues revealed that the votes from 30.6% of households were bought during the 1996 parliamentary general election. On average, each household was paid 678 baht for vote buying, totalling 3,066 million baht for the entire country. However, this amount might be considerably lower than actuality as other studies have estimated that vote buying involves as many as 70% of the constituencies in general elections.<sup>4</sup> Besides, in the present political system, there is less involvement of the general public in determining the future national direction, coupled with a lack of inspection system for politicians and civil servants. This brings to inefficiency in decision-making for resolving national problems, and the national development level is not as high as expected.

**6.1.4 The society and people are much stronger and more interested in politics,** in particular among middle-income urban citizens. Plenty of opinions towards political issues have been publicly expressed through various media. In terms of public participation in casting their votes in the MP and senatorial elections, the number of people voting or turnout rate is quite high, especially in the latest general election under the new Constitution (Table 4.26).

**Table 4.26** Public Participation Through Casting Votes in the 15th-20th General Elections for MPs and Senators

Votes	Numbers of voters and turnout rates in general elections of MPs						1st Senatorial election (4 Mar 2000)
	15th (24 Jul 1988)	16th (22 Mar 1992)	17th (13 Sep 1992)	18th (2 Jul 1995)	19th (17 May 1996)	20th (6 Jan 2001)	
No. of eligible voters	26,658,638	32,436,283	31,860,156	37,817,983	38,564,593	44,519,222	42,567,111
No. of actual voters	16,944,931	19,216,466	19,622,332	23,462,746	24,070,750	29,904,940	30,684,040
Turnout rate	63.6	59.2	61.6	62.0	62.4	67.2	72.1

**Source:** Department of Provincial Administration, Ministry of Interior.

The aforementioned problems and changes have led to **the political reform movement**, particularly the promulgation of the new constitution, which is regarded as the “political reform” constitution. This is a significant political structure transformation that provides more opportunities for people to participate in

<sup>4</sup> Pasuk Phongpaichit et al. Corruption in the Public Sector: Opinions and Experiences of Households, 1999.

politics. Significant examples include establishing a political party, applying for party membership, inspecting a political party, providing suffrage for those who are outside the constituency or aboard, and so forth. The election system has been changed from having up to three MPs in one constituency to only “one MP in one constituency”. Also, these include the election of MPs on a party-list basis, a newly adopted system for electing candidates for political positions. For example, an MP candidate must have had a bachelor’s degree or higher, an inspection mechanism for the state-power exercise by requiring asset and liability declaration, which inspects candidates’ actual assets (once unusually gained assets are found, such assets will be vested in the state), and a change in power for controlling and organizing elections at all levels. The duty for inspecting political parties has been transferred from the Ministry of Interior to an autonomous agency, the Election Commission. The Office of the Election Commission was established to support its operations. As a result, **the future politics will be more democratic, with greater participation of various population groups not only MPs in the parliament. The system for inspecting politicians by society has been strengthened, resulting in a more transparent system, more results-based performance and more qualified candidates entering the political arena.**

## 6.2 Public Administration System

The problems in the public administration system can be summarized as follows:

**6.2.1 Rules and laws being uncondusive to development.** The state administrative system has plenty of rules and regulations full of numerous steps. The system focuses on strict compliance with rules rather than **goal achievement**. Some old laws have the provisions that are inconsistent with current situations, lacking flexibility and unresponsive to the needs of people and society.

**6.2.2 Over-departmentalization.** The civil service system has the procedures that are hard to follow, leading to delays in operations. The system is too departmentalized with several agencies, under different political parties, responsible for one programme. This leads to inflexibility and inefficiency in seeking innovative knowledge for problem solutions and interventions in response to socioeconomic changes, such as problems of environmental and occupational health, hospital administration and road traffic accidents.

**6.2.3 Problems of transparency and corruption.** As health services are primarily provided by the public sector, which is hard to inspect, resulting in corruption and wastage. Most civil servants have low salaries with a lot of debts, and thus they tend to adopt malpractice that leads to illegally taking kickbacks, which is a problem of transparency and corruption in the civil service system. The inspection system through the State Audit Office and the National Counter Corruption Commission are not strong enough to cope with such problems. A survey conducted during 1998-2003 by the Transparency International (the coalition against corruption) revealed that Thailand’s transparency level was rather low. However, its corruption perceptions index has slightly improved, rising from 3.0 in 1998 to 3.3 in 2003, ranking 70th among 133 countries surveyed. Such a ranking was lower than several other ASEAN countries (Table 4.27). A survey of households regarding corruption in the public sector in 1999 revealed that 10% of households nationwide had been asked for bribes by civil servants. The average bribe given was 970 baht per household per year, the amount being highest for financial and property-related transactions. The amount of bribe involving public service agencies was lower; state-run hospitals in Bangkok were reported to take the highest amount in this group of agencies (Table 4.28).

**Table 4.27** Corruption Perceptions Indexes in Various Countries, 1998-2003

Group and country	1998		1999		2000		2001		2002		2003	
	Actual rank	In-group rank	Actual rank	In-group rank	Actual rank	In-group rank	Actual rank	In-group rank	Actual rank	In-group rank	Actual rank	In-group rank
ASEAN												
Singapore	7	1	7	1	6	1	4	1	5	1	5	1
Malaysia	29	2	32	2	36	2	2	2	33	2	37	2
Thailand	61	4	68	4	60	3	3	3	64	3	70	3
Philippines	55	3	54	3	69	4	4	4	77	4	92	4
Indonesia	80	6	96	6	85	6	6	6	96	6	122	6
Brunei	-	-	-	-	-	-	-	-	-	-	-	-
Vietnam	74	5	75	5	76	5	5	5	85	5	100	5
Myanmar	-	-	-	-	-	-	-	-	-	-	129	7
Cambodia	-	-	-	-	-	-	-	-	-	-	-	-
Laos	-	-	-	-	-	-	-	-	-	-	-	-
<b>World (top ten)</b>												
Denmark	1	1	1	1	1	1	1	1	1	1	1	1
Finland	2	2	2	2	2	2	2	2	2	2	2	2
Sweden	3	3	3	3	3	3	3	3	2	2	3	3
New Zealand	4	4	3	3	4	4	4	4	4	4	3	3
Iceland	5	5	5	5	5	5	4	5	5	5	5	5
Canada	6	6	6	6	6	6	6	6	5	5	6	6
Singapore	7	7	7	7	7	7	7	7	7	7	7	7
Netherlands	8	8	8	8	8	8	8	8	7	7	8	8
Norway	9	9	9	9	9	9	9	9	7	7	8	8
Switzerland	10	10	10	10	10	10	10	10	10	10	8	8
<b>World (top ten)</b>												
World (top ten)												
Finland	1	1	1	1	1	1	1	1	1	1	1	1
Iceland	2	2	2	2	2	2	2	2	2	2	2	2
Denmark	3	3	3	3	3	3	3	3	2	2	3	3
New Zealand	4	4	4	4	4	4	4	4	4	4	3	3
Iceland	5	5	5	5	5	5	4	5	5	5	5	5
Canada	6	6	6	6	6	6	6	6	5	5	6	6
Sweden	7	7	7	7	7	7	7	7	7	7	7	7
Netherlands	8	8	8	8	8	8	8	8	7	7	8	8
Norway	9	9	9	9	9	9	9	9	7	7	8	8
Switzerland	10	10	10	10	10	10	10	10	10	10	8	8

Sources: Transparency International and Dr. Johann Graf Lambsdorff Göttingen University, Germany, 1998-2003

- Notes:
1. Corruption Perceptions Index gathered from perspectives of businessmen, risk analysis and general public; score ranges 1-10; "0" means high perceptions of corruption and "10" means "rarity of corruption".
  2. Report on Corruption Perceptions Index Survey conducted to assess each country's performance; at least three survey reports were used.

**Table 4.28** Average Amount of Bribe Paid by Each Household to Certain Public Agencies, 1999

Type of agency	Average bribe, baht			
	Whole country	Bangkok	Provincial-municipal areas	Rural areas
- Police	9,588	2,688	7,921	13,414
- Customs	8,428	13,025	3,059	201
- Revenue	6,287	11,403	4,939	753
- Land	3,179	1,489	7,056	1,430
- Public schools	1,394	1,293	2,943	295
- Waterworks	880	859	1,000	-
- Public hospitals	786	2,478	124	634
- Electricity	721	300	664	767
- Passport	647	300	500	800
- District offices	639	173	2,225	517
- Driving licensing and vehicle registration	586	851	784	447
- Solid waste collection	295	255	378	-
- Public telephone	288	-	423	-
- Postal service	66	-	66	-
- Irrigation	45	-	-	45

**Source:** Pasuk Phongpaichit. Corruption in the Public Sector: Opinions and Experiences of Households, 1999.

**6.2.4 Lack of operating efficiency in public agencies is an obstacle to the growth and development in the business sector.** Low efficiency in the public sector results in a higher production cost in the private sector. A study conducted by Saowanee Thairungroj and colleagues revealed that business operators had to spend a lot of time when contacting public agencies. On average they spent 14% of their time for the whole year, small-size businesses spending more than medium- and large-scale businesses.<sup>5</sup> For this reason, they had to pay bribes to state officials to expedite the transactions, resulting in a higher cost in business operations. Another study of the International Institute for Management Development (IMD) in 2003 revealed a rather satisfactory performance level of the Thai civil service system, but lower than that for Malaysia (Table 4.29).

Regarding the quality and efficiency of public services, most people stated that such services were at a high level (average score of 4 out of 7); agencies with low scores being customs offices, police stations, land offices and public hospitals (Figure 4.27).

<sup>5</sup> Saowanee Thairungroj et al. The Business Environment and Attitudes of Business Operators towards Public Sector Services. Faculty of Economics, University of the Thai Chamber of Commerce, 1999.

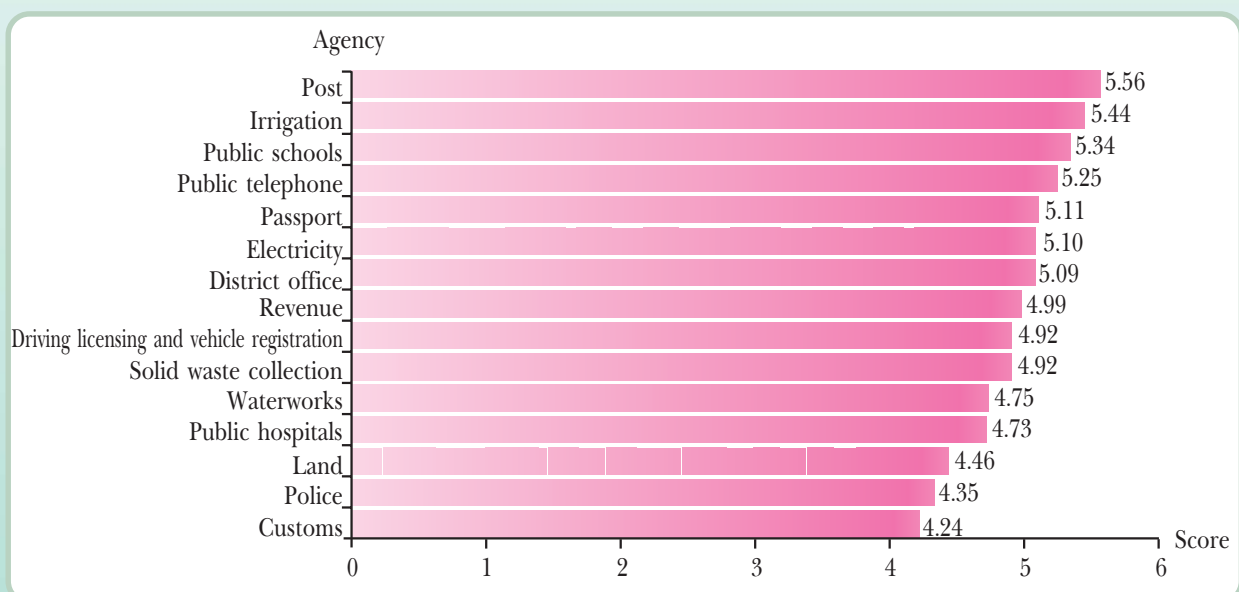
**Table 4.29** Efficiency of the Civil Service System and Business Sector Development in Certain Countries, 2003

Group/country	Rank	Score
1. Countries with a population of more than 20 million		
- Malaysia	1	5.22
- Australia	2	4.87
- U.S.A.	3	4.33
- Thailand	4	4.16
- Japan	15	2.80
- France	16	2.76
- Germany	23	1.96
2. Countries with a population of less than 20 million		
- Iceland	1	6.97
- Finland	2	6.89
- Singapore	3	6.43
- Hong Kong	4	5.91
- Greece	28	1.60
- Bavaria	29	1.46

**Source:** IMD. The World Competitiveness Yearbook, 2003.

- Notes:**
1. In the IMD Report 2003, a new data collection method was used for two groups of countries: one for countries with a population of more than 20 million and the other for those with a population of less than 20 million; no cross-group comparisons can be made.
  2. For the first group, 30 countries were ranked.
  3. For the second group, 29 countries were ranked.
  4. Full score is 10.

**Figure 4.27** Quality of Services Provided by Public Sector Agencies, 1999

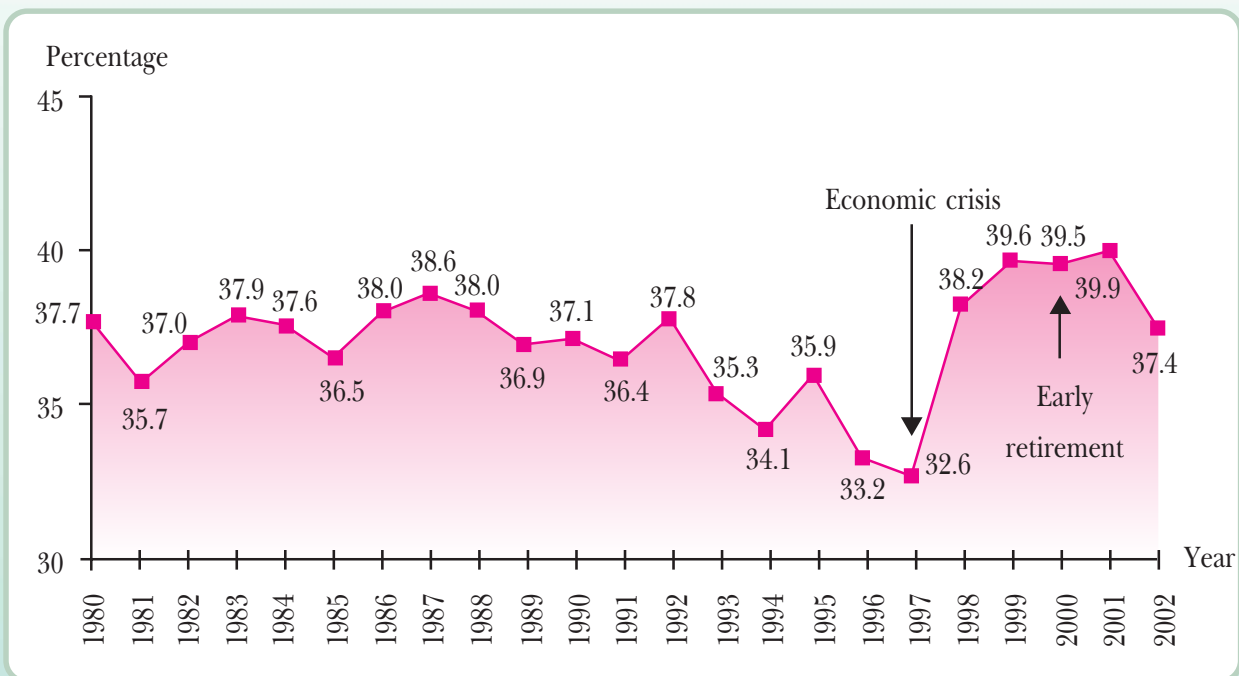


**Source:** Pasuk Phongpaichit. Corruption in the Public Sector: Opinions and Experiences of Households, 1999.



**6.2.5 Problems of organizational structure.** The public sector is large with numerous agencies; new agencies are established while similar old agencies are not abolished or downsized, resulting in overstaffing and a high personnel cost, which was as high as 37.7% of the national budget in 1980 and 37.4% in 2002 (Figure 4.28). This has resulted in the public sector being unable to offer suitable remuneration for its personnel. The salaries of civil servants are rather low; there is a big difference in starting salaries of civil servants compared with those in the private sector. For those with higher educational background, the difference is bigger and tends to become much bigger (Table 4.30). When considering the differences in remuneration at various levels in the private and public sectors, the remuneration in the public sector is on average 2.66 times lower than that in the private sector, the difference being 1-2 times for low-ranking personnel and being up to 4.39 times higher for high-ranking C-11 officials. For 2002, the private-public sector remuneration was 1-2 times different as non-salary remuneration was not included (Figure 4.29). Besides, Araya Preechameta (1994) estimated that for an individual, beginning from graduation with a bachelor's degree working as a civil servant until retirement at age 60, in comparison with another individual working in the private sector, based on the same spending pattern and the current civil servants salary scale, at current prices, the savings of the private sector employee would be 28 times higher than those of the civil servant.

**Figure 4.28** Proportion of Personnel Cost in the Public Sector in Relation to the National Budget, 1980-2002



**Source:** Office of the Civil Service Commission. Data for 1980-2002 were obtained from the Comptroller-General's Department, Ministry of Finance.

**Note:** For 2002, the personnel cost did not include salaries for those in independent public agencies established in accordance with the constitution.



**Table 4.30** Comparison of Starting Monthly Salaries of Personnel in the Public and Private Sectors, 1995/1996, 2001, and 2002

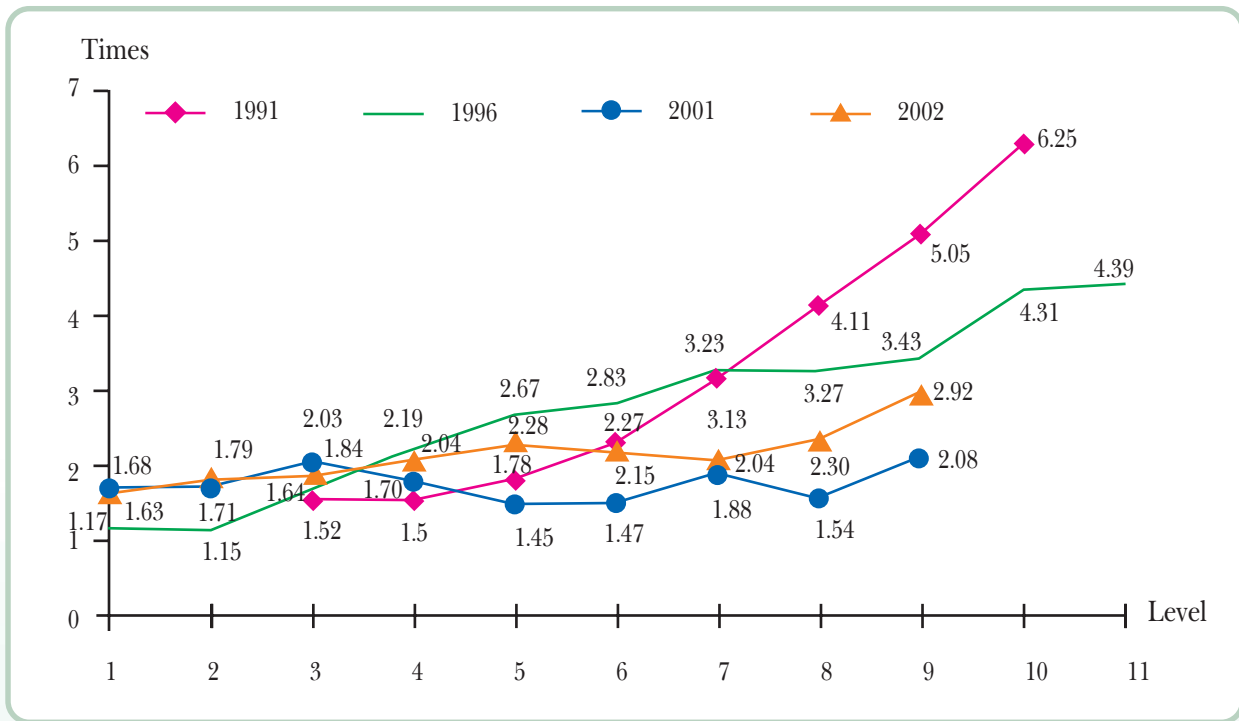
Educational level	1995/96				2001				2002			
	Private sector <sup>a</sup>	Public sector	Discrepancy		Private sector <sup>a</sup>	Public sector	Discrepancy		Private sector <sup>a</sup>	Public sector	Discrepancy	
	(1) baht/ month	(2) baht/ month	(1) - (2) (%)	(1)/(2) (times)	(1) baht/ month	(2) baht/ month	(1) - (2) (%)	(1)/(2) (times)	(1) baht/ month	(2) baht/ month	(1)-(2) (%)	(1)/(2) (times)
<b>1. Vocational</b>												
1.1 Accounting	5,395	4,700	14.79	1.15	6,034	4,700	28.38	1.28	5,635	4,700	19.89	1.2
1.2 Mechanics/Electrics	5,637	4,700	19.94	1.20	6,222	4,700	32.38	1.32	5,996	4,700	27.57	1.27
<b>Average</b>	<b>5,516</b>	<b>4,700</b>	<b>17.36</b>	<b>1.17</b>	<b>6,128</b>	<b>4,700</b>	<b>30.38</b>	<b>1.30</b>	<b>5,815</b>	<b>4,700</b>	<b>23.72</b>	<b>1.24</b>
<b>2. Higher vocational</b>												
2.1 Accounting	6,402	5,740	11.53	1.12	7,055	5,740	22.90	1.23	6,794	5,740	18.36	1.18
2.2 Mechanics/Electrics	6,650	5,740	15.85	1.16	7,483	5,740	30.37	1.30	7,049	5,740	22.80	1.23
2.3 Computer science	6,666	5,740	16.13	1.16	7,230	5,740	25.96	1.26	7,039	5,740	22.63	1.23
<b>Average</b>	<b>6,573</b>	<b>5,740</b>	<b>14.51</b>	<b>1.15</b>	<b>7,256</b>	<b>5,740</b>	<b>26.41</b>	<b>1.26</b>	<b>6,961</b>	<b>5,740</b>	<b>21.27</b>	<b>1.21</b>
<b>3. Bachelor's degree</b>												
3.1 Engineering	13,446	6,360	111.42	2.11	14,111	6,360	121.87	2.22	13,639	6,360	114.45	2.14
3.2 Computer science	11,029	6,360	73.41	1.73	11,962	6,360	88.08	1.88	11,763	6,360	84.95	1.85
3.3 Sciences	10,752	6,360	69.06	1.69	12,191	6,360	91.68	1.92	-	-	-	-
3.4 Architecture	10,130	6,360	59.28	1.59	10,300	7,040	46.31	1.46	-	-	-	-
3.5 Commerce and accounting	9,956	6,360	56.54	1.57	10,468	6,360	64.59	1.64	9,994	6,360	57.14	1.57
3.6 Pharmacy	9,588	6,360	50.75	1.51	11,169	7,040	58.65	1.59	-	-	-	-
3.7 Marketing	9,501	6,360	49.39	1.49	10,116	6,360	59.06	1.59	9,569	6,360	50.46	1.50
3.8 Sociology	9,073	6,360	42.66	1.43	9,369	6,360	47.31	1.47	8,958	6,360	40.85	1.41
<b>Average</b>	<b>10,434</b>	<b>6,360</b>	<b>64.06</b>	<b>1.64</b>	<b>11,211</b>	<b>6,530</b>	<b>71.68</b>	<b>1.72</b>	<b>10,785</b>	<b>6,360</b>	<b>69.57</b>	<b>1.70</b>
<b>4. Master's degree</b>												
	<b>15,830</b>	<b>7,780</b>	<b>103.47</b>	<b>2.03</b>	<b>17,678</b>	<b>7,780</b>	<b>127.22</b>	<b>2.27</b>	<b>15,826</b>	<b>7,780</b>	<b>103.42</b>	<b>2.03</b>

**Source:** Data for 1995/96 were derived from the Study on the Public Sector Remuneration and Adjustments to Match Private Sector Scales. Thailand Development Research Institute, December 1996.

Data for 2001 and 2002 were derived from the Office of the Civil Service Commission, using average salaries for private sector personnel.

**Note:** <sup>a</sup> For graduates from educational institutions within Thailand.

**Figure 4.29** Discrepancy of Remunerations in the Private and Public Sectors, 1991, 1996, 2001 and 2002



- Sources:**
- Comparison of Remunerations in the Public and Private Sectors in 1991. Office of the Civil Service Commission.
  - Study of the Public Sector Remunerations and the Adjustments to Equal Those in the Private Sector. Thailand Development Research Institute, December 1996.
  - Bureau of Position Classification and Remuneration System Development, Office of the Civil Service Commission.

**Notes:** Data for 1991 were derived by estimating workload values of different positions for comparing the remunerations in the public and private sectors.

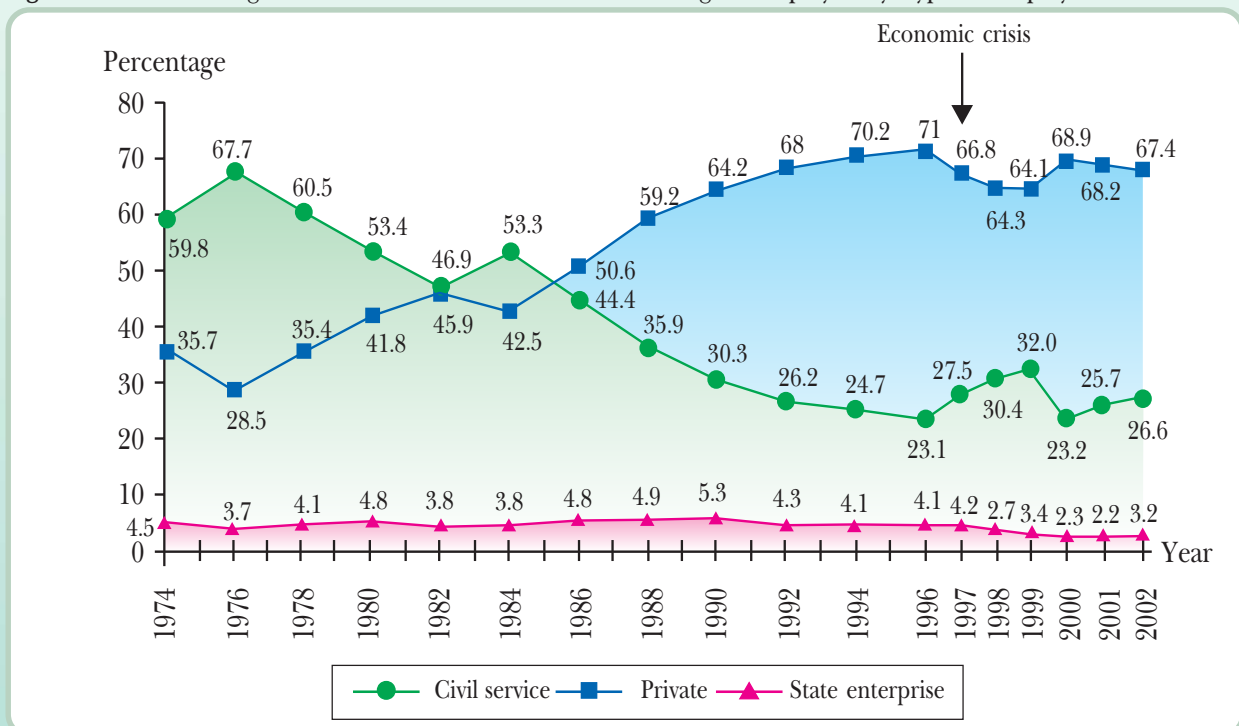
Data for 1996 were derived from the Study on the Comparison of the “Average Salaries” in the Public Sector and the Remunerations in the Private Sector.

Data for 2001 and 2002, public sector salaries were derived from mid-points in the salary scale plus position allowances, whereas those in the private sector were derived from average salaries excluding non-salary remuneration; thus, the discrepancies were lower than those for 1991 and 1996.

### 6.2.6 Problems of personnel administration system and civil servant quality.

As the public sector has no systematic mechanisms of performance evaluation coupled with its low remuneration rates, the motivation for employment in this sector has steadily declined. As a result, the public sector has lost a large number high-quality officials to the private sector, i.e. “no inward brain drain” (capable individuals not seeking employment in the public sector) and “outward brain drain” among the officials who have realized a great discrepancy between the compensations in the public and private sectors. Before to the economic crisis, newly recruited civil servants who had passed the examination organized by the Office of the Civil Service Commission had a grade point average between 2.00 and 2.99; university students were uncertain about career in the civil service system, and only 29.4% of them wanted to become civil servants (A Study on Desires for Employment in the Civil Service System of Students. Office of the Civil Service Commission, 1991); the reasons being low salaries and poor welfare system, repetitive tasks, cronyism and corruption. And in 1996, according to a study conducted by the Ministry of University Affairs, only 23.1% of newly graduated bachelor’s degree holders who were employed had a job as civil servants, whereas such a proportion was as high as 59.8% in 1974 (Figure 4.30). After the economic crisis in 1999, the students’ desires for public sector employment rose to 58.7% (Report on Attitudes of Students Towards Employment in the Civil Service System. Office of the Civil Service Commission, 1999). Besides, a survey on 1,596 unemployed bachelor’s degree holders in Bangkok and vicinity, conducted in 2001 by Suan Dusit Rajabhat Institute, revealed that 71.5% of respondents wished to work in the public sector, the remaining 28.5% wanted to work in the private sector. This trend corresponded with the rise to the 32% employment of bachelor’s degree holders in the civil service system in 1999 due to better job security, compared with that in the private sector. It is noteworthy that, in 2000, the new employment rate in the civil service system dropped to 23.2% and rose slightly to 26.6% in 2002 (Figure 4.30).

**Figure 4.30** Percentage of New Graduates with a Bachelor’s Degree Employed by Type of Employment, 1974-2002



**Source:** Report on Employment of Newly Graduated Bachelor’s Degree Holders. Bureau of Higher Education Policy and Planning, Office of the Higher Education Commission.

6.2.7 The process of planning, decision-making, manpower development, and budgeting appears **centralized** and with a top-down perspective in conceptualizing problems leading to the lack of flexibility, efficiency, clear understanding and responsiveness to the needs of each locality.

6.2.8 The public sector system encounters political domination and interference from the business-oriented political system.

To resolve the aforementioned problems and the economic crisis as well as to comply with IMF requirements on government expenditure reduction and revenue generation, a movement for “**public sector reform**” arose to drive for greater efficiency within five years of the public sector administrative system, i.e. roles, missions and public sector management, performance-based budgeting system, personnel management system, and changes in laws, culture and values of civil servants. According to the Public Organizations Act of B.E. 2542 (1999), published in the Government Gazette on 24 February 1999, several public organizations have been established with a more flexible system to undertake certain activities that should not be carried out by a regular government agency; rather, they should be accomplished in a more efficient manner by an autonomous agency. The public sector workforce, for example, has to be reduced by at least 20% in the 8th Plan and at least another 20% in the 9th Plan. Government agencies are required to abolish at least 80% of vacancies resulting from retirement; and an early retirement system was introduced in 2000-2003 with 57,544 retirees out of the target of 90,000. These measures have resulted in a slow-down in the increase in public sector workforce by 102,677 positions and in personnel budget by 19,742 million baht. As a result of the change in the public sector management system, the Thai public sector system will become smaller in the future and will play a role only in activities that should belong to the public sector; and some government agencies will be transformed into public organizations such as state-run universities and some government hospitals that are ready to do so.

Concurrently, more investigation systems have been established for examining the public service system such as information disclosure according to the Official Information Act of B.E. 2540 (1997) that offers greater opportunities for the public to share ideas in the implementation of important issues with a huge impact on the people, such as public hearings on the issue of establishment of a coal-fired power plant in Prachuap Khiri Khan Province. However, the civic mechanism is still weak resulting in its inability to efficiently scrutinize the operations of various institutions as only 20% of communities are strong enough to carry out such functions.<sup>6</sup>

### 6.3 Decentralization

The promulgation of the Thai Constitution of B.E. 2540 (1997) and the economic crisis are the prime factors driving for devolution. This leads to the reform of laws and local administration organizations such as the Transformation of Sanitary District into Municipality Act of B.E. 2542 (1999) that has upgraded 980 sanitary districts to Tambon (subdistrict) municipalities and the Decentralization Act of B.E. 2542 (1999), an organic law under which the government is required to decentralize basic services functions to local administration organizations within four years. Besides, regarding the allocation of tax revenue, endowment and other revenues to local administration organizations, the law requires that not less than 20% of the national budget be allocated by the year 2001 and not less than 35% by 2006. At present only 23.5% of the national budget has been allocated to local authorities (FY 2005), resulting in such agencies not taking responsibility for certain local functions according to people’s needs as expected.

<sup>6</sup> Office of the National and Economic and Social Development Board. Sustainable Development in the Thai Context, 2003.

Regarding the devolution of health services, the Ministry of Public Health has advocated a devolutionary framework by establishing an Area Health Board (AHB) comprising representatives from all categories of local administration organizations (Tambon administration organizations, municipalities, and provincial administration organizations), central/provincial government agencies and local leaders. Each AHB will function as a health service purchaser for the people or probably as an owner of public health facilities. This effort urges the Ministry of Public Health to prepare for locality's capacity strengthening so as to provide services with quality, efficiency and equity within 5-10 years.

However, in actuality the decentralization of power and budget to local authorities has been rather minimal as the central government still holds a large proportion of the national budget. This is evidenced in a study conducted by IMF in 2001 which revealed that the proportion of revenue and expenditure to GDP of local authorities (3%) was much lower than that of the central government (15-19%; Table 4.31). And the revenue actually collected by local authorities was only 12-20% while the central government could collect as much as 50% (Table 4.32).

**Table 4.31** Comparison of Revenues and Expenditures of Local Authorities and Central Government as a Percentage of GDP, 1997-2003

	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03
<b>Local authorities</b>						
- Revenues*	2.0	2.1	2.1	2.9	3.2	3.4
- Subsidies	0.7	0.8	0.7	1.2	1.4	1.2
- Expenditures	2.1	2.2	1.8	2.8	2.9	3.3
<b>Central government</b>						
- Revenues	16.2	15.5	15.5	15.2	15.9	16.3
- Expenditures	18.7	19.0	18.4	18.1	19.5	17.7

**Source:** Michael E. Porter and NESDB. Report on Development of Thailand's Competitiveness, 2003.

**Note:** \* including subsidies.

**Table 4.32** Local Revenue Structure (percent)

Category	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03
<b>Local revenue</b>	<b>67.9</b>	<b>61.6</b>	<b>65.4</b>	<b>58.7</b>	<b>58.0</b>	<b>64.8</b>
- Collected by local authorities	16.9	17.9	20.0	12.2	12.3	11.8
1. Taxes	9.3	9.6	10.6	7.6	7.3	7.6
2. Others	7.6	8.4	9.4	4.6	4.0	4.2
- Collected by central government	51.0	43.7	45.3	46.5	45.7	53.0
<b>Subsidies and grants</b>	<b>32.1</b>	<b>38.4</b>	<b>34.6</b>	<b>41.5</b>	<b>42.0</b>	<b>35.2</b>

**Source:** Michael E. Porter and NESDB. Report on Development of Competitiveness for Thailand, 2003.

Such political and administrative changes have had an impact on the Thai health system as follows:

(1) **Health policy formulation.** Previously health policies were formulated by civil servants who had most of the information on hand; as there had been frequent changes in the government, there was a problem of discontinuity of health policies. But at present health policies are set by the government that administers the nation, such as the 30-baht healthcare scheme.

(2) **More health personnel in important branches such as doctors, dentists and nurses resign from the public sector to work in the private sector.** The number of doctors resigning from state-run health facilities has increased from 300 annually during 1995-1997 to 500-600 in 2002-2003, partly due to a much lower remuneration in the public sector, compared to that in the private sector. A study on remunerations by type of professions in four hospitals in 1997 revealed that the remuneration was lowest in MoPH hospitals for all professions. In particular, the compensation for doctors and dentists in MoPH hospitals was 4-10 times lower than that in for-profit private hospitals (Table 4.33).

**Table 4.33** Comparison of Salaries and Compensations of Health Personnel in Public and Private Hospitals, 1997

Type of personnel	Salaries and compensations, baht/month				
	MoPH hospital	State enterprise hospital	Non-profit private hospital	For-profit private hospital	Difference between MoPH and for-profit private hospitals (times)
- Doctors	8,190-27,980	15,090-62,080	100,000*	50,000-300,000	6.1 - 10.7
- Dentists	8,190-19,840	17,990-52,990	80,000*	27,000-150,000	3.3 - 7.6
- Pharmacists	7,040-17,083	7,640-49,910	18,000-55,000	18,399-31,229	1.8 - 2.6
- Nurses	6,360-19,680	7,640-21,620	9,000-20,000	14,281-27,720	1.4 - 2.2
- Medical technologists	5,180-19,005	7,640-35,960	5,300-25,000	14,281-29,381	1.5 - 2.8
- Radiological technologists	5,180-17,880	4,880-35,960	5,000-20,000	10,417-29,160	1.6 - 2.0

**Source:** Supasit Pannarunothai et al. Administrative Systems in Public and Private Hospitals: Financial and Business Management for Public Hospitals That Will Operated as an Autonomous Agency, 1999.

**Note:** \* average value.



## 7. Situations and Trends of the Physical Environment

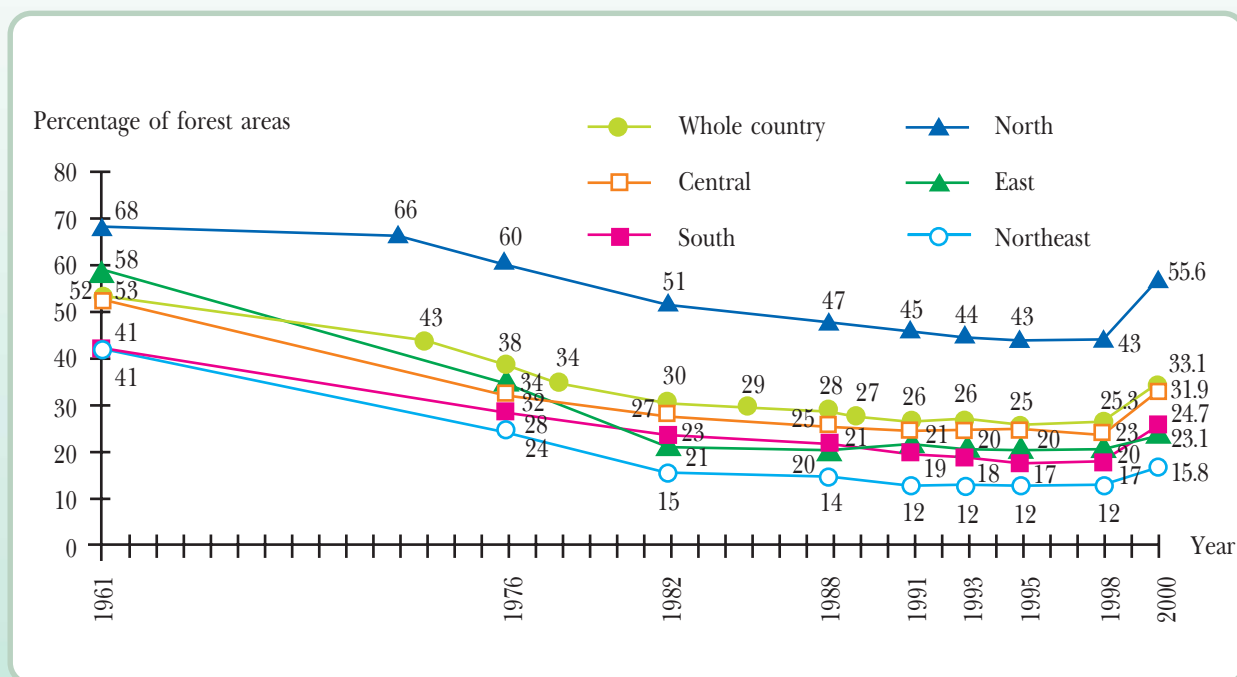
### 7.1 Natural Resources and Biodiversity

#### 7.1.1 Forests and Wildlife

The previously fertile forest areas in Thailand have rapidly diminished from 171.0 million rai (1acre = 2.53 rai) in 1961, covering 53.3% of the nation's total land area, to only 81.0 million rai or 25.3% in 1998. However, in 2000 the total forest areas have increased to 107 million rai or 33.1% of the total land area (Figure 4.31); that is still lower than the 40% minimum requirement for a suitable ecological system. Major factors related to the increase in forest areas include reforestation policy, designation of more conserved forests, more reforestation efforts, such as reforestation in honour of His Majesty the King, and raised aware about forest conservation.

The number of wild animals has also declined rapidly. As many as four species of wild mammals and nine species of wild birds have become extinct; and thus another 100 species of vertebrates have been designated as endangered species.

**Figure 4.31** Proportion of Forest Areas, 1961-2000



**Source:** Royal Forest Department, Ministry of Agriculture and Cooperatives.

**Note:** In 2000, the new forest mapping system was introduced using satellite images on a scale 1:50,000 rather than 1:250,000 resulting in the limitation in making comparison with previously available information.



### 7.1.2 Land Resources and Land Use for Agriculture

Thailand's total territory covers an area of approximately 320.69 million rai (625 rai = 1 sq.km.). In 1975, 112.2 million rai of land was used for agricultural purposes and the agricultural land areas increased to 131.3 million rai in 1999 or 41.0% of entire country's territory. Most of the agricultural areas are paddy fields, field-crop plantations, orchards and other plantations. Of all cultivable land, **about 3 million rai is left unused.**

Since 1991 the area of land used for agricultural purposes has been declining; rice fields have declined from 69.2 million rai to 65.2 million rai in 2001, field-crop land down from 33.5 million rai to 28.2 million rai, and orchards/plantations rising from 20.2 million rai to 26.6 million rai, and residential areas rising from 3.5 million rai to 3.6 million rai over the same period.

### 7.1.3 Mineral Resources

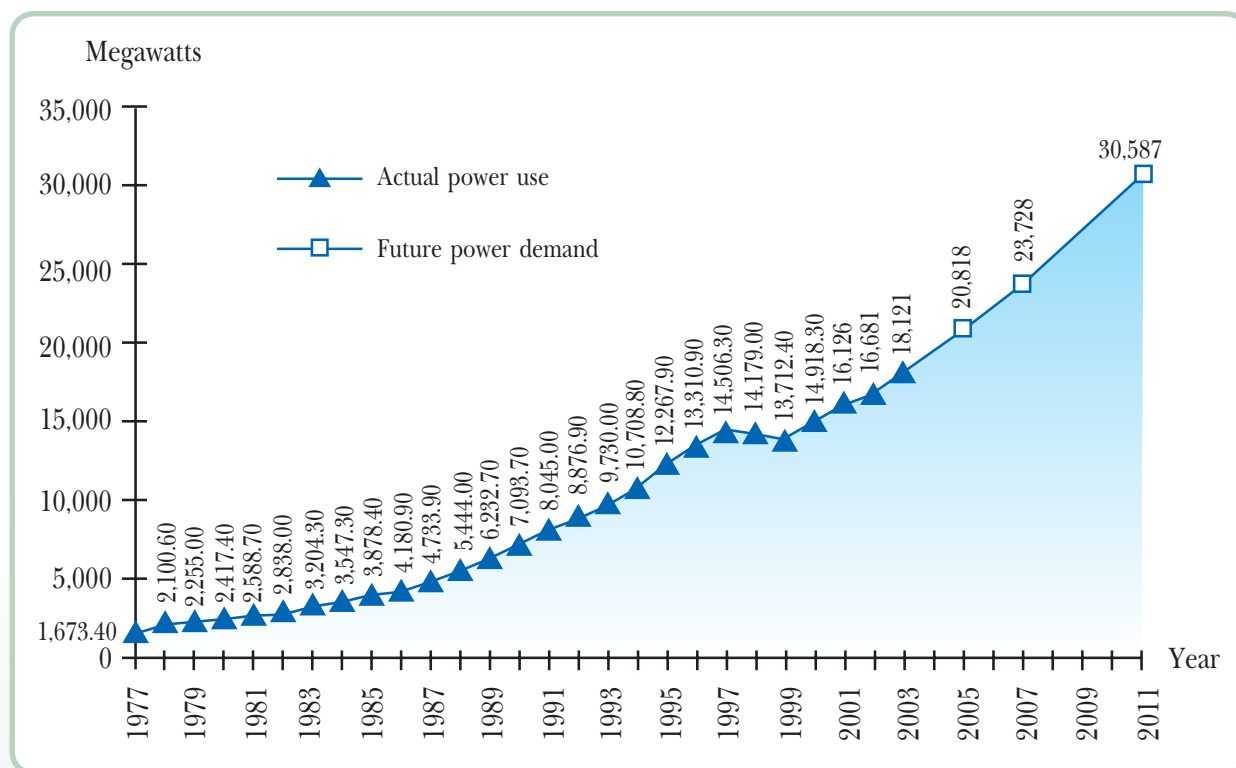
Mineral production tends to be increasing in response to the country's demand. In 2003, the top five minerals produced include lignite, limestone, gypsum, gold and basalt. However, mining concessions without proper control measures may lead to the deterioration of other natural resources and health of the people in the vicinity. Significant examples include rock mining with stone dust affecting lung functions and the discharge of lead-contaminated wastewater from Klity mines to the Klity creek in western Thailand. In 1999, according to the Department of Health's study on blood-lead level examinations and cumulative lead contamination in the environment, villagers in the Klity village had a higher blood-lead level than the general public, particularly in children aged 0-6 years. Yet, apparent symptoms of lead poisoning were not detected. The lead contamination was detected in certain stretches of Klity creek and in some aquatic animals such as prawns, crabs and fish; the contamination levels unacceptable for human consumption.

### 7.1.4 Energy Resources

Thailand's energy consumption has a rising trend and more electrical power has to be generated. In 2003, fuels for electricity generation include natural gas (78.9%), coal and lignite (17.8%), bunker oil (3.1%) and diesel (0.2%). The use of lignite and bunker oil as fuels with a high sulfur content results in air pollution with sulfur dioxide and suspended particles. Other pollutants also include those generated from fuel use in transportation and industrial operations.

During the economic crisis, in the beginning the power demand dropped by 2.2% and 3.2% in 1998 and 1999, respectively. But in 2001-2003, the demand went up by 6.7% annually and is projected to keep rising despite a lot of efforts on energy conservation (Figure 4.32). In the future, as the demand will be rising, it is necessary that other sources of energy be sought for substitution such as solar, wind and nuclear energy.

Figure 4.32 Trends in Electrical Power Requirement, 1977-2011



Source: Electricity Division, Office of the National Energy Policy Commission.

### 7.1.5 Fisheries

Due to the expansion of fishery industry, inappropriate use of fishing technology and depletion and deterioration of natural water resources, species and quantities of aquatic animals have declined. In response to such changes, aquaculture expansion is needed, but inevitably affecting the environment. For example, giant tiger prawn farming along the coasts and freshwater basins results in the deterioration of mangrove forests and paddy fields, respectively.

### 7.1.6 Biodiversity

Biodiversity includes marine ecosystem, animals and plants. Thailand, formerly regarded as the land of natural resource abundance, has lavishly exploited such biological and other natural resources on account of a demand for national development, such as agricultural land expansion, urbanization and large dam construction. Without proper restrictions and management, the biodiversity has been destroyed and certain ecosystems have immensely deteriorated.

At the same time, some foreign countries try to import Thailand's natural plants/animals for research purposes and, sometimes, for property right registration. This has a great impact on Thailand's long-term benefits. Therefore, relevant laws have been enacted to get Thailand prepared prior to entering into the international biodiversity agreement; i.e. **Protection and Promotion of Thai Traditional Medicine Act of 1999, Plant Protection Act of 1999 and Community Forest bill under the legislation process.**

## 7.2 Pollution

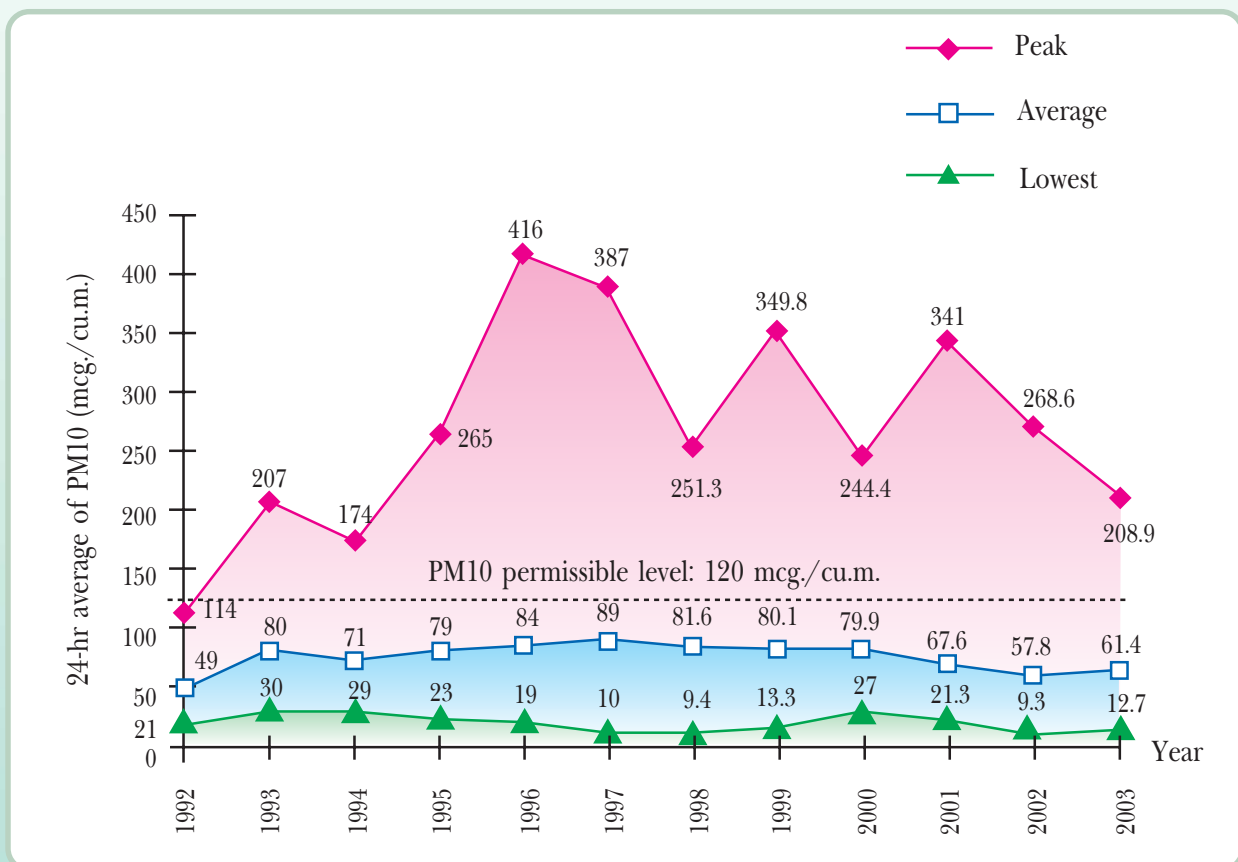
### 7.2.1 Air Pollution

#### (1) Air Quality

According to the Air Quality Monitoring programme conducted in Bangkok Metropolis and its vicinity, and in other major cities, it has been found that dust is still a major problem, and the levels of carbon monoxide and ozone are occasionally higher than the maximum permissible levels. The levels of other pollutants such as lead and sulfur dioxide are within the allowable limits.

As the major cause of air pollution problem in Bangkok, dust or suspended particulate matter is particularly dispersed every where and near the roads; the problem seems to be more serious at places near the sources of pollution, i.e. motor vehicles and construction sites. In 2003, it was found that the 24-hr total average amounts of dust particles on the roadsides in Bangkok had been declining since 1997 due to decreased industrial and construction activities resulting from the economic crisis. During 1992-2003, the 24-hr average concentrations of particulate matter of less than 10 microns (PM10) on the roadsides of Bangkok were higher than the maximum permissible level at all monitoring stations (Figure 4.33), while the levels of carbon monoxide, sulfur dioxide and lead were found to be lower than the maximum allowable levels.

**Figure 4.33** 24-hr Average Concentration of <10-micron Particulate Matter on Roadsides in Bangkok, 1992-2003



**Source:** Pollution Control Department, Ministry of Natural Resources and Environment.

In other provincial cities, the Pollution Control Department conducted the air quality measurement in 31 stations covering 15 provinces nationwide in 2003 and found that the 24-hr average peaks of PM10 detected were higher than the maximum permissible level in almost all areas (maximum permissible concentration for 24-hr average PM10 is 120 mcg./cu.m.). The highest PM10 pollution was detected at 388.5 mcg./cu.m. in Saraburi province, but the concentrations of nitrogen oxide, sulfur dioxide and carbon monoxide are still within the maximum permissible levels.

The major air pollutant in the area of Mae Moh, Lampang Province, is sulfur dioxide from lignite combustion in the electricity generation process. During 1996-1998, the number of times of the 1-hr average sulfur dioxide concentration found over the maximum permissible level declined from 51 to 16. In particular, during 1999-2003 no air samples were found to have the 1-hr average sulfur dioxide concentration over the permissible level, as the sources of pollutant had been under control. However, the PM10 pollution was still a problem, at 154.7 mcg./cu.m. in 2003.

## (2) Acid Rain

The accumulation of sulfuric and nitric acids in the atmosphere with clouds will finally become “acid rain” which is the cause of transboundary air pollution. Thus, Thailand may be affected by acid rain from within the country and other countries, particularly industrialized countries such as Japan, Korea and China. A monitoring of acid rain as measured by the pH values of rainwater in 1996-2002 in certain provinces revealed that the rainwater in Bangkok and Kanchanaburi tended to be more acidic (Table 4.34), which has resulted in high levels of acidity in water sources and land, damaging plants, animals and human’s respiratory system. The severity of the effects varies with the individual’s sensitivity to sulfur dioxide; an individual with asthma will be more severely affected than normal individuals.<sup>7</sup>

**Table 4.34** Average pH Values in Rainwater, 1996-2002

Study area	1996	1997	1998	1999	2000	2001	2002
Bangkok	6.4	5.6	5.2	5.2	5.0	5.0	5.1
Pathum Thani	*	*	*	4.8	5.3	5.1	5.33
Kanchanaburi	*	6.0	5.8	5.6	5.6	5.8	5.64
Samut Prakan	*	*	*	*	4.8	*	**
Chiang Mai	*	*	*	*	*	5.7	5.72

**Source:** Pollution Control Department, Ministry of Natural Resources and Environment.

**Note:** \* No measurements.

\*\* Data incomplete.

<sup>7</sup> Acids in the Atmosphere: Borderless Pollution. Department of Pollution Control.

### 7.2.2 Water Pollution

At present, the quality of various waterways tends to be deteriorating, but the water is still usable for agricultural and industrial purposes, except for the lower stretches of the Chao Phraya and Tha Chin Rivers in the Central Plains, where the water is heavily polluted and the rivers can be used only for transportation purposes.

A report on water quality surveillance on 49 waterways and four stagnant water reservoirs (Kwan Phayao, Boraphet, Nong Han and Songkhla Lakes) in 1992-2003 revealed that overall the water quality is better than before; the proportion of samples with good water quality has risen from 6.25% in 1992 to 36.67% in 2002, but fallen slightly to 32.0% in 2003; the proportion of those with satisfactory quality has risen from 18.75% in 1992 to 31.0% in 2003 - the water from such sources can be used for human consumption after being properly treated and disinfected (Table 4.35).

For the Chao Phraya River, during 1992-2003, the water quality was at the good and satisfactory levels, rising from 11.68% in 1994 to 57.0% in 2003 (Table 4.35). However, the problems encountered were the higher contents of coliform and faecal coliform bacteria, high levels of pollution in terms of organic chemical substances, and low levels of dissolved oxygen.

**Table 4.35** Percentage of Water Samples with Various Water-Quality Levels from the Chao Phraya and Other Rivers, 1992-2003

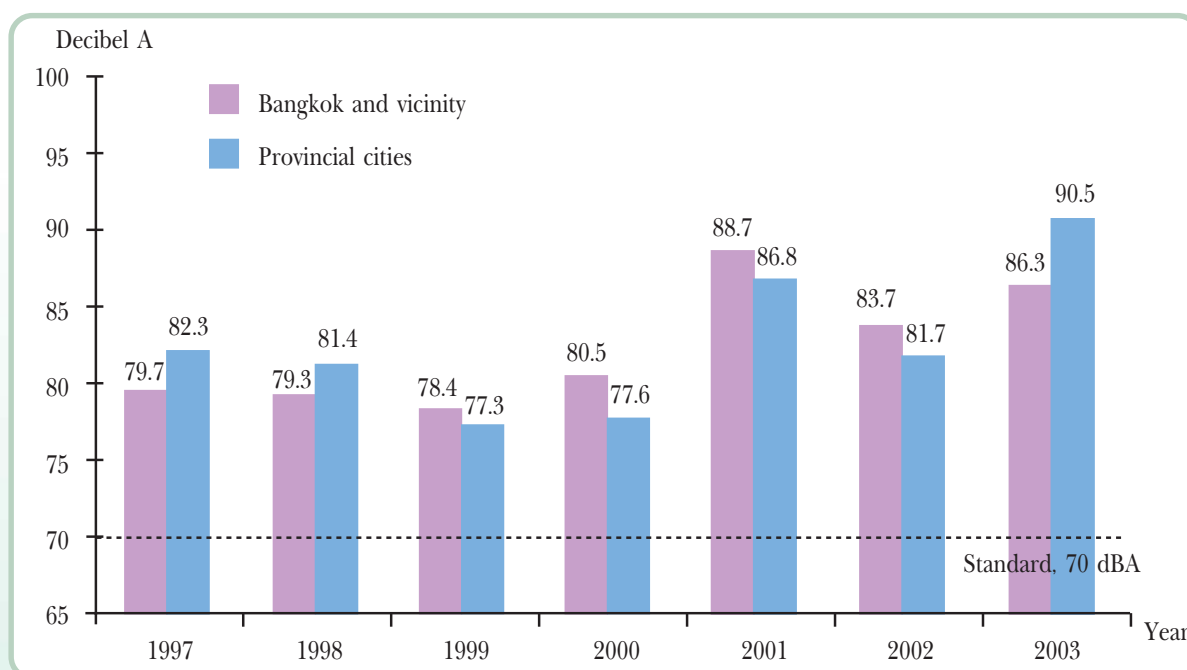
Year	Quality of other rivers				Quality of Chao Phraya River			
	Good	Satisfactory	Poor	Very poor	Good	Satisfactory	Poor	Very poor
1992	6.25	18.75	75.00	0.00	0.00	5.88	17.65	76.47
1993	8.33	19.44	61.11	11.11	0.00	12.50	50.00	37.50
1994	4.35	32.61	60.87	2.17	3.65	8.03	33.58	54.74
1995	10.87	21.74	56.52	10.87	4.17	15.28	36.11	44.44
1996	9.43	30.19	56.60	3.77	0.00	15.28	31.94	52.78
1997	20.75	35.85	37.74	5.66	3.70	16.67	31.48	48.15
1998	30.19	49.06	15.09	5.66	19.44	26.39	27.78	26.39
1999	20.75	35.85	39.62	3.77	12.04	24.07	34.26	29.63
2000	27.78	38.89	27.78	5.56	15.63	31.25	31.25	21.88
2001	18.52	40.74	33.33	7.41	31.94	22.22	26.39	19.44
2002	36.67	20.00	40.00	3.33	8.33	31.94	27.78	31.94
2003	32.0	31.00	31.00	6.00	25.00	32.00	13.00	30.00

**Source:** Pollution Control Department, Ministry of Natural Resources and Environment.

### 7.2.3 Noise Pollution

The most serious source of noise pollution is motor vehicles, especially those on major roads in Bangkok, its vicinity and other major cities with traffic congestions. A report on noise level monitoring in 1997-2003 of the Pollution Control Department revealed that, at 32 air quality and noise monitoring stations in 15 provinces, almost all stations had 24-hr average continuous equivalent noise levels (Leq)<sup>8</sup> higher than the maximum permissible level (Figure 4.34).

**Figure 4.34** Noise Levels (Leq 24-hr) on Roadsides in Bangkok, Its Vicinity and Major Provincial Cities, 1997-2003



**Source:** Pollution Control Department, Ministry of Natural Resources and Environment.

### 7.2.4 Pollution from Hazardous Substances

Hazardous substances are imported mostly for industrial and agricultural applications; during 1994-2003, 60.3% and 38.5% of the substances were used for industrial and agricultural purposes, respectively; only 1.2% for household use. In 2003, 6.7 million tons of the substances were imported for industrial use and another 4.7 million tons for agricultural use (Table 4.36). Such substances could be released to the environment, causing pollution problems. A report on groundwater examinations (54 samples from three Northeastern provinces, 2001) revealed that eight samples (14.8%) were found to be contaminated with pesticides.

Besides, in 2003 there were 28 incidents of chemical disasters resulting in 35 injuries (no fatalities) and 150 million baht worth of damages.

It is noteworthy that after the 1997 economic crisis, the imports of chemical substances tended to be declining, but they were rising again soon after the crisis was over (Table 4.36).

<sup>8</sup> Noise level in Leq 24-hr is an average value of continuous noise or sound energy for a 24-hr period.



Table 4.36 Amounts of Imported Chemical Substances, 1993-2003

Chemical substance	Imported amount (tons)											
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
<b>1. For industrial use</b>												
□ Inorganic chemicals	n.a.	4,874,115	5,020,611	5,164,181	4,822,042	4,602,197	5,006,919	6,031,927	5,547,467	6,356,872	6,785,320	
□ Organic chemicals	n.a.	839,228	966,346	961,009	1,050,327	836,241	1,080,753	1,777,212	1,200,203	1,331,981	1,527,059	
□ Colouring agents	n.a.	2,152,448	2,391,862	2,442,034	2,159,141	2,275,283	2,280,271	2,362,797	2,313,657	2,640,466	2,866,077	
□ Paints and vanishes	86,813	111,468	99,302	100,270	100,151	68,971	87,427	107,855	104,806	125,674	137,679	
□ Anti-knock additives	21,265	47,112	29,628	29,716	37,624	21,051	24,866	32,018	133,258	37,672	87,632	
□ Plastic pallets	38,217	42,843	49,016	48,345	44,878	33,058	36,785	34,066	35,157	35,984	38,608	
□ Films, foils and plastic tapes	515,378	692,895	656,835	718,958	622,876	571,376	712,857	787,681	744,459	875,167	947,317	
□ Other chemicals	45,406	54,564	58,399	58,755	64,307	51,666	91,401	82,987	80,682	91,422	104,951	
	n.a.	933,557	769,223	805,094	742,738	744,551	692,559	847,311	935,245	1,218,506	1,075,997	
<b>2. For agricultural use</b>	<b>3,291,022</b>	<b>3,047,576</b>	<b>3,188,235</b>	<b>3,482,195</b>	<b>3,033,190</b>	<b>2,905,710</b>	<b>3,610,583</b>	<b>3,378,739</b>	<b>3,510,837</b>	<b>3,736,767</b>	<b>4,787,320</b>	
□ Pesticides	25,140	29,718	32,248	42,198	42,240	32,197	48,995	50,272	54,428	67,414	69,732	
□ Fertilizers	3,265,882	3,017,858	3,155,987	3,439,997	2,990,950	2,873,513	3,561,588	3,328,467	3,456,409	3,669,353	4,717,588	
<b>3. For household use</b>	<b>66,873</b>	<b>90,562</b>	<b>84,515</b>	<b>81,296</b>	<b>95,225</b>	<b>68,475</b>	<b>89,595</b>	<b>116,333</b>	<b>139,078</b>	<b>132,490</b>	<b>159,910</b>	
□ Medicines	6,109	7,886	9,732	10,072	10,592	6,929	10,574	13,726	13,240	19,239	19,958	
□ Vitamins and hormones	2,961	3,282	3,752	3,257	3,763	2,938	3,844	5,223	5,397	5,590	5,783	
□ Other medical and pharmaceutical products	5,394	15,747	4,734	5,205	5,018	3,253	4,235	6,557	18,043	6,069	6,517	
□ Soap and detergents	40,440	48,934	54,308	51,116	55,700	43,010	55,563	67,381	80,376	75,163	94,774	
□ Cosmetics	11,969	14,713	11,989	11,646	20,152	12,345	15,379	23,446	22,022	26,429	32,878	
<b>Total imports</b>	<b>n.a.</b>	<b>8,012,253</b>	<b>8,293,361</b>	<b>8,727,672</b>	<b>7,950,457</b>	<b>7,576,382</b>	<b>8,707,097</b>	<b>9,526,999</b>	<b>9,197,382</b>	<b>10,226,129</b>	<b>11,732,550</b>	
Increase from previous year (percent)	n.a.	n.a.	+3.5	+5.2	- 8.9	- 4.7	+14.9	+9.4	-3.4	+11.2	+14.8	

**Source:** Department of International Trade Negotiations, Ministry of Commerce

**Note:** n.a. = Data not available

For 2001, the data were adjusted, according to the most recent report of the Department of International Trade Negotiations.



### 7.2.5 Pollution from Hazardous Wastes

The amount of hazardous wastes in Thailand has increased from 0.9 million tons in 1990 to 1.8 million tons in 2003; of this amount, 1.4 million tons (77.8%) were released from the industrial sector and 0.4 million tons (22.2%) from residential communities. The amount of such industrial wastes is on the rise, whereas the capacity for hazardous waste treatment is only 16% of the total amount.

In 2002, only 0.22 million tons of hazardous waste were sent for disposal at in-country waste treatment plants and another 330 tons were sent for disposal abroad. However, large amounts of such waste were kept in the industries or illegally dumped into the environment.

## 7.3 Environmental Sanitation

### 7.3.1 Housing Sanitation

The number of Thailand's slum communities has risen from 1,587 in 1994 to 1,802 in 1997 and 2,265 in 2000, an increase of 13.5% and 25.7%, respectively. In 2000, there were 442,525 slum households, of which 53.9% (1,220 slums) were located in Bangkok Metropolis, 20% (452 slums) in Bangkok's vicinity, and 26.1% (593 slums) in provincial areas. The number of slums in all regions of Thailand has increased significantly, particularly in Bangkok by 44.7%, except for the Northeast where the trend is declining (Housing Information Division, National Housing Authority).

Regarding rural households, according to the 2004 survey on basic minimum needs (BMN), more households have had a better environmental condition. The number of durable households has risen from 90.6% in 1993 to 97.9% in 2001, but fallen slightly to 96.6% in 2004. The number of households with a hygienic condition has risen from 69.4% in 1992 to 89.3% in 2001, and to 93.5% in 2004.

### 7.3.2 Food and Water Supply

#### (1) Food Safety

At present, people's food consumption culture has shifted from eating home-cooked food to eating out and eating pre-cooked or semi-cooked or ready-to-eat food. Cooking food rapidly in large quantities may involve unhygienic practices and inappropriate use of ingredients or utensils, resulting in food contamination with pathogens. The 2002 study on conditions of food establishments nationwide revealed that only 27.1% (14,999 out of 55,311) of the restaurants inspected, 16.9% (2,344 out of 13,844) of fresh markets, 16.0% (3,170 out of 19,844) of school cafeterias, 55.8% (382 out of 684) of hospital cafeterias met the food safety requirements. And the 2001 analyses of 235 samples of food sold in the market, conducted by the Department of Medical Sciences, revealed that 40.4% (95 out of 235) of the ready-to-cook food samples were unhygienic due to bacterial contamination. Besides, the Department of Medical Sciences has monitored the food safety conditions of 56 large restaurants and hotels by inspecting 225 samples of food as well as swabs of utensils and hands of food handlers and found that 63.1% (142 out of 225) of the samples were unhygienic and 4.9% (11 out of 225) were contaminated with food-poisoning pathogens. This problem has resulted in the consumers being at risk of eating unhygienic and substandard food.

## (2) Water Supply Safety

Based on the Survey of Water Supply Situations of Thai People during 1986-1995, most Thai people preferred rainwater for drinking, followed by artesian-well water and tap water. And in 2001, a similar preference was also found, i.e. urban residents preferred bottled water, rainwater and tap water in a comparable proportion, whereas rural residents preferred rainwater, artesian-well water and tap water (Table 4.37).

**Table 4.37** Percentage of Drinking Water Sources of Thai People by Residential Area, 1986-2001

Source of drinking water*	1986	1995			2000			2001		
	Whole country	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
No. of surveyed households	3,181	809	3,260	4,069	5,291,871	10,645,933	15,937,804	27,183	143,904	171,087
Bottled water	n.a.	23.4	8.2	11.2	40.6	9.2	19.5	35.5	9.7	13.7
Tap water	15.8	27.6	9.4	13.0	36.4	16.8	23.2	26.1	16.1	17.7
Rainwater	39.2	42.2	52.2	50.2	16.1	51.0	39.6	27.5	51.3	47.6
Artesian wells, public & private	26.2	27.0	52.5	47.4	6.7	21.9	16.9	9.7	21.8	19.9
Natural water sources	19.0	0.9	2.7	2.3	0.2	1.1	0.8	0.2	0.6	0.5

- Sources:**
1. Data for 1986 and 1995 were derived from Reports on the 3rd and 4th National Nutrition Surveys. Department of Health, MoPH.
  2. Data for 2000 were derived from the Population and Household Census. National Statistical Office.
  3. Data for 2001 were derived from the Provincial Health Status Survey, 2001. Bureau of Policy and Strategy, MoPH.

**Note:** \* More than one answer can be made.

With regard to the quality of drinking water in Thailand, the survey conducted by Department of Health, MoPH, during 1995-2003, reveals that most of tap water samples do not meet the drinking water standards, except for those of the Metropolitan Waterworks Authority, about 70% of which meet the standard. In 2001, a campaign on drinkable tap water in rural and urban areas led to improved quality of tap water, but in 2002-2003 the quality of rural tap water was worse than before. For rainwater, artesian-well water and shallow-well water, the findings show that their quality is still unacceptable. This is mainly because of contamination with bacteria and chemicals such as cadmium, iron, lead and manganese, including unacceptable physical quality, i.e. turbidity and color levels being higher than maximum allowable standards (Table 4.38).

Regarding the quality of bottled water, based on a survey conducted by the Food and Drug Administration and some Provincial Public Health Offices during 1995-2003, 71% of water samples tested met the drinking water standards; no differences in terms of contamination were found among the water with and without FDA-licence logo. It was also found that only 57% of ice cubes samples tested met the standard (Table 4.38).

**Table 4.38** Quality of Drinking Water in Thailand, 1995-2003

Water type	1995		1996		1997		1998		1999		2000		2001		2002		2003	
	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard	Samples tested	Samples meeting standard
- Tap water, MWA	45	38 (84.4)	27	NA	75	56 (74.7)	118	81 (68.6)	81	70 (86.4)	-	-	-	-	-	-	-	-
- Tap water, PWA	129	95 (73.6)	547	276 (50.4)	1,470	713 (48.5)	1,568	1,397 (89.1)	532	294 (55.3)	-	-	120	92 (76.7)	-	-	131	74 (56.5)
- Tap water, municipality waterworks	8	3 (37.5)	68	10 (14.7)	68	-	51	18 (35.3)	161	89 (55.3)	900	442 (49.1)	570	504 (88.4)	203	171 (84.2)	-	-
- Tap water, sanitary district waterworks	43	22 (51.2)	327	90 (27.5)	496	232 (46.8)	370	164 (44.3)	51	18 (35.3)	-	-	-	-	-	-	-	-
- Tap water, village waterworks	209	102 (48.8)	1,683	399 (23.7)	465	108 (23.2)	3,925	1,103 (28.1)	5,041	2,039 (40.4)	4,246	1,507 (35.5)	2,673	2,297 (85.9)	1,318	760 (57.7)	633	165 (31.0)
- Shallow-well water, private	NA	NA	365	37 (10.1)	222	28 (12.6)	191	78 (40.8)	125	54 (43.2)	26	7 (26.9)	-	-	-	-	-	-
- Artesian-well water, public	65	27 (41.5)	438	377 (86.1)	355	15 (4.2)	258	62 (24.0)	277	112 (40.4)	280	102 (36.4)	-	-	174	50 (28.7)	-	-
- Rainwater	65	23 (35.4)	495	98 (19.8)	121	6 (5.0)	298	104 (34.9)	90	27 (30.0)	69	19 (27.5)	-	-	-	-	-	-
- Bottled water	1,462	968 (66.2)	407	286 (70.3)	3,225	2,837 (88.0)	4,496	3,167 (70.4)	3,766	2,329 (61.8)	1,033	788 (76.3)	3,551	2,383 (67.1)	2,996	2,121 (70.8)	2,743	1,925 (70.2)
- Ice cubes	32	9 (28.1)	42	30 (71.4)	187	170 (90.9)	401	203 (50.6)	335	174 (51.9)	285	138 (48.4)	299	156 (52.2)	273	170 (62.3)	250	150 (60.0)

**Sources:** <sup>(1)</sup> Department of Health, MoPH.

<sup>(2)</sup> Planning and Technical Administration Division, FDA, MoPH.

**Notes:** The figures in ( ) mean percent.

### 7.3.3 Solid Waste and Sewage

In 2003, there were an estimated 14.33 million tons of solid wastes nationwide, of which about 3.41 million tons (23.8%) were generated in Bangkok, 4.42 million tons (30.8%) in municipal areas, and 6.5 million tons (45.4%) in non-municipal/sanitary district areas. Between 1992 and 2003, the total amount of solid wastes increased on average by 2.4% each year, mostly in Bangkok Metropolis and municipalities nationwide. Since 2001 the increase rate in non-municipal areas is slightly higher than that in municipal areas (Table 4.39). Solid waste disposal capacity is still limited; the Bangkok Metropolitan Administration is able to collect almost all of its solid wastes, but municipalities and non-municipal areas can collect only half of their wastes. Such conditions have an impact on the quality of life of provincial residents as they are offended by the putrid smell of such wastes; and a lot of such residents have health problems.

**Table 4.39** Amount of Solid Wastes, 1992-2003

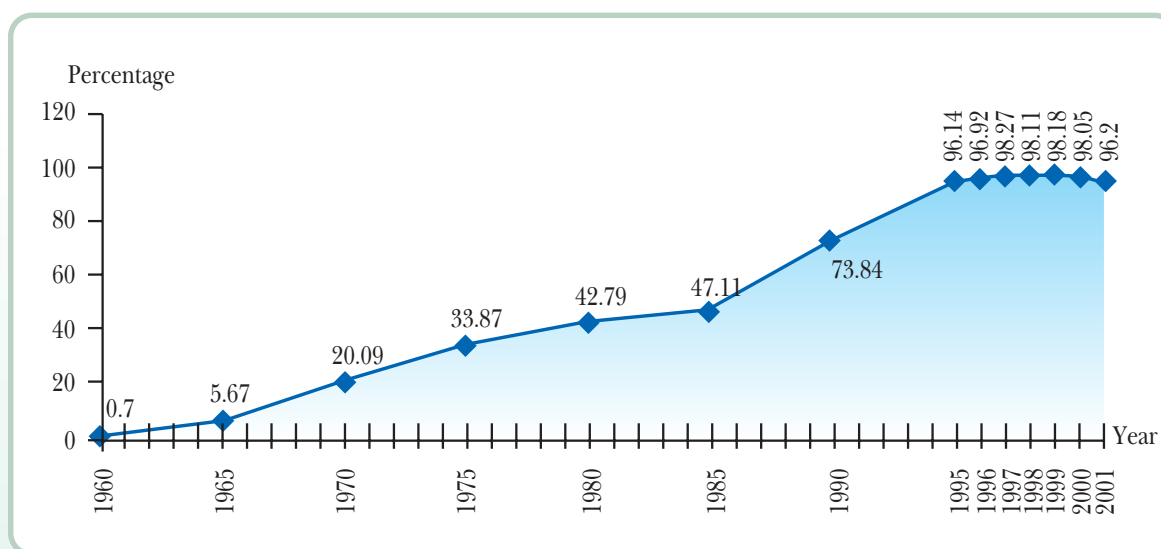
Area	Bangkok		Municipal areas including Pattaya City		Sanitary districts		Outside municipal/sanitary district areas		Total	
	Amount (million tons)	Change (percent)	Amount (million tons)	Change (percent)	Amount (million tons)	Change (percent)	Amount (million tons)	Change (percent)	Amount (million tons)	Change (percent)
1992	2.19	-	1.16	-	1.62	-	5.81	-	10.78	-
1993	2.57	+ 17.3	1.25	+ 7.7	1.51	- 6.8	5.85	+ 0.7	11.18	+ 3.7
1994	2.56	- 0.4	2.05	+ 64.0	1.53	+ 1.3	5.91	+ 1.0	12.05	+ 7.8
1995	2.63	+ 2.7	2.30	+ 12.2	1.69	+ 10.5	5.96	+ 0.8	12.58	+ 4.4
1996	2.95	+ 12.2	2.43	+ 5.6	1.78	+ 5.3	5.97	+ 0.2	13.13	+ 4.4
1997	3.26	+ 10.5	3.0	+ 23.4	1.75	- 1.7	5.5	- 7.9	13.51	+ 2.9
1998	3.10	- 4.9	2.71	- 9.7	1.74	- 0.6	6.04	+ 9.8	13.59	+ 0.6
1999	3.28	+ 5.8	4.50	+ 66.0	-	-	6.04	-	13.82	+ 1.7
2000	3.33	+ 1.5	4.3	- 4.44	-	-	6.3	+ 4.3	13.93	+ 0.8
2001	3.40	+ 2.1	4.34	+ 0.9	-	-	6.36	+ 1.0	14.10	+ 1.2
2002	3.51	+ 3.2	4.37	+ 0.7	-	-	6.43	+ 1.1	14.31	+ 1.5
2003	3.41	- 2.8	4.42	+ 1.1	-	-	6.50	+ 1.1	14.33	+ 0.1

**Source** Toxic Substance and Solid Waste Management Bureau, Pollution Control Department.

**Note:** In 1999, all sanitary districts were upgraded to municipalities; since then only the figures for municipal areas appear.

Regarding human waste or night soil from urban households, problems are found to be related to its transportation and disposal. In 2000, 98.05% of rural households had sanitary latrines; the proportion dropped to 96.2% in 2001 as shown in Figure 4.35. Nationwide, 61.3% (46 provinces) of all 75 provinces had 100% of their households with sanitary latrines (Department of Health, 1999). However, a survey on latrine use of Thai people in 2001 revealed that 97.9% of them regularly used a sanitary latrine while at home; but the rate dropped to only 38.0% when they had to go out and work in plantations or paddy fields (Table 4.40).

**Figure 4.35** Percentage of Households with Sanitary Latrines, 1960-2001



**Sources:** <sup>(1)</sup> 1960-2000 from the Department of Health, MoPH.

<sup>(2)</sup> 2001 from the Provincial Health Status Survey. Bureau of Policy and Strategy, MoPH.

**Table 4.40** Latrine Use Behaviour of Thai People, 2001

Behaviour	Sample size (N)	Number using latrine (%)		
		Regularly	Occasionally	Never
(1) Use sanitary latrine while at home	14,162	13,845 (97.9)	156 (1.1)	147 (1.0)
(2) Use sanitary latrine while working in plantations or paddy fields	14,055	5,345 (38.0)	3,216 (22.9)	5,489 (39.1)

**Source:** Report on the Evaluation of the Helminthic Disease Control Programme in Thailand at the End of the 8th Plan, 2001. Department of Disease Control.

Such physical environmental changes have an impact on human health as follows:

(1) **Pollution and illnesses resulting from environmental pollution** such as allergies, respiratory diseases, cancer and chemical poisoning.

(1.1) **Air pollution with PM10 is the cause respiratory diseases including chronic bronchitis among residents in Bangkok and other major cities.** According to the 2002 environmental situation report (The World Bank, 2002), PM10 pollution is positively associated with the number of outpatients with respiratory diseases in Bangkok. This is consistent with NSO's surveys in 1991-2003 which revealed that 38-50% of patients had respiratory diseases; more patients were found in municipal areas than in non-municipal areas and the number was highest in Bangkok.

Besides, a study conducted by Pope and colleagues (2002) revealed that exposure to PM10 for a long period of time was a fatal risk for diseases of the heart and lung, especially lung cancer. An increment of every 10 mcg./cu.m. of PM10 may result in 6% and 8% increases in mortality from diseases of the heart and lung reports lung cancer, respectively.<sup>9</sup>

(1.2) **An extremely high healthcare expenditure due to air pollution in Bangkok.**

The World Bank (2002) estimated that healthcare spending due to PM10 exposure in six major cities in Thailand (Bangkok, Chiang Mai, Nakhon Sawan, Khon Kaen, Nakhon Ratchasima, and Songkhla) was US\$643.9 million or 28,009.6 million baht as a result of 2,330 premature deaths and 9,626 cases of bronchitis. The spending was 1-1.6% of GDP for 1996-1999 or 2,000 baht per capita per year, 65% of which incurred in Bangkok alone (Table 4.41).

**Table 4.41** Estimated Impact on Health and Spending Resulting from Air Pollution with PM10 in Six Major Cities in Thailand, 2000

City	PM10 (mcg./cu.m.)	Population (millions)	Death rate (percent)	Premature deaths (number)	Chronic bronchitis (cases)	Health spending	
						US\$ million	Baht million
Bangkok	64	5.7	0.0065	1,092	4,550	424	18,444
Chiang Mai	57	1.6	0.00985	390	1,080	56.8	2,470.8
Nakhon Sawan	51	1.1	0.0058	134	630	26.1	1,135.35
Khon Kaen	66	1.8	0.006	324	1,476	59.2	2,575.2
Nakhon Ratchasima	51	2.6	0.0055	286	1,426	56.8	2,470.8
Songkhla	41	1.2	0.0061	104	464	21	913.5
<b>Total</b>		<b>14</b>		<b>2,330</b>	<b>9,626</b>	<b>643.9</b>	<b>28,009.6</b>

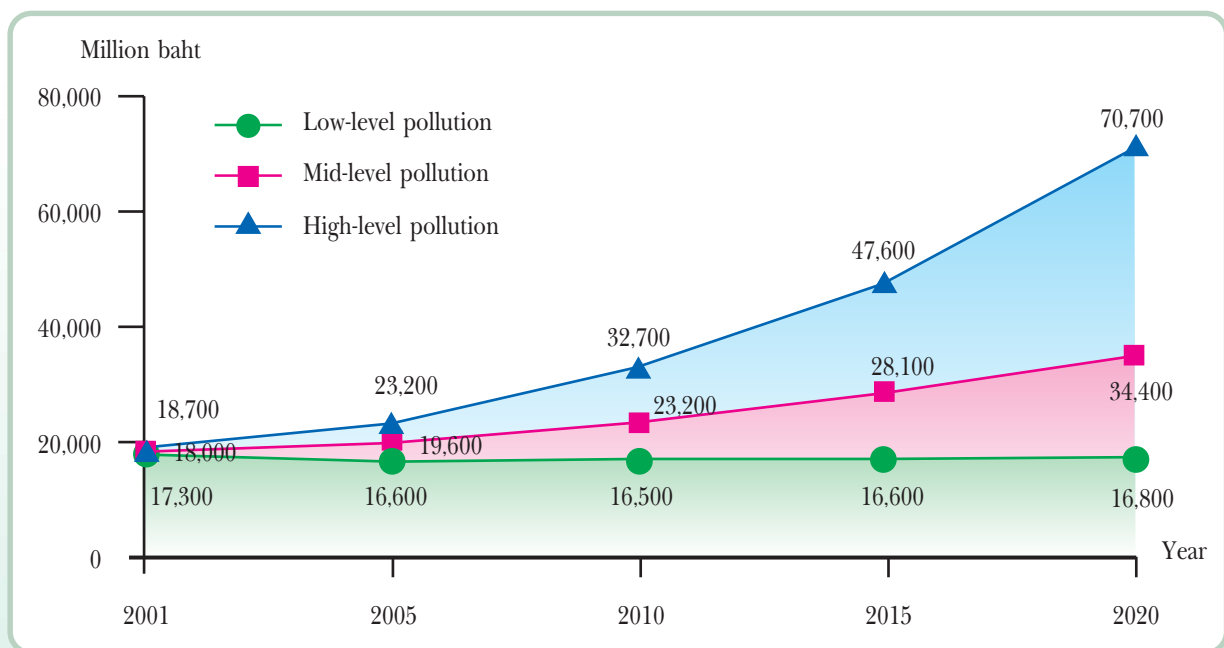
**Sources:** Report on Environmental Situation in Thailand, 2002. The World Bank, 2002.

<sup>9</sup> Pope, C. Arden, et al. (2002). "Lung Cancer Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution". Journal of American Medical Association, 287(9), pp. 1132-1141.



For Bangkok, in which the air pollution problem is most serious, the World Bank estimated that healthcare spending due to PM10 exposure under three scenarios (high, moderate and low levels of exposure)<sup>10</sup> ranged from 17,300 to 18,700 million baht and would increase to 16,800-70,700 in 2020. At the low level of pollution, the health spending would slightly drop until 2010; then it would gradually increase as the PM10 concentration would decline at a higher rate in the beginning phase, compared with the GPP growth rate. After 2010, the income expansion and life values would increase more rapidly, compared with the drop in PM10 concentration (Figure 4.36).

**Figure 4.36** Health Spending Related to PM10 Pollution in Bangkok, 2001-2020



**Source:** Report on Environmental Situation in Thailand 2002. The World Bank, 2002.

<sup>10</sup> Low-level pollution: GDP growth 2% per annum and GPP for Bangkok 1.5% per annum.  
Moderate-level pollution: GDP growth 2% per annum and GPP for Bangkok 4.5% per annum.  
High-level pollution: GDP growth 5% per annum and GPP for Bangkok 7.5% per annum.



**(1.3) Noise pollution tends to be more serious resulting in hearing impairment.** According to a study of Dr. Andrew W. Smith,<sup>11</sup> noise of over 80 decibels had an adverse effect on hearing; and Schultz (1978)<sup>12</sup> has shown that noise of over 70 decibels will badly annoy 22-95% of the people.

**(2) Increased chemical contaminations of food due to use of chemicals without scientific principles and illegal use of certain hazardous substances in the food production processes have a detrimental effect on human health.**

**(2.1) Toxic chemical residues are found at a level higher than the maximum allowable concentration in plants, vegetables, fruit and fresh food; such foods are unsafe and hazardous to consumers.** According to the routine reports of the Department of Medical Sciences (1993-2003), residues of pesticides and growth stimulant salbutamol are detected in all kinds of food such as vegetables and fruit. The contamination rate has risen from 16.2% in 1993 to 63.9% in 2002. High levels of growth-stimulant residues are also found as shown in Table 4.42. Thus, food safety campaigns have been undertaken against the use of six prohibited substances in fresh food. As a result, it has been found that all kinds of contamination tend to be declining. But high levels of pork-reddening substance and pesticides are still detected in meats and agricultural products (Table 4.43).

Besides, reports on safety surveillance of vegetables and fruit (1994-2002) reveal that 3.5-14.9% of food samples have toxic substance residues higher than the maximum permissible levels. For vegetables claimed to be pesticide-free, 9.7% of samples tested have the residues higher than the maximum allowable levels (Table 4.44). So, it is clear that the people have to consume the foods that are unsafe and hazardous to their health; if such chemicals are accumulated up to a high level, they may cause cancer.

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<sup>11</sup> Referred to in Thailand Health Profile 1999-2000, pp. 113-114.

<sup>12</sup> Referred to in Thailand Health Profile 1999-2000, pp. 113-114.

**Table 4.42** Results of Food Testing for Pesticide Residues and Growth Hormones on a Regular Basis, 1993-2003

Chemical	1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003	
	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue	Samples tested	residue
1. Pesticide residues in food such as vegetables, fruits, milk, salted fish and dried fish	218	53 (24.3)	201	95 (47.3)	269	60 (22.3)	476	93 (19.5)	160	18 (11.2)	218	86 (39.4)	487	191 (39.2)	209	79 (37.8)	219	77 (35.2)	334	146 (43.7)	413	105 (25.4)
2. Growth hormone "salbutamol" in pork and pig's kidneys and livers	108	-	55	-	50	-	34	3 (8.8)	10	4 (40.0)	42	9 (21.4)	59	13 (22.0)	26	5 (19.2)	146	33 (22.6)	347	289 (83.3)	2,074	182 (8.8)
Total	326	53 (16.2)	256	95 (37.1)	319	60 (18.8)	510	96 (18.8)	170	22 (12.9)	260	95 (36.5)	546	204 (37.4)	235	84 (35.7)	365	110 (30.1)	681	435 (63.9)	2,487	287 (11.5)

**Source:** Department of Medical Sciences, MoPH.

**Note:** Figures in ( ) are percentage.

**Table 4.43** Results of Testing for Chemical Contaminants in Food from Fresh Markets Nationwide under the Food Safety Project, 2003

Contaminant	Before project implementation		After project implementation (as of 31 Dec 03)		
	Samples tested	Sample contaminated (percent)	Samples tested	Samples contaminated	Sample contaminated (percent)
1. Pork-reddening agent	2,132	96	1,111	115	10.4
2. Bleaching agent	3,256	10.0	4,812	83	1.7
3. Fungicides	2,099	7.2	4,315	206	4.8
4. Borax	3,184	42.0	6,695	46	0.7
5. Formalin	2,471	10.0	3,800	46	1.2
6. Pesticides	2,268	20.3	8,437	508	6.0

Source: Food Safety Centre, MoPH.

**Table 4.44** Results of Safety Surveillance on Fresh Vegetables and Fruit, 1994-2002

Type of food	Testing for	Samples tested	Test results	Testing agency	Year of testing
1. Fresh vegetables and fruit of farmers	Pesticides	3,115	Residues were detected in 1,127 samples (36.2%), 190 of which (61%) exceeded maximum permissible levels	Department of Agriculture	2002
2. Fresh vegetables and fruit from Si Mum Mueang markets	Pesticides	1,753	Residues of sulfate and carbamate compounds were detected in 89.1% of samples; 3.5% of which were at unsafe levels	Department of Agriculture	2002
3. Food safety surveillance: pesticide-free vegetables					
- Vegetables	Pesticides	262	Residues were detected in 170 samples (64.8%); 39 samples (14.9%) exceeding maximum permissible levels	FDA and DMSc	1994-2002
- Pesticide-free vegetables	Pesticides	319	Residues were detected in 155 samples (48.6%) 31 samples (9.7%) exceeding maximum permissible levels	FDA and DMSc	1994-2002

Sources: - Stop Using Pesticides in Agriculture for Thai Public Health. A paper presented at the National Health Assembly, 2003.

- Food Safety Surveillance Project: Pesticide-Free Vegetables. Food and Drug Administration, 2003.

**(2.2) More people are ill with chemical poisoning and have food- and water-borne diseases.**

Health impacts from chemical use in both agricultural and industrial sectors are on the rise. Most of the people affected by chemical poisoning especially pesticides are farmers (see section 3.4.1 on poisoning from pesticides). In the future, it is possible that there will be more patients with accumulated chemical poisoning and illnesses or symptoms such as disorders of the neurological, immunological, and gastro-intestinal systems, and cancer.

Besides, consuming unsafe or substandard food and water may cause water- and food-borne diseases. The morbidity rate of food poisoning has risen to 204.29 per 100,000 population in 2003.

**(3) A rapid increase in urban slums has caused slum dwellers to suffer from environmental problems such as a lack of safe drinking water, affecting health.** In 1998, it was found that approximately 43 million Thai people did not have good-quality drinking water. The largest proportion of people at risk were those drinking rainwater (Chatchawal Chantaravijit. Situation of Drinking Water and Health Risk, 2000). Coupled with unhygienic behaviours, the morbidity rate per 100,000 population due to diarrhoea has risen during the past 20 years, particularly among children under 5 years, from 3,031.25 in 1984 to 7,242.3 in 2003.

**(4) More people lodge complaints about pollution affecting human health.** An analysis of complaints on pollution during 2002-2003 revealed that the number of complaints had increased from 9,168 to 11,033, most of which were related to air and noise pollution.

## 8. Situation and Trends of Infrastructure

### 8.1 Transportation

#### 8.1.1 Land Transportation

In 2003, Thailand had a road network of approximately 172,504.4 km, of which 63,982.6 km was under the highway network and 108,521.8 km under the rural road network as well as a network of 1,889 km of four-lane roads leading to all major regions of the country. It is considered that the road network has covered all localities nationwide.

In Bangkok, there are expressways of 171.2 km and another 146.3 km under construction expected to be completed by 2009. One line of electric rail mass transit system has been operational and another four lines are expected to be completed by the end of 2005. This will help ease the traffic problems in Bangkok.

Besides, there is a railway system of 5,356.5 km.

#### 8.1.2 Waterway Transportation

In 2003, Thailand had five principal harbours and 11 ports with an adequate potential for waterway transport of industrial products. However, some improvements in the infrastructure of the ports may be needed to cope with future economic expansion.

#### 8.1.3 Air Transportation

At present Thailand has five international airports: Bangkok, Chiang Mai, Hat Yai, Phuket and Chiang Rai. The Bangkok International Airport is capable of handling 10,143 international passengers per

hour and 8,685 domestic passengers per hour during rush hours, or 36.5 million passengers per year, which is quite crowded. However, the government is building the Suvarnabhumi Airport as a modern air transport hub in this region, expected to be open in 2005 with a capacity to handle 30 million passengers in the first year and up to 100 million passengers when the entire airport is completed. This is considered that Thailand is well-prepared in terms of air transport infrastructure.

## 8.2 Telecommunications

Thailand's telecommunications have rapidly expanded, especially during the past decade. In 2003, there were 6,305,245 fixed-line telephone numbers and 22,077,858 mobile phones nationwide; a rate of 99.05 fixed-line phones per 1,000 population and 346.8 mobile phones per 1,000 population (Table 4.45). The access to the Internet has increased from 30 persons in 1991 to 6.03 million persons in 2003, a use rate of 9.5%; the rate being twice as many for municipal residents, compared with non-municipal areas. The number of Internet users in Bangkok and the Central Plains is more than half of all users nationwide (Table 4.46). But in comparison with other countries, such as Singapore and Malaysia, Thailand's telecommunication infrastructure and Internet uses are lower (Table 4.47).

**Table 4.45** Telecommunication Infrastructure in Some Countries, 1996-2002

Country	No. of fixed-line telephones (per 1,000 population)					No. of mobile phones (per 1,000 population)					No. of computers (per 1,000 population)				
	1996	1997	1998	1999	2002**	1996	1997	1998	1999	2002	1996	1997	1998	1999	2002
Singapore	498.4	529.0	464.6	484.1	472	147.5	229	280.7	381.45	761.1	233	316	344	390.9	596
Malaysia	192.5	192.5	204.7	219.3	206	88.4	101.9	101.5	145.05	372.9	53	65	78	94.5	137
Thailand	78.6	85.5	82.2	101.9	99*	27.8	34.5	39.6	138.6	346.8*	22	28	33	40.4	43
Philippines	30.7	42.7	31.9	37.9	46	12.9	17.7	19.0	36.97	189.1	11	13	16	19.5	25
Indonesia	17.8	24.7	26.7	29.1	34	3.0	5.4	5.2	9.83	48.5	6	9	11	13.4	13
Sweden	684.1	685.4	696.4	694.5	750	281.8	358.1	511.5	590.08	900.3	286	353	444	510.4	687
U.S.A.	636.6	625.6	676.6	709.8	701	161.9	205.6	241.2	314.87	496.9	403	450	499	538.9	739
Norway	564.9	609.1	654.2	711.9	754	296.1	383.0	471.9	627.03	787.0	307	363	437	506.8	657

**Source:** IMD. The World Competitiveness Yearbooks, 1999 and 2003.

**Notes:** 1. \* Data for 2003.

2. \*\* Data on fixed-line telephones per 1,000 population are data for 2001.

**Table 4.46** Internet Access by Administrative Jurisdiction and Region Thailand, 2001 and 2003

Administrative jurisdiction and region	Internet users, 2001 <sup>(1)</sup>		Internet users, 2003 <sup>(2)</sup>		Increase (Percent)
	No.	Percent	No.	Percent	
<b>Whole Kingdom</b>	3,536,001	100.0	6,031,300	100.0	+70.6
- Municipal areas	2,341,433	66.2	3,807,900	63.1	+62.6
- Non-municipal areas	1,194,568	33.8	2,223,400	36.9	+86.1
Bangkok Metropolis	1,234,542	34.9	2,005,700	33.3	+62.5
Central Plains	830,389	23.5	1,336,300	22.2	+60.9
North	516,114	14.6	1,003,200	16.6	+94.4
Northeast	559,193	15.8	1,070,100	17.7	+91.4
South	395,763	11.2	616,000	10.2	+55.6
Internet use rate (%)	5.7		9.5		

**Source:** Surveys on Household's Usage of Information Technology Equipment and Appliances, 2001 and 2003. National Statistical Office.

**Notes:** <sup>(1)</sup> Population aged 11 years and older.

<sup>(2)</sup> Population aged 6 years and older.



**Table 4.47** Comparison of the Internet Usage in Asia-Pacific Countries, 1998, 2000 and 2002

Country	No. of Internet users (millions)			Internet use rate (percent)		
	1998	2000	2002	1998	2000	2002
Australia	4.0	8.42	10.63	22.2	43.9	54.4
Singapore	0.55	1.85	2.31	18.3	44.6	51.9
Hong Kong	1.1	3.46	4.35	18.3	48.7	59.6
New Zealand	0.55	1.49	2.06	15.3	39.0	52.7
Taiwan	3.0	6.4	11.6*	14.3	28.8	51.8
Japan	14.0	47.08	56	10.8	37.2	44.1
Korea	2.0	16.4	25.6	4.6	34.5	53.8
Thailand	0.67	2.3	4.8	1.1	3.7	7.7
Malaysia	0.4	3.7	5.7*	2.0	16.9	25.1
Philippines	0.2	2.0	4.5	0.3	2.4	7.7
China	1.5	22.5	45.8	0.1	1.7	3.5
Indonesia	0.1	1.45	4.4	0.1	0.6	1.9
India	0.4	5.0	7.0*	< 0.1	0.5	0.6
Vietnam	0.15	0.04	0.4*	< 0.1	< 0.1	0.5

**Source:** Internet Users Worldwide, 2001

**Notes:** 1. Internet use rate =  $\frac{\text{No. of Internet users}}{\text{Total population}} \times 100$   
 2. \* Data for 2001.

Besides, Thailand has got its own Thaicom satellites, cable TV systems, and free TV systems, making the communication system more expansive. However, the access to various media is still inequitable, but the trends are getting better (Table 4.48).

**Table 4.48** Percentage of Households with Radios, TV Sets and Telephones, 1990-2002

Area	Radios				TV sets				Telephones			
	1990	1994	1998	2002	1990	1994	1998	2002	1990	1994	1998	2002
Whole Kingdom	72.6	70.8	75.5	68.9	61.3	80.3	88.7	91.6	5.8	10.1	21.9	29.2
Bangkok and peripheral provinces	79.4	80.3	86.6	80.8	80.7	83.8	90.4	92.5	24.5	33.1	59.2	59.6
Municipal areas	81.2	81.1	85.5	76.2	84.6	89.3	92.9	94.0	16.5	29.4	49.8	40.8
Sanitary districts	76.0	74.6	78.5	-	70.8	86.3	90.5	-	4.2	12.2	28.7	-
Outside municipal and sanitary districts	69.8	67.0	71.4	64.1	53.6	77.6	87.6	90.6	0.9	2.4	9.3	11.0

**Source:** Reports on Household Socio-Economic Surveys, 1990, 1994, 1998 and 2002. NSO.

**Note:** Since 2000, sanitary districts were upgraded to municipalities; thus, there are no data for sanitary districts.

The expansion of communication networks in Thailand is related to global development and part of the “globalization” evolution era.

In addition, advertisement business expansion through various media is annually worth tens of billions of baht. This intensive business sector has strongly affected Thai people’s consumption behaviours. New sales patterns have been created, **especially direct sales**, through regular shops or outlets.

People’s behaviours in accepting information have also shifted from radio to television sources. The 2003 media survey conducted by NSO revealed that there were as many as 54.7 million TV viewers (94.5%), compared with only 24.8 million radio listeners (24.8%). Urban people are more interested in information about economic, social, political and health conditions than, previously, in entertainment programmes. In particular, new programme patterns such as live phone-in and discourse programmes, resulting in the emergence of new communities using media as a means for interaction, for example, Jo So 100 community, TV game show communities, and various other radio programme communities.

### 8.3 Public Utilities

**8.3.1 Electricity.** In 2003, 98.9% (67,709 villages) of all villages across the country have a moderate or good level of electricity. Only 787 villages (1.1%) have not yet had access to the electricity system (Table 4.49).

**Table 4.49** Villages with Electricity, 1992-2003

Year	No. of villages with available information	Villages with electricity				Villages without electricity	
		Good level <sup>1</sup>		Moderate level <sup>2</sup>		No.	Percent
		No.	Percent	No.	Percent		
1992	59,354	54,719	92.2	2,466	4.2	2,169	3.6
1994	59,059	55,590	94.1	1,675	2.8	1,794	3.0
1996	60,215	57,523	95.5	1,198	2.0	1,494	2.5
1999	63,230	56,483	89.3	5,678	9.0	1,069	1.7
2001	66,193	60,128	90.8	4,698	7.1	1,367	2.1
2003	68,496	60,613	88.5	7,096	10.4	787	1.1

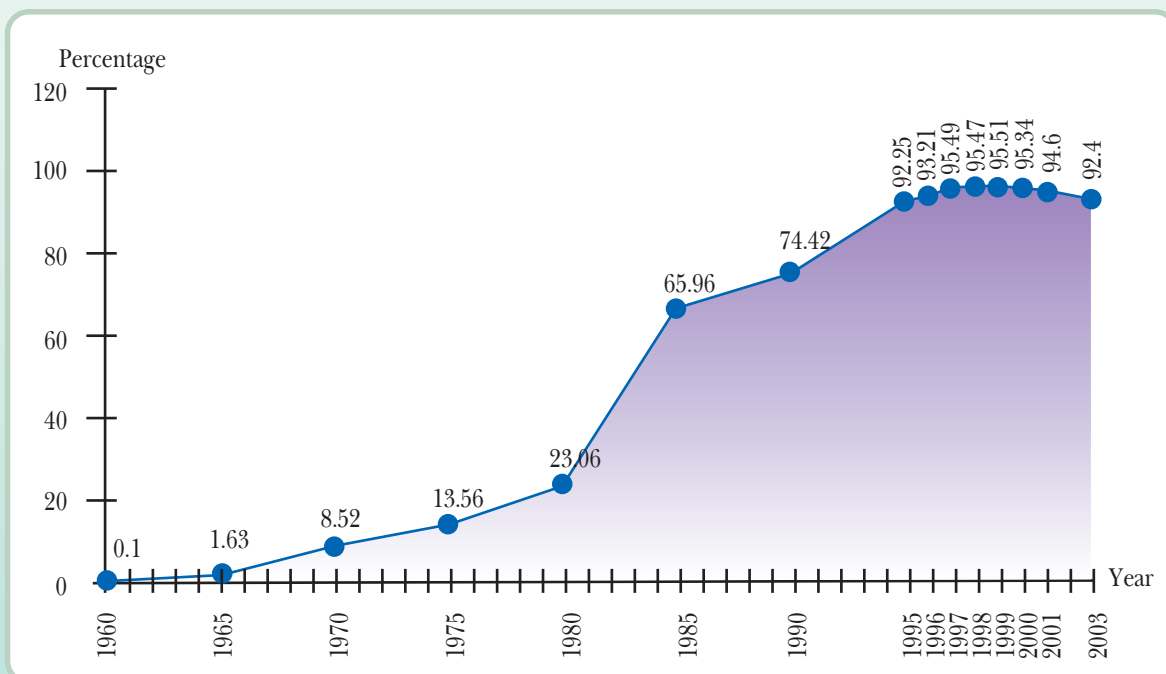
**Source:** Thai Rural Villages, 1992-2003, from Ko Cho Cho 2 Kho Database. Information Centre for Rural Development, Ministry of Interior.

**Notes:** <sup>1</sup> Good level: more than half of households in the village have electricity.

<sup>2</sup> Moderate level: less than half of households in the village have electricity.

**8.3.2 Drinking Water.** In 2003, 92.4% of households had adequate and safe drinking water (Figure 4.37) and 92.8% of them had adequate water for domestic use all year round.

**Figure 4.37** Proportion of Households with Adequate and Safe Drinking Water, 1960-2003



**Sources:** Data for 1960-2000 were derived from the Department of Health, MoPH.

Data for 2001 and 2003 were derived from Thai Rural Villages 2001 and 2003. Ko Cho Cho 2 Kho Database. Information Centre for Rural Development, Ministry of Interior.

Such changes in infrastructure have an impact on Thai people's health as follows:

(1) **More road traffic injuries.** As the road transportation system expands with more roads and vehicles - the number of motor vehicles registered has increased from 9,595,191 in 1992 to 26,378,862 in 2003 or a 2.7-fold increase, coupled with inappropriate driving behaviours – more road traffic accidents occur. The death rate from road traffic injury per 100,000 population has increased from 5.74 in 1984 to 20.97 in 2002, resulting in injuries, deaths and property losses. The Thailand Development Research Institute estimated that in 2000 the economic loss from road traffic accidents was 115,337 million baht or 2.3% of GDP (see Chapter 5, section 3.4.5 on accident-related injuries).

(2) **Disparities in access to health information.** As the Thai communication infrastructure is inferior to those in other countries, certain segments of the population may not have access to health information, particularly those living in rural areas, compared with those in urban areas.

## 9. Situations and Trends of Technology Development

For health science advancements, new technologies have been freely deployed as follows:

9.1 Biotechnology has advanced rapidly, for example, in the areas of recombinant DNA, polymerase chain reaction (PCR) and genomics for developing new vaccines, drugs and diagnostic and curative procedures for hard-to-cure diseases, such as cancer and HIV/AIDS. Besides, DNA testing has been applied in the justice system, while its utilization relevant to controlling the hazards from genetically modified food will be problematic.

9.2 Electronics and computer technologies, including digital imaging, multimedia computer, telemedicine, Wide Area Network, and Advanced Expert System, have resulted in wider educational opportunities and innovations, including public health education, exchanges of medical and health information, health counselling and new approaches to diagnostic and therapeutic procedures.

Such technological changes have an impact on the Thai health system as follows:

(1) **New technologies are costly and have to be patented; and their use is complex, requiring protection from unknown hazards and resulting in high costs of health care.** If such technologies are inappropriately used, a wastage will occur. Besides, an investment in personnel development is required; and danger from their use will have to be prevented.

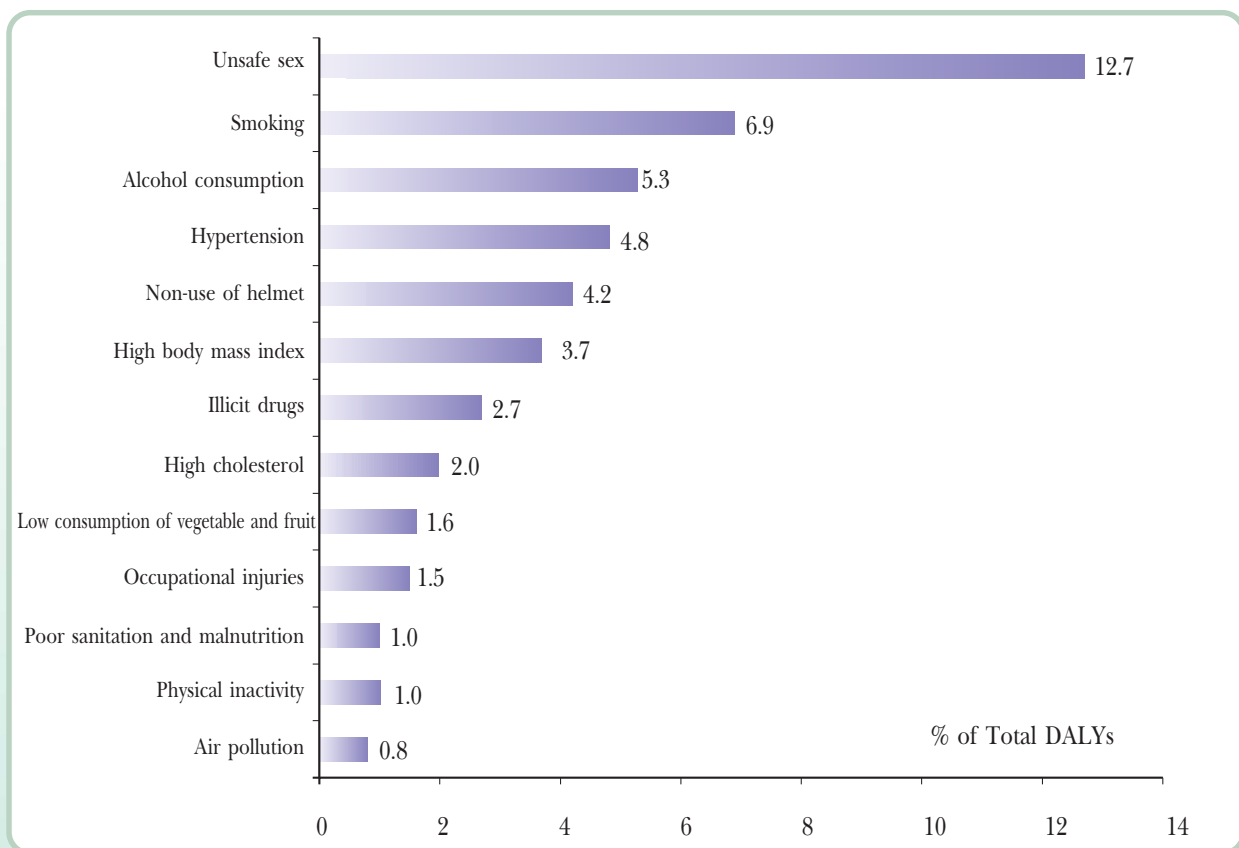
In the future, more genetically modified organisms (GMOs) or foods will be produced such as soybeans, corn, and tomatoes. Studies on such technology is still underway regarding its safety for human consumption and the environment. Therefore, the government should urgently carry out studies on the impact of production and consumption of genetically modified foods; then set up policies and measures for consumer protection purposes.

(2) **The poor in urban and rural areas do not have access to health services that deploy new, high-cost technologies.** For example, the poor with final stage chronic kidney failure cannot receive kidney dialysis under the universal healthcare coverage scheme, while the insured under the social security system and the medical benefit scheme for civil servants or state enterprise employees are entitled to receiving such service.

## 10. Health Behaviours

Risk factors of Thai people have an impact on their lives and are a national level problem affecting the country's economic and social security. In 1999, the MoPH's Bureau of Policy and Strategy conducted a study on burden of disease based on Thai people's 13 common risk factors of several diseases.<sup>13</sup> It was found that major risk factors are unsafe sex, smoking, alcohol consumption, hypertension, non-use of helmet among motorcyclists, overweight/obesity, malnutrition, elevated blood cholesterol, minimal consumption of vegetables and fruit, and physical inactivity (Figure 4.38).

**Figure 4.38** Percentage of Burden of Disease\* from Risk Factors of Thai People, 1999



\* As a percentage of overall burden of disease for 1999 (9.5 million DALYs).

An analysis of burden of disease by sex revealed that unsafe sex is the risk with the highest burden of disease (in terms of “disability-adjusted life years” or DALYs) in both males and females, followed by smoking, alcohol use, helmet non-use among motorcyclists, and high blood pressure in males. Among females, the high risks are high body mass index (overweight and obesity), high blood pressure, smoking and high blood cholesterol (Table 4.50).

<sup>13</sup> The study used the attributable burden determination method for each factor according to WHO guidelines.

**Table 4.50** DALYs from Risk Factors Among Thai People, 1999

Order	Males				Order	Females			
	Risk	DALYs		Risk		DALYs			
		(X10 <sup>5</sup> )	Percent			(X10 <sup>5</sup> )	Percent		
1	Unsafe sex	8.8	16%	1	Unsafe sex	3.2	8%		
2	Smoking	4.8	9%	2	High body mass index	2.3	6%		
3	Alcohol consumption	4.6	8%	3	Hypertension	2.1	5%		
4	Non-use of helmet	3.3	6%	4	Smoking	1.8	5%		
5	High body mass index	2.5	4%	5	High cholesterol	0.9	2%		
6	Illicit drugs	2.4	4%	6	Occupational injuries	0.8	2%		
7	Hypertension	1.2	2%	7	Non-use of helmet	0.7	2%		
8	Low consumption of vegetables and fruit	1.1	2%	8	Physical inactivity	0.6	2%		
9	High cholesterol	1.1	2%	9	Poor sanitation and malnutrition	0.5	1%		
10	Occupational injuries	0.7	1%	10	Low consumption of vegetables and fruit	0.5	1%		
11	Poor sanitation and malnutrition	0.5	1%	11	Alcohol consumption	0.4	1%		
12	Air pollution	0.5	1%	12	Illicit drugs	0.3	1%		
13	Physical inactivity	0.4	1%	13	Air pollution	0.3	1%		

\* Male total DALYs = 5.6 million; female total DALYs = 3.9 million.

It is noteworthy that most of the risks for disease burden are health behaviors which are further elaborated as follows:

### 10.1 Food Consumption

The food consumption behaviors of Thai people have changed according to changing lifestyles and are different between urban and rural residents. Urban residents tend to take more meat and fat, while taking less vegetables and fruit. Teenagers prefer western foods to local or Thai food. More rushing lifestyles have pushed them to take ready-to-cook or semi-cooked food. The trend is rising in both urban and rural areas. Regarding food expenditures, Bangkok residents spend 50% of their food spending on ready-to-eat food, while rural residents spend only 20% for such food.<sup>14</sup>

The 2001 survey conducted by the National Statistical Office revealed that, when selecting food, 60% of the people think of its cleanliness and deliciousness, while only 20% think of its nutritious value. Males tend to pay more attention to its deliciousness than do females (Table 4.51).

<sup>14</sup> Patthanee Vinijjakul and Wongsawat Kosalwat. Food and Nutrition in Review and Revision of Strategic Plan for Health Research in Thailand, 2003.

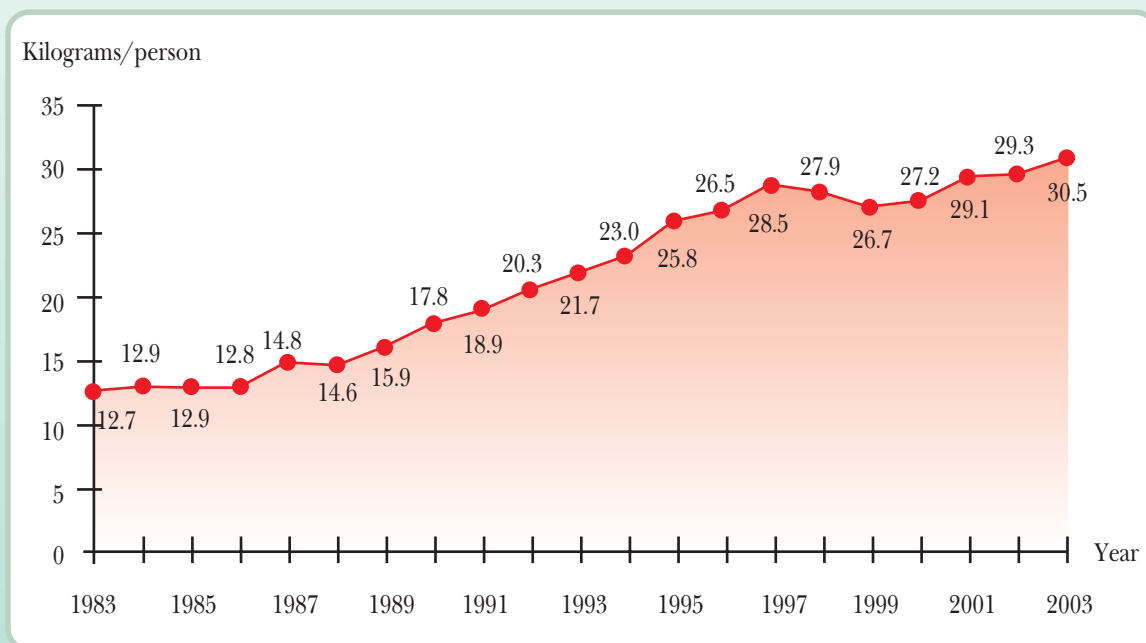
**Table 4.51** Considerations in Food Selection among People Aged 15 Years and Older, 2001

Consideration	Percent		
	Total	Males	Females
Cleanliness	40.3	38.6	41.9
Deliciousness	24.8	27.3	22.2
Nutritional values	19.9	18.7	21.0
Prices	9.3	9.2	9.3
Edibility	4.6	4.8	4.4
Modernity	0.2	0.2	0.2
Others	0.7	0.8	0.7
Unknown	0.3	0.3	0.3

**Source:** Report on Health and Welfare Survey, 2001. National Statistical Office.

Besides, it was found that Thai people tended to consume more sugar and food prepared from flour and sugar. The sugar consumption rate during the past two decades has risen two-to four-fold, from 12.7 kg/person/yr in 1983 to 30.5 kg/person/yr in 2003 (Figure 4.39).

**Figure 4.39** Quantity of Sugar Intake in Thailand, 1983-2003

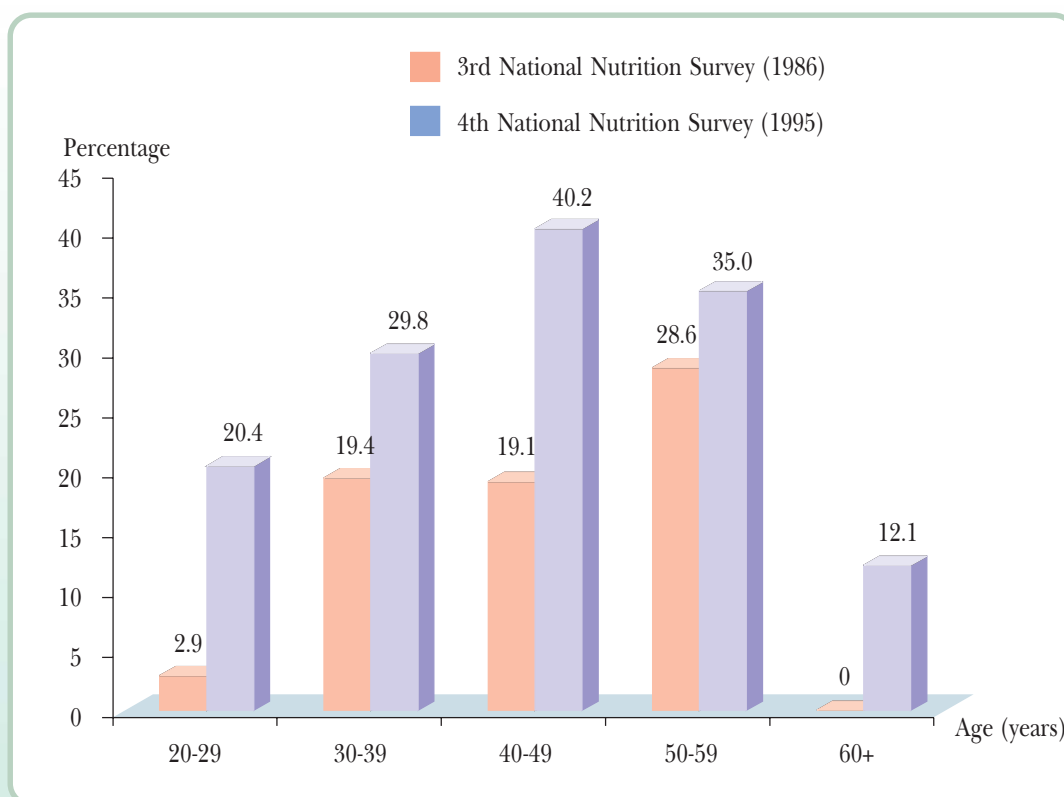


**Source:** Production Management Centre. Office of the Sugar Cane and Sugar Commission.



Consuming food rich in fat and calorie is a risk factor of cardiovascular diseases. According to the third and fourth national nutrition surveys (1986 and 1995, respectively) in Thailand, the prevalence of obesity has risen in all age groups; the highest increase was noted in the age group 40-49 years from 19.1% to 40.2%, followed by the age group 20-29 from 2.9% to 20.4% (Figure 4.40). And an analysis of risk factors for cardiovascular diseases among Thai people aged 35-59 revealed a rising prevalence of people with high blood cholesterol, high blood sugar, overweight and obesity (Table 4.52). Bangkok residents, both males and females, had a highest prevalence of overweight and obesity, while the northern people had the lowest. The residents in municipal areas had a higher overweight/obesity prevalence, compared with rural residents.<sup>15</sup>

**Figure 4.40** Prevalence Rate of Obesity in Thailand by Age Group, 1986 and 1995



**Source:** Department of Health, MoPH.

**Note:** Obesity in population aged >20 years and BMI  $\geq 25$  kilograms/square meter.

<sup>15</sup> Piyamit Srithara et al. Cardiovascular Research Group in Review and Revision of Strategic Plan for Health Research in Thailand, 2003.

**Table 4.52** Changes and Prevalence of Cardiovascular Disease Risk Factors in Thai People Aged 35-59 Years

Risk factor	1st health survey (1991-1992)	2nd health survey (1996-1997)	Inter-Asia study (2000-2001)
Cholesterol (mg/dl)	189	198	201
Blood sugar (mg/dl)	87	92	99
Body mass index (BMI, kg/m <sup>2</sup> )	22.8	23.8	24.4
Overweight (percent)	20	25	30
Obesity (percent)	5	8	9

**Source:** Piyamit Srithara et al. Cardiovascular Research Group in Review and Revision of Strategic Plan for Health Research in Thailand, 2003.

**Note:** Population adjustment for 2000.

Snack consumption tends to rise with its increased convenience and variety as evidenced in a comparison of snacks for sale in retail shops and those popular among children showing a similar rising trend. Crispy snacks (Table 4.53) are generally deficient in nutritional values and the cause of dental health problems. During 2000-2001, 87.4% of 6-year-old children entering the schooling system had on average 6.0 decayed, missing and filled teeth (DMFT) per child, compared with only 71.6% with 4.9 DMFT per child in 1984 (Tables 4.54 and 4.55). And during 1995-2001, the DoH's dental health survey revealed that only 6-15% of children aged 5-6 had no tooth decay and that on average 12-year-old children had 1.6-2 DMFT per child.

Besides, it was found that over consumption of snacks had a negative economic effects. A study on primary schoolchildren<sup>16</sup> revealed that each child spent 13 baht per day on average on snacks and toys. Assuming that each of secondary schoolchildren spent twice that much, the total spending on snacks among Thai children and youths would amount to 142,357 million baht per year (Table 4.56), which is as much as the annual national education budget.

<sup>16</sup> Piyathida Prasertsom. Children, Snacks and Dental Caries. Health Promotion and Environment Health Journal, 26: 2, Apr.-June 2003.

**Table 4.53** Comparison of Snack Groups Best Selling and Most Favoured by Children, 2003

Snack group	Best selling item	Most favoured item
Crispy flour	62.2	31.4
Candies	7.9	4.2
Soft bread	7.6	13.9
Drinks	5.9	12.3
Beans	5.0	2.0
Protein-containing	3.4	2.8
Jelly	1.7	2.6
Chocolates	1.7	1.5
Chewing gums	0.5	0.6
Fruit	-	7.2
Thai sweets	-	16.7
Others	4.1	4.8

**Source:** Sunee Wongkongkathep et al. Snacks and Dental Caries among Thai Children, 2003.

**Table 4.54** Percentage of People with Caries by Age Group, According to National Dental Surveys, 1984, 1989, 1994 and 2000-2001

Age group (years)	Percentage			
	1984	1989	1994	2000-2001
3*	-	66.5	61.7	65.7
6*	71.6	83.1	85.1	87.4
6**	74.4	82.8	85.3	87.5
6	30.3	19.2	11.1	-
12	45.8	49.2	53.9	57.3
18	63.1	63.3	63.7	62.1
35 - 44	80.2	76.8	85.7	85.6
60 and older	95.2	93.9	95.0	95.6

**Sources:** Reports on the 2nd, 3rd, 4th, and 5th National Dental Health Surveys. Department of Health, MoPH.

**Notes:** \* Baby or deciduous teeth.

\*\* Mixed (permanent and baby teeth).

Other age groups - only permanent teeth.

**Table 4.55** Average DMFT Rates in Various Age Groups, According to National Dental Surveys, 1984, 1989, 1994 and 2000-2001

Age group (years)	Average DMFT (teeth/person)			
	1984	1989	1994	2000-2001
3*	-	4.0	3.4	3.6
6*	4.9	5.6	5.7	6.0
6**	0.5	0.3	0.3	-
12	1.5	1.5	1.6	1.6
18	3.0	2.7	2.4	2.1
35 - 44	5.4	5.4	6.5	6.1
60 and over	16.3	16.2	15.8	14.4

**Sources:** Reports on the 2nd, 3rd, 4th, and 5th National Dental Health Surveys. Department of Health, MoPH.

**Notes:** \* Baby or deciduous teeth.

\*\* Mixed (permanent and baby) teeth.

Other age groups - only permanent teeth.

**Table 4.56** Spending on Snacks of Primary Schoolchildren

Spending group	Amount (baht/day)	Percent	Value (million baht/yr.)
1. Snacks and toys	13	44.9	142,357
2. Food, tuition and bus fare	7	24.1	76,625
3. Savings	7	24.1	76,625
4. Future spending	2	6.9	21,943
Total	29	100.0	317,550

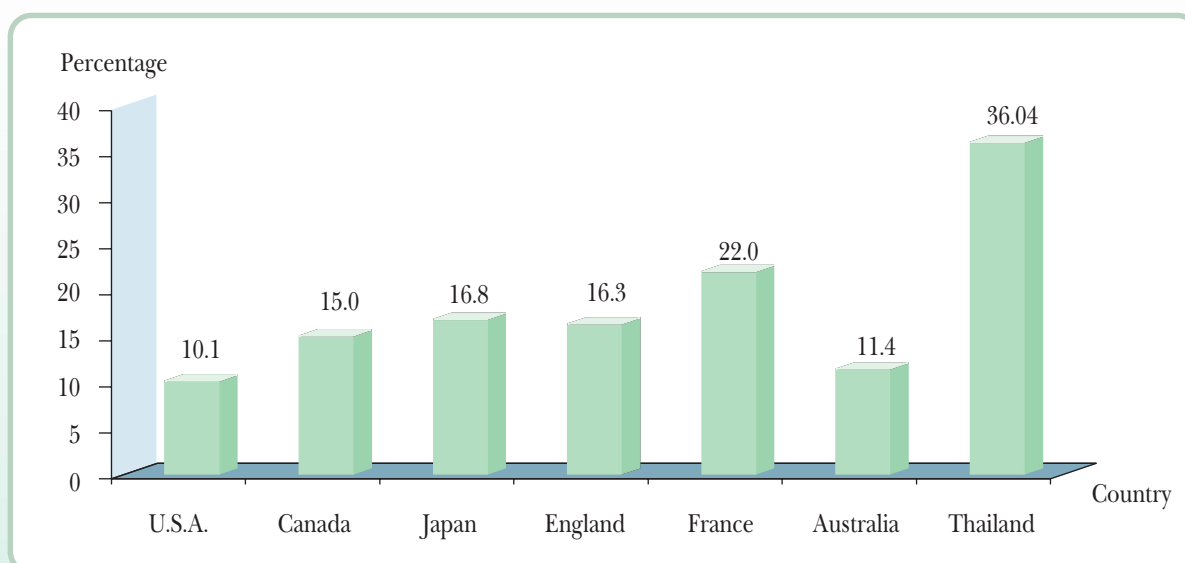
**Source:** Piyathida Prasertsom. Children, Snacks and Dental Caries, Health Promotion and Environmental Health Journal, 26: 2, Apr.-June 2003.

## 10.2 Drug Consumption

In 2002, drug consumption of Thai people accounted for approximately 66,827 million baht in wholesale prices or 120,289 million baht in retail prices, or 36.04% of the overall national health expenditure (see Chapter 6, Medical Supplies and Technology). This proportion is rather high, compared with only 10-20% in industrialized countries (Figure 4.41). During the period 1988-2002 the rising rates of drug consumption have exceeded the increasing rates of national health spending and economic growth.

In general, an analysis on drug consumption patterns of Thai people revealed that about two-thirds of the consumption was done according to the advice of professionals, such as doctors, pharmacists and other health personnel; the remainder was done as suggested by relatives, friends, or advertisements. Nevertheless, medication use according to the advice of health professionals is escalating (Table 4.57).

**Figure 4.41** Proportion of Expenditure on Drugs and Health in Thailand and Other Countries



**Source:** OECD Health Data 2001 (referenced in Drug System in Thailand, 2002).

**Table 4.57** Percentage of Drug Values Distributed Through Drug Outlets in Thailand

Type	1994 (percent)	1995 (percent)	1996 (percent)	1997 (percent)	1998 (percent)	1999 (percent)	2000 (percent)	2001 (percent)	2002 (percent)	2003 (percent)
Drugstores	40	34	34	34	34	32	32	30	30	26
Public and private hospitals	43	46	52	52	52	58	58	60	60	64
Private clinics	10	15	9	9	9	} 7	} 7	} 8	} 8	} 9
GPO	2	2	2	2	2					
Others	5	3	3	3	3	3	3	2	2	1

**Source:** IMS Company (Thailand).

The 2001 provincial health status survey revealed that nearly 20% of family members with minor illness would buy drugs for self-treatment from grocery and drug stores, about two-thirds (68%) would read the drug package labelling every time or sometime before taking the medication (Figure 4.42). Families in municipal areas would read drug labelling in a higher proportion than those outside municipalities.

No matter from whom the people get medication advice, it is evident that irrational use and over-use of drugs, particularly antibiotics, are found at all levels. A study on drug use in children with respiratory infections admitted to hospitals nationwide revealed that 38.6% of the patients had ever taken antibiotics before coming to the hospital. Other studies also indicated antibiotic use prior to visiting a doctor or health official, particularly for cases with respiratory and gastrointestinal tract diseases. Most of the cases had used drugs unnecessarily or inadequately.<sup>17</sup> Some inpatients with infectious diseases were given antibiotics without suitable indications (Table 4.58), partly due to advertising influence (Figure 4.43) while very little effort has been made to disseminate drug information to the public though various media including newspaper, radio, television and magazines. Although such efforts have been made more intensively, most people would get drug information from drug business operators.

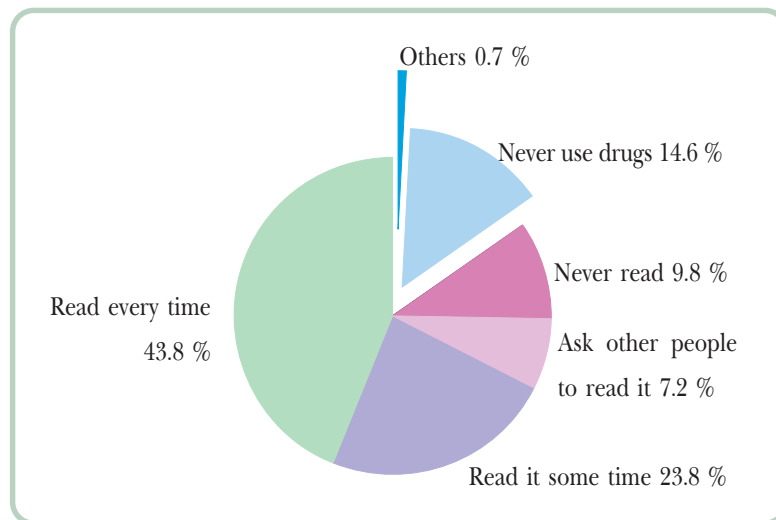
**Table 4.58** Use of Antibiotics Without Appropriate Indications, Compiled from 11 Reports

Drug group	Study site (hospital)	Study period	No. of patients	Inappropriate use (percent)
Ceftriaxone	Phra Pokklao	Oct 98 - Sep 99	9	77.8
Parenteral antibiotics	Ban Mi	June - Nov 97	203	39.4
Ciprofloxacin	Lampang	Nov - Dec 95	24	50.0
Parenteral antibiotics	Chainat	Jan - June 93	219	44.7
Ceftazidime	Yasothon	July - Sep 99	48	60.4
Ceftazidime	Lampang	July - Sep 96	49	40.0
Cephalosporins	Taksin	Mar 91 - Feb 92	144	13.2 - 15.3
Ceftazidime	Nakhon Ratchasima	May - Aug 96	114	25.0
Ceftazidime	Phra Phutthachinnarat	Mar - Apr 2000	59	37.5
Ceftriaxone	Lampang	Oct 94	17	41.0
Cephalosporins	Uttaradit	Oct 95 - Sep 96	258	70.2

**Source:** Drug System in Thailand, 2002.

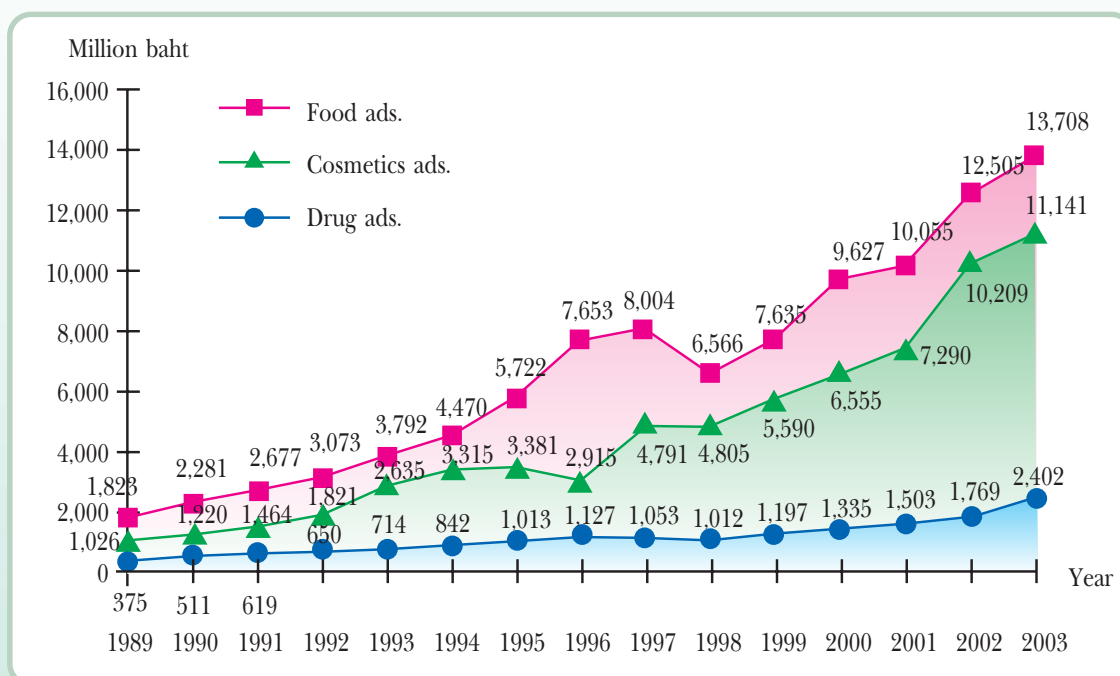
<sup>17</sup> Committee on Drug System Study Project in Thailand. Drug System in Thailand, 2002.

Figure 4.42 Percentage of Household Representatives Reading Drug Labelling before Using Drugs, 2001



Source: Provincial Health Status Survey, 2001.

Figure 4.43 Billings of Drug, Food and Cosmetic Advertisements, 1989-2003



Source: Media Data Resources (MDR).

- Notes:
1. Food means alcoholic beverages, milk, energy drinks, snacks, soft drinks, candies, seasonings, instant noodles, coffee, food, cooking oil, canned food, dairy products, chocolates and cigarettes, liquid foods and others.
  2. Cosmetics mean shampoo, soap, general cosmetics, body powder and skin moisturizing creams.

### 10.3 Tobacco Consumption

Although Thailand has got laws related to tobacco products control, including laws on protection of health of non-smokers, the number of smokers is still high. In 2003, Thai people totally smoked 31,366 million cigarettes or an average of 75.5 packs/person/year (Table 4.59), an increase from an average of 71



packs/person/year during 2001-2002. Also, the findings are consistent with the 1999 NSO survey which showed that the proportion of cigarette smokers had increased from 20.5% in 1999 to 21.6% in 2003, the increase was noted for both males and females. It is noteworthy that although the smoking rate among youths (aged 15-24 years) is lower than those among the working-age group (aged 25-59 years) and the elderly (aged 60 and older), it was found that the smoking rate was for 2001-2003 was higher than that for 1999-2001 in both males and females. This has indicated that smoking has more widely spread among youths.

However, when considering the age of first smoking, males started smoking at a younger age than did females, but there is a tendency that males would start later while females would start earlier (Tables 4.60 and 4.61). This is consistent with the WHO forecast which indicates that the smoking rate among females in developing countries in 2025 will increase from 8% to 20%, but the rate among males will drop from 60% to 45%. A survey conducted in 1999 revealed that youths aged 15-19 years started smoking the highest (55.9%), reasoning that they wanted to try it and to follow what their peers did. This finding is different from that reported by the Kasikorn Research Centre<sup>18</sup> which revealed that, in 2003, the motivation for smoking among Bangkok residents were stress, alcohol use, anger, uneasiness, visiting night spots and seeing movies with smoking scene. It was found that one-third of youths aged under 13 years indicated seeing a movie with a smoking scene was the cause of their smoking desire. A regular male smoked 9.7-10.6 cigarettes per day on average; males smoking more than females (Figure 4.44). Regarding the type of cigarettes smoked the most, it was found that after the economic crisis a number of smokers shifted from using local brands to foreign brands and self-rolled cigarettes (Table 4.62). The market share of imported cigarettes has increased from 4.1% in 1997 to 14.1% in 2003; vice versa the market share of cigarettes produced by the Tobacco Monopoly of Thailand has dropped from 95.9% in 1997 to 85.9% in 2003 (Table 4.63). The smoking of self-rolled cigarette might result from people's lower income after the economic crisis; and more people turned away from factory-produced cigarettes to self-rolled ones.

Tobacco use has also had an impact on the economy. A study conducted by the Kasikorn Research Centre<sup>18</sup> found that, for Bangkok residents, spending on cigarettes was 15.07% of total monthly income. On average a Bangkok resident spent about 150 baht a month on cigarettes, the value of cigarette market in Bangkok was about 500 million baht for 2003. Despite intensive campaigns against smoking during the past two decades, the cigarette spending has been rising steadily. According to a world report, tobacco causes an economic loss worth 200,000 million dollars worldwide each year, which is higher than the revenue from tobacco sales; one-third of which occurred in developing countries.<sup>19</sup>

In Thailand, approximately 42,000 people die each year from smoking-related illnesses or 115 deaths per day (6 deaths per hour).<sup>20</sup> Research studies have revealed that smoking is the cause of serious illnesses; 90% of male cancer patients, 82% of larynx cancer patients, and 80% of pharynx cancer patients had ever smoked.

<sup>18</sup> Kasikorn Research Centre. Smoking Behaviours of Bangkok's Residents, 2003.

<sup>19</sup> Prakrit Vateesatogkit. What Will Occur With Tobacco in the Future. In *New Generations Do Not Smoke Journal*, 7: Jan-Feb 2000.

<sup>20</sup> Based on the estimates calculated by Prof. Dr. Prakrit Vateesatogkit. Statistics on Smoking among Thai People. Action on Smoking and Health Foundation (photocopied document).

**Table 4.59** Tobacco Consumption of Thai People, 1987-2003

Description	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total tobacco consumption (million cigarettes)	31,309	34,090	38,718	38,887	38,825	40,068	42,245.2	44,849.6	45,755.3	47,235.9	48,336.6	39,057.1	36,166.1	36,469.7	29,502	29,682	31,366
Consumption (packs/person/year)	86.4	91.5	100.6	98.4	95.8	96.5	101.7	108.0	110.2	113.8	116.4	98.8	87.1	87.8	71.0	71.5	75.5
Quantity imported (million packs)	-	-	-	-	12	51	60	71	71	77	99	172	261	239	261	262	293
Value of imports (million baht)	-	-	-	-	-	716.8	968.5	787.0	1,032.1	952.2	907.3	2,755.6	4,289.8	4,586.3	6,151.9	6,136	6,472
Cigarettes domestically produced																	
Million cigarettes	31,581.01	32,505.41	37,198.47	38,235.21	39,719.55	39,591.40	41,219.63	44,542.460	43,183.83	47,751.79	47,125.75	34,568.73	32,023.63	31,796.45	29,742.35	29,598.67	31,498.95
Million packs	1,579.05	1,625.27	1,859.92	1,911.76	1,986.0	1,979.57	2,060.98	2,227.12	2,159.19	2,387.59	2,356.28	1,728.44	1,601.18	1,589.82	1,487.12	1,479.93	1,574.95
Sale value (million baht)	17,327	18,674	20,996	23,640	26,910	27,613	28,890	35,117	34,869	40,340	46,977	44,670	40,700	42,600	42,617	45,219	46,739
Tobacco tax (million baht)	10,399	11,467	12,989	14,785	17,060	16,991	17,439	22,375	22,911	26,134	28,296	25,816	23,100.6	23,540.2	23,912.2	25,641	26,349
Profits sent to Ministry of Finance (million baht)	877	1,069	2,595	2,064	2,244	3,202	2,802	2,954	3,588	3,445	3,600	4,657	5,000	5,310	5,292	4,958	5,948
Excise tax (percent)	35-56.5 <sup>(1)</sup>	35-56.5 <sup>(1)</sup>	35-56.5 <sup>(1)</sup>	35-56.5 <sup>(1)</sup>	55 <sup>(2)</sup>	55 <sup>(3)</sup>	60 <sup>(3)</sup>	60 <sup>(3)</sup>	62 <sup>(3)</sup>	68 <sup>(3)</sup>	70 <sup>(3)</sup>	70 <sup>(3)</sup>	71.5 <sup>(3)</sup>	71.5 <sup>(3)</sup>	75 <sup>(3)</sup>	75 <sup>(3)</sup>	75 <sup>(3)</sup>

**Sources:** - Thailand Tobacco Monopoly and the Excise Department, Ministry of Finance.

- Statistics on Trade and Economic Indicators of Thailand. Department of Business Economics.

**Notes:** <sup>(1)</sup> Before July 1990, three rates were applied; 35%, 48% and 56.5% of retail prices, depending on the amounts of domestic tobacco leaves.

<sup>(2)</sup> During July 1990-1991, only one single rate was applied (percentage of retail prices).

<sup>(3)</sup> During 1992-2003, a single was applied (percentage of wholesale prices).

**Table 4.60** Number and Proportion of Smokers, 1976-2003

Year	Population (millions)	No. of smokers			Proportion of smokers (percent)		
		Total	Males	Females	Total	Males	Females
1976	28.7 <sup>(1)</sup>	8.6	7.7	0.9	30.1	54.7	6.1
1981	35.1 <sup>(1)</sup>	9.8	9.0	0.8	27.8	51.2	4.4
1986	38.0 <sup>(2)</sup>	10.4	9.6	0.8	27.4	50.4	4.2
1988	40.5 <sup>(2)</sup>	10.1	9.4	0.7	25.0	46.7	3.5
1991	43.3 <sup>(2)</sup>	11.4	10.6	0.8	26.3	49.0	3.8
	38.3 <sup>(3)</sup>	11.3	10.5	0.8	29.7	55.3	4.3
1993	45.7 <sup>(2)</sup>	10.4	9.8	0.6	22.8	43.2	2.5
	40.7 <sup>(3)</sup>	10.4	9.8	0.6	25.5	48.5	2.8
1996	48.0 <sup>(2)</sup>	11.2	10.6	0.6	23.4	44.6	2.5
1999	49.9 <sup>(2)</sup>	10.2	9.6	0.6	20.5	38.9	2.4
2001	51.2 <sup>(2)</sup>	10.5	10.0	0.5	20.6	39.3	2.2
2003	35.8 <sup>(2)</sup>	7.7	7.1	0.6	21.6	44.1	2.9

- Sources:** 1. Health and Welfare Surveys. National Statistical Office.  
2. Preliminary Results of Survey of Population's Tobacco and Liquor Consumption, 2001. National Statistical Office.

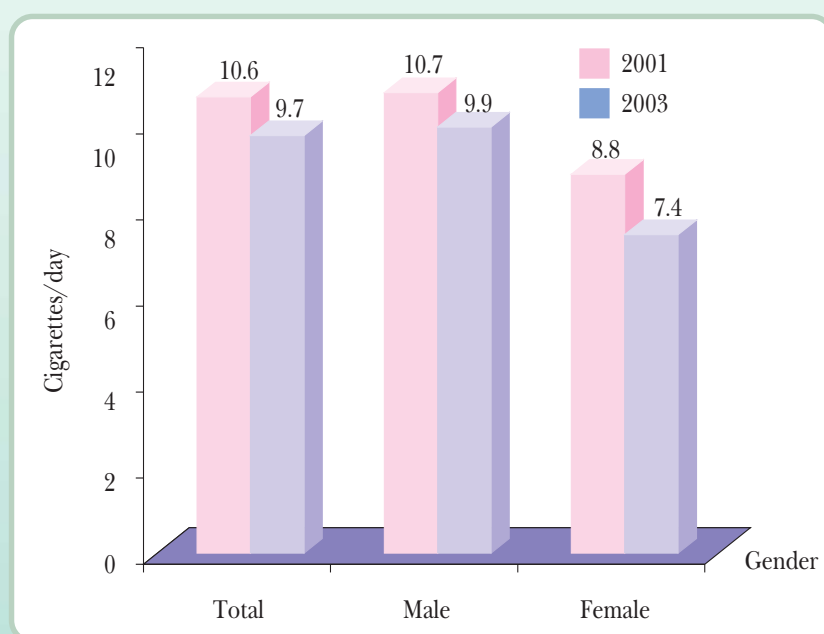
- Notes:** 1. <sup>(1)</sup> Population aged 10 and over.  
<sup>(2)</sup> Population aged 11 and over.  
<sup>(3)</sup> Population aged 15 and over.  
2. In the 2003 Health and Welfare Survey, the interview was undertaken only when the interviewee was present; thus, the total population surveyed was smaller than the overall population of the country.

**Table 4.61** Proportion of Regular Smokers in Population Aged 11 Years and Over by Age Group and Gender, 1999, 2001 and 2003

Age group (years)	Proportion of smokers (percent)									Change in regular smoking rates					
	1999			2001			2003			1999 - 2001			2001 - 2003		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
11-14	0.2	0.5	-	0.1	0.2	0.1	0.2	0.2	0.1	-0.1	-0.3	+0.1	+0.1	0.0	0.0
15-24	12.3	24.0	0.3	13.5	26.0	0.6	15.2	32.1	0.9	+1.2	+2.0	+0.3	+1.7	+6.1	+0.3
25-59	26.3	49.8	3.0	26.2	49.9	2.6	25.3	51.8	3.4	-0.1	+0.1	-0.4	-0.9	+1.9	+0.8
60 and over	23.3	45.1	4.8	21.1	40.9	4.3	21.5	43.3	4.6	-2.2	-4.2	-0.5	+0.4	+2.4	+0.3
Total	20.5	38.9	2.4	20.6	39.3	2.2	21.6	44.1	2.9	+0.1	+0.4	-0.2	+1.0	+4.8	+0.7
Age at first smoking	18.2	17.9	22.2	18.5	18.3	21.9	18.4	18.2	21.5						

- Sources:**
1. Report on Survey of Population's Tobacco Use Behaviours, 1999. National Statistical Office.
  2. Report on Survey of Population's Tobacco and Liquor Consumption, 2001. National Statistical Office.
  3. Report on Health and Welfare Survey, 2003. National Statistical Office.

**Figure 4.44** Average Number of Cigarettes Smoked per Day by A Regular Smoker Aged 11 Years and Over by Gender, 2001 and 2003



- Source:**
1. Preliminary Results of Population's Smoking and Drinking Behaviours Survey, 2001. National Statistical Office.
  2. Health and Welfare Survey, 2003. National Statistical Office.

**Table 4.62** Percentage of Population Aged 11 and Over, Using Tobacco Products Regularly by Product Category, Before and After the Economic Crisis

Product category (most frequently used)	Before the crisis		After the crisis	
	1993	1996	1999	2001
Local cigarettes	44.9	55.6	44.3	46.0
Imported cigarettes	0.9	1.1	1.3	1.2
Self-rolled cigarettes	54.0	42.5	54.1	52.7
Cigars	< 0.1	0.2	0.1	} 0.1
Pipe	0.1	0.2	0.2	
Unknown	0.1	0.4	-	

**Sources:** 1. Report on Health and Welfare Survey. National Statistical Office.  
 2. Report on Survey of Population's Tobacco Use Behaviours, 1999. National Statistical Office.  
 3. Summary Results of Population's Tobacco and Liquor Consumption Survey, 2001. National Statistical Office.

**Table 4.63** Market Share of Domestic and Imported Cigarettes, 1991-2003

Fiscal year	Market share (percent)	
	Local cigarettes	Imported cigarettes
1991	99.4	0.6
1992	97.4	2.5
1993	97.2	2.8
1994	97.0	3.0
1995	96.7	3.2
1996	96.8	3.1
1997	95.9	4.1
1998	91.5	8.4
1999	86.4	13.5
2000	86.7	13.3
2001	85.0	15.0
2002	84.7	15.3
2003	85.9	14.1

**Source:** Thailand Tobacco Monopoly, Ministry of Finance.

## 10.4 Alcoholic Beverage Consumption

Thai people tend to consume more alcoholic beverages. In the past decade, alcohol use rose from 721.8 million litres in 1988 to 1,604.3 million litres in 1997, a two-fold increase. After the economic crisis, alcohol consumption had a declining trend from 1,689.8 million litres in 1998 to 1,340.9 million litres in 1999. However, after the economic recovery in 2003, alcohol use appears to rise to 3,783.7 million litres. The Food and Agriculture Organization estimated that the amount of alcohol consumed per capita per day of Thai people in 2000 was highest, compared with those in France, the U.S.A., Japan and the Philippines<sup>21</sup> (Figure 4.45).

By type of alcoholic beverages, the rate of liquor consumption seemed to be stable while those for beer and wine were rising (Table 4.64 and Figure 4.46) as a result of the government's free trade policy beginning in 1992. After that many beer brewery and winery plants have been operational (Figure 4.47); coupled with lower prices, the sales volumes and amounts of beer consumed were higher than those for liquor.

The health examination survey (1996-1997) revealed a similar result, i.e. one-third of working-age population drink alcohol. By sex, males are four times more likely to drink than females. It is noteworthy that during the eight-year period (1996-2003), the proportion of female drinkers has been rising in all age groups, particularly those aged 15-19 years, an almost six-fold increase from 1.0% to 5.6% (Table 4.66). Another survey conducted by the Institute of Population and Social Research of Mahidol University revealed that about one-third (30.7%) of Thai youths (aged 15-24 years) drink alcohol<sup>22</sup> and a survey on drug abuse among schoolchildren revealed a rising proportion of students drinking alcohol (Table 4.76).

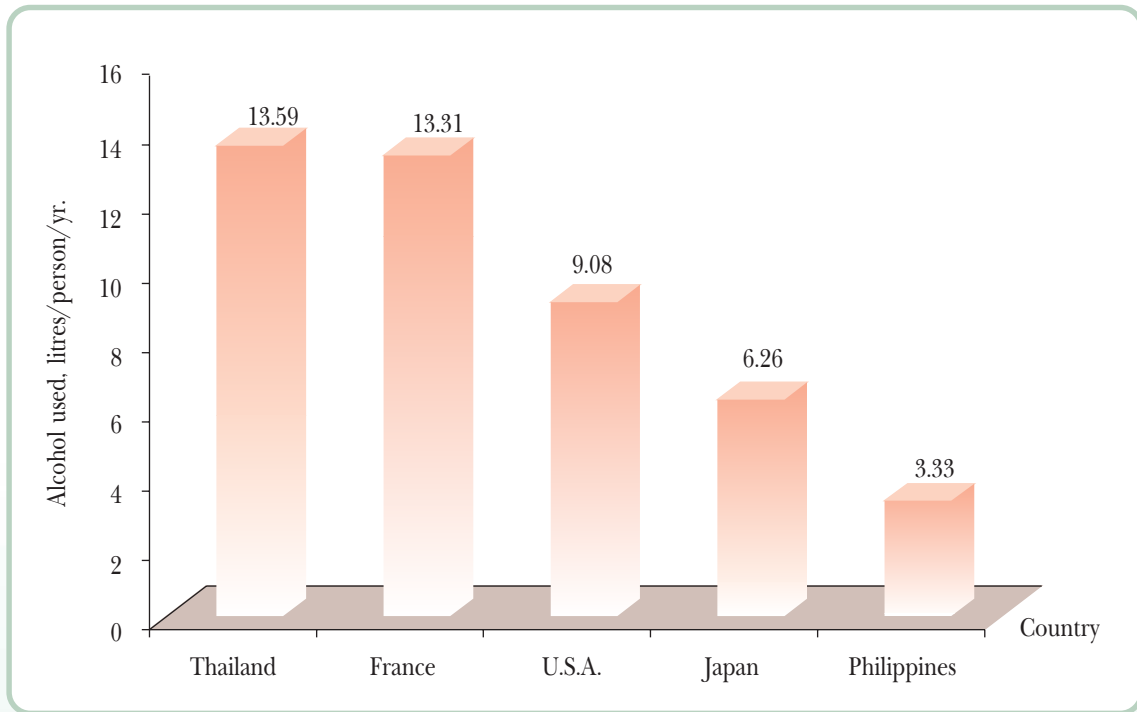
Regarding drinking frequency among drinkers, it was found that about half of them drank occasionally, but the proportion of regular drinkers was rising from 8.6% in 1996 to 9.4% in 2003 (Table 4.67). An analysis and forecast, based on NSO data, conducted by Dr. Virasakdi Chongsuvivatwong of the Faculty of Medicine, Prince of Songkla University, revealed that alcohol use has been rising in both sexes and all age groups, females having a chance to drink more alcohol, more than 3-4 times per week. The reasons are to socialize, to follow friends' behaviour and to try (Table 4.68), and the influence of advertisements. The values or billings of alcohol advertisements have been rising, particularly during 1999-2002, to more than 2,000 million baht each year (Table 4.69). Thus, the government set a measure in 2003 banning alcohol advertisements during 05:00-22:00 hrs, effective 1 October 2003.

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<sup>21</sup> Yonyout Kachondham. Advertisements of Alcoholic Drinks and Losses. Thai Health Promotion Foundation, 2004.

<sup>22</sup> Population and Social Research Institute, Mahidol University. Survey of Situation of Thai Youths, 1998.

**Figure 4.45** Comparison of Alcohol Consumption per Person, 2000



**Source:** WHO Alcohol Consumption Database, referred to in Yongyout Kachondham. "Advertisements and Consumption of Alcohol and Losses." Thai Health Promotion Foundation, 2003.



**Table 4.64** Alcohol Consumption in Thailand, 1988-2003

Category	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total liquor consumption (thousand litres)	561,857.8	499,619.2	611,926.2	681,767.7	670,922.5	678,011.1	557,634.5	743,825.6	795,633.1	736,616.0	734,879.4	666,275.5	641,487.0	760,556.5	711,280	1,108,704.9
Average liquor consumption per person (litres)	15.7	13.9	16.3	17.6	17.0	16.7	13.8	17.4	18.4	16.7	16.5	14.7	14.0	16.4	14.7	23.9
Total beer consumption (thousand litres)	157,801.3	178,530.0	260,805.8	278,479.6	320,150.9	419,759.4	509,367.7	616,389.1	714,899.1	863,914.6	950,696.7	666,275.5	1,148,409.2	1,149,184.1	1,248,550	2,509,129.4
Average beer consumption per person (litres)	4.4	5.0	6.9	7.2	8.1	10.3	12.1	14.4	16.5	19.6	21.3	14.7	25.1	24.8	25.8	54.1
Total wine consumption (thousand litres)	2,148.3	899.7	885.2	1,490.8	1,523.5	1,516.4	1,396.5	2,390.8	4,404.8	3,854.9	4,300.8	8,396.3	12,915.7	16,345.7	19,200.0	167,957.9
Average wine consumption per person (litres)	0.06	0.03	0.02	0.04	0.04	0.04	0.03	0.06	0.10	0.09	0.10	0.20	0.30	0.35	0.40	3.6
Total alcohol consumption (thousand litres)	721,807.5	679,049.0	873,567.3	961,738.2	992,597.0	1,099,287.0	1,088,394.8	1,362,605.6	1,514,937.0	1,604,385.5	1,689,876.9	1,340,947.3	1,802,812.0	1,926,086.4	1,979,030	3,783,792.2
Average alcohol consumption per person (litres)	20.2	18.9	23.3	24.8	25.2	27.1	25.9	31.9	35.0	36.4	37.9	29.5	39.3	41.6	40.9	81.7
Amount of imported liquor (thousand litres)	-	-	-	-	12,783.3	14,801.3	18,165.9	20,700.4	33,334.5	32,749.2	17,467.4	28,728.5	39,728.3	48,921.7	57,154.1	92,446.2
Taxes on imported liquor (million baht)	-	-	-	-	1,105.5	1,227.2	1,671.1	1,603.3	2,536.6	2,525.0	1,959.9	2,998.5	3,358.3	5,377.7	6,146.1	7,223.4

**Source:** The Excise Department, Ministry of Finance.

**Note:** Average consumption per person aged 15 and over.

**Table 4.65** Number and Proportion of Alcoholic Beverage Drinkers, 1991-2003

Year	Population (millions)	No. of drinkers (millions)			Proportion of drinkers (percent)		
		Total	Males	Females	Total	Males	Females
1991	39.5	12.4	10.5	1.8	31.5	53.7	9.5
1996	43.4	13.7	11.9	1.7	31.6	55.4	8.1
2001	46.9	15.3	13.0	2.3	32.6	55.9	9.8
2003	35.8	12.7	9.8	2.8	35.5	60.8	14.5

**Source:** Report on Health and Welfare Surveys, 1991, 1996, 2001 and 2003. National Statistical Office.

**Note:** In the 2003 Health and Welfare Survey, the interview was undertaken only when the interviewee was present; thus, the total population surveyed was smaller than the overall population of the country.

**Table 4.66** Alcohol Drinking Rate among Population Aged 11 and Over by Age and Sex

Age group (years)	1991		1996		2001		2003	
	Males	Females	Males	Females	Males	Females	Males	Females
11-14	-	-	0.2	0.05	-	-	0.5	0.4
15-19	21.7	2.1	20.8	1.0	19.9	1.9	33.5	5.6
20-24	59.5	5.4	56.0	5.7	55.8	7.2	70.4	11.8
25-29	66.7	9.2	67.6	6.9	68.1	10.2	75.7	16.8
30-34	68.6	11.9	67.7	9.5	67.0	12.3	76.5	20.0
35-39	66.2	15.3	69.0	12.2	69.2	14.2	73.3	19.2
40-49	65.1	15.6	65.8	12.9	67.5	14.2	73.0	21.7
50-59	56.1	14.2	59.9	10.1	58.7	11.5	64.5	14.4
60 and over	38.0	8.5	36.8	6.3	37.0	5.7	41.9	8.6
Total	53.7	9.5	50.1	7.4	55.9	9.8	60.8	14.5

**Source:** A reanalysis of the Health and Welfare Survey Database. National Statistical Office.

**Table 4.67** Percentage of Drinking Population by Frequency of Drinking, 1996, 2001 and 2003

Drinking Frequency	1996 <sup>1</sup>	2001 <sup>2</sup>	2003 <sup>1</sup>
Every day	8.6	7.9	9.4
Quite frequent (3-4 times/wk.)	10.7	9.9	10.7
Some day (1-2 times/wk.)	17.4	17.2	17.7
1-2 times/month	16.4	15.3	12.2
Occasionally	46.2	49.4	50.0
Unknown	0.6	0.3	-

**Sources:** 1. Reports on Health and Welfare Surveys, 1996 and 2003. National Statistical Office.

2. Report on Population's Smoking and Drinking Behaviours Survey, 2001. National Statistical Office.

**Notes:** <sup>1</sup> Population aged 15 years and over.

<sup>2</sup> Population aged 11 years and over.

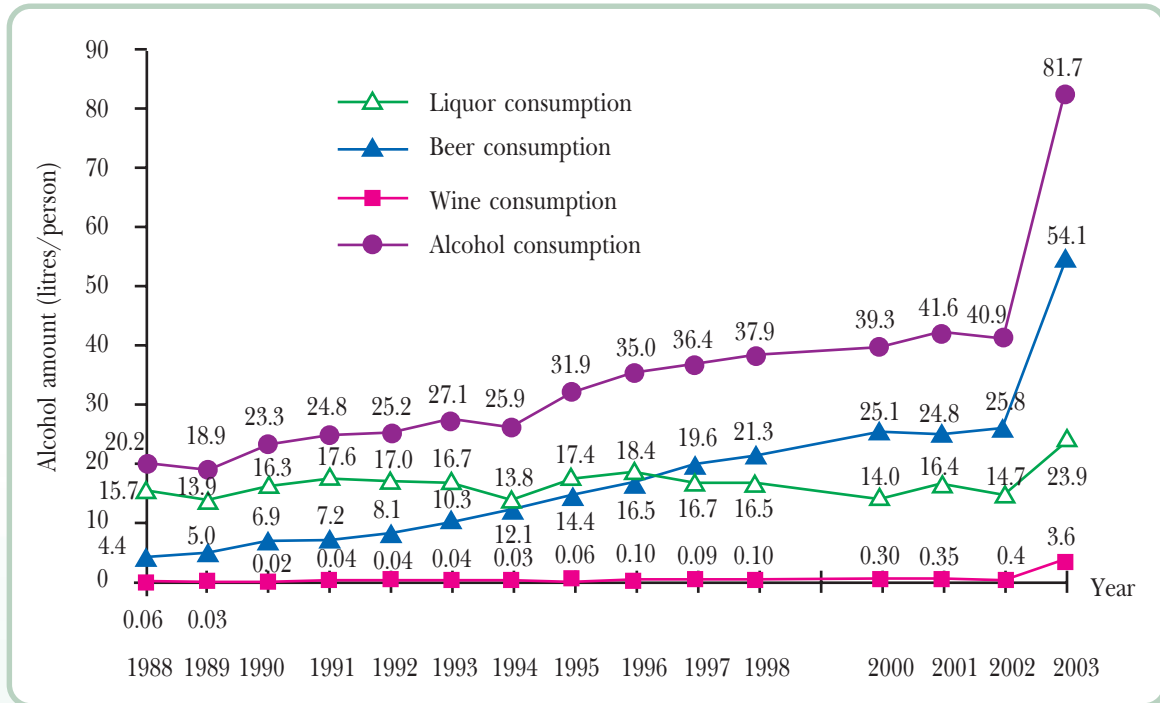
**Table 4.68** Percentage of Alcohol Drinkers by Age at First Drinking and Drinking Motive, 1991, 1996 and 2001

Drinking motive	Males									Females								
	<20 years			20 years and over			Total			<20 years			20 years and over			Total		
	1991	1996	2001	1991	1996	2001	1991	1996	2001	1991	1996	2001	1991	1996	2001	1991	1996	2001
Trying	7.3	11.5	11.5	6.2	5.4	6.0	13.5	16.9	17.5	3.0	2.5	4.0	7.7	4.6	5.9	10.7	7.1	9.9
Socializing	12.8	16.4	18.9	21.1	21.5	22.7	33.9	37.9	41.6	7.8	8.9	8.9	31.9	43.5	45.5	39.7	52.4	54.4
Following friends (fashion, adult looks, imitating actors, nothing to do)	27.2	22.9	23.4	22.3	17.6	13.3	49.5	40.5	36.6	7.4	6.0	6.8	23.1	15.6	13.0	30.5	21.6	19.8
Anxiety (drinking for relieving disappointments)	0.4	1.2	1.8	0.6	2.1	2.4	1.0	3.3	4.1	0.1	0.8	1.3	2.2	16.3	13.6	2.3	17.1	14.9
Others (no reason)	0.5	0.5	0.1	1.4	0.8	0.1	1.9	1.3	0.2	2.8	0.4	0.6	14.1	1.4	0.3	16.9	1.8	1.0
<b>Total</b>	<b>48.3</b>	<b>52.6</b>	<b>55.6</b>	<b>51.7</b>	<b>47.4</b>	<b>44.4</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>21.0</b>	<b>18.6</b>	<b>21.7</b>	<b>79.0</b>	<b>81.4</b>	<b>78.3</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Sources:** 1. Reports on Health and Welfare Surveys, 1991 and 1996. National Statistical Office.

2. Report on Survey of Population's Tobacco and Liquor Consumption Survey, 2001. National Statistical Office.

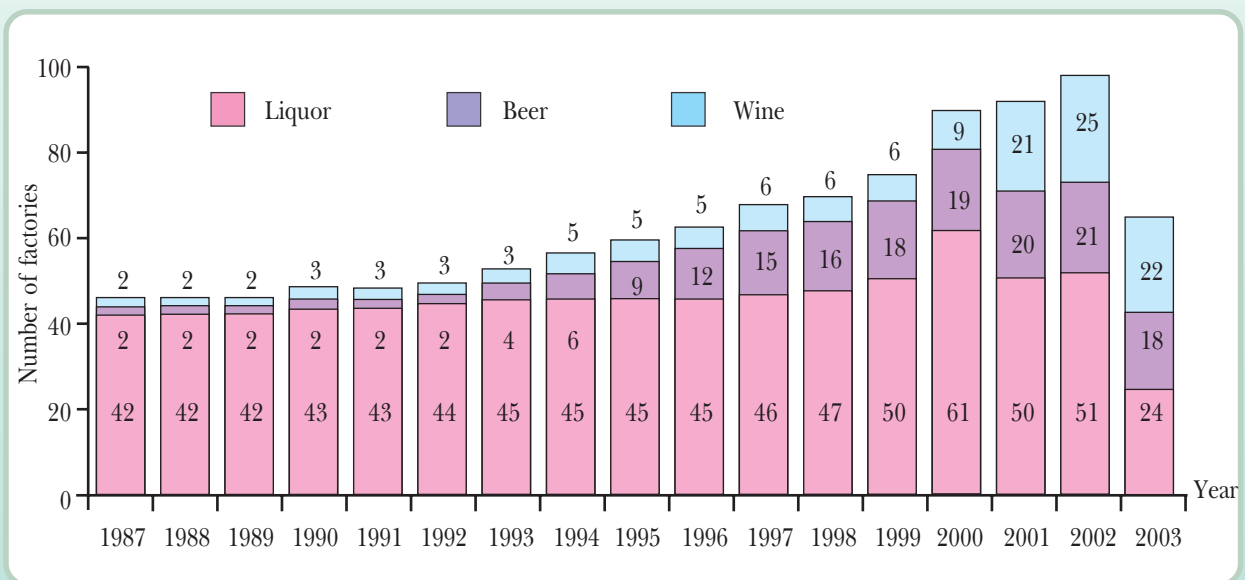
**Figure 4.46** Sales Quantities of Liquor, Beer and Wine, and Amount of Alcohol per Person Aged 15 Years and Over, 1988-2003



**Source:** The Excise Department, Ministry of Finance.

**Note:** Average consumption per person aged 15 years and over.

**Figure 4.47** Numbers of Liquor, Beer and Wine Factories, 1987-2003



**Source:** Department of Industrial Works, Ministry of Industry.

**Note:** In 2003, the number of liquor factories decreased due to factory closure and merger.

**Table 4.69** Alcohol Advertisements Billings, 1989-2003

Year	Advertisement billings (million baht)	Increase (percent)
1989	255	-
1990	347	+36.1
1991	460	+32.6
1992	514	+11.7
1993	705	+37.2
1994	772	+9.5
1995	1,318	+70.7
1996	2,169	+64.6
1997	1,859	-14.3
1998	1,264	-32.0
1999	1,812	+43.4
2000	2,522	+39.2
2001	1,910	-24.3
2002	2,180	+14.1
2003	2,025	-7.1

**Source:** Media Data Resources (MDR).

### 10.5 Consumption of Caffeine Drinks

As a result of all kinds of sales promotion, the volume of caffeine drinks consumed rose from 131.10 million litres in 1992 to 310.05 million litres in 1997. During the economic crisis, the consumption of such drinks dropped markedly, but after the economic recovery, the consumption rose again to 433.21 million litres in 2003 (Table 4.70).

**Table 4.70** Volumes of Caffeine Drinks (Energy Drinks) in Thailand, 1992-2003

Year	Production volume (million litres)	Sales volume (million litres)	Per capita consumption (litres/yr.)	Change in per capita consumption (percent)
1992	138.40	131.10	3.32	-
1993	173.75	329.26	8.10	+144.0
1994	183.62	181.84	4.33	-46.5
1995	209.31	217.08	5.08	+17.3
1996	180.87	182.92	4.22	-16.9
1997	308.08	310.05	7.03	+66.6
1998	134.73	126.12	2.82	-59.9
1999	174.59	155.44	3.42	+21.3
2000	337.56	332.47	7.25	+112.0
2001	364.84	355.14	7.66	+5.6
2002	366.30	433.59	8.95	+16.8
2003	445.47	433.21	8.90	-0.6

**Source:** The Excise Department, Ministry of Finance.

**Note:** Per capita consumption among population aged 15 years and over.

In 2000, the Food and Drug Administration, the Institute of Nutrition of Mahidol University, and the Health Systems Research Institute jointly conducted a study on consumption behaviours of caffeine drinks among Thai people aged 12 years and over. The study revealed that approximately two-fifths of respondents (38.6%) drank caffeine drinks, approximately two-thirds (66.6%) drank coffee or tea, and approximately three-fourths (77.0%) drank carbonated caffeine drinks. Moreover, it was found that the prevalence of Thais drinking all three kinds of drinks was 23.7% of respondents, 36.6% for males and 11.1% for females, four times higher in males (Table 4.71); the reasons being for preventing sleepiness, refreshment and their good taste (Table 4.72).

**Table 4.71** Number and Prevalence of Caffeine Drinkers Aged 13-70 Years by Sex

Drinking behaviour	Caffeine drinkers			Coffee and tea drinkers			Carbonated caffeine drinkers		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Drinking	1,257	442	1,699	1,541	1,592	3,133	1,656	1,925	3,581
Used to drink	266	192	458	202	209	411	175	200	375
Never drink	648	1,830	2,478	428	663	1,091	338	337	675
Total	2,171	2,464	4,635	2,171	2,464	4,635	2,169	2,462	4,631
<b>Prevalence</b>									
Drinking	57.9%	17.9%	36.7%	71.0%	64.6%	67.6%	76.3%	78.2%	77.3%
Used to drink	12.3%	7.8%	9.9%	9.3%	8.5%	8.9%	8.1%	8.1%	8.1%
Never drink	29.8%	74.3%	53.5%	19.7%	26.9%	23.5%	15.6%	13.7%	14.6%
<b>Adjusted prevalence*</b>									
Drinking	59.8%	17.8%	38.6%	70.1%	63.1%	66.6%	76.3%	77.6%	77.0%
Used to drink	10.9%	7.5%	9.2%	9.1%	8.3%	8.7%	7.6%	7.7%	7.6%
Never drink	29.3%	74.7%	52.3%	20.8%	28.6%	24.8%	16.1%	14.7%	15.4%

**Sources:** Food and Drug Administration, Institution of Nutrition of Mahidol University and Health Systems Research Institute. Report on Consumption Behaviours of Thai People Drinking Caffeine Drinks, 2000.

**Note:** \* Adjusted prevalence was calculated based on the proportion of the population by sex.

**Table 4.72** Percentage of Respondents Drinking Caffeine Drinks and Reasons, 2000

Reason for drinking (more than one choice can be specified)	Caffeine drinks (N = 1,699)	Coffee and tea (N = 3,133)	Carbonated caffeine drinks (N = 3,581)
Anti-sleepiness/refreshment	70.8	64.0	29.0
Making energetic, anti-weakness	58.7	25.0	5.7
Anti-uneasiness, addictedness	6.7	10.5	1.8
Wishing to send labels or caps for lucky draws	3.5	0.8	0.6
As tonics	7.4	3.2	1.1
Favouring the taste	32.3	38.5	43.7
Habitual drinking	11.9	28.4	10.0
Anti-thirst	15.8	19.8	84.4
Advertisement influence	3.4	1.5	3.4

**Source:** Food and Drug Administration, Institution of Nutrition of Mahidol University and Health Systems Research Institute. Report on Consumption Behaviours of Thai People Drinking Caffeine Drinks, 2000.



## 10.6 Drug Dependence and Abuse

The narcotic problem is complicated in line with economic and social changes by ramifying into communities, business facilities or even educational institutions. In Thailand, despite the fact that there are numerous legal measures and continuous campaigns for drug control and suppression, the illicit drug problem situation is still prevalent. Currently, the major narcotic widely used is methamphetamine or ya ba. Although the country is encountering the economic crisis, drug smuggling does not decline, but it tends to increase. Significant examples include a rising number of methamphetamine-crime arrests, especially in northern border areas where the proportion of arrests has risen from 16.7% in 1995 to 46.5% in 2003 or up to 33 million tablets during the past ten years (Table 4.73).

**Table 4.73** Statistics of Methamphetamine Seizures, 1993-2003

Year	Whole country (tablets)	The North	
		Tablets	Percent
1993	7,000,000	40,000	0.6
1994	4,000,000	600,000	15.0
1995	6,000,000	1,000,000	16.7
1996	9,000,000	3,500,000	38.9
1997	15,000,000	9,000,000	60.0
1998	31,770,127	17,689,136	55.7
1999	49,887,050	33,137,431	66.4
2000	83,000,000	34,000,000	41.0
2001	93,800,000	55,670,540	59.3
2002	95,900,000	37,810,500	39.4
2003	71,400,000	33,227,800	46.5

**Source:** Office of the Narcotics Control Board.

After the economic crisis, the number of new drug addicts admitted to drug dependence treatment facilities has risen from 36.1% in 1996 to 52.2% in 2002 (Table 4.74). The serious concern, during the past ten years (1992-2002), has been a remarkable increase in the number of students undergoing the drug treatment. In particular, after the economic crisis, almost 80% of the students attending the treatment centres are new cases. This indicates that each year the number of new drug addicts is soaring (Table 4.75). The rate of stimulant or methamphetamine use has escalated from 0.2% in 1985 to 1.5% in 1999 or a 7.5-fold increase (Table 4.76).

**Table 4.74** Number of Drug Addicts Registered at Drug Dependence Treatment Facilities in Thailand, 1987-2002

Year	Total number of drug addicts	Number of readmitted addicts	New drug addicts	
			No.	Percentage of total addicts
1987	57,874	42,748	14,895	25.7
1988	61,218	46,766	13,779	22.5
1989	60,000	44,048	13,723	22.9
1990	58,327	41,942	13,984	24.0
1991	66,465	46,253	18,398	27.7
1992	63,978	44,816	19,162	30.0
1993	82,620	51,053	29,468	35.7
1994	80,618	49,644	30,189	37.4
1995	101,145	61,490	38,565	38.1
1996	81,050	50,774	29,223	36.1
1997	62,362	39,075	21,956	35.2
1998	73,079	45,001	28,060	38.4
1999	64,232	37,150	27,082	42.2
2000	67,155	38,778	28,377	42.3
2001	72,646	41,265	31,381	43.2
2002	68,623	32,772	35,851	52.2

**Source:** Department of Medical Services, MoPH.

**Table 4.75** Number of Students Registered for Drug Dependence Treatment, 1992-2002

Year	New cases		Readmitted cases		Total
	No.	Percent	No.	Percent	
1992	1,119	86.8	170	13.2	1,289
1993	2,390	84.8	429	15.2	2,819
1994	3,091	79.6	793	20.4	3,884
1995	3,998	76.5	1,231	23.5	5,229
1996	3,147	73.5	1,137	26.5	4,284
1997	3,389	77.6	980	22.4	4,369
1998	8,109	88.2	1,084	11.8	9,193
1999	6,133	86.3	976	13.7	7,109
2000	6,862	90.8	698	9.2	7,560
2001	5,631	86.6	868	13.4	6,499
2002	5,903	78.1	1,659	21.9	7,562

**Sources:** For 1992-2001, Office of the Narcotics Control Board.

For 2002, Department of Medical Services, MoPH.

**Table 4.76** Percentage of Drug/Narcotic Usage among Secondary School Students, 1985-1999

Types of drug/narcotic	1985	1987	1989	1996	1999
	(n=155,541)	(n=30,097)	(n=4,986)	(n=15,306)	(n=24,110)
Tobacco	9.16	6.73	7.62	7.60	5.28
Liquor	9.79	5.96	7.97	14.00	13.56
Marijuana	1.05	0.92	1.78	1.18	0.80
Inhalants	0.52	1.78	2.38	0.85	0.44
Stimulants/methamphetamine	0.18	0.73	0.60	1.64	1.52
Dry liquor (LSD)	0.19	0.28	0.28	0.55	0.37
Tranquilizers	0.12	0.26	0.40	0.92	0.42
Heroin	0.74	0.12	0.46	0.33	0.19

**Source:** Survey of Drug Abuse among Secondary School Students. Department of General Education and Office of the Narcotics Control Board, 1999.

According to the estimates of the number of students with illicit drug use nationwide by ABAC-KSC Internet Research Institute (ABAC Poll) in 2001, about 6.2% of students had drug use behaviours (Table 4.77). Methamphetamine was the drug that they used the most (58.5%; Table 4.78).

**Table 4.77** Estimated Number of Students Using Drugs, 2001

Behaviours of drug use	Estimated number of students	Percent
Using drugs (excluding liquor and tobacco)	374,653	6.2
Never use drugs	5,717,819	93.8
<b>Total</b>	<b>6,092,472</b>	<b>100.0</b>

**Source:** Estimation of Students Using Drugs: A Case Study of Students from All Educational Institutions Nationwide. ABAC-KSC Internet Research Institute (ABAC Poll), 2001.

**Table 4.78** Estimated Number of Students Using Drugs by Drug Category, 2001

Rank	Narcotic category	Estimated number of students	Percent
1	Methamphetamine	219,284	58.5
2	Marijuana	158,065	42.2
3	Tranquilizers, e.g. Domicum, Valium	125,918	33.6
4	Inhalants, rubber glue, lacquer	62,354	16.6
5	“Ecstasy” drug	42,443	11.3
6	“Love” drug	39,349	10.5
7	“K” drug (ketamine)	32,655	8.7
8	Heroin	28,402	7.6
9	Opium	20,807	5.6
10	Cocaine	18,249	4.9
11	Morphine	18,231	4.9

**Source:** Estimation of Students Using Drugs: A Case Study of Students from All Educational Institutions Nationwide. ABAC-KSC Internet Research Institute (ABAC Poll), 2001.

**Note:** There were totally 374,653 students using drugs.

However, after the government implemented the war on drug policy in 2001, the Office of the Narcotics Control Board has estimated that the proportion of drug users has declined from 16.4% in 2001 to 6.9% in 2003, a more-than-50% decrease (Table 4.79).

**Table 4.79** Number of Drug Users Nationwide by Type of Use Duration, 2001 and 2003

Drug	2001			2003		
	Drug users in thousands (and percent)			Drug users in thousands (and percent)		
	Ever used	Ever used in 1 year	Ever used in 30 days	Ever used	Ever used in 1 year	Ever used in 30 days
Any kind of drug	7,312.2(16.4)	1,942.1(4.3)	998.7(2.2)	3,155.5(6.9)	455.5(1.0)	257.8(0.6)
Methamphetamine	3,491.6(7.8)	1,092.5(2.4)	490.3(1.1)	1,094.0(2.4)	83.8(0.2)	34.1(0.1)
Drug E or Love	360.1(0.8)	46.5(0.1)	17.7(0.0)	119.7(0.3)	13.3(0.0)	7.4(0.0)
Ketamine	40.7(0.1)	7.2(0.0)	1.2(0.0)	23.4(0.1)	1.0(0.0)	0.04(0.0)
Cocaine	52.8(0.1)	4.9(0.0)	1.1(0.0)	29.4(0.1)	7.4(0.0)	1.0(0.0)
Marijuana	5,425.3(12.1)	667.2(1.5)	210.0(0.5)	2,019.1(4.4)	83.4(0.2)	18.7(0.0)
Kratom (khat/eave)	2,105.8(4.7)	643.8(1.4)	364.2(0.8)	1,160.0(2.6)	344.7(0.8)	221.6(0.5)
Opium	907.0(2.0)	38.6(0.1)	12.3(0.0)	323.7(0.7)	0.6(0.0)	0.3(0.0)
Heroin	274.2(0.6)	22.7(0.1)	9.4(0.0)	192.6(0.4)	1.4(0.0)	-
Thinner:glue,benzene	933.9(2.1)	199.7(0.4)	101.2(0.2)	447.9(1.1)	21.2(0.1)	13.2(0.0)

**Source:** Office of the Narcotics Control Board. Report on Estimation of Drug Users in Thailand, 2003.

## 10.7 Physical Activity and Relaxation

### 10.7.1 Physical Activity

The 2002 survey of the National Statistical Office revealed that approximately 29% of Thai people regularly exercised<sup>23</sup> (Table 4.80). The result is consistent with those of the 1998 survey of the Population and Social Research Institute of Mahidol University, which revealed that one-third of youths aged 15-20 years regularly exercised; the results being close to the 34.7% found by the 1998 survey of the Rajabhat Institute Suan Dusit poll.

<sup>23</sup> Exercise or physical activity means any movement of the body or part of body or part of body for health promotion, entertainment, and socialization, using simple activities or simple rules, such as walking, running, rope-jumping, body-stretching, and weight-lifting (except for exercise while working or body movement in daily life).

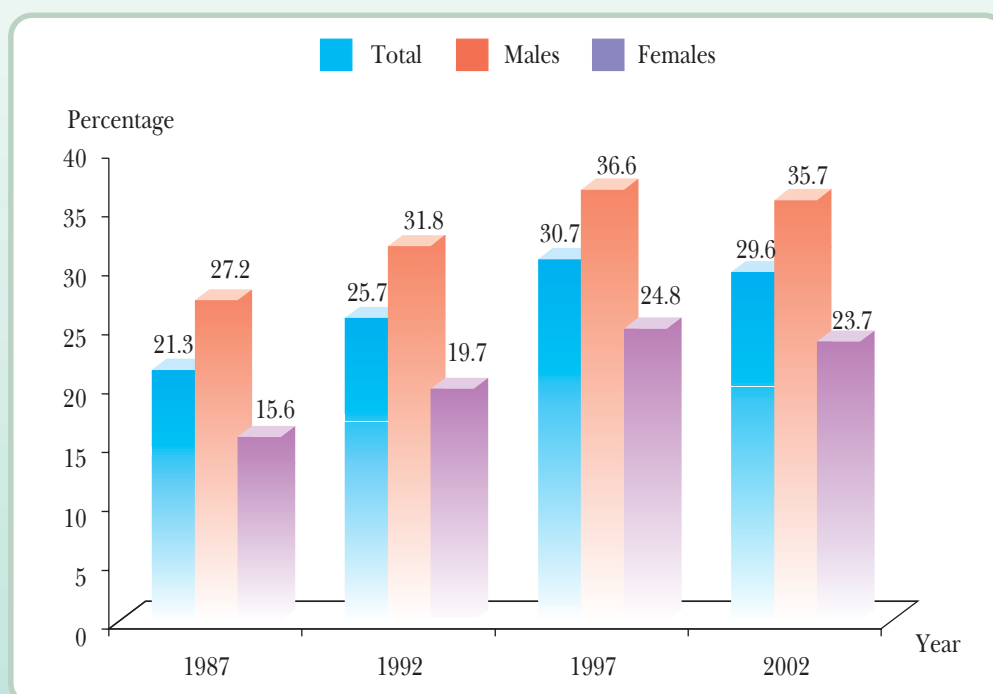
**Table 4.80** Percentage of Thai People Who Regularly Exercised, 1987-2002

Year	People regularly exercising	
	Percent	Change (percent)
1987	21.3	-
1992	25.7	+20.7
1997	30.7	+19.5
2002	29.6	-3.6

**Sources:** Reports on Surveys of People Aged 6 Years and Above Playing or Watching Sports, 1987, 1992, 1997 and 2002. National Statistical Office.

However, considering the trends in regular exercising during 1987-2002, on average the number of **Thai people exercising increased** by 20% each year (Table 4.80); **particularly males are more likely to exercise than females** (Figure 4.48).

**Figure 4.48** Percentage of Thai People with Regular Physical Activity, 1987-2002



**Sources:** Reports on Surveys of People Aged 6 Years and Above Playing or Watching Sports, 1987, 1992, 1997 and 2002. National Statistical Office.

Considering the exercise behaviour based on the criteria of **physical activity for health**, it was found that more than 60% of the people exercise more than three days a week and approximately 80-90% exercise for 30 minutes or longer each day (Tables 4.81 and 4.82).

**Table 4.81** Percentage of Population Aged 6 Years and Over Exercising Each Week, 1987-2002

Days exercised each week	1987	1992	2002
1 day	23.8	20.7	17.9
2 days	14.6	16.3	13.9
3-4 days	28.6	30.5	28.0
5-6 days	14.7	17.8	25.1
7 days	18.3	14.6	15.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Sources:** Reports on Surveys of People Aged 6 Years and Above Playing or Watching Sports, 1987, 1992 and 2002. National Statistical Office.

**Table 4.82** Percentage of Population Aged 6 Years and Over Exercising Each Day, 1987-2002

Time period exercised each day	1987			1992			1997			2002		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
<30 minutes	25.8	21.3	34.9	21.1	17.7	26.5	12.0	10.3	14.7	4.1	3.0	5.7
≥30 minutes	74.2	78.7	65.1	78.8	82.2	73.5	87.9	89.6	85.2	95.9	97.0	94.3
Unspecified	-	-	-	0.1	0.1	-	0.1	0.1	0.1	-	-	-
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Sources:** Reports on Surveys of People Aged 6 Years and Above Playing or Watching Sports, 1987, 1992, 1997 and 2002. National Statistical Office.

The types of sports most favoured are soccer, volleyball, physical workouts, athletics, and jogging for health. Males mostly prefer soccer and takraw (rattan ball), while females prefer volleyball and physical workouts (Table 4.83). Where they want to play or exercise depends on the type of exercise, their own readiness and venue's convenience. It was found that **sports grounds of educational institutions** are mostly used for exercising, followed by empty grounds in a community and household grounds (Table 4.84).



**Table 4.83** Percentage of Population with Physical Activity by Sports Category, 1987-2002

Sports category	1987			1992			1997			2002		
	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females
Soccer	33.9	50.9	4.4	28.9	44.6	3.5	38.1	61.0	4.7	39.4	61.7	6.2
Volleyball	10.4	2.4	24.4	12.0	2.6	27.2	19.2	6.4	38.0	12.3	2.4	27.0
Athletics	10.2	6.5	16.4	5.6	3.9	8.3	15.8	11.4	22.2	3.2	2.0	5.1
Jogging	7.5	7.1	8.2	16.0	13.1	20.6	9.1	9.2	8.9	10.0	8.8	11.9
Physical workouts	14.0	9.3	22.3	9.4	6.5	14.1	10.6	8.2	14.2	7.6	3.9	13.2
Takraw	9.2	14.3	0.4	11.7	18.8	0.4	15.1	23.9	2.2	4.6	7.0	0.9
Badminton	3.8	2.0	6.9	3.9	1.7	7.5	7.5	4.1	12.4	5.7	1.9	11.4
Table tennis	1.0	0.9	1.1	1.6	1.1	2.5	4.8	3.9	6.2	1.2	0.4	1.6
Swimming	1.6	1.1	2.4	2.2	1.5	3.4	2.1	1.4	3.2	1.4	0.8	2.3
Basketball	3.2	1.7	5.8	3.2	1.6	6.0	11.1	8.0	15.7	3.7	2.2	5.9
Walking for health	0.7	0.6	0.9	1.0	0.9	1.2	1.7	1.4	2.1	3.8	2.9	5.1
Chairball	1.8	0.5	4.1	1.2	0.4	2.5	1.5	0.5	2.9	0.7	0.3	1.3
Others	2.7	2.7	2.7	3.3	3.3	2.8	5.4	3.3	2.1	6.4	5.7	8.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Sources:** Reports on Surveys of People Aged 6 Years and Above Playing or Watching Sports, 1987, 1992, 1997 and 2002. National Statistical Office.

**Table 4.84** Percentage of Population with Physical Activity by Venue of Exercise, 1997 and 2002

Year	Total	Venue of exercise							
		Sport facilities at educational institutions	Sport facilities at government agencies	Private sport facilities	Public parks	Household	Religious areas	Empty places	Others
1997	100.0	68.2	6.9	1.7	1.7	7.1	1.7	12.4	0.3
2002	100.0	53.5	5.7	3.0	7.4	18.7	2.5	7.6	1.6

**Source:** Reports on Surveys of People Aged 6 Years and Above Playing or Watching Sports, 1997 and 2002. National Statistical Office.

Regarding the environment that facilitates the people to exercise more easily, according to a report of the Sports Authority of Thailand and the Bangkok Metropolitan Administration, the number of sports venues has been rising (Table 4.85). And a survey on exercise for health networks revealed that the number of exercise clubs nationwide has increased from 1,118 in 2001 to 35,532 in 2003. In addition, the policy on move for health campaigns implemented since 2002 has made the people more aware of the need for exercise (Table 4.86).

**Table 4.85** Sports Venues by Type, 1993-2001

Sports venue	Year (places)								
	1993	1994	1995	1996	1997	1998	1999	2000	2001
Health parks <sup>1</sup>	-	-	-	-	-	-	-	15	30
Multipurpose sport arenas <sup>1</sup>	-	-	-	-	-	-	1,154	2,254	3,911
BMA sports arenas <sup>2</sup>	-	-	-	-	-	647	1,057	1,094	1,112
Open-air sports grounds in districts and tambons <sup>1</sup>	62	123	182	198	219	219	231	245	260

**Source:** <sup>1</sup> Sports Venues and Services Section, Civil Works and Engineering Division, Sports Authority of Thailand.

<sup>2</sup> Bureau of Social Welfare, Bangkok Metropolitan Administration.

**Table 4.86** Exercise for Health Clubs: Number and Members, 2001-2003

Year	Number of clubs	Number of members
2001	1,118	57,302
2002	12,974	172,103
2003	35,532	4,577,277

**Sources:** 1. Bureau of Health Promotion, Department of Health.

2. Health Education Division, Department of Health Service Support.

Exercise is an important health behaviour and very useful for human's well-being. Regular exercise helps adjust our body to the environment and increase our activeness, flexibility and strength. It also helps us to become ready to cope with adverse environmental conditions that might affect us. However, a number of people do not exercise, mostly reasoning that they have no time and are not interested in exercise (Table 4.87).

**Table 4.87** Percentage of People Not Exercising by Reason for Not Exercising, 1992-2002

Reason	1992	1997	2002
Uninterested	49.5	40.4	41.2
No time	44.5	51.4	54.1
No venue	1.0	0.9	0.8
No equipment	0.6	0.6	0.4
No supporter	-	0.2	0.1
Others	4.4	6.5	3.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

**Sources:** Reports on Surveys of People Aged 6 Years and Above Playing or Watching Sports, 1992, 1997 and 2002. National Statistical Office.

### 10.7.2 Relaxation

A survey on health status of working-age population in 1996-1997 demonstrated that an average sleeping time period was 7.6 hours. Half the working-age population spent 7-8 hours on sleeping. It was also found that when they got older, the proportion of people sleeping for more than eight hours would decrease. But the opposite was noted in the 2001 survey conducted by the National Statistical Office: males and females aged 10 years and older on average slept for 8.7 hours, elders slept on average as long as 10.4 hours, followed by children, youths and working-age people, respectively (Tables 4.88 and 4.89).

With regard to time spending for recreation, it was found that each person spent two hours on average, males spending more time than females (Table 4.89).

**Table 4.88** Proportion of Working-age Population by Daily Sleeping Time, 1996-1997

Age, years	Less than 6 hrs		6-7 hrs		8 hrs and over	
	Males	Females	Males	Females	Males	Females
13-19	1.8	2.0	17.8	23.6	80.4	74.5
20-34	6.3	6.7	37.5	34.1	56.2	59.2
35-44	7.6	8.2	39.5	41.1	52.9	50.7
45-59	9.9	13.8	36.6	43.4	53.5	42.8

**Source:** Data reanalyzed from the database of Survey on Health Status of Working-age Population, 1996-1997. Thailand Health Research Institute and Bureau of Policy and Strategy MoPH, 1998.

**Table 4.89** Average Time Periods Spent on Sleeping and Recreation Each Day by Sex and Age, 2001

Activity	Age-group and time spent (hours)				
	10 - 14	15 - 24	25 - 59	60 and older	Total
<b>Males</b>					
Sleeping	9.2	8.4	8.4	10.6	8.7
Recreation*	2.2	2.4	2.0	2.4	2.2
<b>Females</b>					
Sleeping	9.2	8.4	8.40	10.6	8.7
Recreation*	1.7	1.6	1.8	2.4	1.8
<b>Total</b>					
Sleeping	9.3	8.6	8.5	10.4	8.8
Recreation*	2.0	2.1	1.9	2.4	2.0

**Source:** Report on the Time Spending of the People Survey, 2001. National Statistical Office.

**Note:** \*Including social and cultural activities.

## 10.8 Driving Behaviours

### 10.8.1 Use of Safety Belt

A survey on safety-belt use among all driver categories reveals that, even through the law requires that all drivers and passengers use safety belts at all times, the safety-belt use rate has dropped from 35.8% in 1996 to only 23.5% in 2003 (Table 4.90).

### 10.8.2 Use of Safety Helmet

The rate of constant use of helmet among motorcyclists was found to be similar to that for safety belt, i.e. helmet use rate has declined from 29.0% in 1996 (the year in which the Helmet Use Royal Decree was first in effect) to only 16% in 2003 (Table 4.91).

**Table 4.90** Proportion of Drivers Aged 14 Years and Over Using Safety Belts

Use of safety belt	1991 <sup>(1)</sup>	1996 <sup>(1)</sup>	1997 <sup>(2)</sup>	2000 <sup>(3)</sup>	2001 <sup>(1)</sup>	2003 <sup>(1)</sup>
Vehicles with safety belts						
- Constant use	4.3	35.8	35.7	25.9	27.1	23.5
- Occasional use	11.7	28.0	29.6	32.2	44.2	39.7
- Never use	12.6	6.3	34.7	13.9	12.1	32.2
Vehicles without safety belts	64.6	29.9	-	-	4.4	2.4

**Sources:** (1) Data for 1991, 1996, 2001 and 2003 were derived from Health and Welfare Surveys. National Statistical Office.

(2) Data for 1997 were derived from Prapapen Suwan et al. Study on Behaviours and Environmental Conditions for Health Promotion among Youths, Housewives and Factory Workers, 1997. Faculty of Public Health, Mahidol University.

(3) Data for 2000 were derived from the Survey of Health Behaviour of Working-age Population (15-59 years). Health Education Division, MoPH.

**Note:** Data for 2001 were derived from the survey on safety-belt use of drivers and passengers aged 15 and over in front seats.

**Table 4.91** Proportion of Motorcyclists Aged 14 Years and Over Using Safety Helmets

Use of helmets	1991 <sup>(1)</sup>	1996 <sup>(1)</sup>	2000 <sup>(2)</sup>	2001 <sup>(1)</sup>	2003 <sup>(1)</sup>
- Constant use	7.2	29.0	32.0	16.1	16.0
- Occasional use	21.7	55.4	44.2	64.3	49.5
- Never use	11.0	6.0	15.8	10.3	32.8
- No helmet	59.8	9.3	-	9.1	-

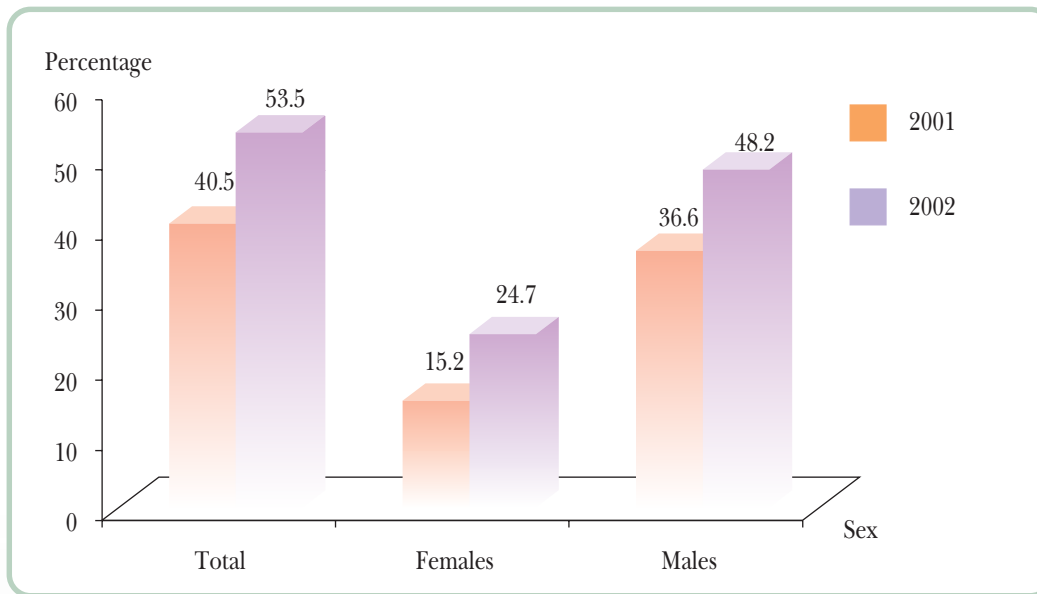
**Sources:** (1) Data for 1991, 1996, 2001 and 2003 were derived from Health and Welfare Surveys. National Statistical Office.

(2) Data for 2000 were derived from the Survey of Health Behaviours of Working-age Population (15-59 years). Health Education Division, Department of Health Service Support.

**Note:** Data for 2001 were derived from the survey on helmet use among motorcyclists and passengers aged 15 and over.

Alcohol drinking and driving is a major factor causing road traffic accidents/injuries. Even though Thailand has launched campaigns against drunk driving, having law prohibiting driving for any person with a blood alcohol concentration exceeding the specified limit, the number of drunk drivers has risen by 30%, i.e. rising from 40.5% in 2001 to 53.5% in 2003; males being twice more likely to do so than females (Figure 4.49).

**Figure 4.49** Proportion of Drunk Drivers by Sex, 2001 and 2002



**Sources:** Reports on Health and Welfare Surveys, 2001 and 2003. National Statistical Office.

### 10.9 Sexual Behaviours

Unhealthy sexual practices are a prime health determinant in spreading sexually transmitted infections (STIs), especially HIV/AIDS. Owing to intensive campaigns, people are more aware of contracting HIV when having sex with a female commercial sex worker (CSW). This brings about a higher condom use rate in CSWs from 25% in 1989 to 96.9% in 2003 (Figure 4.50). However, it has been recently discovered that people are more likely to have sex with other women who are not CSWs. In particular youths tend to have first sex at a younger age and practise unsafe sex.

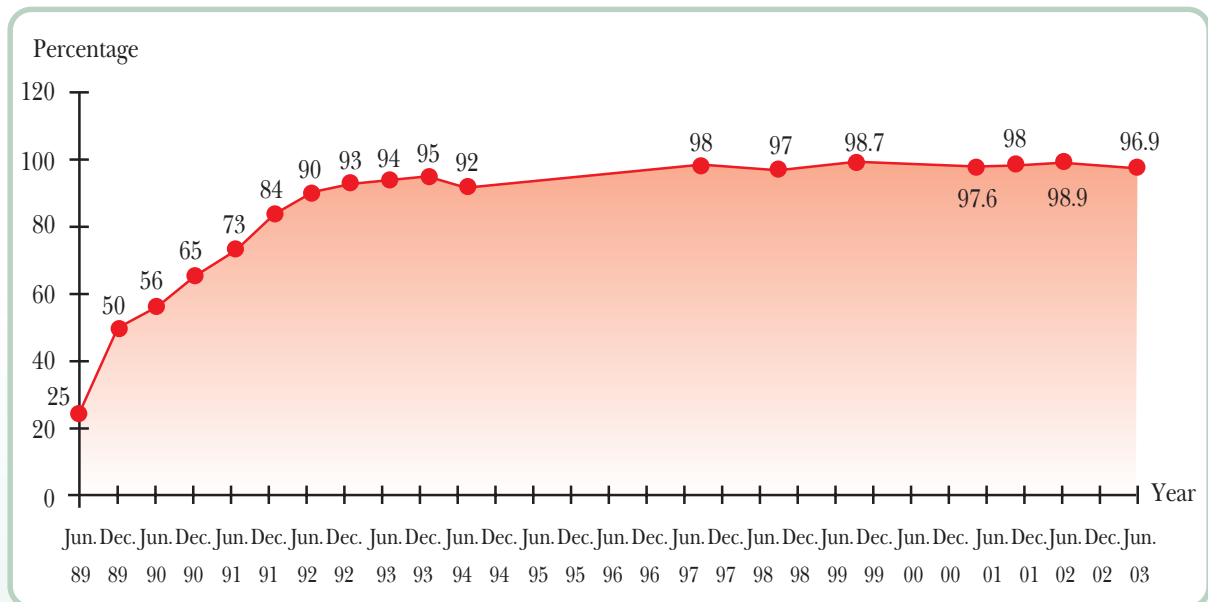
According to Thailand's surveillance of HIV/AIDS risk behaviours in the past nine years (1995-2003), the proportions of military recruits and male industrial workers having sex with CSWs and other women were **declining** except for a slightly rising rate in 2003 (Figures 4.51 and 4.52). The constant condom use rate among military recruits having with CSWs was higher than with other women they superficially know (Figures 4.53 and 4.54). Regarding female industrial workers and pregnant women attending an antenatal clinic (ANC), there was a **reduction** in sexual relations with several partners in the past four years (Figures 4.55 and 4.56). And the rate of constant condom use when having sex was increasing except for 2002 when the rate decreased markedly (Figures 4.57 and 4.56).

For youths, it was revealed that there was an elevation in sexual relations with girlfriends, lovers, close friends and males while the proportion of sexual relations with CSWs and other women was lower (Figure 4.58). They were more likely to use a condom when having sex with CSWs than with other kinds of sex partners (Figure 4.59), which is consistent with the results of Boonyong Kiewkarnka and colleagues' study (2002)<sup>24</sup> which revealed that high-school students (grade 11) had sex mostly with their lovers or boy/girl friends. But they did not like to use condom as they disliked it or it was unpleasurable. However, they constantly used condom when having sex with CSWs as they would be safe from STIs. Besides, a worldwide

<sup>24</sup> Boonyong Kiewkarnka et al. Surveillance of HIV/AIDS Risk Factors in Seven Population Groups in Bangkok, 2002. ASEAN Institute of Health Development, Mahidol University, 2002.

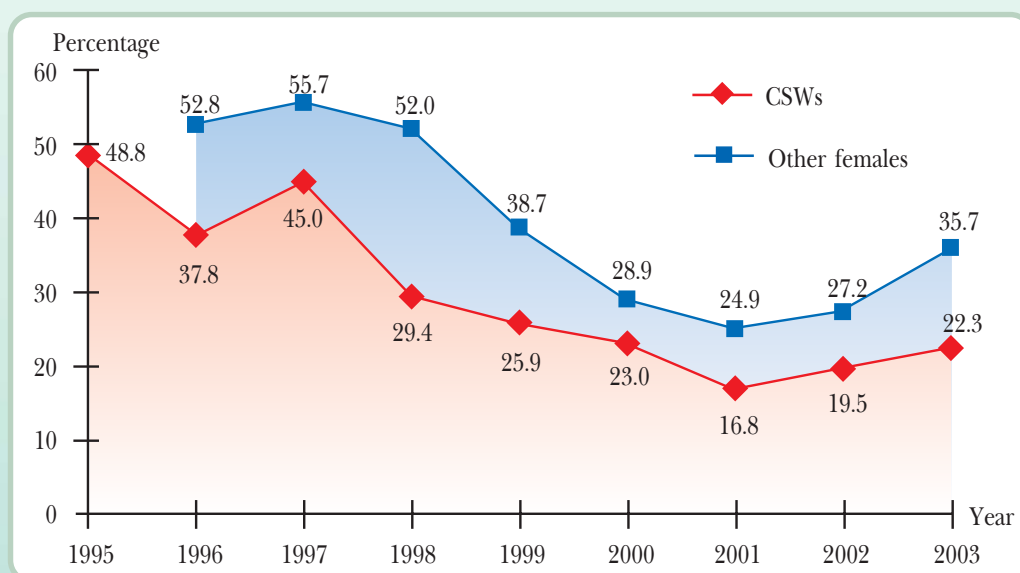
survey<sup>25</sup> revealed that youths had their first sex at age 16 and one youth would have on average five sex partners and totally 89 sexual encounters each year. Among Thai youths who have had sex, it was found that 12% of them never used condoms when having sex with a stranger as they did not have any condom at that time.

**Figure 4.50** Condom Use Rate among Female Commercial Sex Workers, 1989-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Figure 4.51** Proportion of Military Recruits' Sex Partners in the Past Year According to Survey on HIV/AIDS Risk Behaviours in Thailand, 1st-9th Rounds, 1995-2003



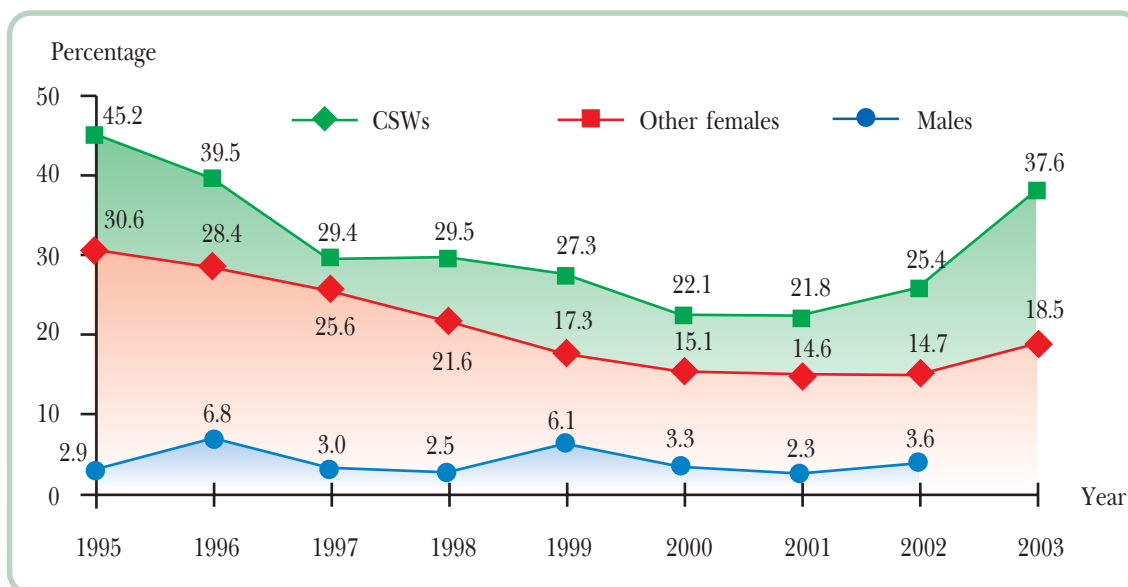
**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 1st-9th rounds of survey (1995-2003).

<sup>25</sup> Survey in 27 countries world wide by the Durex Sex Survey Program, 2002.



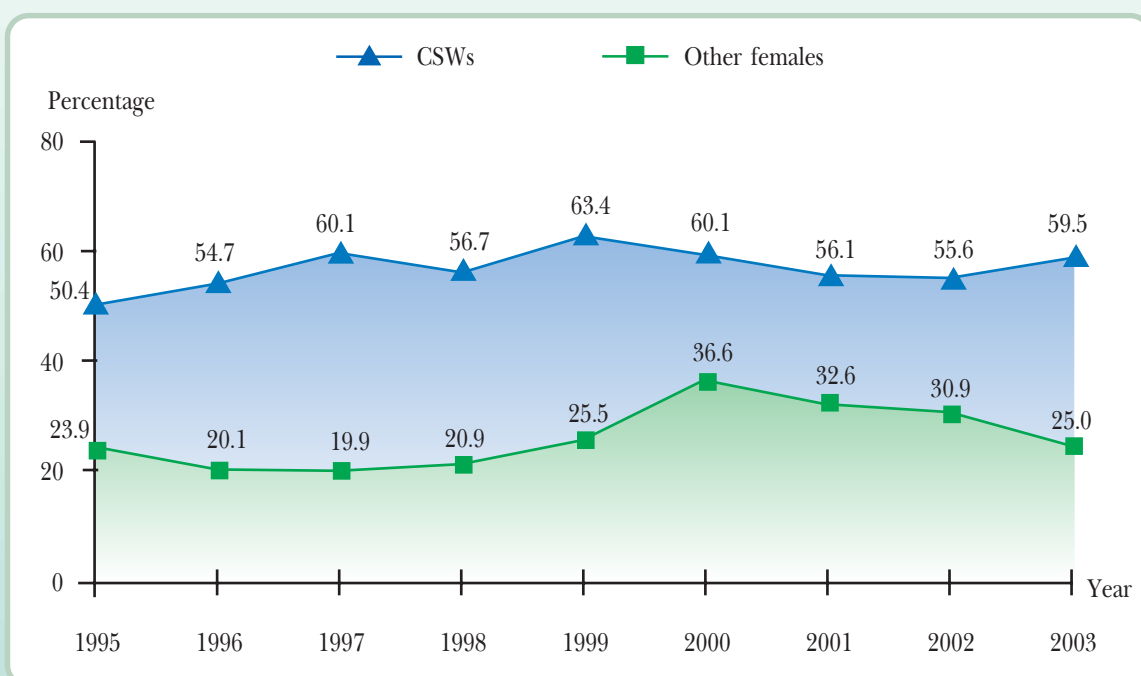
**Figure 4.52** Proportion of Male Industrial Workers' Sex Partners in the Past Year According to Survey on HIV/AIDS Risk Behaviours in Thailand, 1st-9th Rounds, 1995-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 1st-9th rounds of survey (1995-2003).

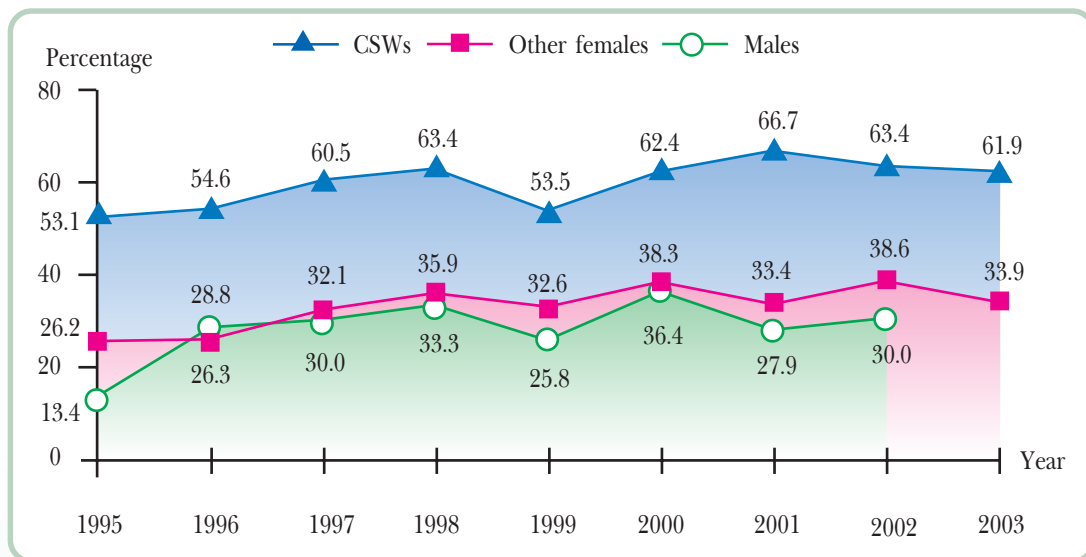
**Figure 4.53** Rate of Constant Condom Use during Sexual Encounters in the Past Year of Military Recruits According to Survey on HIV/AIDS Risk Behaviours in Thailand, 1st-9th Rounds, 1995-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 1st-9th rounds of survey (1995-2003).

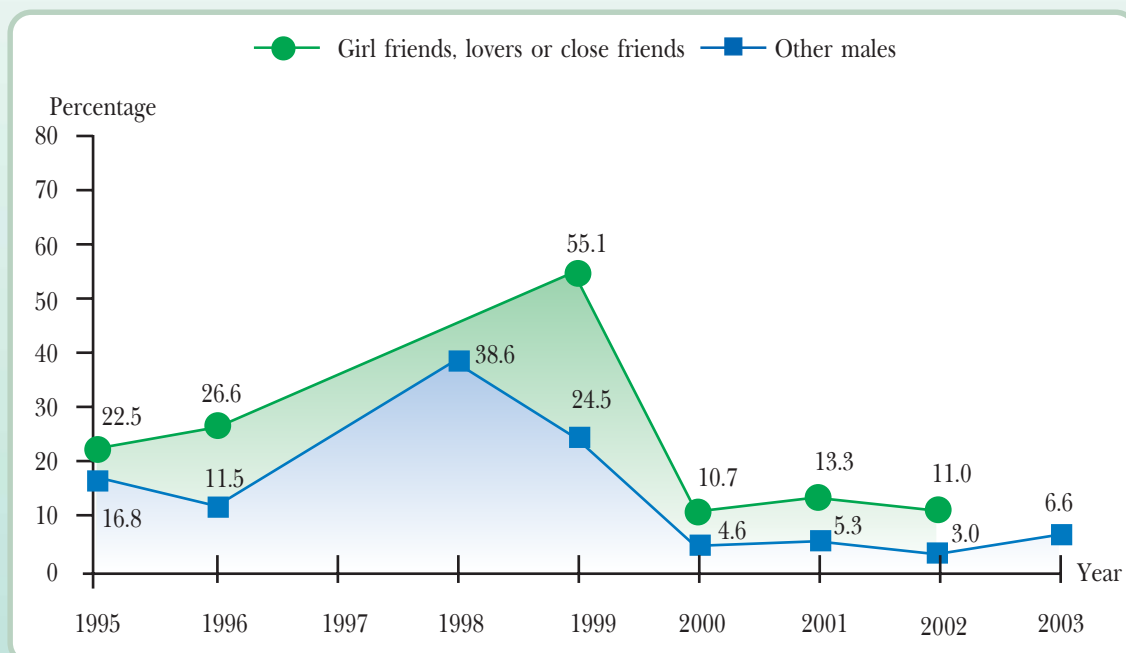
**Figure 4.54** Rate of Constant Condom Use during Sexual Encounters in the Past Year of Male Industrial Workers According to Survey on HIV/AIDS Risk Behaviours in Thailand, 1st-9th Rounds, 1995-2003



**Source:** Bureau of Epidemiology Division, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 1st-9th rounds of survey (1995-2003).

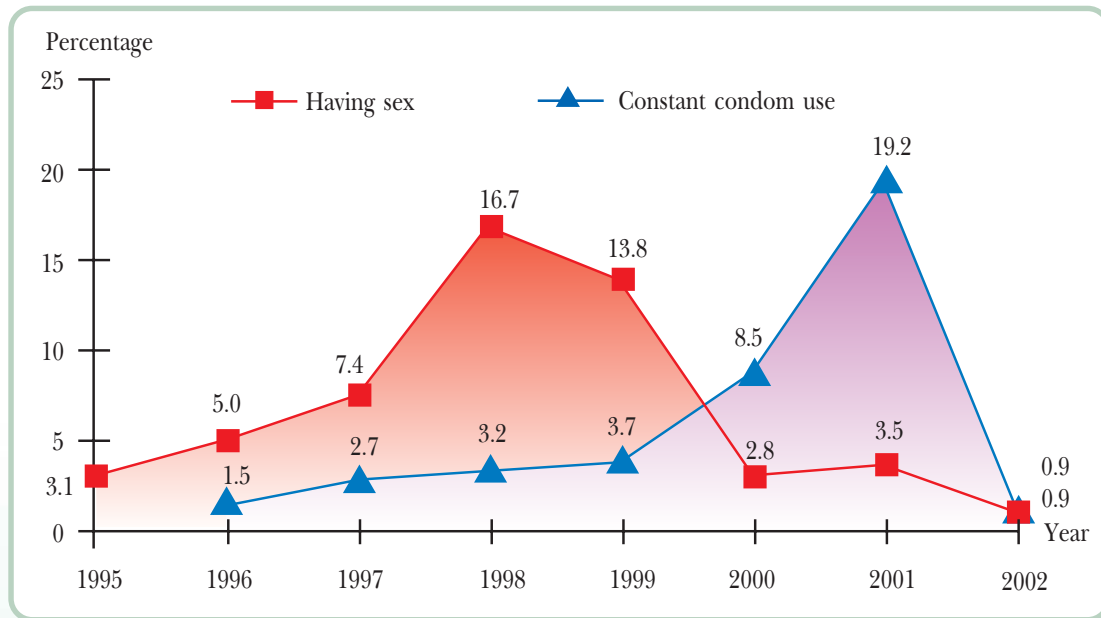
**Figure 4.55** Proportion of Female Industrial Workers Having Sexual Encounters in the Past Year According to Survey on HIV/AIDS Risk Behaviours in Thailand, 1st-9th Rounds, 1995-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 1st-9th rounds of survey (1995-2003).

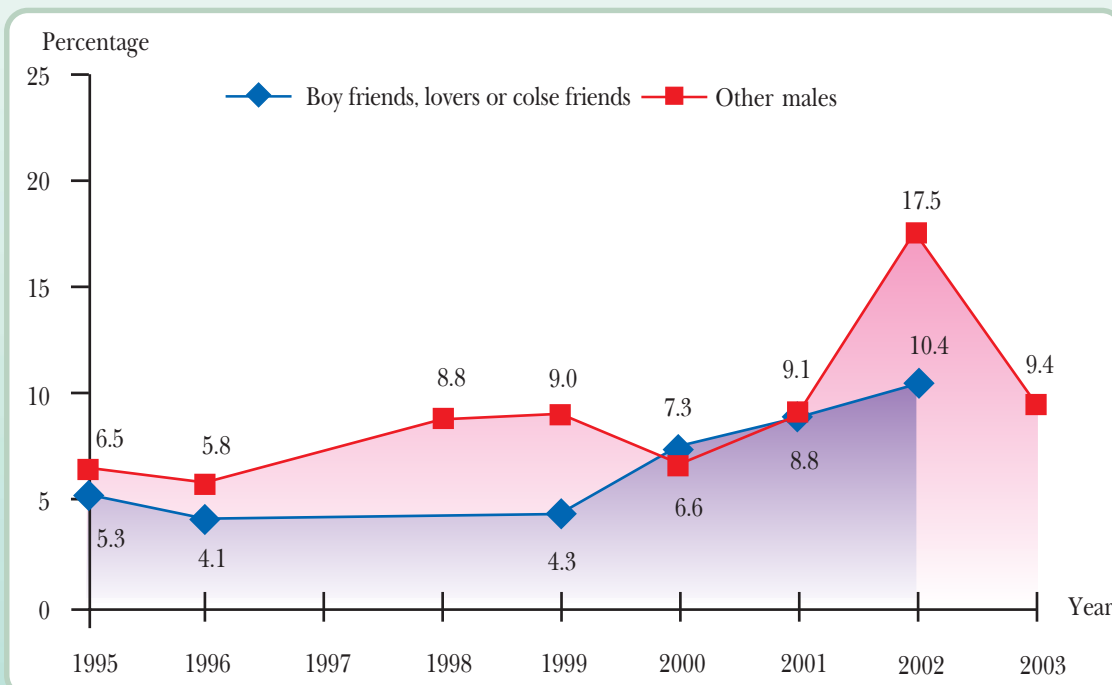
**Figure 4.56** Proportion of Pregnant Women Attending ANC Having Sex with Other Males and Constant Condom Use Rate According to Survey on HIV/AIDS Risk Behaviour in Thailand 1st-8th Rounds, 1995-2002



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 1st-8th rounds of survey (1995-2002).

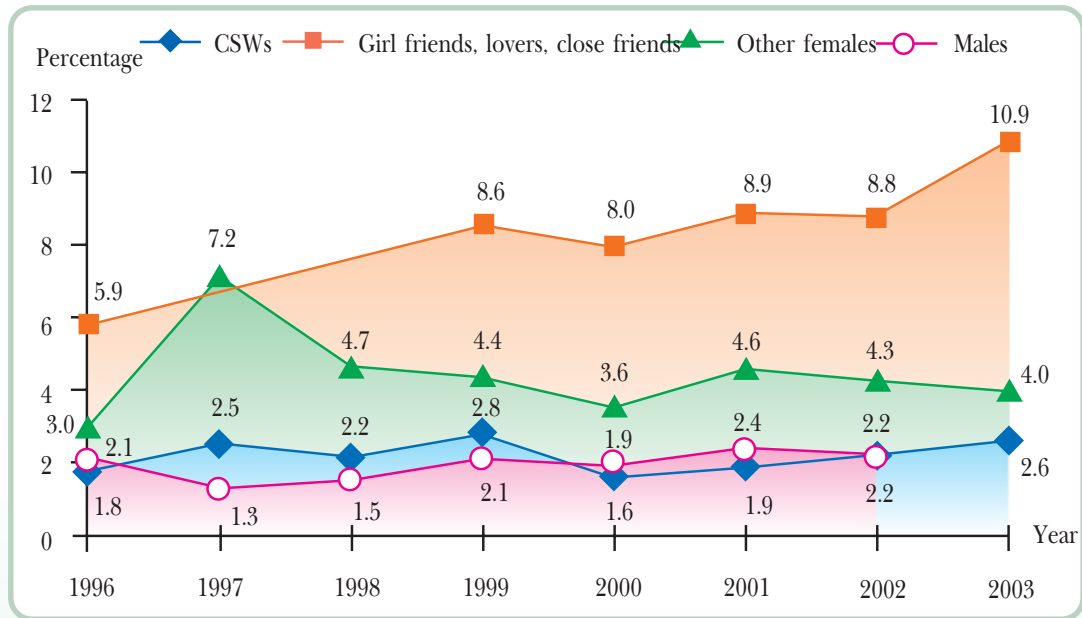
**Figure 4.57** Rate of Constant Condom Use during Sexual Encounters in the Past Year of Female Industrial Workers According to Survey HIV/AIDS Risk 1st-9th rounds, 1995-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 1st-9th rounds of survey (1995-2003).

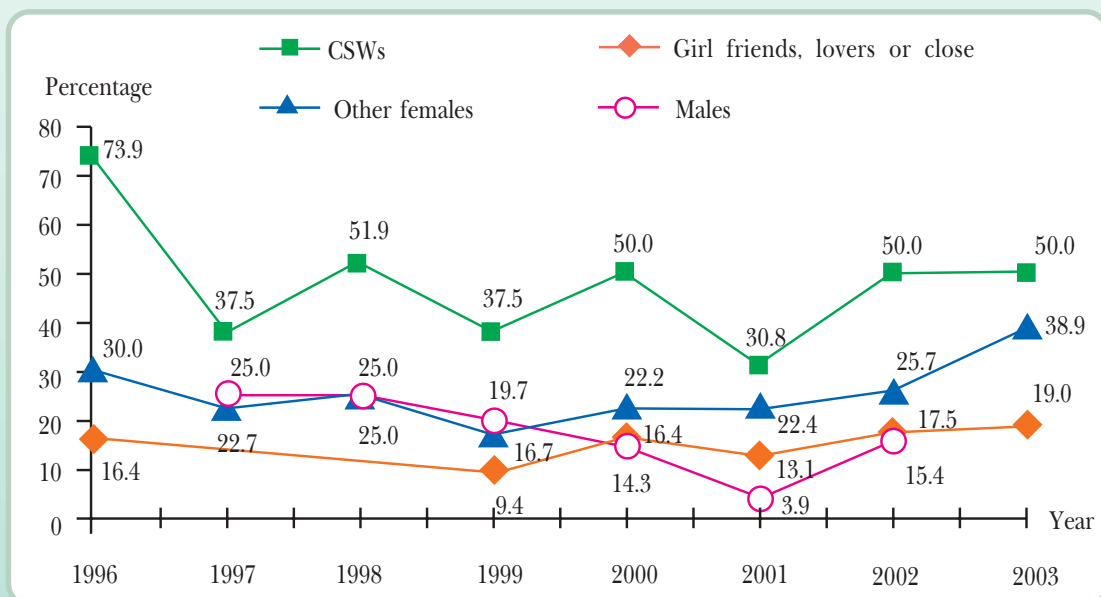
**Figure 4.58** Proportion of Male Secondary School Students (Mathayomsuksa 5 or Grade 11) Having Sex in the Past Year According to Surveys on HIV/AIDS Risk Behaviours in Thailand, 2nd-9th Rounds, 1996-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 2nd-9th rounds of survey (1996-2003).

**Figure 4.59** Rate of constant Condom Use during Sexual Encounters in the Past Year of Male Secondary School Students (Mathayomsuksa 5 or Grade 11) According to Surveys on HIV/AIDS Risk Behaviours in Thailand, 2nd-9th Rounds, 1996-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Note:** The Bureau of Epidemiology deployed the new data analysis method for the 2nd-9th rounds of survey (1996-2003).

### 10.10 Self-Health Care and Health Care Seeking Behaviours

People's health care seeking behaviours have been changing. Overall, the proportion of people seeking care at public health facilities rose from 15.5% in 1970 to 53.9% in 1996, while the rate of self-medication decreased from 51.4% in 1970 to 17.1% in 1996; and the rate of health care seeking at private clinics and hospitals slightly rose from 22.7% in 1970 to 24.2% in 1996. Nonetheless, after the economic crisis, more people have turned to buying medicine for self-care, climbing from 17.1% in 1996 to 20.9% in 2004, whereas the use of private clinics and hospitals has declined from 24.2% in 1996 to 22.7% in 2003 (Table 4.92).

**Table 4.92** Pattern of Health Care Seeking Behaviours among Thai Population (percent)

Care or health facility attended	1970 IPSR	1979 IPSR	1985 IPSR	1991 HWS	1996 PHS	1996 HWS	2001 HWS	2003 HWS	2004 HWS
<b>Both rural and urban areas</b>									
Nothing	2.7	4.2		15.9	0.5	6.9	5.4	5.9	5.3
Traditional care or others	7.7	6.3	2.4	5.7	4.2	2.8	2.5	2.9	4.4
Self-medication	51.4	42.3	28.6	38.3	17.1	37.9	24.2	21.5	20.9
Health centres	4.4	16.8	14.7	14.8	34.5	20.8	17.4	23.9	24.6
Public hospitals	11.1	10.0	32.5	12.9	19.4	12.9	34.8	33.1	30.2
Private clinics/hospitals	22.7	20.4	21.8	12.4	24.2	18.7	15.0	19.4	22.7
<b>Rural areas</b>									
Nothing				15.6	0.4	6.7	5.8	6.0	5.0
Traditional care or others				5.8	6.2	2.5	2.6	3.0	4.4
Self-medication				38.6	11.6	38.4	22.1	19.9	18.7
Health centres				17.0	49.6	24.6	22.3	29.5	30.8
Public hospitals				12.8	20.0	13.8	35.2	34.4	31.0
Private clinics/hospitals				10.2	12.3	14.0	11.4	15.4	19.5
<b>Urban areas</b>									
Nothing				17.9	0.7	7.5	4.4	5.4	6.1
Traditional care or others				4.7	1.3	4.3	2.1	2.6	4.7
Self-medication				36.9	25.2	36.0	29.4	25.6	27.0
Health centres				2.7	12.8	3.5	5.5	9.6	7.1
Public hospitals				13.1	18.5	8.9	33.9	30.2	28.3
Private clinics/hospitals				24.7	41.6	39.8	24.0	29.8	32.0

- Sources:**
1. IPSR: Institute for Population and Social Research, Mahidol University, 1988.
  2. HWS: Health and Welfare Surveys, NSO, 1991, 1996, 2001, 2003 and 2004.
  3. PHS: Provincial Health Survey, BHPP, 1996.

- Notes:**
1. Different definitions of illness in different sources.
  2. More than one answers could be mentioned.

Health promotion and disease prevention services are part of the policies under the Universal Coverage of Healthcare (30-baht healthcare) Scheme. According to the 2003 survey conducted by the National Statistical Office, 5.3% of all population used health promotion services (Table 4.93).

**Table 4.93** Percentage of Population Using Health Promotion Services, 2003

Use, non-use, and type of services	Total	Males	Females
Use of services	5.3	4.0	6.7
Non-use of services	94.7	96.0	93.3
<b>Type of services used</b>			
Immunization	33.2	45.6	26.0
Antenatal care	7.1	-	11.3
Family planning	2.6	0.5	3.8
Post-natal care	3.6	-	5.6
Health checkups	33.5	32.2	34.3
Dental care	8.1	8.8	7.7
Other services	11.9	12.9	11.3

**Source:** Report on Health and Welfare Survey, 2003. National Statistical Office.

Regarding types of services, one-third of the clients came for health checkups and immunization (33.5% and 33.2%, respectively; Table 4.93). As for health facilities, one-third attended rural or urban health centres (34.2%), followed by community hospitals (28.7%), and general/regional hospitals (11.3%; Table 4.94).

**Table 4.94** Percentage of Population Using Health Promotion Services by Type of Health Facility, 2003

Health facility	Total	Males	Females
Drugstores	0.3	0.2	0.3
Health centres	34.2	36.5	32.9
Community health centres	1.2	1.0	1.3
State-run hospitals	47.2	47.5	47.1
- Community hospitals	28.7	30.2	27.8
- General/regional hospitals	11.3	10.6	11.8
- University hospitals	0.9	1.0	0.8
- Other public hospitals	6.3	5.7	6.7
Private clinics	9.2	7.4	10.2
Private hospitals	6.0	5.0	6.6
Others	1.9	2.4	1.6

**Source:** Report on Health and Welfare Survey, 2003. National Statistical Office.





## CHAPTER 5

# Health Status and Health Problems of Thai People

### 1. Overall Physical Health Status Indicators

Over the past three decades, the overall physical health status of the Thai people has a promising trend of improvement as evidenced by the following:

#### 1.1 Life Expectancy at Birth

In 2002, the life expectancy at birth of Thai people was 69.1 years. Though higher than that of the people in other developing countries and of the world population, life expectancy of Thai people is still lower than that for several other ASEAN countries (Table 5.1). However, during 1964-2000, Thais' life expectancy at birth substantially increased from 55.9 years to 69.4 years for males and 62.0 years to 74.1 years for females. In 2025, it is expected that the life expectancy of Thai citizens will reach 74.8 years for males and 80.3 years for females (Table 5.2). It is noteworthy that female's life expectancy is higher than males; however, the gap has been gradually narrowing from 6.1 years for the period 1964-1965 to 4.7 years for the period 1995-2000.

The World Health Report 2003 also revealed that, in 2002, Thailand's healthy life expectancy (HALE) was 60.1 years: 57.7 for males and 62.4 for females, which were lower than those for several other ASEAN countries (Table 5.1).

**Table 5.1** Life Expectancy at Birth of Thai People in Comparison with Those for Other Countries

Group of countries	Life expectancy at birth			Healthy life expectancy (2002) <sup>(4)</sup>		
	1998 <sup>(1)</sup>	2001 <sup>(2)</sup>	2002 <sup>(3)</sup>	Total	Male	Female
<b>WHO/SEAR</b>						
Sri Lanka	73.3	72.3	72.5	61.6	59.2	64.0
<b>Thailand</b>	<b>68.9</b>	<b>68.9</b>	<b>69.1</b>	<b>60.1</b>	<b>57.7</b>	<b>62.4</b>
Indonesia	65.6	66.2	66.6	58.1	57.4	58.9
Maldives	65.0	66.8	67.2	57.8	59.0	56.6
India	62.9	63.3	63.7	53.5	53.3	53.6
Bhutan	61.2	62.5	63.0	52.9	52.9	52.9
Myanmar	60.6	57.0	57.2	51.7	49.9	53.5
Bangladesh	58.6	60.5	61.1	54.3	55.3	53.3
Nepal	57.8	59.1	59.6	51.8	52.5	51.1
<b>ASEAN</b>						
Singapore	77.3	77.8	78.0	70.1	68.8	71.3
Brunei	75.7	76.1	76.2	65.3	65.1	65.5
Malaysia	72.2	72.8	73.0	63.2	61.6	64.8
<b>Thailand</b>	<b>68.9</b>	<b>68.9</b>	<b>69.1</b>	<b>60.1</b>	<b>57.7</b>	<b>62.4</b>
Philippines	68.6	69.5	69.8	59.3	57.1	61.5
Vietnam	67.8	68.6	69.0	61.3	59.8	62.9
Indonesia	65.6	66.2	66.6	58.1	57.4	58.9
Myanmar	60.6	57.0	57.2	51.7	49.9	53.5
Laos <sup>53.7</sup>	53.9	54.3	47.0	47.1	47.0	
Cambodia	53.5	57.4	57.4	47.5	45.6	49.5
<b>High human development index</b>						
Japan	80.0	81.3	81.5	75.0	72.3	77.7
Canada	79.1	79.2	79.3	72.0	70.1	74.0
Ireland	79.1	79.6	79.9	72.8	72.1	73.6
Sweden	78.7	79.9	80.0	73.3	71.9	74.8
Switzerland	78.7	79.0	79.1	73.2	71.1	75.3
<b>World</b>	<b>66.9</b>	<b>66.7</b>	<b>66.9</b>	-	-	-
<b>High human development index</b>	<b>77.0</b>	<b>77.1</b>	<b>77.4</b>	-	-	-
<b>Medium human development index</b>	<b>66.9</b>	<b>67.0</b>	<b>67.2</b>	-	-	-

**Source:** <sup>(1)</sup> UNDP, Human Development Report 2000.

<sup>(2)</sup> UNDP, Human Development Report 2003.

<sup>(3)</sup> UNDP, Human Development Report 2004.

<sup>(4)</sup> WHO, World Health Report 2003.

**Table 5.2** Life Expectancy at Birth of Thai People

Year	Male	Female	Female-male difference
1964-1965 <sup>(1)</sup>	55.9	62.0	6.1
1974-1976 <sup>(1)</sup>	58.0	63.8	5.8
1985-1986 <sup>(1)</sup>	63.8	68.9	5.1
1990-1995 <sup>(2)</sup>	68.6	73.4	4.8
1995-2000 <sup>(2)</sup>	69.4	74.1	4.7
2000-2005 <sup>(3)</sup>	67.9	74.9	7.0
2005-2010 <sup>(3)</sup>	69.6	76.2	6.6
2010-2015 <sup>(3)</sup>	71.3	77.5	6.3
2015-2020 <sup>(3)</sup>	73.1	78.9	5.8
2020-2025 <sup>(3)</sup>	74.8	80.3	5.5

- Sources:** <sup>(1)</sup> Reports on Population Change Surveys, 1964-1965, 1974-1976, 1985-1986, 1989, 1991, and 1995-1996. National Statistical Office.
- <sup>(2)</sup> Chiraphan Kallapavit et al. Adjustments of Population Estimates for Thailand in 1990-2020, June 1998.
- <sup>(3)</sup> Population Projection for Thailand, 2000-2025. Office of the National Economic and Social Development Board, 2003.

## 1.2 Maternal Mortality

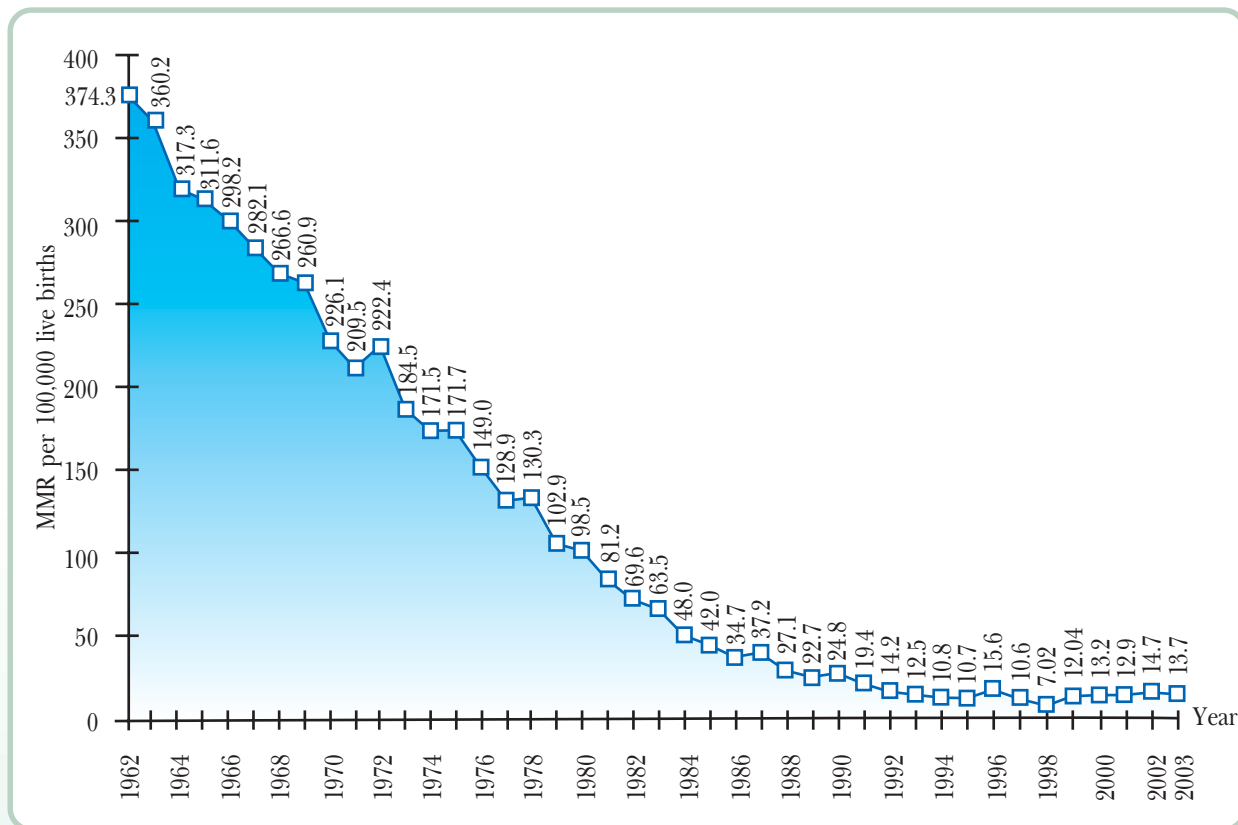
The maternal mortality ratio (MMR) in Thailand has declined from 374.3 per 100,000 live births in 1962 to 13.7 per 100,000 live births in 2003 (Figure 5.1). However, MMR estimates from several surveys are higher than the reported figure. For example, the 1995-1996 RAMOS<sup>1</sup> survey on mortality among women of reproductive age revealed a MMR of 44.1, while the Safe Motherhood Project<sup>2</sup> reported the MMR for the same period at 16.3, and the 2003 study of Yongjuea Laosirithavorn<sup>3</sup> reported a MMR of 52.2 for the period.

<sup>1</sup> Survey on Mortality among Women of Reproductive Age Using the Reproductive Age Mortality Survey Method. Bureau of Health Promotion, Department of Health.

<sup>2</sup> Bureau of Health Promotion, Department of Health. Report on Maternal in Thailand. Safe Motherhood Project, 1995-1996.

<sup>3</sup> Yongjuea Laosirithavorn. Situation and Report on Maternal Mortality Resulting from Pregnancy and Childbirth in Thailand, 1995-1996, 2003.

Figure 5.1 Maternal Mortality Ratio, Thailand, 1962-2003

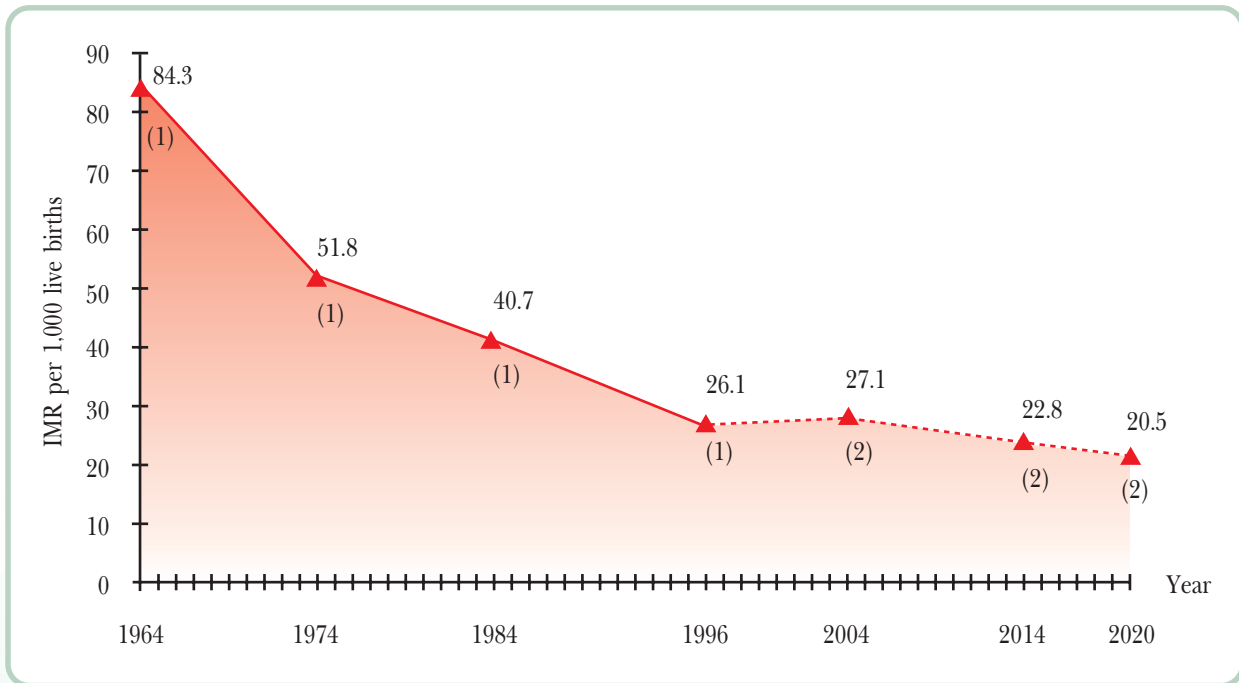


Source: Bureau of Policy and Strategy, Ministry of Public Health.

### 1.3 Infant Mortality

In Thailand, the infant mortality rate (IMR, per 1,000 live births) rapidly declined from 84.3 in 1964 to 40.7 in 1984 and to 26.1 in 1996. It is expected that the IMR will drop further to 20.5 in 2020 (Figure 5.2). However, although IMR for Thailand is lower than the global average, it is still higher than that for some other countries in the same region such as Singapore and Malaysia (Table 5.3).

**Figure 5.2** Infant Mortality Rate for Thailand, 1964-2020



**Sources:** (1) Estimates were derived from the data from the Population Changes Survey. National Statistical Office.

(2) Estimates from Population Projection for Thailand, 1990-2020. Office of the National Economic and Social Development Board.

**Table 5.3** Infant Mortality Rate and Child Mortality Rate for Thailand in Comparison with Those for Other Countries, 1980, 2001 and 2002

Group of countries	IMR per 1,000 live births			CMR per 1,000 live births		
	1980	2001	2002	1980	2001	2002
<b>WHO/SEAR</b>	32	42	42	43	55	65
Sri Lanka	34	17	16	48	19	19
<b>Thailand</b>	<b>49</b>	<b>24</b>	<b>24</b>	<b>58</b>	<b>28</b>	<b>28</b>
Indonesia	90	33	32	125	45	43
Myanmar	109	77	77	134	109	108
India	115	67	65	173	93	90
Nepal	132	66	62	195	91	83
Bangladesh	132	51	48	205	77	73
Maldives						
Bhutan						
<b>ASEAN</b>						
Singapore	12	3	3	13	4	4
Malaysia	30	8	8	42	8	8
Brunei						
<b>Thailand</b>	<b>49</b>	<b>24</b>	<b>24</b>	<b>58</b>	<b>28</b>	<b>28</b>
Philippines	52	29	28	81	38	37
Vietnam	57	30	20	70	38	26
Indonesia	90	33	32	125	45	43
Myanmar	109	77	77	134	109	108
Laos	127	87	87	200	100	100
Cambodia						
<b>High human development index</b>						
Sweden	7	3	3	8	3	3
Japan	8	3	3	10	5	5
Switzerland	9	5	5	11	6	6
Canada	10	5	5	13	7	7
Ireland	11	6	6	14	6	6
<b>World</b>	<b>80</b>	<b>56</b>	<b>55</b>	<b>121</b>	<b>81</b>	<b>81</b>
<b>High income</b>	<b>13</b>	<b>5</b>	<b>5</b>	<b>15</b>	<b>7</b>	<b>7</b>
<b>Middle income</b>	<b>57</b>	<b>31</b>	<b>30</b>	<b>80</b>	<b>38</b>	<b>37</b>
<b>Low income</b>	<b>116</b>	<b>80</b>	<b>79</b>	<b>171</b>	<b>121</b>	<b>121</b>

**Source:** The World Bank. World Development Indicators, 1999, 2000/2001, 2002, 2003 and 2004.

**Note:** CMR per 1,000 live births among children under 5 years of age.

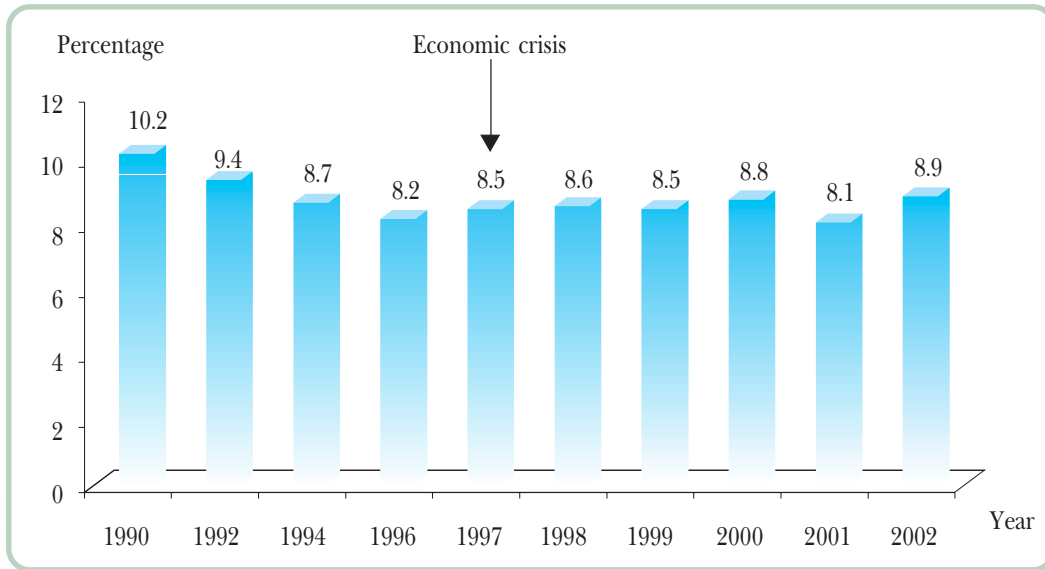
### 1.4 Low Birth Weight

Overall, the rate of low-birth-weight newborns (weighing less than 2,500 grams) has dropped from 10.2% in 1990 to 8.9% in 2002 (Figure 5.3). However, it has been noted that since the 1997 economic crisis, the problem of low birth weight has been more serious, especially among the poor and unemployed, the rate being significantly higher than in the better-off group. It has also been found that the rate is highest in the South and the Northeast<sup>4</sup>.

<sup>4</sup> Preeda Tae-arak, Panbaudee Ekachampaka, Suthisarn Wattanamano and Rujira Taverat. Health Status of Pregnant Women Attending ANC Clinics and Those Delivering Babies at State Hospitals after the Economic Crisis, 2003.



**Figure 5.3** Percentage of Low-birth-weight Newborns (weighing less than 2,500 grams), 1990-2002

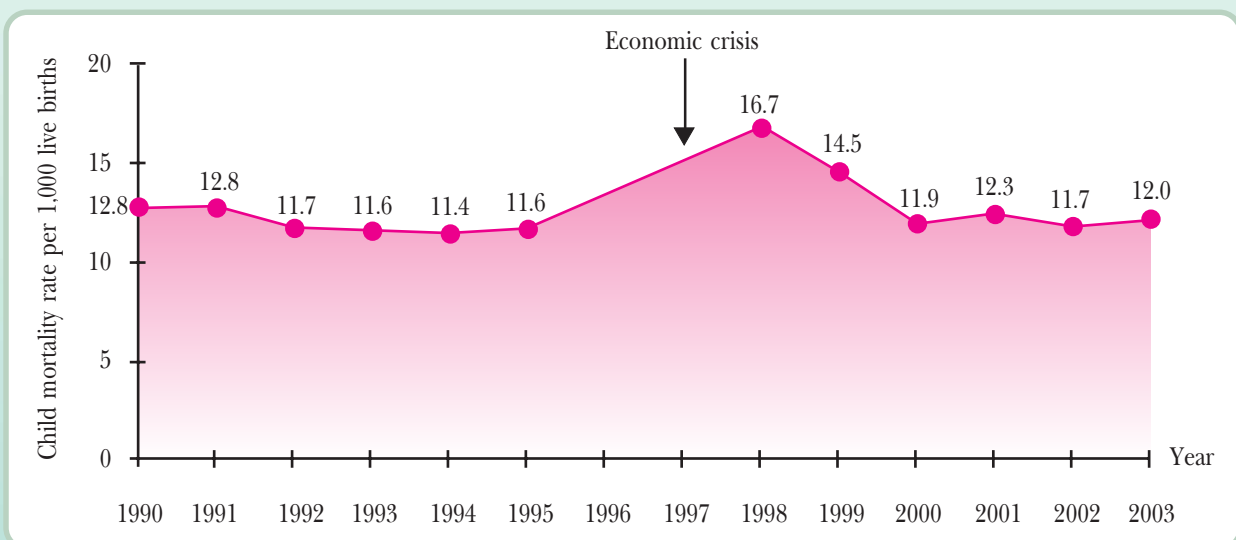


**Source:** Department of Health, Ministry of Public Health.

### 1.5 Mortality Rate of Children

The child mortality rate (among children aged under 5 years per 1,000 live births) has not significantly changed from 12.8 in 1990 to 12.0 in 2003. It is noteworthy that during the first stage of the economic crisis the rate rose to 16.7 in 1998 and has had a tendency to drop since 1999 (Figure 5.4). It is also noted that the rate reported by the civil registration office tends to be lower than reality, whereas the rate of 31.4 was derived from the 1996 population change survey.

**Figure 5.4** Child Mortality Rate in Thailand, 1990-2003

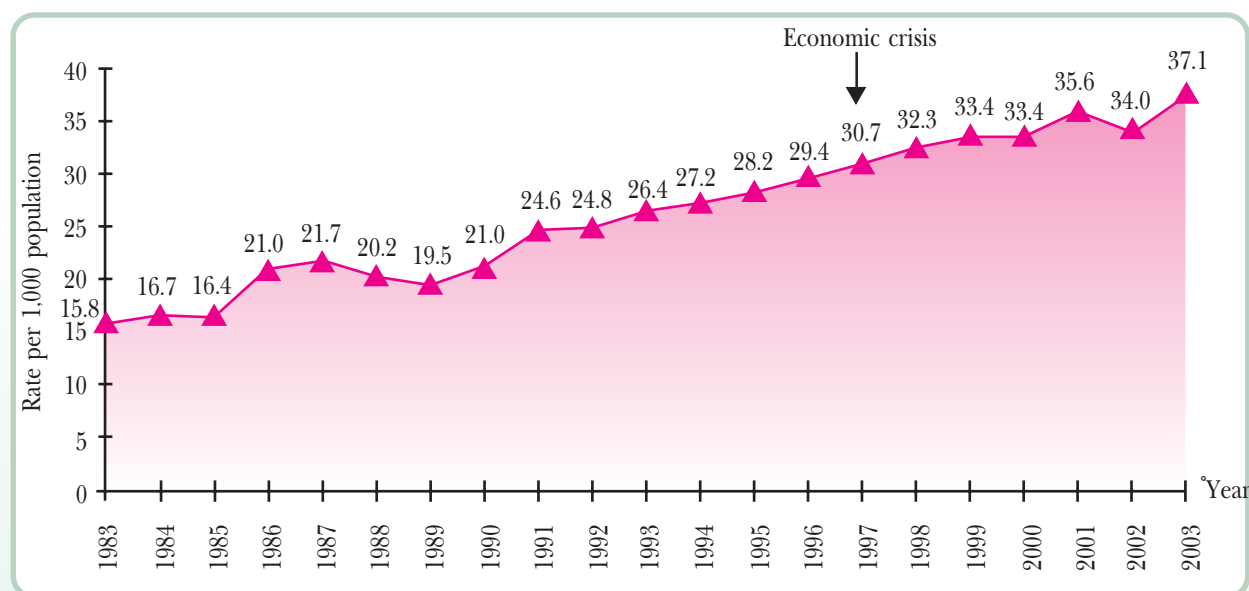


**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

## 2. Mental Health Indicators

Mental health indicators, derived from reports on mental disorders and suicide situation, tend to be worsening among the Thai people as the rate of outpatients attending mental health clinics has increased from 24.6 per 1,000 population in 1991 to 37.1 per 1,000 population in 2003 (Figure 5.5); and the numbers of patients with psychosis, depression and epilepsy are on the rise (Table 5.4).

**Figure 5.5** Rate of Outpatients with Mental and Behavioural Disorders, 1983-2003



**Source:** Outpatient Report. Bureau of Policy and Strategy, Ministry of Public Health.

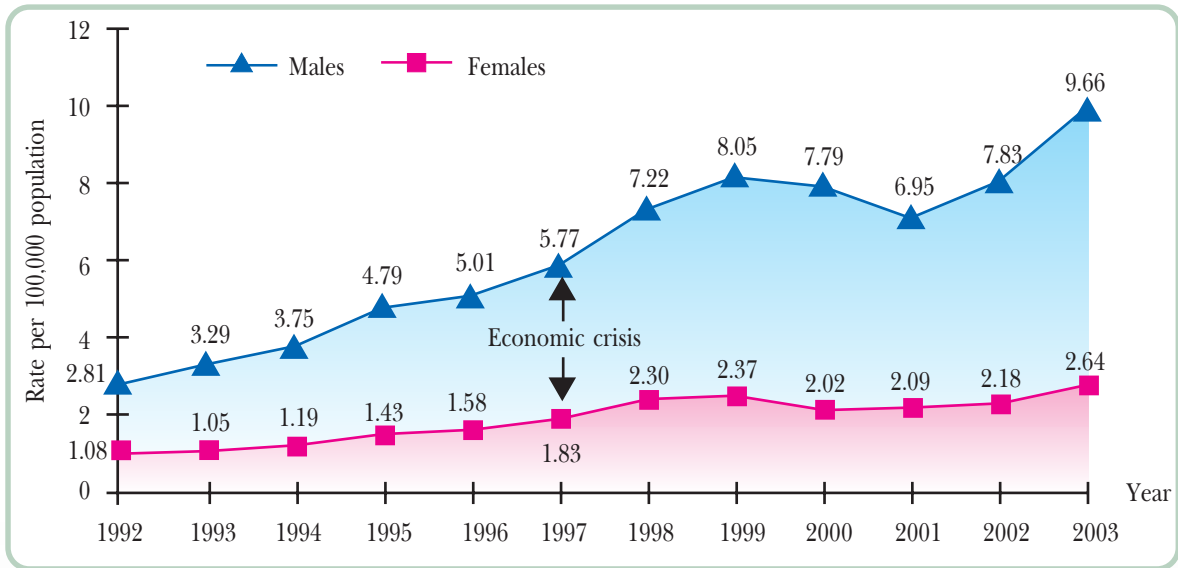
**Table 5.4** Prevalence of Mental Disorders, 1997-2001

Mental disorder	Prevalence per 100,000 population				
	1997	1998	1999	2000	2001
- Psychosis	440.1	435.3	424.8	451.0	519.6
- Anxiety disorder	789.9	822.6	764.7	812.2	776.0
- Major depression	55.9	74.3	99.5	130.3	94.9
- Mental retardation	44.7	52.9	58.2	52.4	51.7
- Epilepsy	109.3	125.8	n.a.	149.8	182.5

**Source:** Department of Mental Health, Ministry of Public Health.

Suicide is one of the indicators reflecting serious mental conditions. According to a report of the Royal Thai Police, after the 1997 economic crisis the suicidal rate tended to be on the rise; the rate in males being almost four times greater than that in females (Figure 5.6).

**Figure 5.6** Rate of Suicides, 1992-2003



Source: Royal Thai Police.

### 3. Epidemiological Transition

#### 3.1 Causes of Death

Overall, according to a death certificates analysis, the major and rising causes of death among Thai citizens are non-communicable diseases, accidents, and HIV/AIDS (which is currently a major health problem of the country). The prevalence rates of communicable diseases, which used to be significant health problems, have been declining except for re-emerging diseases such as tuberculosis that is associated with HIV/AIDS (Figure 5.7). This is consistent with the results of the Burden of Diseases Study which revealed that the disease burdens in terms of disability-adjusted life years (DALYs) from non-communicable diseases were twice as much as those from communicable diseases, and that the longer the people live, the greater the tendency for them to have non-communicable diseases (Table 5.5).

Nevertheless, a study on the causes of death among Thai people during a one-year period between 1997 and 1999 in 16 provinces using the verbal autopsy method, conducted by the MoPH Bureau of Policy and Strategy, revealed that only 29.3% of specified causes of death were consistent with those stated in the death certificates. The categories of diseases with high levels of consistency were “unclear causes”, followed by cancer and tumors, external causes and infectious diseases, whereas other categories had a very low consistency level.

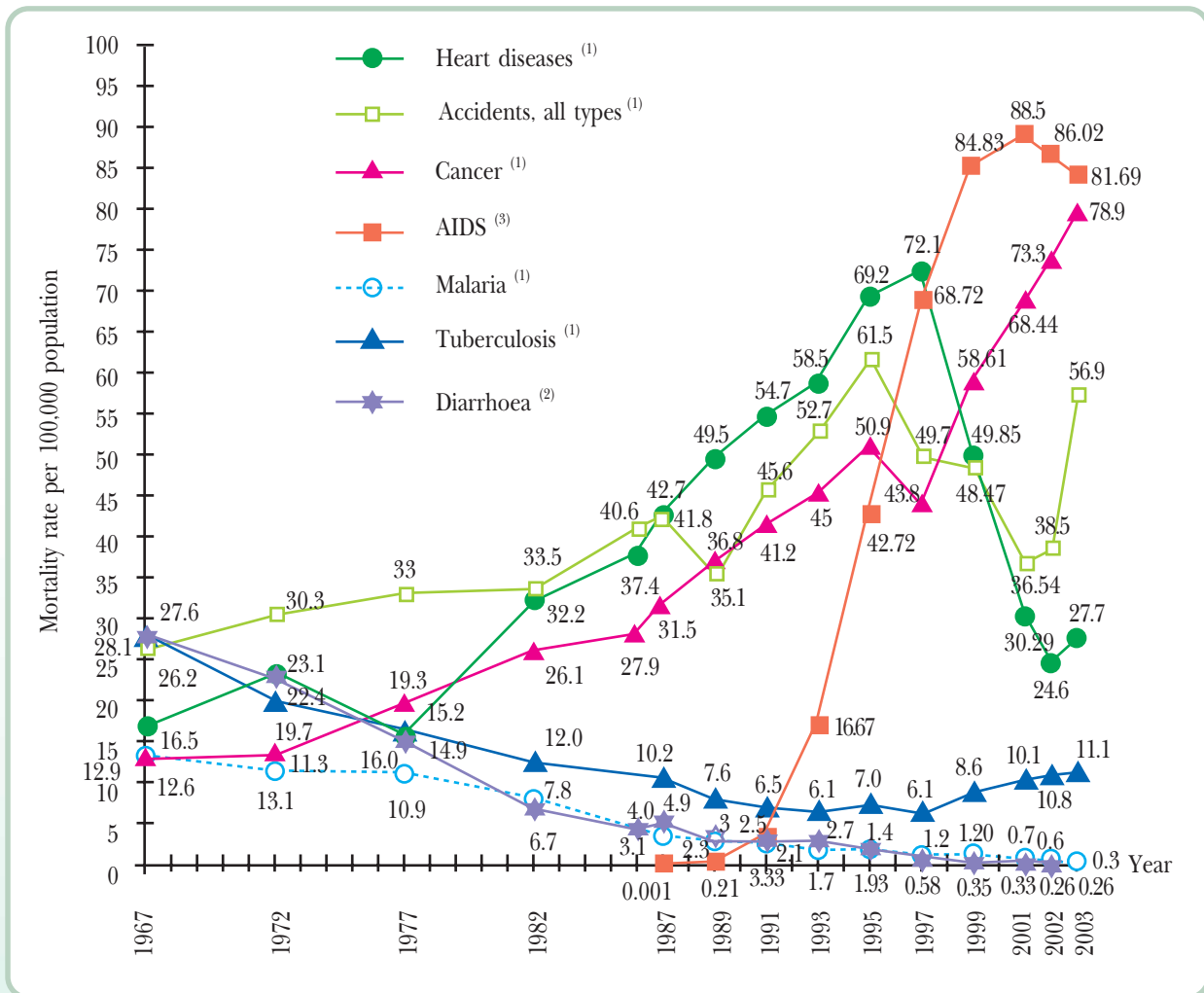
For all age groups, the study revealed that the leading cause of death was the diseases of circulatory system (18.6% of all causes), more than half of which were due to cerebrovascular diseases; the second leading cause was cancer and tumors (16.2%), nearly half of which were liver/bile-duct and lung cancers; the third leading cause was infectious diseases (15.5%), most of which were HIV infection particularly among teenage and young adult males, followed by tuberculosis; and the fourth leading cause was external causes among children and youths (12.4%), i.e. accidental drowning among school-age children and road traffic accidents among teenagers and adults, most of which were associated with motorcycles.

An analysis of the differences in causes of death in males and females revealed a proportion of 21.4% for the diseases of circulatory system and 16.5% for cancer/tumors in females and 18.2% for infectious diseases and 16.6% for the diseases of circulatory system in males, whereas external causes ranked third for males and fifth for females.

By age group and sex, the causes of death are as shown in the table below:

Age group	Major causes of death		Remarks
	Males	Females	
Under 1 year	Premature birth, low birth weight, pneumonia, systemic infection	Premature birth, low birth weight, congenital heart defect, pneumonia	Due to HIV infection, 5.7%
1-4 years	Accidental drowning, pneumonia	Accidental drowning, pneumonia	Due to HIV infection, 13.3%
5-14 years	Accidental drowning, road traffic accident	Accidental drowning, road traffic accident	Due to HIV infection, 7.9%
15-24 years	Road traffic accident, HIV infection, suicide	HIV infection, road traffic accident, suicide	
25-44 years	HIV infection, road traffic accident, suicide	HIV infection, road traffic accident, suicide	
45-59 years	Liver/bile-duct cancer, cerebrovascular diseases	Liver/bile-duct cancer, cerebrovascular diseases, diabetes	
60-74 years	Cerebrovascular diseases, liver/bile-duct cancer, chronic/obstructive pulmonary disease	Cerebrovascular diseases, diabetes, liver/bile-duct cancer	
75 years and over	Cerebrovascular diseases, cancer, chronic/obstructive pulmonary disease, cardiac ischemia	Cerebrovascular diseases, chronic/obstructive pulmonary disease	

**Figure 5.7** Mortality Rates due to Major Causes of Death, Thailand, 1967-2003



Sources: <sup>(1)</sup> Bureau of Policy and Strategy, Ministry of Public Health.

<sup>(2)</sup> Bureau of Epidemiology, Department of Disease Control.

<sup>(3)</sup> Working Group on Forecast of HIV-infected Cases. Forecast of HIV-infected Cases in Thailand, 2000 - 2020, 2001.

**Table 5.5** Percentage of Causes of Disability-Adjusted Life Years (DALYs) Lost of Thai People by Age Group, 1999

Age group (years)	Percentage of cause of DALY lost					Total
	0 - 4	5 - 14	15 - 44	45 - 59	60 and over	
- Communicable diseases	56.7	32.8	34.8	14.6	11.3	27.7
- Non-communicable diseases	36.6	39.6	42.7	74.7	85.2	58.3
- Accidents	6.7	27.6	22.5	10.8	3.5	14.0

Source: Working Group on Development of Burden of Disease Indicators. Bureau of Policy and Strategy, Ministry of Public Health.

In measuring the health status of Thai people using DALYs<sup>5</sup> as the indicator, it was found that HIV/AIDS is the number one leading cause of DALYs lost in both males and females (17% for males and 10% for females), the second and third causes were road traffic injuries and cerebrovascular disease respectively among males, and cerebrovascular disease and diabetes respectively among females (Table 5.6).

Besides, when considering the health problems by age group, the differences in life-threatening problems are as follows:

- Age group 0-14 years: major health problems are low birth weight and asphyxia;
- Age group 15-29 years: major health problems are HIV/AIDS, road traffic injuries, drug abuse, schizophrenia, and alcohol use;
- Age group 30-59 years: major health problems are HIV/AIDS, road traffic injuries, diabetes, and liver cancer;
- Age group 60 years and over: major health problems are cerebrovascular disease, emphysema, and diabetes.

**Table 5.6** Major Diseases Attributable to Disability-Adjusted Life Years (DALYs) Lost of Thai People by Sex, 1999

No.	Male			Female		
	Disease	DALYs lost	Percent	Disease	DALYs lost	Percent
1	HIV/AIDS	960,087	17	HIV/AIDS	372,947	10
2	Road traffic injuries	510,907	9	Cerebrovascular diseases	280,673	7
3	Cerebrovascular disease	267,567	5	Diabetes	67,158	7
4	Liver cancer	248,083	4	Major depression	145,336	4
5	Diabetes	168,372	3	Liver cancer	118,384	3
6	Ischemic heart disease	164,094	3	Knee osteoarthritis	117,963	3
7	Emphysema	156,861	3	Road traffic injuries	114,963	3
8	Being assaulted/ murdered	156,371	3	Anaemia (iron deficiency)	112,990	3
9	Suicide or self-inflicted injuries	147,988	3	Ischemic heart disease	109,592	3
10	Drug dependence	137,703	2	Cataract	96,091	2

**Source:** Bureau of Policy and Strategy. Burden of Disease and Injuries in Thailand, 2002.

<sup>5</sup> Disability-Adjusted Life Years (DALYs): One DALY is one lost year of healthy life; calculated from the formula "DALYs = years lost to premature death + years lost to illness or disability".



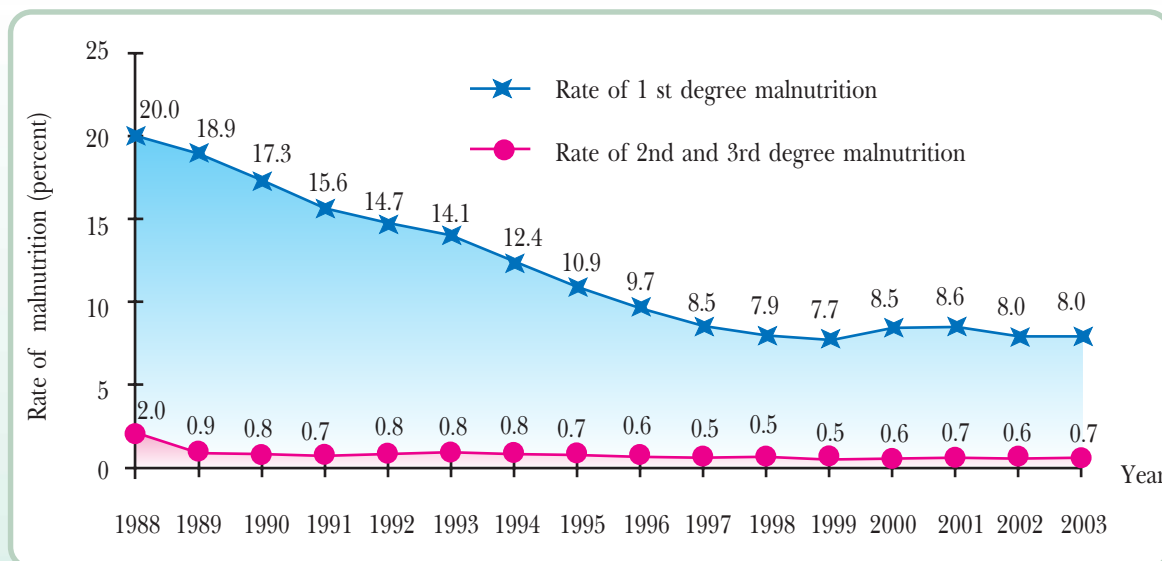
### 3.2 Public Health Problems with Declining Trends

#### 3.2.1 Malnutrition

The nutritional status of preschool children has generally improved (Figure 5.8). However, with respect to geographical variation, preschool children in the Northeastern and Northern regions are more likely to be malnourished than those in other regions. In particular, the malnutrition rate among preschool children on the highlands (hilltribes) are eight times greater than that for Bangkok (Table 5.7).

According to the World Health Report,<sup>6</sup> it was estimated that in 2000 approximately 27% or 168 million children under 5 years of age worldwide were malnourished (weigh-for-age scale), making them more vulnerable to death due to diarrhoea and pneumonia.

**Figure 5.8** Situation of Protein and Energy Malnutrition among Children Aged 0-5 Years, Thailand, 1988-2003



**Source:** Department of Health, Ministry of Public Health.

<sup>6</sup> Pathom Sawanpanyalert (editor). World Health Report 2002: Reducing Risks and Promoting Health. 2003.

**Table 5.7** Rate (Percentage) of Malnutrition among Children Aged 0-5 Years by Region, 1989-2003

Year	Bangkok		Central		Northeast		North		South		Hilltribes	
	1st degree	2nd & 3rd degree	1st degree	2nd & 3rd degree	1st degree	2nd & 3rd degree	1st degree	2nd & 3rd degree	1st degree	2nd & 3rd degree	1st degree	2nd & 3rd degree
1989	13.08	1.25	9.45	0.28	24.91	1.67	18.76	1.33	16.38	1.37	-	-
1990	5.65	0.43	8.19	0.18	23.46	1.12	17.50	0.96	14.80	0.58	-	-
1991	5.10	0.37	7.30	0.34	21.52	0.89	16.78	0.97	12.56	0.56	-	-
1992	4.33	0.19	6.82	0.18	20.88	0.96	15.87	1.07	11.87	0.54	-	-
1993	3.56	0.19	6.11	0.18	19.51	0.94	15.28	1.12	11.29	0.62	-	-
1994	3.66	0.31	5.56	0.18	17.55	0.99	14.77	0.92	10.47	0.68	-	-
1995	3.76	0.33	4.62	0.17	14.48	0.87	13.56	1.14	9.25	0.62	-	-
1996	2.89	0.23	4.35	0.15	12.56	0.71	10.67	0.83	8.21	0.52	-	-
1997	4.50	0.45	4.04	0.14	10.82	0.65	10.05	0.81	7.27	0.44	30.3	10.6
1998	4.01	0.38	3.86	0.12	10.26	0.65	9.52	0.78	6.55	0.44	18.92	2.84
1999	4.01	0.38	3.79	0.16	10.20	0.65	9.33	0.63	6.61	0.44	23.2	2.48
2000	4.66	0.31	4.19	0.16	10.61	0.85	8.95	0.73	7.35	0.59	17.24	2.55
2001	4.54	0.39	4.94	0.29	10.53	0.92	7.81	0.42	6.09	0.53	14.00	3.02
2002	-	-	3.89	0.24	9.93	0.83	8.52	0.69	7.06	0.56	-	-
2003	-	-	3.62	0.21	9.82	0.95	8.49	0.73	7.28	0.71	-	-
Ratio compared with Bangkok in 2001	1	1	1.1	0.7	2.3	2.4	1.7	1.1	1.3	1.4	3.1	7.7

**Sources:** (1) Department of Health, Ministry of Public Health.

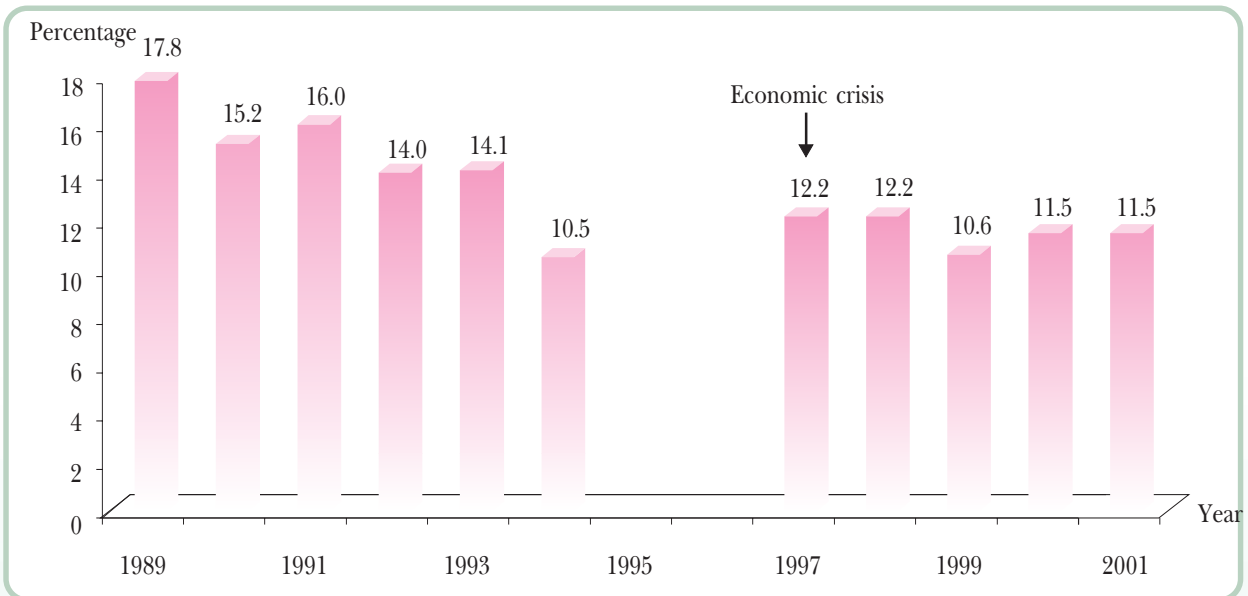
(2) Bureau of Policy and Strategy, Ministry of Public Health.

**Notes:** For 1989-1996 and 2002-2003, there was no survey on the hilltribes.

For 2002-2003, there was no survey in Bangkok.

The rate of underweight primary schoolchildren dropped steadily from 17.8% in 1989 to 10.5% in 1994. Nonetheless, during the economic crisis, the rate increased slightly (Figure 5.9).

**Figure 5.9** Proportion of Underweight Primary Schoolchildren, 1989-2001



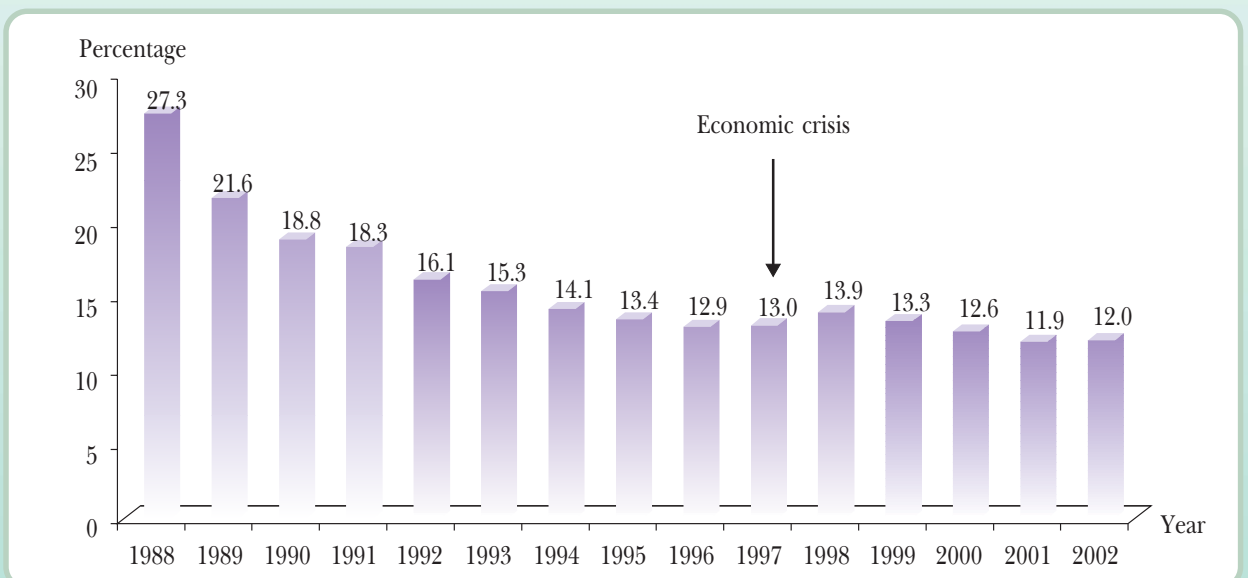
**Source:** Department of Health, Ministry of Public Health.

**Note:** For 1995, 1996, and 2002 onward, there were no surveys on malnutrition among primary schoolchildren.

### 3.2.2 Anemia among Pregnant Women

The rate of anemia among pregnant women had a declining trend, i.e. dropping from 27.3% in 1988 to 12.9% in 1996, but it rose slightly during the economic crisis. However, the rate dropped again to 12.0% in 2002 (Figure 5.10).

**Figure 5.10** Proportion of Anaemic Pregnant Women (Hct <33%), 1988-2002

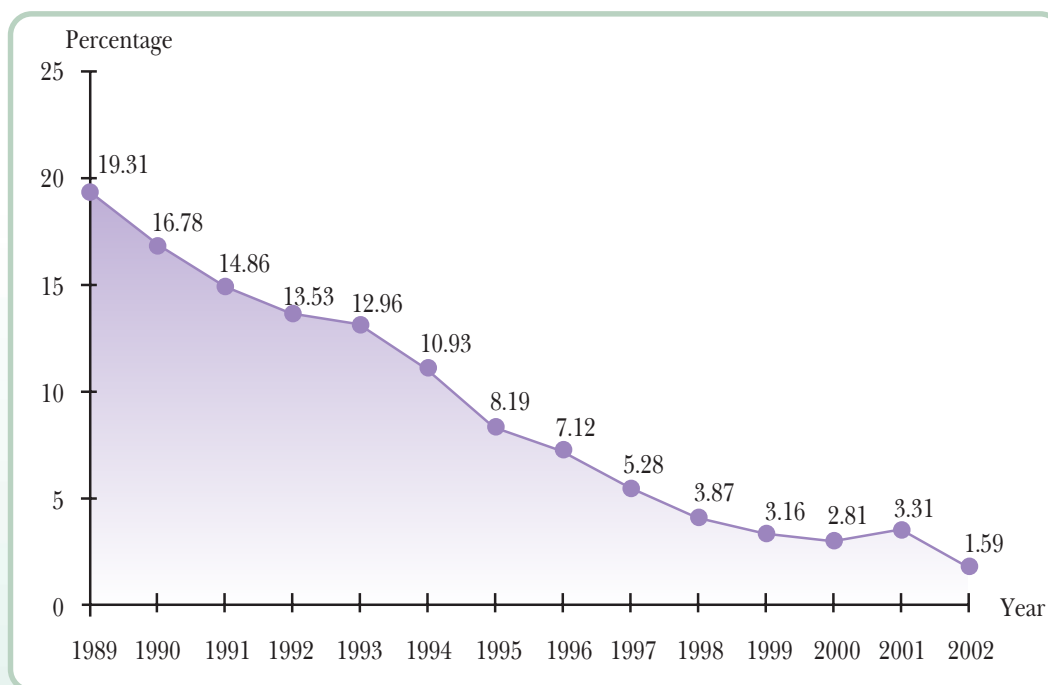


**Source:** Department of Health, Ministry of Public Health.

### 3.2.3 Iodine Deficiency Disorders

As a result of strong efforts on the elimination of iodine deficiency disorders (IDD), the prevalence of IDD in primary schoolchildren in 15 provinces with high rates of severe goitre has dropped from 19.31% in 1989 to 1.59% in 2002 (Figure 5.11); and the average goitre prevalence rate has also dropped to 1.3% in 2003.

**Figure 5.11** Situation of Iodine Deficiency Disorders among Primary Schoolchildren, 1989-2002



**Source:** Department of Health, Ministry of Public Health.

**Note:** Data were collected only from 15 provinces with a severe goitre problem.

### 3.2.4 Vaccine-preventable Diseases

Since the Ministry of Public Health has launched the Expanded Programme on Immunization (EPI) in target population groups, the immunization coverage has remarkably improved (Table 5.8 and Figure 5.12).

**Table 5.8** Coverage of Immunization Against Vaccine-Preventable Diseases in Different Target Groups, 1982-2002

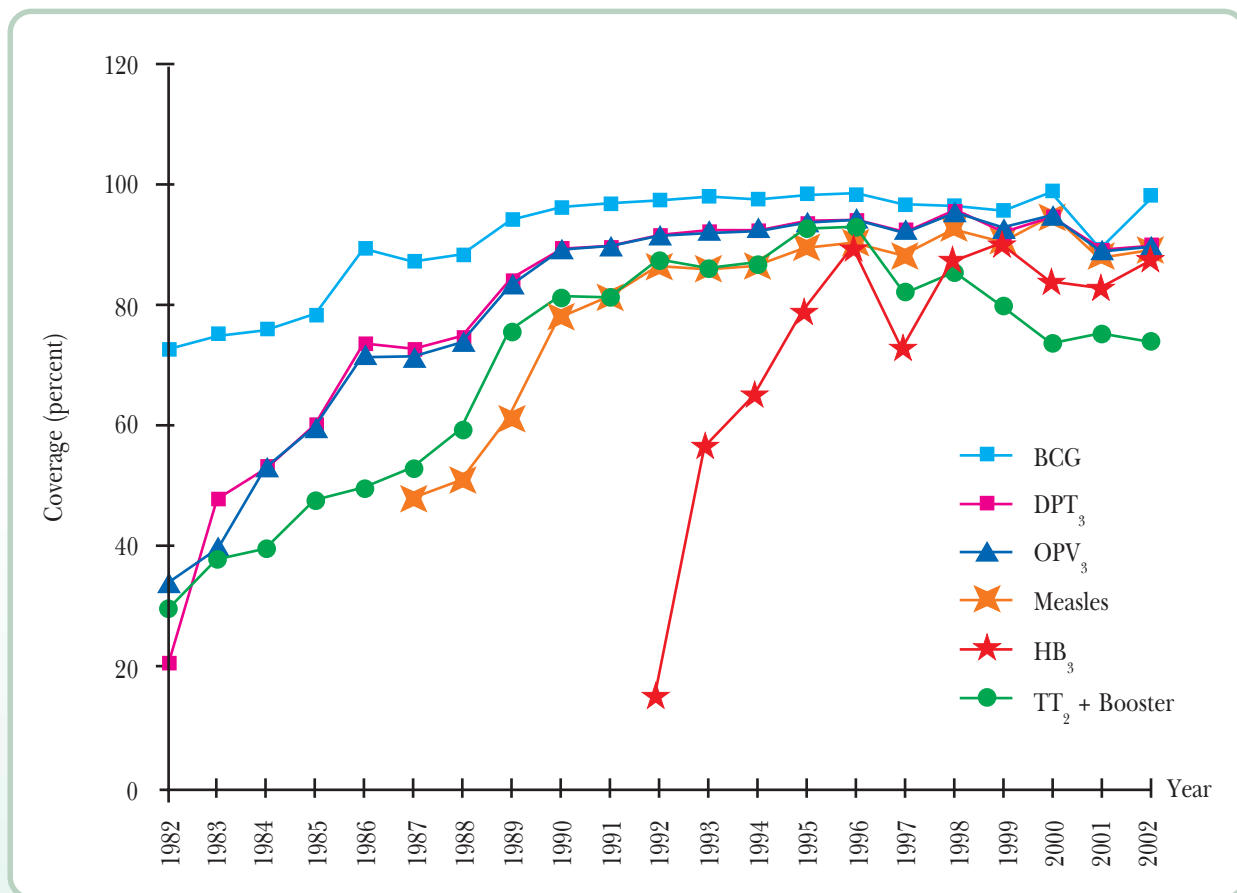
Activity	Coverage (percent)																					
	1982 <sup>(1)</sup>	1983 <sup>(1)</sup>	1984 <sup>(1)</sup>	1985 <sup>(1)</sup>	1986 <sup>(1)</sup>	1987 <sup>(1)</sup>	1988 <sup>(1)</sup>	1989 <sup>(1)</sup>	1990 <sup>(1)</sup>	1991 <sup>(1)</sup>	1992 <sup>(1)</sup>	1993 <sup>(1)</sup>	1994 <sup>(1)</sup>	1995 <sup>(1)</sup>	1996 <sup>(2)</sup>	1997 <sup>(2)</sup>	1998 <sup>(2)</sup>	1999 <sup>(2)</sup>	2000 <sup>(2)</sup>	2001 <sup>(2)</sup>	2002 <sup>(2)</sup>	
<b>Children &lt;1 yr</b>																						
BCG (%)	73	75	76	78.4	89.5	87.4	88.6	94.1	96.3	96.8	97.4	98.1	97.9	98.4	98.4	96.9	96.5	95.6	98.8	89.4	98.1	
DPT <sub>3</sub> (%)	21	48	53	60.5	73.9	72.8	74.8	84.2	89.4	89.8	91.5	92.2	92.9	93.7	94.3	92.5	95.9	92.1	94.4	89.1	89.8	
OPV <sub>3</sub> (%)	34	40	53	59.3	71.8	71.3	73.8	83.2	89.3	89.8	91.5	92.2	92.7	93.7	94.3	92.3	95.8	93.0	94.5	89.3	89.7	
Measles(%)	-	-	-	-	-	48.2	51.1	61.4	78.4	81.5	86.3	86.1	86.0	89.8	90.8	73.0	87.2	90.5	83.8	83.1	83.7	
HB <sub>3</sub> (%)	-	-	-	-	-	-	-	-	-	-	15.4	57.1	65.6	79.3*	90.7	88.5	93.0	90.4	94.9	87.9	88.8	
<b>Pregnant women</b>																						
TT <sub>2</sub> + Booster (%)	30	38	40	48	50	53.1	59.6	75.9	81.6	81.6	87.8	86.4	86.9	92.8	93.0	82.5	85.7	80.4	74.0	75.5	74.5	

**Sources:** <sup>(1)</sup> Data for 1982-1995 were derived from the Department of Communicable Disease Control, Ministry of Public Health

<sup>(2)</sup> Data for 1996-2002 were derived from the Bureau of Policy and Strategy, Ministry of Public Health, MoPH.

\* The 1st Provincial Health Survey (1995).

**Figure 5.12** Coverage of Immunization: BCG, DPT<sub>3</sub>, OPV<sub>3</sub>, HB<sub>3</sub>, Measles among Children and TT<sub>2</sub>+ Booster among Pregnant Women, 1982-2002



**Sources:** (1) Department of Disease Control, Ministry of Public Health.  
 (2) Bureau of Policy and Strategy, Ministry of Public Health.

As a result of such a high immunization coverage, the morbidity rates of such vaccine-preventable diseases have a tendency to decline (Table 5.9 and Figure 5.14). However, it is noteworthy that in 2001-2002, the incidence of measles increased slightly partly due to an epidemic among the hilltribe people (Figure 5.13).

Besides, it was noted that the hepatitis B infection had a rising incidence, probably resulting from a more extensive surveillance effort (Figure 5.15).

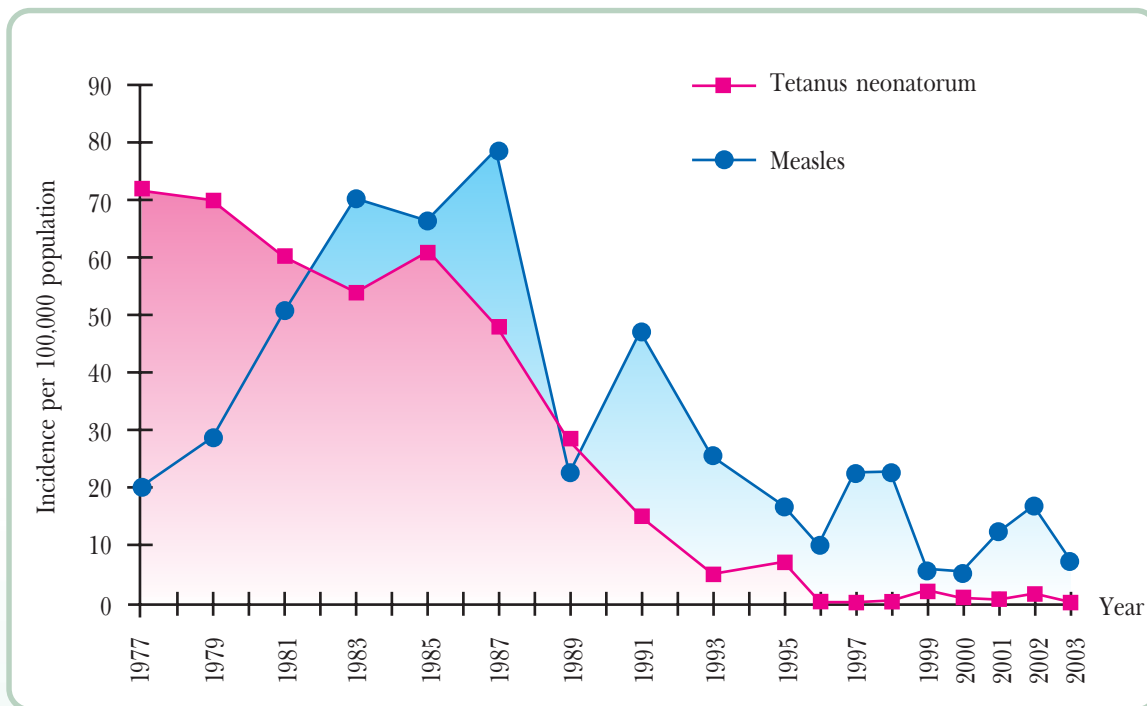
**Table 5.9** Incidence Rates of Major Vaccine-Preventable Diseases in Thailand, 1977-2003

Incidence of vaccine-preventable diseases per 100,000 population						
Year	Measles	Tetanus neonatorum	Diphtheria	Pertussis	Poliomyelitis	Hepatitis B
1977	20.2	72.1	5.2	7.2	2.1	n.a.
1979	28.9	70.0	4.4	11.2	2.3	0.09
1981	51.1	59.8	1.6	6.2	0.5	0.14
1983	70.2	53.6	2.1	9.8	0.3	0.12
1985	66.2	60.4	1.4	4.8	0.1	0.55
1987	78.3	47.9	1.0	2.7	0.04	1.57
1989	22.5	28.1	0.1	2.2	0.03	3.30
1991	46.9	14.5	0.09	0.5	0.009	5.98
1993	25.2	4.7	0.04	0.6	0.015	4.39
1995	16.4	6.4	0.03	0.2	0.003	3.13
1996	9.5	0.05	0.08	0.13	0.03	2.20
1997	22.03	0.04	0.06	0.17	0.00	2.27
1998	22.39	0.03	0.08	0.16	0.00	2.53
1999	5.38	1.55	0.08	0.08	0.00	2.60
2000	6.67	0.03	0.02	0.16	0.00	2.71
2001	11.86	0.36	0.02	0.12	0.00	2.80
2002	16.48	1.14	0.02	0.02	0.00	3.44
2003	7.17	0.01	0.01	0.04	0.00	3.68

**Source:** Bureau of Epidemiology, Department of Disease Control.

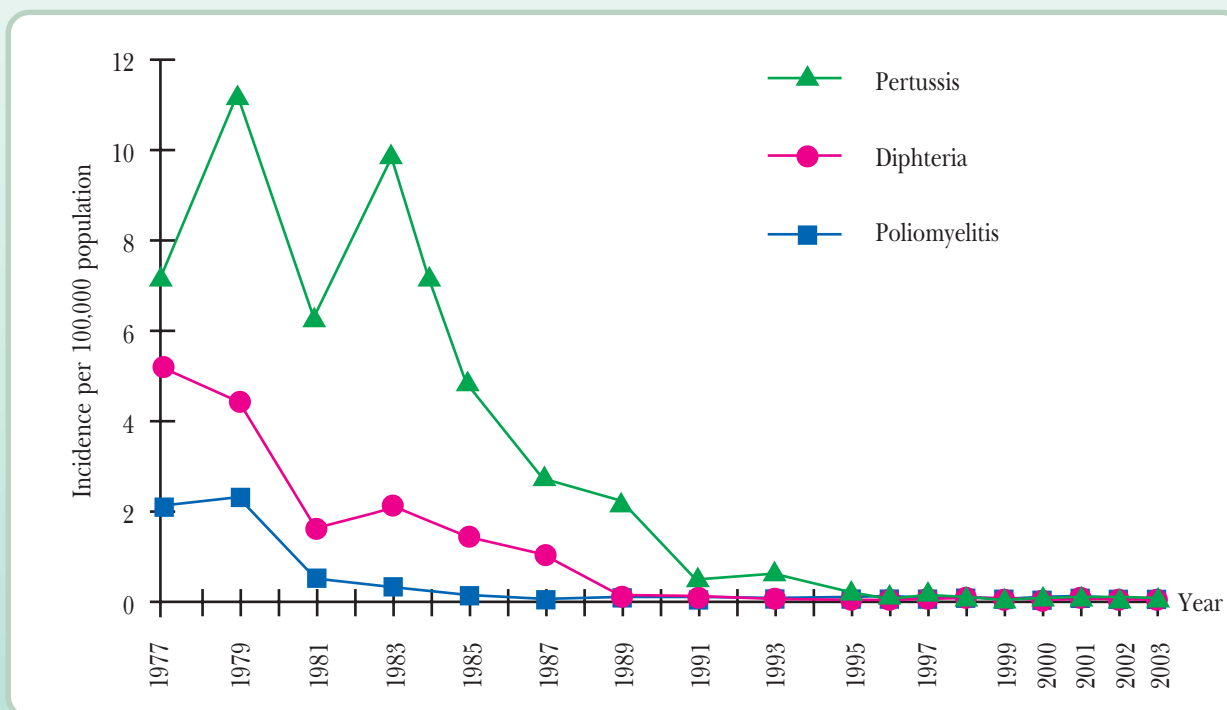


Figure 5.13 Incidence of Tetanus Neonatorum and Measles in Thailand, 1977-2003



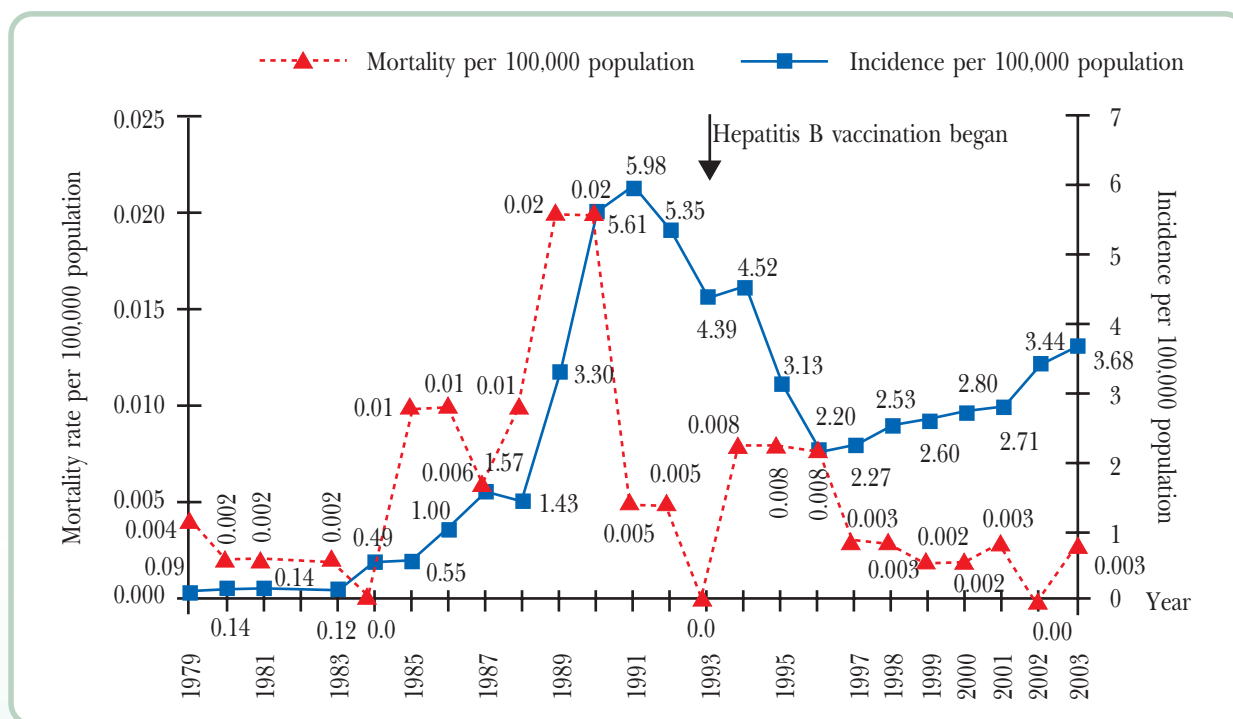
Source: Bureau of Epidemiology, Department of Disease Control.

Figure 5.14 Incidence of Pertussis, Diphtheria, and Poliomyelitis in Thailand, 1977-2003



Source: Bureau of Epidemiology, Department of Disease Control.

**Figure 5.15** Incidence and Mortality Rates of Hepatitis B in Thailand, 1979-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

### 3.2.5 Helminthiasis

Overall, the prevalence of intestinal parasitic diseases has been declining, except for liver fluke whose prevalence is relatively increasing in the North (Table 5.10). A survey on liver fluke situation, using the modified Kato-Katz method of faecal examination, revealed that 90.6% of those who had liver fluke infestation had a parasitic egg count of less than 1,000 eggs per gram of faeces.<sup>7</sup>

**Table 5.10** Prevalence Rate of Common Helminthiasis

Helminthiasis	Prevalence, percent			
	1981	1991	1996	2001
Hookworm disease	40.56	27.69	21.6	11.4
Ascariasis (roundworm)	4.04	1.46	1.9	1.2
Trichuriasis (whipworm)	4.46	4.34	3.9	1.5
Liver fluke - whole country	14.7	15.2	11.8	9.6
- Liver fluke, Northeast	34.6	24.01	15.3	15.7
- Liver fluke, North	5.6	22.9	29.7	19.3

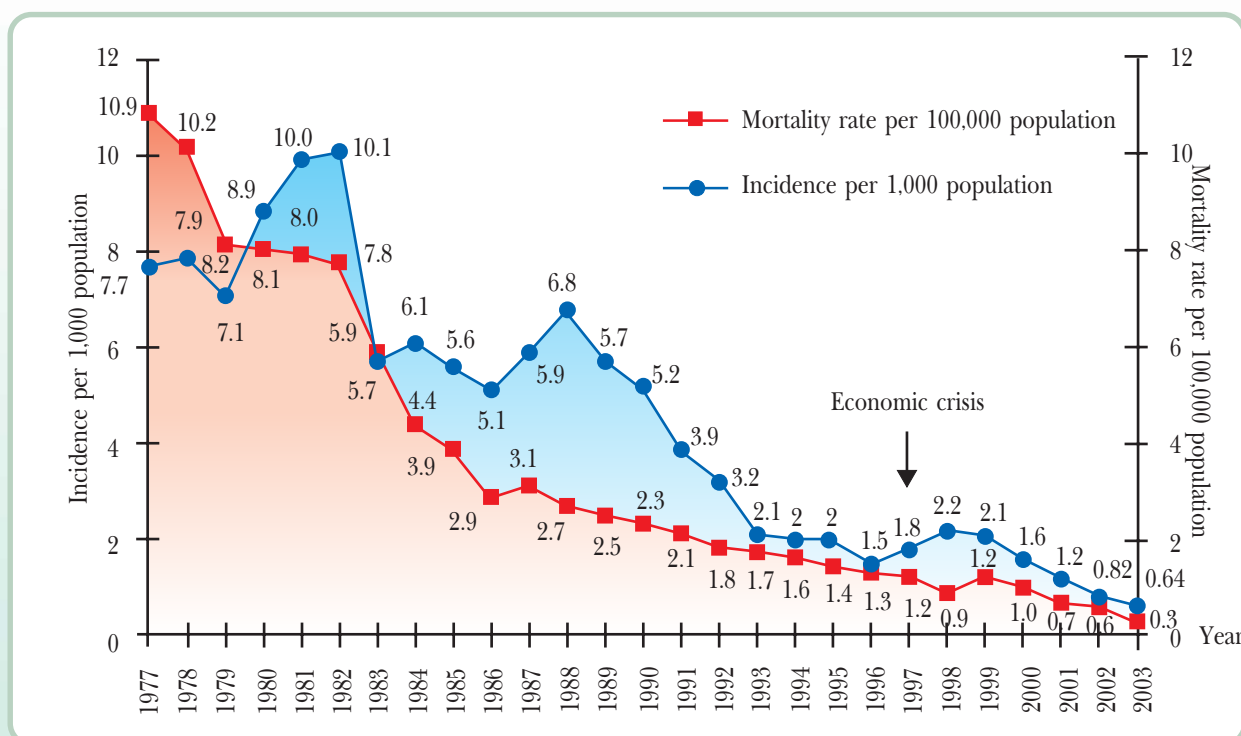
**Source:** Department of Disease Control, Ministry of Public Health.

<sup>7</sup> Department of Disease Control. Evaluation of the Helminthiasis Control Project in Thailand at the End of the 8th National Health Development Plan, 2001. Division of General Communicable Diseases, Department of Disease Control, 2001.

### 3.2.6 Malaria

Thailand has succeeded, to a certain extent, in its malaria control efforts, leading to a considerable reduction in incidence and mortality rates (Figure 5.16). However, in some regions particularly the Thai-Myanmar and Thai-Cambodian border areas, the problem remains critical, especially drug resistance. It is noted that **during 1997-1999 the malaria incidence rose slightly but the mortality rate was stable**. This phenomenon is postulated to be involved with the discontinuation of DDT spraying, EI Nino phenomena and the restructuring of communicable disease control programmes. As a result, Malaria Units were upgraded to be “Vector-borne Disease Control Units”, which are extensively responsible for the prevention and control of dengue hemorrhagic fever, filariasis and encephalitis. In the beginning, there might be some problems, but since 2000, the incidence and mortality rates have been declining.

**Figure 5.16** Incidence and Mortality Rates of Malaria in Thailand, 1977-2003

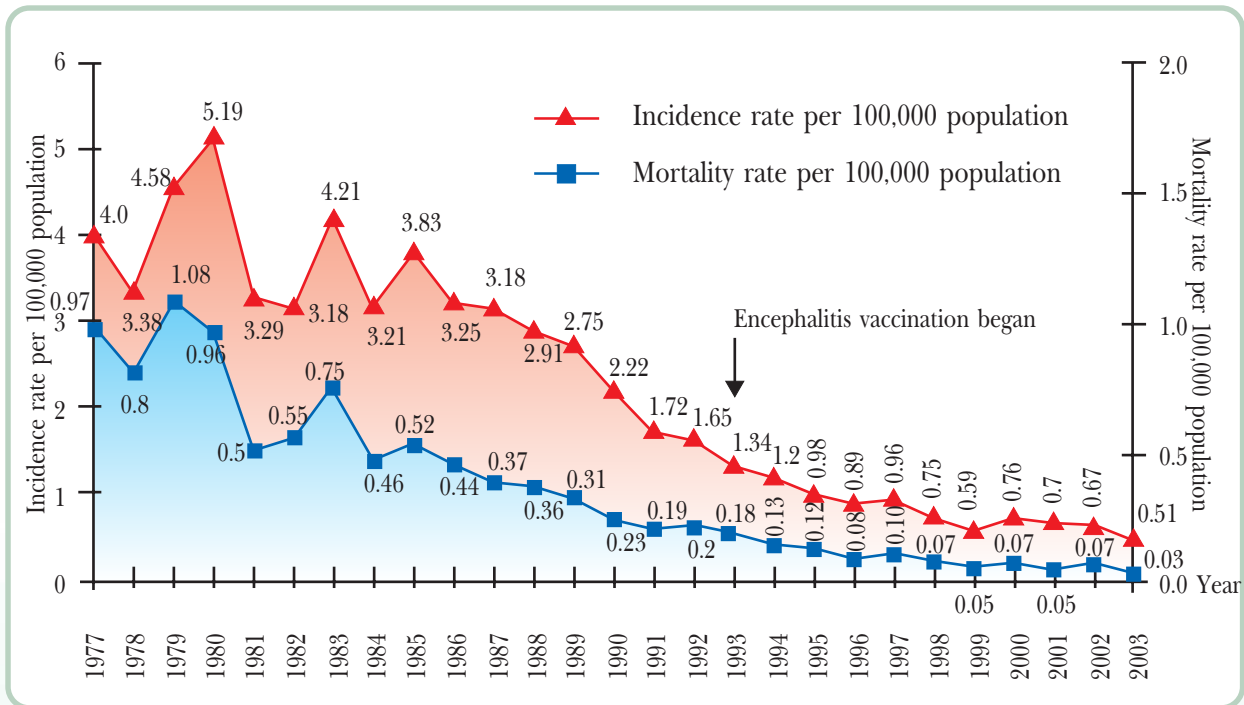


**Sources:** (1) Department of Disease Control, Ministry of Public Health.  
(2) Bureau of Policy and Strategy, Ministry of Public Health.

### 3.2.7 Encephalitis

As a result of economic and social development and intensive campaigns on immunization for target groups of children in high-risk areas, the incidence and mortality rates of encephalitis have significantly declined (Figure 5.17). In 2003, the incidence of encephalitis was recorded at 0.51 per 100,000 population and the mortality at 0.03 per 100,000 population.

**Figure 5.17** Incidence and Mortality Rates of Encephalitis in Thailand, 1977-2003



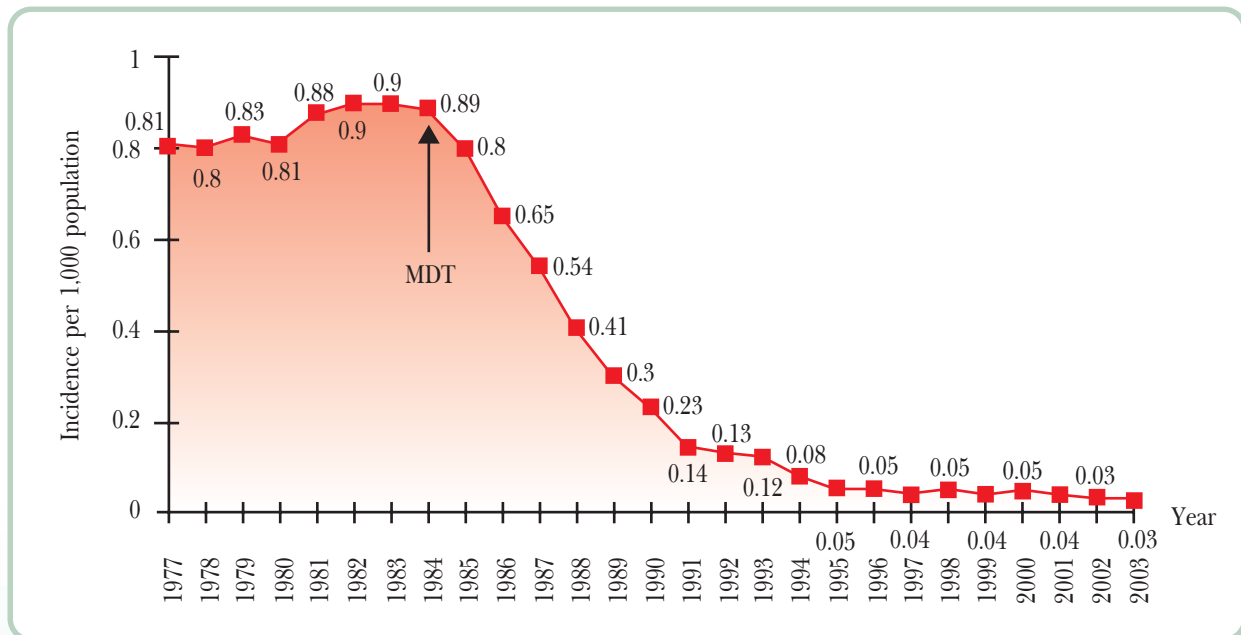
**Source:** Bureau of Epidemiology, Department of Disease Control.

### 3.2.8 Leprosy

The Leprosy Control Programme in Thailand has been implemented for over 40 years with the initiation of His Majesty the King and support of the World Health Organization as well as several NGOs. The Programme has been quite successful in reducing the leprosy prevalence rate from 5 per 1,000 population in 1955 to 0.03 per 1,000 population in 2003 - a nearly 100-fold reduction (Figure 5.18). The disease is no longer regarded as a public health problem in Thailand.

The success of the Programme has been partially attributable to the introduction of the short-course multiple-drug therapeutic (MDT) regimens, recommended by the World Health Organization since 1984.

**Figure 5.18** Incidence of Leprosy in Thailand, 1977-2003



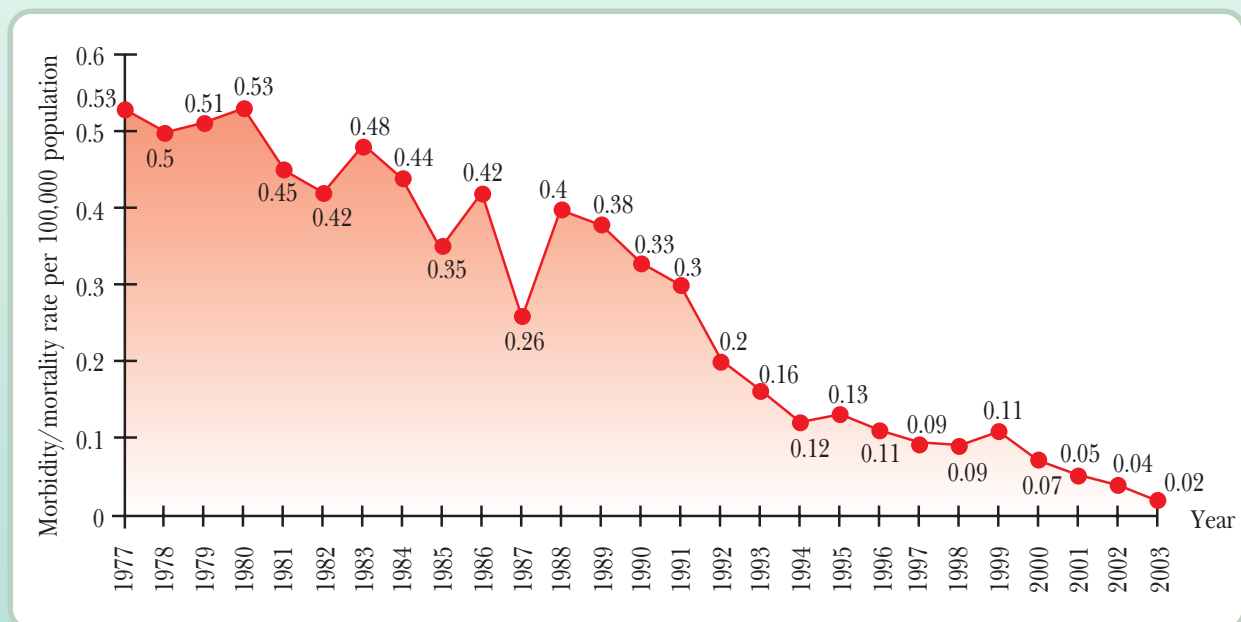
**Source:** Department of Disease Control, Ministry of Public Health.

**Note:** MDT = Multiple-drug therapy

### 3.2.9 Rabies

As a result of the Rabies Control Programme implemented by the Ministry of Public Health in collaboration with the Department of Livestock Development of the Ministry of Agriculture and Cooperatives, the rabies morbidity/mortality rate has dropped considerably from 0.53 per 100,000 population in 1977 to 0.02 per 100,000 population in 2003 (Figure 5.19).

**Figure 5.19** Morbidity/Mortality Rate of Rabies in Thailand, 1977-2003

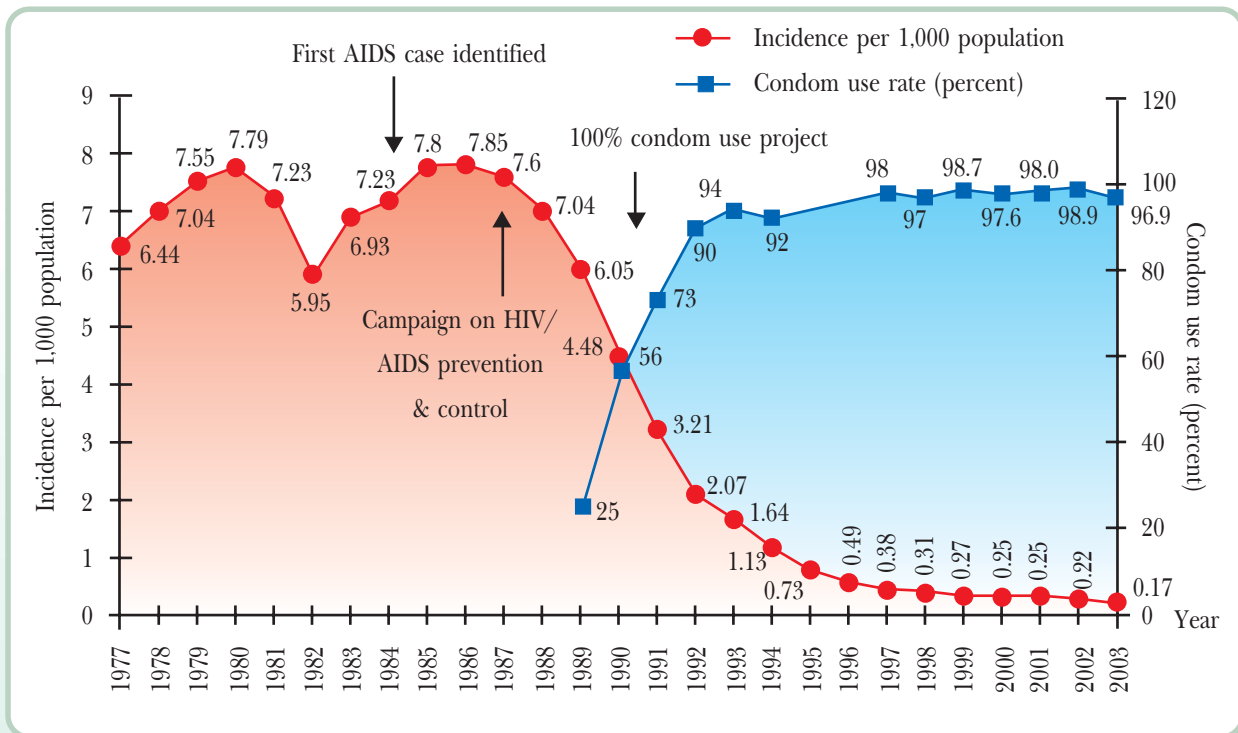


**Source:** Bureau of Epidemiology, Department of Disease Control.

### 3.2.10 Sexually Transmitted Infections (STIs)

Overall, the trends in STI prevalence in Thailand between 1977 and 2003 have been improving. In particular, after 1986, the prevalence rate of STIs has fallen from 7.85 per 1,000 population in 1986 to 0.17 per 1,000 population in 2003 (Figure 5.20) as a result of the intensive campaigns on HIV/AIDS prevention and control.

**Figure 5.20** Incidence of Sexually Transmitted Infections and Condom Use Rate among Female Commercial Sex Workers (CSWs), Thailand, 1977-2003



**Source:** Bureau of Epidemiology and Cluster of STIs, Department of Disease Control.

**Note:** Sexually transmitted infections include syphilis, gonorrhoea, chancroid, lymphogranuloma venereum, granuloma inguinale, and pseudogonorrhoea.

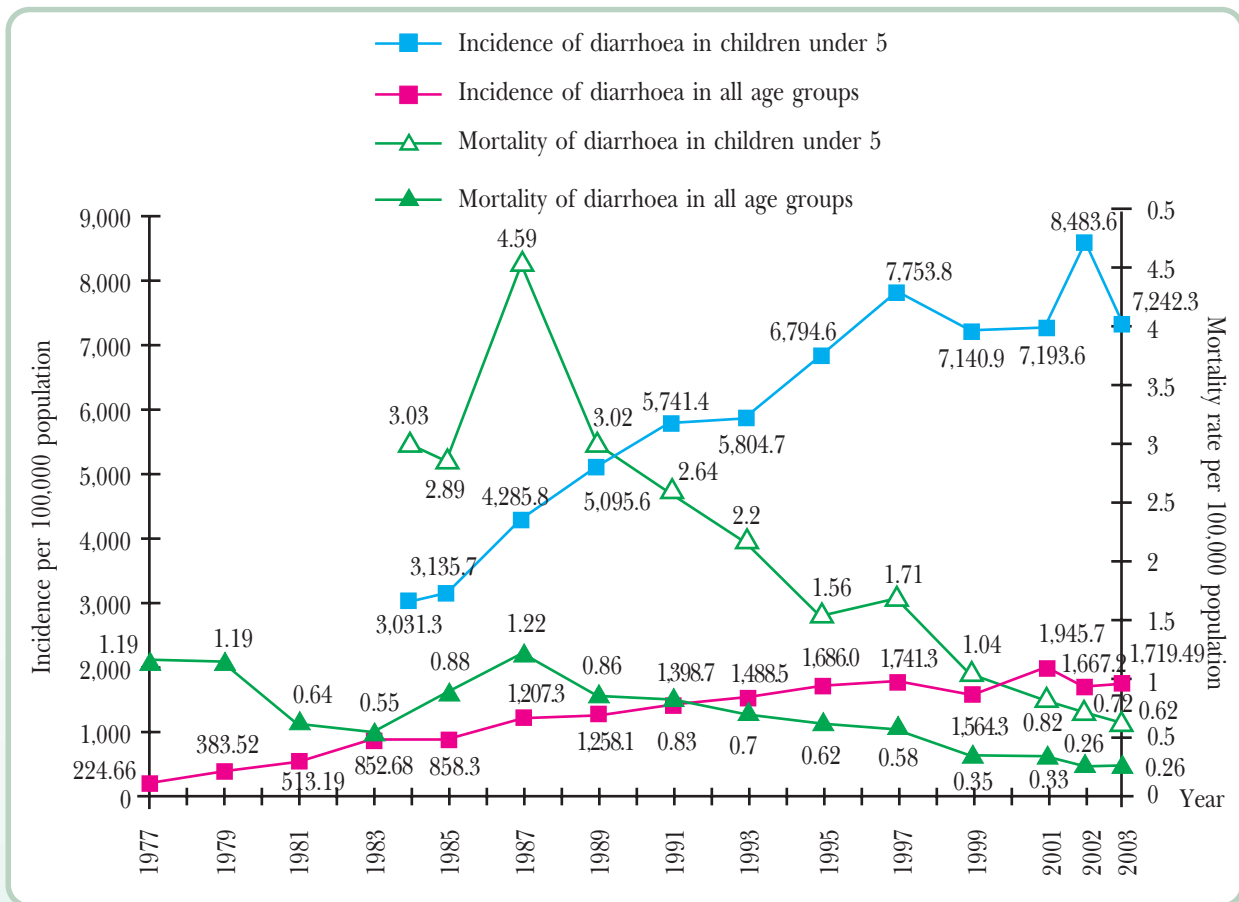
## 3.3 Public Health Problems with Minimal Changes

### 3.3.1 Diarrhoea

Acute diarrhoea is still a crucial public health problem with a relatively slight change in incidence among both children and adults, particularly among children under five years of age whose incidence is higher than that in adults (Figure 5.21). A recent provincial health status survey revealed that the diarrhoea incidence in children has been declining over the past five years from 6.0 episodes/person/year in 1995 to 3.6 episodes/person/year in 2001.<sup>8</sup> Nevertheless, the incidence is still higher than the target of not exceeding 1 episode/person/year (Table 5.11). However, the mortality rate has been declining considerably due to improved health services and extensive coverage as well as the success of the campaign on oral rehydration therapy (ORT).

<sup>8</sup> Bureau of Policy and Strategy, Ministry of Public Health. In-depth Analysis of the Data of Provincial Health Status Survey, 2003.

Figure 5.21 Incidence and Mortality Rates of Diarrhoea in Thailand, 1977-2003



Source: Bureau of Epidemiology, Department of Disease Control.

Table 5.11 Episodes of Illness with Diarrhoea among Children under 5 Years of Age, 1995-2001

Type of areas	Illness (episodes/person/year)			Target, 8th Plan
	1995	1996	2001	
Municipality	4.9	3.1	3.4	Not exceeding 1
Non-municipality	5.2	3.4	3.9	
<b>Total</b>	<b>6.0</b>	<b>3.4</b>	<b>3.6</b>	

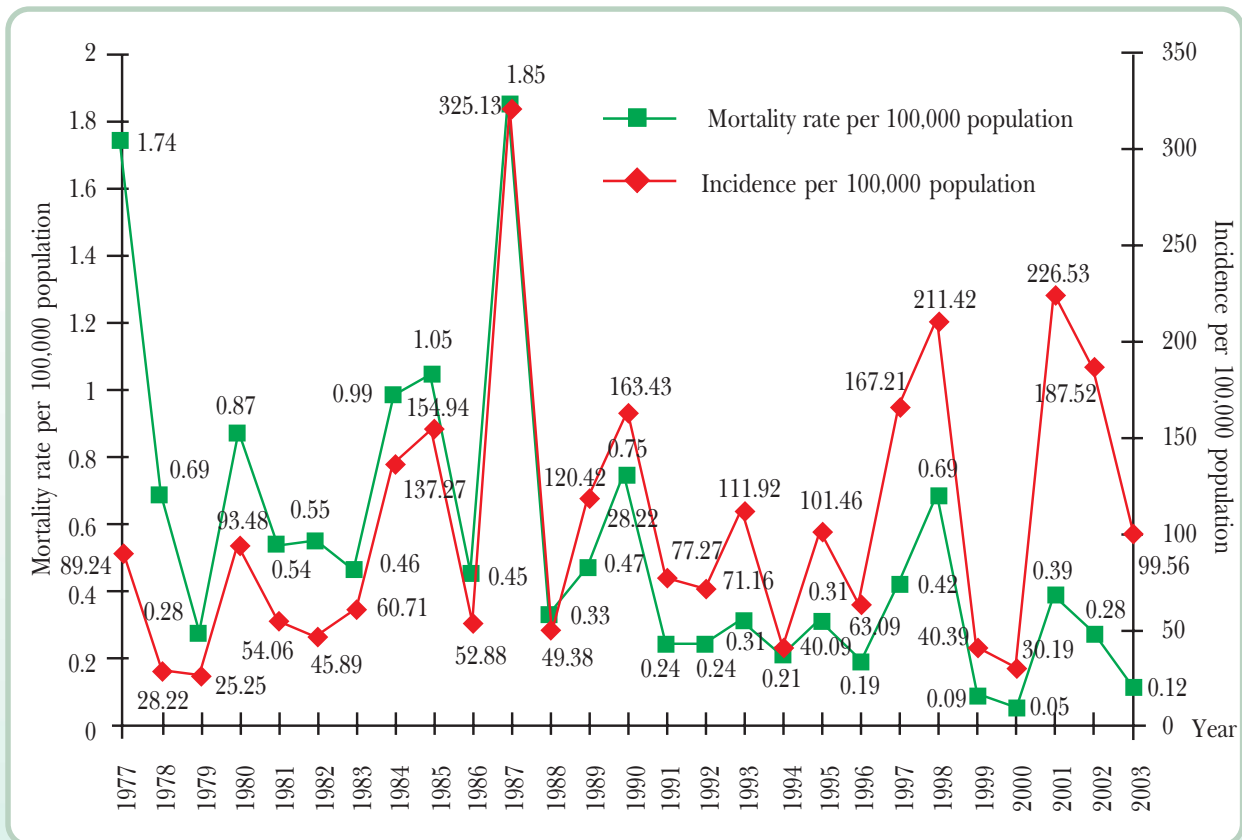
Source: Provincial Health Status Surveys, 1995, 1996, and 2001.



### 3.3.2 Dengue Haemorrhagic Fever

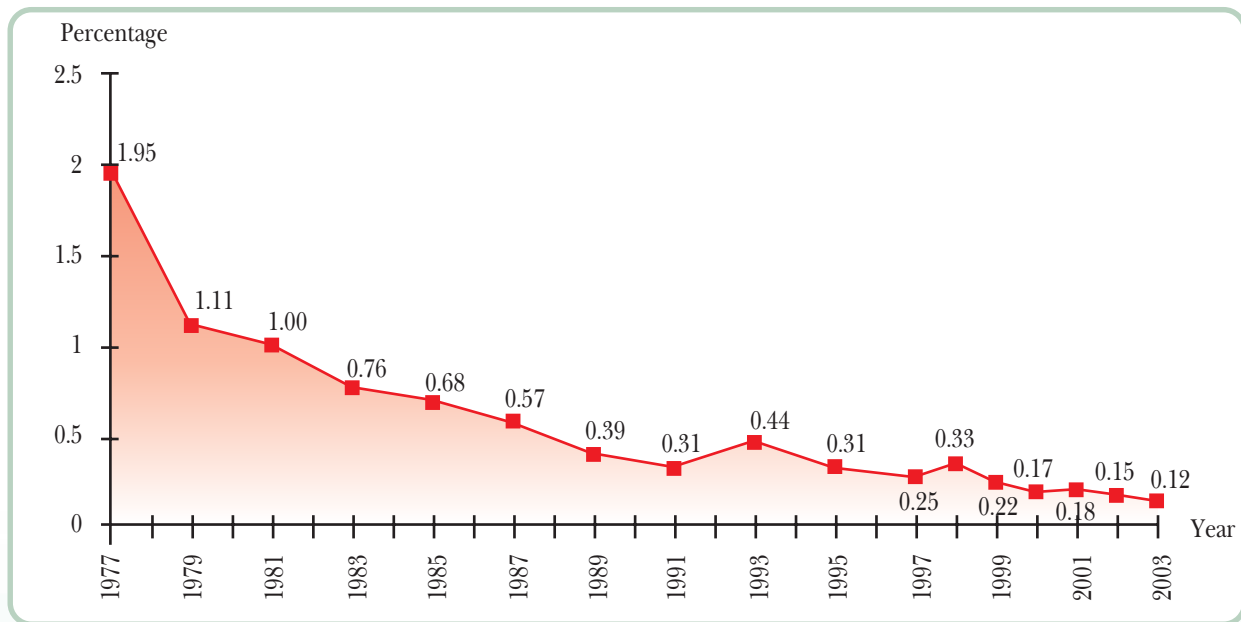
Dengue haemorrhagic fever has been a major public health problem of the country over the past 30 years without a declining trend. In particular, in 1997, 1998, 2001 and 2002, there was a rising trend with an epidemic occurring every two years. However, the DHF case-fatality rate has been declining (Figure 5.22, 5.23)

**Figure 5.22** Incidence and Mortality Rates of Dengue Haemorrhagic Fever, Thailand, 1977-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Figure 5.23** Case-Fatality Rate of Dengue Haemorrhagic Fever, 1977-2003

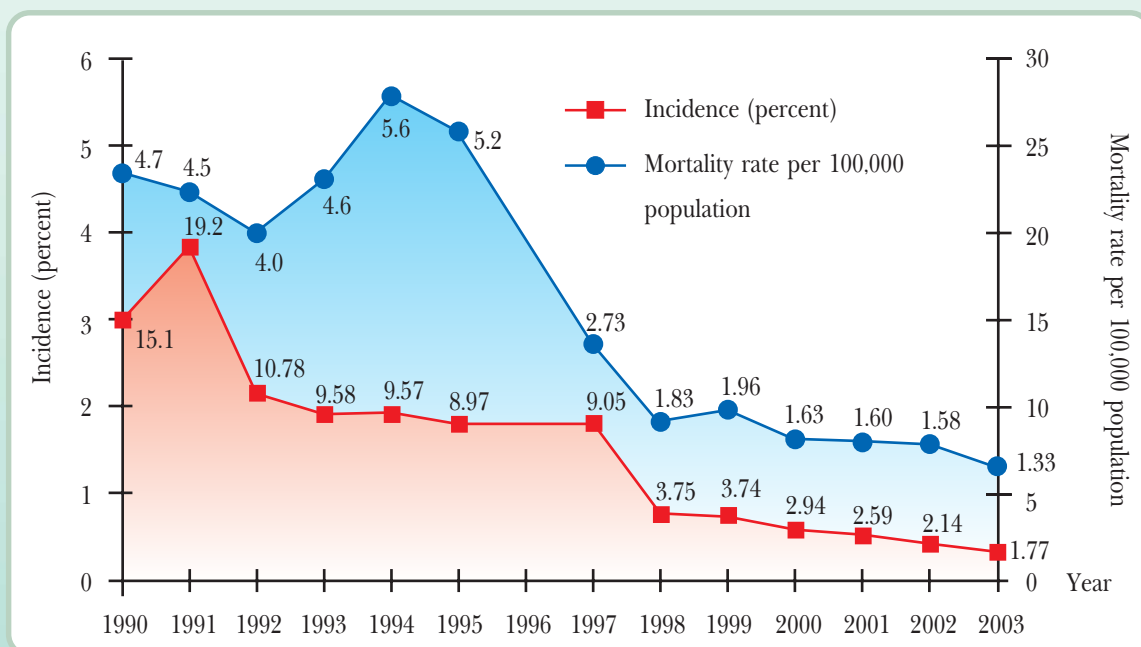


Source: Bureau of Epidemiology, Department of Disease Control.

### 3.3.3 Acute Respiratory Infection among Children

Currently acute respiratory infection is still a crucial public health problem in Thailand. **Pneumonia is the number one cause of death, among all infectious diseases, in children under five.** The incidence of pneumonia in children has fallen from 5.2% in 1995 to 1.33% in 2003; and its mortality rate (per 100,000 population) has steadily dropped from 15.1 in 1990 to 1.77 in 2003 (Figure 5.24).

**Figure 5.24** Incidence and Mortality of Pneumonia in Children under Five in Thailand, 1990-2003



Sources: (1) Department of Disease Control, Ministry of Public Health  
(2) Bureau of Epidemiology, Department of Disease Control.

### 3.4 Public Health Problems with Rising Trends

#### 3.4.1 HIV/AIDS

##### (1) HIV Infection Situation

According to the report on sentinel surveillance of HIV infection in the seven major target groups of population, implemented in all provinces during the period 1989-2003, the situation and trends can be summarized as follows:

**Blood Donors.** The prevalence increased from 0.28% in 1989 to 0.81 % in 1992, and then gradually dropped to 0.27% in 2003 (Figure 5.25).

**Pregnant Women Attending Antenatal Care Clinics.** The prevalence climbed from 0.68% in 1991 to 2.29% in 1995, and then gradually reduced to 1.23% in 2003 (Figure 5.25).

**Injecting Drug Users.** The prevalence was approximately 30-43% throughout the period 1989-1997. After 1997, the prevalence has been soaring to 50.77%, and fell to 33.33% in 2003 (Figure 5.26).

**Male Clients Attending STI Clinics.** The prevalence jumped from 2.50% in 1990 to 8.5% in 1994 and remained stable at 7-9% during 1995-1999, but declined to 4% in 2003 (Figure 5.26).

**Direct Female CSWs.** The prevalence rose from 3.47% in 1989 to 33.15% in 1994, and fell to 10.63% in 2003 (Figure 5.26).

**Indirect Female CSWs.** The prevalence escalated from 2% in 1990 to 10.14% in 1996. Since then the rate has gradually declined to 3.88% in 2003 (Figure 5.26).

**Military Recruits or Conscripts.** The prevalence increased from 1.6% in 1990 to 4% in 1993, and since then has dropped to 0.5% in 2003 (Figure 5.27).

Among the drug addicts admitted to the Northern Regional Centre of Drug Dependence Treatment, a survey revealed that, in the past decade, a rising trend in HIV infection was found among the hilltribe people; an increase from 2.7% 1989 to 9.5% in 1998. In contrast, the HIV infection rate among the Thai people dropped from 27.1% to 16.2% during the same period. In regard to their demographic, social, and behavioural characteristics, the HIV infection among this population group is not only a result of injecting drug use, but also of sexual transmission<sup>9</sup> (Figure 5.28).

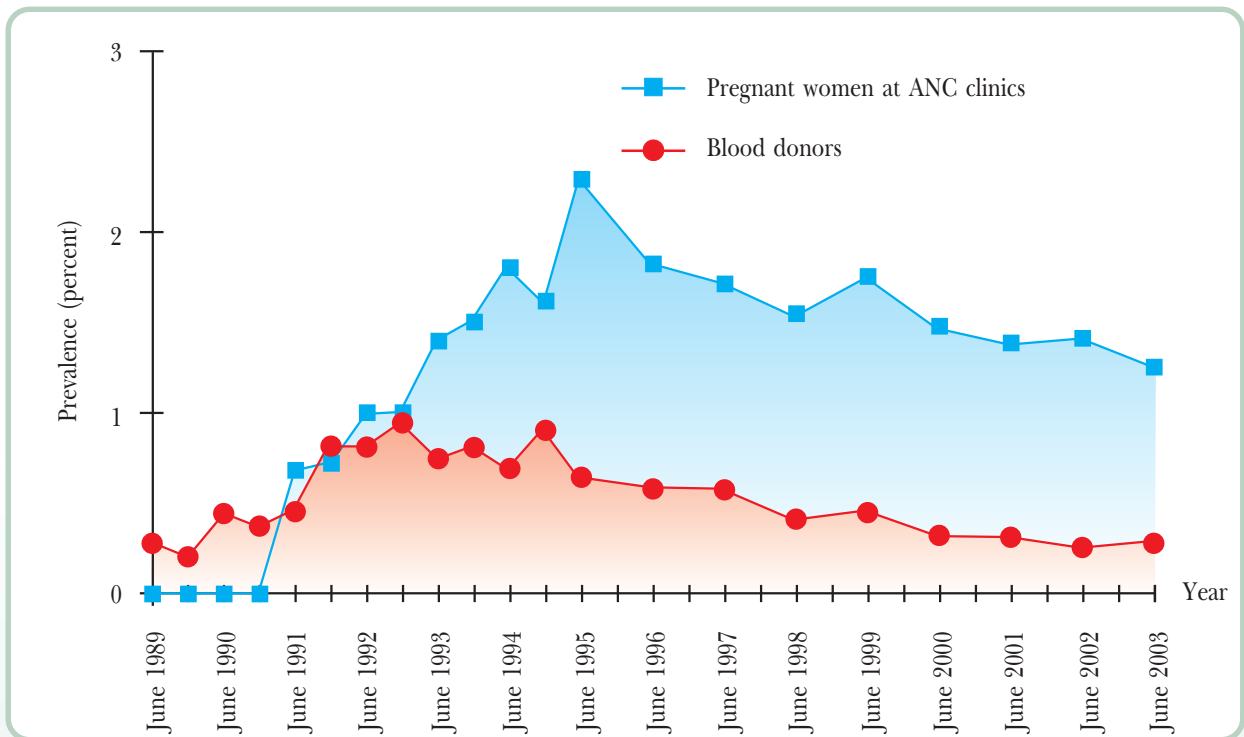
In general, the HIV/AIDS epidemic in Thailand originated in homosexual males during the period 1986-1987, then it spread to injecting drug users, female commercial sex workers, male sex seekers and, eventually, to families.

Nevertheless, the reduction in the HIV transmission in the heterosexual group during 1995-1996 was possibly a result of intensive health education campaigns among the high-risk group, coupled with the 100% condom use campaigns among female CSWs (Figure 5.20).

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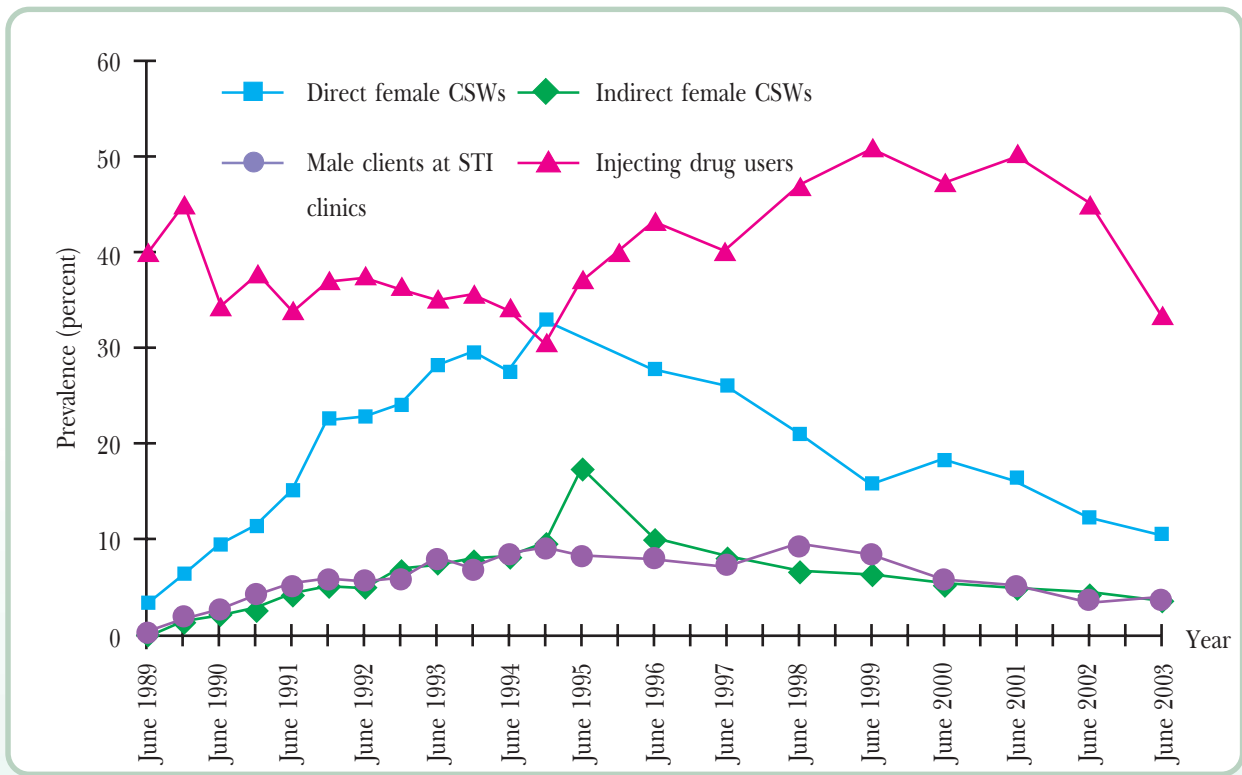
<sup>9</sup> Usanee Puengpan and La-iad Thirawat. HIV Infection among the Drug Addicts Admitted to the Northern Regional Centre of Drug Dependence Treatment, 1989-1998, 2000.

**Figure 5.25** Prevalence of HIV Infections in Blood Donors and Pregnant Women at the ANC Clinics in Government Hospitals, 1989-2003



**Source:** Bureau of Epidemiology, Department of Disease Control.

**Figure 5.26** Prevalence of HIV Infections in Direct and Indirect Female CSWs, Male Clients at STI Clinics, and Injecting Drug Users, Thailand, 1989-2003

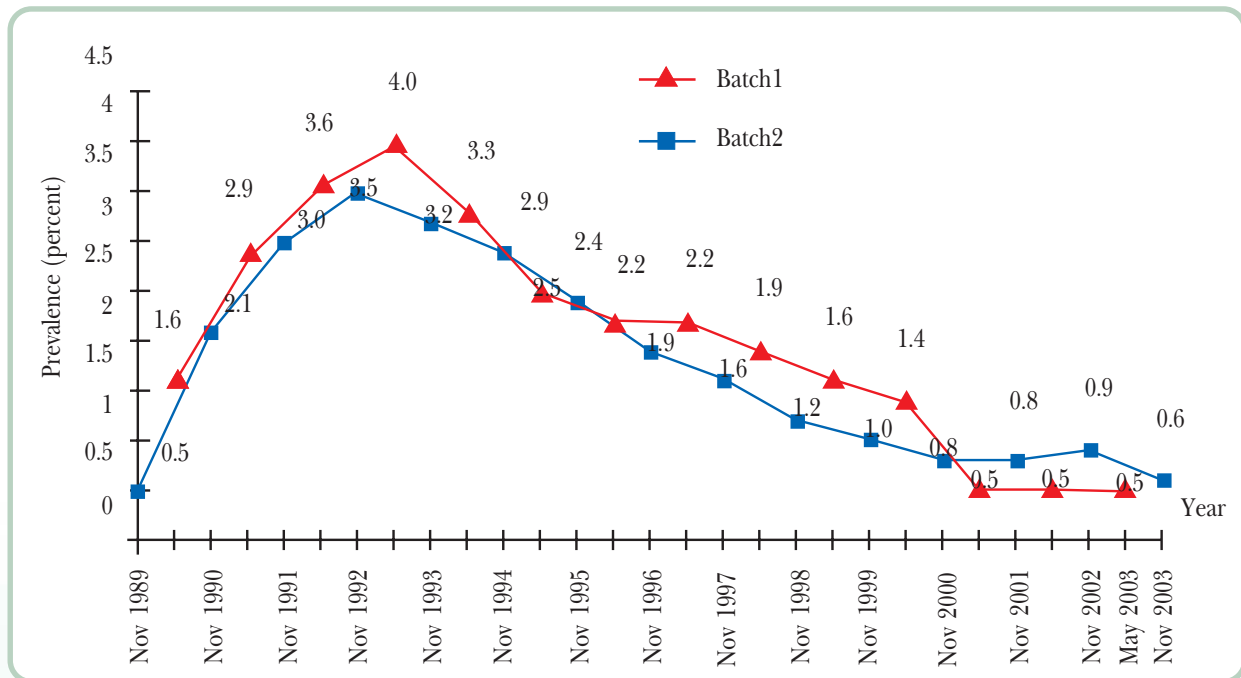


Group	June 1989	June 1990	June 1991	June 1992	June 1993	June 1994	June 1995	June 1996	June 1997	June 1998	June 1999	June 2000	June 2001	June 2002	June 2003
Direct female CSWs	3.47	9.30	15.24	22.97	28.25	27.64	33.15 <sup>(1)</sup>	27.78	26.14	21.13	16.00	18.46	16.56	12.34	10.63
Indirect female CSWs	0.00	2.00	4.34	5.02	7.58	8.00	9.48 <sup>(1)</sup>	10.14	8.22	6.74	6.56	5.51	5.03	4.07	3.88
Male clients at STI clinics	0.00	2.50	5.05	5.71	8.00	8.50	8.16	8.00	7.07	9.30	8.71	5.96	5.08	4.76	4.00
Injecting drug users	40.09	34.51	34.04	37.50	35.21	34.27	37.00	43.26	40.00	46.88	50.77	47.17	50.00	44.91	33.33
Pregnant women at ANC clinics	0.00	0.00	0.68	1.00	1.39	1.80	2.29	1.81	1.71	1.53	1.74	1.46	1.37	1.39	1.23
Blood donors	0.28	0.43	0.45	0.81	0.74	0.68	0.63	0.56	0.56	0.39	0.44	0.31	0.30	0.24	0.27

**Source:** Bureau of Epidemiology, Department of Disease Control.

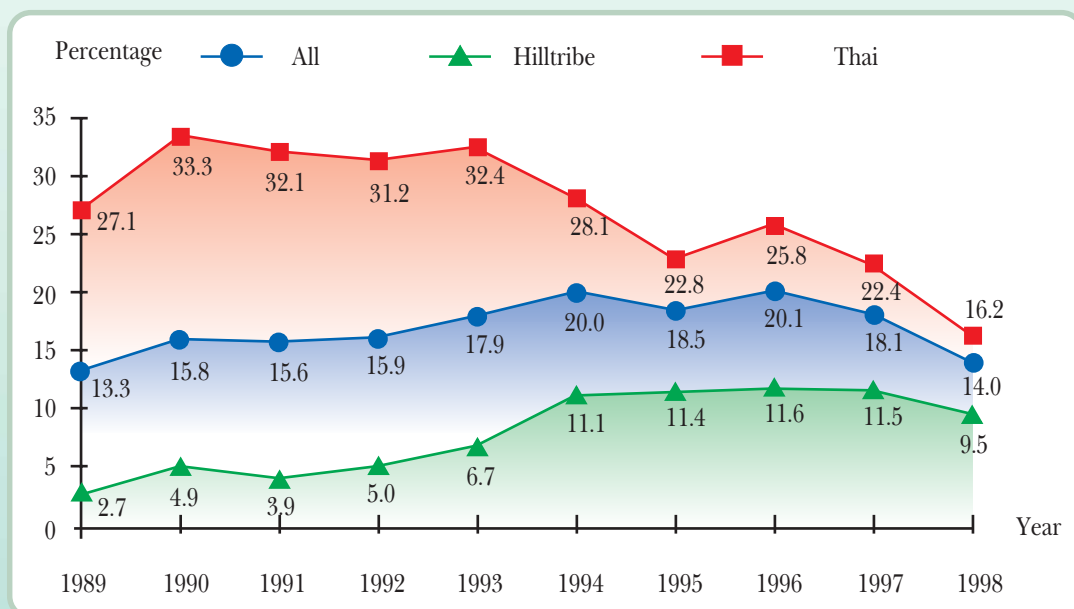
**Note:** <sup>(1)</sup>Data for December 1994.

**Figure 5.27** Prevalence of HIV Infections in Thai Male Military Recruits, November 1989-May 2003



**Sources:** Armed Forces Research Institute of Medical Sciences, Royal Thai Army.  
Institute of Pathology, Phra Mongkutklao Medical Centre, Royal Thai Army.

**Figure 5.28** Prevalence of HIV Infections in Thai and Hilltribe Drug Addicts Undergoing Treatment at the Northern Regional Centre of Drug Dependence Treatment, 1989-1998



**Source:** Northern Regional Centre of Drug Dependence Treatment, Department of Medical Services.

### (2) Prevalence of AIDS Cases

According to the report on the number of AIDS patients during 1984-2003 by geographic region, the highest prevalence rate (per 100,000 population) was reported in the North, while the lowest rate was reported in the Northeast (Figure 5.29).

Nonetheless, the number of reported cases still remains lower than actuality; as a matter of fact only 30-60%<sup>10</sup> of all the cases are actually reported, about 3 months after the case is detected.

### (3) Projection of the Numbers of HIV-Infected Persons and AIDS Cases

The Ministry of Public Health and the Office of the National Economic and Social Development Board (NESDB), using the Asian Epidemic Model (AEM) technique, have estimated that in 2020 cumulatively there will be 1,250,000 HIV-infected individuals in Thailand (1,180,000 adults and 70,000 children), and of them all 1,100,000 will have died and only 157,000 will remain alive. From now on, each year there will be an additional 8,000 new HIV infections (including 500 children) and 16,500 new AIDS cases (1,500 children) and 18,000 deaths (Figure 5.30).

For 2003, cumulatively there were an estimated 1,055,000 HIV-infected persons, of whom 450,000 had died, 604,000 were still alive; and during the year there were 21,000 new HIV infections (including 3,500 children), 50,500 new AIDS cases and 52,000 deaths (Table 5.12).

**Table 5.12** Projection of the Numbers of HIV-Infected Persons, AIDS Cases and Deaths, 2000-2020

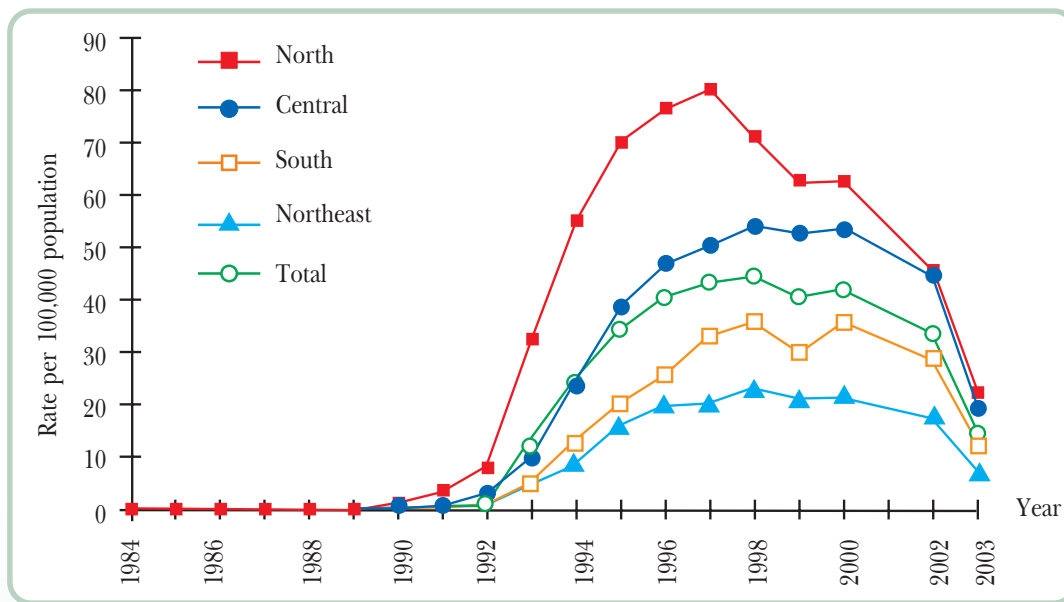
Category	Number,2003	Number,2020
HIV-infected persons, cumulative	1,055,000	1,250,000
Deaths due to HIV/AIDS, cumulative	450,000	1,100,000
Persons living with HIV/AIDS	604,000	157,000
New HIV infections	21,000	8,000
New AIDS cases	50,500	16,500
Deaths due to HIV/AIDS	52,000	18,000

**Source:** Department of Disease Control, Ministry of Public Health.

<sup>10</sup>Division of Epidemiology, MoPH. Assessment of the Completeness of AIDS Patients Reporting, 2000.



Figure 5.29 Rates of Reported AIDS Cases by Region, Thailand, 1984-2003

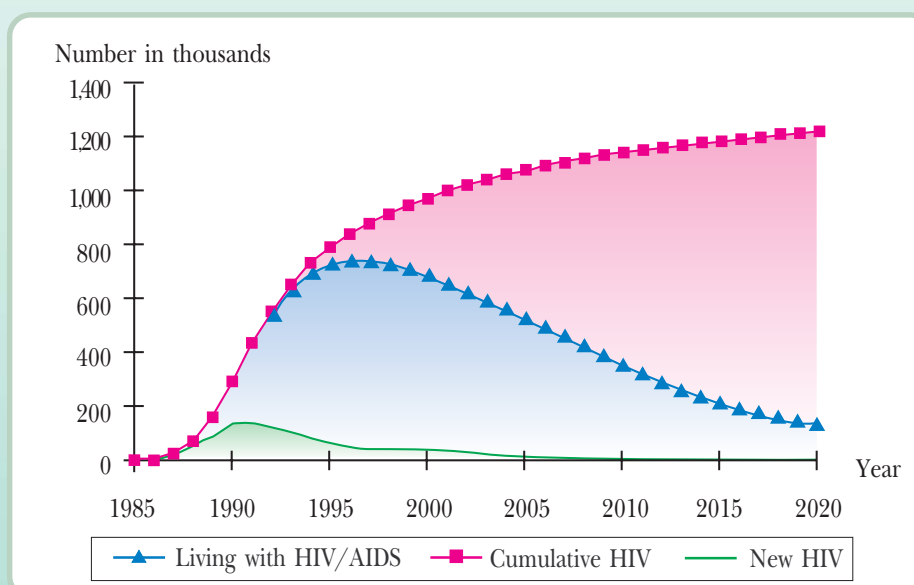


Region	1984	1986	1988	1990	1992	1994	1996	1998	2000	2002	2003
North	-	-	0.04	0.61	7.76	55.08	76.66	71.17	62.86	45.73	22.20
Central	0.01	0.01	0.03	0.40	2.85	23.97	47.15	54.22	53.65	44.83	19.60
South	-	-	0.01	0.07	1.35	12.46	25.81	36.06	35.98	29.15	12.12
Northeast	-	-	0.01	0.11	1.14	8.82	20.15	23.27	21.74	18.16	6.96
<b>Total</b>	-	-	<b>0.02</b>	<b>0.30</b>	<b>3.06</b>	<b>23.49</b>	<b>40.89</b>	<b>44.66</b>	<b>42.06</b>	<b>33.71</b>	<b>14.75</b>

Source: Bureau of Epidemiology, Department of Disease Control.

Note: The number of reported cases is about 30-60% of actuality.

Figure 5.30 Projections of the Number of Persons Living with HIV/AIDS Each Year, Cumulative Number of HIV-Infected Persons, and Number of New Infections, Thailand, 1985-2020



Source: Department of Disease Control, Ministry of Public Health

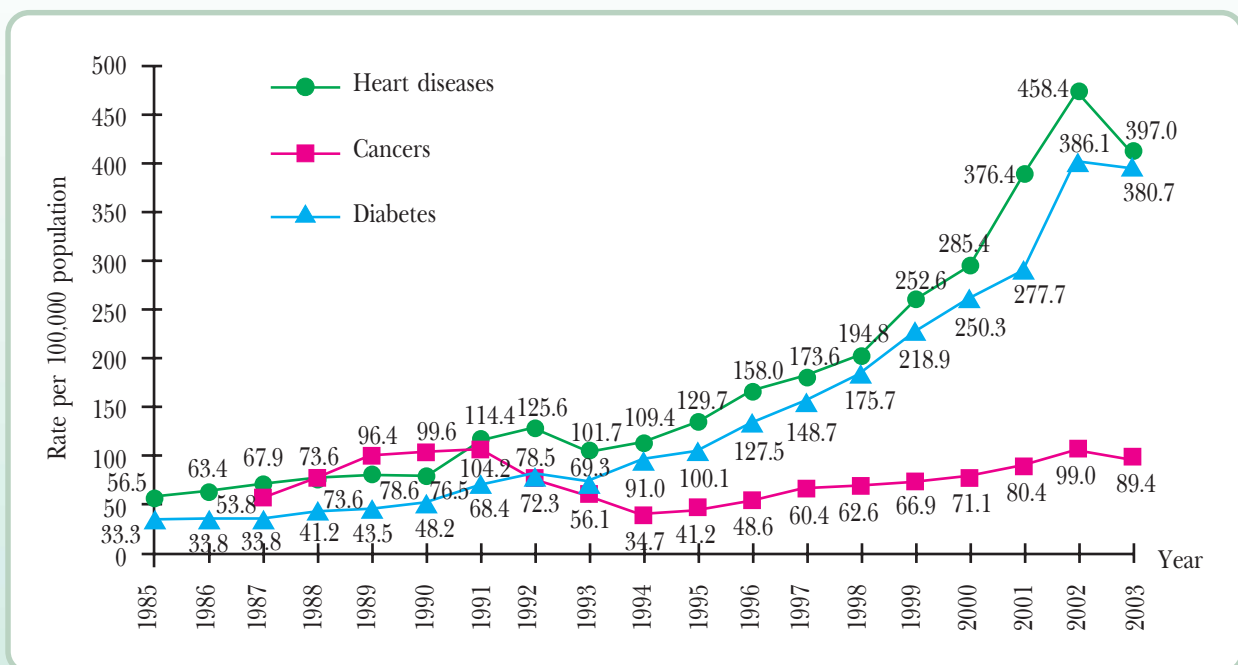
### 3.4.2 Chronic Diseases: Heart Diseases and Diabetes

Currently, non-communicable diseases, such as heart diseases and cancer, have become the leading causes of morbidity and mortality among the Thai people. Such an increasing trend results from unhealthy consumption behaviours and physical inactivity, as evidently demonstrated by the following hospital admission rates.

- Heart Diseases. The admission rate per 100,000 population has risen from 56.5 in 1985 to 109.4 in 1994 and to 397.0 in 2003.
- Cancer. The admission rate per 100,000 population has risen from 34.7 in 1994 to 89.4 in 2003.

Besides, diabetes also has a rising trend, i.e. from 33.3 per 100,000 population in 1985 to 91.0 in 1994 and 380.7 in 2003 (Figure 5.31).

**Figure 5.31** Rate of Hospitalizations of Patients with Heart Diseases, Cancers and Diabetes, 1985-2003

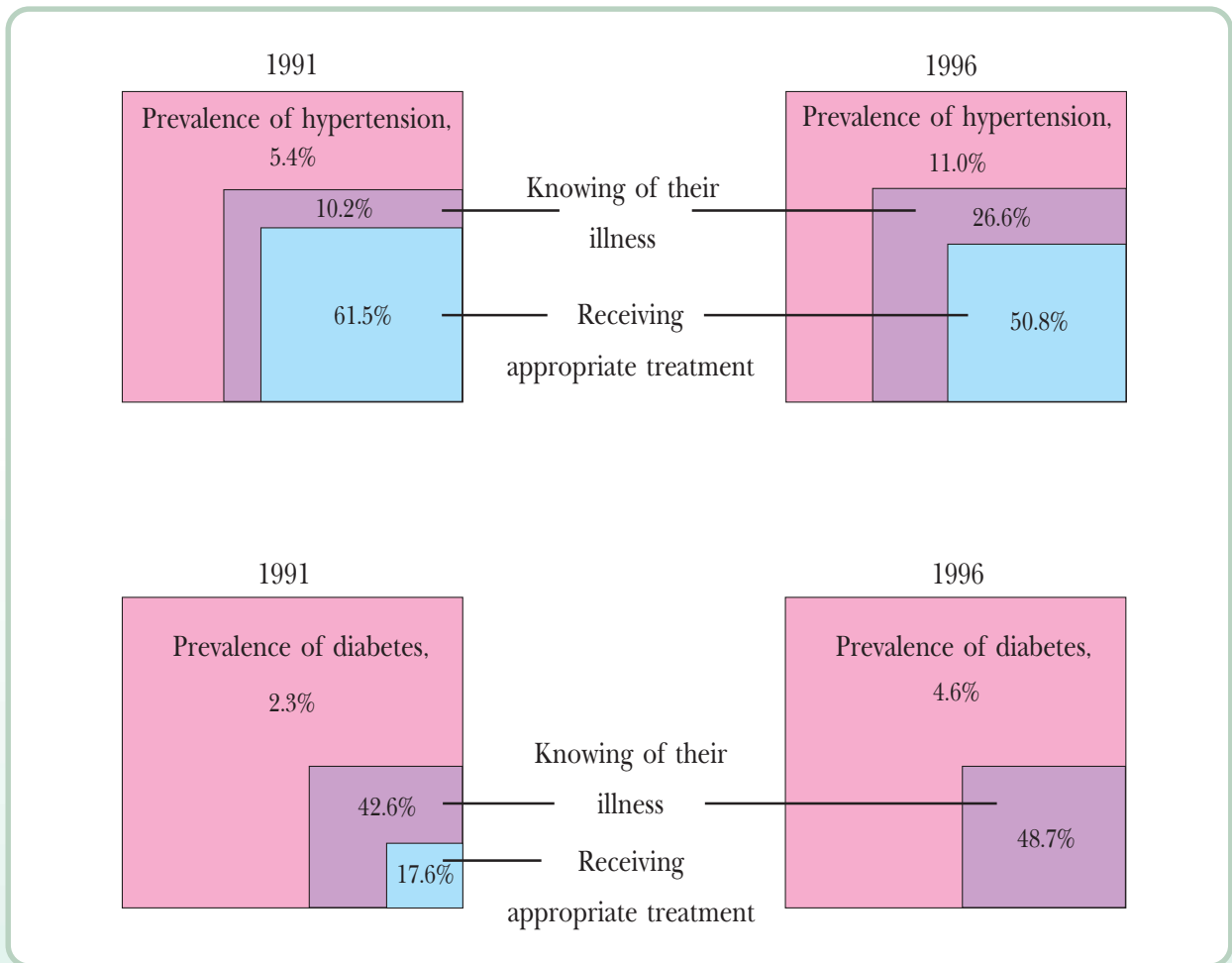


**Source:** Inpatients Report. Bureau of Policy and Strategy, Ministry of Public Health.

**Note:** The rate for cancers, since 1994, covers only liver, lung, cervical, and breast cancers.

The 1996 health examination survey revealed that, out of 2 million cases of diabetes nationwide, only half knew that they had diabetes and less than half had received appropriate treatment. And of 4 million hypertension patients, only a quarter had known of their hypertension status, and only half had received suitable treatment (Figure 5.32).

**Figure 5.32** Prevalence of Diabetes and Hypertension as Well as Appropriate Treatment among Thai Population, 1991-1996



**Source:** National Health Foundation, 1998.

### 3.4.3 Cervical and Breast Cancers

Cervical and breast cancers are fatal diseases that affect Thai women resulting in their premature death; and the trend is rising each year (Table 5.13) especially in Bangkok Metropolis (Figure 5.33). According to the cancer registry in 5 member provinces, the highest rate of cervical cancer was recorded in Chiang Mai Province, while the highest rate of breast cancer was recorded in Bangkok (Table 5.14). Classified by age, females aged 35 and older have a greater incidence rate of cervical and breast cancers than those aged under 35 (Table 5.15). In comparison with those in the U.S., most American females (77%) had breast cancer when they were over 50 years of age, while it is only 40-45% among Thai females in the same age group (Tables 5.16 and 5.17). Besides, it was found that 80% of Thai female breast cancer patients were in the invasive stage.<sup>11</sup>

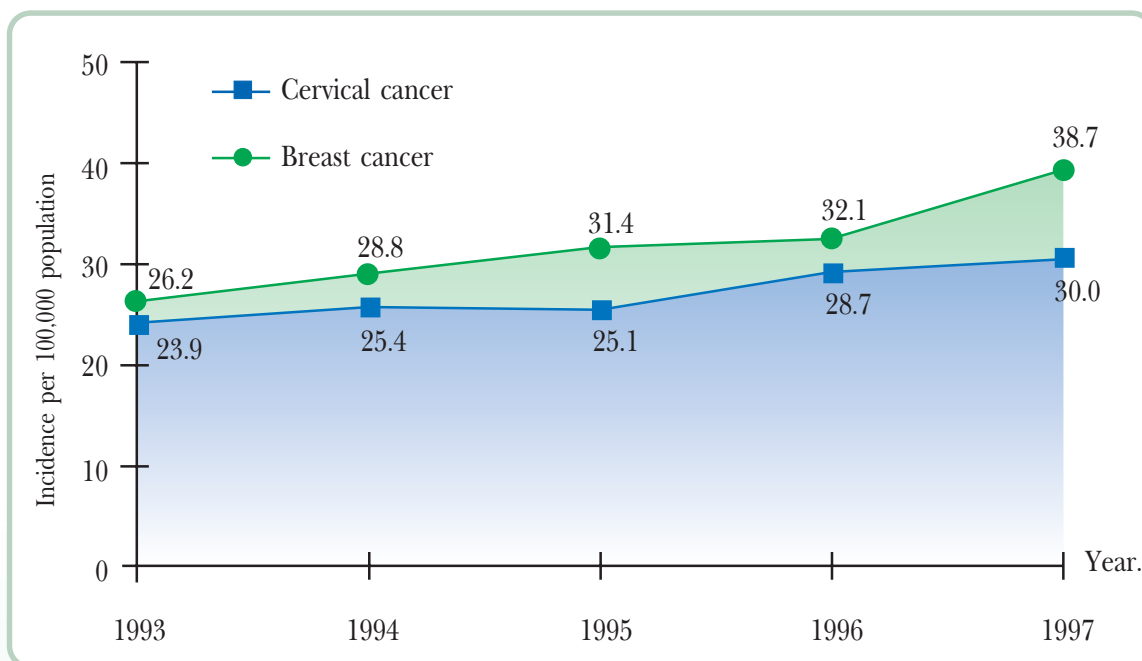
**Table 5.13** Incidence of Cancers Commonly Found among Thai Females, 1990, 1993, 1996 and 1999

Number	Type of cancer	Incidence rate per 100,000 population			
		1990	1993	1996	1999
1	Cervical cancer	23.4	20.9	19.5	19.8
2	Breast cancer	13.5	16.3	17.2	19.9
3	Liver cancer	16.3	15.5	16.0	14.3
4	Lung cancer	12.1	11.1	10.0	9.9
5	Ovarian cancer	4.5	4.7	5.2	6.2

**Source:** National Cancer Institute, Ministry of Public Health.

<sup>11</sup> Thammanit Angsusingh. Screening Mammography. Breast Cancer Treatment Centre, Siriraj Hospital.

**Figure 5.33** Incidence of Cervical and Breast Cancers among Females in Bangkok, 1993-1997



**Source:** National Cancer Institute, Ministry of Public Health

**Table 5.14** Percentage of Cancers of the Reproductive Organs Recorded at Provincial Cancer Registries, 1993, and 1995-1997

Province	Cervical cancer		Breast cancer		Ovarian cancer	
	1993	1995-1997	1993	1995-1997	1993	1995-1997
Chiang Mai	25.7	25.6	15.2	17.6	6.0	4.7
Lampang	23.1	23.6	15.0	16.4	4.4	3.7
Khon Kaen	18.0	15.0	8.6	11.6	4.5	5.6
Bangkok	18.5	20.7	20.6	25.4	4.2	5.9
Songkhla	15.8	16.1	11.5	12.1	3.1	4.6

**Source:** National Cancer Institute, Ministry of Public Health.

**Table 5.15** Incidence of Cancers of the Reproductive Organs among Females Aged 15-59 Years by Organ and Age, 1996 and 1999

Organ	Incidence per 100,000 population in various age groups (years)												
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+
Breasts													
1996	0.1	0.5	3.1	10.5	23.1	39.9	54.2	48.8	49.8	48.4	44.9	41.2	36.5
1999	0.1	0.7	3.9	15.2	25.5	43.0	57.6	57.0	57.1	62.8	53.1	46.1	46.5
Cervix													
1996	0.4	1.0	3.6	11.4	24.4	40.5	51.0	56.6	63.0	64.8	56.1	53.8	39.1
1999	0.0	1.1	4.2	11.9	26.2	41.1	48.2	56.8	65.0	68.0	51.3	56.5	45.2
Uterine neck													
1996	0.0	0.1	0.2	0.7	1.5	3.8	7.2	11.7	11.6	11.4	10.5	10.7	2.4
1999	0.0	0.1	0.4	0.9	2.0	4.9	6.9	11.0	15.6	13.9	14.4	9.3	3.9
Ovaries													
1996	1.3	2.0	2.5	4.6	5.5	7.6	12.6	14.6	17.6	15.7	13.2	13.8	6.0
1999	1.9	2.0	2.2	4.8	7.7	8.9	15.5	14.6	20.4	22.0	15.5	12.8	11.3
Other reproductive organs													
1996	0.0	0.0	0.2	0.2	0.6	0.5	1.4	1.2	2.2	3.3	5.6	4.2	6.4
1999	0.0	0.0	0.3	0.4	0.7	0.3	1.5	2.2	2.0	3.3	4.4	2.5	7.6

Source: Cancer in Thailand, 1999-2000.

**Table 5.16** Estimates of the Number of Breast Cancer Patients in American Females by Age, 1997

Age (years)	Estimated number	Percent
< 30	600	0.3
30-39	8,600	4.8
40-49	32,600	18.1
50-59	33,000	18.3
60-69	36,600	20.3
70-79	43,500	24.2
80+	25,300	14.0
<b>Total</b>	<b>180,200</b>	<b>100.0</b>

Source: American Cancer Society. Surveillance Research. 1997.

**Table 5.17** Ages of Thai Female Breast Cancer Patients, 1983-2004

Age (years)	Surgery Department, Siriraj Hospital 1,353 cases (1983-1994)		Breast Cancer Treatment Centre 5,994 cases (1995-2004)	
	Number of cases	Percent	Number of cases	Percent
< 40	311	23.0	996	16.6
40-49	437	32.3	2,487	41.5
50-59	353	26.1	1,721	28.7
60-69	162	12.0	597	10.0
70 and over	90	6.6	193	3.2
<b>Total</b>	<b>1,353</b>	<b>100</b>	<b>5,994</b>	<b>100</b>

**Source:** Thammanit Angsusingh. Screening Mammography. Breast Cancer Treatment Centre, Siriraj Hospital.

#### 3.4.4 Occupational Diseases

According to the epidemiological surveillance of occupational diseases, significant situations can be summarized as follows:

##### (1) Pesticide Poisoning

Based on the Department of Health's cholinesterase level examinations in farmers during 1992-2002, 13-29% of farmers had abnormal enzyme levels resulting from pesticide exposure. The trend is unlikely to decline and the rate of pesticide poisonings is between 4 and 6 per 100,000 population (Table 5.18).

An assessment of health risks of farmers from chemical pesticide use, conducted by the Food and Drug Administration in five provinces in 2004, revealed that as high as 42.2% of farmers had pesticide poisoning with abnormal enzyme levels.



**Table 5.18** Cholinesterase Testings Results and Morbidity/Mortality Due to Pesticide Poisoning in Farmers, 1992-2002

Year	Cholinesterase testing <sup>(1)</sup>			Pesticide poisoning <sup>(2)</sup>		
	Number tested (persons)	Tested abnormal (cases)	Percent	Illness (cases)	Deaths (cases)	Morbidity rate per 100,000 pop.
1992	42,471	8,669	20.41	3,599	31	6.23
1993	242,820	48,500	19.97	3,299	44	5.65
1994	411,998	72,590	17.62	3,143	41	5.32
1995	460,521	78,481	17.04	3,398	21	5.71
1996	156,315	40,520	25.92	3,196	31	5.32
1997	563,354	89,926	15.96	3,297	27	5.42
1998	369,573	77,789	21.05	4,398	15	7.16
1999	360,411	48,217	13.38	4,169	31	6.78
2000	278,612	52,604	18.88	3,109	21	5.03
2001	89,945	21,753	24.19	2,652	15	4.27
2002	115,105	33,858	29.4	2,571	14	4.11

**Sources:** <sup>(1)</sup> Department of Health, Ministry of Public Health

<sup>(2)</sup> Bureau of Epidemiology, Department of Disease Control.

## (2) Occupational Diseases in the Industrial Sector

In the industrial sector, an increasing number of workers encounter occupational diseases as evidenced by the rising percentage of disbursement rate under the Workers' Compensation Fund of the Social Security Office, i.e. from 1.2% in 1974 to 4.5% in 1996. The rate, however, has dropped to 3.0% in 2003 (Table 4.10). This is because of industrial expansion in manufacture and services with inappropriate use of new technologies and ineffective law enforcement measures.

Besides, there have been studies showing the importance of some specific occupational diseases as follows:

**(2.1) Silicosis.** According to a report from the United States, prior to 1970, more than 1,000 people died from silicosis each year, and after 1996, the number had dropped to lower than 250. In Thailand, at present an estimated 211,796 workers in 7,845 worksites are risk for silicosis.

Based on the silicosis surveillance in the relevant population groups according to their industrial categories, conducted by of the Department of Industrial Works and the Department of Mineral Resources during 1995-1998, the prevalence of silicosis per 1,000 population at risk increased from 16.9 in 1995 to 20.7 in 1998; and it was estimated that there were 4,393 cases of silicosis in 1998. To cope with the problem, in 2000 the Ministry of Public Health signed an agreement with the Department of Mineral Resources, Ministry of Industry, and the Department of Labour Protection and Welfare, Ministry of Labour

and Social Welfare, to implement a 10-year Silicosis Prevention and Control Project (2001-2010). In 2002, Physical check-ups were undertaken in 3,263 workers in industries across the country. It was found that, based on X-ray examinations, 30 workers had **silicosis-an incidence of 9.19 per 1,000 at-risk population**.

(2.2) **Byssinosis** (Cotton dust disease). The Division of Occupational Health, in collaboration with Dr. Praparn Yongchaiyudh and colleagues, in 1987, conducted a study on 229 thread-spinning workers in a textile industry in Samut Prakan Province. The study found a 19.7% byssinosis prevalence. A higher prevalence rate was found in workers with longer employment periods. Another study conducted by the Division of Occupational Health in 2002 in 43 textile industries revealed that four industries had a dust content in the air higher than the maximum permissible level. Besides, health examinations performed in 5,282 workers revealed that 86 of them had irregular symptoms. And it was found that only 21.6% (1,140) of all the workers wore a protective mask at all times while working. Another study on exposure to cotton dust in six textile industries of Malee pongsophon and colleagues in 2002, by collecting air samples at the mixing, washing, spinning, reeling and weaving sections, revealed that all sections had cotton dust levels above the permissible level, especially in 28 (or 32.18%) out of 87 air samples.

(2.3) **Lead poisoning**. According to the 1993 study of Department of Industrial Works, there were 558,839 workers in 14,440 workplaces nationwide that used lead in their production processes. The lead poisoning surveillance conducted in 16 industrial categories in 16 provincial areas, totally 56 workplaces, during 1990-1993 by the Division of Occupational Health demonstrated that the workplaces with a high risk of lead poisoning included those involved with battery manufacturing, ore smelting, lead mining, and lead foundries. Over 80% of the workers were found to have an elevated blood-lead level of over 40 micrograms per decilitre (mcg/dl); and over 20% of them had the lead level higher than 60 mcg/dl. Other industries with a lower risk of lead poisoning were printing press, vehicle-repairing garages, shipbuilding plants, and ornament-producing operations. Approximately 20-30% of the workers in such industrial categories had a blood-lead content of over 40 mcg/dl, and less than 5% had over 60 mcg/dl.

However, in 2002 the MoPH Division of Occupational Health conducted an occupational lead poisoning surveillance by testing for blood lead contents in 3,876 workers. It was found that 257 workers (6.6%) had a lead content higher than 40 mcg/dl and 73 workers (1.9%) had higher than 60 mcg/dl.

(2.4) **Risks from Organic Solvents**. According to a study of risks for chemical hazards by Dr. Nalinee Sripuang<sup>12</sup> in 1999 on workers in petrochemical, auto-making and electronics industries, the workers were at high risk for exposure to solvents in the aromatic hydrocarbon group. And it was found that female workers had a urine metabolite concentration higher than male workers.

Another study on contacts with solvents (benzene, toluene, and xylene) in workers in three industries in the Map Taphut Industrial Estate, conducted by the Division of Occupational Health, MoPH, revealed unsafe conditions and risks of solvent poisoning among some groups of workers

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<sup>12</sup> Nalinee Sripuang. Risk Assessment of Chemical Hazards in Occupation Health Surveillance : A Case Study of Organic Solvents, 1999.

(of all the samples, 0.5% had a phenol content and 1.4% had a hippuric acid content higher than the maximum allowable levels).

**(2.5) Hearing Loss.** The Division of Occupational Health, MoPH, conducted a study in 1998<sup>13</sup> on hearing capacity of workers who encountered loud noise in industries. The study demonstrated that 69.3% of the workers had hearing impairment.

### 3.4.5 Accidental Injuries

#### (1) Road Traffic Accidents

The situation of road traffic accidents in Thailand can be categorized by the time period as follows:

**The First Period, before 1986 : Economic Recession.** The number of accidents was not so high during this period. Each year, there were about 18,000 - 25,000 accidents with about 2,000-4,000 deaths or a mortality rate of 3.9-5.7 per 100,000 population. And there were approximately 8,000-9,000 injury cases each year, or an injury rate of 17.2 per 100,000 population.

**The Second Period, 1987-1992 : Economic Recovery.** During this period there were annually about 40,000-60,000 accidents, nearly two times higher than during the previous period, with about 8,000-9,000 deaths or a mortality rate of 7.4-16.0 per 100,000 population. It was noteworthy that casualties had increased almost threefold. The number of injuries had increased to 20,000-25,000 each year or an injury rate of 24.0-43.9 per 100,000 population, a nearly twofold rise.

**The Third Period, 1993-1996 : Bubble Economy.** Each year there were 80,000-100,000 accidents, a twofold increase, with about 14,000-16,000 deaths or a mortality rate of 16.3-28.2 per 100,000 population, a nearly twofold increase. And there were about 40,000-50,000 injuries each year or an injury rate of 43.4-85.6 per 100,000 population, a twofold increase.

**The Fourth Period, 1997-2001 : Economic Crisis.** Each year there were 70,000-80,000 accidents with 12,000 deaths or a mortality rate of 20.0-22.7 per 100,000 population. And each year there were 48,000-52,000 injuries or an injury rate of 77.5-86.9 per 100,000 population. This was a declining trend compared with the previous period.

**The Fifth Period, 2002 onward : Economic Recovery.** Each year there were approximately 90,000 accidents with 13,000 deaths or a mortality rate of 21 per 100,000 population. And there were approximately 70,000 injuries a year or an injury rate of 110.8 per 100,000 population (Figure 5.34).

It was found that those who died from accidents were mostly in the working-age group, (15-34 years old); the number for males being four or five times greater than for females (Table 5.20 and Figure 5.35).

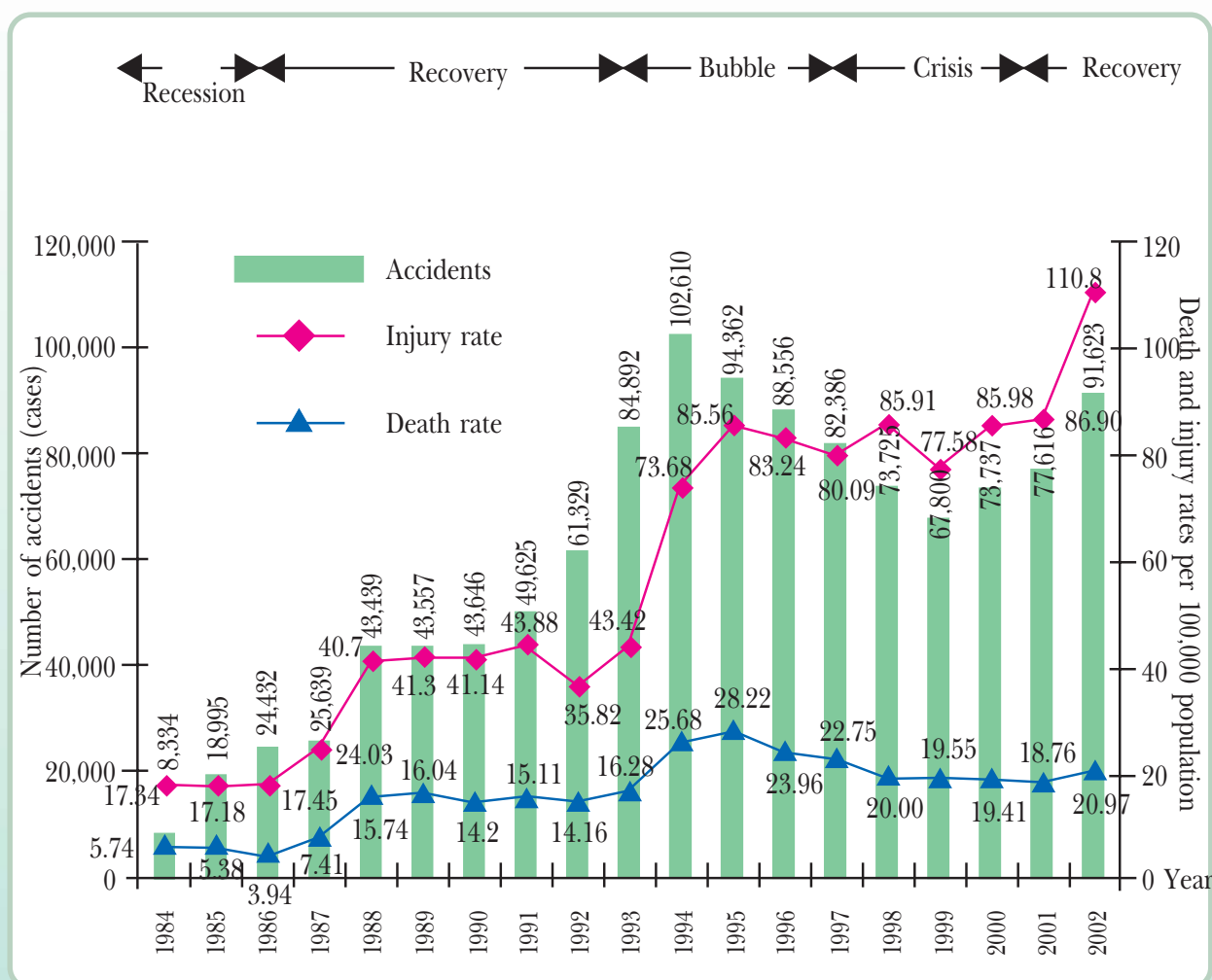
It is noteworthy that the numbers of accidents, injuries, and deaths from accident are higher compared to those in the previous year probably as a result of economic expansion,

<sup>13</sup> Vikrom Sengkisiri. Comparison of Effectiveness of Hearing Measurements between 16-hr Noise Exposure Cessation and 4-hr Ear Protective Device Usage in Industrial Plants in 1998,1999.

grassroots-level economic stimulus measures with a low-interest monetary policy and tax measures enhancing the people’s purchasing powers. With such higher purchasing powers, the volumes of auto sales have been rising after the economic crisis ended. Motor vehicles have become the fifth element of livelihood. But the increase in the number of automobiles has resulted in more road traffic accidents as evidenced by a study on the relationship between the number of accidents and the auto sales records. It has been found that the increase or decrease in auto sales is positively associated with the number of road accidents ( $r = 0.63$ ; Table 5.21).

This kind of situation caused a direct loss of property worth 1,494.9 million baht in 2002 (Table 5.19). But actually there are other incalculable losses including life losses, medical expenses, disabilities, etc. According to the 2000 study on economic losses from road traffic accidents, conducted by the Thailand Development Research Institute (TDRI), the economic loss is as high as 115,337 million baht or 2.3% of the gross domestic products<sup>14</sup> (4,923,263 million baht; Table 5.22).

**Figure 5.34** Death and Injury Rates from Road Traffic Accidents, Thailand, 1984-2002



**Source:** Police Information System Centre, Royal Thai Police.

<sup>14</sup> Centre of Traffic and Transport Research and Development, King Mongkut’s University of Technology at Thonburi. A Project on the Analysis of Causes of Road Traffic Accidents, 2002.

**Table 5.19** Numbers and Rates of Accidental Deaths and Injuries and Estimated Damages, 1984-2002

Year	Population	No. of accidents (cases)	Deaths		Injuries		Property damages (baht)
			No. (persons)	Rate per 100,000 pop.	No. (persons)	Rate per 100,000 pop.	
1984	50,583,105	18,334	2,904	5.74	8,770	17.34	56,265,453
1985	51,795,651	18,955	2,788	5.38	8,901	17.18	60,645,504
1986	52,696,204	24,432	2,086	3.94	9,242	17.45	55,061,650
1987	53,873,172	25,639	3,991	7.41	12,947	24.03	129,539,616
1988	54,960,917	43,439	8,651	15.74	22,370	40.70	329,527,667
1989	55,888,393	43,557	8,967	16.04	23,083	41.30	439,028,000
1990	56,303,273	43,646	7,997	14.20	23,161	41.14	477,603,000
1991	56,961,030	49,625	8,608	15.11	24,995	43.88	639,616,000
1992	57,788,965	61,329	8,184	14.16	20,702	35.82	607,793,000
1993	58,336,072	84,892	9,496	16.28	25,330	43.42	1,021,464,000
1994	59,095,419	102,610	15,176	25.68	43,541	73.68	1,408,216,000
1995	59,277,900	94,362	16,727	28.22	50,718	85.56	1,631,117,000
1996	60,116,182	88,556	14,405	23.96	50,044	83.24	1,561,708,187
1997	60,816,227	82,386	13,836	22.75	48,711	80.09	1,571,786,469
1998	61,155,888	73,725	12,234	20.00	52,538	85.91	1,378,673,826
1999	61,577,827	67,800	12,040	19.55	47,770	77.58	1,345,985,811
2000	61,770,259	73,737	11,988	19.41	53,111	85.98	1,242,205,524
2001	62,093,855	77,616	11,652	18.76	53,960	86.90	1,240,801,187
2002	62,554,482	91,623	13,116	20.97	69,313	110.80	1,494,936,815

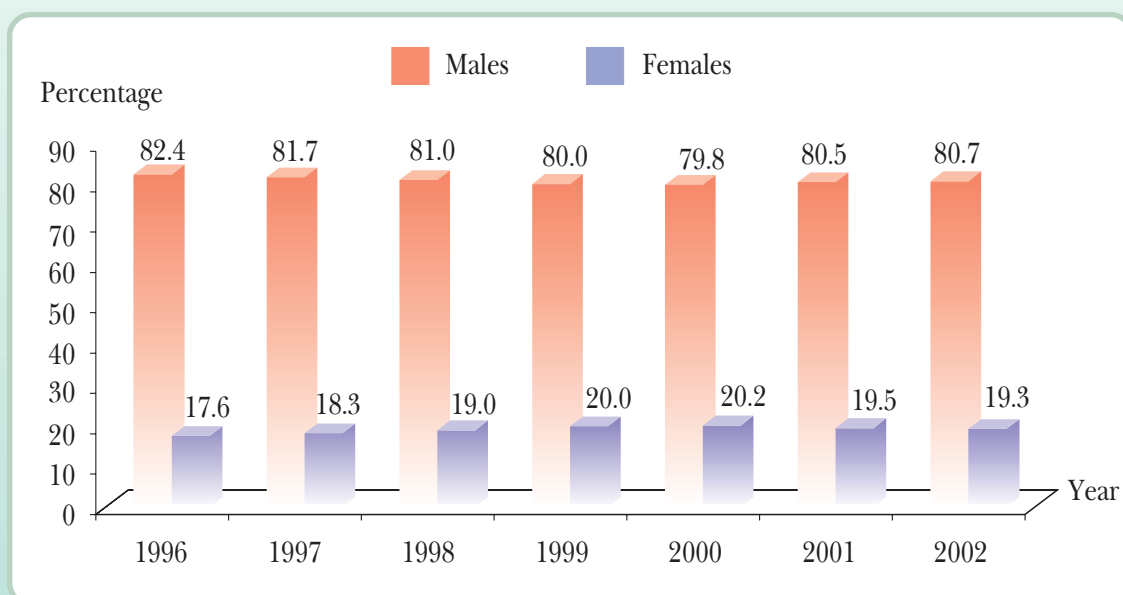
**Source:** Police Information System Centre, Royal Thai Police.

**Table 5.20** Number and Percentage of Deaths from Transportation Accidents by Age Group, 1996-2002

Age group (years)	1996		1997		1998		1999		2000		2001		2002	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-4	29	1.7	175	1.3	210	2.6	254	2.2	287	2.2	243	1.9	205	1.5
5-9	389	2.3	227	1.8	146	1.8	261	2.2	287	2.2	256	2.0	214	1.6
10-14	599	3.6	392	3.0	237	3.0	300	2.6	387	2.9	356	2.7	428	3.2
15-19	2,786	16.6	2,052	15.8	1,075	13.5	1,501	13.0	1,647	12.5	1,623	12.5	1,869	13.9
20-24	2,995	17.8	2,236	17.3	1,184	14.8	1,702	14.6	1,861	14.1	1,810	14.0	2,003	14.9
25-29	2,262	13.5	1,743	13.5	1,051	13.2	1,470	12.6	1,641	12.4	1,575	12.2	1,686	12.6
30-34	1,733	10.3	1,343	10.4	830	10.4	1,286	11.1	1,452	11.0	1,437	11.1	1,415	10.5
35-39	1,410	8.4	1,177	9.1	742	9.3	1,113	9.6	1,221	9.3	1,306	10.1	1,225	9.1
40-44	1,017	6.1	904	7.0	665	8.3	914	7.9	1,092	8.3	1,063	8.2	1,086	8.1
45-49	870	5.2	750	5.8	488	6.1	785	6.8	884	6.7	912	7.0	903	6.7
50-54	594	3.6	484	3.7	329	4.1	561	4.8	638	4.8	650	5.0	697	5.2
55-59	546	3.3	468	3.6	320	4.0	444	3.8	507	3.8	463	3.6	488	3.6
60-64	421	2.5	371	2.9	287	3.6	392	3.4	448	3.4	450	3.5	408	3.0
65-69	304	1.8	209	1.6	205	2.6	283	2.4	352	2.7	341	2.6	355	2.7
70-74	162	1.0	157	1.2	115	1.5	168	1.4	241	1.8	204	1.6	222	1.7
75-79	112	0.6	67	0.5	66	0.8	83	0.7	135	1.0	124	1.0	139	1.0
80-84	39	0.2	37	0.3	22	0.3	56	0.5	59	0.5	65	0.5	56	0.4
85 and over	26	0.1	21	0.1	10	0.1	26	0.2	46	0.3	60	0.5	39	0.3

**Source:** Bureau of Registration Administration, Department of Local Administration, Ministry of Interior.

**Figure 5.35** Proportion of Deaths from Transportation Accidents by Sex, 1996-2002



**Source:** Bureau of Registration Administration, Department of Local Administration, Ministry of Interior.



**Table 5.21** Correlation between the Number of Accidents and Overall Automobile Sales, 1990-2002

Year	Number of accidents <sup>(1)</sup> (cases)	Number of automobiles sold <sup>(2)</sup> (units)	Increase from previous year
1990	43,646	304,062	+46%
1991	48,625	268,560	-11.7%
1992	61,329	362,987	+35.2%
1993	84,892	456,461	+25.8%
1994	102,610	485,105	+6.4%
1995	94,362	571,580	+17.7%
1996	88,556	589,126	+3.1%
1997	82,386	363,156	-38.4%
1998	73,725	144,065	-60.3%
1999	67,800	218,330	+51.5%
2000	73,737	262,189	+20.1%
2001	77,616	289,000	+10.2%
2002	91,623	410,000	+41.9%

**Note:** Correlation coefficient = 0.630

**Source:** (1) Royal Thai Police.

(2) Krungthep Turakij (Bangkok Business Newspaper). Information compiled by Toyota Motors (Thailand) Co., Ltd.

**Table 5.22** Estimates of Economic Losses Due to Road Traffic Accidents Undertaken by the Thailand Development Research Institute (TDRI), 1998-2000

Year	Loss to the deceased (million baht)	Loss to the injured (million baht)	Loss to property (million baht)	Total loss (million baht)
1998	79,766	38,409	1,380	119,555
1999	78,501	36,580	1,346	116,427
2000	78,162	35,933	1,242	115,337

**Source:** Analysis of Causes of Road Traffic Accidents Project. Office of Transport and Traffic Policy and Planning, Ministry of Transport.

A study on road traffic accidents nationwide has revealed that motorcycles, pickups/vans, personal passenger cars and bicycles/tricycles are the leading causes of injuries and deaths, compared with other types of vehicles. In regard to accident severity, the major vehicle categories that caused fatal accidents in 2001-2002 were personal passenger cars, pickups/vans and motorcycles (Table 5.23).



**Table 5.23** Numbers and Rates of Injuries and Deaths from Road Traffic Accidents by Type of Vehicles, 1997-2002

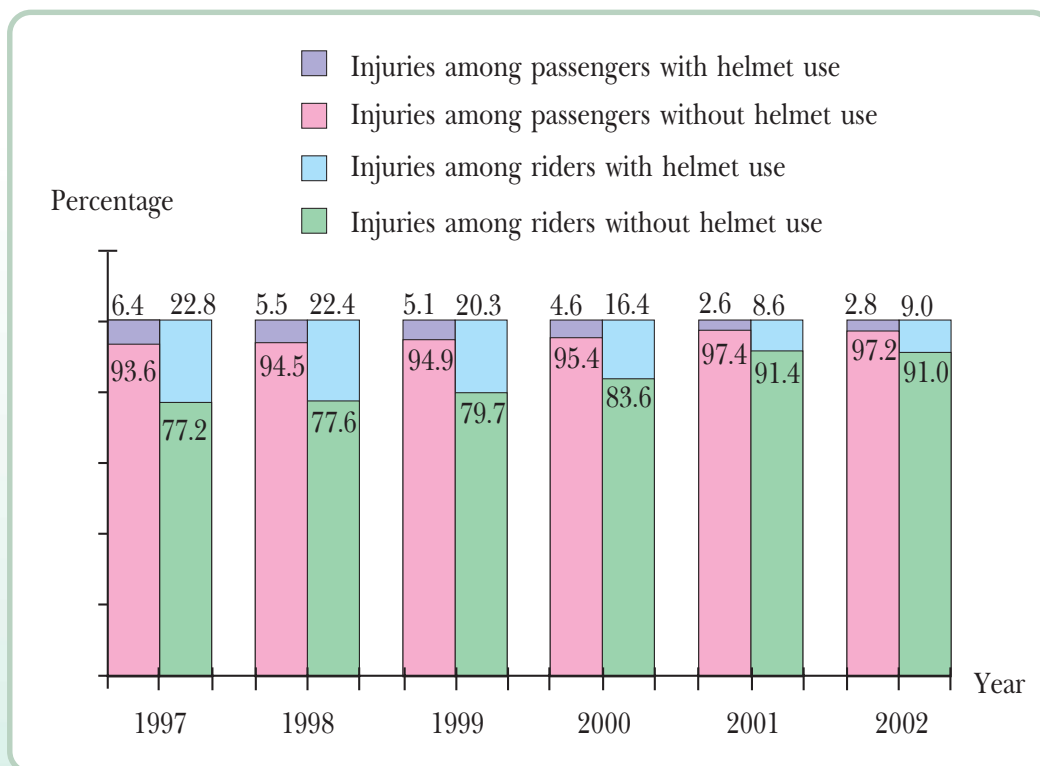
Type of vehicles	1997			1998			1999			2000			2001			2002		
	Injuries	Deaths	Death rate (%)	Injuries	Deaths	Death rate (%)	Injuries	Deaths	Death rate (%)	Injuries	Deaths	Death rate (%)	Injuries	Deaths	Death rate (%)	Injuries	Deaths	Death rate (%)
Bicycles and tricycles	1,817	45	2.5	1,888	43	2.3	2,183	45	2.1	14,450	118	0.8	2,037	124	6.1	2,296	127	5.5
Motorcycles	48,440	1,707	3.5	43,274	1,469	3.4	41,947	1,274	3.0	84,378	3,129	3.7	41,817	3,045	7.3	48,740	3,525	7.7
Three-wheeled motor vehicles	393	24	6.1	401	22	5.5	407	10	2.5	1,160	42	3.6	429	36	8.4	488	36	7.4
Personal passenger cars	1,075	65	6.0	1,169	84	7.2	1,064	58	5.5	2,700	102	3.8	891	91	10.2	1,020	107	10.5
Pickups/vans	6,628	348	5.2	5,373	251	4.7	5,172	221	4.3	8,584	402	4.7	4,008	335	8.4	4,668	403	8.6
Trucks (6 wheels or more)	856	43	5.0	647	36	5.6	677	28	4.1	1,512	76	5.0	923	63	6.8	971	58	6.0
Trailers	140	2	1.4	137	3	2.2	172	5	2.9	215	9	4.2	70	6	8.6	83	5	6.0
Transport pickups	497	20	4.6	317	8	2.5	411	13	3.2	738	19	2.6	186	9	4.8	270	20	7.4
Buses	627	9	1.4	377	11	2.9	385	10	2.6	966	25	2.6	232	19	8.2	406	15	3.7
Agricultural trucks	147	13	8.8	139	3	2.2	173	10	5.8	413	22	5.3	367	19	5.2	428	20	4.7
Thai farm trucks (E-taen)	206	14	6.8	223	14	6.3	201	3	1.5	269	12	4.5	193	8	4.1	195	14	7.2
<b>Total</b>	<b>60,766</b>	<b>2,290</b>	<b>3.8</b>	<b>53,945</b>	<b>1,944</b>	<b>3.6</b>	<b>52,792</b>	<b>1,677</b>	<b>3.2</b>	<b>115,385</b>	<b>3,956</b>	<b>3.4</b>	<b>51,153</b>	<b>3,755</b>	<b>7.3</b>	<b>59,565</b>	<b>4,330</b>	<b>7.3</b>

**Source:** Report on Injury Surveillance in Thailand. Bureau of Epidemiology, Department of Disease Control.

**Note:** Data for 2001-2002 include only severely injured cases (injuries/deaths before reaching hospital, deaths in emergency rooms, and injuries cases admitted/hospitalized for observation or treatment only).

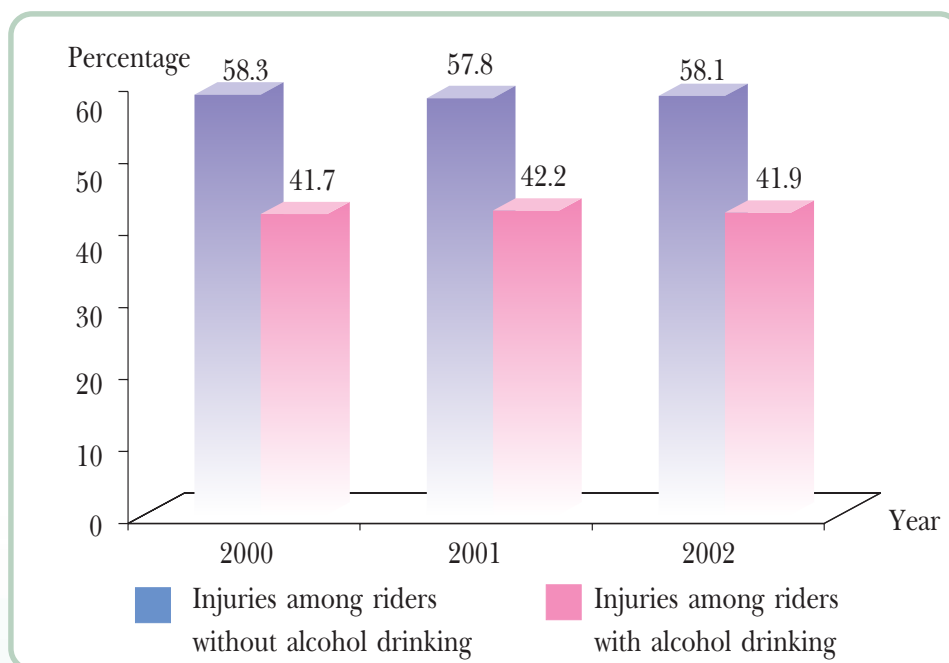
Even though the Royal Decree on Anti-crash Helmets has been in effect in all provinces throughout the country since 1 January 1996, the data from the injury surveillance system have shown that motorcycle riders/passengers who do not wear helmets are 90% more likely to have accident injuries than those who wear helmets (Figure 5.36); and nearly half of those accident victims have drunk alcohol before riding (Figure 5.37).

**Figure 5.36** Proportion of Injuries among Motorcycle Riders and Passengers with and without Helmet Use, 1997-2002



**Source:** Report on Injury Surveillance in Thailand. Bureau of Epidemiology, Department of Disease Control.

Figure 5.37 Proportion of Severe Injuries among Motorcycle Riders with and without Alcohol Drinking, 2000-2002

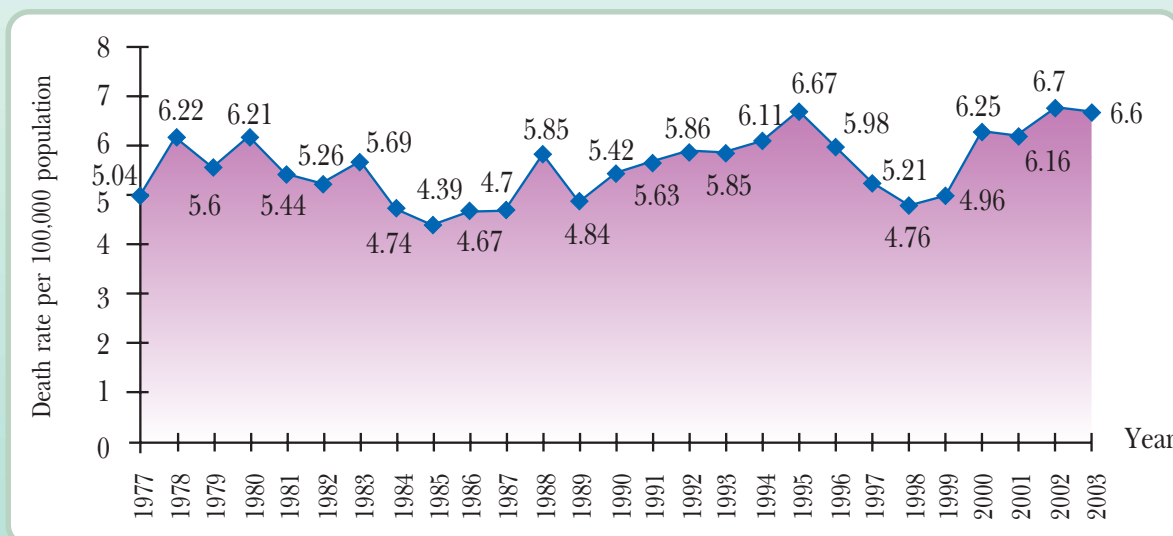


Source: Report on Injury Surveillance in Thailand. Bureau of Epidemiology, Department of Disease Control.

(2) Water-Related Accidents: Drowning and Falling into the Water

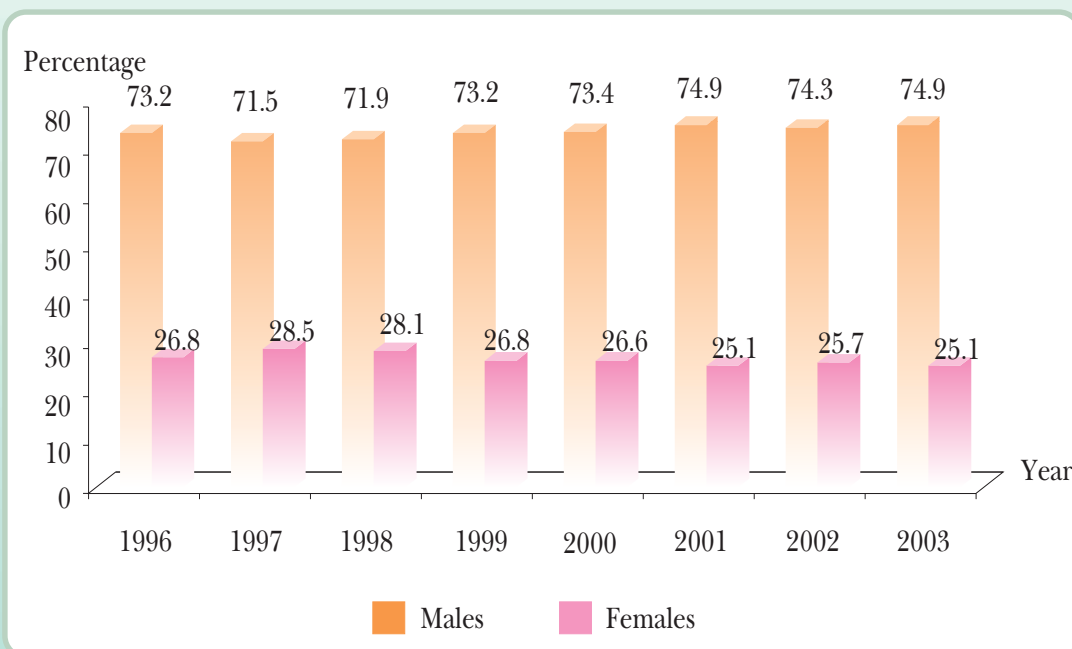
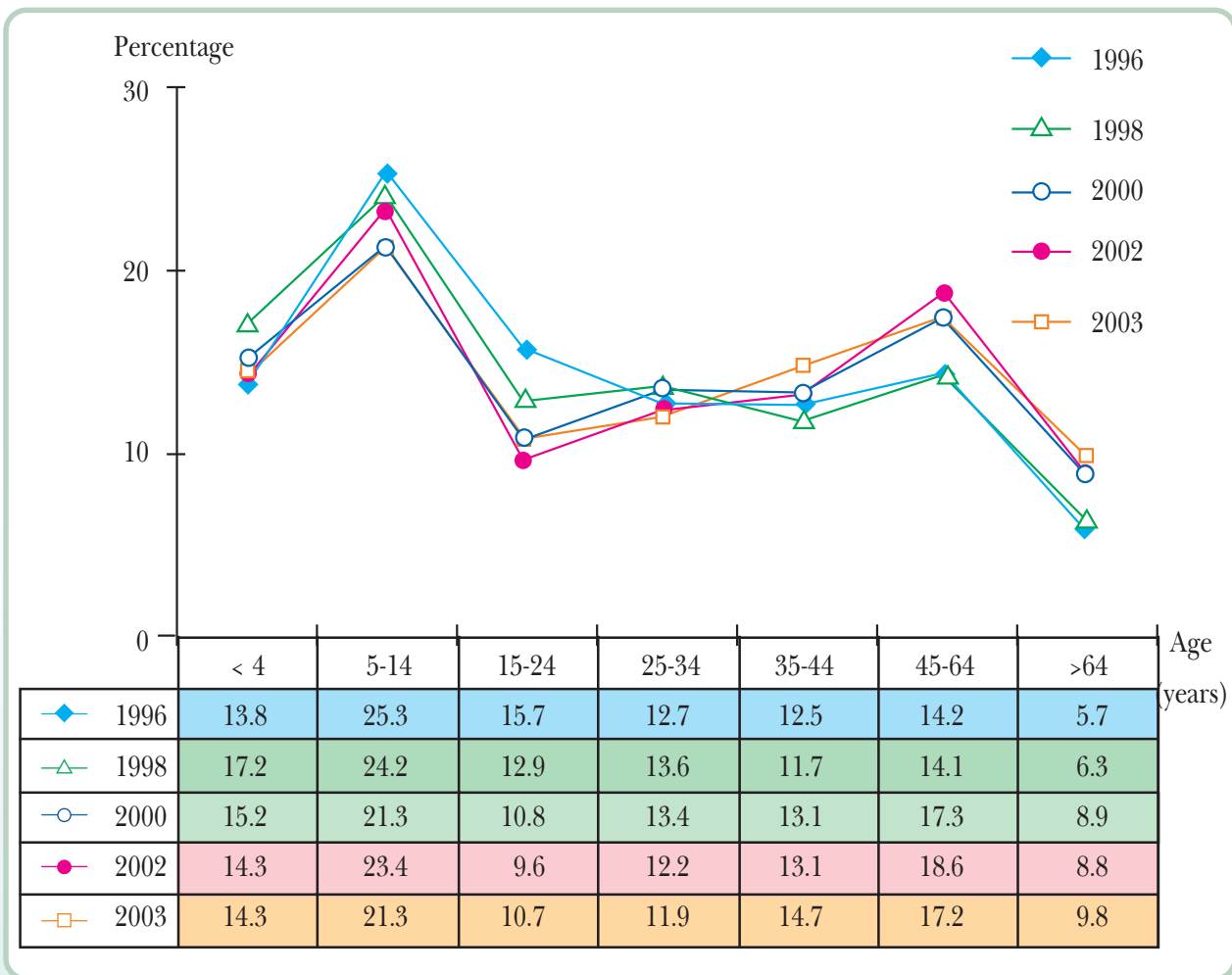
Water-related accidents are an important problem that has not received adequate attention as expected, compared to the problem of road traffic accidents. During 1977-2003, the rate of deaths from drowning and falling into the water was 4.4-6.7 cases per 100,000 population (Figure 5.38). An epidemiological analysis of water-related accidents in Thailand during the period 1996-2003 revealed that, among those who died from drowning, males were 3 times more likely than females to become the victims; the highest number being among school-age children (Figure 5.39). This might result from their lack of experience in playing safely in the water and thus being less capable of helping themselves.

Figure 5.38 Rate of Deaths from Accidental Drowning in Thailand, 1977-2003



Source: Bureau of Policy and Strategy, Ministry of Public Health

**Figure 5.39** Number and Percentage of Reported Deaths from Accidental Drowning by Age and Gender in Thailand, 1996-2003



**Source:** Mortality Report. Bureau of Policy and Strategy, Ministry of Public Health.

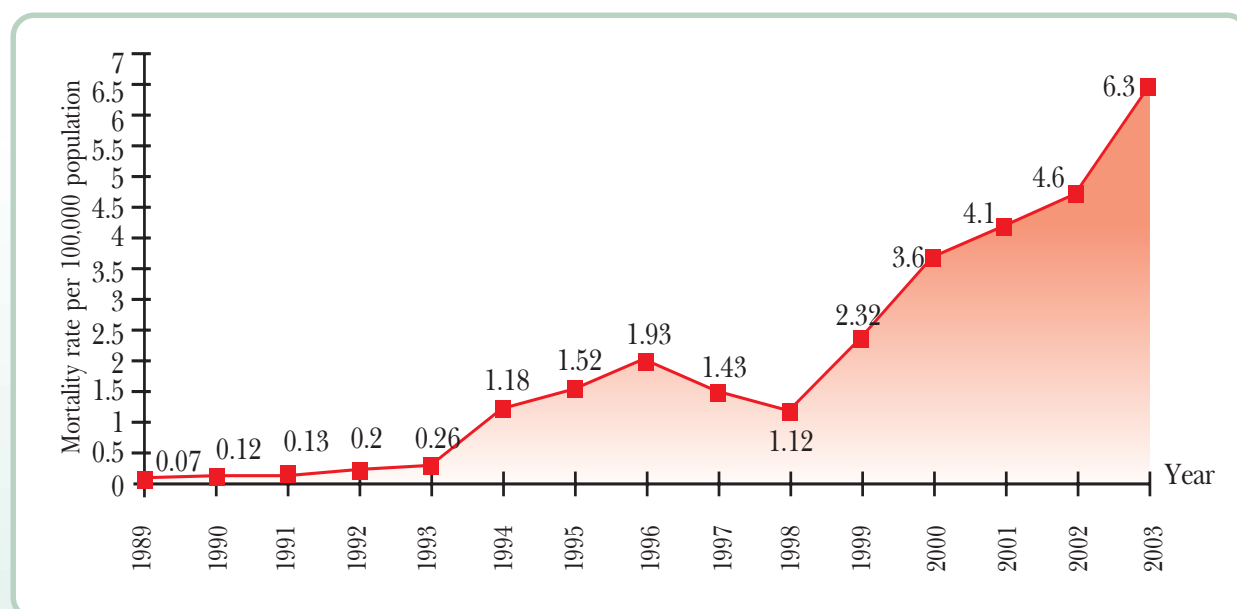
### 3.4.6 Diseases Associated with Behaviours and Lifestyles

#### (1) Tobacco Use

There has been a rising trend in the prevalence of diseases evidently caused by smoking, including emphysema, coronary atherosclerosis, chronic obstructive pulmonary disease, and lung cancer, as follows.

(1.1) Emphysema. The prevalence of emphysema has risen from 0.07% in 1989 to 6.3% in 2003 (Figure 5.40).

**Figure 5.40** Rate of Mortality Due to Emphysema, 1989-2003



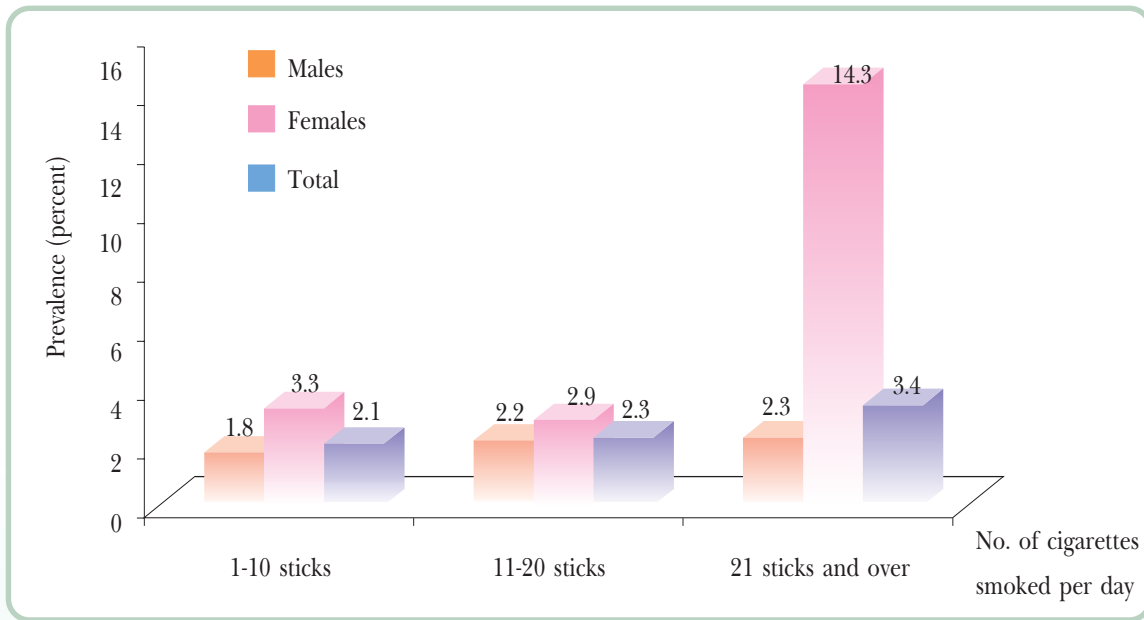
**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

(1.2) Chronic obstructive pulmonary disease (COPD). A major cause of COPD is cigarette smoking for a long period of time. According to the 1991 Health Examination Survey, 1.5% of the people aged 15 had COPD, and that the more they smoked, the more they would come down with COPD (Figure 5.41). By 2010, it has been estimated that the prevalence of COPD would be 7,035 per 100,000 population<sup>15</sup> (Figure 5.42).

A projection of the number of COPD patients showed that 1.5% of the population aged over 15 were COPD identified. In brief, the longer the time of tobacco exposure, the greater the likelihood of COPD to develop (Figure 5.44). There is a great deal of evidence reporting such an association. In 2010, tobacco consumption is projected to result in a COPD prevalence of 7,035 per 100,000 population in Thailand<sup>15</sup> (Figure 5.45).

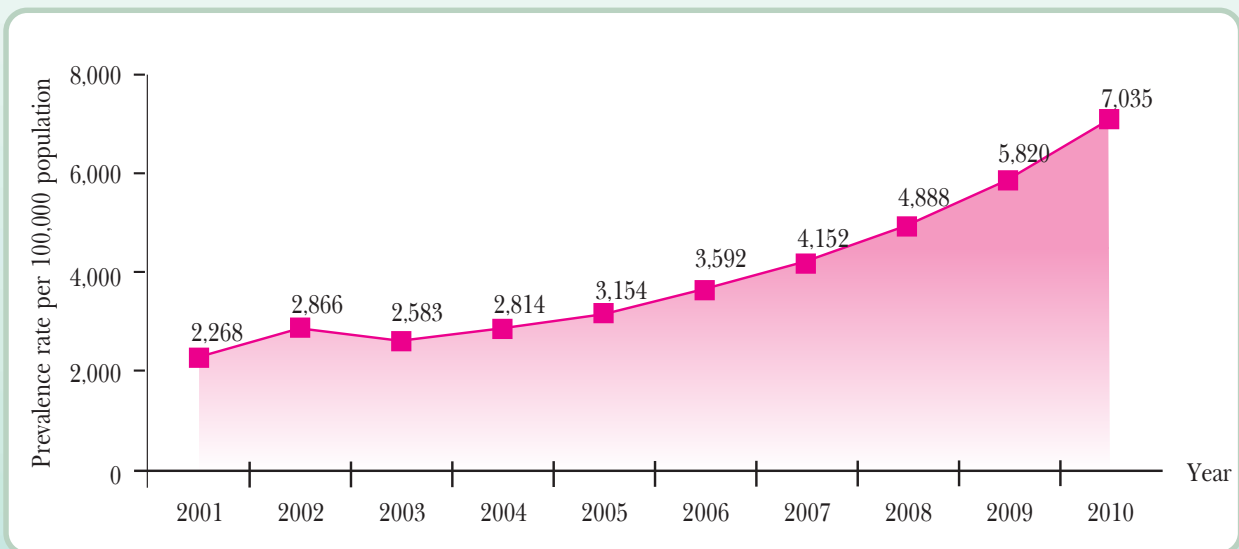
<sup>15</sup> The projection was based on the assumption that in the next 10 years the smoking rate will decrease each year by 0.42% among males and 0.16% among females.

**Figure 5.41** Prevalence Rate of Chronic Obstructive Pulmonary Disease among Thai People Aged 15 and Over by the Number of Cigarettes Smoked and Sex



**Source:** Thai Health Research Institute and Health Systems Research Institute. Health Examination Surveys, 1st round in 1991 and 2nd round in 1996.

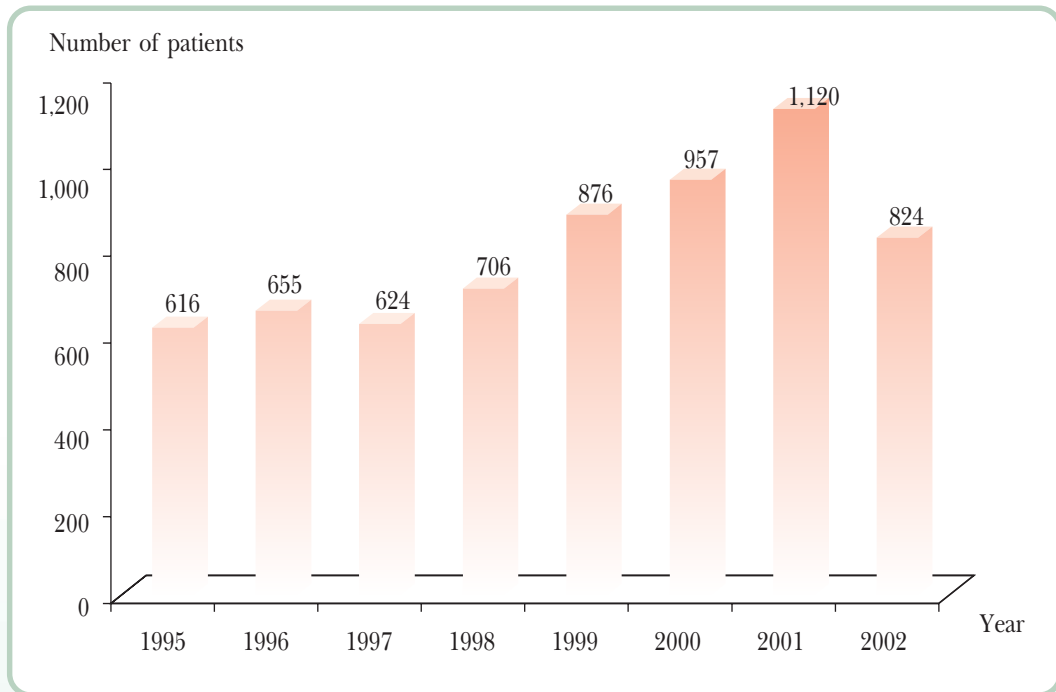
**Figure 5.42** Projection of Chronic Obstructive Pulmonary Disease Prevalence, Thailand, 2001- 2010



**Source:** Sawang Saenghiranwattana. Chronic Obstructive Pulmonary Disease: Current Situation and Trends, 1999.

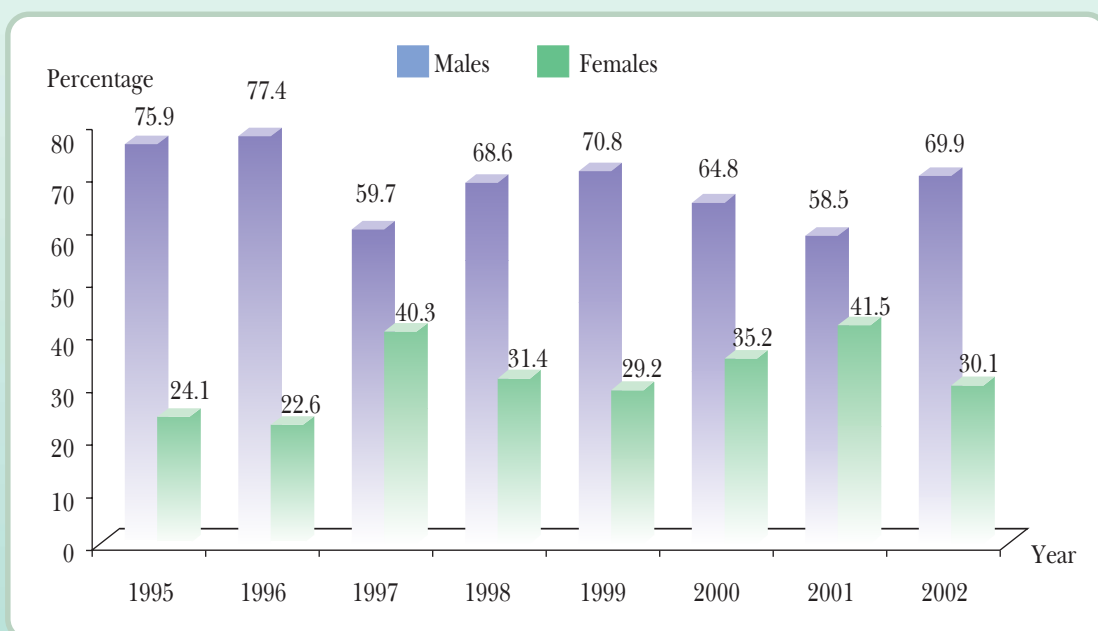
(1.3) Coronary atherosclerosis. This disease has a rising trend, trend, especially among females (Figures 5.43 and 5.44). In addition to tobacco use, such a disease results from physical inactivity, hyperlipidaemia and overweight.

**Figure 5.43** Number of Patients with Coronary Atherosclerosis Treated at the Cardiology Institute, 1995-2002



**Source:** Institute of Cardiology, Ministry of Public Health.

**Figure 5.44** Proportion of Patients with Coronary Atherosclerosis Undergoing Surgery at the Cardiology Institute by Sex, 1995-2002

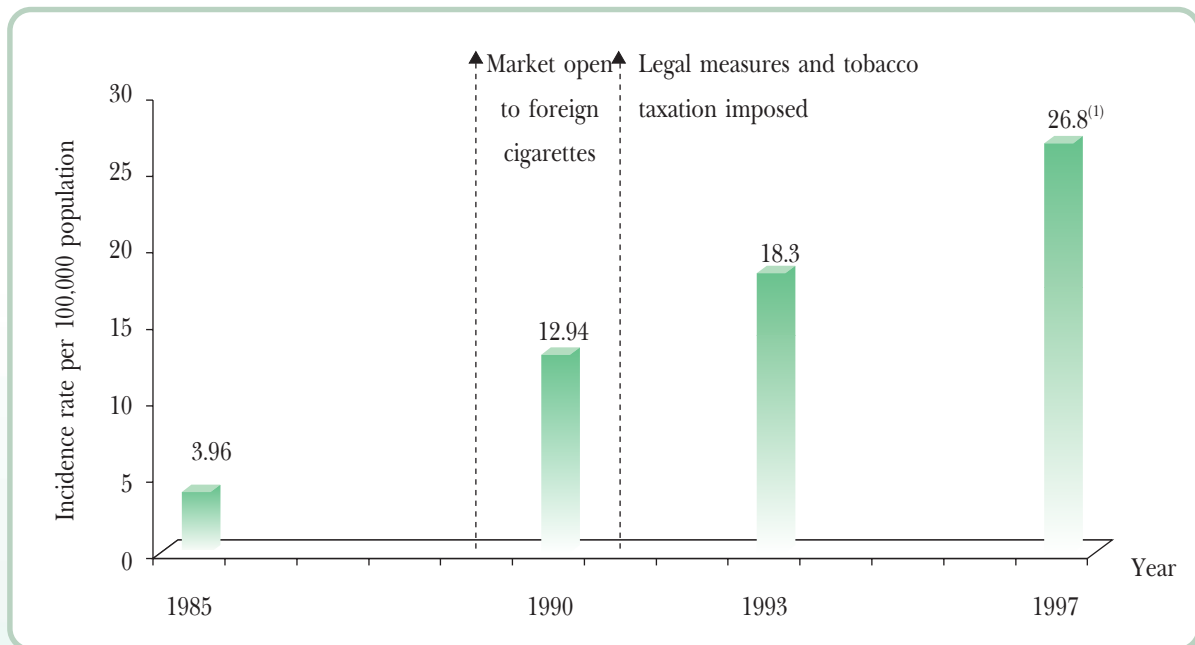


**Source:** Institute of Cardiology, Ministry of Public Health.



(1.4) Lung cancer. Between 1985 and 1997 the prevalence of lung cancer increased sevenfold, i.e. from 3.96 to 26.8 per 100,000 population. The rise is expected to be associated with tobacco consumption and air pollution (Figure 5.45).

**Figure 5.45** Incidence Rate of Lung Cancer, Thailand, 1985-1997

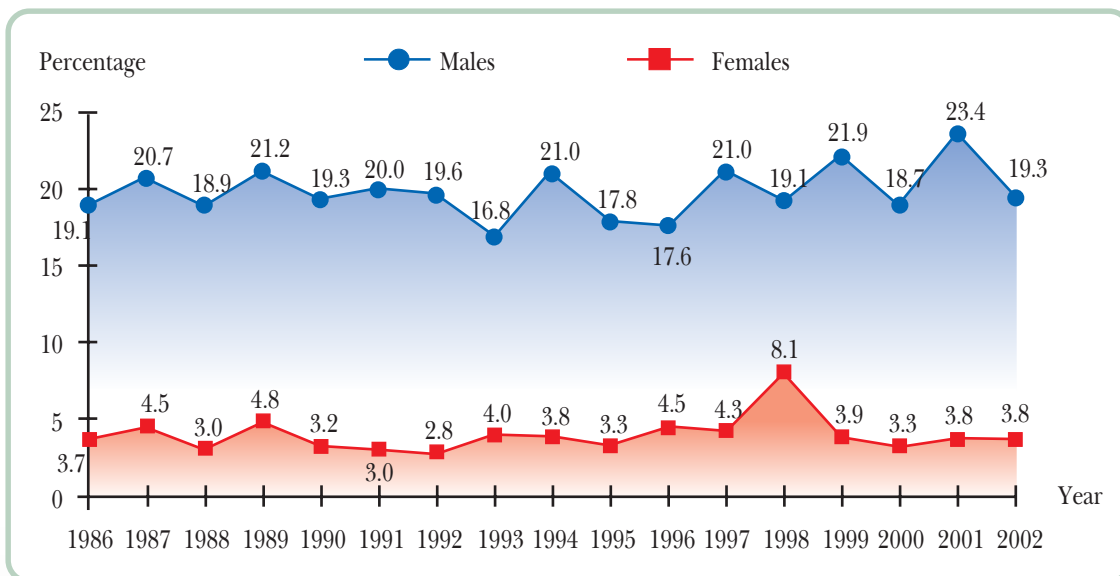


**Source:** National Cancer Institute, Ministry of Public Health.

**Note:** <sup>(1)</sup> Lung cancer in males.

A report on lung cancer patients treated at the National Cancer Institute during 1986-2002 revealed that 16-23% were males, 3-8 times higher than in females (Figure 5.46).

Figure 5.46 Percentage of Lung Cancer Patients Treated at the National Cancer Institute, 1986-2002



Source: National Cancer Institute, Ministry of Public Health.

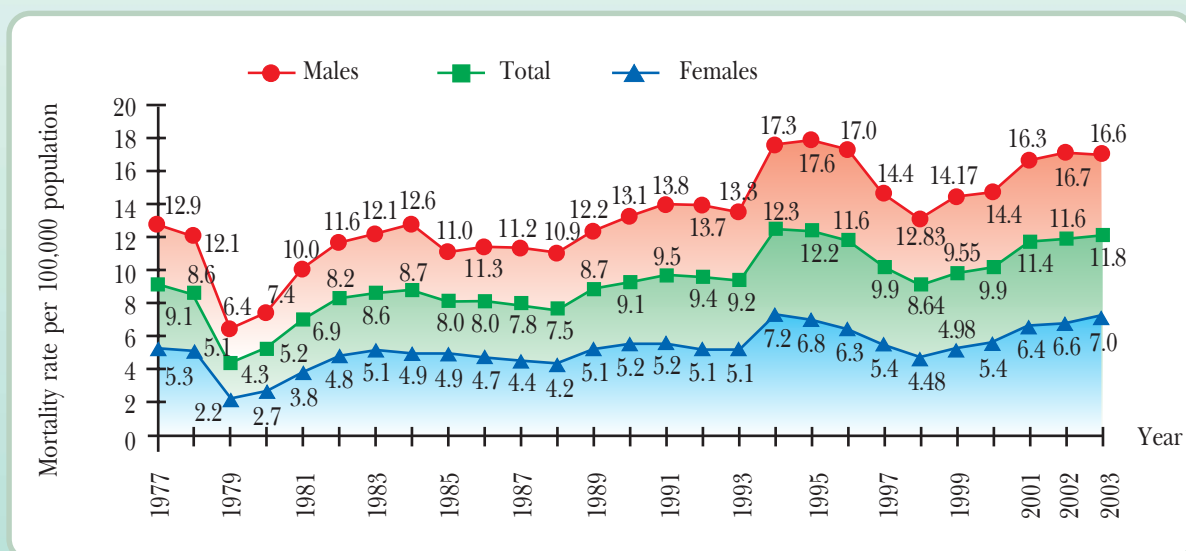
Note: As percentage of all cancer patients.

## (2) Alcohol Consumption

Major health hazards caused by or associated with alcohol drinking (alcohol use disorders) are cirrhosis and accidents.

Consumption of alcohol for a long time negatively affects the liver as it has been found that, between 1977 and 2003, the mortality rates of liver disease and chronic cirrhosis were reported at 4.3-12.3 per 100,000 population, the rates being 6-18 in males and 2-7 in females, i.e. 2-3 times higher in males than in females (Figure 5.47). However, the trend in cirrhosis resulting from hepatitis B virus is declining (Figure 5.15).

Figure 5.47 Mortality Rate of Liver Disease and Cirrhosis, Thailand, 1977-2003



Source: Bureau of Policy and Strategy, Ministry of Public Health.

### (3) Food and Drug Consumption

People's food consumption patterns have changed to eating out or eating readily-cooked food bought from restaurants or food stalls where the food might have been contaminated with pathogens or toxic substances due to unhygienic practices of the food handlers. Consumers, then, are likely to be vulnerable to food-borne diseases, particularly diarrhoea whose incidence tends to be rising (Figure 5.21). Eating of improperly heated food, especially fresh-water fish, might cause opisthorchiasis or liver fluke disease (Figure 5.10) which is a major cause of liver cancer (Table 5.24). It has been noted that Thailand has the highest incidence of liver cancer in the world.<sup>16</sup>

**Table 5.24** Incidence of Liver Cancer Thailand, 1993, 1996 and 1999

Year	Incidence per 100,000 population	
	Males	Females
1993	37.4	15.5
1996	40.5	16.0
1999	38.6	14.3

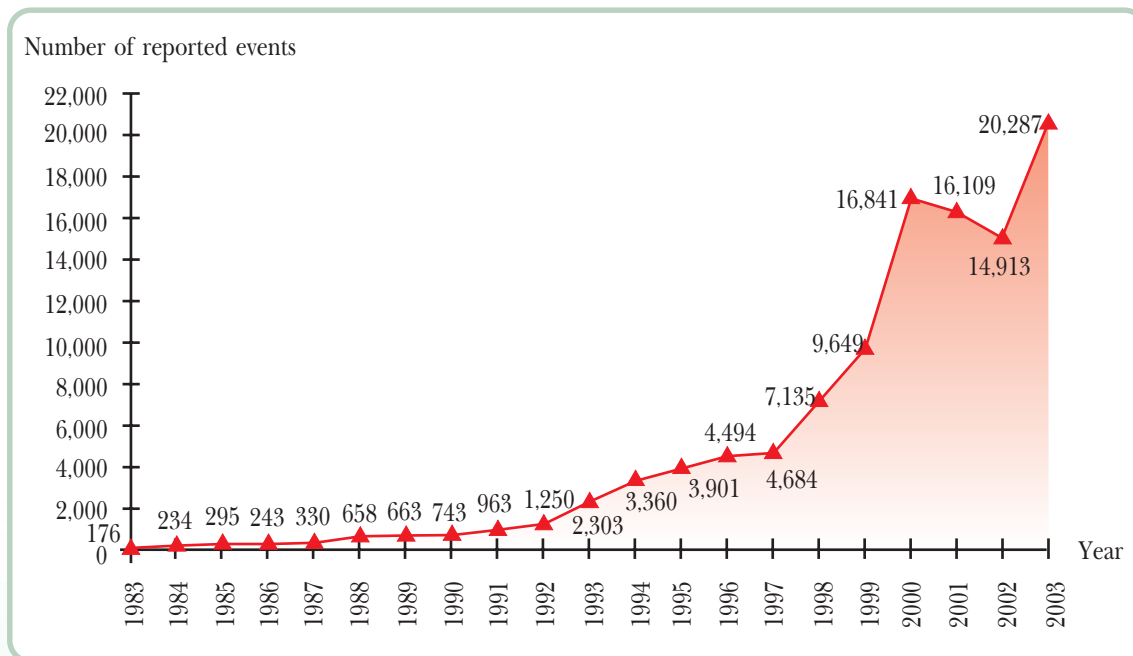
**Source:** Cancer in Thailand, 1995-2000.

Regarding drug consumption, irrational use, over-use or use without sufficient knowledge seems to be rising, resulting in adverse toxic or allergic reactions directly or indirectly. This is evidenced from the number of reported adverse events from drug use which has risen from 176 in 1983 to 4,684 in 1997 and 20,287 in 2003 (Figure 5.48). Besides, it has been found that each year 18-30 % of all patients have to be hospitalized due to problems related to drug use which tends to be rising.<sup>17</sup>

<sup>16</sup> Vatanasapt, V., and Sriamporn, S. (1999). Cancer in Thailand 1992-1994. (IARC Technical Report No. 34), Lyon, IARC.

<sup>17</sup> Suwit Wibulprasert, Vichai Chokevivat and Sripen Tantives (editors). Drug System in Thailand, 2002.

**Figure 5.48** Number of Reported Adverse Events from Drug Use, 1983-2003



**Source:** Division of Planning and Technical Administration, Food and Drug Administration.

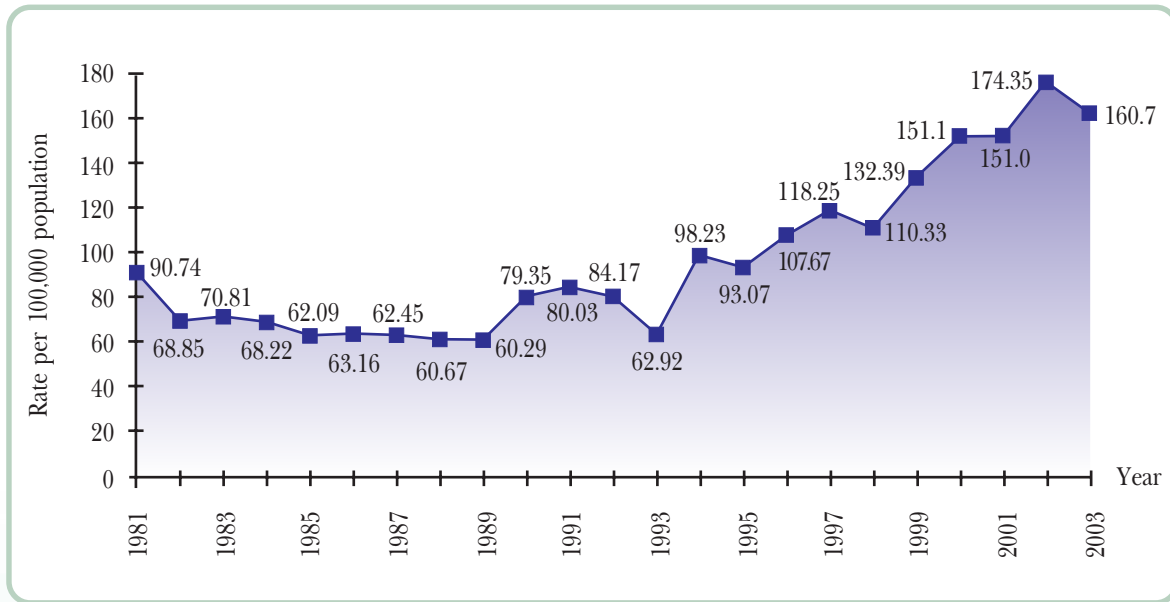
#### (4) Diseases Associated with Unsafe Sex Behaviours

As a result of systematic and intensive efforts for the prevention and control of STIs and HIV/AIDS, people's sexual behaviours have changed considerably. Sexual promiscuity has declined and condom use has risen, resulting in a significant drop in the STI incidence (Figure 5.20).

#### 3.4.7 Mental Health Disorders

Rapid changes in economic, social and cultural situations have led to a rising incidence of psychoneurosis, particularly a rise in the number of institutionalized cases of mental/behavioural disorders during the period 1996-2003 (Figure 5.49). This might result from the struggling with the economic crisis; a lot of people suffering from insufficient income and unemployment (Figure 5.49).

**Figure 5.49** Admission Rate with Phychosis and Mental Disorders, Thailand, 1981-2003



**Source** Inpatients Report. Bureau of Policy and Strategy, Ministry of Public Health.

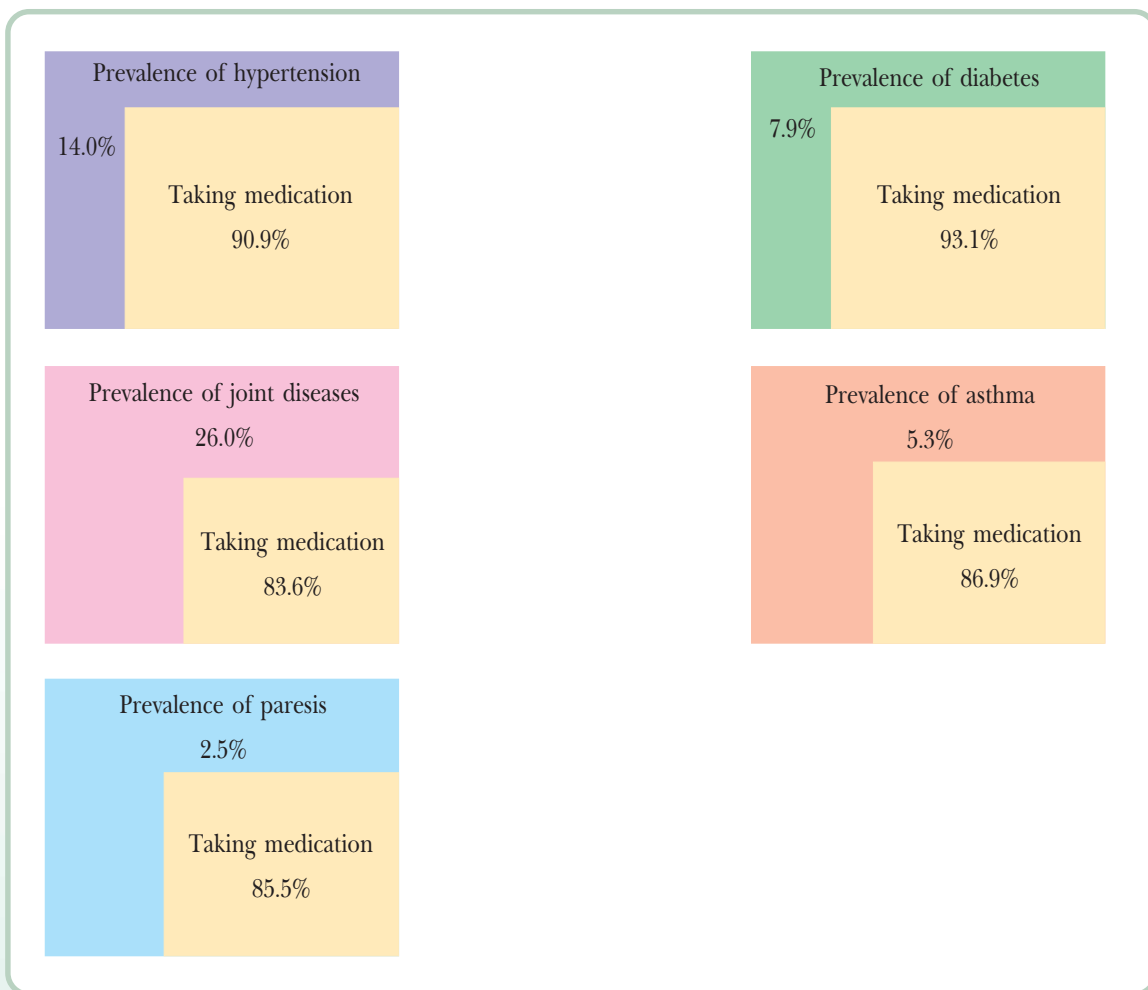
### 3.4.8 Health Problems of the Elderly

#### (1) Diseases and Disabilities in the Elderly

According to the 2001 survey on quality of life of Thai people aged 60 years and over, the most common illnesses among the elderly are hypertension, diabetes, joint diseases, asthma, and paresis (Figure 5.50).

Another survey conducted by the National Statistical Office in 2002 revealed that the first 5 illnesses that elderly people had are body ache (including backache and joint pain), insomnia, vertigo, eye diseases, dementia and hypertension. These illnesses are more prevalent with age (Table 5.25), and the prevalence is higher in females than in males (Table 5.26).

**Figure 5.50** Prevalence of Illnesses among Thai Elderly People, 2001



**Source:** Institute of Geriatric Medicine. A Survey on Quality of Life of Thai Elderly People, 2001.

**Table 5.25** Proportion (Percentage) of Thai Elders with Most Common Diseases/Symptoms by Age Group, 1994 and 2002

Disease/Symptom	1994					2002				
	Total	60-64 Yrs	65-69 Yrs	70-74 Yrs	75 yrs and over	Total	60-64 Yrs	65-69 Yrs	70-74 Yrs	75 yrs and over
- Body ache, backache	-	-	-	-	-	75.1	72.7	74.7	77.8	77.3
- Joint pain (degeneration)	72.4	68.5	73.7	73.8	76.9	47.5	42.8	46.7	49.8	54.9
- Insomnia	44.7	40.2	44.8	46.6	52.0	38.7	34.1	38.1	42.0	44.9
- Vertigo	49.2	46.8	45.7	51.6	56.9	36.8	34.4	35.6	38.7	41.2
- Eye diseases	43.0	35.6	40.6	48.5	56.0	33.2	27.5	31.1	37.3	42.8
- Dementia	27.2	21.7	22.9	32.1	40.2	29.8	22.3	26.5	33.2	45.2
- Hyper/hypotension	25.0	22.3	25.7	27.4	26.8	20.0	17.7	20.3	21.9	21.6

**Source:** Surveys on Elderly People in Thailand, 1994 and 2002, National Statistical Office.

**Table 5.26** Proportion (Percentage) of Thai Elders with Most Common Diseases/Symptoms by Sex, 1994 and 2002

Disease/Symptom	1994			2002		
	Total	Male	Female	Total	Male	Female
- Body ache, backache	-	-	-	75.1	73.0	76.8
- Joint pain (degeneration)	72.4	67.3	76.5	47.5	43.5	50.8
- Insomnia	44.7	36.5	51.4	38.7	33.7	42.9
- Vertigo	49.2	38.9	57.6	36.8	27.8	44.4
- Eye diseases	43.0	39.1	46.1	33.2	30.6	35.3
- Dementia	27.2	23.8	30.0	29.8	26.6	32.5
- Hyper/hypotension	25.0	22.1	27.3	20.0	17.6	22.0

**Source:** Surveys on Elderly People in Thailand, 1994 and 2002, National Statistical Office.

## (2) Rising Trends in Health Problems of the Elderly

The diseases that are health problems with rising trends are the following:

(2.1) Hypertension is a major health problem of the elderly that has a rising trend (Table 5.27) and is correlated with the economic and social development of society. Urban residents are more likely to have hypertension than rural residents. Besides, according to the World Health Report, it was estimated that in 2000 hypertension was the cause of 7.1 million deaths or approximately 13% of all deaths worldwide and it was also the cause of losses in non-fatal health status.

**Table 5.27** Trends and Prevalence of Hypertension among Thai Elders in Urban and Rural Areas, 1985-1998

Residence	Prevalence, percent								
	1985	1986	1988	1989	1991	1992	1995	1996	1998
Urban	28		26		15.8 <sup>##</sup>		26 <sup>**#</sup>	44.4 <sup>#</sup>	36.5
Rural		23.3		18 <sup>*</sup>	11.1 <sup>##</sup>	8.8 <sup>*</sup>	15.3 <sup>**#</sup>	23.6 <sup>#</sup>	

**Source:** Sutthichai Jitapunkul. The Spread of Chronic Diseases and Disabilities in Thailand:

A Hypothesis Based on the Data from Studies on the Elderly, 2000.

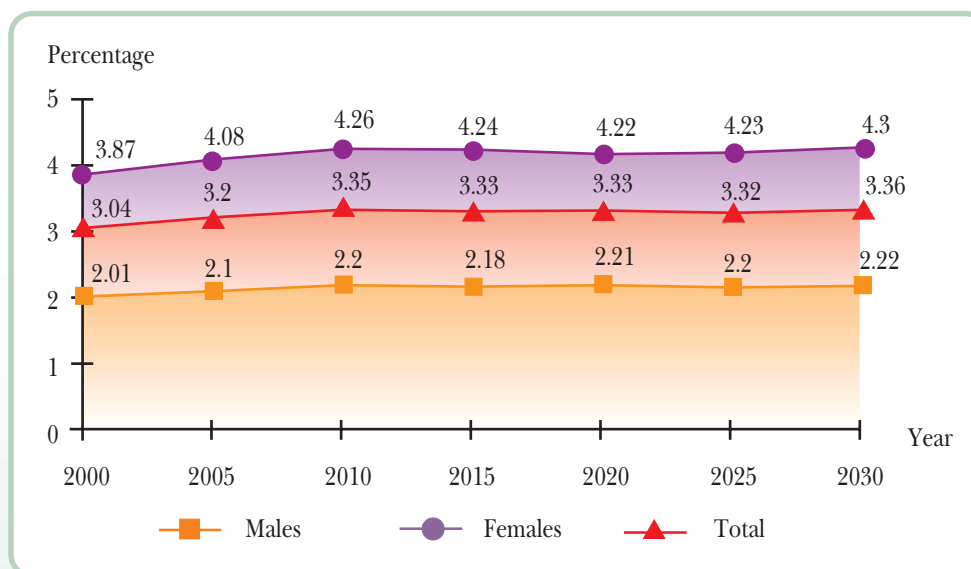
**Notes:** \* Criteria used only for hypertension + Age 65+ yrs.

\*\* Criteria used only for history taking # Nationwide survey



(2.2) Dementia is increasingly an important problem affecting the quality of life of the patients, caregivers, and society. A study on the prevalence of dementia among Thai elders reveals that at present the prevalence is 3.04% and is projected to be 3.4 percent in 2030. (the female to male ratio being 2:1) (Figure 5.51). Besides, the prevalence of dementia is rising with age. However, the prevalence of this disease in Thai elders is lower than that in American elders, but when considering the prevalence in each age group, their increase rates are comparable (Table 5.28).

**Figure 5.51** Projection of Dementia Prevalence in the Elderly, 2000-2030



**Source:** Thai Health Research Institute, National Health Foundation, and Bureau of Health Policy and Planning, MoPH. Report on a Study of Health Problems among the Thai Elderly, 1998.

**Table 5.28** Comparison of Dementia Prevalence among Thai and American Elders

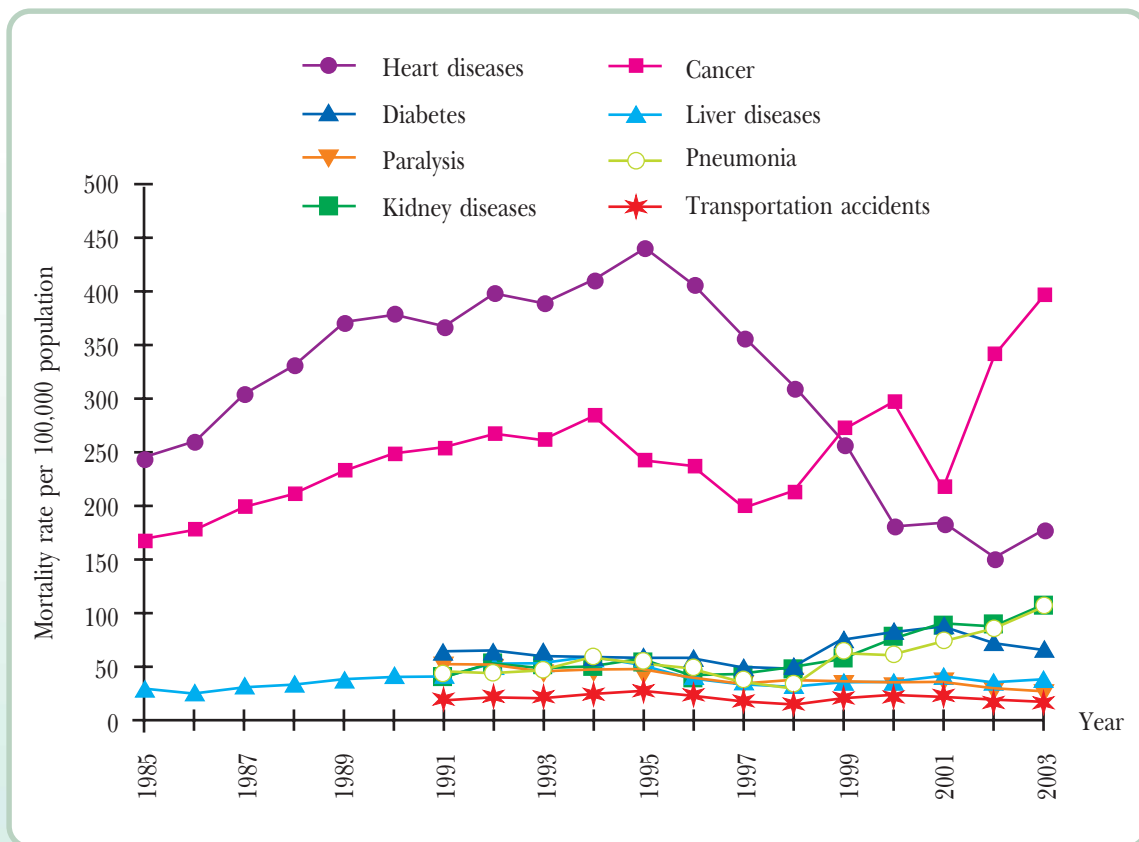
Age (years)	Prevalence	
	Thai elders	American elders
60 - 64	1.0%	-
65 - 69	2.0%	2.5%
70 - 74	3.0%	5.0%
75 - 79	5.0%	10.0%
80 - 84	7.5%	15.0%
85 - 89	12.5%	30.0%
90+	30.0%	-

**Source:** Sutthichai Jitapunkul, Napaporn Chayovan and Jiraporn Kespichaywattana. "National Policies on Ageing and Long-term Care Provision for Older Persons in Thailand" in David R. Phillips and Alfred C.M. Chan (eds). Ageing and Long-term Care: National Policies in the Asia-Pacific. Bestprint Printing Co., Singapore, 2002.

### (3) Major Causes of Death in the Elderly

Among the elderly, the most common causes of death are, in order of magnitude, heart diseases, cancer, diabetes, liver diseases, kidney diseases, paralysis, pneumonia, and transportation accidents. The mortality rate per 100,000 population from cancer has risen from 169.1 in 1985 to 399.5 in 2003. The rates of mortality have also risen for diabetes from 28.8 to 66.7 for the same period and for kidney diseases from 38.3 in 1991 to 108.0 in 2003 (Figure 5.52 and Table 5.29).

**Figure 5.52** Mortality Rates from Major Causes of Death in the Elderly, 1985-2003



**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

**Table 5.29** Mortality Rates of Diabetes, Heart Diseases, Cancer, Paralysis, Liver Diseases, Kidney Diseases, Pneumonia, and Transportation Accidents/among the Elderly, 1985-2003

Year	Mortality rate per 100,000 population among the elderly							
	Diabetes	Heart diseases	Cancer	Liver diseases	Kidney diseases	Paralysis	Pneumonia	Transportation accidents
1985	28.8	245.0	169.1	n.a.	n.a.	n.a.	n.a.	n.a.
1986	24.9	259.3	177.6	n.a.	n.a.	n.a.	n.a.	n.a.
1987	30.3	304.3	199.1	n.a.	n.a.	n.a.	n.a.	n.a.
1988	32.4	331.1	209.6	n.a.	n.a.	n.a.	n.a.	n.a.
1989	37.2	372.3	231.9	n.a.	n.a.	n.a.	n.a.	n.a.
1990	39.4	379.2	248.8	n.a.	n.a.	n.a.	n.a.	n.a.
1991	39.9	386.7	253.9	62.6	38.3	49.5	42.0	16.9
1992	49.5	400.3	266.8	63.4	48.0	51.5	42.3	20.1
1993	50.8	389.7	262.9	57.1	45.9	42.4	45.3	19.5
1994	57.2	412.2	283.9	56.3	47.5	44.9	56.0	24.1
1995	56.2	440.7	242.1	52.2	55.3	45.5	51.0	26.3
1996	57.4	407.5	236.2	41.4	38.2	37.4	46.8	22.4
1997	48.5	356.1	199.4	33.1	40.5	32.0	33.7	17.1
1998	47.7	310.0	213.0	34.4	46.7	31.3	28.9	13.3
1999	74.8	257.7	273.7	34.0	56.1	32.3	61.1	18.5
2000	82.1	179.9	297.6	34.0	75.5	33.9	59.9	22.6
2001	88.4	182.2	218.2	40.6	89.6	34.8	73.0	21.5
2002	72.1	149.4	342.6	35.5	87.2	29.2	85.5	18.9
2003	66.7	177.1	399.5	38.3	108.0	26.8	107.4	16.7

**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

**Note:** n.a. = Data not available

### 3.4.9 Problems of the Disabled

A survey conducted by the National Statistical Office (NSO) revealed that the proportion of people with disability was rising from 0.5% in 1974 to 1.7% in 2002 (Table 5.30). However, other surveys have reported higher prevalence, compared with that reported by NSO. For example, the 1991-1992 health examination survey on the Thai population revealed a 6.3% disability prevalence<sup>18</sup> (excluding mental/intellectual disabilities); and if all kinds of disabilities are taken into account, the overall prevalence of disabilities will be 8.1% of the total population.

<sup>18</sup> Chanpen Choprapawon (editor). Report on the First Nationwide Health Examination Survey on Thai People, 1991-1992. Thai Health Research Institute and Health Systems Research Institute, 1992.

Besides, Suwit Wibulpolprasert and colleagues (1997) projected that the prevalence of people with disabilities had increased at a rate higher than that of the population growth. The physical and movement disabilities were most commonly found, which is associated with the socio-economic changes and the country's epidemiological transition.<sup>19</sup> Regarding the characteristics of disability, the 2002 report on disabilities and crippling conditions revealed that most of the disabled persons had impaired vision in both eyes, hearing impairment, paresis, atrophied/inflexible limbs, and blurred vision in one eye (Figure 5.53).

**Table 5.30** Number and Percentage of Thai People with Disabilities, 1974-2002

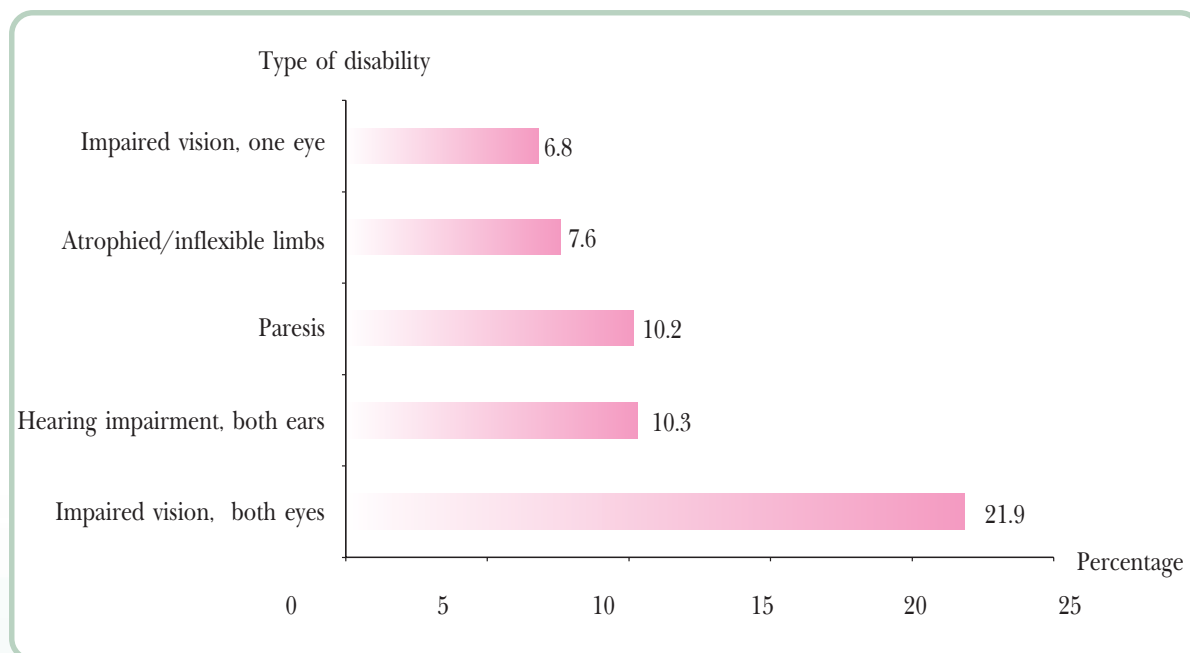
Unit: Thousands

Year of survey	Population	People with disabilities	Percentage of total population
1974	39,796.9	209.0	0.5
1976	42,066.9	245.0	0.6
1977	44,211.5	296.2	0.7
1978	45,344.2	324.6	0.7
1981	47,621.4	367.5	0.8
1986	51,960.0	385.9	0.7
1991	57,046.5	1,057.0	1.8
1996	59,902.8	1,024.1	1.7
2001	62,871.0	1,100.8	1.8
2002	63,303.0	1,098.0	1.7

**Source:** Health and Welfare Survey Projects, 1974-2002. National Statistical Office.

<sup>19</sup> Suwit Wibulpolprasert et al. Medical Rehabilitation Service System for the Disabled, 1997.

**Figure 5.53** Proportion of People with Disabilities (First Five Major Types), 2001



**Source:** Report on Disabilities and Crippling Conditions Survey, 2002. National Statistical Office.

In addition, the 2001 survey on illnesses among the disabled revealed that coronary-artery disease was most common (22.2%), followed by diseases of the musculo-skeletal system (19.4%), diseases of the respiratory system (14.8%), and neuro-psychiatric disorders (11.8%). It is noteworthy that coronaryartery and neuro-psychiatric disorders were more common in males, whereas the diseases of the musculo-skeletal system were more common in females (Table 5.31).

**Table 5.31** Proportion (Percentage) of Disabled Persons with Common Diseases or Symptoms by Sex, 2001

Disease/symptom	Total	Males	Females
- Coronary artery disease	22.2	25.6	18.3
- Diseases of musculo-skeletal system	19.4	17.6	21.6
- Diseases of respiratory system	14.8	14.6	14.9
- Neuro-psychiatric disorders	11.8	14.1	9.0

**Source:** Report on Disabilities Survey, 2001, National Statistical Office.

### 3.5 Re-emerging Health Problems

The re-emerging public health problems include tuberculosis whose incidence is rising with HIV/AIDS, filariasis coming in with migrant workers from Myanmar, and leptospirosis.

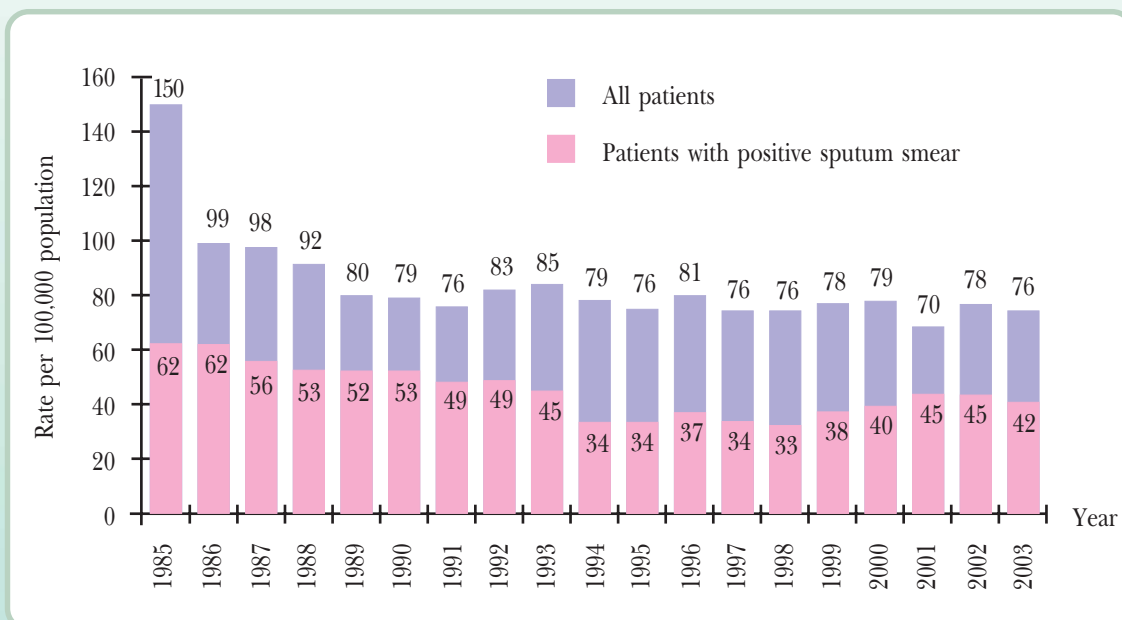
#### 3.5.1 Tuberculosis

The tuberculosis prevalence (per 100,000 population) was actually declining between 1985 and 1989 from 150 to 80; but between 1990 and 2003 it did not decrease, rather it increased slightly (Figure 5.54).

Owing to the HIV/AIDS epidemic, tuberculosis is becoming a public health problem. In all upper northern provinces, the TB-HIV coinfection rate has risen from 3.0% in 1991 to 27.0% in 2003. Overall, for the entire country for over 10 years, the coinfection prevalence has increased from 16.4% in 1989 to 32.1% in 2003 (Figure 5.55).

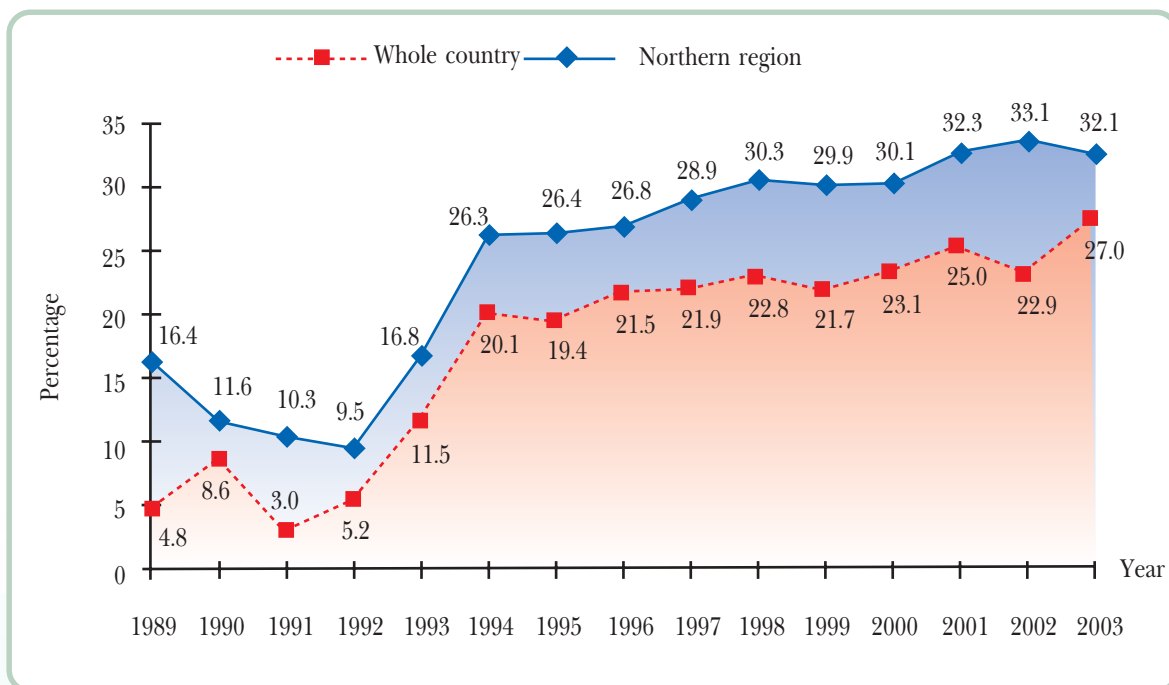
According to WHO's projections, HIV/AIDS has resulted in an annual increase of 4% of tuberculosis cases. In actuality, in Thailand the tuberculosis prevalence has risen by 3% each year during the past 5 years. And multidrug-resistant tuberculosis has dropped from 2.02% in 1997-1998 to 1.06% in 2002, which is rather low compared with those in other HIV/AIDS-affected countries whose rates are over 10% (Institute of Tuberculosis Research, Japan, quoted in the Division of Tuberculosis).

**Figure 5.54** Rate of Newly Registered Tuberculosis Patients in Thailand, 1985-2003



Source: Department of Disease Control, Ministry of Public Health.

Figure 5.55 Percentage of Tuberculosis Infection in HIV/AIDS Patients in Thailand, 1989-2003



Source: Bureau of Epidemiology, Department of Disease Control.

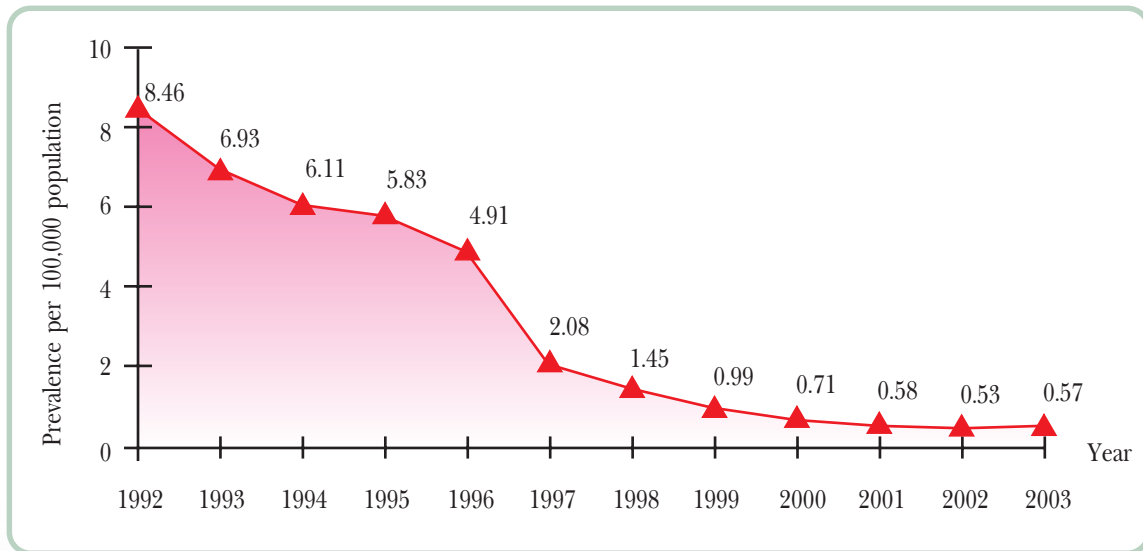
Note: The Bureau of Epidemiology adjusted all the data for 1989-2003.

### 3.5.2 Filariasis

Overall, the filariasis control efforts have been able to reduce the prevalence rate (per 100,000 population) from 8.46 in 1992 to 0.57 in 2003 (Figure 5.56) and reduce the microfilaria positivity rate in alien workers to less than 1% over the past 20 years, except that in 1996 the rate was greater than 1% as a result of intensive health check-ups for foreign workers (Figure 5.57). However, filariasis is still a public health problem in some areas, particularly the provinces along the Thai-Myanmar and Thai-Malaysian borders. This is largely because of the environmental conditions favorable to mosquito breeding and the border areas being the places where workers from Myanmar cross over to find jobs.

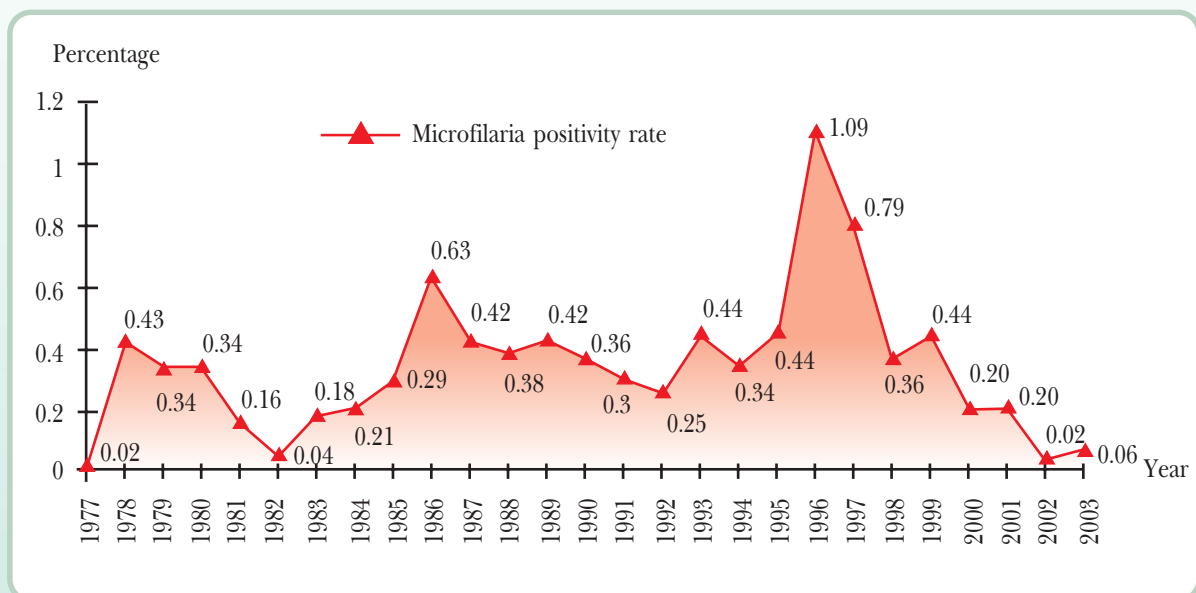


**Figure 5.56** Prevalence Rate of Filariasis, Thailand, 1992-2003



**Source:** Department of Disease Control, Ministry of Public Health.

**Figure 5.57** Microfilaria Positivity Rate in Alien Workers, 1977-2003

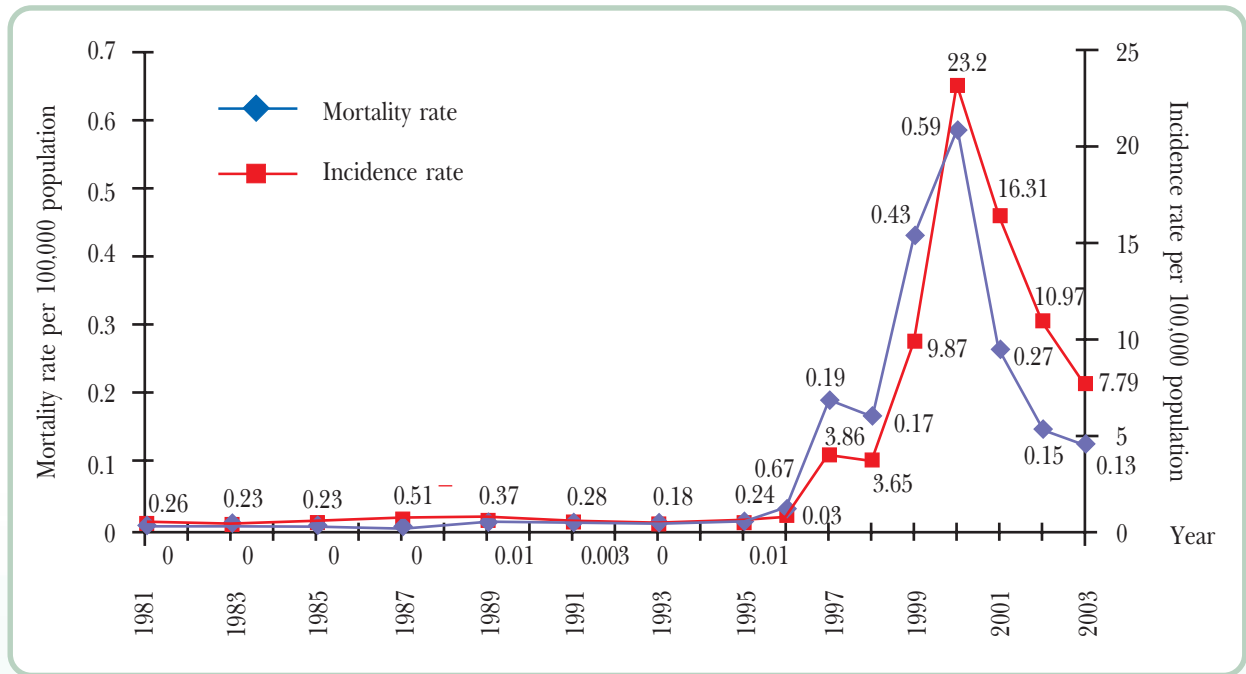


**Source:** Department of Disease Control, Ministry of Public Health.

### 3.5.3 Leptospirosis

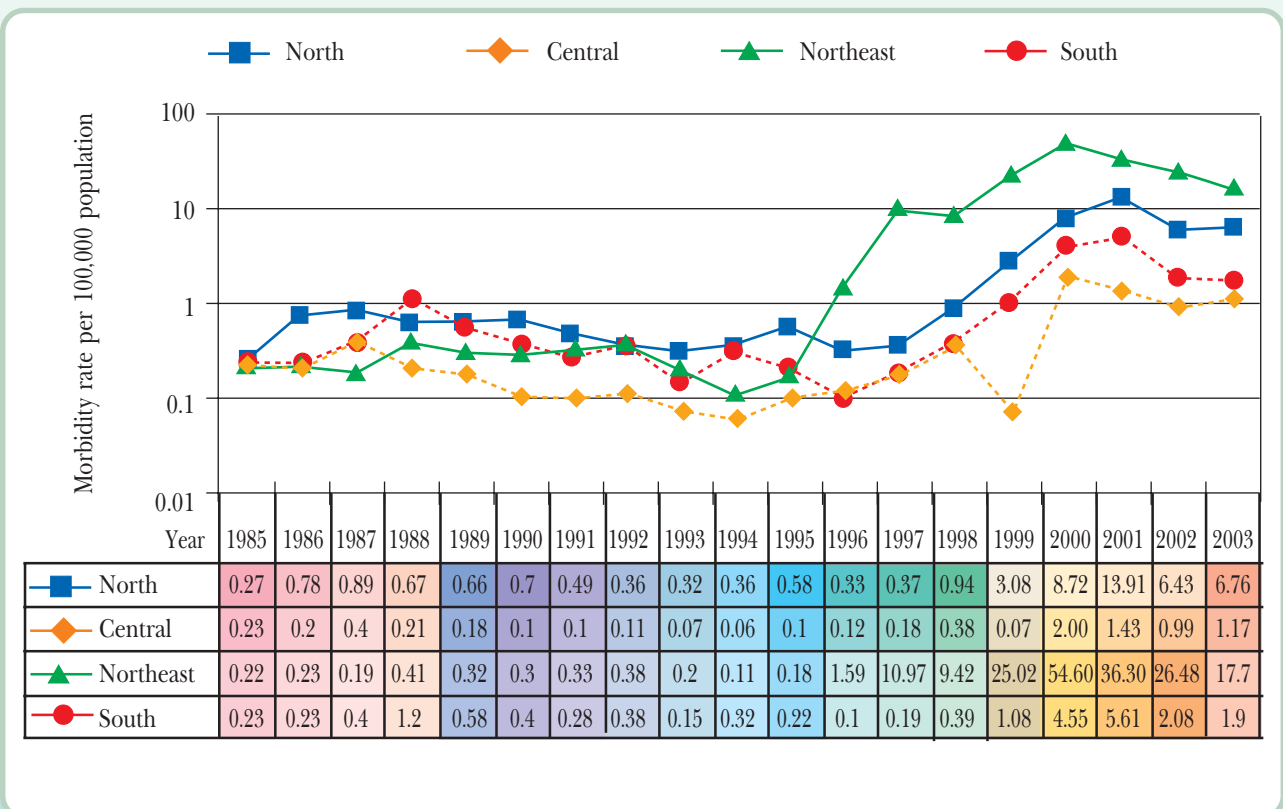
Leptospirosis is a re-emerging infectious disease having an incidence rate between 0.2 and 0.7 per 100,000 population during the period 1981-1996. But for the past four years, the incidence and mortality rates have been on the rise, i.e. the incidence per 100,000 population rising from 0.67 in 1996 to 23.2 in 2000 and the mortality rate per 100,000 population rising from 0.03 to 0.59 during the same period (Figure 5.58). Over 90% of the patients live in the Northeastern region of the country (Figure 5.59). However, for the period 2001-2003, both the incidence and mortality rates were declining.

Figure 5.58 Incidence and Mortality Rates of Leptospirosis in Thailand, 1981-2003



Source: Bureau of Epidemiology, Department of Disease Control.

Figure 5.59 Morbidity Rate of Leptospirosis by Region in Thailand, 1985-2003



Source: Bureau of Epidemiology, Department of Disease Control.

## 3.6 Problems of Emerging Diseases

### 3.6.1 SARS

Severe acute respiratory syndrome (SARS) is an emerging disease. The SARS epidemic occurred in November 2002 in Quandong province in the southern region of the Peoples Republic of China. The outbreak could be controlled in June 2003 but had caused illness in 8,437 individuals and 813 deaths in 29 countries; a case-fatality rate of 9.64%. The areas with the widespread epidemic were China (Beijing and Quandong), Hong Kong, Taiwan, Singapore, Canada (Toronto) and Vietnam (Hanoi).

In Thailand, there were 9 probable cases (with pneumonia), 2 of whom had died, and 31 suspect cases (without pneumonia), and no deaths. All the patients contracted the disease from abroad. Thailand undertook strict measures for disease prevention and control and could successfully control the disease.

### 3.6.2 Hand-Foot-Mouth Disease

Hand-foot-mouth disease is an emerging disease. Its outbreak was reported in 1977 in Malaysia, with 2,140 cases and 31 deaths; a case-fatality rate of 1.4%.

For Thailand, the first case was reported in 2000. In 2001, there were 1,548 reported cases and 3 deaths (a morbidity rate of 2.49 per 100,000 population); and in 2002, there were 3,533 cases and 2 deaths (a morbidity rate of 5.65 per 100,000 population).

Laboratory testing for enterovirus 71 conducted by the National Institute of Health of the Department of Medical Sciences in 1998-2002 revealed that enterovirus 71 could be detected in the hands and mouth of the patients. The enterovirus 71 positivity rate rose from 8% in 1998 to 14.7% in 2002. No deaths were reported (Table 5.32).

**Table 5.32** Results of Enterovirus 71 Testing, 1998-2002

Year	Enterovirus 71 testing		
	Number tested (cases)	Positive (cases)	Percent
1998	25	2	8.0
1999	36	3	8.3
2000	168	10	14.7
2001	397	81	20.4
2002	122	18	14.7

**Source:** National Institute of Health, Department of Medical Sciences, Ministry of Public Health.

### 3.6.3 Avian Influenza

Avian influenza has been reported in animals for over 100 years. Its outbreak occurred periodically; the last one in late 2003 though 2004 was reported in poultry in Hong Kong, South Korea, Japan, Vietnam, Cambodia, Indonesia and Thailand. The disease normally occurs in poultry, particularly chickens, and can be transmitted to humans, which can become ill and fatal. The first outbreak was reported in Hong Kong with 18 cases, 6 of whom died; then in 2003 the Netherlands reported another 83 cases and 1 death and in 2004 an outbreak was reported in Vietnam with 18 cases and 5 deaths. At present, there has been no report of human-to-human transmission of avian influenza.

In Thailand, there has never been any report on avian influenza in humans. However, it has been reported that large numbers of chickens have died in several provinces of the country. Between 21 December 2003 and 10 April 2004, cases of avian influenza were reported in several countries as shown in Table 5.33.

**Table 5.33** Characteristics and Risk History of Confirmed, Suspect, Excluded, and Unidentified-Subtype Cases of Avian Influenza

Characteristic	Confirmed cases	Suspect cases	Excluded cases	Influenza A cases, subtype unidentified
No. of deaths (case-fatality rate)	12/8 (67%)	21/8 (38%)	546/20 (4%)	31/2 (6%)
Age (median, years)	12 (2-58)	33 (1-67)	12 (0.5-84)	28 (0.5-92)
Sex: male (%)	8 (67%)	15 (71%)	321 (59%)	21 (67%)
History of direct contact with poultry suspected of or dying from avian influenza	7/12 (58%)	11/21 (52%)	205/423 (48%)	14/29 (48%)
Residing in the area with poultry dying of unusual causes over the past 14 days	21/21 (100%)	18/21 (86%)	274/404 (68%)	18/28 (64%)

**Source:** Bureau of Epidemiology, Department of Disease Control.

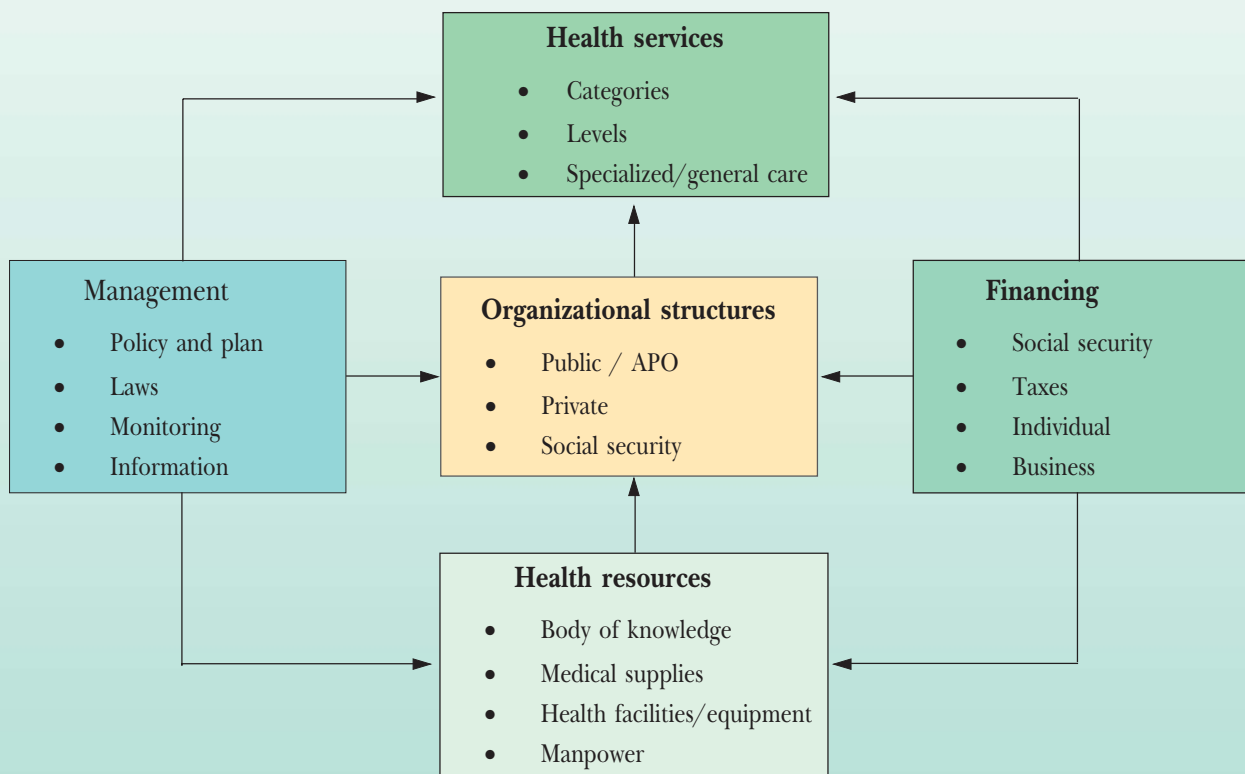
## CHAPTER 6

# HEALTH SERVICE SYSTEMS IN THAILAND

The health service systems in Thailand have evolved from self-reliance, in the past, by utilizing local wisdom for curative care and health promotion, to the system of modern medical and public health services. In the new health care system, several levels of health care have been organized, beginning with self-care at the family level to higher-level of medical care that has to be rendered by medical specialists. Numerous health personnel in response to various health disciplines have been produced under the new system which also requires the procurement and development of health technologies. There is a clear picture of role designation of “providers” and “recipients”, as well as a more effective health service system. In the pluralistic health service system, the main service provision is managed by the public sector, while the people have to help themselves in a traditional way which has been constantly changing, and the private for-profit and non-profit sectors are also involved. The changes in the budgeting system under the universal healthcare scheme has resulted in the change in the Thai healthcare system so as to make it more convenient to the people to get access to such care.

The components of the health service system include (1) health resources, (2) management, (3) organizational structures, (4) financing, and (5) health services (Figure 6.1) as detailed below:

**Figure 6.1** The Structure of Health Service Systems



Note: APO = Autonomous Public Organization

## 1. Health Resources

Health resources are (1) manpower, (2) health facilities, (3) medical supplies and technologies, and (4) the body of knowledge.

### 1.1 Health Manpower

At present there are 70 institutions responsible for producing and developing manpower for health in Thailand: 13 under the Ministry of Education (Office of the Higher Education Commission or HEC), 43 under the Ministry of Public Health, three under the Ministry of Defence, one under the Ministry of Interior, and ten in the private sector including the Thai Red Cross Society. For the past few decades the production of health manpower at the degree and auxiliary levels has been accelerated to cope with the needs of society.

Health personnel are both creators and managers of health technologies and then develop service systems so as to make all the people healthy. The proportion of budget for health manpower is the highest, i.e. 60 - 80% of operating costs. Actually, it has been found that health manpower is imbalanced in terms of categories, qualities, quantities and distribution. The information and understanding about health manpower is one of the most important issues in the health service system.

This chapter provides the information about five major categories of health manpower (doctors, dentists, pharmacists, nurses and health centre staff) as follows:

#### 1.1.1 Doctors

##### (1) Production of Doctors

At present Thailand has 11 medical schools: ten public and one private. Beginning in 2004, there will be another six state-run universities that will be producing medical graduates: Burapha, Mahasarakham, Ubon Ratchathani, Suranaree Technology, Walailuck, and Kasetsart Universities.

Between 1997 and 2003 Thailand could produce 1,300 - 1,500 medical doctors each year (Table 6.1). But in the next ten years (2004 - 2013), more doctors will be urgently produced to meet the needs of the country. On a regular basis, the annual output will be about 1,000 - 1,400 doctors and under the accelerated production programme another 600 doctors or more will be produced. However, the private medical school will maintain its current production level (Table 6.2). Overall, the number of medical graduates has been and will be as shown in Table 6.3.

**Table 6.1** Number of Medical Students Admissions in Thailand, 1997-2003

Unit : students

Institution	1997	1998	1999	2000	2001	2002	2003	Total
<b>1. Public sector</b>	<b>1,426</b>	<b>1,382</b>	<b>1,539</b>	<b>1,498</b>	<b>1,501</b>	<b>1,315</b>	<b>1,274</b>	<b>9,935</b>
1.1 HEC	1,152	1,147	1,169	1,132	1,130	959	911	7,600
1.2 MoPH and HEC	150	143	277	272	276	293	301	1,712
1.3 Other agencies	124	92	93	94	95	63	62	623
<b>2. Private sector</b>	<b>102</b>	<b>100</b>	<b>96</b>	<b>97</b>	<b>77</b>	<b>102</b>	<b>100</b>	<b>674</b>
<b>Total</b>	<b>1,528</b>	<b>1,482</b>	<b>1,635</b>	<b>1,595</b>	<b>1,578</b>	<b>1,417</b>	<b>1,374</b>	<b>10,609</b>

**Source:** Bureau of Policy and Planning, Office of the Higher Education Commission.

- Notes:**
1. The number of medical students actually admitted.
  2. Other agencies include the Phramongkutklo College of Medicine and the Bangkok Metropolitan Administration Medical College at Vajira Hospital.

**Table 6.2** Plans for Medical Students Admissions in Thailand, Academic Years 2004-2013

Unit: students

Production agencies	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
<b>I. Regular production plan</b>											
<b>1. Public sector</b>	<b>1,324</b>	<b>1,358</b>	<b>1,338</b>	<b>932</b>	<b>932</b>	<b>932</b>	<b>932</b>	<b>932</b>	<b>932</b>	<b>932</b>	<b>10,564</b>
1.1 HEC	882	882	882	882	882	882	882	882	882	882	8,820
1.2 MoPH and HEC	392	426	426	-	-	-	-	-	-	-	1,244
1.3 Other agencies	50	50	50	50	50	50	50	50	50	50	50
<b>2. Private sector</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>1,000</b>
<b>Total - regular plan</b>	<b>1,424</b>	<b>1,458</b>	<b>1,458</b>	<b>1,032</b>	<b>1,032</b>	<b>1,032</b>	<b>1,032</b>	<b>1,032</b>	<b>1,032</b>	<b>1,032</b>	<b>11,564</b>
<b>II. Increased production plan</b>											
<b>1. Public sector</b>	<b>596</b>	<b>681</b>	<b>721</b>	<b>1,215</b>	<b>1,215</b>	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	<b>10,678</b>
1.1 HEC	426	476	516	584	584	604	604	604	604	604	5,606
1.2 MoPH and HEC	75	75	75	501	501	516	516	516	516	516	3,807
1.3 Other agencies	95	130	130	130	130	130	130	130	130	130	1,265
<b>2. Private sector</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total - increased production plan</b>	<b>596</b>	<b>681</b>	<b>721</b>	<b>1,215</b>	<b>1,215</b>	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	<b>1,250</b>	<b>10,678</b>
<b>Grand Total</b>	<b>2,020</b>	<b>2,139</b>	<b>2,179</b>	<b>2,247</b>	<b>2,247</b>	<b>2,282</b>	<b>2,282</b>	<b>2,282</b>	<b>2,282</b>	<b>2,282</b>	<b>22,242</b>

**Source:** Bureau of Policy and Planning, Office of the Higher Education Commission.

- Notes:**
1. Data on medical students admissions.
  2. Other agencies include the Phramongkutklo College of Medicine and the Bangkok Metropolitan Administration Medical College at Vajira Hospital.



**Table 6.3** Numbers of Actual and Expected Medical Graduates, Academic Years 1997-2006.

Unit : students

Production agencies	No. of graduates										Total
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
<b>1. Public sector</b>	<b>877</b>	<b>1,148</b>	<b>1,177</b>	<b>1,222</b>	<b>1,272</b>	<b>1,504</b>	<b>1,422</b>	<b>1,462</b>	<b>1,422</b>	<b>1,426</b>	<b>12,932</b>
1.1 HEC	852	1,073	1,089	1,124	1,140	1,250	1,206	1,111	1,075	1,074	10,994
1.2 MoPH and HEC	-	-	-	8	31	134	137	263	258	262	1,093
1.3 Other agencies	25	75	88	90	101	120	79	88	89	90	845
<b>2. Private sector</b>	<b>37</b>	<b>30</b>	<b>58</b>	<b>40</b>	<b>66</b>	<b>79</b>	<b>56</b>	<b>91</b>	<b>92</b>	<b>73</b>	<b>622</b>
<b>Total</b>	<b>914</b>	<b>1,178</b>	<b>1,235</b>	<b>1,262</b>	<b>1,338</b>	<b>1,583</b>	<b>1,478</b>	<b>1,553</b>	<b>1,514</b>	<b>1,499</b>	<b>13,554</b>

**Source:** The Medical Council of Thailand and the Increased Production of Medical Doctors for Rural Residents Project, MoPH.

- Notes:**
1. For academic years 1997-2003, the numbers are those actually graduated and registered with the Medical Council of Thailand.
  2. For 2004-2006, the numbers are estimated based on the graduation rate of 95% of admissions.
  3. Other agencies include the Phramongkutklao College of Medicine and the Bangkok Metropolitan Administration Medical College at Vajira Hospital.

## (2) Numbers of Doctors Actually Working and Required

In 2003, in Thailand there were 28,920 medical doctors who were still alive and registered with the Medical Council of Thailand. But according to the 2000 population census, there were actually 22,465 doctors actually practising,<sup>1</sup> a doctor to population ratio of 1:2,750. It has been projected that in 2020, there will be totally 44,028-47,519 doctors,<sup>2</sup> a doctor to population ratio of 1:1,540, while there will be approximately 44,064-50,359 doctors<sup>2</sup> (Table 6.4). Therefore, if the doctor production is underway according to the increased production plan and there are more medical schools, there should be no overall storage of doctors in the next 20 years, **but the problem of distribution will still exist.**

<sup>1</sup> Thakasaphon Thammarangsi. A Study on the Different Aspects of Health Personnel Distribution, based on the data from the Population and Housing Census, 2000. International Health Policy Programme, Thailand.

<sup>2</sup> Nichakorn Sirikanokvilai. Modified population-to-physician ratio method to project future physician requirement in Thailand, HRDJ; 1998, Vol.2, No. 3 : 197-209.



**Table 6.4** Estimated Numbers of Practising Medical Doctors, 2000-2020

Year	No. of doctors actually practising		
	Low value	High value	Average
2000	20,263	21,866	21,065
2005	25,526	27,699	26,608
2010	31,855	34,467	33,161
2015	38,217	41,282	39,750
2020	44,028	47,519	45,774

Source: Nichakorn Sirikanokvilai. Modified population-to-physician ratio method to project future physician requirement in Thailand, HRDJ; 1998, Vol. 2, No. 3: 197-209.

### (3) Geographical Distribution of Doctors

Most medical doctors are clustered in Bangkok and other provinces in the Central Plains. However, the Bangkok-rural disparities had been steadily better between 1979 (Table 6.5, and Figures 6.2 and 6.3) and 1989. But after 1989 until 1997, the disparities tended to be stable and **became worse** as a result of expansions of private healthcare facilities in provincial cities and Bangkok during the bubble economy. After the economic crisis, the distribution of doctors tends to be better. The proportion of doctors in the private sector is lower than that in the public sector; and the proportion as well as quantities in the MoPH, especially in the rural areas, are higher.

Table 6.5 Distribution of Medical Doctors by Region, 1979 - 2002

Region	No. of doctors and population/doctor ratio												
	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2002
Bangkok Metropolitan	4,069 (1,210)	3,927 (1,362)	4,084 (1,404)	3,966 (1,431)	4,211 (1,418)	5,888 (1,062)	5,832 (958)	6,191 (1,045)	5,582 (999)	7,771 (720)	7,438 (760)	7,504 (760)	7,504 (767)
The Central	814 (11,652)	1,019 (9,407)	1,387 (7,179)	1,521 (7,335)	1,730 (6,663)	2,008 (5,920)	2,227 (5,805)	2,490 (5,180)	3,309 (4,091)	3,100 (4,506)	3,917 (3,653)	4,315 (3,375)	4,135 (3,566)
The North	741 (13,112)	815 (12,075)	934 (10,879)	935 (10,884)	1,264 (8,297)	2,021 (5,331)	1,747 (6,317)	1,822 (6,117)	2,037 (5,844)	2,079 (5,791)	2,494 (4,869)	2,699 (4,488)	2,698 (4,499)
The South	362 (15,641)	447 (13,154)	608 (10,061)	865 (7,684)	908 (7,705)	1,165 (6,306)	1,179 (6,079)	1,274 (6,257)	1,369 (5,591)	1,510 (5,216)	1,659 (4,888)	1,612 (5,127)	1,678 (4,984)
The Northeast	633 (25,713)	723 (23,238)	889 (19,675)	1,209 (14,908)	1,467 (12,694)	1,631 (11,762)	1,818 (10,970)	1,848 (10,851)	1,884 (10,936)	2,109 (9,951)	2,632 (8,116)	2,817 (7,614)	2,972 (7,251)
Disparity between Bangkok's Northeast's population/doctor ratios	1 : 21.3	1 : 17.1	1 : 14.0	1 : 10.4	1 : 8.9	1 : 11.1	1 : 11.4	1 : 10.4	1 : 10.9	1 : 13.8	1 : 10.7	1 : 10.0	1 : 9.5
<b>Total</b>	<b>6,619</b> <b>(6,956)</b>	<b>6,931</b> <b>(6,847)</b>	<b>7,902</b> <b>(6,259)</b>	<b>8,496</b> <b>(6,083)</b>	<b>9,580</b> <b>(5,595)</b>	<b>12,713</b> <b>(4,361)</b>	<b>12,803</b> <b>(4,426)</b>	<b>13,634</b> <b>(4,297)</b>	<b>14,181</b> <b>(4,180)</b>	<b>16,569</b> <b>(3,649)</b>	<b>18,140</b> <b>(3,395)</b>	<b>18,947</b> <b>(3,277)</b>	<b>18,987</b> <b>(3,295)</b>

Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

Notes: 1. Figures in ( ) are population to doctor ratios.

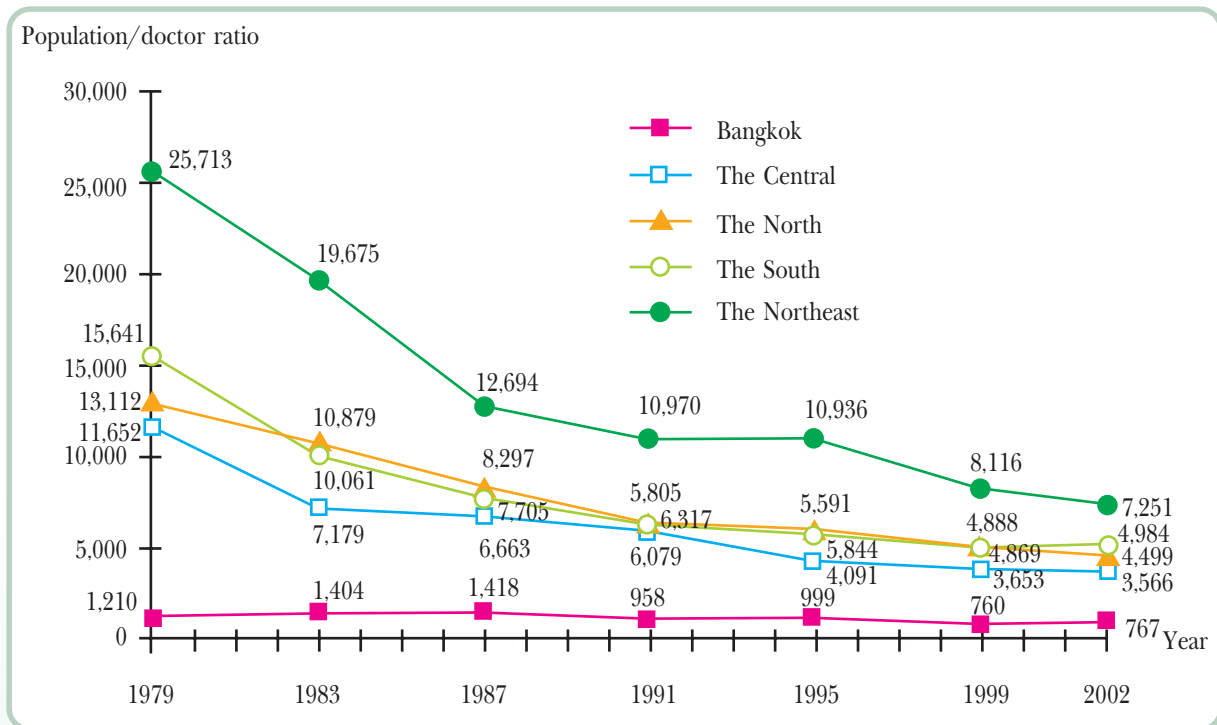
2. Figures from the surveys are estimated to be 20% less than actuality

3. Due to incompleteness of data for 1985, the data for 1984 were used instead.

4. For 2002, data were received from only 65.6% of all health facilities; 44.3% from Bangkok, 60.5% from the Central, 76.7% from the Northeast, 74.9% from the North, and 68.3% from the South.

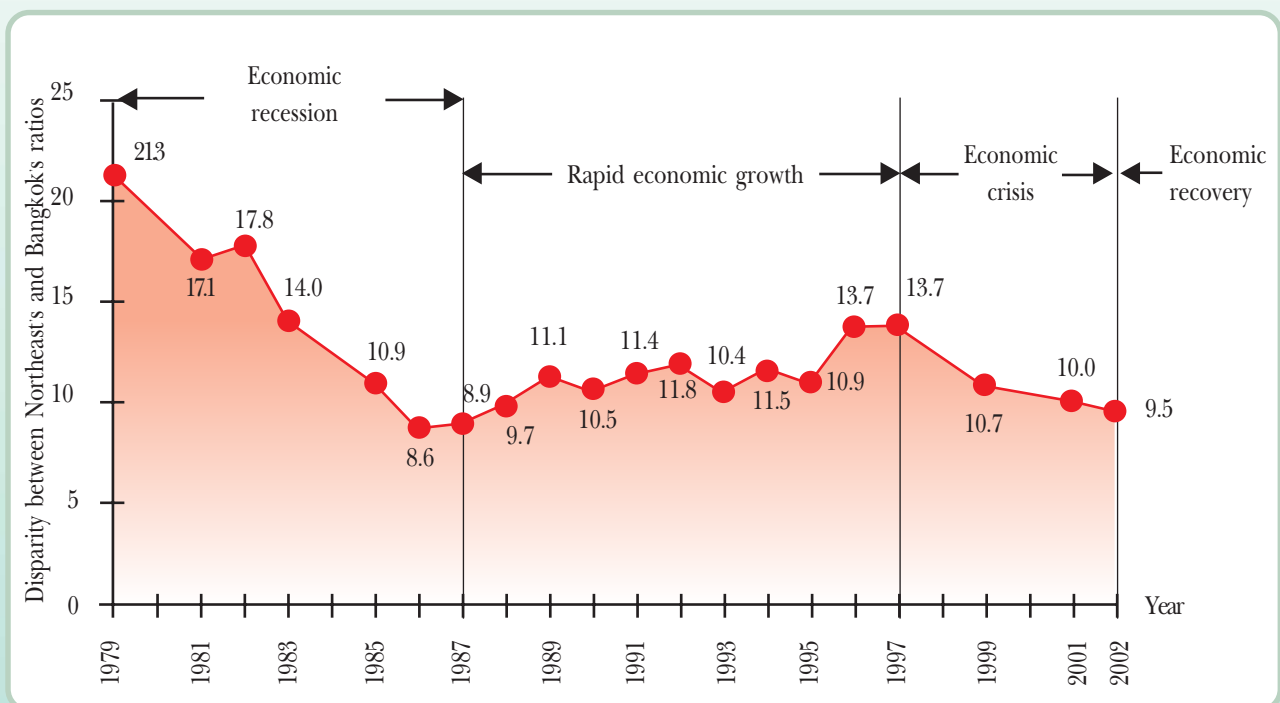
5. For Bangkok in 2002, the 2001 data were used instead.

**Figure 6.2** Population to Doctor Ratios by Region, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Figure 6.3** Disparity between Northeast's and Bangkok's Population/Doctor Ratios, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

- Notes:
1. For 2002, data were received from only 44.3% from Bangkok and 76.7% from the Northeast.
  2. For Bangkok in 2002, the data for 2001 were used instead.

#### (4) Distribution of Doctors by Agency

In the past decade, it was found that since 1989 the proportion of doctors in the public sector had been declining while that in private sector had been rising. In addition, the proportion of medical doctors in the public sector (MoPH, other ministries, state enterprises and local authorities) dropped from 93.3% in 1971 to 76.3% in 1995, while that in the private sector rose from 6.7% to 23.7% during the same period.

After the economic crisis, in 2002, the proportion in the public sector rose to 79%, particularly in the MoPH, whereas the proportion in the private sector dropped during the crisis but increased slightly to 21.0% (Table 6.6 and Figure 6.4).

**Table 6.6** Number and Proportion of Medical Doctors by Agency, 1971-2002

Year	Number and percentage					
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	Total
1971	1,515 (37.1)	1,832 (44.8)	123 (3.0)	341 (8.3)	274 (6.7)	4,085
1973	1,678 (36.4)	2,039 (44.2)	147 (3.2)	357 (7.7)	386 (8.4)	4,607
1975	1,922 (38.4)	2,068 (41.3)	143 (2.8)	452 (9.0)	420 (8.4)	5,005
1977	2,198 (38.0)	2,575 (44.5)	147 (2.5)	344 (5.9)	526 (9.1)	5,790
1979	2,510 (37.9)	2,768 (41.8)	168 (2.5)	433 (6.5)	740 (11.2)	6,619
1981	2,987 (43.1)	2,667 (38.5)	175 (2.5)	371 (5.3)	731 (10.5)	6,931
1983	3,622 (46.1)	2,806 (35.8)	197 (2.5)	333 (4.2)	890 (11.3)	7,848
1985	4,289 (50.3)	2,630 (30.8)	248 (2.9)	363 (4.3)	1,000 (11.7)	8,530
1987	4,758 (49.7)	3,086 (32.2)	235 (2.5)	407 (4.2)	1,094 (11.4)	9,580
1989	5,396 (42.4)	4,398 (34.6)	640 (5.0)	483 (3.8)	1,796 (14.1)	12,713
1991	5,437 (42.5)	4,100 (32.0)	442 (3.5)	517 (4.0)	2,307 (18.0)	12,803
1993	5,843 (42.8)	4,152 (30.5)	613 (4.5)	484 (3.5)	2,542 (18.6)	13,634

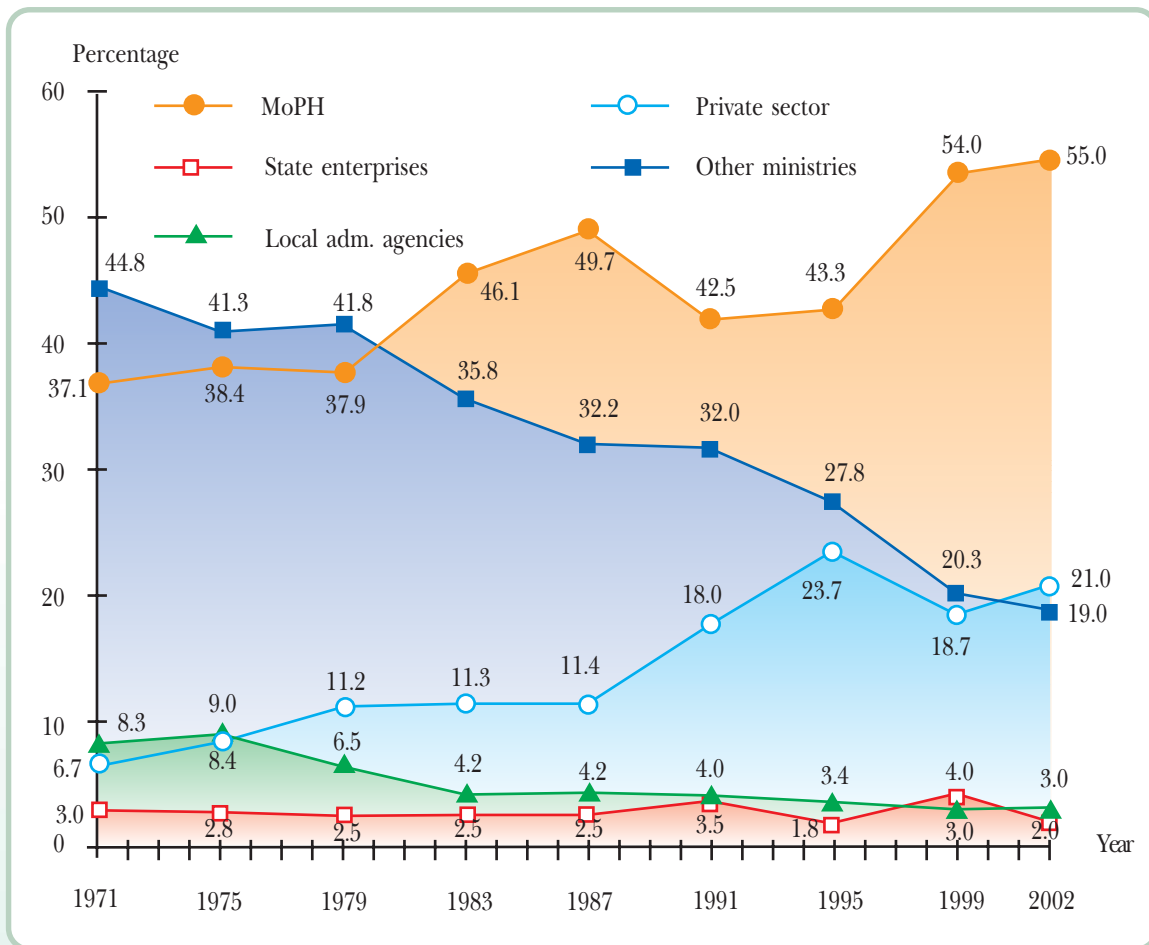
**Table 6.6** Number and Proportion of Medical Doctors by Agency, 1971-2002 (Cont.)

Year	Number and percentage					
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	Total
1995	6,134 (43.3)	3,936 (27.8)	259* (1.8)	488 (3.4)	3,364 (23.7)	14,181
1997	8,026 (48.4)	3,873 (23.4)	933 (5.6)	493 (3.0)	3,244 (19.6)	16,569
1999	9,799 (54.0)	3,683 (20.3)	721 (4.0)	534 (3.0)	3,403 (18.7)	18,140
2001	10,068 (53.1)	3,568 (18.8)	384 (2.0)	543 (2.9)	4,384 (23.1)	18,947
2002	10,444 (55.0)	3,613 (19.0)	374 (2.0)	565 (3.0)	3,991 (21.0)	18,987

**Sources:** Reports on Health Resources, Bureau of Policy and Strategy, MoPH.

- Notes:**
1. Figures in ( ) are in percentage terms.
  2. \* For 1995, no data were available for Chulalongkorn Hospital (under the Thai Red Cross Society).
  3. For 2002, data were received from 65.6% of all health facilities nationwide: 62.5% from among public sector facilities and 77.3% from among private sector agencies.
  4. For 2002, the figures for Chulalongkorn Hospital were transferred from “state enterprise and independent agencies” to “other ministries”.
  5. For 2002, the number of doctors under various agencies in Bangkok for 2001 was used instead.

Figure 6.4 Proportion of Medical Doctors by Agency, 1971-2002

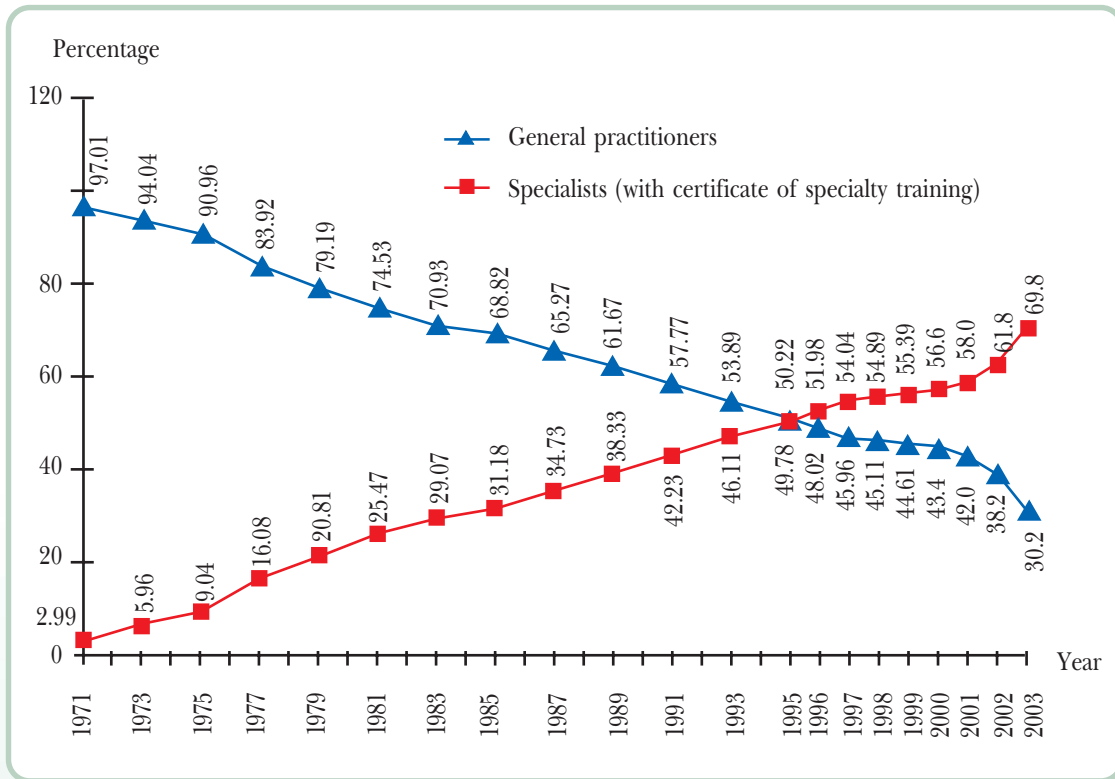


Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

### (5) Distribution of Medical Specialists

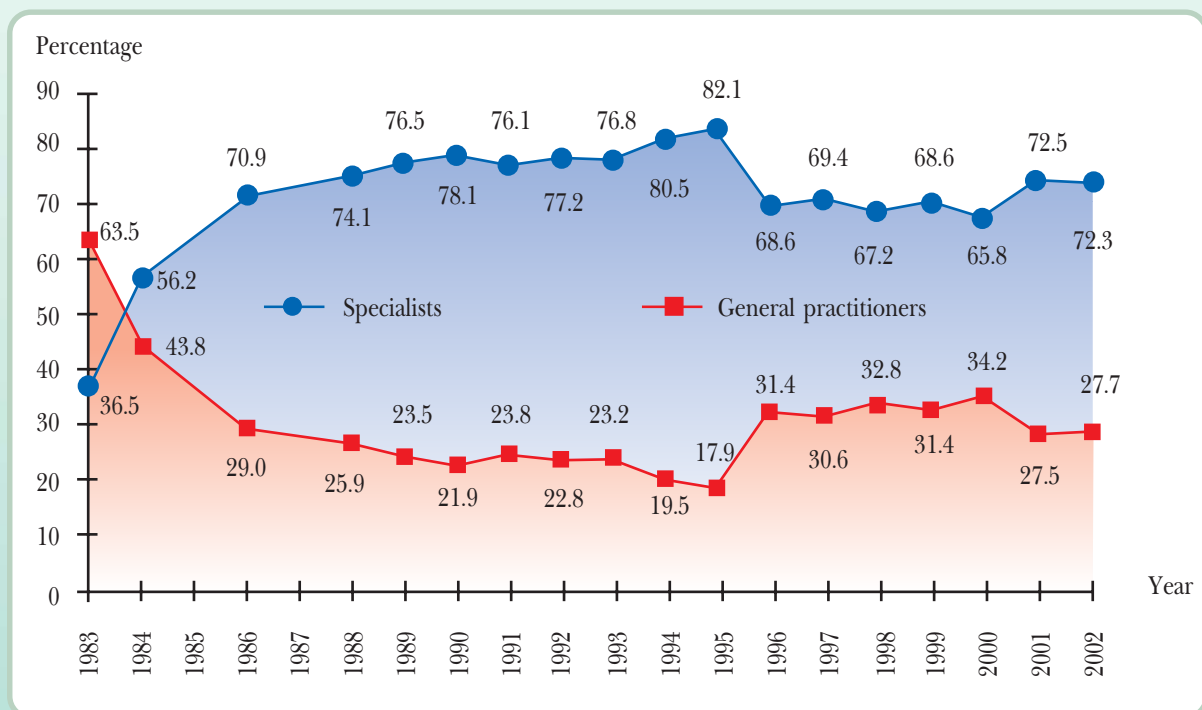
In Thailand, the trends of residency training have been rising steadily. In 2003, the percentage of specialists awarded certificates of specialty training was as high as 69.8% or a total of 21,126 medical doctors (Figure 6.5). In fact, about 72.3% of medical doctors are actually practising as specialists without any specialty certification from the Medical Council of Thailand (Figure 6.6).

**Figure 6.5** Proportions of Medical Specialists and General Practitioners, 1971-2003



**Sources:** The Medical Council of Thailand (medical specialists include only those certified by the Medical Council of Thailand).

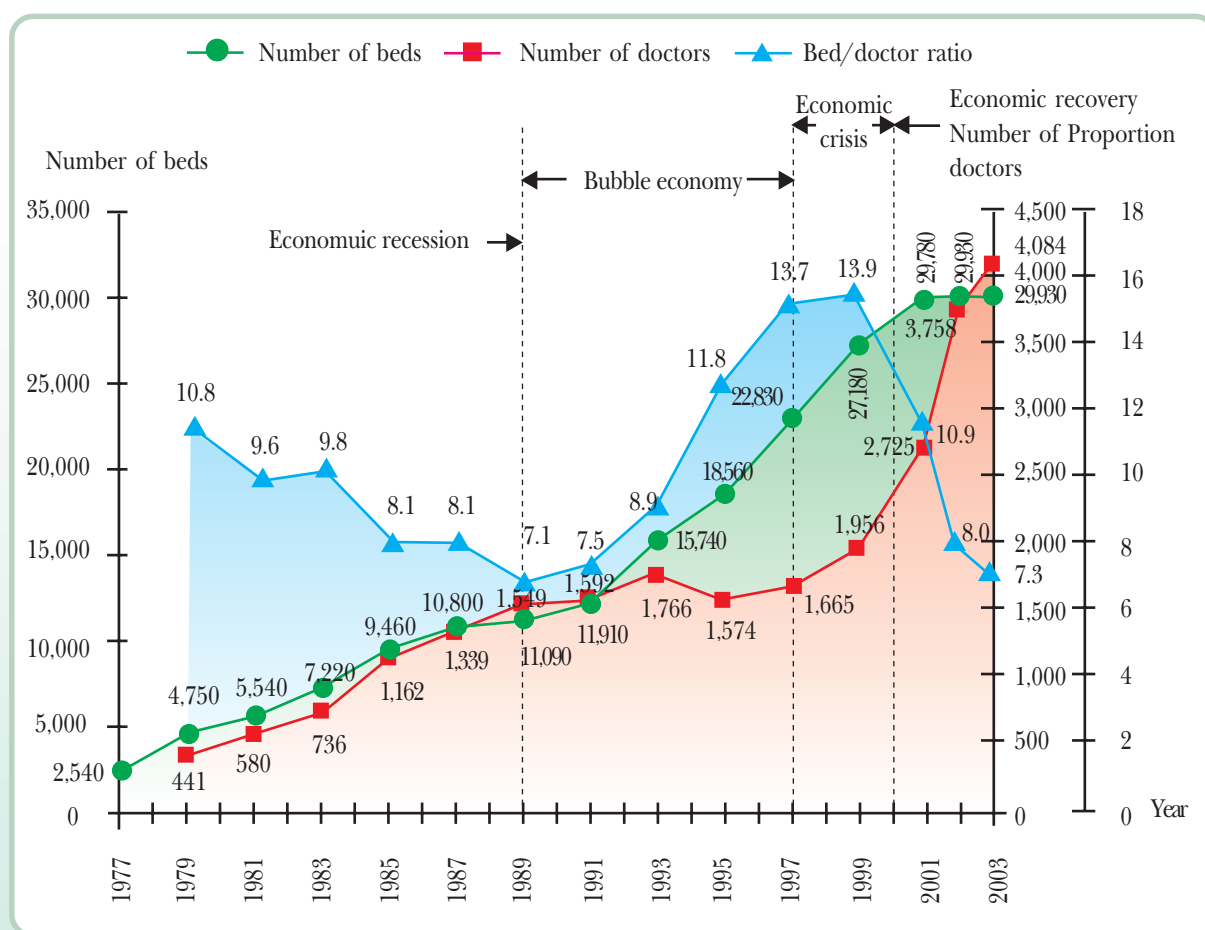
**Figure 6.6** Proportions of General Practitioners and Specialists Actually Practising, 1983-2002



**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

With regard to the number and percentage of medical doctors lost (in relation to newly graduated ones) of the MoPH, the trends have been found to be rising. During the bubble economy period, whose peak was in 1996 (before the economic crisis began), 21 community hospitals had no physicians at all. After the 1997 crisis, the situation remarkably improved; during the 2001 - 2003 economic recovery period, the loss of MoPH doctors became severe again (Table 6.7), which reflected the distribution of physicians to the district level (Figure 6.7).

**Figure 6.7** Numbers of Beds and Doctors at Community Hospitals, 1977-2003



- Sources:**
1. Bureau of Health Service System Development, Department of Health Service Support, MoPH.
  2. Bureau of Central Administration, Office of the Permanent Secretary, MoPH (for doctors at community hospitals in 2001 onwards).

**Notes:** For 2001 - 2003, there was no survey on doctors actually working at community hospitals. So the data from the official payrolls (Jor 18) were used; the numbers were higher than actuality.



**Table 6.7** Number and Proportion of Doctors Loss in Relation to Newly Appointed Doctors, Office of the Permanent Secretary for Public Health, 1994-2003

Fiscal year	No. of doctors						Net loss No. (percent)
	Increase			Decrease (resigned)			
	Newly graduated	Re-appointed	Total	Civil servants	State employees	Total	
1994	526	-	526	42	-	42	42(8.0)
1995	576	-	576	260	-	260	260 (45.1)
1996	568	-	568	344	-	344	344 (60.6)
1997	579	30	609	336	-	336	306 (52.8)
1998	618	93	711	299	-	299	206 (33.3)
1999	830	57	887	204	-	204	147 (17.7)
2000	893	98	991	201	-	201	103 (11.5)
2001	883	82	952	193	83	276	194 (22.0)
2002	878	38	916	401	163	564	526 (59.9)
2003	1,013	39	1,052	287	508	795	756 (74.6)

**Sources:** Bureau of Central Administration, Office of the Permanent Secretary for Public Health.

\* According to the cabinet resolution, since 1999 MoPH has been required to accept the scholarship students in academic year 1999 as state employees under the MoPH, rather than as civil servants.

**Note:** Parent agencies adjusted their own data for fiscal years 1995-2003.

#### (6) Doctor's Workloads

Based on the numbers of patients at all levels, doctors at community hospitals have greater workloads than those in urban areas, Bangkok and the private sector (Table 6.8).

**Table 6.8** Patient Loads of Doctors, 2002

Health	(1) No. of outpatients	(2) No. of inpatients	(3) Inpatients adjusted*	Total patient loads (1)+ (3)	No. of doctors	Patient loads per doctor	Comparison index
Community hospitals	17,831,867	3,305,860	46,282,040	64,113,907	2,732	23,467.8	2.2
Regional/General hospitals	5,823,778	2,605,672	46,902,096	52,725,874	4,619	11,415.0	1.1
University hospitals	934,774	303,866	5,469,588	6,404,362	2,576	2,486.2	0.2
BMA hospitals	430,098	81,267	1,462,806	1,892,904	543	3,486.0	0.3
Private hospitals	4,025,727	1,535,831	21,501,634	25,527,361	3,572	7,146.5	0.7
<b>Total</b>	<b>29,046,244</b>	<b>7,832,496</b>	<b>121,618,164</b>	<b>150,664,408</b>	<b>14,042</b>	<b>10,729.6</b>	<b>1.0</b>

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Notes:** \* In calculating the patient loads, for consistency, the numbers were weighted as follows:

1. For community and private hospitals = number of inpatients times 14.
2. For regional/general, university and BMA hospitals = number of inpatients times 18.
3. For 2002, the number of doctors in Bangkok for 2001 was used instead.

### 1.1.2 Dentists

#### (1) Production of Dentists

At present, there are only eight dentistry schools in Thailand, all in the public sector, producing approximately 500 dentists each year (Table 6.9). However, beginning in 2005, an additional 200 dentists will be produced annually (Table 6.10). The numbers of dentists who have graduated and who are expected to graduate are shown in Table 6.11.

**Table 6.9** Number of Dentistry Student Admissions, Thailand, Academic Years 1997-2004

Production agency	No. of students								Total
	1997	1998	1999	2000	2001	2002	2003	2004	
HEC	469	478	460	504	486	502	528	528	3,951

**Source:** Bureau of Policy and Planning, Office of the Higher Education Commission.

**Note:** The number of students actually admitted.

**Table 6.10** Dental Student Admissions Plan, Thailand, Academic Years 2005-2014

Production agency	No. of students										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total
1. Regular admission plan, HEC	513	513	513	533	533	533	533	533	533	533	5,270
2. Increased production plan, HEC	200	200	200	200	200	200	200	200	200	200	2,000
Total	713	713	713	733	733	733	733	733	733	733	7,270

**Source:** Bureau of Policy and Planning, Office of the Higher Education Commission.

**Note:** Data on dental student admission plan.

**Table 6.11** Actual and Expected Numbers of Dental Graduates, Academic Years 1997-2006

Production agency	No. of graduates										
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
HEC	318	358	332	349	383	420	423	437	479	462	3,961

**Source:** The Dental Council, Thailand.

**Notes:** 1. For academic years 1997 - 2003, the numbers of dentists who graduated and registered with the Dental Council.

2. For academic years 2004 - 2006, 95% of admitted dental students are expected to graduate.

## (2) Numbers of Dentists Actually Practising and Required

In 2003, there were 8,178 registered dentists (Dental Council, 2003), of whom 7,828 were actually practising.<sup>3</sup> It is projected that in 2015 there will be a total of 10,323 dentists,<sup>4</sup> whereas approximately 8,924-9,768 dentists are required.<sup>4</sup> Therefore, the number of dentists will be sufficient or might be excessive in the future (Table 6.12).

<sup>3</sup> Report on Dental Health Personnel, 2003. Dental Health Division, Department of Health.

<sup>4</sup> Duangjai Leksomboon. Supply Projections for Dentists, Thailand (2000 - 2030). HRDJ; 2000. Vol.4, No.2: 94-105.

**Table 6.12** Estimated/Projected Number of Dentists Actually Practising and the Population to Dentist Ratio, 2000-2030

Year	Practising dentists	Population to dentist ratio
2000	6,021	10,350
2005	7,651	8,603
2010	9,118	7,625
2015	10,323	7,114
2020	11,354	6,501
2025	12,119	6,276
2030	12,652	6,072

**Source:** Duangjai Leksomboon. Supply Projectons for Dentists, Thailand (2000-2030). HRDJ; 2000. Vol.4, No.2: 94-105.

### (3) Geographical Distribution of Dentists

Most dentists are clustered in Bangkok and the Central Region. The Bangkok-regional disparities have changed in the same pattern as those for medical doctors (Table 6.13 and Figures 6.8-6.9).

According to a survey on dentist distribution in various regions of the country conducted by the Department of Health during 1999 - 2003, the distribution pattern was consistent with that revealed in the reports on health resources. But the population to dentist ratio reported in the DoH Survey was 1.5-2.2 times lower as it had a wider coverage. It was found that the shortage of dentists was most severe in the Northeast; the ratio was 15 times higher than that for Bangkok (Table 6.14).

**Table 6.13** Distribution of Dentists by Region, 1979-2002

Region	No. of dentists and population to dentist ratio												
	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2002
Bangkok Metropolitan	705 (6,982)	676 (7,914)	752 (7,624)	797 (7,123)	878 (6,802)	1,085 (5,766)	1,215 (4,599)	1,331 (4,861)	1,077 (5,179)	1,651 (3,389)	1,891 (2,991)	1,788 (3,190)	1,788 (3,218)
The Central	113 (83,938)	152 (63,066)	193 (51,591)	206 (54,155)	257 (44,852)	369 (32,213)	443 (29,181)	526 (24,612)	735 (18,420)	657 (21,263)	818 (17,494)	878 (16,588)	828 (17,810)
The North	108 (89,963)	110 (89,464)	160 (63,506)	168 (60,577)	141 (74,381)	220 (48,969)	268 (41,176)	295 (37,780)	348 (34,208)	398 (30,248)	446 (27,225)	577 (20,993)	681 (17,824)
The South	38 (114,900)	57 (103,158)	61 (100,279)	69 (96,333)	78 (89,696)	179 (41,044)	255 (28,108)	246 (32,406)	298 (25,687)	248 (31,760)	316 (25,663)	414 (19,963)	416 (20,105)
The Northeast	58 (280,655)	83 (202,422)	81 (215,938)	86 (209,581)	114 (163,352)	254 (75,526)	227 (87,858)	388 (51,680)	462 (44,595)	460 (45,622)	555 (38,487)	660 (32,499)	758 (28,432)
Disparity between BKKs and Northeast's population/ dentist ratios	1 : 40.2	1 : 25.6	1 : 28.3	1 : 29.4	1 : 24.0	1 : 13.1	1 : 19.1	1 : 10.6	1 : 8.6	1 : 13.5	1 : 12.9	1 : 10.2	1 : 8.8
Total	1,022 (45,074)	1,078 (44,024)	1,247 (39,662)	1,326 (38,975)	1,468 (36,516)	2,107 (26,315)	2,408 (23,531)	2,786 (21,028)	2,920 (20,301)	3,414 (17,711)	4,026 (15,295)	4,317 (14,384)	4,471 (13,991)

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Notes:** 1. Figures in ( ) are population to dentist ratios.

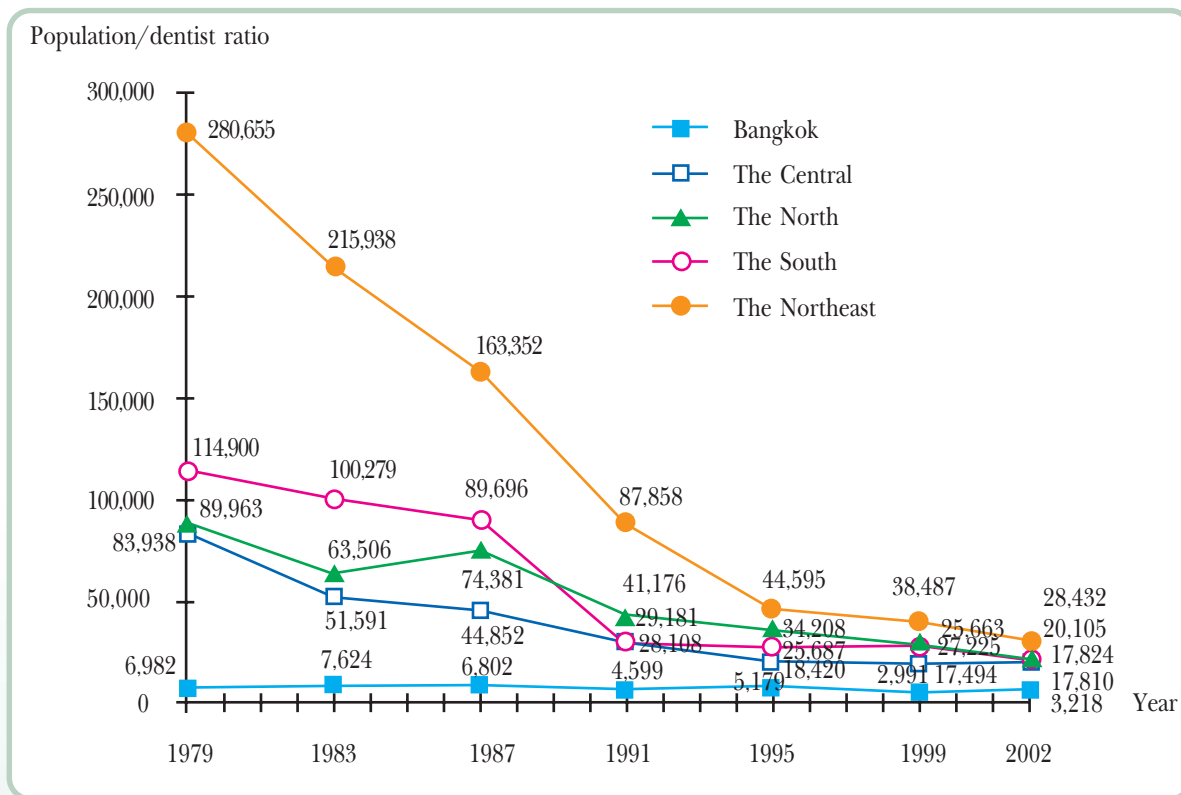
2. Figures from the surveys are estimated to be 40% less than actuality.

3. The data of 1985 were incomplete; the 1984 data were used instead.

4. For 2002, data were received from only 65.6% of all health facilities; 44.3% from Bangkok, 60.5% from the Central, 76.7% from the Northeast, 74.9% from the North, and 68.3% from the South.

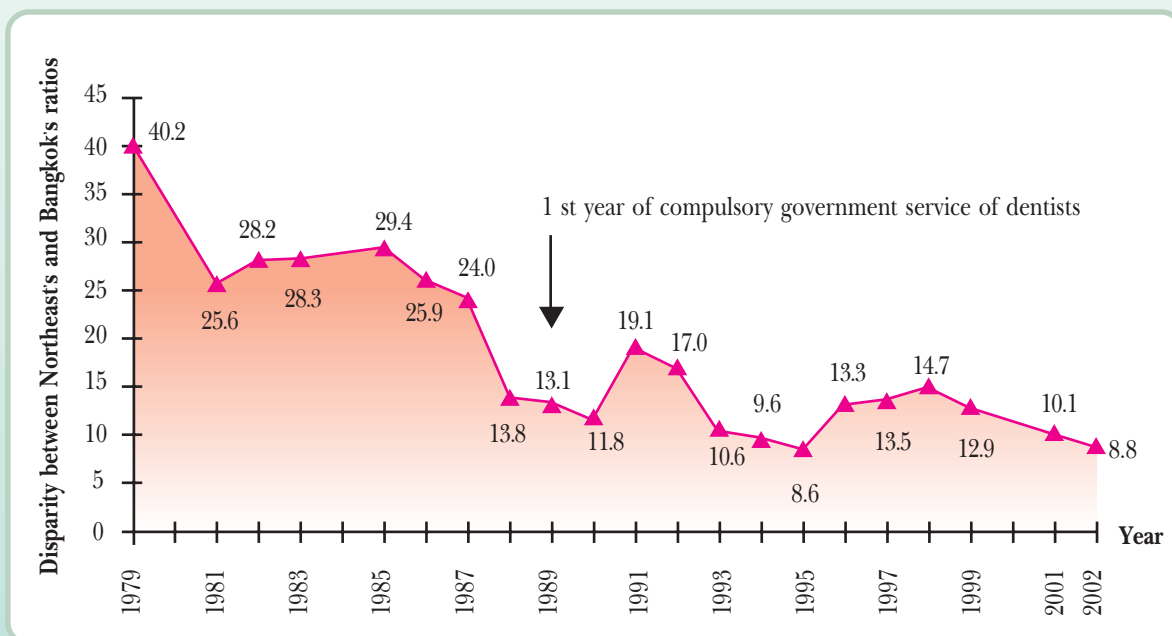
5. For Bangkok in 2002, the 2001 data were used instead.

Figure 6.8 Population to Dentist Ratios by Region, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

Figure 6.9 Disparity between Northeast's and Bangkok's Population/Dentist Ratios, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

- Notes:
1. For 2002, data were received from only 44.3% of health facilities in Bangkok and 76.7% of health facilities in the Northeast.
  2. For 2002 data for Bangkok were incomplete, the 2001 data were used instead.

**Table 6.14** Distribution of Dentists by Region, 1999-2003

Region	No. of dentists and dentist to population ratio				
	1999	2000	2001	2002	2003
Bangkok	3,279 (1:1,722)	3,331 (1:1,690)	3,538 (1:1,605)	3,802 (1:1,506)	3,965 (1:1,458)
The Central Plains	1,110 (1:12,864)	1,191 (1:12,042)	1,256 (1:11,524)	1,277 (1:11,474)	1,318 (1:11,259)
The North	813 (1:14,956)	838 (1:14,468)	892 (1:13,566)	900 (1:13,471)	925 (1:13,137)
The South	551 (1:14,640)	581 (1:14,032)	614 (1:13,383)	600 (1:13,852)	626 (1:13,443)
The Northeast	761 (1:28,005)	854 (1:25,034)	875 (1:24,462)	972 (1:22,112)	994 (1:21,739)
Disparity between Northeast's and Bangkok's ratios	16.3	14.7	15.2	14.7	14.9
Total	6,514 (1:9,436)	6,795 (1:9,074)	7,175 (1:8,624)	7,551 (1:8,252)	7,828 (1:8,022)

**Source:** Reports on Dental Health Personnel, 1999-2003. Department of Health.

#### (4) Distribution of Dentists by Agency

In the past decade, after 1987, the proportion of dentists in the public sector (MoPH, other ministries, state enterprises, and local authorities) was declining, whereas that in the private sector was rising. In the private sector the proportion rose from 3.8% in 1971 to 25.4% in 1995, while in the public sector the proportion dropped from 96.2% to 74.6% during the same period (Table 6.15).

After the 1997 economic crisis, the dentist proportion in the public sector increased to 88.4% in 2002 in the MoPH, especially in community hospitals the proportion rising to 99.0%, but dropping slightly to 96.0% in 2003 (Figure 6.10). It is projected that the loss would be down to only 1.06% in 2004 (Figure 6.11).

A survey on dentist distribution by agency conducted by the Department of Health for 1999-2003 revealed the opposite, compared with the those revealed in the MoPH Report on Health Resources. The DoH survey found that, due to the low questionnaire response rate of only 60%, the proportion of dentists in the public sector has declined from 49.0% in 1999 to 46.8% in 2003, while that in the private sector has risen from 51.0% to 53.2% during the same period (Table 6.16).



**Table 6.15** Number and Proportion of Dentists by Agency, 1971-2002

Year	Number and percentage					
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	Total
1971	146 (27.5)	296 (55.7)	20 (3.8)	49 (9.2)	20 (3.8)	531
1973	171 (28.7)	327 (54.9)	20 (3.3)	52 (8.7)	26 (4.4)	596
1975	187 (28.7)	337 (51.7)	24 (3.7)	69 (10.6)	35 (5.3)	652
1977	230 (28.2)	416 (51.0)	34 (4.2)	82 (10.1)	53 (6.5)	815
1979	289 (29.5)	513 (52.4)	47 (4.8)	82 (8.4)	47 (4.8)	978
1981	401 (37.9)	420 (39.7)	41 (3.9)	97 (9.2)	98 (9.3)	1,057
1983	469 (37.6)	504 (40.4)	52 (4.2)	97 (7.8)	125 (10.0)	1,247
1985	581 (40.0)	503 (34.7)	79 (5.4)	134 (9.2)	154 (10.6)	1,451
1987	618 (42.1)	484 (33.0)	85 (5.8)	85 (5.8)	196 (13.3)	1,468
1989	852 (40.4)	623 (29.6)	79 (3.7)	143 (6.8)	410 (19.5)	2,107
1991	1,020 (42.4)	612 (25.4)	76 (3.1)	156 (6.5)	544 (22.6)	2,408
1993	1,201 (43.1)	728 (26.1)	76 (2.7)	125 (4.5)	656 (23.5)	2,786
1995	1,420 (48.6)	574 (19.6)	77 (2.6)	108 (3.7)	741 (25.4)	2,920
1997	2,064 (60.5)	658 (19.3)	31 (0.9)	195 (5.7)	466 (13.6)	3,414
1999	2,660 (66.1)	652 (16.2)	63 (1.6)	141 (3.5)	510 (12.6)	4,026
2001	3,014 (69.8)	520 (12.0)	86 (2.0)	133 (3.1)	564 (13.1)	4,317
2002	3,130 (70.0)	578 (12.9)	85 (1.9)	161 (3.6)	517 (11.6)	4,471

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

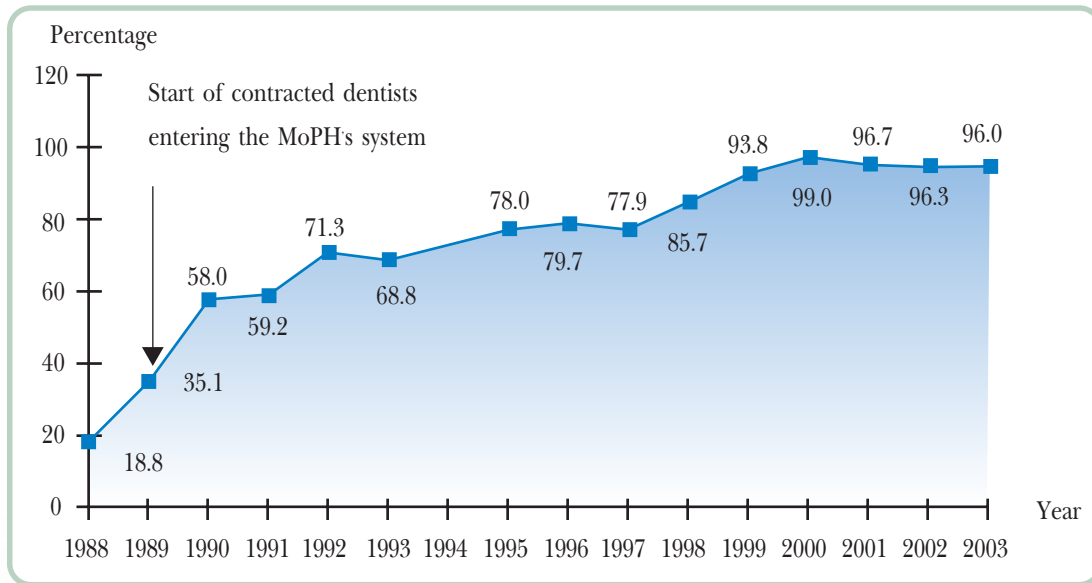
**Notes:** 1. Figures in ( ) are in percentage terms.

2. For 2002, data were received from 65.6% of all health facilities nationwide: 62.5% from among public sector facilities and 77.3% from among private sector agencies.

3. For the 2002 figure of dentists in Bangkok, the 2001 data were used instead.



**Figure 6.10** Percentage of Dentist Distribution in Community Hospitals, 1988-2003

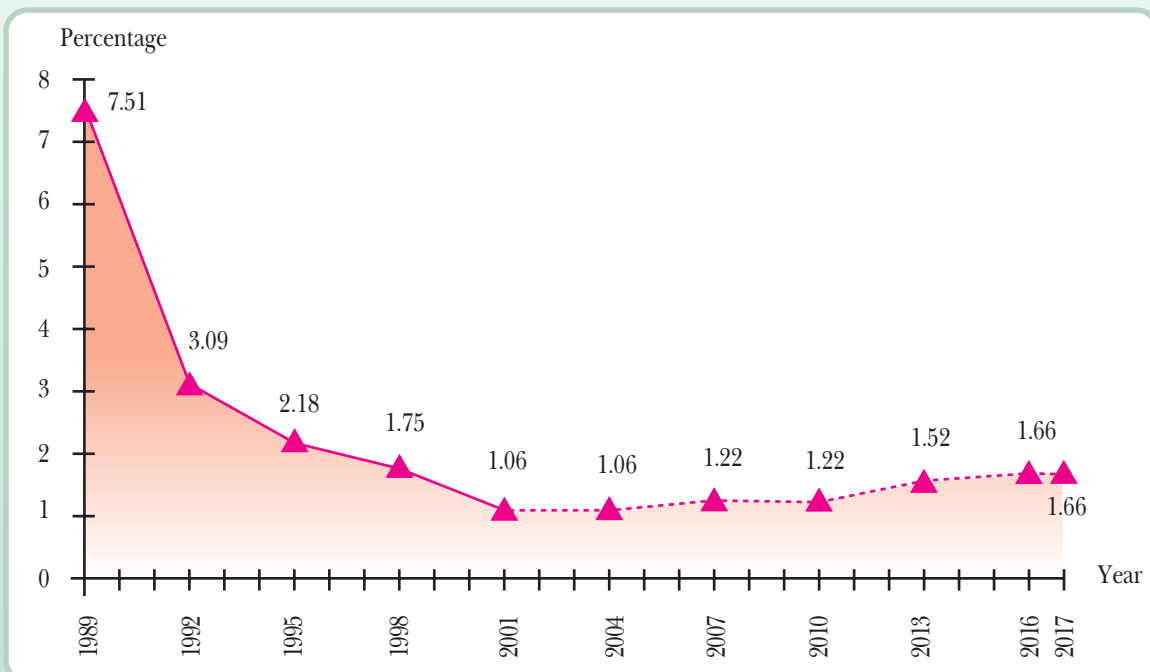


**Sources:** For 1988-1997, data were derived from Bunyarit Suwannophas et al. Problem Analysis and Improvement in Dentist Distribution Project, 1998.

For 1998 - 2000, data were derived from the Bureau of Health Service System Development, Department of Health Service Support, MoPH.

For 2001 - 2003, data were derived from Sunee Wongkongkathep et al. Problems of Dentist Distribution in Rural Areas, 2003.

**Figure 6.11** Percentage of Dentist Loss in Community Hospitals, 1989-2017



**Sources:** For 1989-1998, data were derived from the Bureau of Health Service System Development, Department of Health Service Support, MoPH.

For 2001-2017, data were derived from Bunyarit Suwannophas. Projection of Dentists in Community Hospitals, 2000.

**Table 6.16** Distribution of Dentists by Agency, 1999-2003

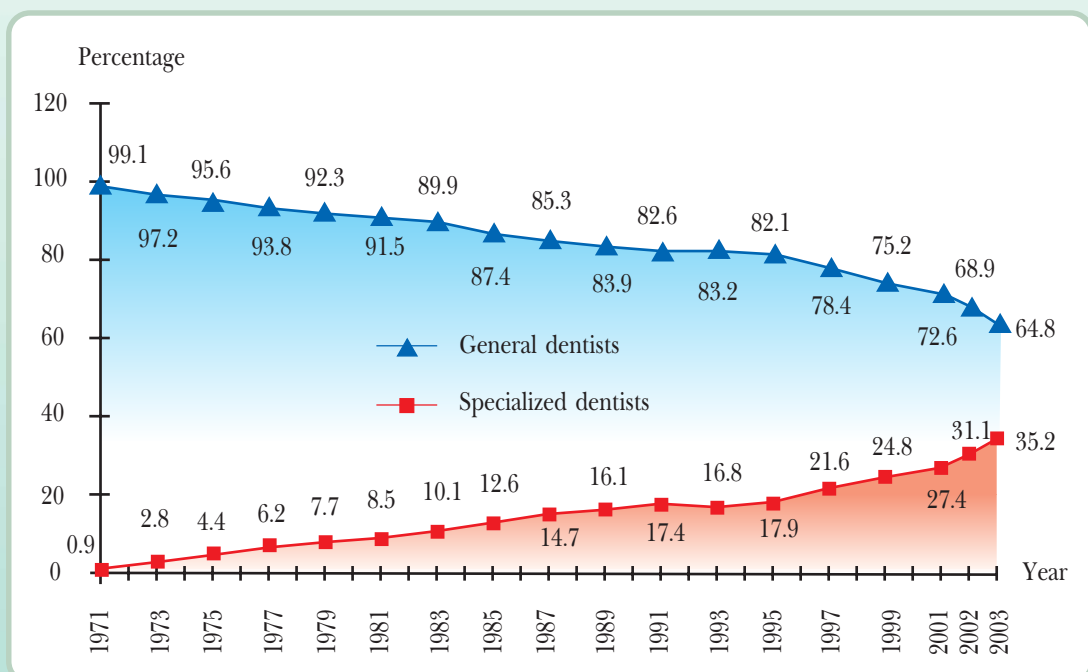
Year	Number and percentage					Total
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	
1999	1,912 (29.3)	1,112 (17.1)	43 (0.7)	126 (1.9)	3,321 (51.0)	6,514
2000	2,095 (30.8)	1,134 (16.7)	48 (0.7)	133 (2.0)	3,385 (49.8)	6,795
2001	2,249 (31.3)	1,089 (15.2)	51 (0.7)	129 (1.8)	3,657 (51.0)	7,175
2002	2,443 (32.4)	1,045 (13.8)	51 (0.7)	129 (1.7)	3,883 (51.4)	7,551
2003	2,452 (31.3)	1,039 (13.3)	52 (0.6)	123 (1.6)	4,162 (53.2)	7,828

**Source:** Report on Dental Health Personnel, Department of Health.

#### (5) Distribution of Dental Specialists

It is found that, since 1995, the trends of specialized dental training have been rising. In 2003, the percentage of specialists awarded certificates of specialty training was as high as 35.2% of all dentists (Figure 6.12).

**Figure 6.12** Proportions of Specialized Dentists and General Dentists, 1971-2003



**Source:** Dental Health Division, Department of Health, MoPH, 2003.

### 1.1.3 Pharmacists

#### (1) Production of Pharmacists

At present there are 13 institutions producing pharmacists in both public and private sectors in Thailand: 11 public and two private. Beginning in 2004, Burapha University, a state-run university, will also offer its pharmacy degree programme.

Between 1997 and 2006, it has been found that the proportion of pharmacy graduates working in the public sector has slightly risen, but since 2003 there has been a downward trend in the private sector; the annual outputs dropping from 300 to 220 graduates (Table 6.17). The number of pharmacy graduates and their projection in the future are shown in Table 6.18.

**Table 6.17** Numbers of Current and Future Pharmacy Students Entrants, Thailand, Academic Years 1997-2006

Production agency	No. of students										
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
HEC	1,016	1,055	1,070	1,173	1,219	1,307	1,472	1,582	1,582	1,582	13,058
Private sector	294	294	304	314	290	270	220	220	220	220	2,646
<b>Total</b>	<b>1,310</b>	<b>1,349</b>	<b>1,374</b>	<b>1,487</b>	<b>1,509</b>	<b>1,577</b>	<b>1,692</b>	<b>1,802</b>	<b>1,802</b>	<b>1,802</b>	<b>15,704</b>

**Source:** Bureau of Policy and Planning, Office of the Higher Education Commission.

- Notes:**
1. For 1997 - 2002, the figures are the numbers of new students actually admitted.
  2. For 2003 - 2006, the numbers are derived from the pharmacy student admission plan.

**Table 6.18** Numbers of Actual and Projected Pharmacy Graduates, Academic Years 1997-2006

Production agency	No. of graduates										
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
HEC	657	700	807	868	959	965	815	1,114	1,158	1,242	9,285
Private sector	106	176	140	159	262	199	145	298	276	257	2,018
<b>Total</b>	<b>763</b>	<b>876</b>	<b>947</b>	<b>1,027</b>	<b>1,221</b>	<b>1,164</b>	<b>960</b>	<b>1,412</b>	<b>1,434</b>	<b>1,499</b>	<b>11,303</b>

**Source:** The Pharmacy Council, Thailand.

- Notes:**
1. For 1997 - 2003, numbers of actual pharmacy graduates and registered with the Pharmacy Council.
  2. For 2004 - 2006, the projection is based the assumption that 95% of entrants would actually graduate.

## **(2) Practice of Pharmacists**

In 2003, there were 17,903 registered pharmacists (Pharmacy Council, 2003), but only 13,836<sup>5</sup> were actually practising. It is projected that in 2015, there would be 25,124 pharmacists<sup>5</sup> which is lower than the country's demand by approximately 6,915-9,122 individuals.<sup>5</sup>

In the future, the demand for pharmacists would depend on the health service system and the legal requirement for pharmacists being stationed at drugstores. According to the current procedure (without any legal requirement for a pharmacist to be stationed at each drugstore and any hospital/clinic being able to dispense medications), there would be an over-supply of pharmacists in the near future.

## **(3) Geographical Distribution of Pharmacists**

Most pharmacists are clustered in Bangkok and the Central Region. The Bangkok-regional disparities have changed in the same pattern as those for medical doctors and dentists (Table 6.19 and Figures 6.13 and 6.14).

## **(4) Distribution of Pharmacists by Agency**

It was found that, between 1971 and 1985, approximately half (50%) of pharmacists nationwide worked in the private sector in such undertakings as drug manufacturing, imports, and sales, while only 43.0% to 50.9% worked in the public sector. Since the government has imposed the compulsory government service requirement for all new pharmacy graduates, the proportion of pharmacists working in the public sector, especially in the MoPH, has increased to 48.9% in 1995 and to 81.8% in 2002. Such a proportion in the private sector has fallen to 32.2% in 1995 and to only 10.8% in 2002 (Table 6.20 and Figure 6.15).

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<sup>5</sup> Nipa Payanantana. Future Human Resources Balance for Pharmacy and Health Consumer Protection Services in Thailand. HRDJ, 1998, Vol. 2, No. 2: 129-141.

**Table 6.19** Distribution of Pharmacists by Region, 1979-2002

Region	No. of pharmacists and population to pharmacist ratio												
	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2002
Bangkok Metropolis	2,136 (2,304)	2,295 (2,331)	2,479 (2,313)	2,762 (2,055)	2,850 (2,095)	2,445 (2,559)	2,608 (2,143)	2,717 (2,381)	2,446 (2,280)	2,847 (1,965)	2,653 (2,132)	2,295 (2,485)	2,295 (2,507)
The Central	142 (66,796)	143 (67,035)	161 (61,845)	175 (63,748)	253 (45,561)	408 (29,134)	500 (25,855)	615 (21,050)	1,728 (7,835)	1,145 (12,201)	1,249 (11,458)	1,426 (10,213)	1,543 (9,557)
The North	28 (202,214)	51 (192,961)	175 (58,063)	188 (54,133)	241 (43,517)	375 (28,729)	443 (24,910)	490 (22,745)	606 (19,644)	757 (15,903)	731 (16,610)	1,093 (11,082)	1,200 (10,115)
The South	118 (82,339)	114 (51,579)	70 (87,386)	74 (89,824)	128 (54,658)	256 (28,699)	339 (21,143)	416 (19,163)	474 (16,149)	507 (15,535)	606 (13,382)	851 (9,712)	874 (9,569)
The Northeast	72 (226,083)	77 (218,195)	105 (166,581)	113 (159,504)	150 (124,147)	341 (56,257)	443 (45,020)	483 (41,515)	613 (33,610)	685 (30,636)	823 (25,954)	1,193 (17,979)	1,438 (14,987)
Disparity between BKK's and Northeast's population/pharmacist ratios	1 : 98.1	1 : 93.6	1 : 72.0	1 : 77.6	1 : 59.3	1 : 22.0	1 : 21.0	1 : 17.4	1 : 14.7	1 : 15.6	1 : 12.2	1 : 7.2	1 : 6.0
Total	2,496 (18,455)	2,603 (18,232)	2,990 (16,541)	3,312 (15,604)	3,622 (14,800)	3,825 (14,496)	4,333 (13,077)	4,721 (12,409)	5,867 (12,409)	5,941 (10,178)	6,062 (10,158)	6,858 (9,054)	7,350 (8,511)

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Notes:** 1. Figures in ( ) are population to pharmacist ratios.

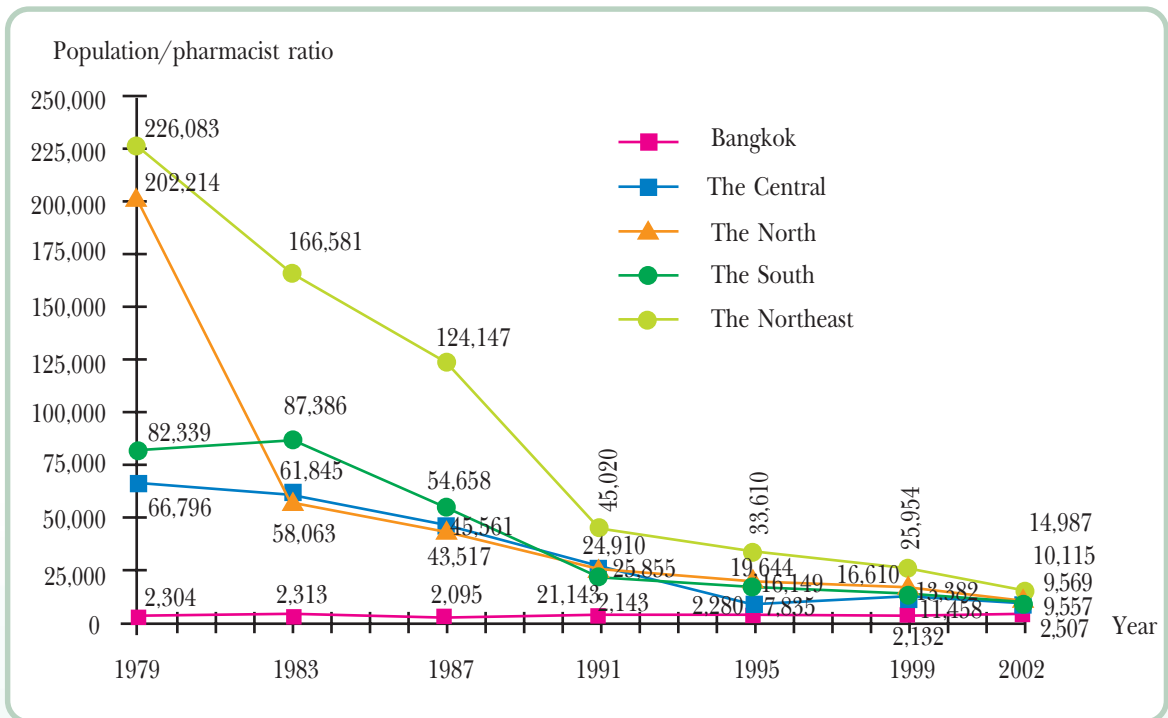
2. Figures from the surveys are estimated to be 50% less than actuality.

3. Due to incompleteness of data for 1985, the data for 1984 were used instead.

4. For 2002, data were received from only 65.6% of all health facilities; 44.3% from Bangkok, 60.5% from the Central, 76.7% from the Northeast, 74.9% from the North, and 68.3% from the South.

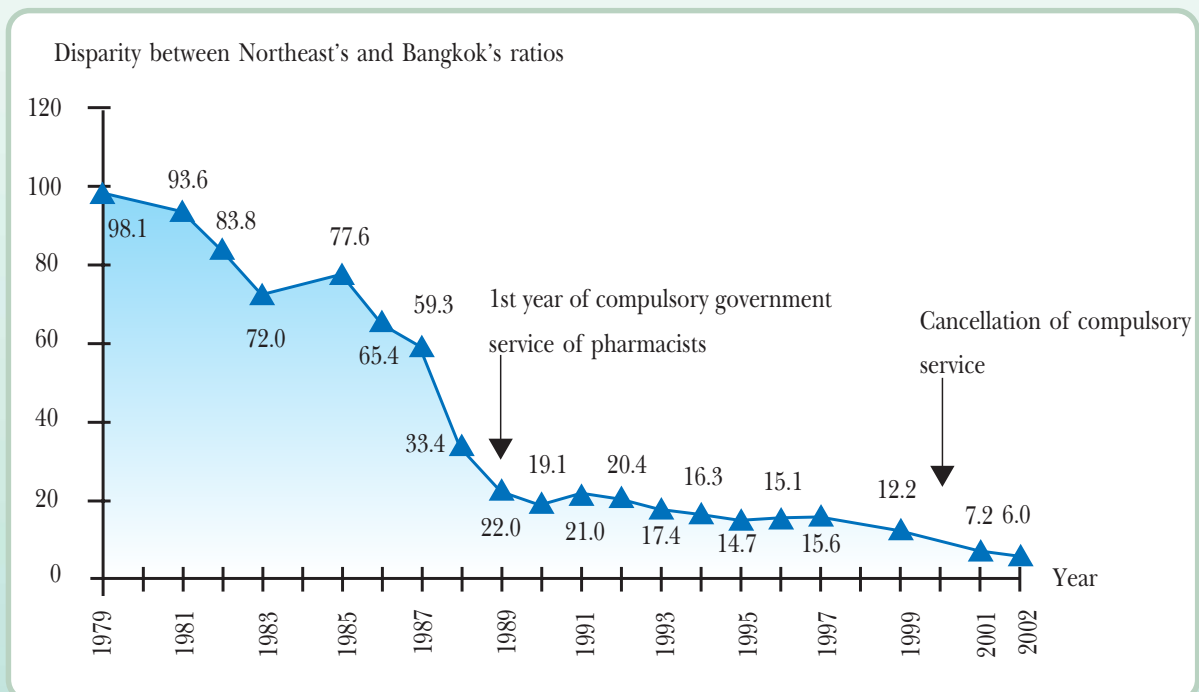
5. For 2002 in Bangkok, the 2001 data were used instead.

Figure 6.13 Population to Pharmacist Ratios by Region, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

Figure 6.14 Disparity between Northeast's and Bangkok's Population/Pharmacist Ratios, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

- Notes:
1. For 2002, the survey information was received from only 44.3% of health facilities in Bangkok and 76.7% from the Northeast.
  2. For the 2002 data for Bangkok, the 2001 data were used instead.

**Table 6.20** Number and Proportion of Pharmacists by Agency, 1971-2002

Year	Number and percentage					
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	Total
1971	298 (18.9)	280 (17.8)	68 (4.3)	32 (2.0)	899 (57.0)	1,577
1973	307 (18.9)	299 (18.4)	73 (4.5)	31 (1.9)	917 (56.4)	1,627
1975	345 (18.0)	366 (19.1)	85 (4.4)	58 (3.0)	1,059 (55.4)	1,913
1977	415 (18.6)	398 (17.8)	105 (4.7)	59 (2.6)	1,259 (56.3)	2,236
1979	569 (22.8)	446 (17.9)	135 (5.4)	73 (2.9)	1,273 (51.0)	2,496
1981	616 (22.9)	419 (15.6)	153 (5.7)	68 (2.5)	1,424 (53.1)	2,680
1983	748 (25.0)	451 (15.1)	175 (5.9)	68 (2.3)	1,548 (51.8)	2,990
1985	1,133 (33.6)	310 (9.2)	216 (6.4)	60 (1.8)	1,657 (49.1)	3,376
1987	1,372 (37.9)	393 (10.8)	236 (6.5)	78 (2.2)	1,543 (42.6)	3,622
1989	1,431 (37.4)	516 (13.5)	238 (6.2)	109 (2.8)	1,531 (40.0)	3,825
1991	1,759 (40.6)	626 (14.4)	240 (5.5)	116 (2.7)	1,592 (36.7)	4,333
1993	2,012 (42.6)	685 (14.5)	253 (5.4)	87 (1.8)	1,684 (35.7)	4,721
1995	2,869 (48.9)	719 (12.3)	284 (4.8)	106 (1.8)	1,889 (32.2)	5,867
1997	3,835 (64.5)	344 (5.8)	344 (5.8)	117 (2.0)	1,301 (21.9)	5,941
1999	4,534 (74.8)	352 (5.8)	101 (1.7)	124 (2.0)	951 (15.7)	6,062
2001	5,465 (79.7)	381 (5.6)	113 (1.6)	115 (1.7)	784 (11.4)	6,858
2002	6,012 (81.8)	286 (3.9)	123 (1.7)	132 (1.8)	797 (10.8)	7,350

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

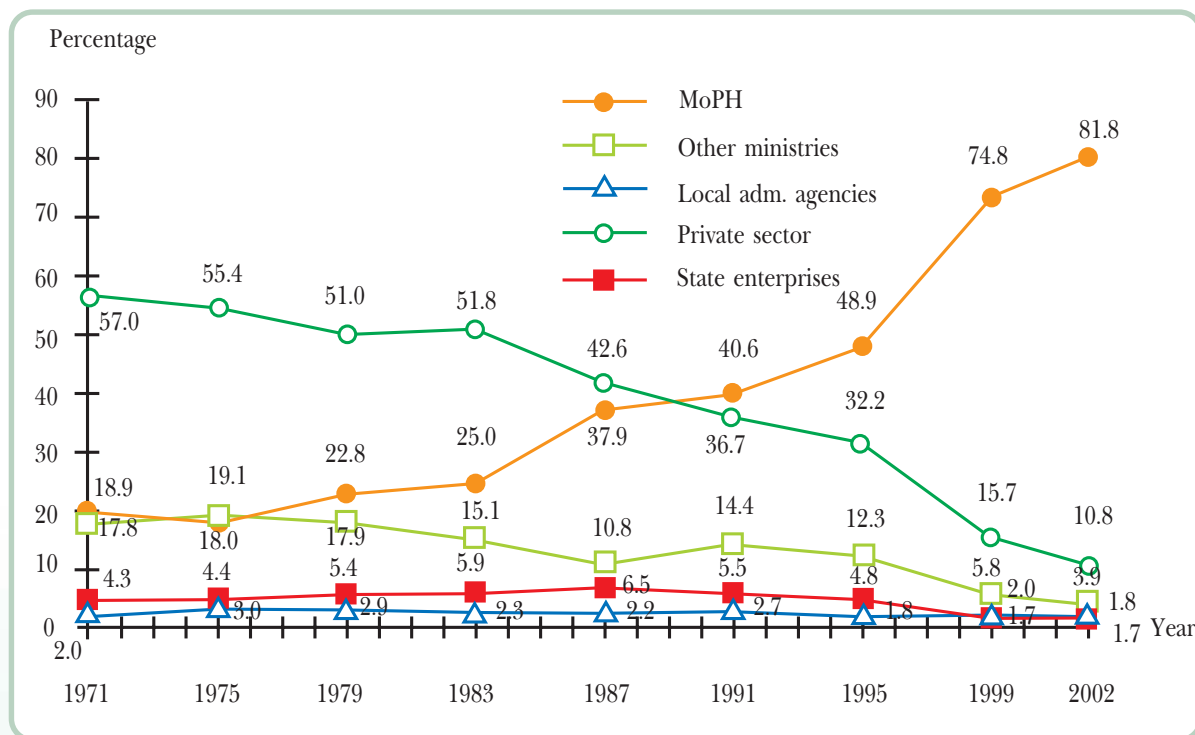
**Notes:** 1. Figures in ( ) are in percentage terms.

2. For 2002, data were received from 65.6% of all health facilities nationwide: 62.5% from among public sector facilities and 77.3% from among private sector agencies.

3. For 2002, the number of pharmacists in Bangkok for 2001 was used instead.



Figure 6.15 Proportion of Pharmacists by Agency, 1971-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

### 1.1.4 Professional Nurses

#### (1) Production of Professional Nurses

At present, Thailand has 64 nursing colleges under seven major agencies: 13 under the Ministry of Education, 35 under the MoPH, three under the Ministry of Defence, one under the Royal Thai Police, one under the Thai Red Cross Society and ten in the private sector. Beginning in 2004, another two nursing colleges will be taking student nurses at Kasetsart and Suranaree Technology Universities.

Beginning in 2005, state-run nursing colleges (except for those under the Ministry of Education) will be producing more nurses. The MoPH nursing colleges will be producing 1,000 more nurses each year, in addition to the current output of 1,500 nurses per annum as the current production output is insufficient (Table 6.21). The actual and expected nursing graduates are as shown in Table 6.22.

In 1990, to resolve the shortage problem on a short-term basis, the MoPH began to produce technical nurses. However, in 2000, such a programme was discontinued and since then only professional nurses have been produced. This is to enhance the efficiency of health services.



Table 6.21 Plan on Admissions of Nursing Students in Thailand, Academic Years, 1997-2014

Production agency	No. of entrants														Total					
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010		2011	2012	2013	2014	
<b>1. Public Sector</b>																				
1.1 HEC	1,842	2,020	1,639	1,376	1,353	1,435	1,455	1,725	1,725	1,725	1,725	1,755	1,755	1,755	1,755	1,755	1,755	1,755	1,755	30,305
1.2 MoPH	3,725	3,725	1,500	2,000	2,000	1,700	1,700	1,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	42,850
1.3 Other agencies	564	581	545	528	465	490	490	405	685	685	685	685	685	685	685	685	685	685	685	10,918
<b>2. Private sector</b>	610	610	610	610	610	755	755	875	975	975	975	975	975	975	975	975	975	975	975	15,185
<b>Total</b>	<b>6,741</b>	<b>6,936</b>	<b>4,294</b>	<b>4,514</b>	<b>4,428</b>	<b>4,380</b>	<b>4,400</b>	<b>4,505</b>	<b>5,885</b>	<b>5,885</b>	<b>5,885</b>	<b>5,915</b>	<b>5,915</b>	<b>5,915</b>	<b>5,915</b>	<b>5,915</b>	<b>5,915</b>	<b>5,915</b>	<b>5,915</b>	<b>99,258</b>

**Sources:** 1. For 1997 - 2003, data were derived from various agencies: MoPH's Phra Boromrajchanok Institute, Office of the Higher Education Commission, other agencies, and private nursing colleges.

2. For 2004 - 2014, data were derived from the Thai Nursing Council.

**Notes:** 1. Other agencies include Nursing Colleges of the Ministry of Defence, the Thai Red Cross Society, the Bangkok Metropolitan Administration, and the Royal Thai Police.

2. For 2001 - 2004, the Police Nursing College stopped taking new students, but will resume in 2005.

**Table 6.22** Numbers of Actual and Expected Professional Nursing Graduates in Academic Years 1997-2006

Production agency	No. of graduates										Total
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	
<b>1. Public Sector</b>											
1.1 HEC	1,674	1,808	1,722	2,099	1,511	1,722	1,561	1,285	1,363	1,382	16,127
1.2 MoPH	1,616	1,950	3,726	3,535	3,202	1,499	1,943	1,900	1,615	1,615	22,601
1.3 Other agencies	589	618	580	600	600	469	458	442	466	466	5,288
<b>2. Private sector</b>	321	364	430	507	589	629	768	580	717	717	5,622
<b>Total</b>	<b>4,200</b>	<b>4,740</b>	<b>6,458</b>	<b>6,741</b>	<b>5,902</b>	<b>4,319</b>	<b>4,730</b>	<b>4,207</b>	<b>4,161</b>	<b>4,180</b>	<b>49,638</b>

**Sources:** The Nursing Council and Phra Boromrajchanok Institute for Health Manpower Development, MoPH.

- Notes:**
1. For 1997 - 2003, the numbers of those who actually graduated.
  2. For 2004 - 2006, the numbers of those expected to graduate, assuming that 95% of the entrants will graduate.
  3. Other agencies include Nursing Colleges of the Ministry of Defence, the Thai Red Cross Society, the Bangkok Metropolitan Administration, and the Royal Thai Police.

### (2) Numbers of Professional Nurses Actually Practising and Required

In 2002, there are 113,718 registered professional nurses (The Nursing Council, 2003), but only 76,578-91,602 nurses are actually practising.<sup>6</sup> It is estimated that in 2015 there will be 120,197-173,321 professional nurses,<sup>6</sup> whereas there will be a need for 137,997-142,366 professional nurses,<sup>6</sup> i.e. the supply is close to the demand in the future.

### (3) Geographical Distribution of Professional Nurses

Most professional nurses are clustered in Bangkok and the Central Region. Their distribution trends are close to those of medical doctors, dentists, and pharmacists (Table 6.23 and Figures 6.16-6.17).

### (4) Distribution of Professional Nurses by Agency

In the past decade, the proportion of professional nurses working in the public sector (MoPH, other ministries, state enterprises, and local administration agencies) dropped from 93.2% in 1971 to 85.8% in 1995. After the economic crisis, such a proportion rose to 89.5% in 1997, whereas that in the private sector dropped to 10.5%. However, upon restructuring of the health service systems after the economic crisis, the proportion of nurses in the private sector has risen to 11.7-12.6% in 1999-2002 (Table 6.24 and Figure 6.18).

<sup>6</sup> Dr. Wichit Srisuphan. Supply and Requirement Projection of Professional Nurses in Thailand over the Next Two Decades (1995-2015 A.D.). HRDJ: 1998; Vol. 2, No. 3 : 210-220.

**Table 6.23** Distribution of Professional Nurses by Region, 1979-2002

Region	No. of nurses and population/nurse ratio												
	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2002
Bangkok metropolis	9,428 (522)	10,826 (494)	11,096 (517)	11,831 (480)	12,982 (460)	14,338 (436)	13,514 (413)	14,979 (432)	16,089 (347)	15,190 (368)	18,543 (305)	19,889 (287)	19,889 (289)
The Central	2,588 (3,665)	2,954 (3,245)	4,580 (2,174)	5,032 (2,217)	6,488 (1,777)	7,368 (1,613)	8,795 (1,470)	10,526 (1,230)	13,240 (1,022)	13,915 (1,004)	16,738 (855)	19,437 (749)	21,545 (684)
The North	2,089 (4,651)	2,548 (3,862)	3,082 (3,297)	3,313 (3,072)	4,234 (2,477)	4,620 (2,332)	6,747 (1,635)	7,823 (1,425)	9,370 (1,270)	10,130 (1,188)	11,882 (1,022)	14,149 (856)	15,456 (785)
The South	1,392 (4,068)	1,415 (4,155)	2,216 (2,760)	2,423 (2,743)	2,962 (2,362)	4,138 (1,775)	4,900 (1,463)	5,694 (1,400)	6,498 (1,178)	7,290 (1,080)	8,332 (973)	10,247 (807)	10,993 (765)
The Northeast	1,715 (9,492)	1,931 (8,701)	2,591 (6,751)	3,420 (5,270)	4,086 (4,557)	5,251 (3,653)	6,729 (2,964)	7,649 (2,621)	9,065 (2,273)	9,841 (2,132)	12,513 (1,707)	14,320 (1,498)	16,860 (1,278)
Disparity between Bangkok's and Northeast's population/nurse ratios	1: 18.2	1: 17.6	1: 13.1	1: 11.0	1: 9.9	1: 8.4	1: 7.2	1: 6.1	1: 6.6	1: 5.8	1: 5.6	1: 5.2	1: 4.4
<b>Total</b>	<b>17,212</b> <b>(2,676)</b>	<b>19,674</b> <b>(2,412)</b>	<b>23,565</b> <b>(2,099)</b>	<b>26,019</b> <b>(1,986)</b>	<b>30,752</b> <b>(1,743)</b>	<b>37,515</b> <b>(1,478)</b>	<b>40,685</b> <b>(1,255)</b>	<b>46,671</b> <b>(1,255)</b>	<b>54,262</b> <b>(1,092)</b>	<b>56,366</b> <b>(1,073)</b>	<b>68,008</b> <b>(905)</b>	<b>78,042</b> <b>(796)</b>	<b>84,683</b> <b>(739)</b>

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Notes:** 1. Figures in ( ) are population to professional nurse ratios.

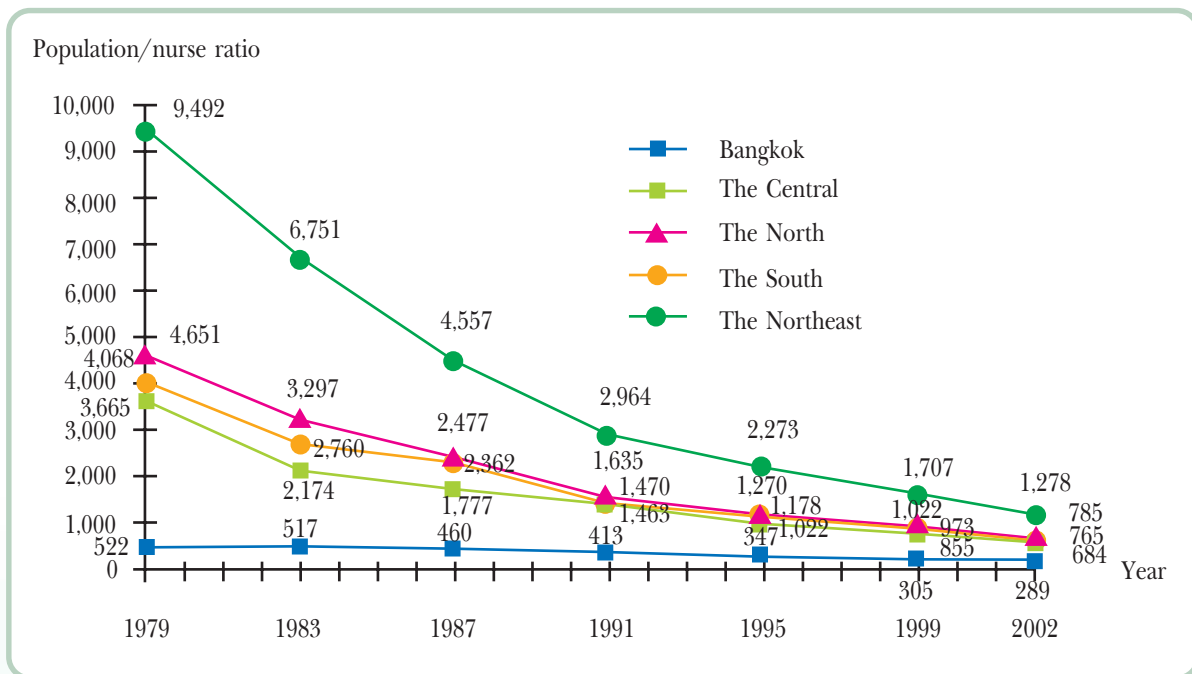
2. Figures from the surveys are estimated to be 50% less than actuality.

3. Due to incompleteness of data for 1985, the data for 1984 were used instead.

4. For 2002, data were received from only 65.6% of all health facilities; 44.3% from Bangkok, 60.5% from the Central, 76.7% from the Northeast, 74.9% from the North, and 68.3% from the South.

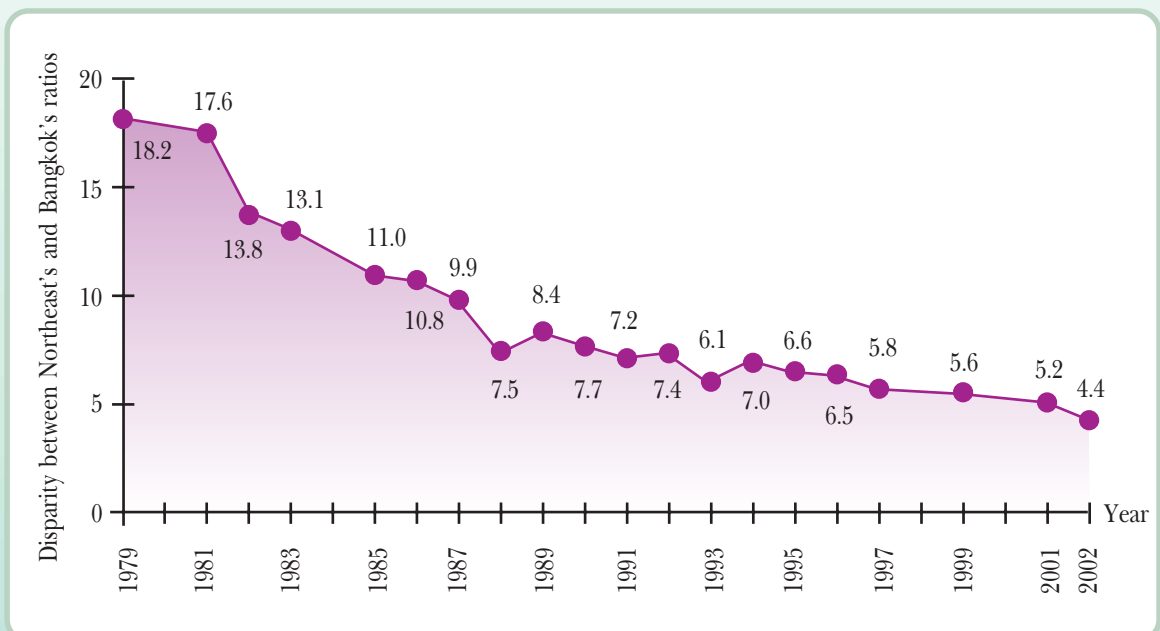
5. For 2002 in Bangkok, the 2001 data were used instead.

Figure 6.16 Population to Professional Nurse Ratios by Region, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

Figure 6.17 Disparity between Northeast's and Bangkok's Population/Nurse Ratios, 1979-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

- Notes:
1. For 2002, the survey information was received from only 44.3% of health facilities in Bangkok and 76.7% from the Northeast.
  2. For 2002, the 2001 data were used instead.

**Table 6.24** Number and Proportion of Professional Nurses by Agency, 1971-2002

Year	Number and percentage					
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	Total
1971	4,016 (42.9)	3,720 (39.7)	274 (2.9)	713 (7.6)	637 (6.8)	9,360
1973	4,757 (45.0)	3,708 (35.1)	409 (3.9)	761 (7.2)	927 (8.8)	10,562
1975	6,021 (47.6)	4,203 (33.2)	415 (3.3)	982 (7.7)	1,037 (8.2)	12,658
1977	6,462 (42.4)	5,588 (36.7)	550 (3.6)	1,099 (7.2)	1,532 (10.1)	15,231
1979	7,630 (44.3)	5,544 (32.2)	605 (3.5)	1,638 (9.5)	1,794 (10.4)	17,211
1981	8,526 (43.5)	6,370 (32.5)	680 (3.5)	1,525 (7.8)	2,498 (12.7)	19,599
1983	11,537 (48.9)	6,935 (29.4)	791 (3.4)	1,522 (6.5)	2,780 (11.8)	23,565
1985	16,036 (57.2)	5,462 (19.5)	1,958 (6.9)	1,683 (6.0)	2,880 (10.3)	28,019
1987	16,169 (52.6)	6,797 (22.1)	2,002 (6.5)	2,975 (9.6)	2,809 (9.1)	30,752
1989	19,423 (51.8)	10,849 (28.9)	2,103 (5.6)	2,000 (5.3)	3,140 (8.4)	37,515
1991	23,996 (58.9)	8,540 (20.9)	1,986 (4.9)	2,263 (5.6)	3,900 (9.6)	40,685
1993	28,088 (60.2)	9,117 (19.5)	2,072 (4.4)	2,539 (5.4)	4,855 (10.4)	46,671
1995	32,976 (60.8)	9,148 (16.8)	1,816 (3.3)	2,643 (4.9)	7,679 (14.2)	54,262
1997	37,087 (65.8)	9,099 (16.1)	2,017 (3.6)	2,220 (3.9)	5,943 (10.5)	56,366
1999	44,333 (65.2)	10,247 (15.0)	2,359 (3.5)	2,825 (4.2)	8,244 (12.1)	68,008
2001	51,450 (65.9)	11,240 (14.4)	2,564 (3.3)	2,917 (3.7)	9,871 (12.6)	78,042
2002	57,804 (68.3)	10,934 (12.9)	2,574 (3.0)	3,427 (4.0)	9,944 (11.7)	84,683

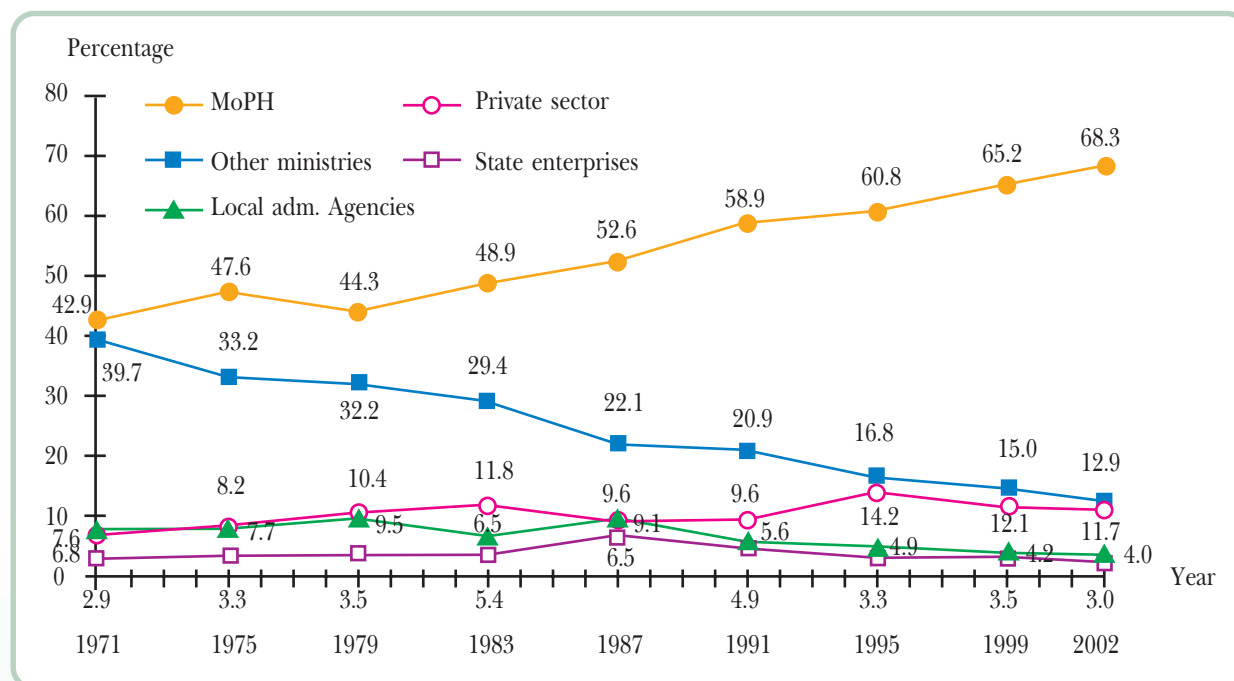
**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Notes:** 1. Figures in ( ) are in percentage terms.

2. For 2002, data were received from 65.6% of all health facilities nationwide: 62.5% from among public sector facilities and 77.3% from among private sector agencies.

3. For 2002, the number of professional nurses in Bangkok for 2001 was used instead.

Figure 6.18 Proportion of Professional Nurses by Agency, 1971-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

#### (5) Professional Nurses' Workloads

Based on the numbers of outpatients, professional nurses in community hospitals and private hospitals have greatest workloads, compared with those in other hospitals located in urban areas and Bangkok (Table 6.25).

Table 6.25 Patient loads of Professional Nurses, 2002

Health facility	(1) No. of outpatients	(2) No. of inpatients	(3) Inpatients adjusted*	Total patientloads (1) + (3)	No. of nurses	Patientload per nurse	Comparison index
Community hospitals	17,831,867	3,305,860	46,282,040	64,113,907	22,744	2,818.9	1.3
Regional/general hospitals	5,823,778	2,605,672	46,902,096	52,725,874	25,083	2,102.1	1.0
University hospitals	934,774	303,866	5,469,588	6,404,362	8,496	753.8	0.3
BMA's hospitals	430,098	81,267	1,462,806	1,892,904	2,917	648.9	0.3
Private hospitals	4,025,727	1,535,831	21,501,634	25,527,361	9,702	2,631.1	1.2
<b>Total</b>	<b>29,046,244</b>	<b>7,832,496</b>	<b>121,618,164</b>	<b>150,664,408</b>	<b>68,942</b>	<b>2,185.4</b>	<b>1.0</b>

Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

- Notes:
- \* For comparison purpose, the number of inpatients in each hospital category is adjusted as follows:  
 For community and private hospitals = No. of inpatients X 14  
 For regional/general hospitals, university and BMA hospitals = No. of inpatients X 18
  - For the number of nurses in 2002 in Bangkok, the 2001 data were used instead.

### 1.1.5 Health Centre Personnel

#### (1) Quantity

In 2003, there were 9,765 health centres nationwide with 28,839 health workers (in 2003) or an average of 3.0 workers per centre. In 2015, a total of 56,937 health workers<sup>7</sup> will be required (one health worker for every 600 population). At present, the MoPH can produce 5,000 health workers per annum, based on the capacity of all seven Sirindhorn Public Health Colleges and 35 Boromrajchonnanee Nursing Colleges. But actually, of this number only about 1,500 are assigned to work at various health centres each year. For several years, professional nurses and dental nurses have been assigned to work at large health centres; and, in the future, doctors will also be assigned to work at health centres located in large communities.

#### (2) Geographical Distribution of Health Centre Personnel

The trends of health centre personnel to population ratio have risen in all regions and nationwide, i.e. from 1:2,421 in 1987 to 1:1,762 in 2003. Most health workers are normally clustered in the Central Plains and the South, while regional disparities are lowering (Table 6.26).

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<sup>7</sup> Amphon Jindawattana. Report on study of Health Manpower Requirement in the Next Two Decades: the Primary Care Providers in Communities, 1997.



**Table 6.26** Number and Ratio of Health Centre Personnel to Population by Region, 1987-2003

Region	Number and worker/population ratio								
	1987	1996	1997	1998	1999	2000	2001	2002	2003
The Central	4,217 (1:1,833)	7,724 (1:1,125)	7,917 (1:1,109)	8,928 (1:1,207)	9,017 (1:1,180)	8,769 (1:1,059)	8,150 (1:1,453)	8,027 (1:1,470)	7,604 (1:1,552)
The North	3,233 (1:2,387)	5,734 (1:1,512)	6,826 (1:1,293)	6,970 (1:1,389)	7,167 (1:1,349)	7,068 (1:1,292)	6,558 (1:1,572)	6,456 (1:1,603)	6,043 (1:1,713)
The South	2,318 (1:2,064)	4,628 (1:1,161)	5,038 (1:1,079)	5,152 (1:1,129)	5,264 (1:1,127)	5,146 (1:1,141)	4,843 (1:1,378)	4,761 (1:1,416)	4,463 (1:1,511)
The Northeast	4,573 (1:3,167)	9,114 (1:1,785)	10,430 (1:1,582)	10,236 (1:1,681)	10,569 (1:1,655)	10,248 (1:1,666)	9,693 (1:1,938)	9,591 (1:1,971)	9,015 (1:2,097)
Disparity between Central's and Northeast's population/ worker ratios	1:1.73	1:1.59	1:1.43	1:1.39	1:1.40	1:1.57	1:1.3	1:1.3	1:1.4
<b>Total</b>	<b>14,341</b> <b>(1:2,421)</b>	<b>27,200</b> <b>(1:1,434)</b>	<b>30,211</b> <b>(1:1,309)</b>	<b>31,286</b> <b>(1:1,390)</b>	<b>32,017</b> <b>(1:1,366)</b>	<b>31,231</b> <b>(1:1,324)</b>	<b>29,244</b> <b>(1:1,628)</b>	<b>28,835</b> <b>(1:1,657)</b>	<b>27,125</b> <b>(1:1,762)</b>

**Sources:** 1. For 1987 - 2000, data were derived from the Bureau of Health System Development, Department of Health Service Support.

2. For 2001 - 2003, data were derived from the Bureau of Central Administration, MoPH.

**Notes:** 1. Figure in ( ) are ratios of health centre worker to population outside municipalities and sanitary districts.

2. From FY 1999, data were derived from the payrolls (Jor 18) of health centre staff of the Bureau of Central Administration. Office of the Permanent Secretary, MoPH.

3. Data on population outside municipal areas for 2001 are the data as of 31 Dec, 2001 and data for 2002-2003 are as of 1 Jan 2003, from the Bureau of Registration Administration, Department of Provincial Administration, Ministry of Interior, as calculated by Rujira Taverat of the Bureau of Policy and Strategy, MoPH.



## 1.2 Health Facilities

### 1.2.1 Number and Coverage of Health Facilities

#### 1) Health Facilities in the Public Sector (see in Table 6.27)

**In Bangkok Metropolis**, there are five medical school hospitals, 29 general hospitals, 19 specialized hospitals/institutions, five 10-bed community hospitals (under BMA), and 61 public health centres (with 82 branches, in all BMA districts).

**Region level.** There are four medical school hospitals, 25 regional hospitals, and 40 specialized hospitals.

**Provincial level.** There are 70 general hospitals covering all provincial areas (previously there were 67 general hospitals; and now Hua Hin Community Hospital has been upgraded as a general hospital, two other hospitals have been transferred to MoPH, i.e. Chonprathan Hospital of the Agriculture Ministry and the Northeastern Region Infectious Disease Hospital of the MoPH Disease Control Department) and 57 hospitals under various agencies of the Ministry of Defence.

**District level.** There are 725 community hospitals, covering 91.2% of all districts, two extended OPD or hospital outlets, and 214 municipal health centres.

**Tambon (subdistrict) level.** There are 9,765 health centres, covering all Tambons; some Tambons have more than one health centre.

**Village level.** There are 311 community health posts, 66,223 rural community primary health care centres, and 3,108 urban community primary health care centres.

**Table 6.27** Number of Health Facilities in the Public Sector, 2003

Administrative level	Health facility	Number	Coverage
Bangkok Metropolis	Medical school hospitals	5	-
	General hospitals	29	-
	- MoPH	5	-
	- Ministry of Interior (excluding BMA)	5	-
	- Ministry of Defence	7	-
	- BMA	8	-
	- State enterprises	4	-
	Specialized hospitals/institutions	19	-
	Public health centres/branches	61/82	All districts in BMA
	10-bed hospitals (BMA)	5	
Regional level and branches	Medical school hospitals	4	
	Regional hospitals	25	

**Table 6.27** Number of Health Facilities in the Public Sector, 2003

Administrative level	Health facility	Number	Coverage
	Specialized hospitals:	40	
	- Maternal & child health hospitals	12	
	- Psychiatric hospitals	11	
	- Neurological hospital	1	
	- Leprosy hospital	1	
	- Communicable disease hospital	1	
	- Chest disease hospital	1	
	- Cancer prevention & control centres	6	
	- Drug dependence treatment centres	5	
	- Hearing centre	1	
	- Centre for elderly care	1	
Provincial level (75 provinces)	General hospitals, under MoPH	70	100%
	Military hospitals under the Ministry of Defence	57	
795 districts	Community hospitals (Jan, 2004)	725	91.2%
81 minor-districts	Extended hospitals	2	
	Municipal health centres (Oct, 2003)	214	
7,255 tambons	Health centres (2003)	9,765	100%
72,861 villages	Community health posts	311	
	Community PHC centres (2003)		
	- Rural	66,223	90.9%
	- Urban	3,108	-

- Sources:**
1. Bureau of Policy and Strategy, MoPH.
  2. Bureau of Health Service System Development, Department of Health Service Support, MoPH.
  3. Primary Health Care Division, Department of Health Service Support, MoPH.
  4. Department of Provincial Administration, Ministry of Interior.
  5. Department of Health, Bangkok Metropolitan Administration (BMA).

**2) Health Facilities in the Private Sector** include:

(2.1) Pharmacies or drugstores: 8,225 modern pharmacies; 4,653 pharmacies selling only packaged drugs; and 2,106 traditional medicine drugstores.

(2.2) Clinics: 14,953 clinics without inpatient beds.

(2.3) Hospitals: 346 private hospitals with inpatient beds, as shown in Table 6.28.

**Table 6.28** Private Health Facilities, 2003

Type	Bangkok		Provincial areas		Total
	No.	Percentage	No.	Percentage	
1. Pharmacies					
1.1 Modern pharmacies	3,393	41.3	4,832	58.7	8,225
1.2 Modern pharmacies selling only packed drugs	565	12.1	4,088	87.9	4,653
1.3 Traditional medicine drugstores	420	19.9	1,686	80.1	2,106
<b>Total</b>	<b>4,378</b>	<b>29.2</b>	<b>10,606</b>	<b>70.8</b>	<b>14,984</b>
2. Clinics (without inpatient beds)					
- Modern	2,687	n.a.	n.a.	n.a.	n.a.
- Traditional	413	n.a.	n.a.	n.a.	n.a.
<b>Total</b>	<b>3,100</b>	<b>20.7</b>	<b>11,853</b>	<b>79.3</b>	<b>14,953</b>
3. Private hospitals (with inpatient beds)					
- No. of hospitals	100	28.9	246	71.1	346
- No. of beds	15,227	43.7	19,636	56.3	34,863

**Sources:** 1. Drug Control Division, Food and Drug Administration, MoPH.

2. Medical Registration Division, Department of Health Service Support, MoPH.

Between 1993 and 2003, the number of clinics (without inpatient beds), especially in provincial areas increased markedly, but dropping in Bangkok Metropolis (Table 6.29 and Figure 6.19). For the number of hospitals, the tendencies are similar to those for clinics (Figure 6.20).

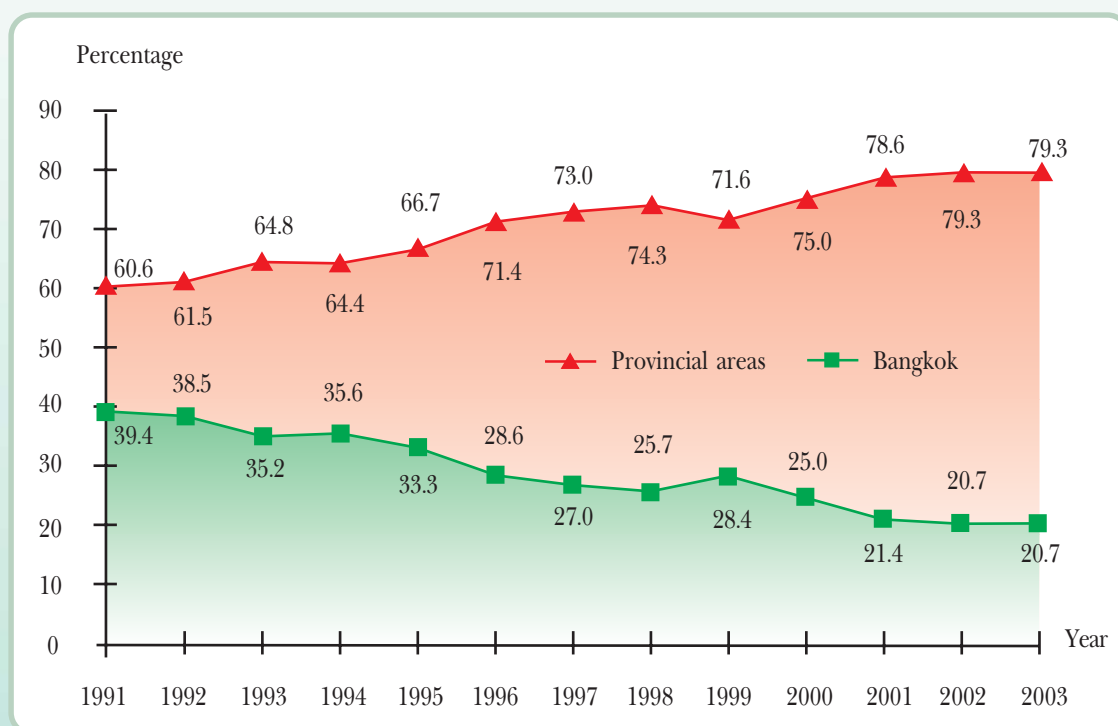
**Table 6.29** Number of Health Facilities without Inpatient Beds (Private Clinics), 1991-2003

Region	No. of clinics and percentage (in parentheses)												
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Bangkok	5,625 (39.4)	4,130 (38.5)	3,829 (35.2)	4,247 (35.6)	4,062 (33.3)	3,114 (28.6)	3,087 (27.0)	3,143 (25.7)	3,399 (28.4)	3,552 (25.0)	3,081 (21.4)	3,156 (20.7)	3,100 (20.7)
Provincial areas	8,658 (60.6)	6,592 (61.5)	7,037 (64.8)	7,689 (64.4)	8,122 (66.7)	7,787 (71.4)	8,354 (73.0)	9,063 (74.3)	8,572 (71.6)	10,698 (75.0)	11,322 (78.6)	12,111 (79.3)	11,853 (79.3)
Total	14,283	10,722	10,866	11,936	12,184	10,901	11,441	12,206	11,971	14,250	14,403	15,267	14,953
Change (%)	-	-24.9	+1.3	+9.8	+2.1	-10.5	+4.9	+6.7	-1.9	+19.0	+1.1	+6.0	-2.1

**Source:** Medical Registration Division, Department of Health Service Support, MoPH.

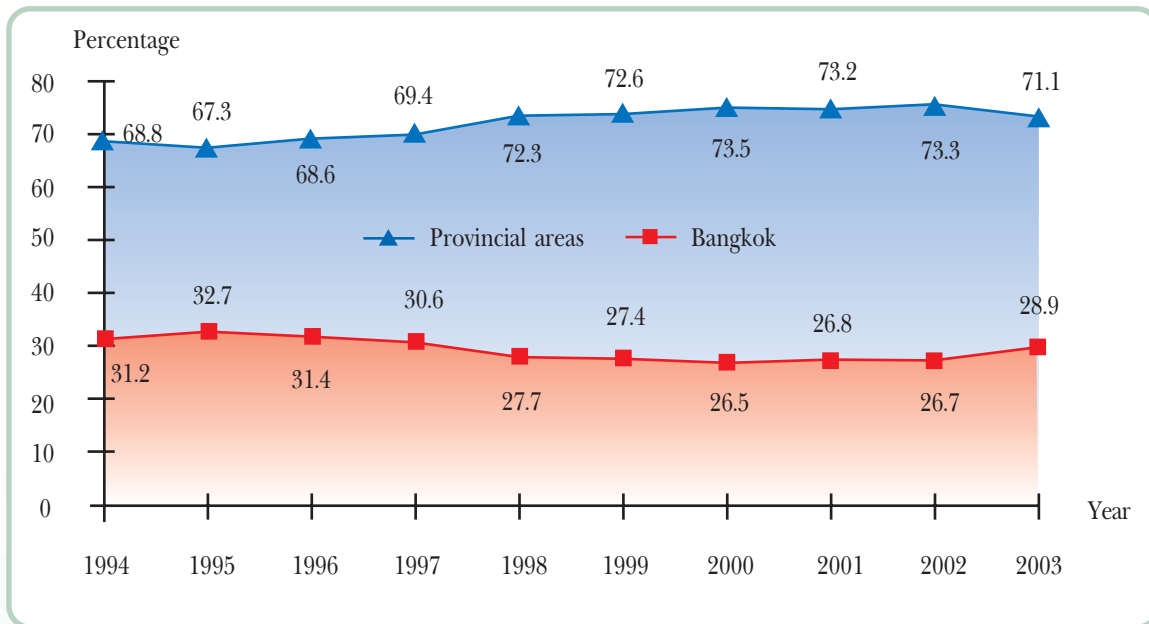
**Notes:** Figures in ( ) are in percentage terms.

**Figure 6.19** Percentage of Clinics in Provincial Areas and Bangkok, 1991-2003



**Source:** Medical Registration Division, Department of Health Service Support, MoPH.

**Figure 6.20** Percentage of Private Hospitals in Provincial Areas and Bangkok, 1994-2003



**Source:** Medical Registration Division, Department of Health Service Support, MoPH

### 1.2.2 Distribution of Health Facilities

#### 1) Hospitals

##### (1.1) Geographical Distribution of Hospitals

The bed/population ratio has risen in the past decade across the country from 1: 752 in 1979 to 1: 462 in 2002. Although most of the hospital beds are clustered in Bangkok and the Central Region, the Bangkok-provincial disparities have been rather stable (Table 6.30 and Figure 6.21).

##### (1.2) Distribution of Hospitals by Agency

**In the public sector**, the largest agency is the MoPH with two-thirds of all hospitals and beds across the country. In 2002, 67.7% of hospitals and 64.1% of beds belonged to the MoPH. Of which, over 80% were community hospitals in various districts, and only 5.9% belonged to other ministries. But, as most of non-MoPH health facilities are large hospitals, their overall proportion of beds is as high as 11.3% (Tables 6.31 - 6.32 and Figure 6.23).

With regard to the increase in beds, the MoPH's hospital beds climbs slightly, but its proportion tends to be declining (Figure 6.24). This is because the MoPH has been building more community hospitals, one in each district according to its policy, most of which being 30-bed and 60-bed hospitals (Table 6.33).

Since 1993, the numbers of hospitals and beds have been remarkably increasing, but the number of medical doctors has not increased at all. As a result, the doctor to bed ratio steadily dropped from 1:7.5 in 1991 to 1:15.3 in 1998; however, after the economic crisis the ratio has increased to 1:7.3 in 2003.

**In the private sector,** the number of private hospitals increased from 23 in 1970 to 473 in 1998, but decreased to 346 in 2003; a fifteen-fold increase, compared with that in 1970, nevertheless. Almost half of the private hospitals (43.1%) have 50 beds or fewer. Only 101 hospitals (29.2%) with over 100 beds participate in the health insurance scheme according to the criteria of the Social Security Act (Tables 6.34 and 6.36). Their distribution varies to the economic potential; therefore, they are mostly in Bangkok and the Central Plains rather than in the Northeast, the North, and the South (Table 6.36). On average, private hospitals in Bangkok have 152 beds each and those in provincial areas have only 80 beds each (Table 6.28).

It is noteworthy that between 1970 and 1989 the proportion of private hospitals was declining, but since 1991 the proportion of beds has been rising more rapidly than that of hospitals. This is a result of a rapid growth in large hospitals, consistent with the rapid economic growth in the past decade together with governments investment promotion privileges (Tables 6.34 and 6.36).

During the economic crisis, the private health services have been obviously affected, the bed-occupancy dropping by 20-30% in large hospitals and by over 50% in small hospitals. Several hospitals reduced the number of service beds, some cut down on the number of staff as well as staff salaries or compensation (Impact of Economic Crisis on Health Manpower Development, 1999). Some were likely to close down their business while applications for building new hospitals were on the decline (Figure 6.22).

**Table 6.30** Distribution of Inpatient Beds by Region, 1979-2002

Region	No. of beds and population/bed ratio (in parenthesis)												
	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2002
Bangkok Metropolis	14,585 (337)	17,661 (303)	18,486 (310)	19,376 (293)	24,376 (245)	20,337 (308)	21,704 (257)	24,351 (266)	25,236 (221)	27,327 (205)	28,454 (199)	27,879 (205)	27,879 (206)
The Central	17,481 (543)	20,246 (473)	21,954 (453)	32,018 (348)	24,628 (468)	24,156 (492)	25,519 (506)	27,658 (468)	34,248 (395)	37,386 (374)	38,103 (376)	39,615 (368)	37,721 (391)
The North	9,917 (980)	12,503 (787)	12,751 (797)	12,650 (804)	14,252 (736)	17,520 (615)	16,181 (682)	17,502 (637)	20,943 (568)	25,874 (465)	25,426 (478)	25,570 (474)	24,483 (496)
The South	8,515 (665)	8,521 (690)	10,258 (596)	10,334 (643)	11,153 (627)	11,394 (645)	11,888 (603)	12,936 (616)	14,449 (530)	16,016 (492)	15,944 (509)	16,814 (492)	16,862 (496)
The Northeast	10,776 (1,511)	13,437 (1,250)	14,989 (1,167)	15,294 (1,178)	15,887 (1,172)	16,575 (1,157)	18,560 (1,074)	18,719 (1,071)	23,541 (875)	25,802 (813)	27,376 (780)	27,819 (771)	28,389 (759)
Disparity between Bangkoks and Northeast's population/bed ratios	1 : 4.5	1 : 4.1	1 : 3.8	1 : 4.0	1 : 4.8	1 : 3.8	1 : 4.2	1 : 4.0	1 : 3.9	1 : 4.0	1 : 3.9	1 : 3.8	1 : 3.7
<b>Total</b>	<b>61,274</b> <b>(752)</b>	<b>72,368</b> <b>(656)</b>	<b>78,438</b> <b>(630)</b>	<b>80,438</b> <b>(642)</b>	<b>87,554</b> <b>(612)</b>	<b>89,982</b> <b>(616)</b>	<b>93,852</b> <b>(604)</b>	<b>101,166</b> <b>(579)</b>	<b>118,417</b> <b>(500)</b>	<b>132,405</b> <b>(457)</b>	<b>135,303</b> <b>(455)</b>	<b>137,697</b> <b>(451)</b>	<b>135,334</b> <b>(462)</b>

**Sources:** Reports on Health Resources, Bureau of Policy and Strategy, MoPH.

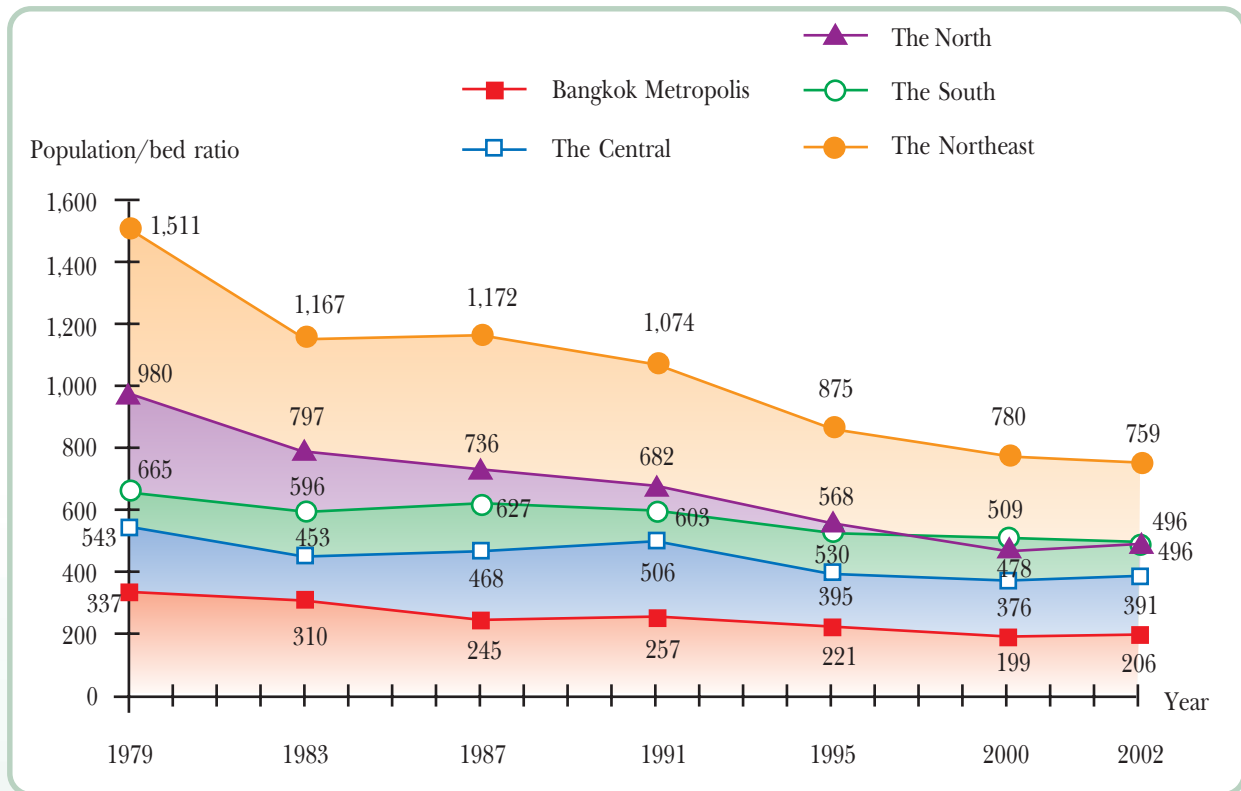
**Notes:** 1. Figures in ( ) are population to bed ratios.

2. Due to incompleteness of data for 1985, the data for 1984 were used instead.

3. For 2002, data were received from only 65.6% of all health facilities; 44.3% from Bangkok, 60.5% from the Central, 76.7% from the Northeast, 74.9% from the North, and 68.3% from the South.

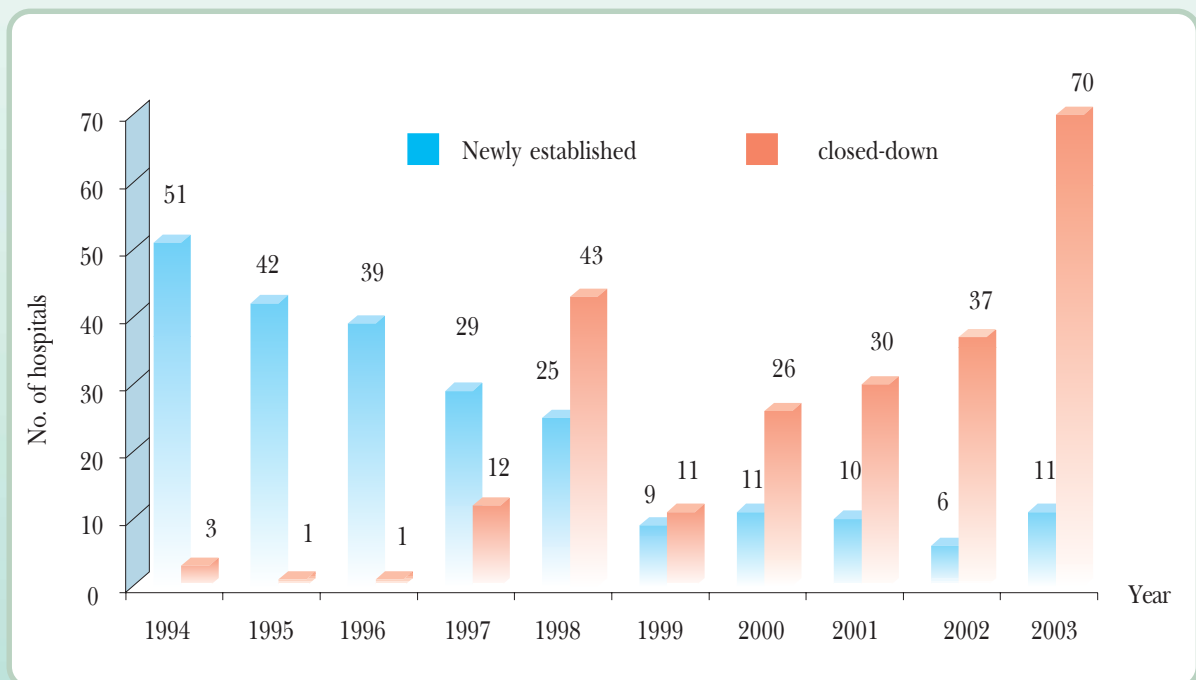
4. For Bangkok in 2002, the 2001 data were used instead

**Figure 6.21** Population to Bed Ratios by Region, 1979-2002



**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Figure 6.22** Numbers of Newly Established and Closed-down Private Hospitals, 1994-2003



**Source:** Medical Registration Division, Department of Health Service Support, MoPH.



**Table 6.31** Number and Proportion of Hospitals by Agency, 1973-2002

Year	Number and percentage (in parenthesis)					Total
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	
1973	112 (34.6)	65 (20.1)	14 (4.3)	6 (1.8)	127 (39.2)	324
1975	116 (34.7)	64 (19.2)	13 (3.9)	6 (1.8)	135 (40.4)	334
1977	295 (53.2)	68 (12.3)	19 (3.4)	6 (1.1)	167 (30.1)	555
1979	389 (57.9)	66 (9.8)	24 (3.6)	6 (0.9)	186 (27.7)	671
1981	444 (59.4)	64 (8.6)	23 (3.1)	6 (0.8)	210 (28.1)	747
1983	531 (60.4)	67 (7.6)	19 (2.2)	6 (0.7)	256 (29.1)	879
1985	625 (67.4)	58 (6.2)	9 (1.0)	6 (0.6)	229 (24.7)	927
1987	664 (67.5)	66 (6.7)	10 (1.0)	6 (0.6)	237 (24.1)	983
1989	692 (68.4)	64 (6.3)	11 (1.1)	7 (0.7)	237 (23.4)	1,011
1991	718 (67.5)	70 (6.6)	11 (1.0)	8 (0.8)	257 (24.1)	1,064
1993	754 (68.2)	68 (6.1)	12 (1.1)	8 (0.7)	263 (23.8)	1,105
1995	831 (64.9)	73 (5.7)	11 (0.8)	8 (0.7)	357 (27.9)	1,280
1997	845 (64.9)	79 (6.1)	11 (0.8)	8 (0.6)	358 (27.5)	1,301
1999	855 (63.6)	84 (6.2)	21 (1.6)	11 (0.8)	374 (27.8)	1,345
2001	875 (67.4)	79 (6.1)	10 (0.8)	11 (0.8)	323 (24.9)	1,298
2002	877 (67.7)	77 (5.9)	11 (0.8)	12 (0.9)	319 (24.6)	1,296

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Notes:** 1. Figures in ( ) are percentages.

2. Due to incompleteness of data for 1985, the data for 1984 were used instead.

3. For 2002, data were received from 65.6% all health facilities nationwide: 62.5% from among public sector facilities and 77.3% from among private sector agencies.

4. For Bangkok in 2002, the 2001 data were used instead.

**Table 6.32** Number and Proportion of Beds by Agency, 1973 - 2002

Year	Number and percentage (in parenthesis)					Total
	MoPH	Other ministries	State enterprises	Local adm. agencies	Private sector	
1973	34,206 (67.5)	11,108 (21.9)	671 (1.3)	918 (1.8)	3,746 (7.4)	50,649
1975	36,201 (66.5)	12,361 (22.7)	591 (1.1)	1,307 (2.4)	3,963 (7.3)	54,423
1977	40,712 (64.3)	14,765 (23.3)	635 (1.0)	1,456 (2.3)	5,785 (9.1)	63,353
1979	44,964 (66.0)	14,672 (21.5)	843 (1.2)	1,387 (2.0)	6,210 (9.1)	68,076
1981	48,442 (66.9)	13,912 (19.2)	956 (1.3)	1,558 (2.1)	7,500 (10.4)	72,368
1983	53,943 (68.8)	13,835 (17.6)	823 (1.0)	1,541 (1.9)	8,296 (10.6)	78,438
1985	56,286 (69.5)	13,773 (17.0)	951 (1.2)	1,687 (2.1)	8,275 (10.2)	80,972
1987	57,766 (65.9)	15,482 (17.7)	2,243 (2.6)	2,089 (2.4)	9,974 (11.4)	87,554
1989	58,927 (65.5)	17,118 (19.0)	2,335 (2.6)	2,057 (2.3)	9,545 (10.6)	89,982
1991	62,250 (66.3)	15,422 (16.4)	2,178 (2.3)	2,152 (2.3)	11,877 (12.6)	93,852
1993	65,558 (64.8)	15,784 (15.6)	2,229 (2.2)	2,232 (2.2)	15,363 (15.2)	101,166
1995	73,191 (61.8)	15,430 (13.0)	2,333 (2.0)	2,165 (1.8)	25,298 (21.4)	118,417
1997	79,818 (60.3)	18,074 (13.6)	2,360 (1.8)	2,208 (1.7)	29,945 (22.6)	132,405
1999	82,085 (60.7)	17,110 (12.6)	2,541 (1.9)	2,360 (1.7)	31,207 (23.1)	135,303
2001	87,753 (63.7)	16,218 (11.8)	2,525 (1.8)	2,245 (1.6)	28,956 (21.0)	137,697
2002	86,761 (64.1)	15,254 (11.3)	2,555 (1.9)	2,267 (1.7)	28,497 (21.0)	135,334

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

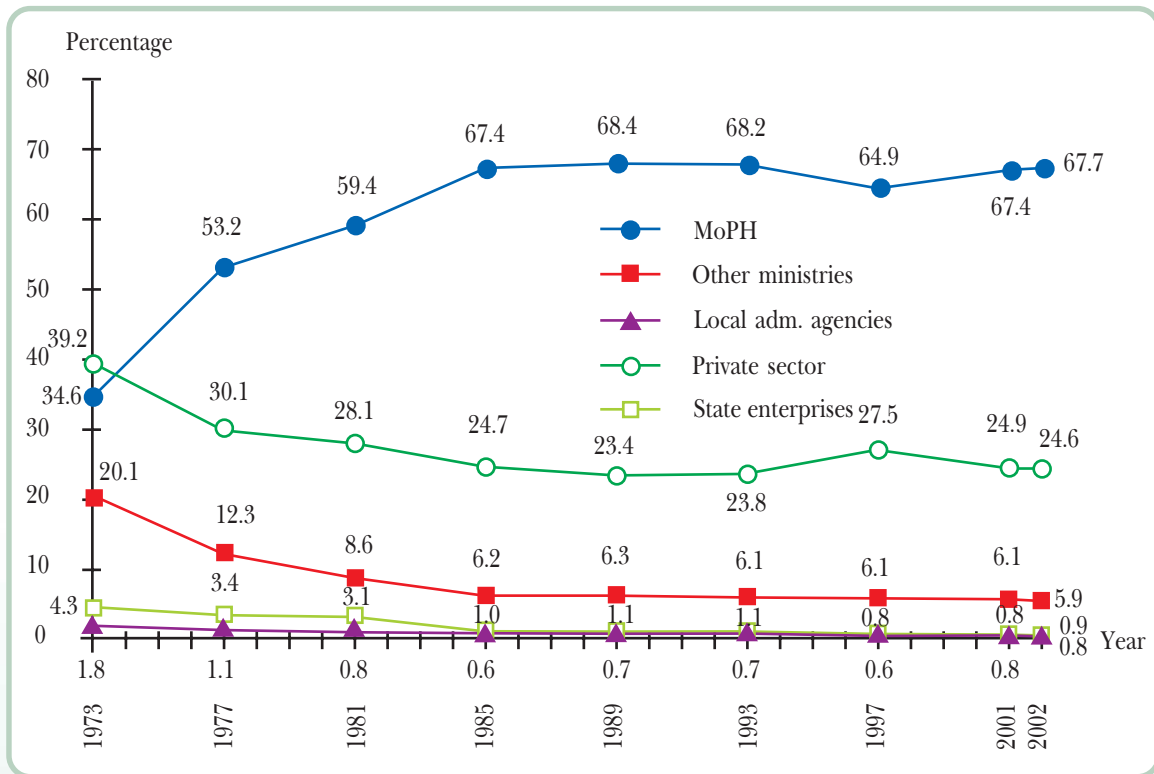
**Notes:** 1. Figures in ( ) are percentages.

2. Due to incompleteness of data for 1985, the data for 1984 were used instead.

3. For 2002, data were received from 65.6% of all health facilities nationwide: 62.5% from among public sector facilities and 77.3% from among private sector agencies.

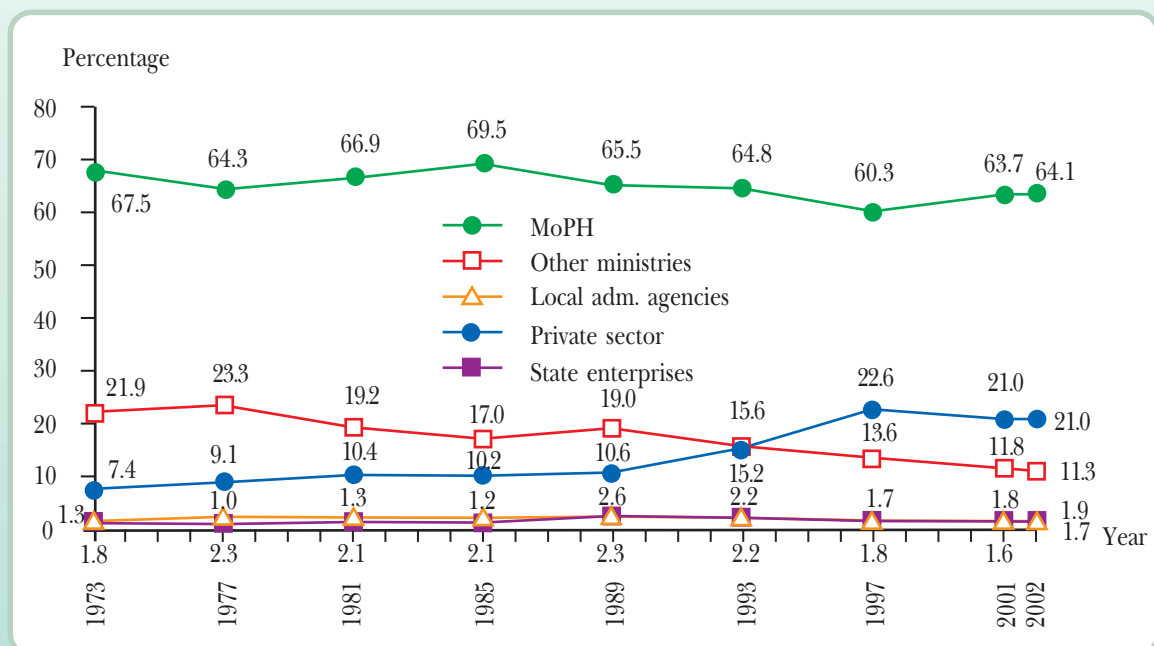
4. For Bangkok in 2002, the 2001 data were used instead.

Figure 6.23 Proportion of Hospitals by Agency, 1973-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

Figure 6.24 Proportion of Beds by Agency, 1973-2002



Sources: Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Table 6.33** Numbers of Doctors, Beds and Community Hospitals, 1977-2003

Year	No. of community hospitals							No. of beds	No. of doctors	Doctor/bed ratio	Doctors per community hospital
	10 bed	30 bed	60 bed	90 bed	120 bed	150 bed	Total				
1977	254	-	-	-	-	-	254	2,540	n.a.	n.a.	n.a.
1979	211	72	8	-	-	-	291	4,750	441	1:10.8	1.5
1981	215	83	15	-	-	-	313	5,540	580	1:9.6	1.8
1983	263	97	28	-	-	-	388	7,220	736	1:9.8	1.9
1985	325	109	40	6	-	-	480	9,460	1,162	1:8.1	2.4
1987	376	131	43	7	-	-	557	10,800	1,339	1:8.1	2.4
1989	377	131	46	7	-	-	561	11,090	1,549	1:7.1	2.8
1991	375	140	51	10	-	-	576	11,910	1,592	1:7.5	2.8
1993	344	224	65	12	5	-	650	15,740	1,766	1:8.9	2.7
1995	317	260	87	17	7	-	688	18,560	1,574	1:11.8	2.3
1996	368	302	97	21	7	-	695	20,290	1,653	1:12.3	2.4
1997	219	335	103	37	9	-	703	22,830	1,665	1:13.7	2.4
1998	142	397	112	46	9	-	706	26,830	1,758	1:15.3	2.5
1999	102	422	125	52	11	-	712	27,180	1,956	1:13.9	2.7
2000	96	418	136	52	12	-	714	27,780	2,617	1 : 10.6	3.7
2001	83	410	148	59	18	2	720	29,780	2,725	1 : 10.9	3.8
2002	83	415	148	59	18	2	725	29,930	3,758	1 : 8.0	5.2
2003	83	415	148	59	18	2	725	29,930	4,084	1 : 7.3	5.6

**Sources:** 1. Bureau of Health Service System Development, Department of Health Service Support, MoPH.

2. Bureau of Central Administration, Office of the Permanent Secretary for Public Health.

**Notes:** 1. For 1977-2001, data were derived from a survey conducted by the Bureau of Health Service System Development, Department of Health Service Support, MoPH.

2. Data for 2002 were derived from the Bureau of Central Administration, Office of the Permanent Secretary for Public Health, based on the number of civil servants and state employees in the payrolls (Jor 18), which had some limitations, resulting in the number being higher than reality.

**Table 6.34** Numbers of Doctors, Beds and Private Hospitals, 1970-2003

Year	No. of doctors (full-time)	No. of beds	No. of hospitals	Doctor/ bed ratio	Doctors per hospital
1970	236	1,780	23	1 : 7.5	10.3
1972	329	2,281	28	1 : 6.9	11.7
1974	387	3,039	38	1 : 7.8	10.2
1976	461	4,239	50	1 : 9.2	9.2
1978	687	6,139	67	1 : 8.9	10.2
1980	781	7,328	87	1 : 9.4	9.0
1982	819	8,066	112	1 : 9.8	7.3
1984	890	8,942	132	1 : 10.0	6.7
1986	892	11,721	177	1 : 13.1	5.0
1988	1,065	13,024	203	1 : 12.2	5.2
1990	1,938	14,175	245	1 : 7.3	7.9
1992	2,552	21,297	335	1 : 8.3	7.6
1994	3,217	25,471	398	1 : 7.9	8.1
1996	3,325	35,052	474	1 : 10.5	7.0
1997	3,244	38,275	491	1 : 11.8	6.6
1998	3,567	40,253	473	1 : 11.3	7.5
1999	3,403	40,852	471	1 : 12.0	7.2
2000	3,920	40,250	456	1 : 10.3	8.6
2001	4,384	39,551	436	1 : 9.0	10.1
2002	3,572	38,370	405	1 : 10.7	8.8
2003	n.a.	34,863	346	n.a.	n.a.

**Sources:** 1. Medical Registration Division, Department of Health Service Support, MoPH.  
2. Bureau of Policy and Strategy, MoPH.

**Notes:** 1. The number of beds is based on the registration records; but the number of beds actually in service is smaller and the bed-occupancy rate is less than 50%.  
2. For 2002, the information was received from 77.3% of all private health facilities.

**Table 6.35** Numbers of Hospitals and Beds in the Public and Private Sectors, 2002

Region	No. of hospitals		No. of beds	
	Public	Private	Public	Private
Bangkok Metropolis	45	87	16,868	11,011
The Central	247	106	29,582	8,139
The North	210	56	19,900	4,583
The South	168	32	14,734	2,126
The Northeast	307	38	25,753	2,638
<b>Total</b>	<b>977</b>	<b>319</b>	<b>106,837</b>	<b>28,497</b>

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

- Notes:**
1. For 2002, data were received from only 65.6% of all health facilities; 44.3% from Bangkok, 60.5% from the Central, 76.7% from the Northeast, 74.9% from the North, and 68.3% from the South.
  2. For Bangkok in 2002, the 2001 data were used instead

**Table 6.36** Numbers of Private Hospitals and Beds Providing General and Specialized Services by Hospital Size, 2003

Region	1 - 10 beds		11 - 25 beds		26 -50 beds		51 - 100 beds		101 - 200 beds		> 200 beds		Total	
	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds	Hospitals	Beds
Bangkok Metropolis	9 (20.5) (9.0)	77 (19.2) (0.5)	4 (23.5) (4.0)	84 (23.0) (0.6)	22 (25.0) (22.0)	820 (24.1) (5.4)	19 (19.8) (19.0)	1,755 (20.2) (11.5)	22 (31.4) (22.0)	3,598 (32.4) (23.6)	24 (77.4) (24.0)	8,893 (81.5) (58.4)	100 (28.9) (100.0)	15,227 (43.7) (100.0)
The Central	16 (36.4) (13.5)	154 (38.3) (1.6)	9 (52.9) (7.6)	182 (49.7) (1.8)	27 (30.7) (22.9)	947 (27.9) (9.6)	39 (40.6) (33.1)	3,513 (40.5) (35.5)	23 (32.9) (19.5)	3,919 (35.3) (39.6)	4 (12.9) (3.4)	1,180 (10.8) (11.9)	118 (34.1) (100.0)	9,895 (28.4) (100.0)
The Northeast	4 (9.1) (9.5)	39 (9.7) (1.2)	- (0.0) (0.0)	- (0.0) (0.0)	17 (19.3) (40.5)	747 (22.0) (23.6)	13 (13.5) (30.9)	1,220 (14.1) (38.6)	7 (10.0) (16.7)	939 (8.5) (29.7)	1 (3.2) (2.4)	214 (2.0) (6.8)	42 (12.1) (100.0)	3,159 (9.1) (100.0)
The North	7 (15.9) (13.7)	70 (17.4) (1.7)	1 (5.9) (2.0)	25 (6.8) (0.6)	12 (13.6) (23.5)	472 (13.9) (11.4)	20 (20.8) (39.2)	1,739 (20.0) (41.9)	9 (12.9) (17.6)	1,224 (11.0) (29.5)	2 (6.5) (3.9)	620 (5.7) (14.9)	51 (14.7) (100.0)	4,150 (11.9) (100.0)
The South	8 (18.2) (22.8)	62 (15.4) (2.5)	3 (17.6) (8.6)	75 (20.5) (3.1)	10 (11.4) (28.6)	413 (12.2) (17.0)	5 (5.2) (14.3)	456 (5.3) (18.8)	9 (12.9) (25.7)	1,426 (12.8) (58.6)	- (0.0) (0.0)	- (0.0) (0.0)	35 (10.1) (100.0)	2,432 (7.0) (100.0)
Whole country	44 (100.0) (12.7)	402 (100.0) (1.2)	17 (100.0) (4.9)	366 (100.0) (1.0)	88 (100.0) (25.4)	3,399 (100.0) (9.7)	96 (100.0) (27.7)	8,683 (100.0) (24.9)	70 (100.0) (20.2)	11,106 (100.0) (31.9)	31 (100.0) (9.0)	10,907 (100.0) (31.3)	346 (100.0) (100.0)	34,863 (100.0) (100.0)

**Sources:** Medical Registration Division, Department of Health Service Support, MoPH

**Notes:** Figures in ( ) are percentages: upper ones, column total and lower ones, row total.

## 2) Health Centres

### (2.1) Quantity

Health centres have been built and distributed to cover all Tambons (subdistricts) throughout the country since the last decade. In 2003, there were 9,765 health centres. In the future, more emphasis will be placed on service quality improvement in accordance with socio-economic conditions of each locality and in preparation for the power decentralization to local administration organizations.

### (2.2) Geographical Distribution of Health Centres

The trends of health centre to population ratio have been rising in all regions nationwide; the ratio being raised from 1:10,064 in 1979 to 1:4,895 in 2003. Although most health centres are clustered in the Central Region, regional disparities have become lower as shown in Table 6.37 and Figure 6.25.



**Table 6.37** Distribution of Health Centres by Region in 1979, 1987 and 1996-2003

Region	No. of health centres and health centre/population ratio									
	1979	1987	1996	1997	1998	1999	2000	2001	2002	2003
The Central	1219 (1:7,781)	1635 (1:4,729)	2377 (1:3,654)	2471 (1:3,554)	2508 (1:4,298)	2523 (1:4,219)	2524 (1:3,681)	2559 (1:4,628)	2559 (1:4,611)	2549 (1:4,629)
The North	914 (1:10,748)	1,616 (1:4,775)	1,965 (1:4,412)	2,151 (1:4,103)	2,203 (1:4,393)	2,225 (1:4,345)	2,231 (1:4,093)	2,210 (1:4,667)	2,216 (1:4,670)	2,220 (1:4,662)
The South	688 (1:8,230)	1,252 (1:3,821)	1,400 (1:3,839)	1,488 (1:3,653)	1,505 (1:3,864)	1,513 (1:3,922)	1,516 (1:3,872)	1,507 (1:4,427)	1,526 (1:4,418)	1,521 (1:4,433)
The Northeast	1,277 (1:12,747)	2,489 (1:5,818)	3,100 (1:5,248)	3,367 (1:4,900)	3,398 (1:5,063)	3,428 (1:5,102)	3,433 (1:4,972)	3,462 (1:5,427)	3,509 (1:5,387)	3,475 (1:5,440)
Disparity between Centrals and Northeast's ratios	1:1.64	1:1.23	1:1.44	1:1.38	1:1.18	1:1.21	1:1.21	1:1.17	1:1.17	1:1.18
<b>Total</b>	<b>4,088</b> <b>(1:10,064)</b>	<b>6,992</b> <b>(1:4,964)</b>	<b>8,842</b> <b>(1:4,411)</b>	<b>9,477</b> <b>(1:4,173)</b>	<b>9,614</b> <b>(1:4,522)</b>	<b>9,689</b> <b>(1:4,514)</b>	<b>9,704</b> <b>(1:4,262)</b>	<b>9,738</b> <b>(1:4,890)</b>	<b>9,810</b> <b>(1:4,872)</b>	<b>9,765</b> <b>(1:4,895)</b>

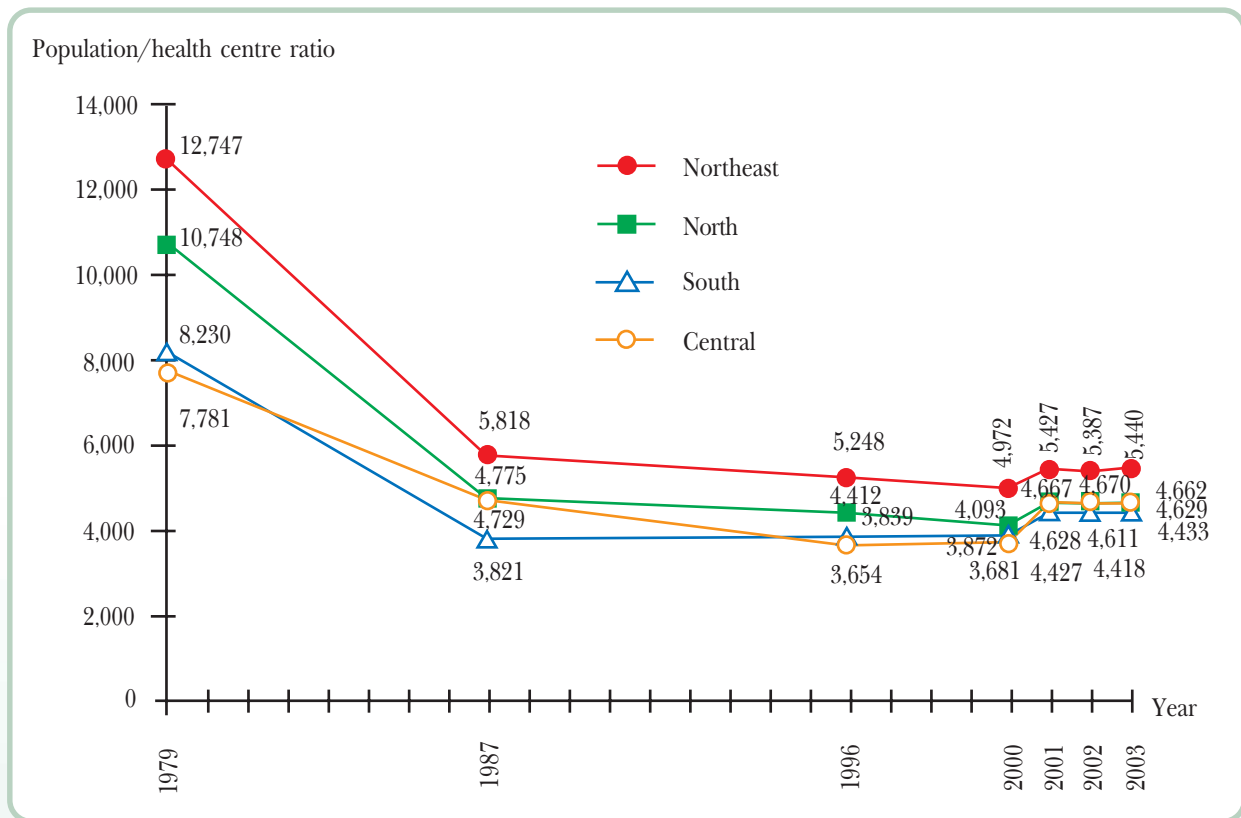
**Source:** The Bureau of Central Administration, Office of the Permanent Secretary, MoPH, recalculated by Rujira Taverat, Bureau of Policy and Strategy, MoPH

**Notes:** 1. The figure in ( ) is the ratio of health centre to population outside municipal areas and sanitary districts.

2. Data on population outside municipal areas for 2001-2002 were derived from the Bureau of Registration Administration, Department of Provincial Administration, Ministry of Interior, and recalculated by Rujira Taverat, Bureau of Policy and Strategy, MoPH.

3. For 2003, data on population in 2002 outside municipal areas were derived from the Bureau of Registration Administration, Department of Provincial Administration.

**Figure 6.25** Population to Health Centre Ratios by Region, 1979-2003



**Sources:** 1. Reports on Health Resources. Bureau of Policy and Strategy, MoPH.  
 2. Bureau of Central Administration, Office of the Permanent Secretary, MoPH.

### 3) Pharmacies

The ratio of modern pharmacy (with a pharmacist) to population has been rising for the past 13 years, from 1:15,694 in 1989 to 1:7,739 in 2003. But the ratio of another type of modern pharmacy without pharmacist (selling readily packaged drugs, without a pharmacist) to population and the ratio of traditional pharmacy to population have been declining (Table 6.38).

Nearly half of pharmacies (with pharmacist) are in Bangkok, while more than 80% of pharmacies without pharmacist (selling non-dangerous readily packaged drugs, without a pharmacist) and traditional pharmacies are in provincial areas (Table 6.38).

**Table 6.38** Distribution of Drugstores Selling Modern Medicines, Only Readily-packaged Modern Medicines and Traditional Medicines, 1989-2003

Type of drugstore	No. of drugstores and ratio of drugstore to population													
	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	2000	2001	2002	2003
<b>1. Drugstores: modern medicine</b>														
Bangkok Metropolitan	1,917 (1:3.263)	1,963 (1:3.258)	2,123 (1:2.632)	2,194 (1:2.903)	2,135 (1:3.030)	2,176 (1:2.564)	2,249 (1:2.480)	2,262 (1:2.466)	2,208 (1:2.534)	2,420 (1:2.325)	2,773 (1:2.039)	3,047 (1:1.872)	3,200 (1:1.798)	3,393 (1:1.962)
Provincial areas	1,616 (1:30.440)	1,743 (1:29.654)	1,743 (1:29.302)	1,743 (1:29.484)	2,336 (1:22.309)	2,363 (1:22.487)	2,500 (1:21.480)	2,461 (1:22.028)	2,506 (1:21.896)	2,931 (1:18.946)	3,197 (1:17.492)	3,458 (1:16.307)	3,458 (1:16.426)	4,832 (1:11.796)
Whole Kingdom	3,533 (1:15.694)	3,706 (1:15.202)	3,866 (1:14.656)	3,937 (1:14.671)	4,471 (1:13.103)	4,539 (1:12.936)	4,749 (1:12.482)	4,723 (1:12.659)	4,714 (1:12.827)	5,351 (1:11.429)	5,970 (1:10.315)	6,505 (1:9.546)	6,658 (1:9.395)	8,225 (1:7.739)
<b>2. Drugstores: readily-packed modern medicine</b>														
Bangkok Metropolitan	747 (1:8.375)	926 (1:6.907)	925 (1:6.041)	844 (1:7.547)	793 (1:8.159)	748 (1:7.458)	748 (1:7.456)	710 (1:7.856)	648 (1:8.634)	681 (1:8.262)	638 (1:8.864)	620 (1:9.199)	577 (1:9.973)	565 (1:11.781)
Provincial areas	4,604 (1:10.684)	4,644 (1:10.754)	4,644 (1:10.998)	4,644 (1:11.066)	4,548 (1:11.459)	4,442 (1:11.962)	4,484 (1:11.976)	4,437 (1:12.218)	4,551 (1:12.057)	4,326 (1:12.836)	4,286 (1:13.048)	4,195 (1:13.442)	4,195 (1:13.540)	4,088 (1:13.943)
Whole Kingdom	5,351 (1:10.362)	5,570 (1:10.115)	5,569 (1:10.174)	5,488 (1:10.525)	5,341 (1:10.969)	5,190 (1:11.313)	5,232 (1:11.330)	5,147 (1:11.616)	5,199 (1:11.630)	5,007 (1:12.214)	4,924 (1:12.506)	4,815 (1:12.896)	4,772 (1:13.109)	4,653 (1:13.680)
<b>3. Drugstores: traditional medicine</b>														
Bangkok Metropolitan	535 (1:11.693)	479 (1:13.353)	459 (1:12.174)	436 (1:14.610)	432 (1:14.977)	413 (1:13.507)	445 (1:12.534)	395 (1:14.121)	370 (1:15.121)	398 (1:14.136)	398 (1:14.209)	409 (1:13.944)	412 (1:13.967)	420 (1:15.848)
Provincial areas	1,999 (1:24.607)	1,999 (1:24.984)	1,999 (1:25.550)	1,999 (1:25.708)	1,916 (1:27.200)	1,900 (1:27.967)	1,854 (1:28.965)	1,854 (1:29.240)	1,913 (1:28.683)	1,792 (1:30.987)	1,600 (1:34.952)	1,581 (1:35.668)	1,581 (1:35.927)	1,686 (1:33.807)
Whole Kingdom	2,534 (1:21.881)	2,478 (1:22.736)	2,458 (1:23.052)	2,435 (1:23.721)	2,348 (1:24.951)	2,313 (1:25.358)	2,299 (1:25.784)	2,249 (1:26.584)	2,283 (1:26.485)	2,190 (1:27.925)	1,998 (1:30.820)	1,990 (1:31.203)	1,993 (1:31.387)	2,106 (1:30.226)
<b>4. All categories of drugstores</b>														
Bangkok Metropolitan	3,199 (1:1.956)	3,368 (1:1.899)	3,507 (1:1.593)	3,474 (1:1.834)	3,360 (1:1.925)	3,337 (1:1.672)	3,442 (1:1.620)	3,367 (1:1.657)	3,226 (1:1.734)	3,499 (1:1.608)	3,809 (1:1.485)	4,076 (1:1.399)	4,189 (1:1.374)	4,378 (1:1.520)
Provincial areas	8,219 (1:5.985)	8,386 (1:5.956)	8,386 (1:6.090)	8,386 (1:6.128)	8,800 (1:5.922)	8,705 (1:6.104)	8,838 (1:6.076)	8,752 (1:6.194)	8,970 (1:6.117)	9,049 (1:6.136)	9,083 (1:6.157)	9,234 (1:6.107)	9,234 (1:6.151)	10,606 (1:5.374)
Whole Kingdom	11,418 (1:4.856)	11,754 (1:4.793)	11,893 (1:4.764)	11,860 (1:4.870)	12,160 (1:4.818)	12,042 (1:4.876)	12,280 (1:4.827)	12,119 (1:4.933)	12,196 (1:4.958)	12,548 (1:4.874)	12,892 (1:4.776)	13,310 (1:4.665)	13,423 (1:4.660)	14,984 (1:4.248)

**Source:** Food and Drug Administration, MoPH

**Note:** Figures in ( ) are ratios of drugstore to population.

### 1.3 Medical Supplies and Technology

#### 1.3.1 Medical Supplies

Drugs normally dispensed and consumed in Thailand are mostly (55%) manufactured domestically and the rest (45%) are imported. Between 1988 and 2002, the values of drug consumption rose on average by 12.2% at market prices or 7.7% at the constant price annually. The rate of increase was greater than those of health expenditure and economic growth (Tables 4.4 and 6.39, and Figure 4.11).

During the economic boom period of 1988 to 1996, the values of drug imports rose from 27.7% to 37.1% in relation to overall drug consumption values. After the baht devaluation between 1997 and 2000, coupled with the monopoly of new drugs, the proportion of imported drugs jumped to 40.7-44.3%. Even after the economic crisis, the proportion has steadily risen to 45.1% in 2002. If such a trend prevails, the proportion of imported drugs will be greater than that of domestically produced drugs. However, the universal coverage of health care scheme that employs the capitation payment mechanism has shifted the financial burden to service providers. This kind of system has led to the economization of drug use and a greater use of domestically produced drugs. It is interesting to monitor this change more seriously.

Of the values of domestically produced drugs, 40% are attributable to imported raw materials (over 90% of which are imported); and about 60% of the import values are paid in foreign currencies to overseas drug companies. Thus, of the wholesale value (Table 6.39), 46.27% are paid in foreign currencies. It only raw materials are taken into account (for both locally produced and imported drugs), 96% of such items are imported.

The quality of domestically produced drugs has much improved as a result of the introduction and promotion of Good Manufacturing Practices (GMP). Currently, the proportion of GMP-certified manufacturers has risen to more than 70%, since 1997 (Figure 6.26). In addition to being consumed locally, domestic drugs are exported. Their export values have risen from 480.8 million baht in 1989 to 4,821.9 million baht in 2003 (Figure 6.28).

During 2000, some foreign drug manufacturers are shut down due to the economic crisis and higher labour costs, thereby shifting their production bases to other countries where labour costs are lower, such as Vietnam. As a consequence, the proportion of GMP-certified manufacturers has declined.

In 2003, the MoPH issued a regulation requiring that all drug manufacturers comply with the GMP requirements by 5 June 2004.

**Table 6.39** Values of Locally Produced and Imported Drugs (for Human Use), 1983-2002

Year	Wholesale values as reported (current prices)										Estimated consumption values, 2002		Change (%)		Total retail price value as a percentage of health expenditure
	Locally produced drugs					Imported drugs					Wholesale prices	Retail prices	Current prices	Constant prices	
	Values	Percent	Values	Percent	Total (million baht)	Values of exports (million baht)	Values of domestic consumption <sup>(1)</sup> (million baht)	Estimates of Value of domestic consumption <sup>(2)</sup> (wholesale) <sup>(2)</sup> X 1.675	Estimates of retail prices in-country x 1.8						
1983	3,777.9	65.2	2,012.0	34.8	5,789.9	255.6	5,534.3	9,270.0	16,686.0	18,429.31	33,172.76	-	-	40.52	
1984	5,453.0	76.5	1,673.0	23.5	7,126.0	284.0	6,842.0	11,460.4	20,628.7	22,615.19	40,707.30	+23.6	+22.7	39.49	
1985	6,651.2	73.5	2,393.1	26.5	9,044.3	315.5	8,728.8	14,620.7	26,317.3	28,142.73	50,657.00	+27.6	+24.4	44.41	
1986	4,678.0	71.5	1,864.5	28.5	6,542.5	350.5	6,192.0	10,371.6	18,668.9	19,595.70	35,272.50	-29.1	-30.4	28.26	
1987	5,145.8	68.9	2,325.4	31.1	7,471.2	389.4	7,081.8	11,862.0	21,351.6	21,883.91	39,391.04	+14.4	+11.7	28.73	
1988	6,708.8	72.3	2,571.0	27.7	9,279.8	432.7	8,847.1	14,818.9	26,674.0	26,318.37	47,373.02	+24.9	+20.3	29.65	
1989	8,372.9	71.7	3,307.6	28.3	11,680.5	480.8	11,199.7	18,759.5	33,763.1	31,629.94	56,927.15	+26.6	+20.2	32.13	
1990	8,886.0	72.0	3,449.1	28.0	12,335.1	604.1	11,731.0	19,649.4	35,368.9	31,270.01	56,285.99	+4.8	-1.1	28.23	
1991	9,657.6	69.6	4,216.4	30.4	13,874.0	784.8	13,089.2	21,924.4	39,463.9	32,998.08	59,396.51	+11.6	+5.5	28.43	
1992	10,696.6	69.6	4,682.6	30.4	15,379.2	1,193.5	14,185.7	23,761.0	42,769.8	34,364.44	61,856.00	+8.4	+4.1	27.08	
1993	11,831.0	70.0	5,075.3	30.0	16,906.3	2,855.3	14,051.0	23,535.4	42,363.7	32,929.76	59,273.58	-0.9	-4.2	23.02	
1994	12,969.7	68.1	6,086.6	31.9	19,056.3	1,536.2	17,520.1	29,346.2	52,823.2	39,084.14	70,360.50	+24.7	+18.7	26.41	
1995	15,820.9	63.0	9,276.4	37.0	25,097.3	2,398.5	22,698.8	38,020.5	68,436.9	47,867.02	86,160.63	+29.6	+22.5	30.08	
1996	18,120.4	62.9	10,676.0	37.1	28,796.4	1,784.9	27,011.5	45,244.3	81,439.7	53,808.40	96,855.07	+19.0	+12.4	31.63	
1997	19,608.0	59.3	13,467.1	40.7	33,075.1	2,319.7	30,755.4	51,515.3	92,727.5	58,052.77	104,494.95	+13.9	+7.9	32.88	
1998	16,127.7	53.3	14,146.5	46.7	30,274.2	2,782.3	27,491.9	46,048.9	82,888.1	47,994.63	86,390.41	-10.6	-17.3	30.02	
1999	19,033.9	57.2	14,232.3	42.8	33,266.2	3,014.9	30,251.3	50,670.9	91,207.7	52,647.14	94,764.94	+10.0	+9.7	32.09	
2000	20,995.9	55.7	16,700.4	44.3	37,696.3	3,732.7	33,963.6	56,889.0	102,400.2	58,199.81	104,759.65	+12.3	+10.5	34.16	
2001	23,087.9	53.6	19,967.6	46.4	43,055.5	4,326.9	38,728.6	64,870.4	116,766.7	65,311.70	117,561.03	+14.0	+12.2	36.35	
2002	24,144.6	54.9	19,867.9	45.1	44,012.5	4,115.5	39,897.0	66,827.5	120,289.5	66,827.50	120,289.50	+3.0	+2.3	36.04	
											Avg:15yrs	12.2	7.7	-	

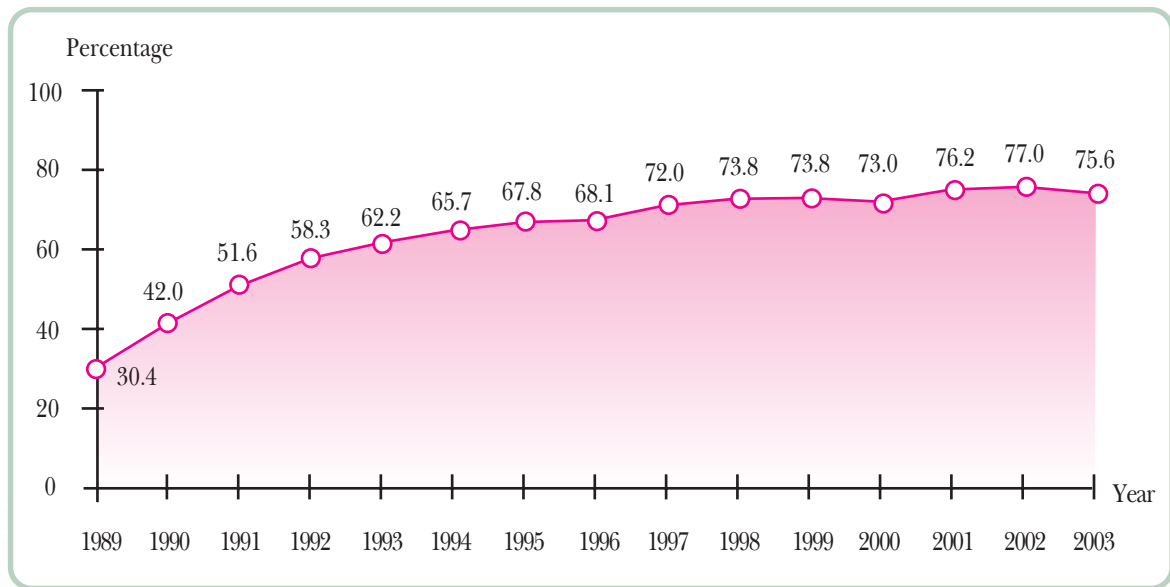
Source: Drug Control Division, Food and Drug Administration, MoPH.

Notes: 1. The estimates are to be deducted by export values (Figure 6.28).

2. The reported figures are about 67.5% lower than actuality (48% underreported); and the reports do not include drugs from GPO, narcotics and psychoactive drugs).

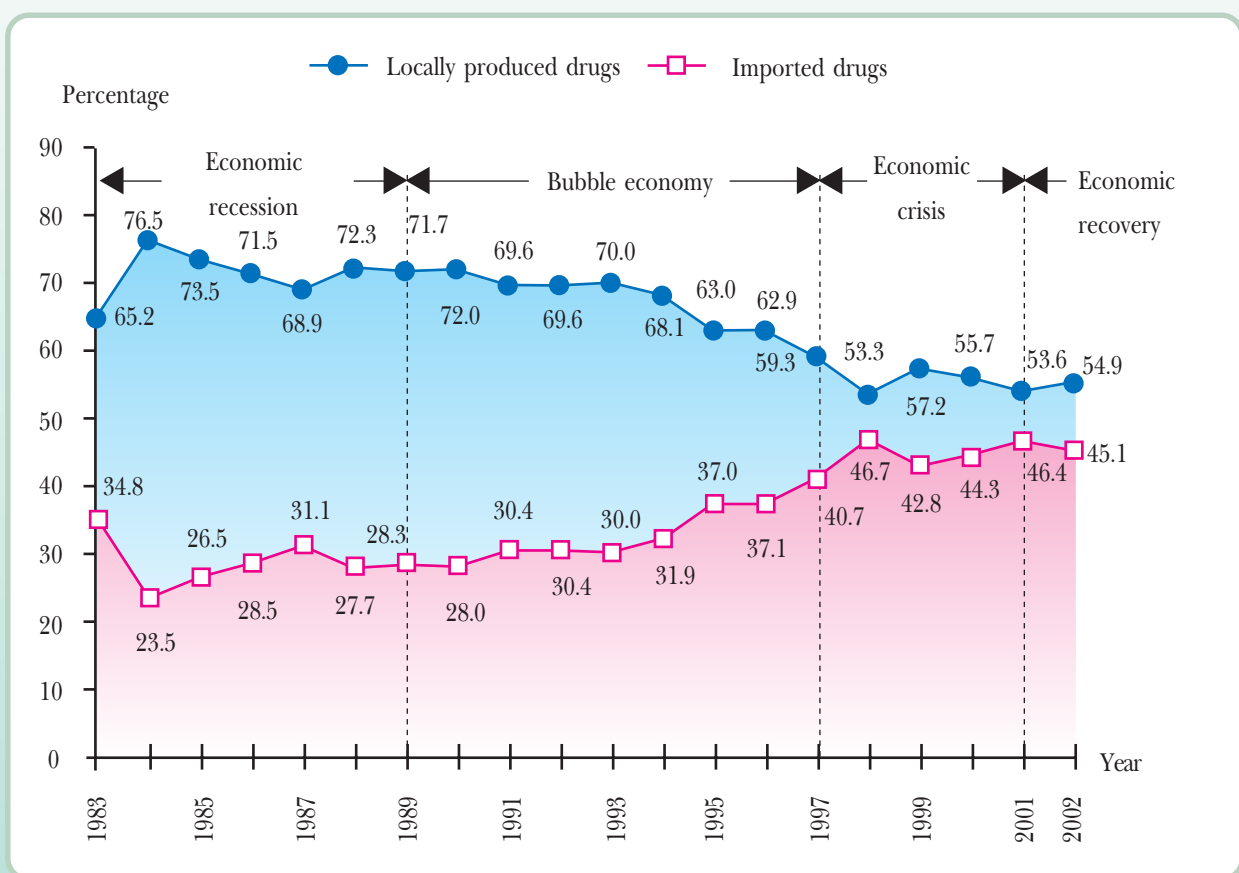
3. Retail values are about 1.8 times as much as wholesale values.

**Figure 6.26** Percentage of GMP-Certified Manufacturers, 1989-2003



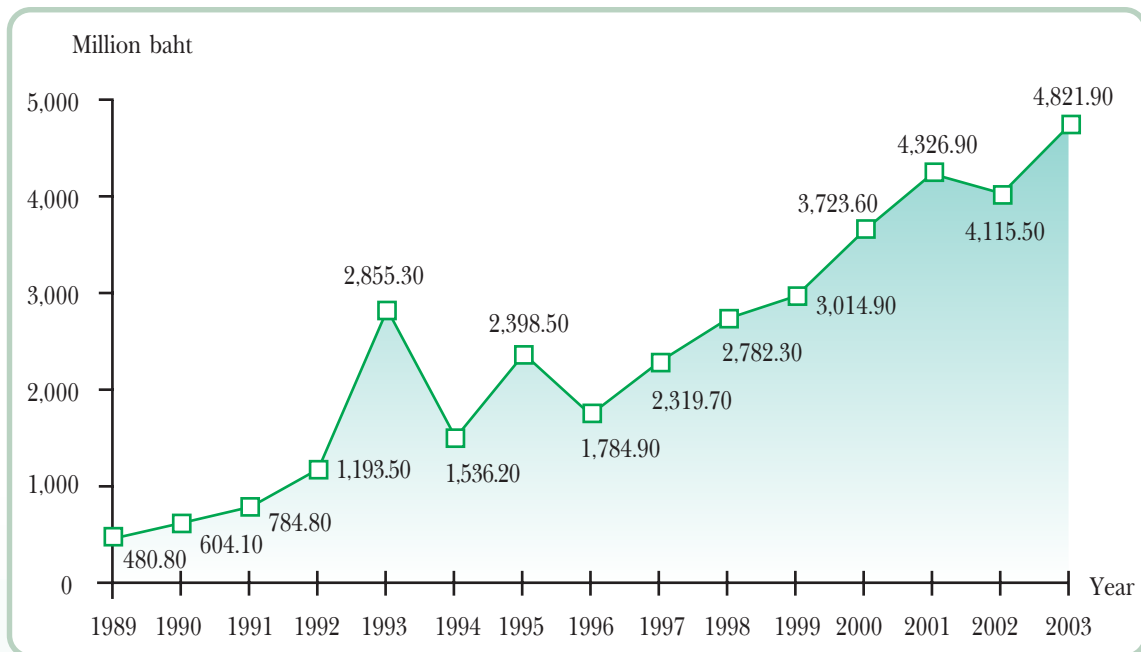
**Source:** Food and Drug Administration, MoPH.

**Figure 6.27** Percentage of Locally Produced and Imported Drugs (for Human Use) 1983-2002



**Source:** Drug Control Division, Food and Drug Administration, MoPH.

**Figure 6.28** Values of Drugs Exported from Thailand (Current Prices), 1989-2003



**Source:** Food and Drug Administration, MoPH.

**Note:** Data for 1989-2003 were derived from the Customs Department, Ministry of Finance.

### 1.3.2 Medical and Health Technology

The development of medical and health technology as well as epidemiological transition has contributed to the use of expensive, high-tech medical equipment in the Thai health system. More complex procedures for diagnostic and curative care have been introduced. Such imports increased considerably during the bubble economy period and discontinued as soon as the economic crisis erupted (for example, in the case of imports and uses of MRI machines in Thailand between 1988 and 2000), but increased again slightly after the crisis was over (Figure 6.29). Most of the medical and health technologies, particularly high-tech medical devices are clustered in large cities, mostly in the private sector except for lithotripters and ultrasound devices which are more abundant in the public sector (Table 6.40).



**Table 6.40** Number and Distribution of Important Medical Devices, 2002-2003

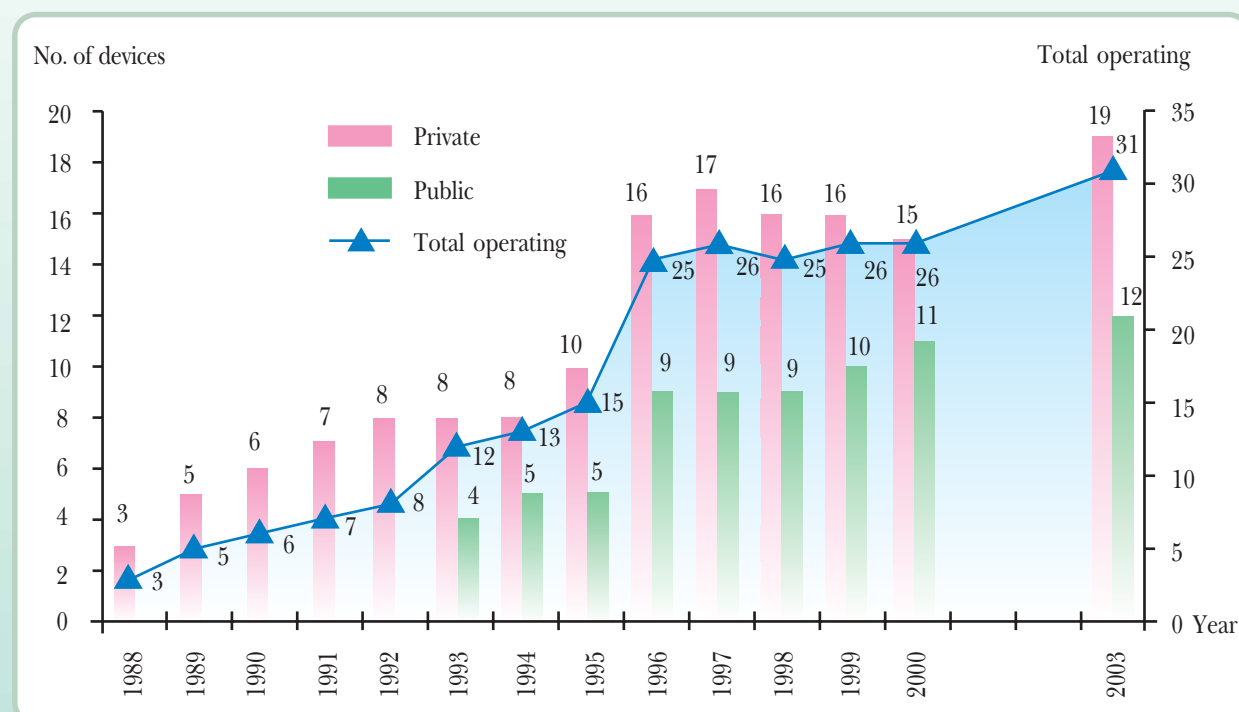
Device	No. of devices			Total by sector		Remarks
	Total	In Bangkok: No. (%)	In provinces: No. (%)	Public	Private	
1. CT scanners <sup>(1)</sup>	266	89 (33.5)	177 (66.5)	83 (31.2)	183 (68.8)	2003
2. Magnetic resonance imaging (MRI) <sup>(1)</sup>	31	20 (64.5)	11 (35.5)	12 (38.7)	19 (61.3)	2003
3. Lithotripters <sup>(2)</sup>	75	22 (29.3)	53 (70.7)	55 (73.3)	20 (26.7)	2002
4. Mammogram <sup>(1)</sup>	113	62 (54.9)	51 (45.1)	45 (39.8)	68 (60.2)	2003
5. Ultrasound <sup>(2)</sup>	1,643	269 (16.4)	1,374 (83.6)	1,271 (77.4)	372 (22.6)	2002

**Sources:** <sup>(1)</sup> Division of Radiology and Medical Devices, Department of Medical Services, 2003.

<sup>(2)</sup> Report on Health Resources. Bureau of Policy and Strategy, MoPH, 2003.

**Note:** Figures in ( ) are percentages.

**Figure 6.29** Number of MRI Devices in the Private and Public Sectors in Thailand, 1998-2003



**Sources:** Data for 1988-1999 were derived from Piya Hanvoravongchai, 1999.

Data for 2003 were derived from the Radiology and Medical Devices Division, Department of Medical Sciences, MoPH, 2003.

**Note:** The number for each year is as recorded at the end of the year, except for 2000.



The imported values of medical equipment rose by 12.4% annually between 1991 and 2003. At the beginning of the economic crisis, the imported values were decreasing, but increased as much as 19.2% in 2003, whereas the values of exports have been rising since 1997, by 24.7% during 2002-2003. For 2004, the demand for medical equipment/supplies grows considerably in both domestic and overseas markets. As a result of the economic growth, Thai people have a higher purchasing power and are more interested in health care for themselves, coupled with the government policy on promoting Thailand as the Centre of Excellence in Healthcare of Asia and the rising demand for Thaimedical equipment/supplies from other countries as their prices are not so high, compared with those from other Asian competing countries (Tables 6.41 and 6.42 and Figure 6.30).

**Table 6.41** Values of Imported Major Medical Equipment and Supplies in Thailand, 1991-2003 (million baht)

Product	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
HS 9018.90 Other medical equipment and supplies	491.9	705.9	1,292.8	925.2	1,070.7	1,359.1	1,566.7	1,161.2	1,079.0	2,323.7	2,179.1	2,453.0	2,794.4
HS 9018.19 Other electro-diagnostic apparatus	377.9	417.5	718.8	773.9	784.5	873.5	996.2	493.6	542.7	1,402.4	1,051.9	955.7	1,426.2
HS 9019.20 Ozone therapeutic apparatus, etc.	138.6	130.1	195.8	221.7	303.7	303.8	404.0	417.3	188.9	458.6	366.6	306.2	398.3
HS 8419.20 Medical, surgical or laboratory sterilizers	98.4	99.4	180.5	228.5	202.6	301.0	501.9	312.9	146.3	293.3	410.5	335.9	177.7
HS 9018.39 Syringes and needles	113.6	136.0	178.3	312.9	298.8	382.4	388.3	303.3	326.4	416.3	496.8	509.0	647.8
HS 9021.30 Other artificial body parts	119.9	112.2	139.4	187.1	243.6	267.3	284.9	237.1	263.1	309.0	342.1	2.7	-
HS 3701.10 Photographic plates and films for x-rays	137.1	165.7	132.3	140.6	169.7	220.7	224.4	202.0	240.6	222.7	291.9	297.6	322.8
HS 9018.50 Other ophthalmic instruments and appliances	32.6	88.3	105.6	137.9	156.2	209.7	215.4	197.5	136.7	324.2	210.0	301.8	329.8
HS 3006.10 Sterile surgical catgut, similar suture materials	102.9	136.8	134.1	157.7	172.3	186.4	256.1	194.6	244.6	231.8	302.9	290.6	342.7
HS 9018.32 Tubular metal needles and needles for sutures	143.4	174.9	194.9	204.3	193.6	209.5	255.4	193.3	171.4	227.8	262.7	233.1	250.6
HS 9021.19 Other orthopaedic appliances	73.3	88.4	104.8	148.9	209.8	260.6	267.6	190.7	232.8	297.0	354.1	4.8	-
HS 9018.49 Dental instruments and appliances	38.7	51.7	84.5	117.6	138.2	170.4	181.1	182.8	213.0	350.5	386.1	418.9	398.2
HS 9019.10 Mechano-therapy appliances	40.5	58.8	56.9	333.5	403.2	279.5	211.6	141.1	53.8	57.0	74.0	105.7	198.9
HS 3005.90 Wadding, gauze, bandages and similar articles	71.4	100.4	92.1	119.2	138.1	139.3	184.5	138.7	66.2	95.1	111.4	140.6	110.8
HS 9402.90 Medical furniture	41.8	59.9	113.9	165.1	211.3	310.9	290.2	111.1	60.2	65.7	63.4	97.8	91.3
<b>Total</b>	<b>2,022.0</b>	<b>2,526.0</b>	<b>3,724.7</b>	<b>4,168.1</b>	<b>4,696.3</b>	<b>5,474.1</b>	<b>6,198.3</b>	<b>4,477.2</b>	<b>3,965.8</b>	<b>7,707.4</b>	<b>6,903.5</b>	<b>6,453.3</b>	<b>7,489.5</b>
Others	471.2	719.5	670.9	976.0	1,163.9	1,276.7	1,471.8	980.4	1,222.9	2,257.4	1,938.5	2,008.6	2,600.7
<b>Grand total</b>	<b>2,493.2</b>	<b>3,245.5</b>	<b>4,395.6</b>	<b>5,144.1</b>	<b>5,860.2</b>	<b>6,750.8</b>	<b>7,670.1</b>	<b>5,457.6</b>	<b>5,188.7</b>	<b>9,334.8</b>	<b>8,842.0</b>	<b>8,461.910</b>	<b>9,090.2</b>
Growth rate (%)	-	+30.2	+35.4	+17.0	+13.9	+15.2	+13.6	-28.8	-4.9	+79.9	-5.3	-4.3	+19.2

Average growth rate (12-yr): +12.4

Source: Customs Department, Ministry of Finance.

**Table 6.42** Values of Thailand's Exported Medical Equipment and Supplies, 1991-2003 (million baht)

Product	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
HS 3005.10 Adhesive dressings and other articles having adhesive layer	8.0	146.8	212.3	238.2	298.1	267.8	344.4	465.9	501.5	590.9	719.5	567.3	682.9
HS 3005.90 Wadding, gauze, cottonwool and similar articles	173.5	308.5	1,365.7	136.5	783.7	23.0	26.3	45.0	107.9	356.4	424.1	548.5	650.9
HS 3006.10 Sterile surgical catgut and similar sterile suture materials	3.5	0.3	1.9	2.2	0.1	1.6	3.2	2.8	2.6	8.7	16.3	4.1	4.6
HS 3006.20 Blood-group testing reagents	-	-	-	-	0.1	0.4	0.3	1.7	0.1	0.2	0.2	0.3	2.8
HS 3006.30 Microbial diagnostic reagents	0.2	-	278.3	0.3	1.1	0.1	0.4	21.0	2.6	2.2	2.5	-	-
HS 3006.40 Dental cements and other dental filling materials	-	-	0.2	-	5.1	-	0.1	1.4	1.4	-	0.006	0.70	0.20
HS 3006.50 First-aid boxes and kits	-	-	2.6	-	-	0.8	0.7	0.2	0.5	1.2	1.3	1.4	1.8
HS 3701.10 Photographic plates and films for x-rays	9.0	281.0	4.8	1.6	0.3	0.4	0.7	2.5	1.1	0.4	0.6	0.4	1.0
HS 3702.10 Non-flat photographic films for x-rays	5.6	5.3	2.2	-	0.2	1.1	-	0.3	0.2	-	-	0.03	0.6
HS 4015.11 Surgical gloves	451.0	780.2	1,927.2	1,045.1	822.2	1,022.0	1,206.3	1,649.0	1,521.3	1,796.4	2,019.9	1,733.5	1,905.9
HS 8419.20 Medical, surgical or laboratory sterilizers	0.9	5.6	2.0	0.3	1.4	7.3	32.8	4.6	6.7	2.3	7.4	12.7	2,757.4
HS 8713.10 Invalid carriages, non-mechanically propelled	0.1	-	-	-	0.2	0.2	-	0.4	0.0	0.8	1.1	1.0	0.2
HS 8713.90 Other invalid carriages	0.1	1.5	14.7	0.2	3.1	1.5	2.7	1.6	0.4	1.1	2.2	0.7	1.4
HS 9001.30 Contact lenses	-	-	0.6	-	-	0.5	8.7	2.8	0.9	3.1	80.0	258.0	208.4
HS 9018.11 Electro-cardiograph machines	1.2	0.5	0.3	-	0.2	0.8	0.2	4.0	0.1	1.7	4.7	4.2	3.0
HS 9018.19 Other electro-diagnostic apparatus	5.1	16.0	13.6	10.2	28.0	40.0	95.0	113.6	118.8	395.2	178.4	295.7	250.9
HS 9018.20 Ultraviolet or infrared ray apparatus	0.1	1.5	4.0	2.0	7.2	3.1	25.6	7.7	0.5	6.8	0.8	8.8	22.7
HS 9018.31 Syringes, with or without needles	60.0	142.0	246.5	240.9	378.3	204.9	228.0	337.3	187.3	248.5	247.0	247.3	246.0
HS 9018.32 Tubular metal needles and needles for sutures	170.6	162.4	180.9	202.8	234.7	250.7	346.5	324.0	211.1	64.5	464.6	405.7	413.0
HS 9018.39 Other types of syringes and needles	-	126.7	11.0	56.3	28.1	20.4	31.1	69.0	65.4	32.7	77.3	93.9	138.8
HS 9018.41 Dental drilling machines	0.2	0.8	-	0.5	-	0.1	0.9	2.4	19.5	3.2	34.9	25.9	67.7
HS 9018.49 Other dental instruments and appliances	0.4	4.3	2.9	0.6	6.3	8.5	13.1	28.7	12.6	8.0	5.7	11.0	11.9

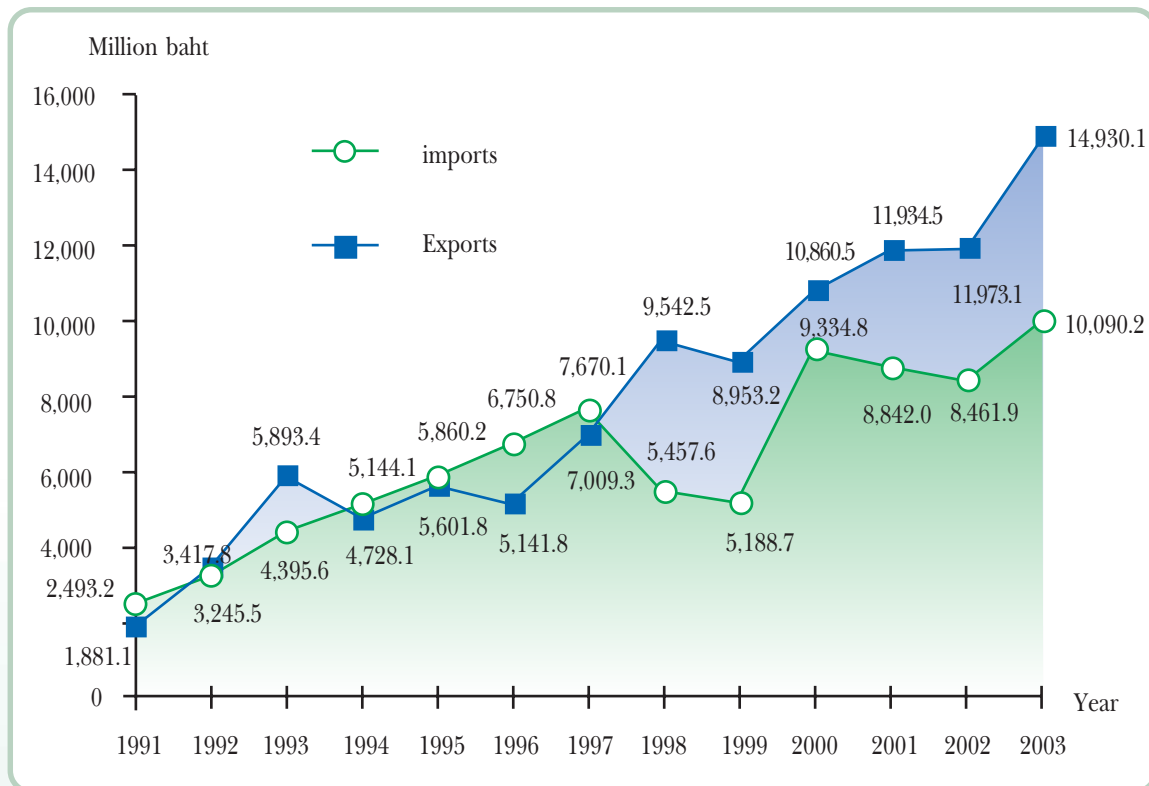
**Table 6.42** Values of Thailand's Exported Medical Equipment and Supplies, 1991-2003 (million baht)

Product	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
HS 9018.50 Other ophthalmic instruments and appliances	0.2	0.4	2.2	1.1	3.0	1.5	5.0	2.2	2.8	8.0	6.8	12.8	9.6
HS 9018.90 Other instruments and appliances	722.4	1,190.3	1,906.1	2,415.2	2,622.4	3,007.5	4,206.7	5,993.5	5,819.4	6,605.6	7,121.6	7,239.0	7,131.2
HS 9019.10 Mechano-therapy appliances	97.4	115.2	273.3	296.6	267.9	160.3	258.2	324.1	233.5	239.0	298.8	246.2	153.9
HS 9019.20 Ozone therapy apparatus	32.1	33.0	41.3	53.0	28.0	35.3	51.1	13.3	28.9	67.0	73.8	98.8	63.9
HS 9021.11 Artificial joints	0.8	-	-	-	0.1	-	0.1	0.1	0.1	0.1	0.2	-	-
HS 9021.19 Other orthopaedic appliances	2.7	0.1	0.2	0.3	1.8	1.2	2.8	1.3	3.4	1.2	2.0	-	-
HS 9021.21 Dentures	25.1	54.9	27.7	10.6	6.7	8.0	13.4	19.3	18.3	26.2	44.1	47.8	59.8
HS 9021.29 Dental appliances	0.3	-	4.5	22.8	18.2	20.6	23.0	34.8	26.1	3.9	15.4	39.9	52.5
HS 9021.30 Other artificial body parts	1.7	1.2	0.5	1.6	2.3	0.1	1.3	0.7	1.4	2.0	0.3	-	-
HS 9021.40 Hearing aids	-	0.2	-	-	-	-	0.6	0.2	2.9	1.0	-	0.2	0.02
HS 9021.50 Pacemakers for stimulating heart muscles, excluding parts and accessories	-	-	-	0.1	-	-	-	-	-	-	0.01	-	-
HS 9021.90 Others in section HS 9021	0.5	0.4	0.1	0.3	1.1	1.0	2.3	0.2	5.8	3.9	3.3	8.2	13.5
HS 9022.19 Others in section HS 9022	1.6	9.7	25.1	14.1	10.1	2.6	2.6	3.4	23.6	10.8	12.8	10.1	18.3
HS 9022.21 Apparatus for use in medical radiography or radiotherapy	0.5	0.4	0.1	0.8	1.4	4.3	1.3	-	0.5	2.7	0.1	3.8	0.7
HS 9022.29 Other apparatus for use in radiography or radiotherapy	1.1	-	1.3	3.7	0.1	1.1	-	-	0.2	-	2.0	1.3	0.03
HS 9022.30 X-ray tubes	0.3	1.9	3.1	0.4	2.0	1.7	0.3	3.1	1.2	1.6	0.5	1.8	2.7
HS 9022.90 Others in section HS 9022	1.6	3.2	5.2	2.6	16.2	8.2	14.5	23.4	11.2	30.7	50.7	27.6	36.2
HS 9402.10 Dental chairs	10.2	18.6	23.3	19.2	19.0	20.6	13.1	7.1	4.6	3.7	2.9	9.5	3.1
HS 9402.90 Medical furniture	3.1	4.9	7.7	5.0	3.1	12.6	46.0	30.7	6.8	17.6	10.7	5.0	12.5
Grand total	1,881.1	3,417.8	5,893.4	4,728.1	5,601.8	5,141.8	7,009.3	9,542.5	11,495.2	10,800.5	11,934.5	11,973.1	14,930.1
Growth rate (%)	-	+81.6	+72.4	-19.7	+18.4	-8.2	+36.3	+36.1	-6.2	+21.3	+9.9	+0.3	+24.70

**Source:** Custom Department, Ministry of Finance.

12-year average growth rate: +18.8

**Figure 6.30** Values of Imported and Exported Medical Devices, Thailand, 1991-2003



Source: Tables 6.41 and 6.42.

### 1.4 Body of Knowledge

There are two types of knowledge in the health system: basic knowledge for use in health service provision and systematic knowledge for service system development.

Regarding the basic knowledge, Thailand has mostly imported this kind of knowledge from Western developed countries; recently, more research activities have been supported within the country with funding from the Thailand Research Fund (TRF) and the National Science and Technology Development Agency (NSTDA).

In particular, the knowledge derived from local wisdom such as medicinal herbs and Thai traditional medicine have just been of interest and seriously developed since the past decade. Such herbal medicines have been found to be efficacious such as **Phaya Yo cream**, **Fa Talai Chon (Andrographis paniculata)**, **Khamin Chan** (curcumin).

Regarding the body of knowledge for health service system development, we have adopted it from the West especially the U.S.A. Thus, our health system follows the Western style (especially the U.S.). However, the government has increasingly realized the importance of developing our own health service system so that it is responsive to Thailand's economic, social and cultural settings, leading to the establishment of the Health Systems Research Institute (HSRI) as an independent organization in 1992.

## 2. Health System Management

### 2.1 Health Policies and Plans

The Thai health system (particularly in the public sector) has been developed in accordance with the Health Development Plan, which is part of the National Economic and Social Development Plan.

During the past three decades, Health Development Plans have been implemented continuously in the following phases:

#### (1) The 1st - 7th Plan period (1961-1996)

During the 1st-7th Health Development Plans (1961-1996), numerous efforts were mainly made for making people healthy and for enhancing national capacity in economic development. During the first period of the 1st-3rd Plans, there were investments in infrastructure development. The 4th-6th Plans were the transitional phase of adopting a more systematic national health development planning process by using the Country Health Programming technique and Managerial Process for National Health Development (MPNHD) - the systematic process, including problem analysis, policy and strategy identification, as well as the Planning Programming and Budgeting System (PPBS) technique. The primary health care concept was applied, aimed at encouraging people to realize the problem and causes of problem as well as to allow them to learn and apply new knowledge to solve the problems. Consequently, the “**Health for All by the Year 2000**” goal was established as a long-term target emphasizing people and community participation in health development.

As a result, health development programmes were expanded extensively during the 7th Plan, and efforts were made on quality assurance, resulting in health facilities’ quality development at all levels, effective management system, new technology application, health manpower training and development of health centres to serve as the coordinating centre for health for all. Thus, the 10-year project on health centre development (1992-2001) was initiated and expanded to provide services covering two-thirds of the population.

#### (2) The 8th Plan period (1997-2001)

During this period, the emphasis on economic development was shifted to people-centred development focus, as people were regarded as the key to successful development. As a result, health development plans was aimed at holistic development. However, in the beginning of this Plans implementation, the economic crisis occurred, which led to a requirement for the plan adjustment so as to reduce investment budget and maintain basic health services provided for the poor.

During 2000-2001, the movement of health care reform was initiated, resulting in the issuance of the Prime Minister’s Office’s regulation pertaining to health care reform, the establishment of the health care reform committee and the establishment of the National Health System Reform Office (HSRO). At that time, it was expected that within the following three years, a National Health Act will be enacted (by 31 July 2003). However, the timeframe was extended for two years, with an expectation that the law will be proclaimed by 8 August 2005.

Moreover, the government laid down a policy on universal coverage of healthcare scheme

in February 2001, which has been implemented and covered the entire country since 2002.

**(3) The 9th Health Development Plan (2002-2006)**

During this period, the emphasis is still placed on people-centred development approach, as well as the “self-sufficient economy” principles directed by His Majesty the King. Such philosophy has been used to guide the formulation of the **national health development** plan aimed at improving the public health and the overall health system. The strategies adopted include the creation of balances in the individual, social, economic, and environmental systems, based on active participation of all sectors concerned.

Moreover, the government has placed emphasis on other health programmes such as food safety, exercise for health, and road safety management.

## **2.2 Laws**

Laws related to health include acts, ministerial regulations, orders and procedures as follows:

1) Acts under the responsibility of the MoPH (four categories, 37 acts) are listed in Table 6.43.



**Table 6.43** Acts under the Direct Responsibility of the Ministry of Public Health

No.	Act
1	Acts related to health service systems 1.1 Medical Facilities Act, 1998 1.2 Health Systems Research Institution Act, 1992 1.3 Thai Traditional Medicine Protection and Promotion Act, 1999 1.4 Government Pharmaceutical Organization Act, 1966 1.5 Thai Health Promotion Foundation Act, 2001 1.6 National Health Security Act, 2002
2	Acts related to disease prevention and control 2.1 Public Health Act, 1992 2.2 Communicable Diseases Act, 1980 2.3 Zoonoses Act, 1982
3	Acts related to consumer protection in health 3.1 Food Act, 1979 3.2 Drugs Act, 1967; Amendment No. 2 (1975), No. 3 (1979) , No. 4 (1985), and No. 5 (1987) 3.3 Cosmetics Act, 1992 3.4 Hazardous Substances Act, 1992 3.5 Psychoactive Substances Act, 1975; Amendment No. 2 (1985), No. 3 (1992) and No. 4 (2000) 3.6 Narcotics Act, 1979; Amendment No. 2 (1985) No. 3 (1987) and No. 4 (2000) 3.7 Medical Devices Act, 1988 3.8 Royal Degree on Prevention of Volatile Substance Use, 1990; Amendment No. 2 (2000) 3.9 Tobacco Product Control Act, 1992 3.10 Non-smokers' Health Protection Act, 1992
4	Acts related to health professions 4.1 Medical Registration Act, 1999 4.2 Medical Profession Act, 1982 4.3 Nursing and Midwifery Profession Act, 1985; Amendment No. 2 (1997) 4.4 Pharmaceutical Profession Act, 1994 4.5 Dental Profession Act, 1994

2) Acts that the MoPH is not directly responsible for their implementation, but shares responsibilities with other ministries (six with the Ministry of Interior).

- (1) Cemeteries and Crematoriums Act, 1985
- (2) Drug Addicts Rehabilitation Act, 1991
- (3) Rehabilitation of Disabled People Act, 1991
- (4) Household and City Cleanliness and Orderliness Act, 1992
- (5) Trade Secret Act, 2002
- (6) The Act Establishing Youth and Family Courts and Trial Procedures for Youth and Family Cases, 1991

3) Other health-related acts and announcements under other ministries' responsibilities.

- (1) The Environment Act, 1992
- (2) The Industrial Works Act, 1992
- (3) Social Security Act (No. 2), 1990
- (4) Vehicle Accident Victims Protection Act, 1992
- (5) Workmen's Compensation Act, 1994
- (6) Labour Protection Act, 1998
- (7) Elderly People Act, 2003

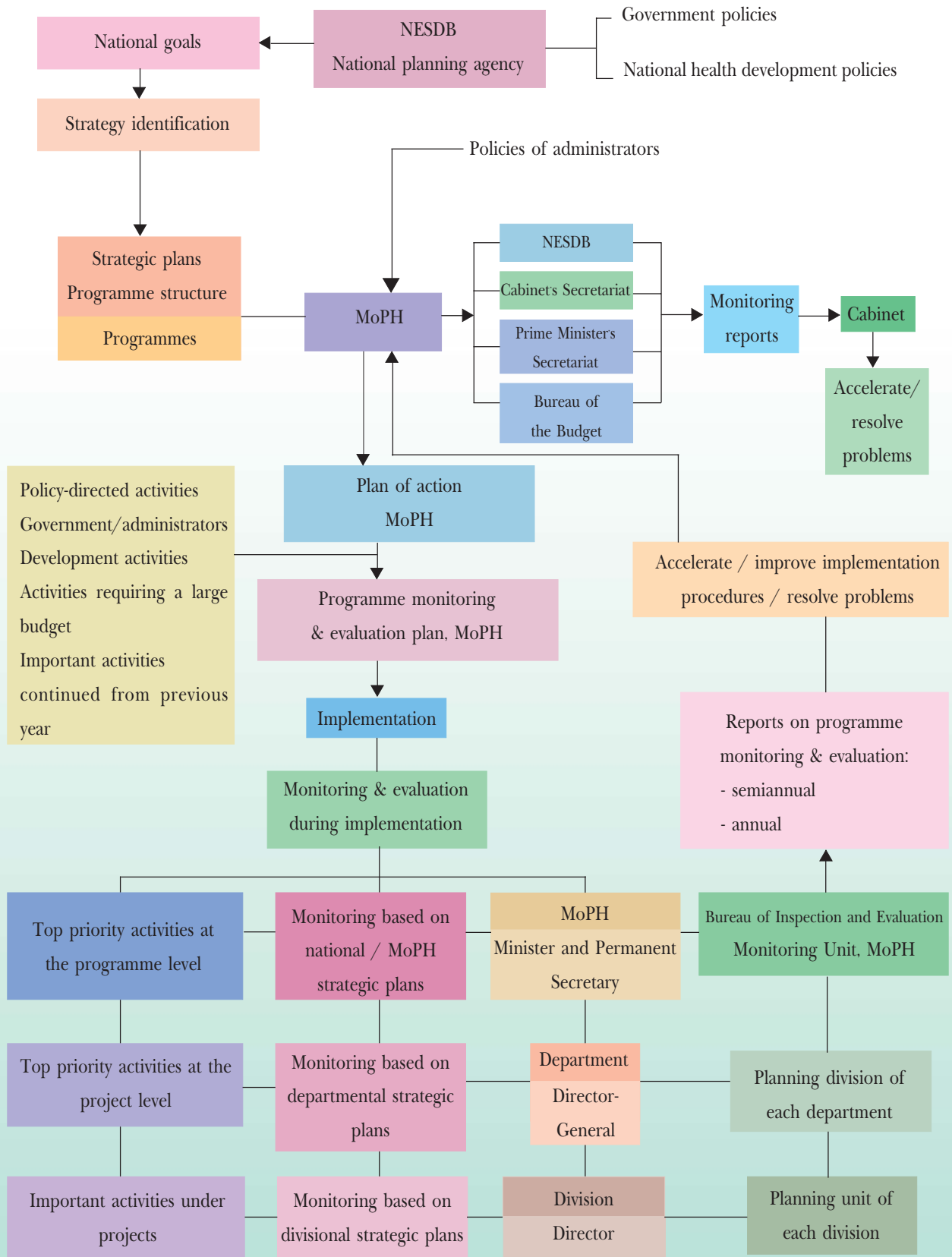
Besides, the National Health System Reform Office has been established, according to the regulation of the Prime Minister's Office, aimed at formulating processes leading to the passage of a National Health Act, which will be regarded as a "health constitution" of Thai people.

### **2.3 Monitoring and Evaluation System**

According to the government's public sector management policy, which emphasizes the results-based management system, goals, targets and strategies of all government agencies are to be set up in response to the needs of people. As a result, the results-based budgeting system has been adopted since fiscal year 2003. And the MoPH has to revise its major programmes according to MoPHs strategic plans, using key performance indicators (KPI) in the monitoring and evaluation of health development programmes so as to meet the national development goals (Figure 6.31).

In order that MoPHs monitoring and evaluation system is undertaken systematically in a unified manner, agencies relevant to programme inspection and evaluation have been merged as the Bureau of Inspection and Evaluation under the MoPHs Office of the Inspector-Generals. The Bureau is assigned to be responsible for monitoring, inspection and evaluation of health programmes according to the mandate of the MoPH.

Figure 6.31 The System for Monitoring and Evaluation of MoPH programmes



## 2.4 Health Information

Health information is available at various agencies; the core agency being the Bureau of Policy and Strategy of the Ministry of Public Health. The evolution of Thailand's health information system can be categorized into four phases as follows:

### (1) Prior to the 4th Plan

During that period, the MoPH collected a number of health statistics on births, deaths, population, and morbidity. Health activity reports were prepared and conducted by health officials at Tambon (subdistrict) and district levels, then submitted to various divisions concerned at the central level for processing as national health statistics. When the decision-makers requested information and data, they had to ask for them directly from such responsible agencies. This led to problems of scattered health statistical data in various agencies and inefficiency of data utilization. The lack of clear understanding about data requirement and use, coupled with inappropriate data processing and reporting, resulted in considerably poor quality and inaccuracy of data.

### (2) The 4th to 6th Plans (1977-1991)

During this period, MoPH decided to establish the Health Information Centre at the central, provincial and district levels under the Planning Management Information System Development Project (PMIS). The developed system and formats were aimed at obtaining quality and complete health data and information at a single unit at the same administrative level. Moreover, the computer technology was introduced for the improvement of the health information system. The capacity of the computerized systems was expanded to all MoPH agencies at both central and provincial levels. Besides, the Management Information System was set up to serve health administrator's decision-making at all levels.

### (3) The 7th to 8th Plans (1992-2001)

During the 7th Plan, a new concept of health information system was adopted. The MoPH lessened the reporting of unnecessary activity items and promoted a data collection system based on provincial health surveys and national health examination surveys, including surveys on the underprivileged such as the hilltribes. For use as a guide in future surveys for health planning purposes, the MoPH coordinated with public educational institutions (under the then Ministry of University Affairs) and the Thailand Development Research Institute in developing the methodology and health survey patterns in four underprivileged groups: the urban and rural poor, child and female commercial sex workers, the disabled, and the elderly who had no relatives or caretakers.

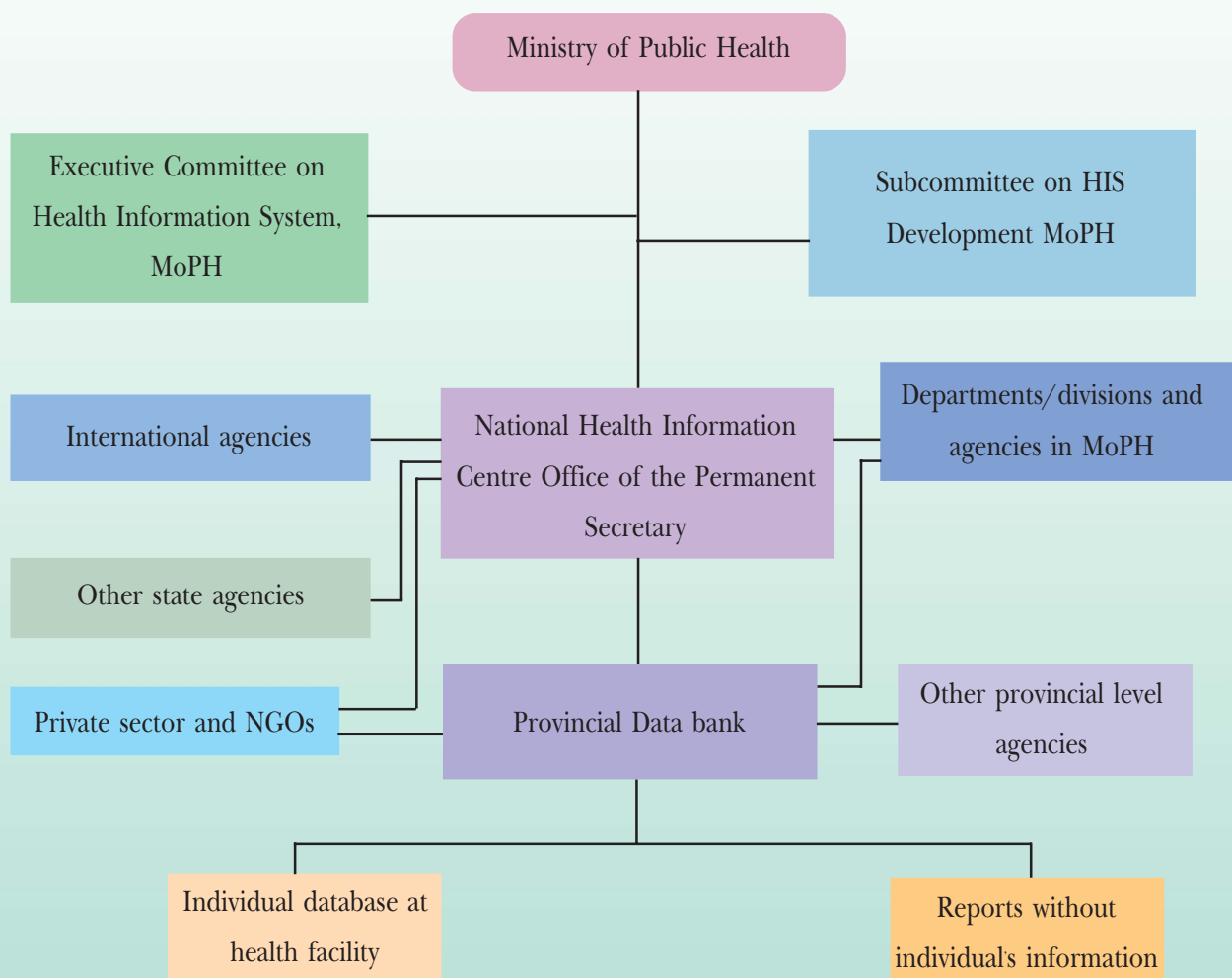
During 1999-2001, the MoPH also conducted a study on the causes of death in 16 provinces, based on the assumption that the mortality information derived from the population registration system of the Ministry of Interior was markedly inaccurate. The study aimed to explore and improve the information system so as to obtain standardized mortality information on causes of death, which would be used for making decisions on investment in effective health service programmes.

In 1997, the MoPH initiated the compilation of all information about health systems of the country as a biennial report entitled "Thailand Health Profile".

**(4) The 9th Plans (2002-2006)**

The health information system of the MoPH has been reformed during this period, in line with the government's public sector reform policy and the restructuring of the MoPH. New guidelines for developing the health information system or MIS reform have been laid down. The new system aims to develop electronic individual cards, which can be linked between the central and local levels. The information in this format can be used for integrated provincial administration purposes. At the operational level, the information systems have been revised at all health centres, community health posts, hospitals and provincial public health offices. The standardized system and structure has been able to link with all agencies concerned; and it is expected to link to the "smart card" system in the future. This system will be able to respond to the need for measuring programme achievement indicators such as KPI, e-inspection, and providing the information to the Ministry Operations Centre (MOC), according to the roles and functions of each agency in an efficient manner (Figure 6.32).

**Figure 6.32** Flowchart of the Network of Health Information System, Thailand



### 3. Structure of Organizations Implementing Health Programmes

Health resources are distributed to various agencies implementing health programmes, including those in the public and private sectors.

#### 3.1 Public Sector

##### 1) Principal Agencies Responsible for the Public Health Nationwide

The MoPH is the principal agency responsible for the promotion, support, control and coordination of all physical and mental health activities, well-being of people, and the provision of health services so that the people will be healthy and live a long life, without premature death.

##### 2) Public Sector Agencies Supporting and/or Implementing Health Activities

(1) Public sector agencies providing health services are the Bangkok Metropolitan Administration (BMA), the Ministry of Education (Office of the Higher Education Commission), the Ministry of Interior, and the Ministry of Defence.

(2) Public sector agencies implementing health-related activities in connection with the environment, workers, children and women, are the Ministry of Industry, the Ministry of Science and Technology, the Ministry of Agriculture and Cooperatives, the Ministry of Labour, the Ministry of Social Development and Human Security, the Ministry of Education, and the Ministry of Natural Resources and Environment.

(3) Public sector agencies supporting efficient implementation of health programmes include the National Economic and Social Development Board (planning support), the Bureau of the Budget (budgetary support), the Civil Service Commission (health manpower support), the Department of Technical and Economic Cooperation (international assistance), the National Statistical Office (information support), the Thailand Research Fund (TRF), the Health Systems Research Institute (HSRI: medical and health research assistance), the Thai Health Promotion Foundation (supporting health promotion activities), and the National Health Security Office (supporting standardized and equitable universal coverage of health insurance).

(4) Public sector agencies responsible for health services for specific groups are the Social Security Office of the Ministry of Labour and the Insurance Department of the Ministry of Commerce.

#### 3.2 Non-profit Private Organizations

There are about 300-500 health-related, non-profit, private organizations throughout the country, including foundations and associations. Such agencies are required to get registered with the Ministry of Culture (National Cultural Commission and/or the Ministry of Interior). So a lot of them are juristic persons but several other small NGOs are non-juristic-person agencies, such as the Rural Doctors Club and the Drug Studies Group.

Generally, these organizations receive financial support from international agencies, and from in-country donations, including government subsidies.

The MoPH allocated approximately 49.2 million baht each year during 1992-1997 and only

35 million baht each year during 1998-2003 for four major programmes of those NGOs: healthcare for the elderly, healthcare for the disabled and disadvantaged, healthcare for mothers, children and youths, and others. In 2004, a total budget of 26.4 million baht has been provided to 70 NGOs (182 projects) for their relevant health programmes (Table 6.44). Besides, another 70 million baht has been provided to 508 NGOs working on HIV/AIDS (Table 6.45) as they all will help the government in implementing health-related development programmes.

For the past several years, these organizations have helped a number of health programmes to effectively achieve their goals in such areas as family planning, sanitation, maternal and child health, and medical services.

Besides, the World Health Organization, a specialized agency of the United Nations System, has also provided financial aids to several non-profit organizations; previously WHO provided such grants for public sector agencies only.

**Table 6.44** Number of Non-Profit Private Organizations and the MoPH Budgetary Support, 1992-2004

Year	No. of organizations			No. of projects			Budget, baht		
	Requesting	Supported	%	Proposed	Supported	%	Requested	Allocated	%
1992	45	42	93.3	91	72	79.1	85,600,000	49,200,000	57.5
1993	142	119	83.8	264	185	70.1	160,844,928	49,200,000	30.6
1994	416	305	73.3	909	654	71.9	334,481,098	49,200,000	14.7
1995	362	103	28.5	615	287	46.7	205,348,213	49,200,000	23.9
1996	150	106	70.7	491	219	44.6	192,234,358	49,200,000	25.6
1997	142	78	54.9	420	180	42.8	230,287,800	49,200,000	21.4
1998	152	101	66.4	258	174	67.4	129,016,142	35,000,000	27.1
1999	177	114	64.4	541	223	41.2	241,270,797	35,760,000	14.8
2000	163	92	56.4	493	191	38.7	257,227,874	46,582,300	18.1
2001	152	66	43.4	411	166	40.4	160,768,084	33,557,800	20.9
2002	161	70	43.5	327	124	37.9	161,955,967	34,965,922	21.6
2003	235	128	54.5	411	251	61.1	160,813,010	34,831,160	21.7
2004	106	70	66.0	295	182	61.7	103,900,200	26,369,545	25.4

- Sources:**
- For 1992-2001, data were derived from the Medical Registration Division, Department of Health Service Support.
  - For 2002-2003, data were derived from the Primary Health Care Division, Department of Health Service Support.
  - Consumers Potential Development Division, Food and Drug Administration.

**Note:** The Food and Drug Administration provided financial support to consumer protection NGOs during 1999-2003 only.



**Table 6.45** Number of NGOs Involved in HIV/AIDS Programmes and the MoPH Budgetary Support, 1992-2004

Year	No. of organizations			No. of projects			Budget, baht		
	Requesting	Supported	%	Proposed	Supported	%	Requested	Allocated	%
1992	37	23	62.2	42	35	83.3	66,125,734	11,900,000	18.0
1993	38	36	94.7	61	56	91.8	33,123,818	15,000,000	45.3
1994	101	76	75.2	120	91	75.8	72,903,868	10,300,000	14.1
1995	115	94	81.7	209	153	73.2	350,765,292	75,000,000	21.4
1996	186	122	65.6	308	188	61.0	267,232,488	80,000,000	29.9
1997	268	184	68.7	385	247	64.1	309,015,357	90,000,000	29.1
1998	434	244	56.2	725	343	47.3	494,739,684	90,000,000	18.2
1999	596	371	62.2	931	458	49.2	450,972,885	87,262,350	19.3
2000	625	293	46.9	882	372	42.2	368,671,357	60,000,000	16.3
2001	497	371	74.6	730	457	62.6	403,438,189	70,000,000	17.4
2002	660	444	67.3	922	522	56.6	370,340,183	70,000,000	18.9
2003	712	519	72.9	987	605	61.3	337,938,984	70,000,000	20.7
2004	678	508	74.9	868	577	66.5	289,624,851	70,000,000	24.2

**Source:** Bureau of AIDS, Tuberculosis and Sexually Transmitted Infections, Department of Disease Control, MoPH.

### 3.3 For-profit Private Organizations

In addition to providing health services, the private sector also plays a relatively little role in producing health personnel, except that their role in producing nurses has been rising. In 2003, there were six private nursing colleges producing 586 graduate nurses (Table 6.46).

**Table 6.46** Numbers of Private Educational Institutions and Graduates from Their Health Personnel Production Programmes by Field of Study, 1997-2003

Field of study	For-profit institutions								Non-profit institutions							
	No. of institutions				No. of graduates				No. of institutions				No. of graduates			
	1997	1999	2001	2002	2003	1997	1999	2001	2002	2003	1997	1999	2001	2002	2003	
1. Medicine	1	1	1	1	1	53	52	41	49	79	-	-	-	-	-	
2. Nursing	3	4	3	3	3	42	166	174	224	160	6	6	6	485	586	
3. Pharmacy	1	1	1	1	1	88	81	78	108	116	1	1	1	110	109	
4. Medical technology	1	1	1	1	1	28	16	55	27	46	1	1	1	68	107	
5. Physical therapy	1	1	1	1	1	6	13	7	29	18	1	1	1	58	65	
6. Public health	-	-	-	-	-	-	-	-	-	-	1	1	1	92	130	
7. Dentistry	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**Source:** Bureau of Private Higher Education Coordination Affairs, Office of the Higher Educational Commission.

In privately-run for-profit medical facilities, 12 groups of investors have been formed and listed in the Stock Exchange of Thailand (2003). Such corporates and their networks include Aekchon Hospital, Bangkok Dusit Vejakarn Hospital, Krung Thon Hospital, Mahachai Hospital, Chiang Mai Medical Co. Ltd., Wattana Medical, Nonthavej Hospital, Ramkhamhaeng Hospital, Smitivej Hospital, Vibhavadi Hospital, Bamrungrad Hospital, and Sikharin Hospital.

## 4. Health Services

Health services in Thailand are classified into five levels according to the level of care as follows (Figure 6.33).

**4.1 Self-Care at Family Level.** Services at this level include the enhancement of people's capacity to provide self-care and make decisions about health. Thai people tend to realize more about their health such as reducing smoking and performing physical activity. However, self-care is lessening when ill due to their greater utilization of public and private health facilities.

**4.2 Primary Health Care Level.** The primary health care services include those organized by the community in providing services related to health promotion, disease prevention, curative care and rehabilitative care. The medical and health technologies applied at this level are generally not so high, in response to community's needs and culture. Service providers are the people themselves, village health volunteers (VHVs) or other non-governmental volunteers. Clearly, the services provided are relatively close to self-care and primary care service provision.

**4.3 Primary Care Level.** Primary care is provided by health personnel and general practitioners (GPs). In the Thai primary care system, except for those services provided in health centres and community hospitals, there are no designated geographical areas. And in general there are no holistic care services at the family level.

The universal coverage of health care policy of the present government aims to develop a holistic primary care system for all families across the country. In the near future, the entire holistic primary care system will be more effective and stronger. The components of the primary care system are as follows:

**1) Community Health Posts.** A community health post is a village level health service unit established specifically in remote areas, covering a population of 500 to 1,000, and staffed by only one community health worker (a permanent employee of MoPH). Services provided at this level include health promotion, disease prevention and simple curative care.

**2) Health Centres.** A health center is a subdistrict (tambon) or village level health service unit - a first - line unit, covering a population of about 1,000 - 5,000, with health staff including a health worker, a midwife and a technical nurse. The MoPH is now in the process of assigning a dental nurse, a professional nurse, and a health specialist to each large health centre. Services provided at this level include health promotion, disease prevention, and curative care. Health centre staff run health programmes according to the standard operational procedures established by the MoPH, under the technical supervision and support of the community hospital.

Since 2002, under the universal coverage of health care scheme, Primary Care Unit (PCUs) have been established to provide basic or primary care to the people, with a linkage in a holistic manner as well as referral system with higher-level of health care facilities. At present, 5,946 PCUs have been upgraded from subdistrict health centres and another 953 PCUs transformed from other types of health facilities such as hospital-initiated community health service centres, municipal health centres or newly established PCUs.

**3) Health Centres of Municipalities, Outpatient Departments of Public and Private Hospitals at All Levels, and Private Clinics.** At these facilities, outpatient care is provided by physicians and other health professionals.

**4) Drugstores.** A drugstore is a healthcare unit at the primary care level that is operated by a pharmacist or someone who has been trained in basic pharmacy.

**4.4 Secondary Care Level.** Medical and health care at this level is managed by medical and health personnel with intermediate level of specialization. General and specialized medical facilities include the following:

**1) Community hospitals.** A community hospital is located in a district or minor-district with 10 to 150 inpatient beds, covering a population of 10,000 or more, and staffed by doctors and other health professionals. Generally, services provided are mostly curative care, compared to those at primary care facilities.

**2) General or regional hospitals and other large public hospitals.** A general hospital in this category is located in a provincial city or a large district town, equipped with 200 to 500 beds, while a regional hospital located in a provincial city has over 500 beds and medical specialists in all fields.

**3) Private hospitals.** Most private hospitals are operated as a business entity with both full-time and part-time staff, and clients are required to pay for services.

**4.5 Tertiary Care.** Medical and health services at this level are provided by medical specialists and health professionals. Tertiary care facilities include:

**1) General hospitals**

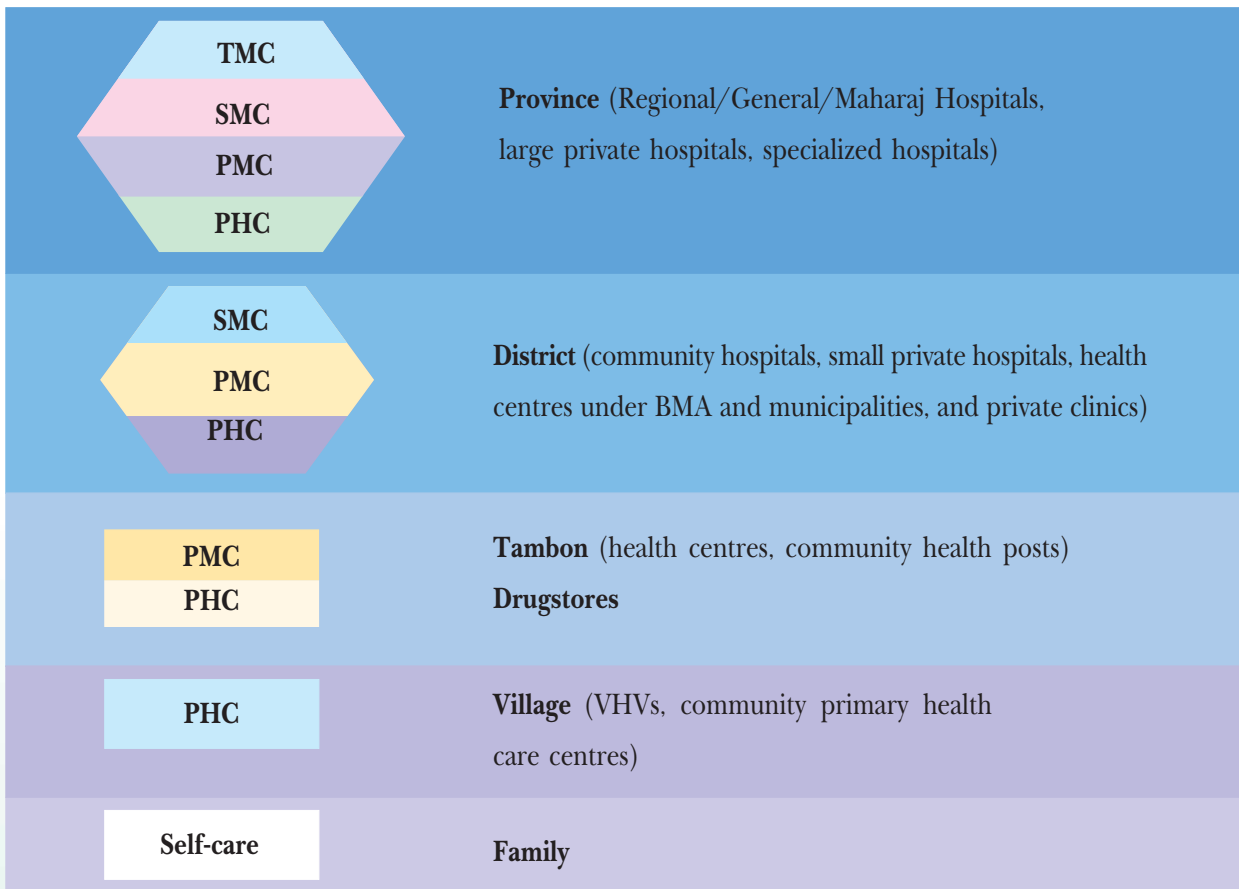
**2) Regional hospitals**

**3) University hospitals** and large public hospitals belonging to other ministries or local administrative organizations.

**4) Large private hospitals** have medical specialists in all specialties, mostly with over 100 beds.

The classification of health facilities mentioned above is relatively rough; as a matter of fact, the tertiary care facilities also provide primary care services.

**Figure 6.33** Levels of Health Services in Thailand



In analyzing the pattern of outpatient services at three levels of health care, i.e., health centres or community health posts, community hospitals or extended OPDs, and regional/general hospitals, in the past three decades, it is found that there has been a change in the number of outpatients. The number of outpatients has a tendency to increase substantially particularly at the health centre and community health post levels, followed by that at community hospitals; the increase is the least at general/regional hospitals. For this reason, the patient structure is inclined to gradually transform from a reverse triangle to a broad-based triangle (Table 6.47 and Figure 6.34).

**Table 6.47** Numbers of Outpatients at Regional, General, and Community Hospitals, and Health Centres as well as Community Health Posts, 1977-2003

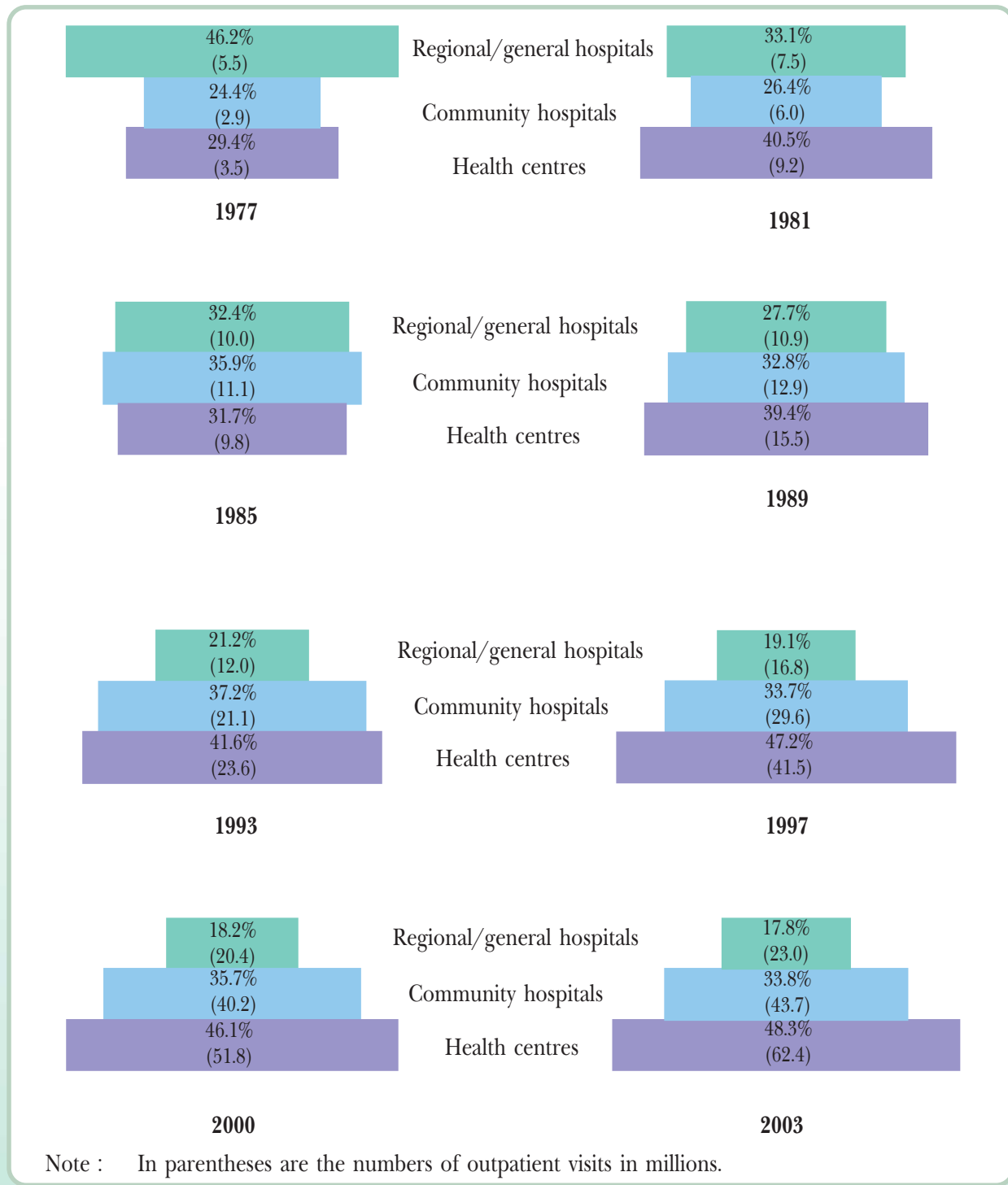
Health facility	Outpatient visits (in millions)											
	1977	1981	1985	1989	1993	1995	1996	1997	1998	1999	2000	2003
Regional/general hospitals	5.5 (46.2)	7.5 (33.1)	10.0 (32.4)	10.9 (27.7)	12.0 (21.2)	14.6 (20.0)	15.5 (19.6)	16.8 (19.1)	18.1 (18.8)	19.4 (18.8)	20.4 (18.2)	23.0 (17.8)
Community hospitals and extended OPDs	2.9 (24.4)	6.0 (26.4)	11.1 (35.9)	12.9 (32.8)	21.1 (37.2)	26.1 (35.7)	28.0 (35.5)	29.6 (33.7)	33.9 (35.1)	36.7 (35.6)	40.2 (35.7)	43.7 (33.8)
Health centres and community health posts	3.5 (29.4)	9.2 (40.5)	9.8 (31.7)	15.5 (39.4)	23.6 (41.6)	32.4 (44.3)	35.4 (44.9)	41.5 (47.2)	44.5 (46.1)	46.86 (45.5)	51.8 (46.1)	62.4 (48.3)
Total	11.9	22.7	30.9	39.3	56.7	73.1	78.9	87.9	96.5	103.0	112.4	129.1

**Sources:** Bureau of Policy and Strategy and Bureau of Health Service System Development.

**Note:** The figures in ( ) are a percentage in relation to total outpatients.



**Figure 6.34** Proportions and Numbers of Outpatients at Various Levels of Health Facilities, 1977-2003



## 5. Health Care Financing

### **5.1 Thailand's National Health Expenditure**

During the past decades, Thailand's national health spending has risen considerably from 3.82% of gross domestic product (GDP) in 1980 to 6.1% in 2002, more rapidly than the GDP growth. The average health spending increased 7.95% per annum in real terms, while the average annual GDP growth was 5.66%.

The national health expenditure has climbed from 25,315 million baht in 1980 to 333,798 million baht in 2002. The per capita health spending has jumped 13.2-fold from 545 baht in 1980 to 5,336 baht in 2002 or 9.8-fold in current prices (Tables 6.48, 6.49 and 6.50). Most of the national health expenditure is used for curative, and 30% or one-third of which was spent on drugs (Table 6.50).

## 5.2 Sources of Health Care Expenditure

**5.2.1 Public Financing.** The largest public financial source is the MoPH, which is the central agency. During 1980-1989, the proportion of public financing dropped from 29.9% in 1980 to 19.7% in 1989. After that, the proportion steadily rose to 37.8% in 1997 as a result of the rapid economic growth of the country and the government's policies on human development and health for all. But during the economic crisis, the government had to adjust the national budget downwards, according to the requirements of the International Monetary Fund (IMF); the proportion dropped to 32.9% in 2001, but rose again to 34.1% in 2002 to support the government's policy on universal coverage of healthcare. Overall, the MoPH budget as a percentage of the total national budget has risen from 6.7% in 2001 to 6.9% and 7.6% in 2002 and 2004, respectively (Tables 6.48 and 6.49, and Figure 6.37).

**5.2.2 Private Sector Financing.** With regard to private health spending, the household is the largest source as the government health insurance scheme did not cover all the population; 30% of whom were uninsured and they had to buy their own healthcards. Thus, household spending played a significant role in the health service system, the proportion being more than 60% (Tables 6.48 and 6.49, and Figure 6.35). In 1980, the proportion of household health spending was 68.6% and peaked at 80.1% in 1989 due a decrease in the government budget and the households had to bear a greater share of overall health expenditure. Between 1989 and 1997 (the year of economic crisis), the proportion of household spending declined steadily to 62.2%, while that of public spending rose to 67.03% in 2000. However, after the 1997 economic crisis, the government budget dropped again. In the future, if the economy continues to grow, the public health budget will be rising consistent with the policies on universal healthcare scheme and healthcare quality improvement. And there has been a tendency for the people to use health services at health facilities and a drop in drug purchases for self-medication, resulting in a decline in household spending.

**5.2.3 International Financial Assistance.** The trends in international financial support declined from 1.44% in 1980 to 0.15 in 1990 and continued declining to 0.06 in 2001. However, since 2002, such international support has risen to 0.11% in 2002, and Thailand has a tendency to become one of the donor countries providing assistance to other countries particularly those in Indochina.

**Table 6.48** Health Expenditure at Current Prices, 1980-2002 (Million baht)

Year	Public sector										Private sector			International financial aid		Total health expenditure		
	MoPH	Other ministries	Civil servant benefit scheme	State enterprise benefit scheme	Workers, compensation fund	Social security	Total	Per cent	Private health insurance	House-holds & employers	Total	Percent	Total	Amount	Per capita	As percentage of GDP		
1980	4,495	2,210	660	111	100	-	7,576	29.93	224	17,150	17,374	68.63	365	25,315	544.94	3.82		
1981	5,572	2,535	995	167	149	-	9,418	29.66	284	21,229	21,513	67.75	824	31,755	668.70	4.18		
1982	6,652	2,838	1,219	204	153	-	11,066	31.73	318	23,109	23,427	67.18	380	34,873	719.16	4.14		
1983	7,902	3,134	1,482	248	205	-	12,971	31.50	350	27,469	27,819	67.55	391	41,181	832.63	4.47		
1984	8,618	3,467	1,791	300	250	-	14,426	27.61	469	36,951	37,420	71.63	395	52,241	1,036.61	5.29		
1985	9,044	3,716	2,157	362	236	-	15,515	26.18	547	42,751	43,298	73.06	452	59,265	1,146.75	5.61		
1986	9,275	3,965	2,594	435	221	-	16,490	24.96	630	48,432	49,062	74.27	508	66,060	1,254.78	5.83		
1987	9,525	4,082	2,828	474	274	-	17,183	22.70	756	57,258	58,014	76.63	507	75,704	1,439.10	5.82		
1988	10,373	4,338	3,156	529	347	-	18,743	20.83	951	69,955	70,906	78.81	319	89,968	1,649.70	5.77		
1989	11,733	4,448	3,521	590	397	-	20,689	19.69	1,162	82,988	84,150	80.07	252	105,091	1,895.31	5.66		
1990	16,225	4,558	4,316	723	443	-	26,265	20.96	1,403	97,450	98,853	78.89	184	125,302	2,224.04	5.74		
1991	20,569	4,699	5,127	859	624	778	32,656	23.52	1,544	104,348	105,892	76.28	270	138,818	2,449.93	5.54		
1992	24,604	4,840	5,854	981	753	2,057	39,089	24.75	1,775	116,745	118,520	75.03	356	157,965	2,753.20	5.58		
1993	32,898	4,928	7,906	1,291	927	2,473	50,423	27.39	2,061	131,297	133,358	72.45	281	184,062	3,141.85	5.81		
1994	39,319	5,558	9,954	1,668	1,169	3,773	61,441	30.73	2,307	136,047	138,354	69.19	154	199,949	3,405.40	5.51		
1995	45,833	6,677	11,156	1,869	1,370	3,991	70,896	31.17	4,984	151,508	156,492	68.79	89	227,477	3,837.50	5.43		
1996	55,861	7,768	13,587	2,418	1,610	6,239	87,483	33.97	6,296	163,693	169,989	66.01	35	257,507	4,307.00	5.58		
1997	68,934	7,182	15,503	2,756	1,987	10,245	106,607	37.80	7,518	167,780	175,298	62.16	96	282,001	4,663.80	5.96		
1998	65,065	5,740	16,440	2,817	1,630	7,637	99,329	35.98	7,803	168,876	176,679	63.99	82	276,090	4,514.50	5.97		
1999	62,787	6,087	15,174	2,539	1,404	7,676	95,667	33.66	8,171	180,356	188,527	66.33	41	284,235	4,615.90	6.13		
2000	63,001	6,195	17,062	1,622	1,257	9,623	98,760	32.95	7,291	193,634	200,925	67.03	72	299,757	4,852.80	6.09		
2001	61,563	7,134	19,180	3,013	1,277	13,543	105,710	32.91	8,400	206,942	215,342	67.03	187	321,239	5,173.40	6.26		
2002	70,923	6,884	20,475	3,081	1,220	11,223	113,806	34.09	9,734	209,886	219,620	65.80	372	333,798	5,336.10	6.12		

**Sources:** 1. NESDB, Thailand's National Income, 1951-2002.

2. Viroj Tangcharoensathien. Sufferings and Causes in Health System, 1996.

3. Charles Myers. Financing Health Services and Medical Care in Thailand, 1985.

**Notes:** Methods of estimating health expenditure

1. MoPH-real figures from the Bureau of Policy and Strategy, Office of the Permanent Secretary.
2. Workers' Compensation Fund and Social Security—real figures from the Social Security Office.
3. Civil servants welfare—real figures from the Comptroller—General's Department, Ministry of Finance.
4. Health spending of households and employers—figures were derived from NESDB's National Income Reports; since 1994, such figures have been adjusted to include only fees for curative care, medication, and medical supplies/equipment; while the spending on emergency care has been shifted to "other service item", resulting in a drop in this category.
5. Other ministries
  - 5.1 1980-1983—from Financing Health Services and Medical Care in Thailand, Charles Myers, 1985.
  - 5.2 1984-1992 (odd number years)—from the Viroj's Sufferings and Causes Study.
  - 5.3 1984-1992 (even number years)—by averaging the figures in the previous and following years.
  - 5.4 1994-2000—from the Bureau of the Budget.
  - 5.5 2001-2002—figures were derived from actual expenditure or spending as reported by the Comptroller—General's Department, Ministry of Finance, computed by NESDB.
6. State enterprise welfare
  - Estimates based on a constant proportion in relation to the civil servants welfare, i.e. = civil servants welfare x  $\frac{1,668}{9,954}$  (based on national health account figures for 1994)
  - 1996-2002—real numbers from the State Enterprise Office, Bureau of the Budget.
7. Private health insurance
 

Data for 1980-1986, derived by Charles Myers from the Insurance Department.

Data for 1994, from Viroj Tangcharoensathien.

  - 7.1 1980-1983—from Charles Myer's report.
  - 7.2 1984-1994—using the ratio of private insurance to total private health expenditure, i.e. ~1.26 for 1983 and ~1.62 for 1994, and average increasing ratios during the period.
  - 7.3 1995-2002—real numbers from the Insurance Department, Ministry of Commerce.
8. Foreign aid
  - 8.1 1980-1983—from Charles Myer's report.
  - 8.2 1984-1992 (even number years)—from Viroj's Sufferings and Causes Study.
  - 8.3 1984-1993 (odd number years)—by averaging the figures in the previous and following years.
  - 8.4 1994-2001—data were derived from Viroj Tangcharoensathien et al. Report on National Health Accounts, 1994-2001.
  - 8.5 2002, data were derived from the World Health Organization, the Department of Technical and Economic Cooperation, and all MoPH's departments.
9. Drug consumption figures for 2002 were derived from Chapter 6 (Table 6.39).

**Table 6.49** Proportion of Overall Health Expenditure Sources in Thailand, 1980-2002 (1988 prices)

Source of spending	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<b>1. Public sector</b>																							
Ministry of Public Health	17.76	17.55	19.07	19.19	16.50	15.26	14.04	12.58	11.53	11.16	12.95	14.82	15.58	17.87	19.67	20.15	21.69	24.44	23.57	22.10	21.02	19.16	21.25
Other ministries	8.73	7.98	8.14	7.61	6.64	6.27	6.00	5.39	4.82	4.23	3.64	3.39	3.06	2.68	2.78	2.94	3.02	2.55	2.08	2.14	2.07	2.22	2.06
Civil servants benefit scheme	2.61	3.13	3.50	3.60	3.43	3.64	3.93	3.74	3.51	3.35	3.44	3.69	3.71	4.30	4.98	4.91	5.28	5.50	5.95	5.34	5.69	5.97	6.13
State enterprise benefit scheme	0.44	0.53	0.58	0.60	0.57	0.61	0.66	0.63	0.59	0.56	0.58	0.62	0.62	0.70	0.83	0.82	0.94	0.98	1.02	0.89	0.54	0.94	0.92
Workers' compensation fund	0.40	0.47	0.44	0.50	0.48	0.40	0.33	0.36	0.39	0.38	0.35	0.45	0.48	0.50	0.58	0.60	0.62	0.70	0.59	0.49	0.42	0.40	0.37
Social security	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	1.30	1.34	1.89	1.75	2.42	3.63	2.77	2.70	3.21	4.22	3.36
Total	29.93	29.66	31.73	31.50	27.61	26.18	24.96	22.70	20.83	19.69	20.96	23.52	24.75	27.39	30.73	31.17	33.97	37.80	35.98	33.66	32.95	32.91	34.09
<b>2. Private sector</b>																							
Private health insurance	0.88	0.89	0.91	0.85	0.90	0.92	0.95	1.00	1.06	1.11	1.12	1.11	1.12	1.12	1.15	2.19	2.44	2.66	2.82	2.88	2.43	2.61	2.92
Households and employers	67.75	66.85	66.27	66.7	70.73	72.14	73.32	75.63	77.76	78.97	77.77	75.17	73.91	71.33	68.04	66.6	63.57	59.5	61.17	63.45	64.6	64.42	62.88
Total	68.63	67.75	67.18	67.55	71.63	73.06	74.27	76.63	78.81	80.07	78.89	76.28	75.03	72.45	69.19	68.79	66.01	62.16	63.99	66.33	67.03	67.03	65.80
<b>3. Others</b>																							
International financial aid	1.44	2.59	1.09	0.95	0.76	0.76	0.77	0.67	0.35	0.24	0.15	0.19	0.23	0.15	0.08	0.04	0.01	0.03	0.03	0.01	0.02	0.06	0.11
Total (%)	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Overall health expenditure (million baht)	34,916	40,415	42,246	48,131	60,187	66,824	73,275	80,184	89,968	99,033	111,635	116,955	127,368	143,634	149,962	161,255	172,438	178,935	162,025	166,284	172,671	182,108	187,949
Increase rate (%)	-	15.75	4.53	13.93	25.05	11.03	9.65	9.43	12.20	10.08	12.72	4.77	8.90	12.77	4.41	7.53	6.93	3.77	-9.45	2.63	3.84	5.47	3.21
As percentage of GDP	3.82	4.18	4.14	4.47	5.29	5.61	5.83	5.82	5.77	5.66	5.74	5.54	5.58	5.81	5.51	5.43	5.58	5.96	5.97	6.13	6.09	6.26	6.12
Population (million)	46.45	47.49	48.49	49.46	50.40	51.68	52.65	52.61	54.54	55.45	56.34	56.66	57.37	58.58	58.72	59.28	59.79	60.46	61.15	61.58	61.77	62.09	62.55
Per capita expenditure (baht)	752	851	871	973	1,194	1,293	1,392	1,524	1,650	1,786	1,981	2,064	2,220	2,452	2,554	2,720	2,884	2,959	2,649	2,700	2,795	2,933	3,005
Increase (%)	-	13.21	2.37	11.70	22.72	8.28	7.63	9.51	8.23	8.27	10.94	4.17	7.56	10.44	4.16	6.50	6.03	2.60	-10.48	1.93	3.52	4.94	2.45

Source: Table 6.48

**Table 6.50** Expenditures on Drugs and Health in Relation to GDP, 1980-2002 (Million baht)

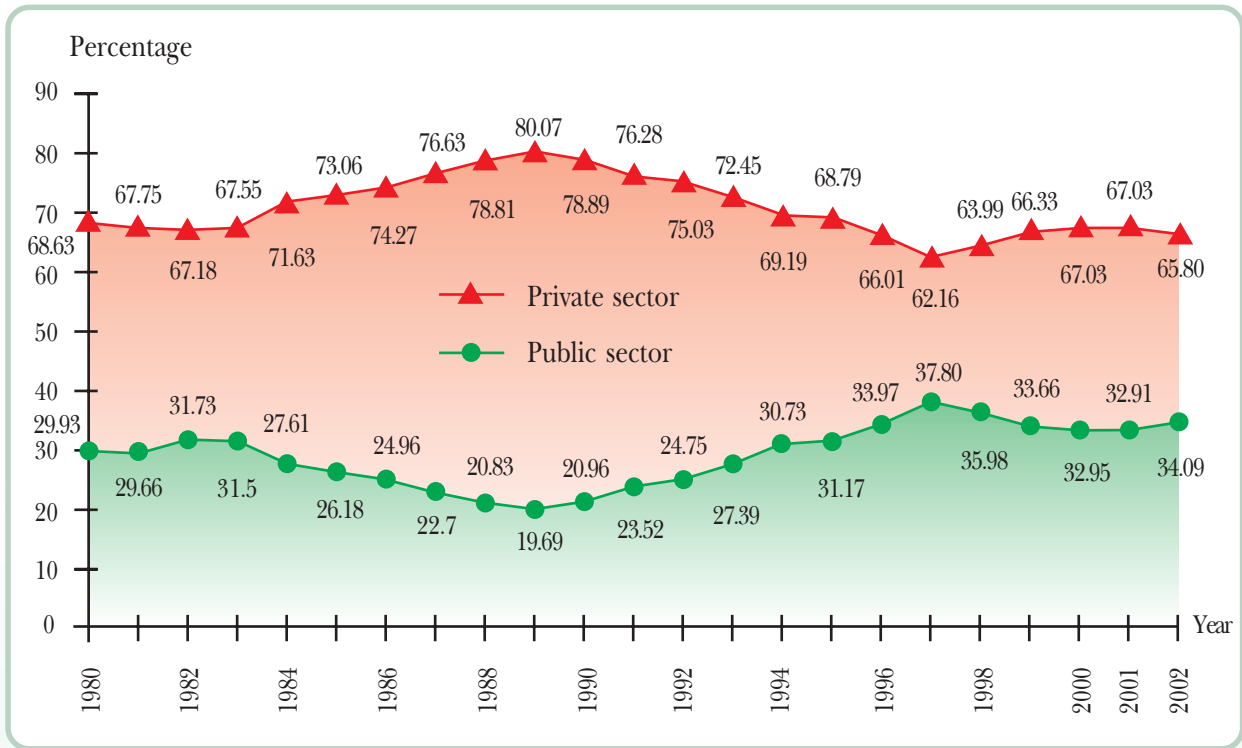
Year	GDP			Health expenditure			Drug expenditure					
	Actual Values	Values in 1988 prices	Increase (percent)	Actual values	Values in 1988 prices	Increase (percent)	Percentage of GDP	Actual values	Values in 1988 prices	Increase (percent)	As percentage of GDP	As percentage of health expenditure
1980	662,482	913,733	4.61	25,315	34,916	-	3.82	-	-	-	-	-
1981	760,356	967,706	5.91	31,755	40,415	15.75	4.18	-	-	-	-	-
1982	841,569	1,019,501	5.35	34,873	42,246	4.53	4.14	-	-	-	-	-
1983	920,989	1,076,432	5.58	41,181	48,131	13.93	4.47	16,686	19,502	-	1.81	40.52
1984	988,070	1,138,353	5.75	52,241	60,187	25.05	5.29	20,629	23,767	21.87	2.09	39.49
1985	1,056,496	1,191,255	4.65	59,265	66,824	11.03	5.61	26,317	29,674	24.85	2.49	44.41
1986	1,133,397	1,257,177	5.53	66,060	73,275	9.65	5.83	18,669	20,708	-30.21	1.65	28.26
1987	1,299,913	1,376,847	9.52	75,704	80,184	9.43	5.82	21,352	22,616	9.21	1.67	28.73
1988	1,559,804	1,559,804	13.29	89,968	89,968	12.20	5.77	26,674	26,674	17.94	1.71	29.65
1989	1,856,992	1,749,952	12.19	105,091	99,033	10.08	5.66	33,763	31,817	19.28	1.82	32.13
1990	2,183,545	1,945,372	11.23	125,302	111,635	12.72	5.74	35,369	31,511	-0.96	1.62	28.23
1991	2,506,635	2,111,862	8.56	138,818	116,955	4.77	5.54	39,464	33,249	5.51	1.57	28.43
1992	2,830,914	2,282,572	8.08	157,965	127,368	8.90	5.58	42,770	34,486	3.72	1.51	27.08
1993	3,170,258	2,473,937	8.38	184,062	143,634	12.77	5.81	42,364	33,059	-4.14	1.34	23.02
1994	3,629,341	2,722,006	10.03	199,949	149,962	4.41	5.51	52,823	39,617	19.83	1.45	26.41
1995	4,186,212	2,967,542	9.02	227,477	161,255	7.53	5.43	68,437	48,514	22.46	1.63	30.08
1996	4,611,041	3,087,751	4.05	257,507	172,438	6.93	5.58	81,440	54,536	12.41	1.77	31.63
1997	4,732,610	3,002,925	-2.75	282,001	178,935	3.77	5.96	92,728	58,838	7.89	1.98	32.88
1998	4,626,447	2,715,051	-9.59	276,090	162,025	-9.45	5.97	82,888	48,643	-17.33	1.82	30.02
1999	4,637,079	2,712,800	-0.08	284,235	166,284	2.63	6.13	91,208	53,359	9.70	1.98	32.09
2000	4,923,263	2,835,981	4.54	299,757	172,671	3.84	6.09	102,400	58,986	10.55	2.08	34.16
2001	5,133,836	2,910,338	2.62	321,239	182,108	5.47	6.26	116,767	66,194	12.22	2.27	36.35
2002	5,451,854	3,069,738	5.48	333,798	187,949	3.21	6.12	120,290	67,731	2.32	2.21	36.04
		Average	5.66			7.95				6.77		

**Sources:** Table 6.48 and Table 6.49

**Note:** Since 1994, NESDB has adjusted the GDP figures.



**Figure 6.35** Proportions of Health Expenditure in the Public and Private Sectors, 1980-2002



**Sources:** 1. National Economic and Social Development Board. Thailand National Income, 1951-2002.  
 2. Viroj Tangcharoensathien. Sufferings and Causes in the Health System, 1996.  
 3. Charles Myers. Financing Health Services and Medical Care in Thailand, 1985.

In comparison with other Asian countries (Table 6.51), the Thai government has not given a high priority to health care as the people still bear a larger share in health spending for self-care.

**Table 6.51** Comparison of Health Expenditures among Some Asian Countries

Country	Health expenditure		Proportion, Govt.: household
	Per capita (USD)	As percentage of GDP	
Indonesia	77	2.4	25.1 : 74.9
The Philippines	169	3.3	45.2 : 54.8
Sri Lanka	122	3.6	48.9 : 51.1
Malaysia	345	3.8	53.7 : 46.3
Thailand (2002)	124	6.1	34.1 : 65.8
Singapore	993	3.9	33.5 : 66.5
South Korea	948	6.0	44.4 : 55.6

**Source:** The World Health Report, 2004 (data for 2001).

**Note:** For 2002, the exchange rate of 43.1 baht to a US dollar is used.



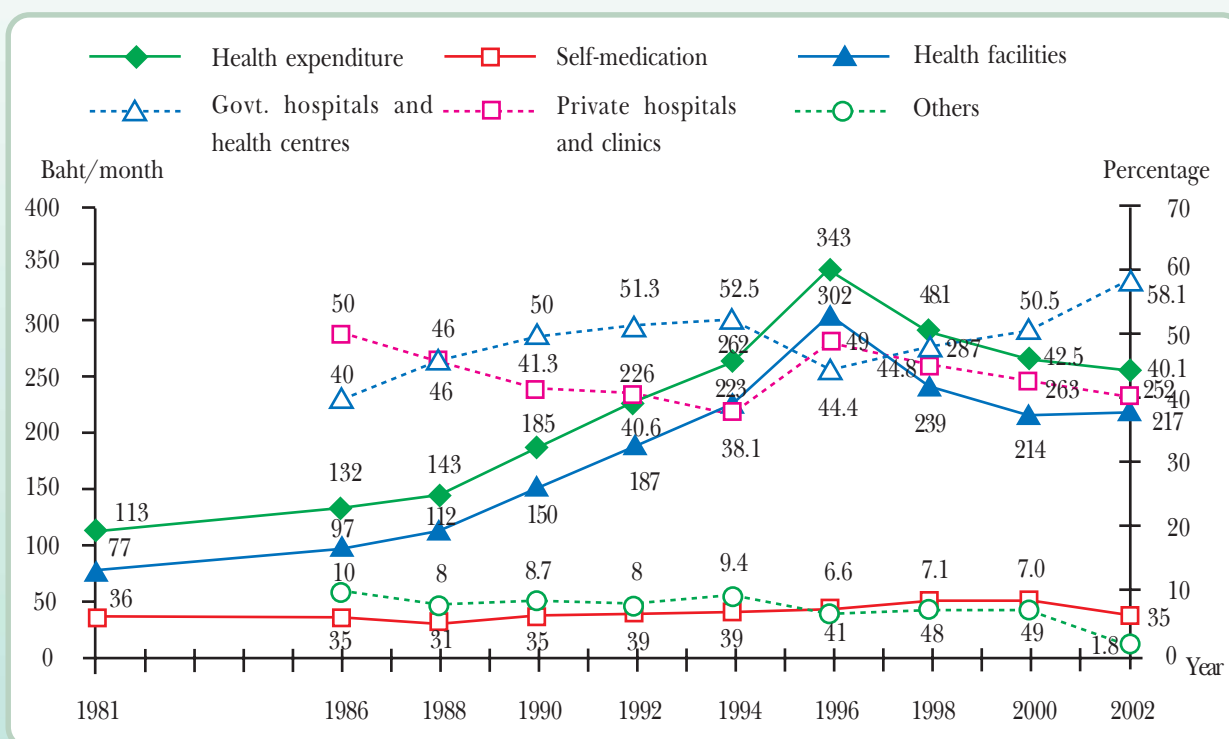
### 5.3 Health Expenditure in the Household

The National Statistical Office conducted a series of household income and expenditure surveys every five years in 1976, 1981 and 1986, and every two years between 1988 to 2002. The household health spending as shown in Table 6.52 between 1981 and 2002 was rather stable, ranging from 3.6% to 3.9%, between 1981 and 1996, but declining to 3.2% during the economic crisis and to 2.6% in 2002. The average household size has become smaller, declining from 4.5 to 3.5 members during the period. The monthly household spending on consumer goods is as noted below.

**5.3.1 Household healthcare spending on self-prescribed drugs** dropped from 31.9% in 1981 to 11.9% in 1996. On the other hand, healthcare spending at health facilities (including drug expenses) at private clinics/hospitals and public hospitals rose from 68.1% in 1981 to 88.0% in 1996.

Such trends have been apparent since the 1997 economic crisis; more people tend to spend more on self-medication and less on institutional care, particularly higher at private facilities. It is noteworthy that the spending on healthcare were rising particularly at private health facilities, but after the economic recovery in 2002, the proportion of self-medication has dropped to 13.9% (Figure 6.36 and Table 6.52).

Figure 6.36 Household Health Expenditure, 1981–2002



Sources: Reports on Household Socio-Economic Surveys. National Statistical Office.

Table 6.52 Health Expenditure Patterns of Households (baht/month), 1981-2002

Health expenditure pattern	1981	1986	1988	1990	1992	1994	1996	1998	1999	2000	2001	2002
	Baht %	Baht %	Baht %	Baht %	Baht %	Baht %	Baht %	Baht %	Baht %	Baht %	Baht %	Baht %
Household size(persons)	4.5	4.3	4.0	4.1	3.9	3.8	3.7	3.7	3.7	3.6	3.6	3.5
Total expenses	3,374	3,783	4,161	5,437	6,529	7,567	9,190	10,389	10,238	9,848	10,025	10,889
Consumption expenses	3,151	3,486	3,804	4,942	5,892	6,787	8,072	8,966	8,903	8,558	8,758	9,601
Health expenditure	113	132	143	185	226	262	343	287	273	263	264	252
Self-medication	36	31.9	31	35	39	39	41	48	42	49	46	35
Spending at health facilities	77	68.1	112	150	187	223	302	239	231	214	218	217
- Public hospitals and health centres	-	48	52	62	76	85	148	107	94	91	98	87
- Private hospitals/clinics	-	39	40	75	96	117	134	115	122	108	110	126
- Others	-	10	9	13	15	21	20	17	15	15	10	4
				8.7	8.0	9.4	6.6	7.1	6.5	7.0	4.6	1.8

Sources: Reports on Household Socio-Economic Surveys, National Statistical Office.

**5.3.2 The proportion of healthcare spending at private facilities** has been rising while that at public facilities has been declining (Table 6.52). Household health spending at private health facilities had risen from 40% in 1986 to 52.5% in 1994; on the contrary, the spending at government health facilities had fallen from 50% to 38.1% during the same period. After the economic crisis, more people tend to use health services at public hospitals and health centres, and a smaller number of people attend private health facilities. Spending on other health-related services, such as dental and eyesight care, ranges from 8% to 10% of the overall household health expenses. It is noteworthy that since 2002 (with economic recovery), household health spending at private hospitals/clinics has been rising.

The household health expenditure is generally for an individual transaction of health care between a recipient and a provider. In the medical care market, a consumer will normally never have any bargaining power with the doctor due to the unilateral information possession of the doctor. Thus, the doctor can determine both the type and quantity of consumers demand (a supplier-dictated demand), resulting in an imperfect market and a highly inefficient health system.

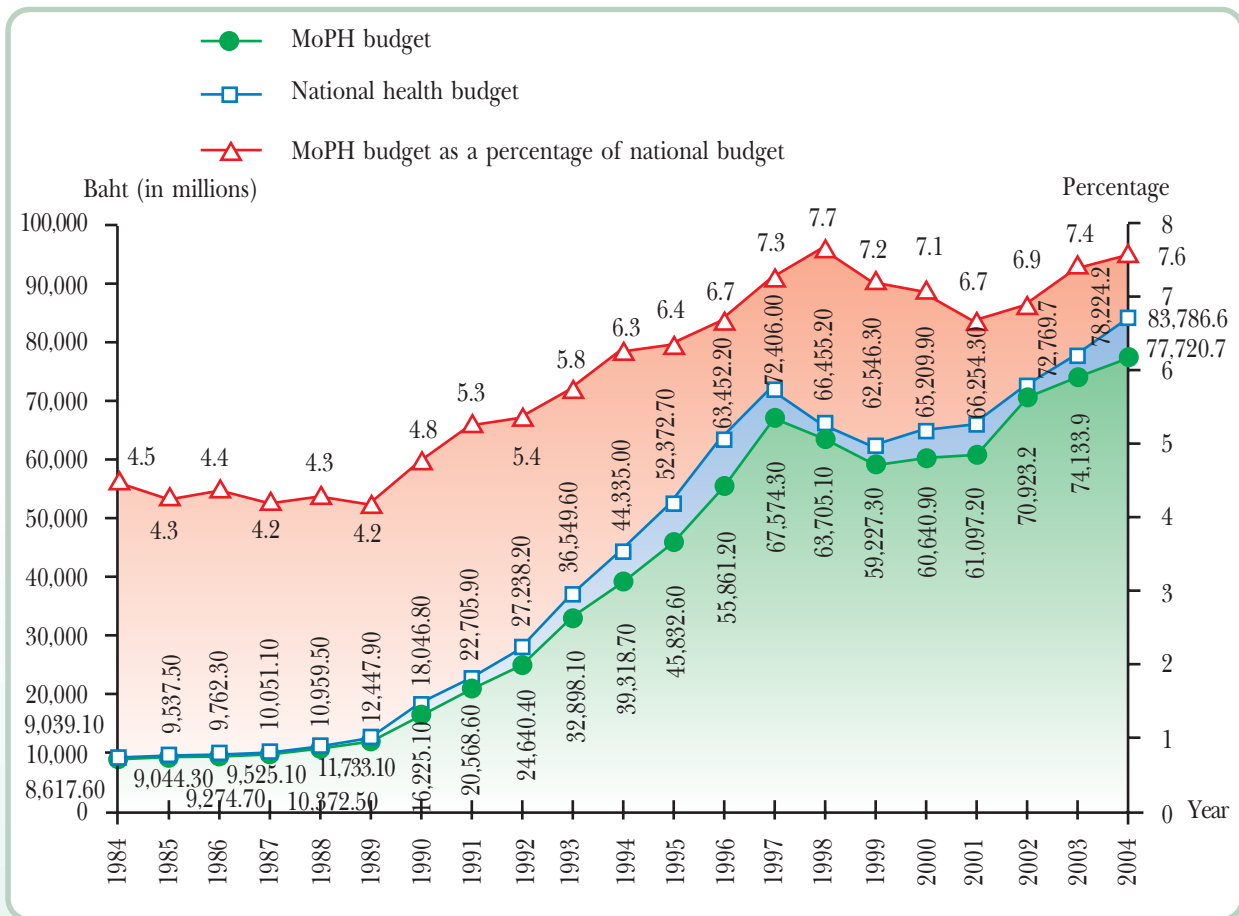
As the proportion of household health spending is over two-thirds of the national health spending, reflecting inefficiency at the macro level, the healthcare financing, therefore, becomes a prime goal of health system reform by establishing the universal health insurance scheme with a collective financing mechanism, strengthening the system for payment to health facilities by a third party, and shifting households scattered payment without specific control by the government to a large collective fund, so as to improve the healthcare quality and to make the system more efficient.

## **5.4 Government Expenditure on Health Care**

### **5.4.1 Trends of Government Health Budget**

The public sector health budget rose rapidly before the economic crisis from the period of the 6th plan to the beginning of the 8th plan, the consistent economic expansion period. The MoPH budget as a percentage of the national budget also rose remarkably, by over 5% of budget expenditure since 1991 (Figure 6.37). However, the Thai health budget expenditure compared to the other developed countries is rather low at about 13-15% of the overall budget, but higher than those in many other Asian countries.

**Figure 6.37** The National Health Budget and the MoPH Budget, 1984-2004



**Source:** Bureau of the Budget.

**Note:** For 1995-2004, the MoPH budget includes the health insurance revolving funds (previously known as health card revolving funds).

#### 5.4.2 Allocation of National Health Budget

The allocation of the government health budget has been closely related to hospital-based services (Table 6.53). It is notable that approximately 60 - 66% of the budget is allocated for curative care in hospitals though there are some, but minimal, health promotion and disease prevention services. Approximately 20 - 24% of the budget is allocated for health promotion and disease prevention services at the subdistrict health centre level. During the economic crisis, the budget for hospital services decreased considerably due to cuts in construction budget, resulting in a greater proportion of the health centres budget.

**Table 6.53** Allocation of Government Health Budget by Service Category, 1993-2004

Health budget	1993		1994		1995		1996		1997		1998		1999		2000		2001		2002		2003		2004	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
1. Hospitals	22,955.5	66.1	26,958.0	63.8	31,006.1	62.7	37,443.0	62.6	44,881.2	65.9	39,181.2	63.7	37,795.1	62.8	38,230.0	60.2	38,949.0	60.0	35,546.9	48.8	38,554.2	49.3	41,252.5	49.2
2. Outpatient services (at health centres)	7,154.8	20.6	10,244.4	24.2	11,173.2	22.6	13,630.4	22.8	13,898.3	20.4	13,239.6	21.5	14,044.5	23.3	15,122.1	23.8	14,943.4	23.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
3. Public health services	2,083.1	6.1	1,721.3	4.1	2,033.1	4.1	2,571.3	4.3	2,335.7	3.4	2,395.2	3.9	2,187.2	3.6	2,494.5	3.9	2,765.7	4.3	5,072.8	7.0	2,875.9	3.7	1,949.1	2.3
4. Health research	288.4	0.8	371.2	0.9	476.0	0.9	537.6	0.9	1,022.3	1.5	975.9	1.6	809.3	1.3	858.2	1.4	718.9	1.1	2,037.1	2.8	2,113.2	2.7	3,172.3	3.8
5. Other health activities	220.5	0.6	2,951.0	7.0	4,785.7	9.7	5,628.1	9.4	5,987.3	8.8	5,716.3	9.3	5,343.6	9.0	6,796.4	10.7	7,550.5	11.6	30,112.9	41.4	34,680.9	44.3	37,412.7	44.7
<b>Total</b>	<b>32,702.3</b>	<b>100</b>	<b>42,245.9</b>	<b>100</b>	<b>49,474.1</b>	<b>100</b>	<b>59,810.4</b>	<b>100</b>	<b>68,124.8</b>	<b>100</b>	<b>61,508.2</b>	<b>100</b>	<b>60,179.7</b>	<b>100</b>	<b>63,501.2</b>	<b>100</b>	<b>64,927.5</b>	<b>100</b>	<b>72,769.7</b>	<b>100</b>	<b>78,224.2</b>	<b>100</b>	<b>83,786.6</b>	<b>100</b>

**Source:** Bureau of the Budget.

**Note:** Since 2002, the Bureau of the Budget has included the outpatient service budget (at health centres) in the "Other health activities" category; thus, such budget amounts cannot be calculated.

### 5.4.3 Pattern of Health Budget Spending

According to the 1997 study on health budget spending during the 5th-7th Health Development Plans (1982-1996) conducted by Viroj Tangcharoensathien and colleagues, most of the budget was allocated for curative care at the central level. But the proportion for municipalities rose from 22.9% to 37.5% due to increases in municipalities' budget, resulting in a drop in the budget for sanitary districts and outside during the past 15 years. By type of expenditure, the proportion for operating expenses had been declining, whereas the investment budget in the 6th Plan dropped, but increased two-fold in the 7th Plan.

Like other Plans, the health budget in the 8th Plan was mostly allocated for curative care, but lesser for health promotion and disease prevention services, while the higher proportion was allocated for addictive substance control, rehabilitative care, manpower production and capacity development, and consumer protection. By type of expenditure, the budget allocation proportion declined by almost half. After the economic crisis, as a result of the reduction of construction budget, the higher budget proportion was given to operation, salary and wages items (Table 6.54). Although there was no adequate information on the regional or provincial budget allocation, Table 6.54 shows that the health budget was mostly allocated for central level agencies.

Nonetheless, more health budget is allocated for health promotion programmes because of strong health system reform movement that drives for the adoption of healthcare financing with the health promotion and disease prevention emphasis. Also, according to the shifted determination of national health system reform, the intent is principally placed on health promotion rather than health restoration. This includes the development of budget allocation pattern focusing on performance-based or results-based budgeting system. The 30-baht healthcare policy has applied the capitation payment mechanism, which covers salaries and operationing costs. This kind of budget allocation will result in a radical reform of public healthcare facilities management in the near future.

**Table 6.54** Allocation of Health Budget by Major Activity, Administrative Area and Expenditure Item, in the 5th-8th Plans

Category	5th Plan		6th Plan		7th Plan		8th Plan	
	Million baht	%	Million baht	%	Million baht	%	Million baht	%
<b>By type of expenditure</b>	<b>44,508.97</b>	<b>100</b>	<b>74,253.70</b>	<b>100</b>	<b>233,792.39</b>	<b>100</b>	<b>330,930.46</b>	<b>100</b>
1. Administration	2,958.9	6.65	5,431.37	7.31	12,301.07	5.5	16,859.68	5.09
2. Curative care	26,053.77	58.54	42,996.71	57.91	124,262.44	55.52	182,394.81	55.12
3. Health promotion	7,678.67	17.25	11,978.34	16.13	43,161.80	19.29	54,618.37	16.50
4. Disease prevention	4,502.25	10.12	8,143.44	10.97	26,311.92	11.75	36,612.44	11.06
5. Addictive substance control	233.15	0.52	395.50	0.53	1,337.51	0.6	3,924.44	1.19
6. Rehabilitative care	105.27	0.24	196.18	0.26	732.72	0.33	4,915.74	1.49
7. Manpower production	1,609.87	3.62	2,172.51	2.93	6,627.11	2.96	18,824.87	5.69
8. Manpower capacity development	513.42	1.15	833.83	1.12	1,206.25	0.54	2,362.14	0.71
9. Primary health care *	353.42	0.79	1,260.47	1.70	4,995.48	2.23	4,160.32	1.26
10. Consumer protection	397.33	0.89	643.52	0.87	2,117.66	0.95	4,337.09	1.31
11. Research and development	102.92	0.23	201.83	0.27	738.43	0.33	1,920.56	0.58
<b>By administrative area</b>								
1. Central agencies	26,766.58	60.14	41,023.08	55.25	112,696.09	50.36	} n.a. }	} n.a. }
2. Municipalities	10,203.97	22.93	23,644.55	31.84	84,088.57	37.57		
3. Sanitary districts	4,206.76	9.45	5,315.10	7.16	14,420.312	6.44		
4. Outside sanitary districts	3,331.66	7.48	4,270.97	5.75	12,587.39	5.62		
<b>By items</b>								
1. Operations	16,913.41	38.0	25,988.79	35.0	71,613.59	32.0	128,070.09	38.7
2. Investment	7,566.52	17.0	10,395.52	14.0	62,661.83	28.0	61,553.06	18.6
3. Salaries & wages	20,029.04	45.0	37,869.39	51.0	89,516.97	40.0	141,307.31	42.7

**Source:** The Budget figures for the 5th-7th National Health Development Plans were derived from Viroj Tangcharoensathien et al., 1997.

- Notes:**
- \* Includes only community primary health care activities (i.e. training of VHVs and community leaders).
  - The health budgets figures for the 8th Plan by activity were obtained from the Bureau of Policy and Strategy. The MoPH health budget numbers are actual numbers, but estimated numbers for MoPH agencies, based on the average numbers for the 5th-7th Plans.



## 6. Problems of the Thai Health System

Major problems of Thailand's health system are divided into five groups as follows:

### 6.1 Inequities of Medical and Health Services

#### 6.1.1 Inequities in Resources Allocation

Although the overall proportions of health resources per capita tend to be higher, there are disparities between regions in terms of human resources, number of beds and health facilities, particularly between Bangkok and the Northeast. Such a situation clearly reflects the inequities in resources allocation as shown in Table 6.55. In Bangkok, the bed/population ratio is 1:206 and the doctor/population ratio is 1:767, compared with the Northeast, of which the bed/population ratio is 1:759 and the doctor/population ratio is 1:7,251. An analysis of differences between regions particularly the health professional/ population ratio, such as doctors, dentists and pharmacists, reveals that between Bangkok and the Northeast the ratio differences are three- to ten-fold. Nevertheless, the inequities in all regions in the past tended to improve. During the economic boom period, beginning in 1989, there was a rapid expansion of private health facilities in Bangkok and other large cities, draining resources from the public sector especially from the rural/provincial level. Since then, regional disparities have been stabilized and increased. During the 1997 economic crisis, a number of private hospitals had to cut down on their numbers of beds, doctors and other types of personnel, resulting in an increase in the proportions of beds and manpower in the public sector. The 2001 and 2002 (with economic recovery) health resources surveys revealed that the regional disparities in resource distribution were improving (See Chapter 6, section 1, Health Resources).



**Table 6.55** Distribution of Health Resources (Resource to Population Ratio) by Region, 2003

Type/Region	Bangkok	Central (outside BKK)	The North	The South	The Northeast	Nationwide
Beds <sup>(1)</sup>	1: 206	1: 391	1: 496	1: 496	1: 759	1: 462
Health centres <sup>(1)</sup>	1: 46,545 <sup>(2)</sup>	1: 4,629	1: 4,662	1: 4,433	1: 5,540	1: 4,895
Doctors <sup>(1)</sup>	1: 767	1: 3,566	1: 4,499	1: 4,984	1: 7,251	1: 3,295
Dentists <sup>(1)</sup>	1: 3,218	1: 17,810	1: 17,824	1: 20,105	1: 28,432	1: 13,991
Pharmacists <sup>(1)</sup>	1: 2,507	1: 9,557	1: 10,115	1: 9,569	1: 14,987	1: 8,511
Nurses (all categories) <sup>(1)</sup>	1: 244	1: 499	1: 595	1: 537	1: 918	1: 556
Nurses: professional <sup>(1)</sup>	1: 289	1: 684	1: 785	1: 765	1: 1,278	1: 739
Nurses: technical <sup>(1)</sup>	1: 1,549	1: 1,848	1: 2,449	1: 1,797	1: 3,257	1: 2,240
Health centre staff	-	1: 1,552	1: 1,713	1: 1,511	1: 2,097	1: 1,762
Pharmacies: modern	1: 1,962	1: 6,052	1: 14,641	1: 11,745	1: 26,935	1: 7,739
Pharmacies: traditional	1: 15,848	1: 27,503	1: 36,419	1: 38,053	1: 36,659	1: 30,226
Pharmacies: modern, readily-packed	1: 11,781	1: 10,918	1: 12,002	1: 15,399	1: 18,439	1: 13,680

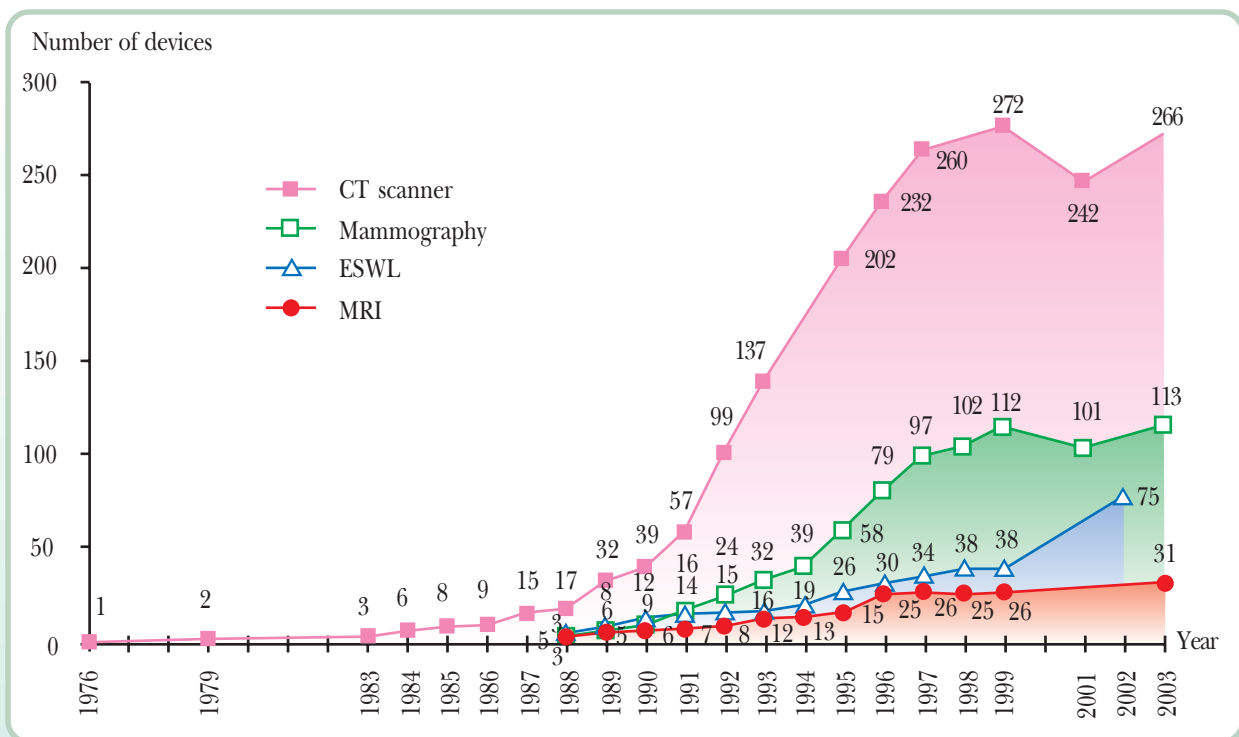
**Sources:** 1. Report on Health Resources, Bureau of Policy and Strategy, MoPH.  
2. Food and Drug Administration, MoPH.

**Note:** 1. <sup>(1)</sup> Data for 2002.  
2. <sup>(2)</sup> BMA health centres (and branches).  
3. For 2002, the information was received from 65.6% of health facilities: 44.3% Bangkok, 60.5% from the Central Plains, 76.7% from the Northeast, 74.9% from the North, and 68.3% from the South.

In addition, the inequities in health care are also found in terms of diffusion of medical and health technologies, for instance CT scanning, magnetic resonance imaging MRI, extracorporeal shortwave lithotripsy (ESWL) and mammogram machines. Although the number of such medical technologies tends to increase rapidly (Figure 6.38), leading to a higher proportion of Thailand's medical technologies to population, the inequitable diffusion problem in provincial areas remains unresolved (Table 6.56).

Regarding the discrepancy index, the index of four types of medical appliances in Bangkok is 3.2-6.0, while the index in provincial areas is 0.4-0.8, compared to that of the overall national figures (Table 6.56). For CT scanners, the disparity between regions tends to improve (Table 6.57).

**Figure 6.38** Numbers of High-Cost Medical Technologies in Thailand, 1976-2003



- Sources:**
- Wongduern Jindawatthana et al. High-cost Medical Devices in Thailand: Utilization, Distribution and Accessibility, 1999.
  - For 2002-2003, data were derived from reports on health resources of the Bureau of Policy and Strategy, Office of the Permanent Secretary and the Division of Radiology and Medical Devices, Department of Medical Sciences.

**Table 6.56** Ratio of High-Cost Medical Technologies to Population and Discrepancy Index by Region, 2003

Region	Ratio of medical devices per million population				Discrepancy index			
	ESWL (2002)	CT	MRI	Mammo	ESWL (2002)	CT	MRI	Mammo
Bangkok Metropolis	3.8	13.3	3.0	9.2	3.2	3.2	6.0	5.1
Provincial areas	0.9	3.1	0.2	0.9	0.8	0.7	0.4	0.5
The Central	1.4	5.3	0.1	1.4	1.2	1.3	0.2	0.8
The North	1.1	3.2	0.2	0.8	0.9	0.8	0.4	0.4
The Northeast	0.6	1.7	0.2	0.5	0.5	0.4	0.4	0.3
The South	0.7	2.5	0.2	1.2	0.6	0.6	0.4	0.7
Nationwide	1.2	4.2	0.5	1.8	1.0	1.0	1.0	1.0

**Sources:**

- Report on Health Resources. Bureau of Policy and Strategy, MoPH (ESWL data for 2002).
- Division of Radiology and Medical Devices, Department of Medical Sciences (CT, MRI and mammogram device data for 2003).

**Table 6.57** Ratio of CT Scanners to Population and Discrepancy Index by Region, 1994 and 1998-2003

Region	No. of CT scanners				Ratio of CT scanners per million population				Discrepancy Index			
	1994	1998	1999	2003	1994	1998	1999	2003	1994	1998	1999	2003
Bangkok Metropolis	88	83	89	89	15.7	14.8	15.9	13.3	12.1	8.6	7.2	7.8
Provincial areas	117	156	183	177	2.2	2.8	3.3	3.1	1.7	1.6	1.5	1.8
The Central	45	66	74	80	3.3	4.6	5.2	5.3	2.7	2.7	2.4	3.1
The North	31	37	41	37	2.6	3.1	3.4	3.2	2.0	1.8	1.5	1.9
The Northeast	26	36	46	38	1.3	1.8	2.2	1.7	1.0	1.0	1.0	1.0
The South	15	17	22	22	2.0	2.1	2.8	2.5	1.5	1.2	1.3	1.5
Nationwide	205	239	272	266	3.5	3.9	4.5	4.2	2.7	2.3	2.0	2.5

**Sources:**

- For 1994, data were derived from Viroj Tangcharoensathien et al. Diffusion of Medical Equipment in Thailand, 1995.
- For 1998 and 2003, data were derived from the Division of Radiology and Medical Devices, Department of Medical Sciences.
- For 1999, data were derived from Wongduern Jindawatthana et al. High-cost Medical Devices in Thailand: Utilization, Distribution and Accessibility, 1999.

Inequities in health are also found in terms of the diffusion of health care budget. Regarding the allocation and diffusion of health care budget per capita (Table 6.58), the overall budget allocation tends to be mostly distributed to wealthier regions. It is noted that the annual health budget allotted per capita for the Northeast is lower than those for other regions, while the Central region as well as Bangkok and vicinity catches the highest. Such allocation has reflected the inequities in health services in those regions, which include the problem of centralization of the public sector management system.

**Table 6.58** Allocation of Health Budget per Capita by Region (at Constant 2003 Prices) Unit: baht

Region	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
The Central	358	412	518	547	639	692	435	813	1,656	1,643	1,383	1,800
The East	293	369	470	549	679	676	581	419	1,282	1,242	1,111	1,522
The West	351	384	454	508	632	675	712	481	1,384	1,434	1,168	1,594
The North	333	466	526	600	618	607	489	388	1,298	1,250	1,061	1,438
The Northeast	267	358	419	467	502	409	340	347	967	966	696	1,129
The South	413	440	549	631	613	608	436	433	1,291	1,318	1,038	1,570
Bangkok and vicinity	2,619	3,395	3,694	3,994	4,098	3,820	5,164	4,055	1,963	2,610	4,980	3,160
<b>Nationwide</b>	<b>700</b>	<b>894</b>	<b>1,026</b>	<b>1,130</b>	<b>1,281</b>	<b>1,127</b>	<b>1,373</b>	<b>1,067</b>	<b>1,327</b>	<b>1,398</b>	<b>1,698</b>	<b>1,650</b>

**Source:** Comptroller-General's Department, Ministry of Finance, calculated by NESDB.

- Notes:**
1. For 1992-1999, the budget figures for Bangkok and its vicinity include the budget for central agencies and MoPH. As the data could not be disaggregated for Bangkok and vicinity, the figures were higher than those for 2000 - 2003.
  2. For 2000 - 2003, the budget is only for Bangkok and its vicinity.

### 6.1.2 Inequities in Access to Health Care

The people in urban and rural areas have unequal opportunities in accessing health services. Urban residents have a better access to health facilities with doctors than do rural residents. After the economic crisis, urban residents are more likely to seek self-prescribed drugs than rural residents (Table 6.59).

**Table 6.59** Health Service Utilization Behaviour of People in Urban and Rural Areas and by Region, 1988, 1999, 2003, and 2004

Unit: percent

Type of service	Total				Urban				Rural			
	1988	1999	2003	2004	1988	1999	2003	2004	1988	1999	2003	2004
Health facilities with doctors	54.3	54.3	52.5	52.9	81.0	67.3	60.0	60.3	47.3	52.1	49.8	50.5
Health facilities without doctors	4.7	n.a.	23.9	24.6	1.1	n.a.	9.6	7.1	18.2	n.a.	29.5	30.8
Traditional care	2.4	1.6	2.9	2.0	1.0	0.8	2.6	2.1	2.8	1.7	3.0	2.0
Self-medication/self-care	28.6	24.1	27.4	26.2	17.0	31.0	31.0	33.1	31.7	22.3	25.9	23.7

Type of service	The North			The Northeast			The Central			The South			Bangkok Metropolitan							
	1988	1999	2003	1988	1999	2003	1988	1999	2003	1988	1999	2003	1988	1999	2003	2004				
Health facilities with doctors	61.9	52.2	42.7	50.4	46.3	52.4	56.5	49.8	47.0	53.1	55.8	59.0	43.4	59.2	51.3	61.2	59.4	51.9		
Health facilities without doctors	15.2	n.a.	29.4	26.9	15.2	n.a.	29.0	31.5	21.0	n.a.	17.4	17.0	17.1	n.a.	22.9	21.5	0.5	8.1	5.7	
Traditional care	1.9	1.3	2.4	1.7	1.3	1.2	2.4	1.7	3.8	1.9	2.1	2.1	4.1	2.9	5.4	3.0	1.0	0.8	3.5	2.4
Self-medication/self-care	21.0	20.2	32.3	25.8	37.2	23.6	21.8	24.8	28.2	26.8	27.7	25.8	35.4	17.8	26.9	21.2	17.1	32.7	32.8	41.7

**Sources:** Data for 1988 were derived from Morbidity Differentials, 1988, Institute for Population and Social Research.

Data for 1999 were derived from Report on Illnesses and Medical Welfare, 1999, National Statistical Office.

Data for 2003 and 2004 were derived from Reports on Health and Welfare Surveys, National Statistical Office.

### 6.1.3 Inequities in Health Status

The infant mortality rate (IMR) is a good indicator of health status differences in various population groups. For instance, the IMR in non-municipal areas is 1.85 times higher than that in the municipal areas. Although the IMR has dropped by half in the past 20 years, the urban-rural difference is widening (Table 6.60).

**Table 6.60** Infant Mortality Rates (per 1,000 Live Births) in Municipal and Non-municipal Areas, 1964-1996

	Total	Municipal areas	Non-municipal areas	Non-mun./Mun. difference
SPC 1 (1964 - 1965)	84.3	67.6	85.5	1.26
SPC 2 (1974 - 1976)	51.8	39.6	58.7	1.48
SPC 3 (1985 - 1986)	40.7	27.6	42.6	1.54
SPC 4 (1989)	38.8	23.6	41.4	1.75
SPC 5 (1991)	34.5	21.0	37.0	1.76
SPC 6 (1995 - 1996)	26.05	15.24	28.23	1.85

**Source:** National Statistical Office.

**Note:** SPC = Survey of Population Changes.

The United Nations Development Programme (UNDP) has developed a human advancement index with eight components, one of which is health, particularly in relation to life span, health status, health promotion and health service (population to doctor ratio). It was found that there were regional disparities, i.e. Bangkok had the highest health index and the richest of all regions, while the Northeast and the North had the highest number of poor people and the lowest health index (Table 6.61).

**Table 6.61** Health Index of Thai People by Region, 2002

Locality	Health index	Locality	Health index
Whole Kingdom	0.6889	The West	0.7042
Bangkok	0.7884	The South	0.6743
Bangkok's vicinity	0.7369	The North	0.6563
The East	0.7058	The Northeast	0.6234
The Central	0.7110		

**Source:** Human Development Report. United Nations Development Programme, Thailand, 2003.

#### 6.1.4 Inequities in Bearing Healthcare Cost

The burden of health expenditure does not correspond with the ability to pay of people. For example, a comparison of health expenditure proportion in each income group reveals that the poor have a greater burden of health expenditure in proportion to income than the rich (Figure 4.10 in Chapter 4).

After the government launched the health insurance scheme for the poor and underprivileged, particularly the universal coverage of health care scheme, it was found that in 2002 the rich-poor disparity in healthcare spending dropped to only 1.6 times. And it was found that the poor had a very low burden of healthcare cost (Table 6.62). Regarding the equity in receiving health services under the universal healthcare scheme, some structural inequity was noted in the Thai health system, i.e. patient care at tertiary medical facilities (provincial hospitals), tends to favour the rich rather than the poor, and the poor would receive more benefits than the rich only in connection with outpatient care at health centres and community hospitals (Table 6.63).

**Table 6.62** Percentage of Household Health Spending by Decile Groups, 2002

Decile group	Health spending as percentage of household income							No. of households
	0-5%	6-10%	11-20%	21-30%	31-40%	41-50%	> 50%	
1	86.0	7.3	7.2	1.2	0.4	0.2	0.7	3,483
2	90.3	5.7	2.4	0.9	0.2	0.2	0.3	3,474
3	89.5	6.0	3.0	0.7	0.3	0.2	0.3	3,477
4	90.0	5.9	2.6	0.7	0.3	0.1	0.2	3,476
5	89.9	5.7	2.7	0.9	0.4	0.2	0.2	3,478
6	90.2	5.2	2.7	0.9	0.5	0.2	0.2	3,477
7	91.0	4.8	2.5	0.9	0.3	0.2	0.3	3,525
8	91.5	4.5	2.5	0.8	0.4	0.1	0.1	3,430
9	92.1	4.5	2.1	0.6	0.3	0.1	0.3	3,476
10	92.3	4.0	2.0	0.7	0.3	0.2	0.4	3,478
<b>Total</b>	<b>90.3</b>	<b>5.4</b>	<b>2.7</b>	<b>0.8</b>	<b>0.3</b>	<b>0.2</b>	<b>0.3</b>	<b>34,774</b>

**Source:** Phusit Prakongsai. Analyses of Data from the Household Socio-Economic Survey, 2002. National Statistical Office.



**Table 6.63** Proportion of Households Receiving Benefits and the Universal Coverage of Health Care Scheme by Decile Group, 2002

Decile group classified by spending level per capita per month	For outpatients			For inpatients			Total
	Health centres	Comm. hospitals	General/ regional hospitals	Comm. hospitals	General/ regional hospitals	Hospitals in other provinces	
1% poorest	12.2%	11.5%	3.5%	11.7%	6.7%	21.1%	8.90%
2	13.1%	13.6%	6.5%	10.5%	7.0%	4.3%	9.29%
3	10.8%	14.1%	8.7%	8.6%	9.2%	3.2%	9.98%
4	15.4%	11.5%	10.7%	14.2%	9.8%	10.1%	11.53%
5	13.7%	13.2%	8.5%	10.4%	10.8%	13.7%	11.03%
6	11.7%	11.8%	15.6%	7.4%	14.2%	4.7%	12.12%
7	13.9%	10.2%	10.6%	24.9%	6.7%	6.6%	12.38%
8	5.6%	8.2%	17.0%	6.5%	13.8%	26.4%	11.77%
9	2.9%	3.3%	7.8%	2.8%	14.0%	5.3%	7.13%
10% richest	0.7%	2.5%	11.1%	3.0%	7.8%	4.6%	5.87%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
CI	-0.272	-0.247	0.052	-0.189	-0.008	-0.154	-0.110
Robust SE of CI	0.043	0.038	0.043	0.054	0.042	0.186	0.023
Kakwani Index; KI	-0.689	-0.663	-0.334	-0.599	-0.399	-0.560	-0.511
Robust SE of KI	0.048	0.044	0.048	0.060	0.047	0.205	0.027

**Source:** Viroj Tangcharoensathien et al. Financing of the Universal Coverage of Healthcare Scheme: Present and Future, 2004.

## 6.2 Problems of Health Services System Efficiency

### 6.2.1 Problems of Health Service Efficiency

Curative care is much less efficient with regard to its capacity in making people healthy, compared to promotive and preventive care (see the section on health care financing in Charter 6). Besides, for the curative service system itself, inefficiency is found in terms of, for example, drug over-utilization (from the community level up to medical specialist level).

### 6.2.2 Problems of Investment in Hospital Beds

The bed-occupancy rate is an important indicator of the efficiency of investment in hospitals inpatient beds.

According to the 1995-2002 reports on health resources surveys conducted by the Bureau of Policy and Strategy, MoPH hospitals have the bed-occupancy rate of 80%, followed by those of the Ministry of Interior and other ministries. Whereas the bed-occupancy rate is less than 50% in for-profit private hospitals, even during the period of economic recovery, the trend has been declining to 38.2% in 2002. This trend clearly indicates an oversupply of beds in the private sector (table 6.64).

**Table 6.64** Number of Beds and Bed-occupancy Rate in Health Facilities Nationwide, 1995-2002

Agency	No. of beds				Length of stay (days)				Patient/bed ratio				Bed-occupancy rate (percent)			
	1995	1997	1999	2001	2002	1995	1997	1999	2001	2002	1995	1997	1999	2001	2002	
MoPH	73,191	79,818	82,085	87,753	86,761	4.8	4.6	4.3	4.3	4.3	62.6	66.6	70.1	73.3	72.1	
Other ministries	14,236	16,880	15,879	14,982	14,100	5.5	6.4	6.7	7.3	5.9	18.3	24.9	30.5	29.4	42.1	
Ministry of Interior	3,359	3,402	3,591	3,481	3,421	9.7	8.1	4.6	6.2	6.2	23.0	32.6	58.0	43.2	30.8	
State enterprises	365	365	385	335	335	10.9	9.3	6.4	6.7	5.4	14.3	18.6	15.6	26.1	24.1	
For-profit facilities	25,298	29,945	31,207	28,956	28,497	4.0	3.1	3.1	2.8	2.6	38.3	52.8	47.4	59.0	53.9	
Non-profit facilities	1,968	1,995	2,156	2,190	2,220	7.3	6.6	6.0	5.8	4.5	34.6	36.5	35.2	40.1	12.9	
<b>Total</b>	<b>118,417</b>	<b>132,405</b>	<b>135,303</b>	<b>137,697</b>	<b>135,334</b>	<b>4.8</b>	<b>4.4</b>	<b>4.3</b>	<b>4.2</b>	<b>4.2</b>	<b>50.4</b>	<b>56.7</b>	<b>59.2</b>	<b>64.1</b>	<b>63.0</b>	

**Sources:** Reports on Health Resources. Bureau of Policy and Strategy, MoPH.

**Notes:** 1. The bed-occupancy rate at state enterprises' health facilities for 1999 was much lower than before due to the length of stay restriction measure imposed by the hospital under the Metropolitan Electricity Authority.

2. The bed-occupancy rate at health facilities under other ministries for 1999 onwards was much higher than before due to the fact that additional reports were received from the hospital under the Faculty of Medicine of Chiang Mai University.

3. For 2002, data were received from 65.5% of all health facilities: 62.5% from public sector facilities and 77.3% from private facilities.

4. For 2002, the 2001 data for hospitals located in Bangkok under various agencies were used instead.

**Table 6.65** Bed/Doctor, Bed/Nurse, Inpatient/Doctor, Inpatient/Nurse, and Outpatient/Doctor Ratios, 1995-2002.

Agency	Bed : MD			Bed : N			Adm : MD : yr			IP : MD : d			IP : N : d			OPD : MD : yr														
	1995	1997	1999	2001	2002	1995	1997	1999	2001	2002	1995	1997	1999	2001	2002	1995	1997	1999	2001	2002										
MoPH	11.9	9.9	8.4	8.7	8.3	1.1	1.1	1.1	1.1	1.1	747.7	682.2	587.2	639.2	598.6	10.0	8.3	6.9	7.5	7.1	1.0	1.0	0.9	1.0	0.9	2,874.50	2,520.10	2,211.60	2,398.40	2,526.0
Other ministries	3.9	4.7	4.6	4.5	4.2	1.5	1.7	1.5	1.2	1.1	66.4	111.4	159.0	132.9	170.7	1.2	2.1	2.6	2.7	2.7	0.5	0.7	0.9	0.7	0.7	420.80	981.50	564.10	598.40	694.6
State enterprises	3.2	4.4	3.3	2.5	2.9	0.8	2.4	1.3	1.1	1.1	46.3	81.9	51.6	66.3	69.6	1.4	2.1	0.9	1.2	1.0	0.3	1.1	0.3	0.5	0.4	109.20	217.70	156.70	67.10	76.10
Municipalities	4.4	4.5	4.4	4.1	4.0	0.7	0.9	0.7	0.7	0.6	135.0	205.5	200.9	214.3	145.0	2.8	3.6	3.3	3.3	3.1	0.4	0.8	0.6	0.6	0.6	784.00	928.70	795.00	958.60	801.9
Private sector facilities	7.5	9.2	9.2	6.6	7.1	3.0	4.6	3.5	2.8	2.8	288.1	487.7	434.5	389.4	384.8	3.2	4.1	3.7	3.0	2.7	1.2	2.1	1.4	1.3	1.1	1,276.30	1,370.60	1,348.60	1,133.10	1,008.7
Independent agencies	13.5*	2.4	3.6	8.7	8.6	1.4*	1.1	0.6	1.0	1.0	466.3*	85.7	125.5	348.2	111.4	9.4*	1.5	2.1	5.6	1.4	0.9*	0.7	0.4	0.6	0.2	1,830.5*	343.10	420.00	1,745.80	522.6
<b>Total</b>	<b>8.3</b>	<b>8.0</b>	<b>7.6</b>	<b>7.3</b>	<b>7.1</b>	<b>1.4</b>	<b>1.5</b>	<b>1.4</b>	<b>1.3</b>	<b>1.2</b>	<b>420.0</b>	<b>453.2</b>	<b>441.4</b>	<b>466.0</b>	<b>448.9</b>	<b>5.6</b>	<b>5.5</b>	<b>5.1</b>	<b>5.4</b>	<b>5.1</b>	<b>1.0</b>	<b>1.1</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>1,709.6</b>	<b>1,764.8</b>	<b>1,600.6</b>	<b>1,700.5</b>	<b>1,765.0</b>

**Source:** Reports on Health Resources, Bureau of Policy and Strategy, MoPH.

**Notes:** Bed : MD = No. of beds per doctor      Bed : N = No. of beds per nurse  
 Adm : MD : yr = No. of admissions (inpatients) per doctor per year      IP : MD : d = No. of inpatients per doctor per day  
 IP : N : d = No. of inpatients per nurse per day      OPD : MD : yr = No. of outpatients per doctor per year

\* For 1995, no data were available from Chulalongkorn Hospital.

For facilities under various agencies in Bangkok in 2002, the 2001 data were used instead.

### 6.2.3 Problems of the Quality of Service System

With regard to the level of consumers' expectations and the responses to their needs, the public and private sectors' problems are different. In the public sector, the problems related to service provision include inpatients' convenience in receiving services and providers' attention to the services. But in the private sector, the problems are mostly related to service fees (Table 6.66).

However, since the beginning of the implementation of the health facility improvement policy, using the hospital accreditation approach in both public and private sectors, the Institute of Hospital Quality Improvement and Accreditation was established under the Health Systems Research Institute to carry out this policy. Health sector reform movement has also contributed to the inclusion of health service quality development measures in the National Health Bill as well as in the amendments of the Medical Premises Act and relevant ministerial regulations. Most health facilities have undertaken these measures to improve their service quality standards, and the health accreditation process has been carried out continuously, resulting in a much higher level of patients' satisfaction. According to the 2001 and 2003 surveys on patients at various hospitals, 87.1-95.7% of patients were satisfied with the services provided. However, their satisfaction level was lower with the services at higher-level facilities (Table 6.67).

The 30-baht healthcare policy of the present government has also contributed to the acceleration of service quality improvement process at hospitals and primary care units. The 2002 - 2003 survey on people's satisfaction with the universal coverage of healthcare scheme reveals that 80% of respondents were satisfied with the services at hospitals and only 68.6% were satisfied with the quality of medicines (Table 6.68).

**Table 6.66** Complaints at Outpatient Departments by Type of Health Facilities, 1998

Complaint	Percentage of complaints				
	Regional, Maharaj and university hospitals	General hospitals	Community hospitals	Private hospitals	Total (N = 1,473)
Manner of doctors	5.1	1.3	1.5	0.3	8.2
Doctors not informing about symptoms and treatment	10.5	2.7	5.9	4.3	23.4
Waiting time	18.2	5.0	7.6	3.6	34.4
High service fees	10.9	0.3	1.9	13.0	26.1
Drug dispensing system	7.7	1.9	5.6	3.3	18.5
Environment at OPD reception: overcrowding and uncleanliness	13.6	2.9	6.2	2.2	24.9
Uncleanliness of medical equipment	15.9	3.2	9.4	7.8	36.3

**Source:** Yothin Sawaengdee et al. Problems and Complaints of the People Attending Healthcare Facilities, 2000.

**Notes:** Each respondent could indicate more than one complaints.

Complaint means unhappiness and unsatisfaction that affect the patient physically and mentally when receiving services at a health facility.

**Table 6.67** Satisfaction of People Attending Healthcare Facilities, 2001 and 2003

Satisfaction	2001				2003 Total (percent)
	Total (percent)	Health centres (percent)	Community hospitals (percent)	Provincial and other state hospitals (percent)	
Satisfied	87.1	92.4	85.8	81.6	95.7
Unsatisfied	12.1	7.2	13.4	17.4	4.3
Unknown	0.8	0.4	0.8	1.0	-
Causes of dissatisfaction					
- Poor services	n.a.	n.a.	n.a.	n.a.	2.2
- Uncleanliness	0.5	0.3	0.7	0.5	n.a.
- Long waiting time	7.1	2.2	7.9	12.6	n.a.
- Uncured	1.2	1.6	1.2	0.7	0.2
- Incompetent doctors	0.7	0.9	0.7	0.5	0.3
- Being scolded by medical/ nursing staff	1.5	1.2	2.0	1.7	n.a.
- Doctors having no time for patients to ask about symptoms	0.6	0.4	0.6	0.9	n.a.
- Discrimination	n.a.	n.a.	n.a.	n.a.	0.3
- Poor drug quality	n.a.	n.a.	n.a.	n.a.	0.7
- Others	0.5	0.6	0.3	0.5	0.6

**Source:** Reports on Health and Welfare Surveys, 2001 and 2003. National Statistical Office.

**Notes:** 1. In the 2001 survey, interviewees were inpatients at state-run health facilities.  
2. In the 2003 survey, interviewees were inpatients at public and private health facilities.

**Table 6.68** Satisfaction of People under Universal Healthcare Scheme at Health Facilities, 2002 and 2003

Aspects of satisfaction	2002	2003
<b>Overall</b>		
- Satisfied	83.8	-
- Unsatisfied	16.2	-
<b>Service provision/attention</b>		
- Satisfied	-	80.5
- Unsatisfied	-	19.5
<b>Examination and treatment provided by doctors/nurses</b>		
- Satisfied	-	83.9
- Unsatisfied	-	16.1
<b>Medical equipment</b>		
- Satisfied	-	83.6
- Unsatisfied	-	16.4
<b>Drug quality</b>		
- Satisfied	-	68.6
- Unsatisfied	-	31.4

- Sources:**
- Report on Survey of Public Opinions about the 30-baht Healthcare Scheme, 2002. National Statistical Office.
  - Report on Survey of Public Opinions about the Universal Coverage of Healthcare Scheme (30-baht Healthcare), 2003. National Statistical Office.

- Notes:**
1. For 2002, respondents were people aged 15 years and over.
  2. For 2003, respondents were people aged 18 years and over.

#### 6.2.4 Problems of Access to Emergency Services

The people still encounter problems when they have emergency illness, from the site where the illness or accident occurs to the hospital, since no medical emergency service system or agency has been systematically established. Improvements are required to solve such problems as refusal to care for patients at state hospitals in Bangkok reasoning that no beds are available, the doctor coming too late to care for the patient, and private hospitals not providing essential primary care to the patient if the patient has no money. In FY 2002, the MoPH established the Office of Emergency Medical Service System, using part of the budget from the Universal Coverage of Healthcare Scheme to set up the emergency medical service units in seven provinces: Bangkok, Khon Kaen, Nakhon Ratchasima, Nakhon Sawan, Petchaburi, Lampang, and Songkhla. Such services have been set up as a network to cover the entire province. In FY 2004, the system will be expanded to cover another 13 provinces.



After the enactment of the 1995 Third Party Insurance Act, the problems of emergency care has been lessened significantly as there is a definite party responsible for medical expenses (within the 50,000-baht limit). However, it has been found that most private hospitals tend to send the patient who has exhausted the 50,000 baht funding limit to a public hospital to take the extra burden of medical bills. Besides, health insurance companies and the people tend to push such burden to the medical welfare for the poor and the health card schemes.

#### **6.2.5 Coverage of Health Security**

Thailand has a tendency to expand the coverage of health security or insurance system to cover all the people in five major schemes: civil servants medical benefits system (also for government retirees and state enterprise employees), social security system, medical services for the poor and those who should be supported by society (such as the medical welfare for the poor project and the voluntary health insurance or health card project), private insurance system, and specific health insurance system (such as the one under the Motor Vehicle Accident Victims Protection Act). In 2001, all the schemes could cover 71.0% of Thai population, the coverage for rural residents had also increased (Tables 6.69 and 6.70). However, as Thailand has several health insurance schemes, each having different financial management systems and basic benefit packages, there have been discrepancies in benefit packages, particularly those for the poor which are much less than those for other population groups (Table 6.71).

Since 2001, the government has implemented the universal coverage of healthcare scheme, the health insurance coverage has increased from 71.0% in 2001 to 94.3% in 2004; 73.5% under the universal healthcare scheme and 5.7% are uninsured (Table 6.69). In 2004, the proportion of rural people who have received the universal healthcare cards is higher than that for urban residents. However, urban residents have got such coverage under the social security system and the civil servants medical benefit scheme in a higher proportion than do rural residents (Table 6.70).

**Table 6.69** Percentage of Thai People with Health Security, 1991, 1996, 2001, 2003 and 2004

Health insurance scheme	Before the launch of the UC healthcare scheme			After the launch of the UC healthcare scheme	
	1991	1996	2001	2003	2004
1. Universal coverage healthcare	-	-	0.9	74.7	73.5
- Gold card with Tor (not paying 30 baht/visit)	-	-	-	74.7	30.6
- Gold card without Tor (paying 30 baht/visit)			0.9		42.9
2. Medical welfare for the poor (Sor Por Ror)	12.7	12.6	31.5	-	-
3. Medical benefits for civil servants and state enterprise employees	<b>15.3</b>	<b>10.2</b>	<b>8.5</b>	<b>8.9</b>	<b>9.4</b>
- Civil servants	13.2	9.0	7.5	8.9	9.4
- State enterprise employees	2.1	1.2	1.0		
4. Social security and workers' compensation fund	-	5.6	7.2	9.6	10.7
5. Voluntary health insurance	<b>4.5</b>	<b>16.1</b>	<b>22.1</b>	<b>1.7</b>	<b>0.8</b>
- Health card, MoPH	1.4	15.3	20.8	-	-
- Private insurance	3.1	0.8	1.3	1.7	0.8
6. Others	0.9	1.0	0.8	-	-
Population with health insurance	33.5	45.5	71.0	94.9	94.3
Population without health insurance	66.5	54.5	29.0	5.1	5.7

- Sources:**
1. Reports on Health and Welfare Surveys, 1991, 1996, and 2001. National Statistical Office.
  2. Viroj Tangcharoensathien, Jitpranee Wasavit and colleagues. An analysis of data from the Reports on Health and Welfare Surveys, 2003 and 2004. National Statistical Office.

**Note:** The number of insured persons with private health insurance companies in 2004 is 2.88 million, or 4.4% of total population, but some of them have got coverage from more than one scheme.

**Table 6.70** Percentage of People with Health Insurance Coverage in Municipal and Non-municipal Areas, 1991, 1996, 2001, 2003 and 2004

Health insurance coverage	Municipal areas					Non-municipal areas				
	1991	1996	2001	2003	2004	1991	1996	2001	2003	2004
No insurance	65	58	42	9	10.1	68	52	22	3	3.5
Civil servants and state enterprise officials	22	17	16	15	15.3	6	7	9	6	6.5
Universal coverage healthcare	-	-	-	56	54.6	-	-	-	84	82.8
Social security	-	11	13	18	18.2	-	3	4	6	7.0
Medical welfare for the poor	7	5	15	-	-	21	16	39	-	-
Health card	1	6	10	-	-	2	20	27	-	-
Private health insurance	5	2	3	3	1.8	1	1	1	1	0.3
Others	1	1	1	-	-	1	1	1	-	-

**Sources:** 1. Reports on Health and Welfare Surveys, 1991, 1996 and 2001. National Statistical Office.  
2. Viroj Tangcharoensathien, Jitpranee Wasavit and colleagues. An analysis of data from the Reports on Health and Welfare Surveys, 2003 and 2004. National Statistical Office.

**Note:** The number of insured persons with private health insurance companies in 2004 is 2.88 million, or 4.4% of total population, but some of them have got coverage from more than one scheme.

**Table 6.71** Benefit Packages of Health Insurance Systems and Medical Service Welfare

Health insurance system and medical service	Expenses baht/person/ year*	Benefits and coverage			
		Health facility selection	Cash	Pregnancy/childbirth	Disease prevention and health promotion
Welfare for the poor and underprivileged	273 <sup>(1)</sup> MoPH	Referral system	None	None	Limited
Civil servants medical benefit	2,106	Public (private)	None	Available	Available
Compulsory health insurance					
• Social security	1,284	Mutual contract	Available	Available	Some
• Workers' compensation fund	n.a.	Mutual contract	Available	None	None
Voluntary health insurance					
• Health insurance card	249 <sup>(1)</sup>	Referral system	None	Possible	Possible
• Private health insurance	1,667	Freely	Case by case	Depends	Depends

**Sources:** Supachutikul, 1996. "Tangcharoensathien, et al. 1998 (quoted in Jirut Srirattanaban)".

\* Data for 1999 are quoted in Supasit Pannarunothai, 2000.

<sup>(1)</sup> Only for drugs and operational expenses, excluding labour and investment costs.

As a result of the implementation of the universal healthcare scheme, the proportion of people having access to health facilities when ill has risen from 49% in 1991 to 71.6% in 2004. In particular, among those who has never had any health insurance coverage before, the proportion has risen from 47% in 1991 to 60.6% in 2004. Insured persons under the universal healthcare scheme seem to have the highest illness rate and attend health facilities the most, compared to other groups (Table 6.72). Besides, this scheme has resulted in a reduction of household's health spending at almost all levels as the scheme is financed by the government. The population group whose health spending has decreased the most is the poor (groups 1-4), a 27-45% reduction. It is noteworthy that the highest income group (group 10) have their health spending increase by 42%, probably because they choose to use the services that are beyond the basic benefits or choose not to use the entitlement under the universal healthcare scheme (Figure 6.39).

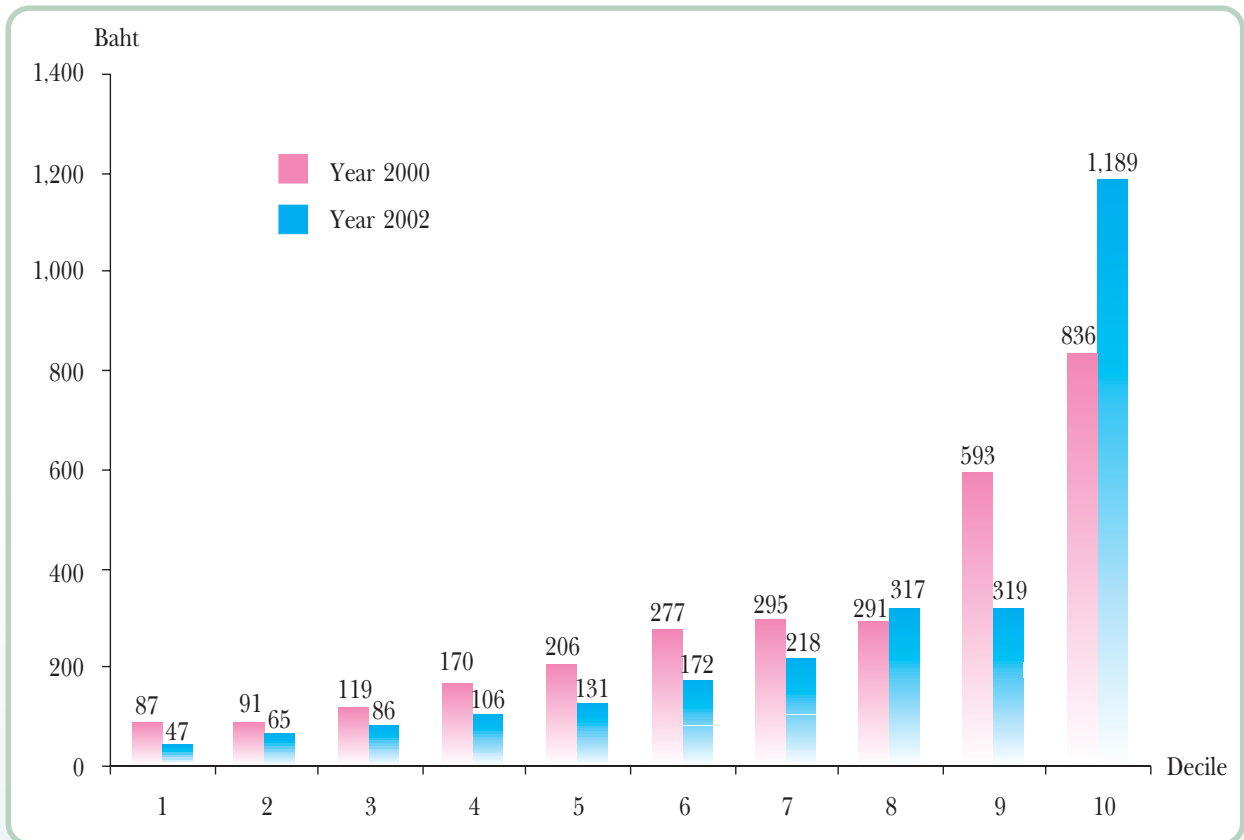
**Table 6.72** Morbidity Rates and Proportion of Insured Persons Attending Health Facilities by Type of Insurance Scheme, 1991, 1996, 2001, 2003 and 2004

Type of insurance	Morbidity rate episodes/person/yr					Percentage of insured persons attending health facilities				
	1991	1996	2001	2003	2004	1991	1996	2001	2003	2004
- No insurance	5.7	3.5	3.3	4.2	3.2	47	62	61	56	60.6
- Universal coverage healthcare	-	-	3.4	5.0	5.1	-	-	62	72	72.8
- Medical welfare for the poor (Sor Por Ror)	7.2	6.9	5.3	-	-	50	67	74	-	-
- Health card, MoPH	7.0	4.5	3.7	-	-	55	68	71	-	-
- Medical benefits for civil servants and state enterprise employees	5.4	3.7	3.6	4.9	4.8	60	71	75	71	73.1
- Social security	-	2.5	2.5	3.0	3.0	-	58	66	67	63.0
- Private insurance	4.4	3.5	3.0	3.5	1.9	42	72	65	67	60.2
<b>Nationwide</b>	<b>5.9</b>	<b>4.0</b>	<b>3.9</b>	<b>4.7</b>	<b>4.7</b>	<b>49</b>	<b>65</b>	<b>70</b>	<b>71</b>	<b>71.6</b>

**Sources:** 1. Reports on Health and Welfare Surveys, 1991, 1996, and 2001. National Statistical Office.  
2. Viroj Tangcharoensathien, Jitpranee Wasavit and colleagues. An analysis of data from the Reports on Health and Welfare Surveys, 2003 and 2004. National Statistical Office.

**Note:** The number of insured persons with private health insurance companies in 2004 is 2.88 million, or 4.4% of total population, but some of them have got coverage from more than one scheme.

**Figure 6.39** Comparison of Average Monthly Household Health Spending of Ten Decile Groups Before and After the Implementation of the Universal Coverage of Healthcare Scheme



**Source:** Viroj Tangcharoensathien. Financing of the Universal Coverage of Healthcare Scheme: Present and Future. International Health Policy Programme, 2004.

**Note:** An analysis was made only for the last quarters of 2000 and 2002.

# CHAPTER 7

## ADMINISTRATIVE SYSTEM OF THE MINISTRY OF PUBLIC HEALTH

The Ministry of Public Health (MoPH) is the core agency in the Thai public health system having a 60% share of health resources, most of which are in the rural areas. And it has played a role as the manager of the Thai health care programmes. Thus, the knowledge of the development and administrative system of the MoPH is essential in understanding the Thai public health system.

### 1. Prior to Becoming the Ministry of Public Health

In the past, from the Ayutthaya period (Ayutthaya is a former capital of Thailand) through the early period of King Rama III of Rattanakosin (Bangkok) City, for totally 317 years, the Thai people in that period were not aware of modern public health. When they got sick, they would use traditional medicine and any other old beliefs or superstitious rituals. Until 1828, the 5th year in the reign of King Rama III, Western medicine began to play an important role in the Thai medical and public health system, providing curative care to patients and dangerous disease prevention under the leadership of Dr. Dan Beach Bradley, who was also a Christian missionary. Dr. Bradley initiated a disease prevention programme in Thailand with smallpox vaccination; and later on several other foreign doctors came in to provide modern medical services to the people. Since then modern medicine has evolved and gradually replaced traditional medicine. The Thai people began to favour modern medicine, which became more popular when the public sector initiated the provision of health services. In 1886, King Rama V established Siriraj Hospital to provide curative care to patients, in commemoration of his son, His Royal Highness Sirirajakuttaphan who had died of dysentery at a very young age. In 1888, a Nursing Department was established under the Ministry of Education as an agency responsible for public health programmes and the management of Siriraj Hospital. In addition, the Nursing Department was also in charge of medical education, supervision of other hospitals, and provision of free smallpox vaccination to the people. In 1889, the Department undertook a number of health initiatives: establishment of a Midwifery School, a smallpox vaccine production institute, and city medical officers in some cities, production of low-priced simple household drugs for sale to the people, and establishment of governmental health centres (osoth sala) and a Medical Division (responsible for epidemic control). The evolution process had continued until the Ministry of Public Health was established with its chronology as follows (Figure 7.1).

## The First Era: The Beginning of Modern Medicine

- 1886 Siriraj Hospital (Siriraj Payaban) was established as a government hospital providing medical care to the people.
- 1888 **The Nursing Department** was established, under the Ministry of Education (Dharmmakarn), responsible for the supervision of Siriraj Hospital and the operation of public health programmes, with the establishment of Medical and Midwifery Schools, a smallpox vaccine production institute, city medical officers, and production of low-priced drugs for sale.
- 1905 **The Nursing Department was abolished and all hospitals were transferred to the Ministry of City Affairs (Nakhon Ban)**, except that Siriraj Hospital was transferred to the Department of Education; the Divisions of Vaccine Production, Pharmacy, Preventive Medicine, and City Medical Officers remained under the Ministry of Education.
- 1908 At the request of the Ministry of Interior (Mahad Thai), the Divisions of Vaccine Production and Pharmacy were transferred from the Ministry of Education to the Department of Local Administration (Phalamphang), Ministry of Interior.
- 1912 **A new Department of Nursing was established**, independent of the Department of Local Administration, comprising six divisions: Administration Division, Medical Services Division, Epidemic Prevention Division, Pasteur Council Division, Sanitation Division, and Government Pharmacy Division.
- 1916 **The Nursing Department was renamed “Public Protection (Prachaphiban) Department”** under the Ministry of Interior, comprising four divisions: Administration Division, Sanitation Division, Nursing Division, and Medical Supplies Division.

## The Second Era: The Beginning of the “Thai Public Health”

- 27 November **The Department of Public Protection was renamed “Department of Public Health”** under the Ministry of Interior; (and later, November 27th has been recognized as the Ministry of Public Health’s establishment day.)
- 1918
- 1925 The Department of Public Health was reorganized, comprising six divisions: Population Division, Health Education Division, Public Health Division, Narcotics Division, Government Pharmacy Division, and Sanitation Division. At the provincial level, there were regional inspectors-general, regional public health officers, provincial public health officers, local royal medical officers, assistant medical officers, sanitary inspectors, smallpox inoculation inspectors, sanitary medical officers, and Tambon (commune) doctors. The Department was in charge of health services, focusing on disease prevention and health promotion.

## The Third Era: Establishment of the Ministry of Public Health

- 10 March **The Ministry of Public Health Affairs was established** according to the Ministries and Departments Reorganization Act (Amendment No. 3), B.E. 2485 (1942), comprising seven
- 1942



departments: Office of the Secretary to the Minister, Office of the Permanent Secretary, Department of Medical Services, Department of Public Welfare, Department of Medical Sciences University, Department of Medical Sciences, and Department of Public Health.

- 1952 The **Ministry of Public Health Affairs was renamed “Ministry of Public Health”** (MoPH - the name currently used); the Department of Public Welfare was transferred to the Ministry of Interior; and the Department of Public Health was renamed “Department of Health”. **Provincial hospitals were established, one in each and every province.**
- 1959 The Department Medical Sciences University was transferred to the Prime Minister’s Office.

### The Fourth Era: Reform of the Ministry of Public Health

During this period, the MoPH was reorganized with its **vertical** structure being changed to an **integrated** one; and health services were expanded at the provincial level.

- 1972 The first major reorganization of the MoPH was undertaken; the Department of Health and the Department of Medical Services were merged as one key Department of Medical and Health Services providing integrated health services.
- 1974 The second major MoPH reorganization was undertaken, separating the Department of Medical Services and the Department of Health, expanding the jurisdiction of the Permanent Secretary’s Office (to oversee all operational activities while other departments providing technical support), and establishing the **Department of Communicable Disease Control and the Food and Drug Administration.**
- 1977-1987 That was the era of provincial health services system development. District hospitals and tambon (subdistrict) health centres were built/established, one in each and every **district and tambon**, respectively. The primary health care programme was expanded to cover each and every village nationwide.

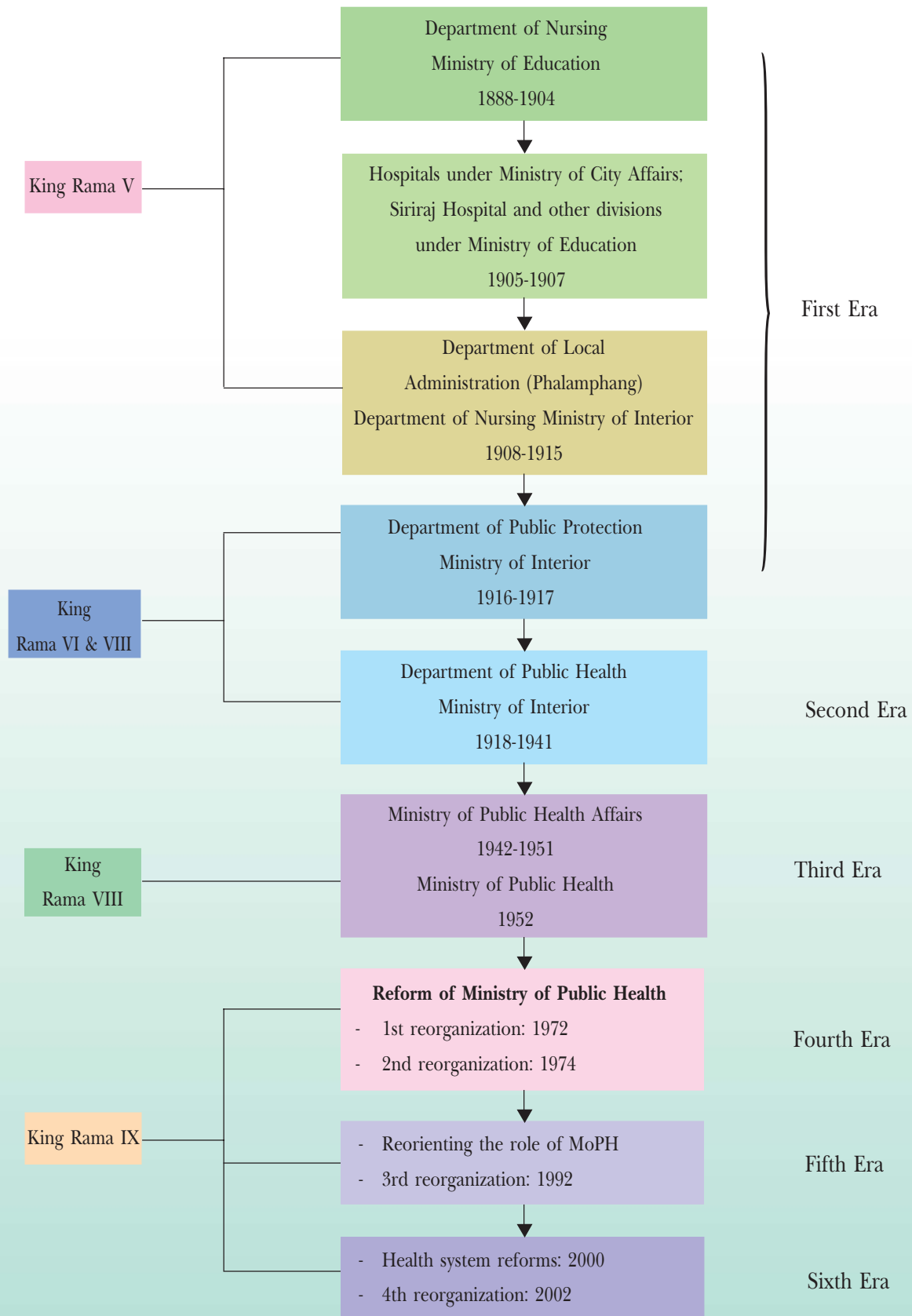
### The Fifth Era: Reorienting the Role of the Ministry of Public Health

- 1992 The third major MoPH reorganization was undertaken, establishing a Mental Health Institute (later became **the Department of Mental Health**) and the **Health Systems Research Institute**, an autonomous public organization under the MoPH oversight. It was a period of health care reform aimed at improving health care equity, efficiency and quality according to the national economic and social development guidelines in the industrial and democratic systems. The economy was growing rapidly, resulting in a great deal of expansion of private health facilities. **The role of the MoPH has shifted from a “service provider” to being an agency of standards establishment and monitoring and support of private healthcare facilities.**
- 1997 During the **economic crisis**, the MoPH undertook a number of reform activities such as the provincial drug purchasing system and the transformation of one of the district hospitals into a public organization (Ban Phaeo Hospital).

## The Sixth Era: Health System Reforms

- 2000 There was a movement for health system reforms, the regulation of the Prime Minister's Office on health system reforms was announced in July 2000, establishing the National Health System Reform Committee under the chairmanship of the Prime Minister and setting up the Office of the National Health System Reform under the Health Systems Research Institute (HSRI). A National Health Act was expected to be enacted within 3 years (by July 2003). Decentralization plans and procedures were also formulated while an Area Health Board approach was implemented on a pilot scale.
- 2001 The new government initiated the universal coverage of health security scheme (30-baht healthcare scheme). A major revision was made on the budgeting and administrative systems to ensure efficiency, quality and equity.
- The Health Promotion Fund Act was enacted in 2001; since then the Fund has been established with the budget specifically allocated by the government, i.e. 2% of alcohol and tobacco excise duties.
- 2002 The National Health Security Act was promulgated in 2002 to implement the universal coverage of healthcare scheme in a sustainable manner.
- The MoPH underwent a 4th major restructuring under the Reorganization of Ministries and Departments Act of B.E. 2545 (2002), comprising nine departments, including two new departments (Department for Development of Thai Traditional and Alternative Medicine and Department of Health Service Support). The Department of Communicable Disease Control was renamed Department of Disease Control with broader functions covering the prevention and control of all diseases and health risks (including non-communicable diseases as well as occupational and environment-related diseases).
- Overall, the MoPH has been reorganized into three major clusters, each supervised by one Deputy Permanent Secretary. The three clusters are: the Cluster of Medical Service Development (Department of Medical Services, Department for Development of Thai Traditional and Alternative Medicine, and Department of Mental Health), the Cluster of Public Health Development (Department of Disease Control and Department of Health), and the Cluster of Public Health Service Support (Department of Health Service Support, Department of Medical Sciences, and Food and Drug Administration).
- 2003 The Regulation of the Prime Minister's Office on Health System Reform was amended thereby extending the functioning and timeframe of the National Health System Reform Committee and the legislation of the National Health Bill for another two years (until July 2005).

Figure 7.1 Evolution of the Ministry of Public Health, 1888-Present



## 2. The Ministry of Public Health: Present and Future Trends

### 2.1 Authority and Mandate of MoPH

The Reorganization of Ministries, Sub-Ministries and Departments Act of B.E. 2545 (2002) provides that “the Ministry of Public Health has powers and responsibilities related to the promotion of health, prevention/control and treatment of diseases, and rehabilitation of people’s health, as well as other official functions as provided by laws which indicate that such functions are under the responsibility of the Ministry of Public Health”.

Its principal purpose is to make all Thai citizens healthy, physically and mentally, with good quality of life, being able to live a happy life in society and being valuable resources of the country.

### 2.2 Administrative Structure

The administrative structure of the MoPH is divided into two levels: central administration and provincial administration.

**2.2.1 The Central Administration** (Figure 7.2) is composed of 10 agencies: (1) the Office of the Minister, (2) the Office of the Permanent Secretary for Public Health, and (3) eight departments in major clusters comprising the Department of Medical Services, the Department for Development of Thai Traditional and Alternative Medicine, the Department of Mental Health, the Department of Disease Control, the Department of Health, the Department of Health Service Support, the Department of Medical Sciences, and the Food and Drug Administration. Their functions are as follows:

#### (1) Office of the Minister

The Office deals with political matters in support of Minister’s functions, compiles information, analyzes/screens documents, and makes recommendations for decision-making by the Minister.

#### (2) Office of the Permanent Secretary

The Office deals with strategy development, the translation of Ministry’s policies into operational plans, the allocation and management of resources, the monitoring and evaluation of programme implementation of agencies under the Ministry, the development of information technology systems, public relations, international cooperation, and the amendment of relevant laws.

The Office has five agencies at the central level.

#### (3) The Cluster of Medical Service Development comprises three agencies as follows:

##### (3.1) Department of Medical Services

The Department is responsible for conducting research studies, developing and transferring appropriate medical technologies, and providing complex, specialized or tertiary medical care.

The Department has 21 agencies including four support units and 17 technical units.

##### (3.2) Department for Development of Thai Traditional and Alternative Medicine

The Department is responsible for taking actions with regard to the law relating to the protection and promotion of Thai traditional medicine wisdom and to other relevant laws; conducting research studies; developing and transferring knowledge and technologies, establishing and developing

standards; making recommendations on consumer protection in relation to Thai traditional medicine, folk medicine and alternative medicine; and promoting and supporting the provision of Thai traditional medicine, folk medicine, and alternative medicine in the healthcare system.

The Department has three major agencies including one support unit and two other technical units.

### **(3.3) Department of Mental Health**

The Department is responsible for conducting research studies, developing and transferring knowledge and technologies relating to the promotion of mental health, and prevention, treatment as well as rehabilitation of mental health problems, and providing services especially for serious or complicated cases of mental disorders.

The Department has 10 major agencies and 12 Mental Health Regional Centres, classified as four support units, six technical units, and 12 units located in the provinces.

### **(4) The Cluster of Public Health Development comprises two agencies as follows:**

#### **(4.1) Department of Disease Control**

The Department is responsible for conducting research studies, developing and transferring knowledge and technologies for the surveillance, prevention, control, diagnosis, and treatment of diseases and health risks, coordinating with relevant agencies, international organizations and local administrative organizations in the surveillance, prevention and control of diseases and health risks as well as other international health problems.

The Department has 12 central level agencies and 12 Offices of Disease Prevention and Control, classified as four support units, eight technical units, and 12 units located in the provinces.

#### **(4.2) Department of Health**

The Department is responsible for conducting research studies, developing and transferring knowledge and technologies relating to health promotion and environmental management that facilitate healthy status; establishing and developing the quality and standards for health impact assessments; and supporting local administrative organizations, communities and public/private sector partnerships to participate in health promotion efforts and in environmental management for health.

The Department has 12 central level agencies and 12 Regional Health Promotion Centres, classified as four support units, six technical units, two units established from a merger of technical divisions, and 12 units located in the provinces.

### **(5) The Cluster of Public Health Service Support comprises three agencies as follows:**

#### **(5.1) Department of Health Service Support**

The Department is responsible for promoting and coordinating efforts for the development of health services system; taking actions with regard to laws relating medical registration, healthcare facilities, and other relevant laws; supporting the operations of programs on health education and health systems of the people; conducting research studies; and conducting research and disseminating knowledge and transferring appropriate medical technologies relating to health services systems.

The Department has seven agencies, classified as one support unit and six technical service units.

### **(5.2) Department of Medical Sciences**

The Department is responsible for establishing and developing the standards of laboratory analyses and methods; developing knowledge and technologies relating to health products, herbal medicine, and diagnostic investigations; providing laboratory analysis services and serving as reference laboratories; and developing laboratory quality assurance systems.

The Department has 10 agencies and 12 Regional Medical Sciences Centres as follows, classified as two support units, eight technical service units, and 12 units located in the provinces.

### **(5.3) Food and Drug Administration**

The Food and Drug Administration (FDA) is responsible for taking actions according to laws relating to foods, drugs, cosmetics, hazardous substances, psychotropic substances, narcotics, medical devices, and volatile substance abuse prevention and surveillance; monitoring and inspecting the quality and standards of products, business places, and advertisements as well as adverse effects of health products; conducting research studies and developing knowledge and technologies as well as systems for consumer protection relating to health products; and developing the potential of consumers in selecting health products and protecting their rights.

The FDA has 10 agencies, classified as two support units, seven product monitoring and control units, and one consumer potential promotion unit.

### **(6) Agencies under the supervision of the MoPH**

In addition, the MoPH has some other agencies under its supervision, but are not under any of the aforementioned clusters, as follows:

**(6.1) Autonomous agencies:** there are four agencies, two of which are the Praboromarajchanok Institute (of the Office of the Permanent Secretary) and the National Institute of Health (of the Department of Medical Sciences), whose bills are under the legislative process; and another two agencies whose acts have been enacted, i.e.:

A. Health Systems Research Institute (HSRI). This agency performs functions related to research, in a multidisciplinary fashion and in association with other sciences (such as social sciences, economics, anthropology, and psychology), so as to further develop health programmes systematically and to resolve health problems more effectively.

HSRI is governed by the HSRI Committee appointed by the Cabinet, chaired by the Minister of Public Health and comprising 18 other members, seven of whom are expert members.

B. National Health Security Office (NHSO). This agency is charged with expanding the coverage of health insurance or security to the people who have not yet been covered by any other government health insurance scheme. It is also responsible for developing standardized benefit packages and for the financing and providing rights to health security to the target population groups.

NHSO is governed by the National Health Security Board appointed by then Cabinet, chaired by the Minister of Public Health and comprising another 30 members, seven of whom are expert members.



**(6.2) One state enterprise:** The Government Pharmaceutical Organization (GPO)

GPO is the only state enterprise under MoPH, responsible mainly for producing drugs and medical supplies, and for conducting research studies on the drug and medical supply production as well as on raw materials for use in such production. GPO is governed by the GPO Board appointed by the cabinet as suggested by the Minister of Public Health.

**(6.3) Public organizations:**

According to the Public Organization Act of B.E. 2542 (1999), four categories of health facilities (regional/general/community hospitals and health centres) are expected to be converted into public organizations whenever they are ready. To date a royal decree has been enacted for only one hospital, i.e. Ban Phaeo Hospital in Samut Sakhon Province. Another three royal decrees are being legislated for establishing the following agencies: Institute of Specialty Medicine, Bureau of Emergency Medical Services, and Institute of Hospital Quality Improvement and Accreditation.

**2.2.2 The Provincial Administration**

Public health agencies under the provincial administration are Provincial Public Health Offices, hospitals under the MoPH, District Health Offices, and health centres (Figure 7.3).

Beginning in FY 2004, the government has changed the role of each provincial governor as chief executive officer (CEO) administering all activities within his/her jurisdiction on an integrated manner, aimed at achieving the state mission for the maximum benefit of the people. Thus, the Provincial Public Health Office in each province, which reports to the provincial governor, has to take part in the resolution of health problems at the local level, serving as one of the members of the provincial administrators, with technical support from the MoPH.

**(1) Provincial Public Health Offices**

The Provincial Public Health Office (PPHO) in each province directly reports to the Provincial Governor and is headed by the Provincial Chief Medical Officer (PCMO), who represents the MoPH in the province and is in charge of all health activities at the provincial level. The PPHO is supervised and logistically supported by the Office of the Permanent Secretary and other technical departments.

Under each PPHO, there are one or two 150- to 1,000-bed regional/general hospitals, and several 10- to 150-bed community (district) hospitals, all reporting to the PCMO.

**(2) District (and Subdistrict) Health Offices**

The District/Subdistrict Health Office in each district or subdistrict (king amphoe) reports to the District Chief and is headed by the District/Subdistrict Health Officer, taking charge of management, support, promotion, monitoring and evaluation of activities implemented by health centres; and it is supervised and supported, technically and administratively, by the PPHO.

**(3) Health Centres**

Health centres provide integrated health services at the tambon (commune of several villages in a district or subdistrict) level to the people in their designated rural areas, each covering a population of approximately 1,000 to 5,000. One health centre is generally staffed by community health officers (a male



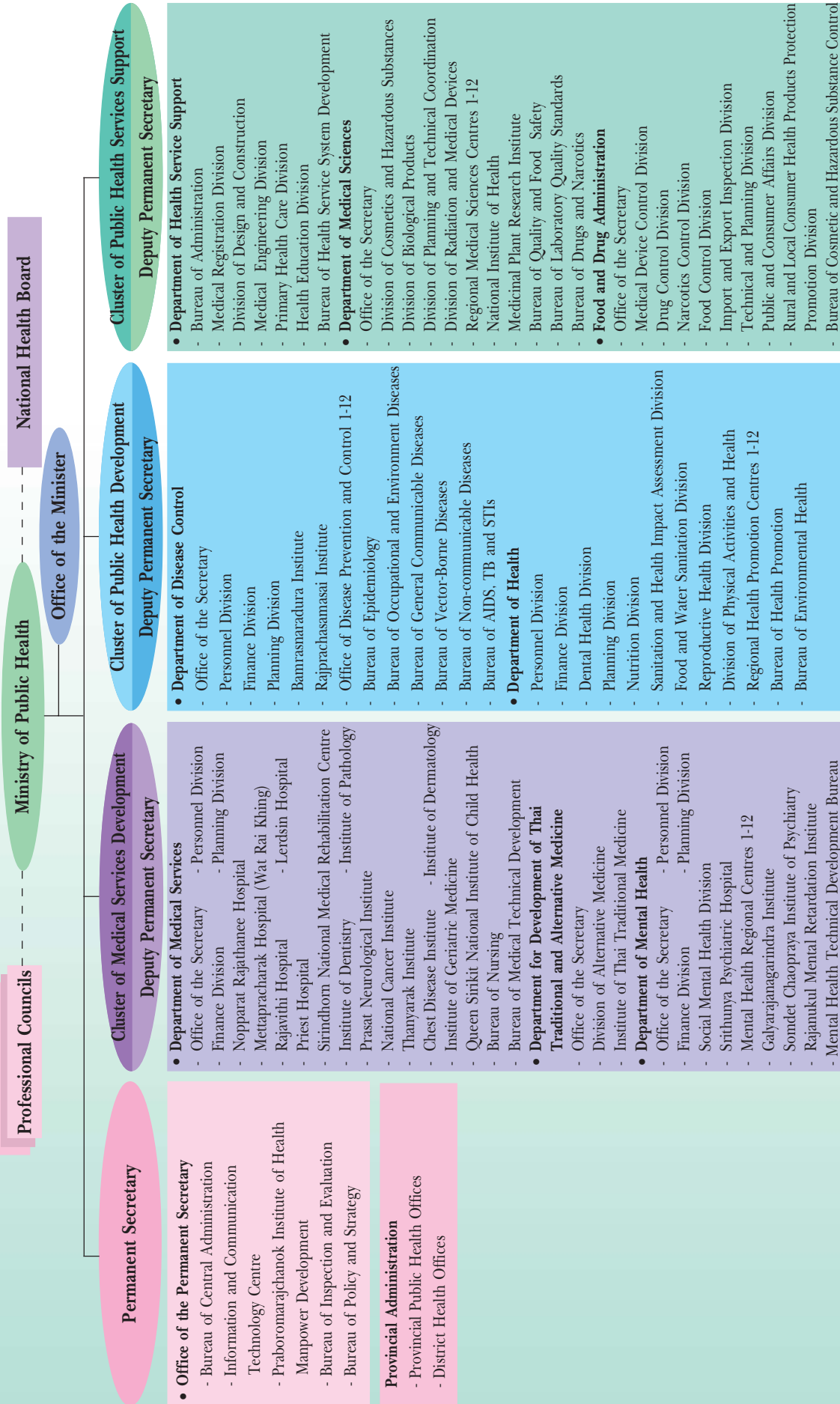
health worker, a midwife and a technical nurse), who graduated from one of the Sirindhorn Public Health Colleges or Boromarajchonnani Nursing Colleges. Currently, the MoPH has assigned a dental auxiliary, a professional nurse and a health technical officer to work at each of some large health centres throughout the country.

As the present government has set a policy on universal healthcare coverage, all hospitals and health centres have to set up “**community health centres**” to provide integrated health services in a holistic manner and on a continuous basis to the people with programmes for home visits, counselling and referrals.

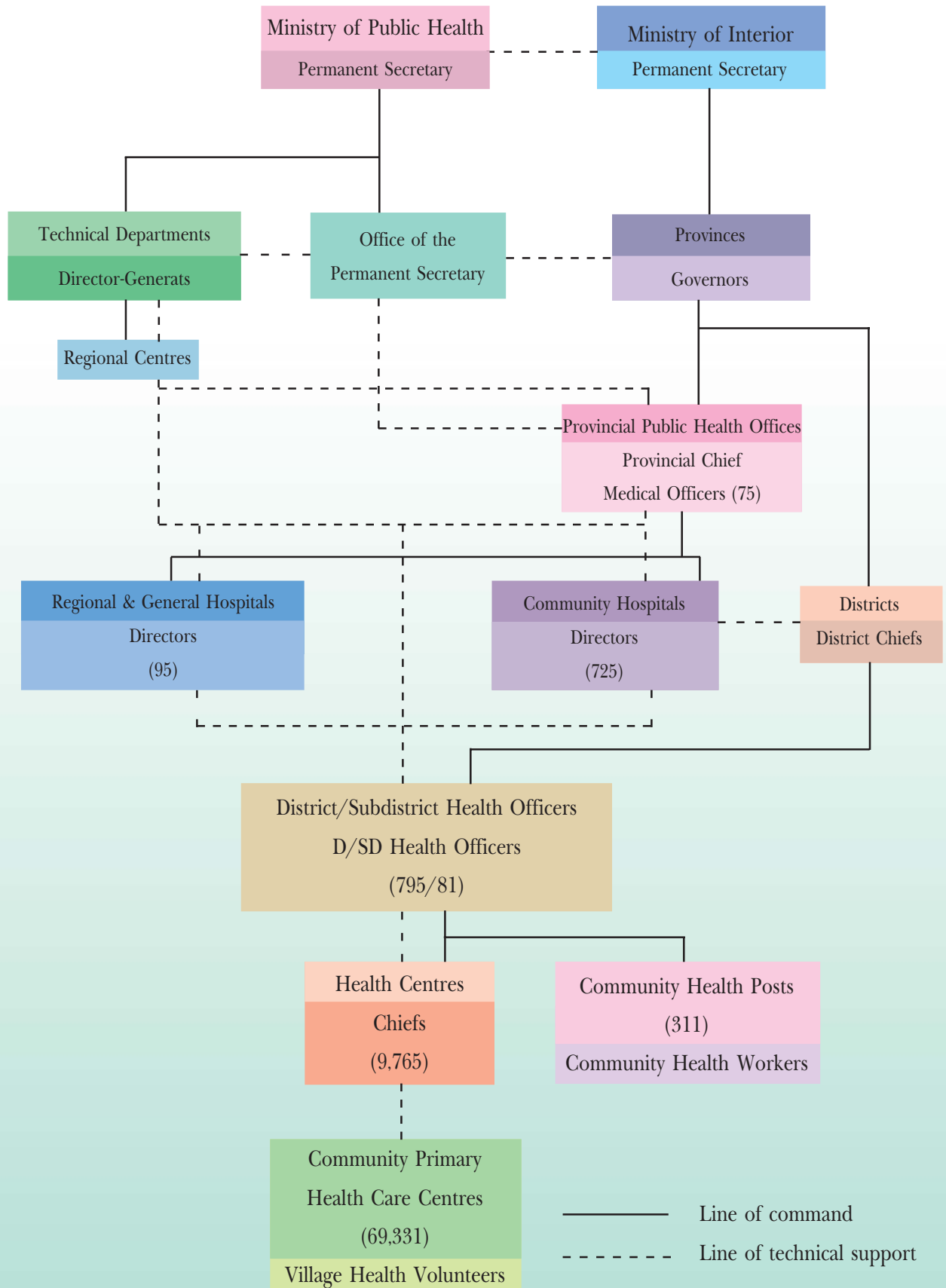
Until 2003, approximately 5,946 community health centres had been established.

Under the universal coverage of healthcare system, each of the provincial and community hospitals serves as a “contracted unit of primary care (CUP)”; and health centres will receive resources from the hospital, but under the line of command of the district health officer.

Figure 7.2 Structure of Ministry of Public Health



**Figure 7.3** Structure of the Provincial Health Administration



## 2.3 Specific Characteristics of the MoPH Structure

The organizational structure and operational systems of the MoPH have been revised from time to time. The reorganization undertaken in 2002 was regarded as a significant one and has become the foundation of the present-day health system with four key features as follows:

2.3.1 **The Office of the Permanent Secretary** is the sole agency of the MoPH that oversees all principal health services units at the provincial level. In coordination with other MoPH's technical departments, the Office of the Permanent Secretary supports all such services units.

2.3.2 All agencies under the MoPH, at both departmental and divisional levels, are collaboratively implementing their respective functions **with the same objectives, using their strategies as an important tool**. Thus, operational outcomes are not a result of any particular agency; rather, they are the achievements of the entire ministry.

2.3.3 The structures of all MoPH agencies have been designed so as to cover all geographical areas at all levels and to provide curative, promotive, preventive and rehabilitative care in an integrated manner.

2.3.4 MoPH's provincial health administration has solidarity as only the **Office of the Permanent Secretary can have provincial health agencies with Provincial Public Health Offices and major health service facilities**, under its jurisdiction (in all provinces). On the other hand, other departments have only **technical offices in 12 regions only**, providing technical support to the provincial health agencies. The regional offices will be expanded to cover 19 regions or zones so as to correspond with the 19 clusters of provinces, according to the CEO-style management policy at the provincial level of the country.

## 2.4 Future Trends

According to the 2002 MoPH restructuring and the National Health Security Act, as well as the Planning and Steps of Decentralization Act, the MoPH especially its central-level agencies tends to become smaller and smaller in the future. All such agencies will perform functions related to policy and standard setting and technical support. Almost all the budget for health services delivery has been appropriated to the National Health Security Office. However, according to the transitional provisions of the National Health Security Act, the MoPH will continue to handle the budget management for all its health facilities during the first three years (until FY 2005).

All provincial level health facilities (particularly hospitals) have had more powers and flexibility in the management of their service systems, and they might become **autonomous public organizations** under the supervision of either MoPH or local authorities (in the form of an Area Health Board). Such a change began in 2000, under the terms and conditions of the RTG-ADB agreement, which specifies that at least one provincial level hospital will become an autonomous organization. As a result, Ban Phaeo Hospital of Samut Sakhon Province has become a public organization. As for health centres, they might become part of local administration agencies such as Tambon Administration Organizations or part of a cluster of health facilities that is a public organization.

However, the present government has had a policy to restructure the management system of all health facilities so that they will be more independent and flexible like a public organization, but still under the government system. The details of such system are still under the development process.

### 3. Programmes/Projects of the MoPH

The MoPH implements its programmes and projects as detailed in the Health Development Plan, under the National Economic and Social Development Plan (see details in Chapter 3) and its plans of action, in accordance with government policies as well as the policies set by high-level health administrators, such as the Minister of Public Health and the Permanent Secretary for Public Health.

The MoPH information system has been established to monitor progress of its programmes. Such a system is also able to show Thai people's health status and problems derived from surveys, including surveillance and reporting systems.

In implementing various programmes/projects, although in an integrated manner by provincial level health agencies, technical and resource support are still provided by central agencies in a vertical manner with inadequate inter-agency coordination.

### 4. Human Resources of the MoPH

#### 4.1 Basic Information on Human Resources

Previously 70% of MoPH personnel were civil servants and 30% were permanent employees. Since 1989 the proportion of permanent employees had declined to just 20.7% in 2003; and since 1999 the proportion of civil servants has steadily declined as there have been more and more "state employees" and as a result of the early retirement policy of the government in 2001 as shown in Figures 7.4 and 7.5.

In 2003, the MoPH had a staff of 218,069, of which 151,473 (69.5%) were civil servants, 45,089 (20.7%) were permanent employees, and 21,507 (9.9%) were state employees. The Office of the Permanent Secretary had the greatest proportion of personnel, i.e. 88.2% of all MoPH civil servants, 74.9% of all permanent employees, and 93.6% of all state employees; and the Department for Development of Thai Traditional and Alternative Medicine had the smallest (only 0.1% of all MoPH work force). The Department of Disease Control had a lower proportion of civil servants compared with that of permanent employees (Table 7.1).

Since 1999, the MoPH has appointed MoPH and RTG fellowship graduates as "state employees", totalling 21,057 in number, rather than as civil servants. A state employee has a semi-civil-servant/permanent-employee status. Most of such employees are doctors, dentists, pharmacists, and professional nurses (Table 7.2). However, since May 2004, according to the Cabinet's resolution of 11 May 2004, 27,385 state employees have been converted to civil servants to resolve the problem of medical personnel shortages, especially in the rural areas, where there have been a lot of resignations after completing their compulsory service obligation, due to inadequate incentives and compensations commensurate with workload, and no legal protection in healthcare-related lawsuits for damages.

Nearly all MoPH personnel (particularly of the Office of the Permanent Secretary) are working in the **rural areas**; most of whom are those who have studied on MoPH fellowships at one of MoPH training or educational institutions.

**Table 7.1** Numbers of Civil Servants, Permanent Employees, and State Employees of MoPH, 2003

Department	Civil servants		Permanent employees		State employees		Total	
	No.	%	No.	%	No.	%	No.	%
Office of the Permanent Secretary	133,597	88.2 (71.2)	33,783	74.9 (18.0)	20,135	93.6 (10.7)	187,515	86.0
Department of Medical Services	6,816	4.5 (65.7)	2,882	6.4 (27.8)	674	3.1 (6.5)	10,372	4.8
Department of Health	1,972	1.3 (48.9)	1,822	4.0 (45.2)	235	1.1 (5.8)	4,029	1.8
Department of Disease Control	3,354	2.2 (46.0)	3,832	8.5 (52.5)	111	0.5 (1.5)	7,297	3.3
Department of Medical Sciences	960	0.6 (74.5)	287	0.6 (22.3)	41	0.2 (3.2)	1,288	0.6
Food and Drug Administration	482	0.3 (74.3)	73	0.2 (11.2)	94	0.4 (14.5)	649	0.3
Department of Mental Health	3,089	2.0 (59.0)	1,931	4.3 (36.9)	217	1.0 (4.1)	5,237	2.4
Department of Health Service Support	1,080	0.7 (9.4)	477	1.1 (30.6)	0	0.0 (0.0)	1,557	0.7
Department for Development of Thai Traditional and Alternative Medicine	123	0.1 (98.4)	2	0.004 (1.6)	0	0.0 (0.0)	125	0.1
<b>Total</b>	<b>151,473</b>	<b>100.0</b> <b>(69.5)</b>	<b>45,089</b>	<b>100.0</b> <b>(20.7)</b>	<b>21,507</b>	<b>100.0</b> <b>(9.9)</b>	<b>218,069</b>	<b>100.0</b> <b>(100.0)</b>

**Sources:** Personnel divisions/sections of all departments, MoPH, October 2003.

- Notes:**
1. Figures for civil servants and permanent employees of all departments are based on the numbers of actually filled positions, October 2003.
  2. Figures in parentheses are percentages on their respective horizontal lines (of their own departmental totals).

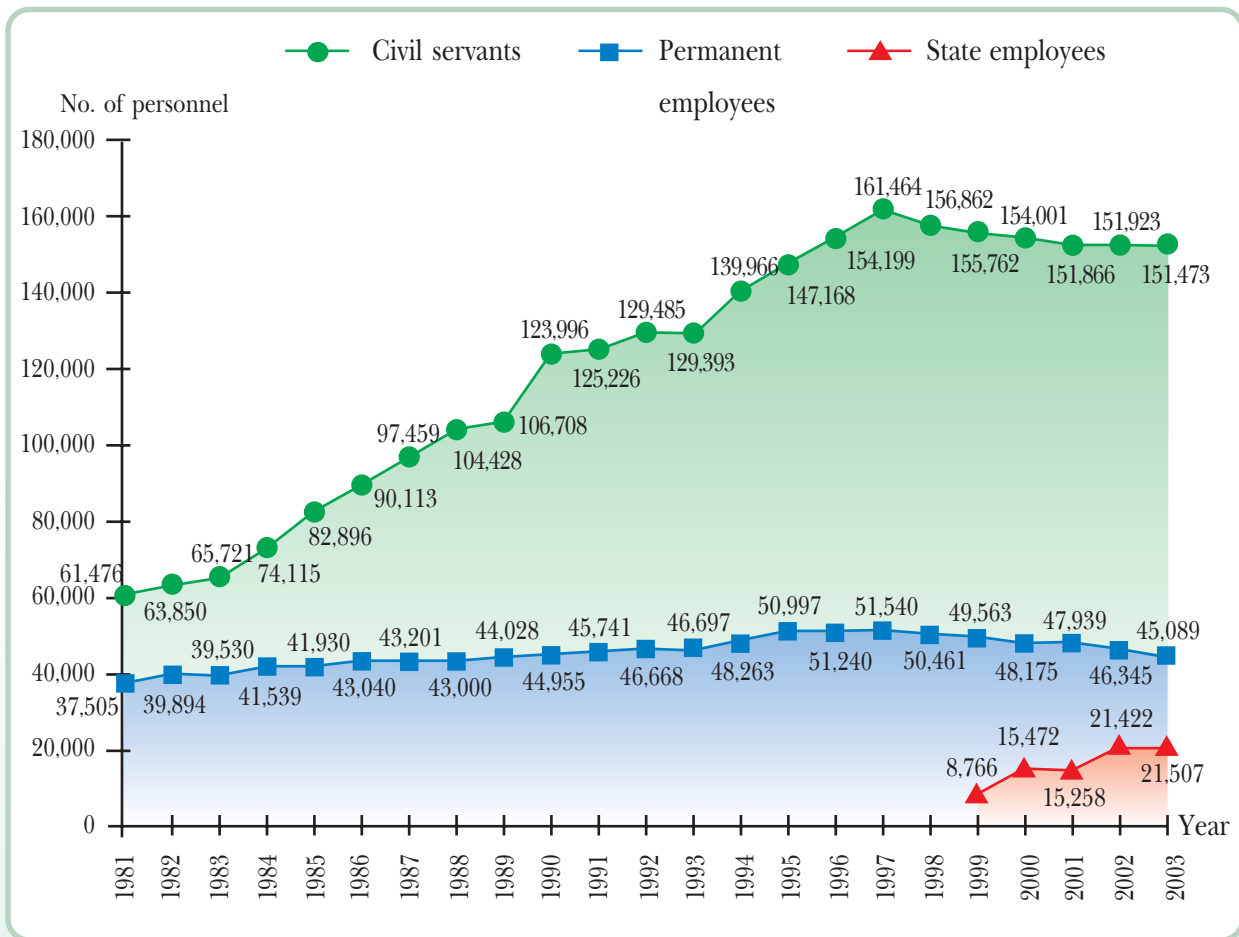
**Table 7.2** Number of State Employees of MoPH by Professional Category, 2003

No.	Professional category	Number of personnel in 2003
1	Medical doctors	2,877
2	Dentists	979
3	Pharmacists	2,173
4	Professional nurses	10,927
5	Disease control specialists	2
6	Health technical specialists	380
7	Technical nurses	1,723
8	Community health officers	850
9	Dental health officers	485
10	Pharmaceutical officers	568
11	Medical science officers	250
12	Medical rehabilitation officers	41
13	Audiovisual aid officers	49
14	Medical statisticians	127
15	Dental technicians	8
16	Disease control officers	68
	<b>Total</b>	<b>21,507</b>

**Source:** Personnel divisions/sections of all departments, MoPH.



**Figure 7.4** Numbers of Civil Servants, Permanent Employees, and State Employees of MoPH, Fiscal Years 1981-2003

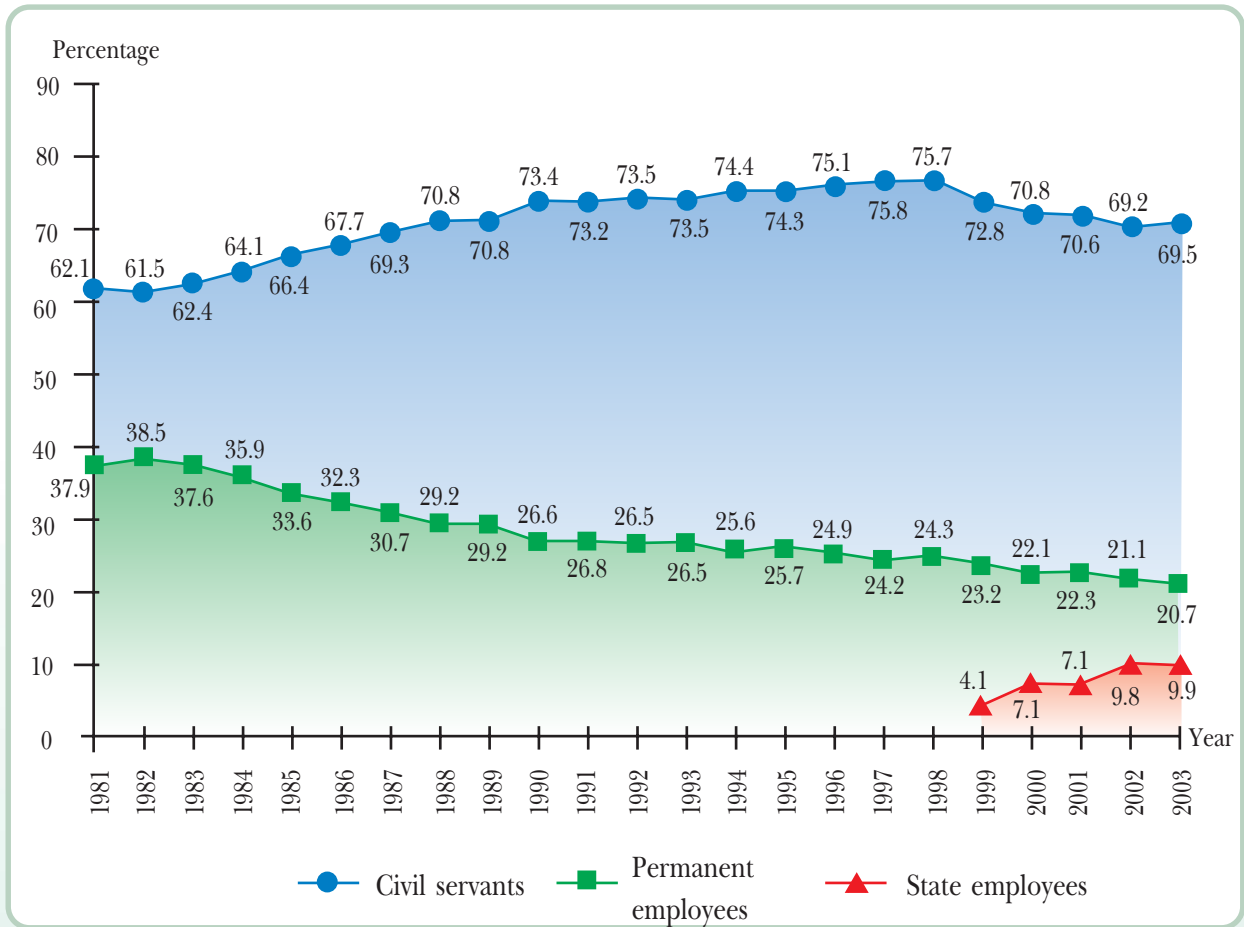


**Sources:** Data for 1981-1997 are derived from HEALTH DIARY of the National Health Association of Thailand.

Data for 1998-2003 are derived from personnel divisions/sections of all departments, MoPH.

**Note:** For 1998 onwards, the data represent actually filled positions.

**Figure 7.5** Proportions of Civil Servants, Permanent Employees, and State Employees of MoPH, Fiscal Years 1981-2003



**Sources:** Data for 1981-1997 are derived from Health Diary of the National Health Association of Thailand. Data for 1998-2003 are derived from personnel divisions/sections of all departments, MoPH.

**Note:** For 1998-2003, the proportions are based on the numbers of actually filled positions.

The workforce of the MoPH classified by major group/profession includes 172,980 actually filled positions (2003) in 29 groups, excluding permanent employees, (Table 7.3).

**Table 7.3** Workforce of the MoPH (excluding permanent employees) by Major Group/Profession: Number and Proportion of Actually Filled Positions, 2003

Group/Professional category	Civil servants		State employees		Total	
	No.	%	No.	%	No.	%
1. Professional nurses	49,056	32.4	10,927	50.8	59,983	34.7
2. Technical nurses	22,032	14.5	1,723	8.0	23,755	13.7
3. Community health officers	17,752	11.7	850	4.0	18,602	10.7
4. Health technical specialists	11,426	7.5	380	1.8	11,806	6.8
5. Health administration officers	9,914	6.5	-	-	9,914	5.7
6. Medical doctors	7,458	4.9	2,877	13.4	10,335	6.0
7. Correspondence, finance, logistics, statistics, data recording, computer, and typing officers	6,471	4.3	-	-	6,471	3.7
8. Dental nurses, dental assistants, and dental health officers	3,892	2.6	485	2.3	4,377	2.5
9. Pharmacists	3,279	2.2	2,173	10.1	5,452	3.2
10. Medical science technicians	3,154	2.1	250	1.2	3,404	2.0
11. Pharmaceutical assistants/officers	2,693	1.8	568	2.6	3,261	2.0
12. X-ray/medical radiation officers	1,634	1.1	-	-	1,634	0.9
13. Dentists	1,542	1.0	979	4.5	2,521	1.4
14. General administration officers	1,358	0.9	-	-	1,358	0.8
15. Statisticians and computer specialists	999	0.7	127	0.6	1,126	0.7
16. Medical technologists	980	0.6	-	-	980	0.6
17. Disease control officers	804	0.5	68	0.3	872	0.5
18. Civil-works, electrical, and telecommunication engineers/technicians	876	0.6	-	-	876	0.5
19. Medical scientists and scientists	703	0.5	-	-	703	0.4
20. Policy and plan analysts	669	0.4	-	-	669	0.4
21. Physiotherapy and medical rehabilitation officers	589	0.4	41	0.2	630	0.4
22. Social workers and psychologists	557	0.4	-	-	557	0.3
23. Personnel officers, training officers, professional registration officers, and human resource development specialists	490	0.3	-	-	490	0.3

Table 7.3

Group/Professional category	Civil servants		State employees		Total	
	No.	%	No.	%	No.	%
24. Nutritionists	441	0.3	-	-	441	0.2
25. Public relations, information, audio-visual aid, communication, and library officers	404	0.3	49	0.2	453	0.3
26. Physiotherapists	381	0.3	-	-	381	0.2
27. Lecturers	220	0.1	-	-	220	0.1
28. Medical radiation specialists and medical physicists	202	0.1	-	-	202	0.1
29. Others	1,497	1.0	10	0.0	1,507	0.9
Total	151,473	100.0	21,507	100.0	172,980	100.0

**Source:** Personnel Divisions of all Departments of the Ministry of Public Health, October 2003.

**Note:** Major staffing patterns were re-designed and professionals re-categorized in 2002 according to the MoPH restructuring as part of the bureaucratic reforms, resulting in a decrease in the number of professional categories: the positions for health promotion specialists, disease control specialists, sanitation specialists and health education specialists were abolished, but the positions for health technical specialists have been established instead, for more flexibility in the process of transfer and assessment for taking such positions.

## 4.2 Problems of the MoPH Workforce

**4.2.1 The number of personnel is not consistent with the increased workload.** Health agencies have to carry a greater burden of responsibilities according to the existing government programmes/projects, the national socioeconomic development plan, and new programmes/projects while the number of personnel decreases, resulting in an inadequate staff to perform the tasks efficiently in response to the ministry's policies.

**4.2.2 Lack of overall manpower planning.** This problem has resulted in an inappropriate and inefficient utilization of personnel. After the restructuring and reorientation of the MoPH's structure and missions, it has been found that the staffing of certain agencies is not flexible and consistent with their new mission. For example, the Department of Communicable Disease Control has been restructured as the Department of Disease Control with additional responsibilities for non-communicable diseases (NCDs), but they lack personnel with expertise in NCD prevention and control, as most of them have had experiences only in the prevention and control of communicable diseases.

**4.2.3 Lack of an efficient personnel re-distribution system.** The re-distribution of personnel in the past has not been as efficient as expected because such re-distribution cannot be done within the same ministry. Besides, newly established agencies, such as the Department for Development of Thai Traditional and Alternative Medicine, need highly competent personnel but they have been allocated an inadequate number of personnel, whose qualifications are not suitable for initiating new tasks in the new agency.

**4.2.4 Lack of a personnel utilization examination system.** This problem has resulted in the inability to identify which agencies have had an inadequate or excess number of personnel. In the past, the staff requirement was in accordance with the staffing patterns approved by the Civil Service Commission, based on the size of each health facility and its numbers of beds and operating rooms. Such a practice did not reflect the workload of health facilities at each level and the access to health care of the people.

**4.2.5 Loss in the health system.** A major loss of health personnel in the health system is the resignation of a number of doctors due to a higher workload as well as inadequate compensation and incentives. In addition, there have been some indirect losses such as the utilization of personnel that is not relevant to their qualifications.

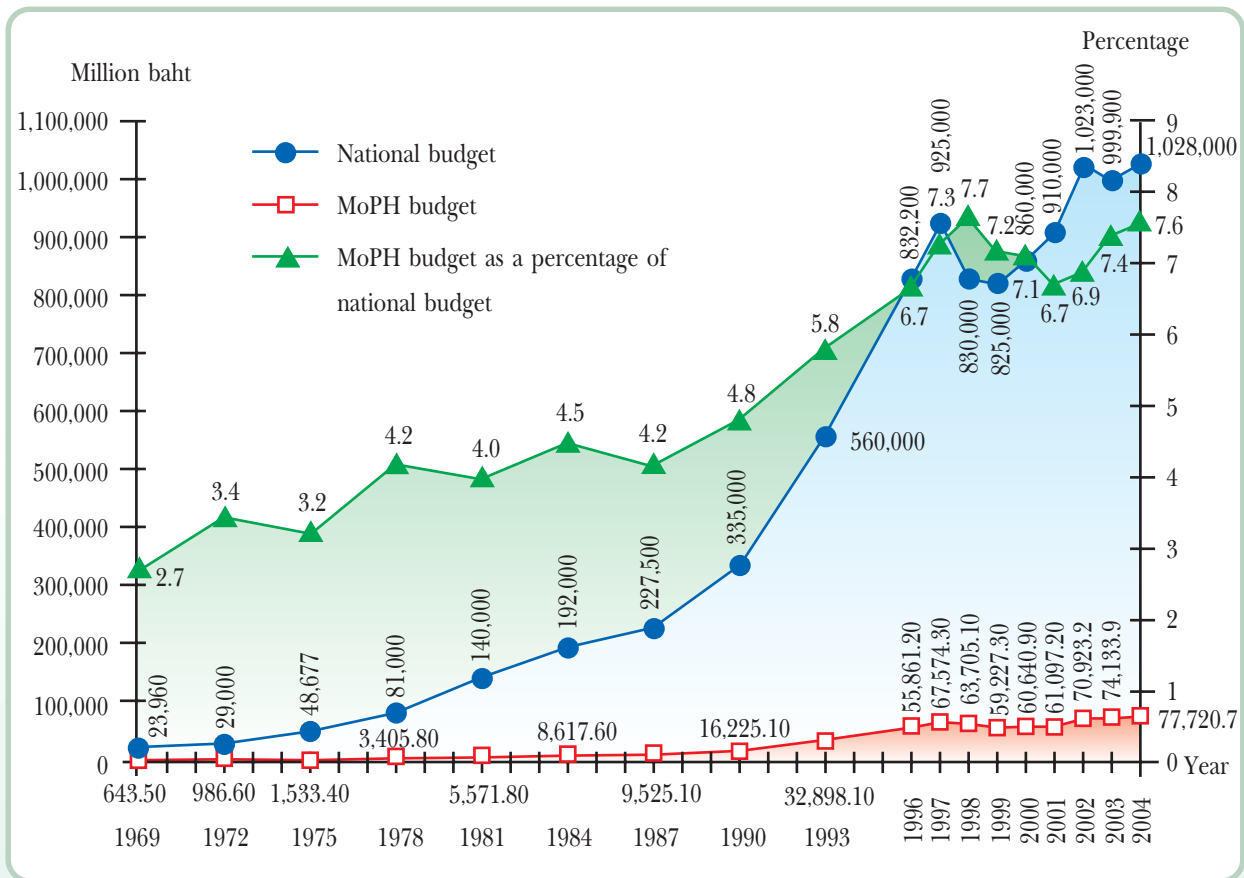
## 5. The Budget of the Ministry of Public Health

### 5.1 Proportion of the Budget

The proportion of annual budget allocated to the MoPH was 2.7-7.7% of the national budget during 1969-2004 (Figure 7.6) or approximately 0.4-1.3% of the gross domestic product (GDP). It can be noted that the MoPH's budget has increased significantly during the past decade, similar to those in other social service sectors, due to a decrease in foreign debt repayments and security expenditure. Until the economic crisis in 1997, the foreign debts have increased from 5.0% in 1997 to 13.2% in 2004 (Figure 7.8). The proportion of MoPH's annual budget had declined until 2001. But since FY 2002, its annual budget has increased substantially as a result of the government policy on universal coverage of health care (Figure 7.7). In FY 2004, the budget is 45,147.9 million baht plus a health insurance revolving fund of 32,572.8 million baht, totalling 77,720.7 million baht, or 7.6% of the national budget (Figure 7.6).

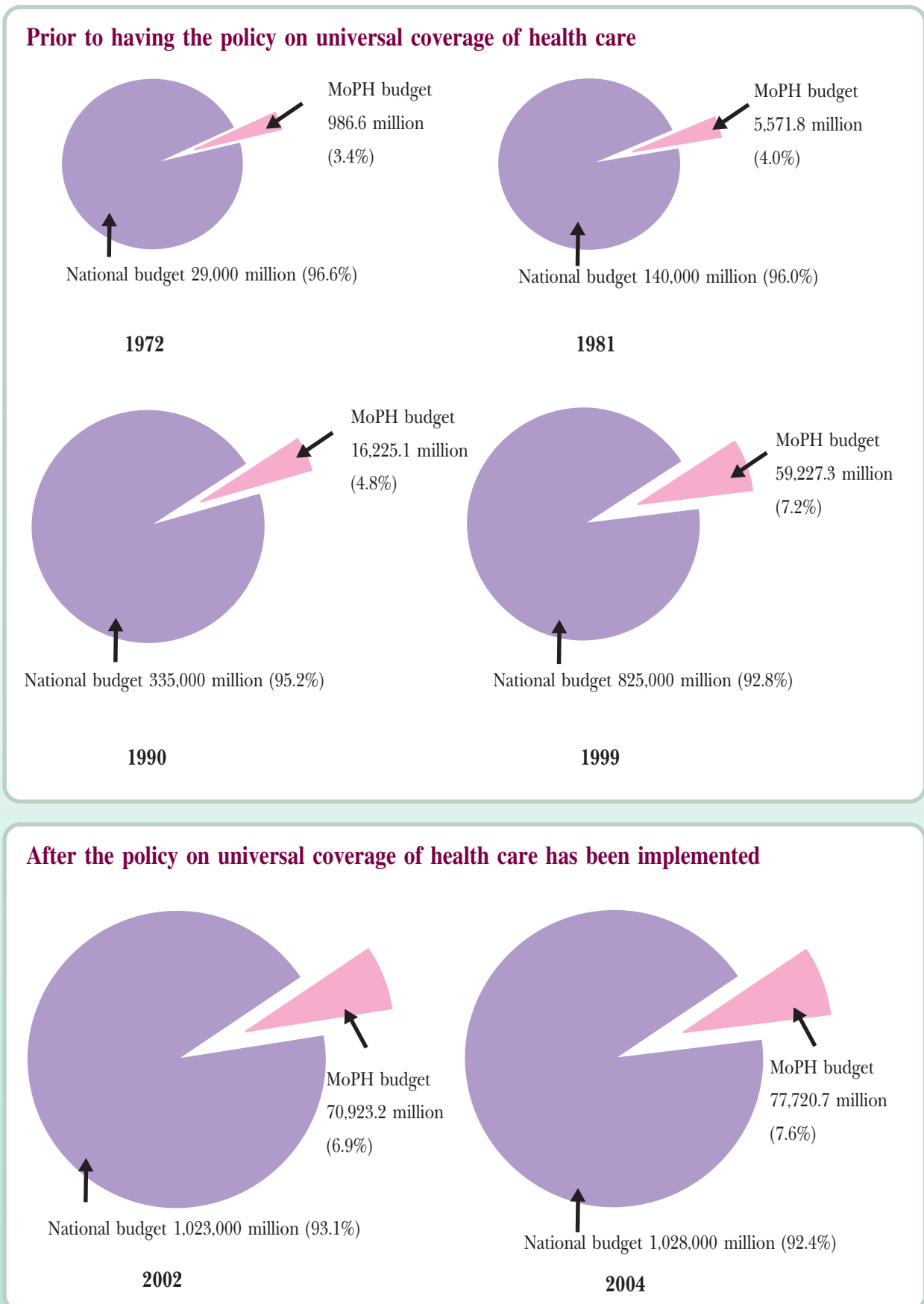
In real terms, the 2004 budget is less than that for 1997; and it is noteworthy that there were large amounts of foreign loans during 1997-2001, but none during 2002-2004 (Table 7.4).

**Figure 7.6** Amounts and Proportions of MoPH's Budget Compared with the National Budget (Present Value), FYs 1969-2004



**Sources:** - Bureau of Policy and Strategy, Ministry of Public Health.  
 - Bureau of the Budget.

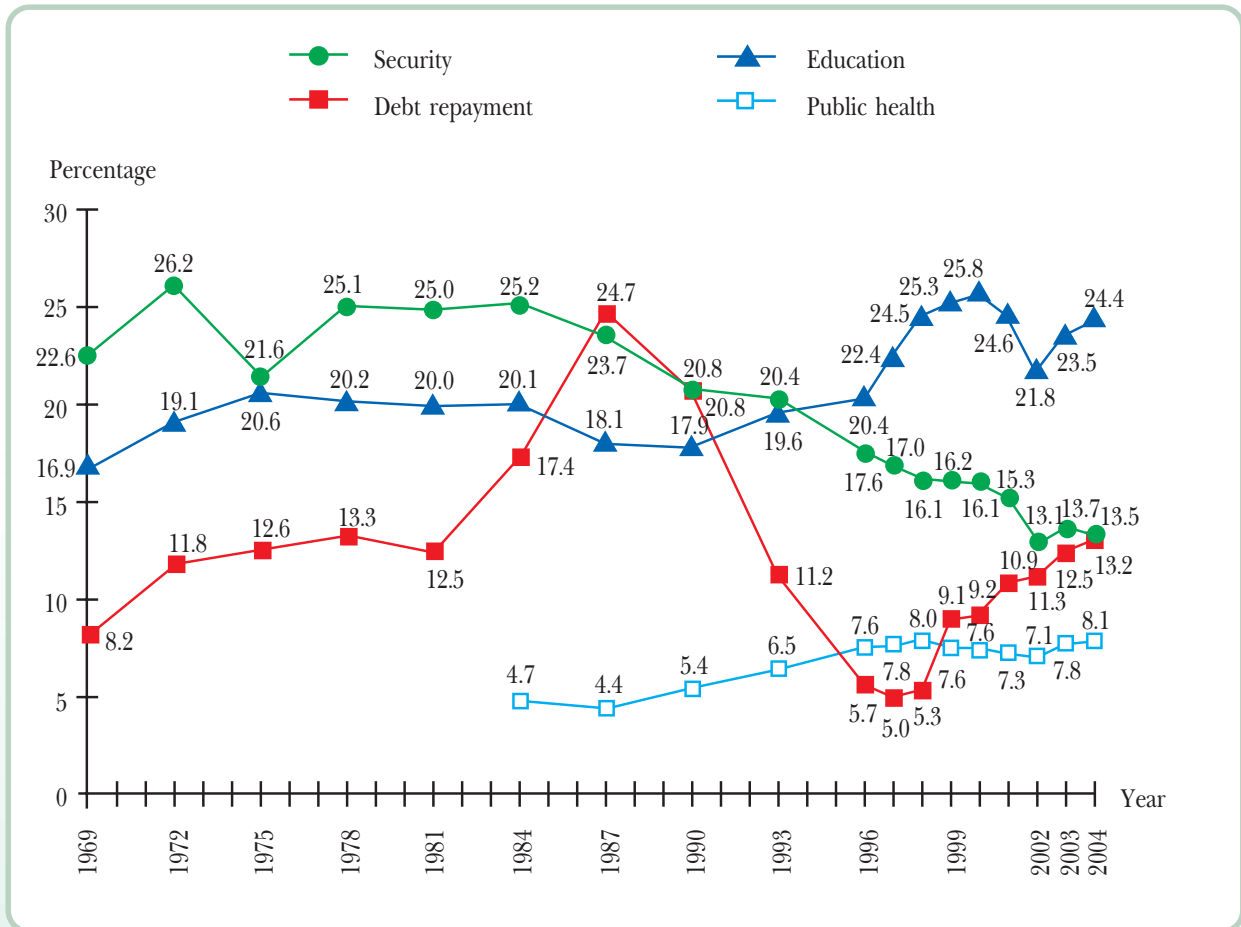
**Figure 7.7** MoPH's Budget Compared with the National Budget (baht)



Source: Figure 7.6.



**Figure 7.8** Proportions of Security, Debt Repayment, Education and Public Health Budget, Compared with the National Budget, FYs 1969-2004



**Source:** Bureau of the Budget.

**Note:** There were no health budget data available for 1969 - 1981, as the budget was included in the social service budget.

**Table 7.4** MoPH's Budget in Present Value and Real Terms (million baht)

Year	MoPH budget	Health insurance revolving funds	Total MoPH budget (present value)	Consumer price index (1994 = 100)	Budget at 2004 value	Increase/decrease from previous year (2004 value)	Percentage of national budget
1992	24,640	-	24,640	92.1	36,572	-	-
1993	32,898	-	32,898	95.1	47,289	+29.3	5.8
1994	39,319	-	39,319	100	53,749	+13.7	6.3
1995	45,103	730	45,833	105.8	59,219	+10.2	6.4
1996	55,236	625	55,861	112.0	68,180	+15.1	6.7
1997	66,544	1,030	67,574 (68,934)	118.2	78,150 (79,723)	+14.6 (+16.9)	7.3 (7.4)
1998	62,625	1,080	63,705 (65,065)	127.8	68,141 (69,596)	-12.8 (-12.7)	7.7 (7.8)
1999	57,171	2,056	59,227 (62,787)	128.2	63,154 (66,950)	-7.3 (-3.8)	7.2 (7.6)
2000	58,426	2,215	60,641 (63,001)	130.2	63,668 (66,146)	+0.8 (-1.2)	7.1 (7.3)
2001	58,697	2,400	61,097 (61,563)	132.3	63,129 (63,610)	-0.8 (-3.8)	6.7 (6.8)
2002	43,311	27,612	70,923	133.2	72,787	+15.3	6.9
2003	41,996	32,138	74,134	135.7	74,680	+2.6	7.4
2004	45,147	32,573	77,720	136.7 <sup>1</sup>	77,720	+4.1	7.6

**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

- Notes:**
1. MoPH's budget figures have included the budget of other agencies under MoPH's supervision, i.e. Health Systems Research Institute and National Health Security Office.
  2. The number in ( ) includes foreign loans for health programmes in 1997-2001: from Sweden, Denmark, OECF, The World Bank, Asian Development Bank and Japan (Miyazawa Plan) in 1997 for 1,360 million baht; in 1998 for 1,360 million baht; in 1999 for 3,560 million baht; in 2000 for 2,360 million baht; and in 2001 for 466 million baht.
  3. Since FYs 1995-2001, the MoPH has received a supplementary budget for health insurance cards called "health insurance revolving fund subsidies", which were previously included the MoPH's budget.
  4. Since FY 2002, the MoPH has received a budget as "health insurance revolving fund" in stead of "health card revolving fund"; the MoPH continues to administer the revolving fund of the National Health Security Office for the first three years after the National Health Security Act came into force.
  5. <sup>1</sup>Consumer price index as of January 2004.
  6. The health insurance revolving fund does not include personnel and operating costs.

## 5.2 Budget Allocation by Department

Considering the budget allocation for each department, it was found that in 2004 the National Health Security Office (including the health insurance revolving fund) received the largest amount of budget (43.2%), followed by the Office of the Permanent Secretary for Public Health (41.4%, including salaries for civil servants and employees, which are part of the universal healthcare budget), and the Department for Development of Thai Traditional and Alternative Medicine received the least (0.2%) (Table 7.5 and Figure 7.9).

**Table 7.5** The Budget of the Ministry of Public Health, 1997-2004

Department	Budget received (million baht)															
	1997	1998		1999		2000		2001		2002		2003		2004		
	Amount	Amount	Increase/Decrease from 1997 (%)	Amount	Increase/Decrease from 1998 (%)	Amount	Increase/Decrease from 1999 (%)	Amount	Increase/Decrease from 2000 (%)	Amount	Increase/Decrease from 2001 (%)	Amount	Increase/Decrease from 2002 (%)	Amount	Increase/Decrease from 2003 (%)	
- Whole country	925,000.0	830,000.0	-10.3	825,000.0	-0.6	860,000.0	+4.2	910,000.0	+5.8	1,023,000.0	+12.4	999,900.0	-2.3	1,028,000.0	+2.8	-
- MoPH	67,574.3	63,705.1	-5.7	59,227.3	-7.0	60,640.9	+2.4	61,097.2	+0.8	70,923.2	+16.1	74,133.9	+4.5	77,720.7	+4.8	-
- Office of the Permanent Secretary	52,137.3	48,730.2	-6.5	45,307.6	-7.0	46,487.4	+2.6	46,691.6	+0.4	29,802.0	-36.2	28,978.7	-2.8	32,177.5	+11.0	41.4
- Department of Medical Services	3,518.9	3,307.4	-6.0	3,003.9	-9.2	3,083.7	+2.7	3,189.3	+3.4	2,556.7	-19.8	2,490.4	-2.6	2,664.7	+7.0	3.4
- Department Disease Control	3,646.7	3,713.5	+1.8	4,039.8	+8.8	4,185.4	+3.6	4,501.4	+7.6	3,670.1	-18.5	3,635.6	-0.9	4,081.5	+12.3	5.2
- Department of Health	5,380.8	5,098.7	-5.2	4,205.3	-17.5	4,073.8	-3.1	3,755.2	-7.8	2,708.5	-27.9	1,185.6	-56.2	1,340.8	+13.1	1.7
- Department of Mental Health	1,514.9	1,438.1	-5.1	1,382.4	-3.9	1,478.5	+7.0	1,628.3	+10.1	1,591.7	-2.2	1,553.2	-2.4	1,623.4	+4.5	2.1
- Department of Health Service Support	-	-	-	-	-	-	-	-	-	-	-	-	-	587.4	-47.8	0.8
- Department of Medical Sciences	893.2	877.0	-1.8	797.0	-9.1	815.9	+2.4	804.5	-1.4	782.3	-2.8	747.3	-4.5	927.2	+24.1	1.2
- Department for Development of Thai Traditional and Alternative Medicine	-	-	-	-	-	-	-	-	-	-	-	73.7	0.0	120.1	+63.0	0.2
- Food and Drug Administration	422.5	480.2	+13.7	431.3	-10.2	451.1	+4.6	454.0	+0.6	464.0	+2.2	495.5	+6.8	507.1	+2.3	0.7
- Health Systems Research Institute	60.0	60.0	0.0	60.0	0.0	65.1	+8.5	72.9	+12.0	138.4	+89.8	109.9	-20.6	96.9	-11.8	0.1
- National Health Security Office	-	-	-	-	-	-	-	-	-	1,597.4	-	1,600.0	+0.2	1,021.3	-36.2	1.3
- Health Insurance Revolving Fund	-	-	-	-	-	-	-	-	-	27,612.0	-	32,138.5	+16.4	32,572.8	+1.4	41.9

**Source:** 1. Bureau of Policy and Strategy, Ministry of Public Health.

2. National Health Security Office.

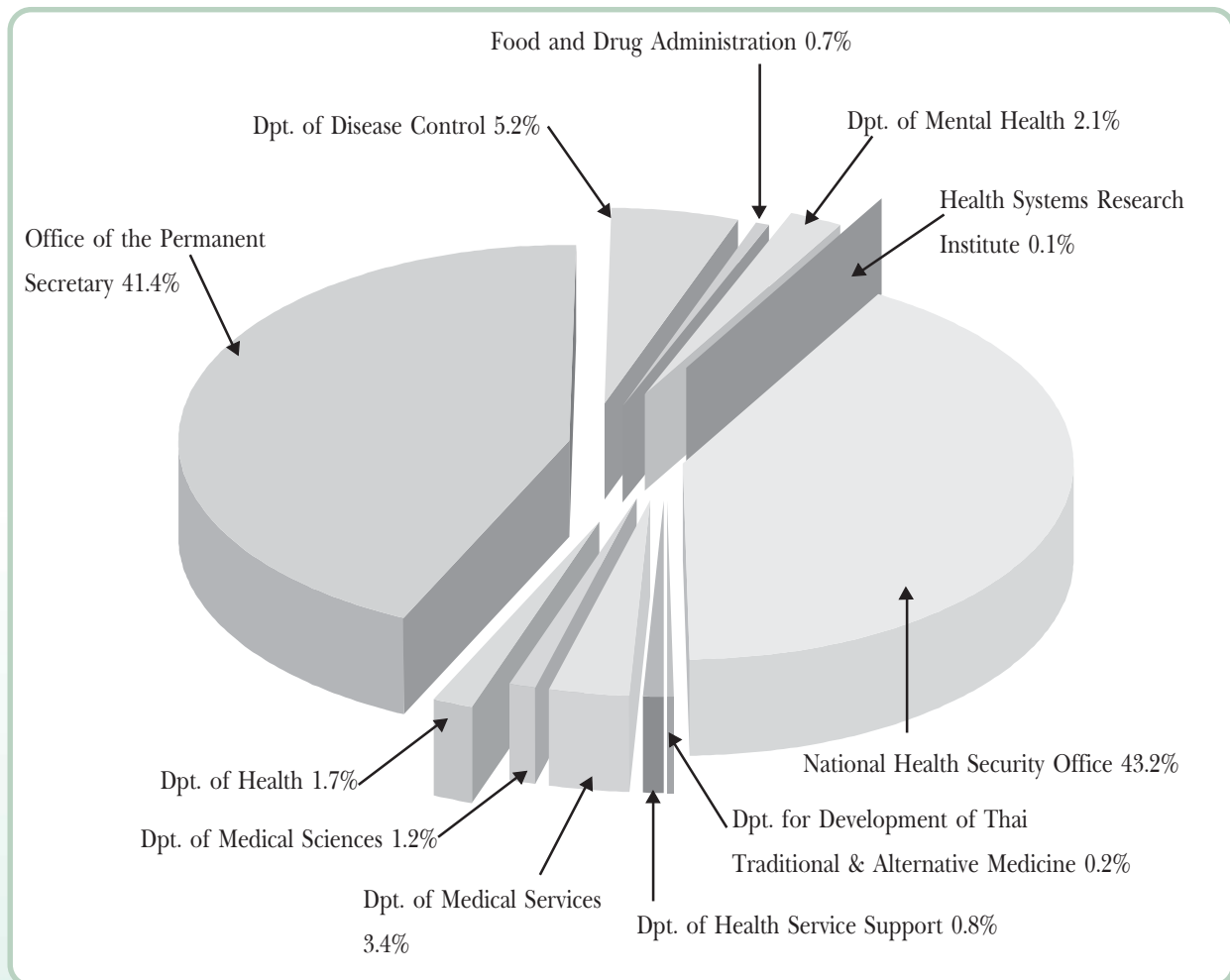
**Notes:** 1. For 1997-2001, the budget for the Office of the Permanent Secretary included the health insurance card subsidies.

2. For 2002-2004, the budget for the Office of the Permanent Secretary includes salaries and wages, which are part of the universal health care budget

3. The Department of Health Service Support and the Department for Development of Thai Traditional and Alternative Medicine, newly established agencies, according to the bureaucratic reform policy, have received their own budget since FY 2003.

4. The National Health Security Office, another newly established agency under the supervision of the MoPH has received its own budget since FY 2002.

**Figure 7.9** Proportion of MoPH's Budget by Agency, 2004



**Source:** Table 7.5.

**Note:** The budget of the National Health Security Office includes the budget for the Health Insurance Revolving Fund.

### 5.3 Budget Allocation by Programme

MoPH's budget for 2002-2004 has been allocated for the implementation of nine major programmes (Table 7.6), according to the new programme structure of the 9th Health Development Plan, which has only three programmes (see Chapter 3). It should be noted that the universal healthcare scheme and the drug abuse prevention and resolution scheme are in accordance with the policy of the present government. Thus, both programmes have been allocated a much larger budget proportion, while the budget for disease prevention and control as well as health promotion programmes remains constant at only 6.4% (Figure 7.10).

**Table 7.6** Health Budget Allocation for Major Types of Programme During the First Half of the 9th National Plan (2002-2004): Amount in Million Baht

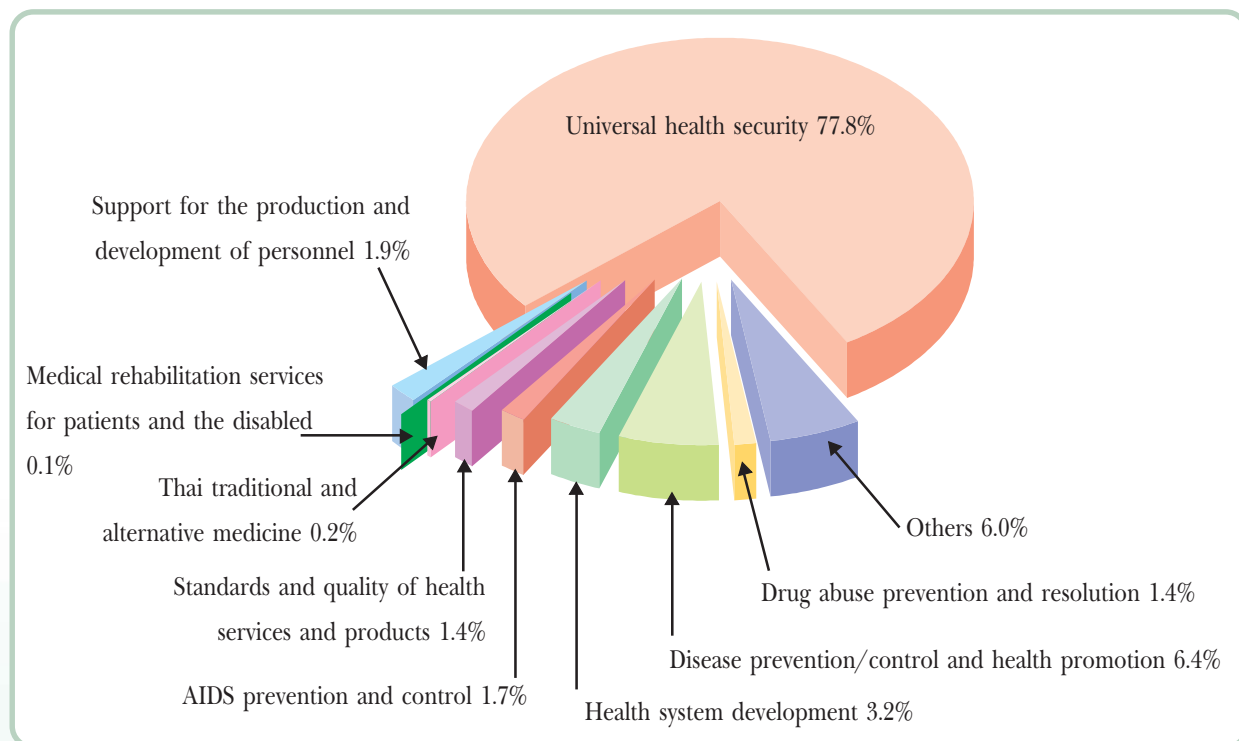
Type of programme	2002	2003		2004		Proportion (%)
	Amount	Amount	Increase/ Decrease from 2002	Amount	Increase/ Decrease from 2003	
1. Universal health security	53,022.9	57,697.2	+8.8	60,431.2	+4.7	77.8
2. Disease prevention/control and health promotion	7,619.9	6,292.0 <sup>1</sup>	n.a.	4,951.2 <sup>2</sup>	n.a.	6.4
3. Health system development	1,519.6	1,674.0	+10.2	2,474.5	n.a.	3.2
4. Support for the production and development of personnel	1,501.5	1,464.6	-2.4	1,495.9	+2.1	1.9
5. Standards and quality of health services and products	812.9	819.6	+0.8	1,085.0	+32.4	1.4
6. AIDS prevention and control	698.7	885.1	+26.7	1,355.1	+53.1	1.7
7. Drug abuse prevention and resolution	524.7	538.2	+2.6	1,100.1	+104.4	1.4
8. Thai traditional and alternative medicine	39.1	73.7	+88.5	120.1	+63.0	0.2
9. Medical rehabilitation services for patients and the disabled	65.7	79.5	+21.0	82.1	+3.3	0.1

**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

**Notes:** <sup>1</sup> For FY 2003, budget for the disease prevention/control and health promotion was decreased as the Department of Health had transferred its programmes on environmental surveillance and analysis and water supply provision to the Ministry of Natural Resources and Environment, according to the bureaucratic reform policy.

<sup>2</sup> For FY 2004, budget for the disease prevention/control and health promotion is also decreased as the Department of Health has revised its role and thus the budget for disease prevention/control and health promotion under the health service programme has been shifted to the health system development component of the health system development support programme.

**Figure 7.10** Proportion of MoPH's Budget by Major Type of Programme, 2004



**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

#### 5.4 Budget Allocation by Type of Expenditure

A large proportion of the budget of the Ministry of Public Health (33-47%) is used for staff salaries and wages and 28-51% for operating costs, which have been rising to approximately 50% since 2002. The proportion of investment budget has changed considerably according to the economic conditions (by 11-39%; Table 7.7). And since 2002, despite the economic recovery, the government still maintains a low level of investment budget as it has implemented the universal healthcare scheme with a much higher budget for this purpose.

During the first economic crisis (1983-1986) the investment budget decreased from 22.1% in 1982 to 11.3% in 1987 (Figure 7.3). However, during the economic expansion in 1988-1996 the investment budget rose to 38.7% in 1997 but dropped again during the 1997 economic crisis to only 8.8% in 2001 and 6.7% in 2004. Consequently, there are almost no construction projects at present.

Notably, although the MoPH was allocated a much less budget during the economic crisis as it is noted that the 2004 budget is, in real terms, less than the 1997 budget (Table 7.4), the MoPH still gives high priority to the budget allocation for helping the poor and underprivileged. The budget for such purposes has actually increased to the level higher than before (Table 7.8). Between 2002 and 2004, the government continues to support such programmes, but in the form of health insurance revolving fund and capitation payment, covering a population of 46 million who have never had any health insurance coverage. The annual capitation rates are 1,202.4 baht in 2002 and 2003, and 1,308.5 baht in 2004.



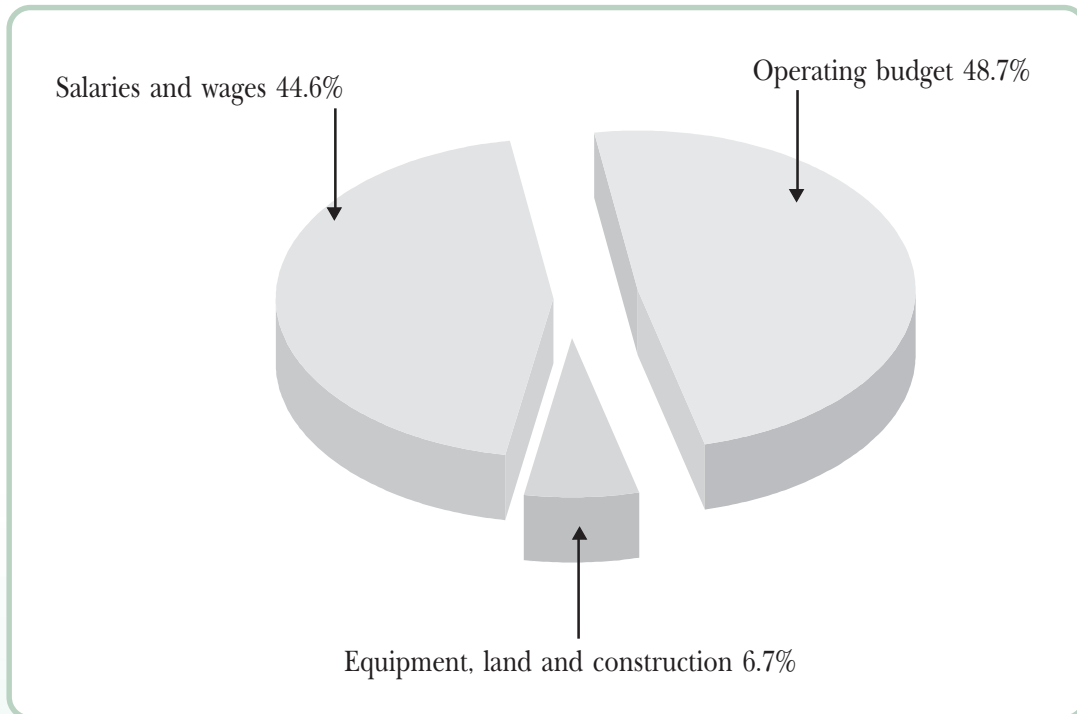
**Table 7.7** Budget Received by the Ministry of Public Health, FYs 1997-2004 (Present Value: amount in million baht)

Category of budget	1997		1998		1999		2000		2001		2002		2003		2004	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
<b>1. Salaries and wages</b>	<b>22,639.3</b>	<b>33.5</b>	<b>24,503.3</b>	<b>38.5</b>	<b>26,407.5</b>	<b>44.6</b>	<b>28,355.8</b>	<b>46.8</b>	<b>28,807.6</b>	<b>47.2</b>	<b>29,532.3</b>	<b>41.7</b>	<b>33,035.0</b>	<b>44.6</b>	<b>34,664.7</b>	<b>44.6</b>
1.1 Salaries and permanent wages	22,591.3	33.4	24,458.0	38.4	26,361.6	44.5	28,310.0	46.7	28,757.0	47.1	29,489.2	41.6	32,991.3	44.5	34,620.4	44.5
1.2 Temporary wages	48.0	0.1	45.3	0.1	45.9	0.1	45.8	0.1	50.6	0.1	43.1	0.1	43.7	0.1	44.3	0.1
<b>2. Operating budget</b>	<b>18,755.4</b>	<b>27.8</b>	<b>21,794.2</b>	<b>34.2</b>	<b>23,825.7</b>	<b>40.2</b>	<b>25,304.1</b>	<b>41.7</b>	<b>26,910.6</b>	<b>44.0</b>	<b>35,786.5</b>	<b>50.4</b>	<b>37,780.6</b>	<b>51.0</b>	<b>37,864.8</b>	<b>48.7</b>
2.1 Compensation, supplies and miscellaneous	9,230.8	13.7	9,927.9	15.6	9,491.6	16.0	9,755.3	16.1	9,728.1	15.9	4,403.5	6.2	5,667.1	7.6	6,607.7	8.5
2.2 Utilities	1,036.1	1.5	843.6	1.3	811.2	1.4	851.8	1.4	848.0	1.4	325.0	0.4	317.0	0.4	309.0	0.4
2.3 Subsidies	8,350.2	12.4	10,360.0	16.3	12,773.2	21.5	13,606.0	22.4	14,171.5	23.2	3,964.7	5.6	3,166.4	4.4	2,275.4	2.9
2.4 Other expenses	138.3	0.2	662.7	1.0	749.7	1.3	1,091.0	1.8	2,163.0	3.5	27,093.3	38.2	28,630.1	38.6	28,672.7	36.9
<b>3. Investment budget</b>	<b>26,179.6</b>	<b>38.7</b>	<b>17,407.6</b>	<b>27.3</b>	<b>8,994.1</b>	<b>15.2</b>	<b>6,981.0</b>	<b>11.5</b>	<b>5,379.0</b>	<b>8.8</b>	<b>5,604.3</b>	<b>7.9</b>	<b>3,318.3</b>	<b>4.4</b>	<b>5,191.2</b>	<b>6.7</b>
3.1 Equipment, land and construction	26,179.6	38.7	17,407.6	27.3	8,994.1	15.2	6,981.0	11.5	5,379.0	8.8	5,604.3	7.9	3,318.3	4.4	5,191.2	6.7
<b>Total</b>	<b>67,574.3</b>	<b>100.0</b>	<b>63,705.1</b>	<b>100.0</b>	<b>59,227.3</b>	<b>100.0</b>	<b>60,640.9</b>	<b>100.0</b>	<b>61,097.2</b>	<b>100.0</b>	<b>70,923.2</b>	<b>100.0</b>	<b>74,133.9</b>	<b>100.0</b>	<b>77,720.7</b>	<b>100.0</b>

**Source:** Bureau of Policy and Strategy, Ministry of Public Health

- Notes:**
1. For FYs 1997-2001, subsidies include health insurance card counterpart funds: 1,030 million baht for 1997; 1,080 million baht for 1998; 2,056 million baht for 1999; 2,215 baht for 2000; and 2,400 million baht for 2001.
  2. For FYs 2002-2004, other expenses include health insurance revolving funds less the investment budget for the National Health Security Office, which is 24,183.2 million baht for 2002; 28,608.8 million baht for 2003; and 28,652.4 million baht for 2004.
  3. For FYs 2002-2004, MoPH's investment budget includes budget of the investment budget of the National Security Office, which is 3,428.8 million baht for 2002; 1,929.6 million baht for 2003; and 3,920.4 million baht for 2004.

**Figure 7.11** Proportion of MoPH's Budget by Budget Category, 2004



**Source:** Table 7.7.

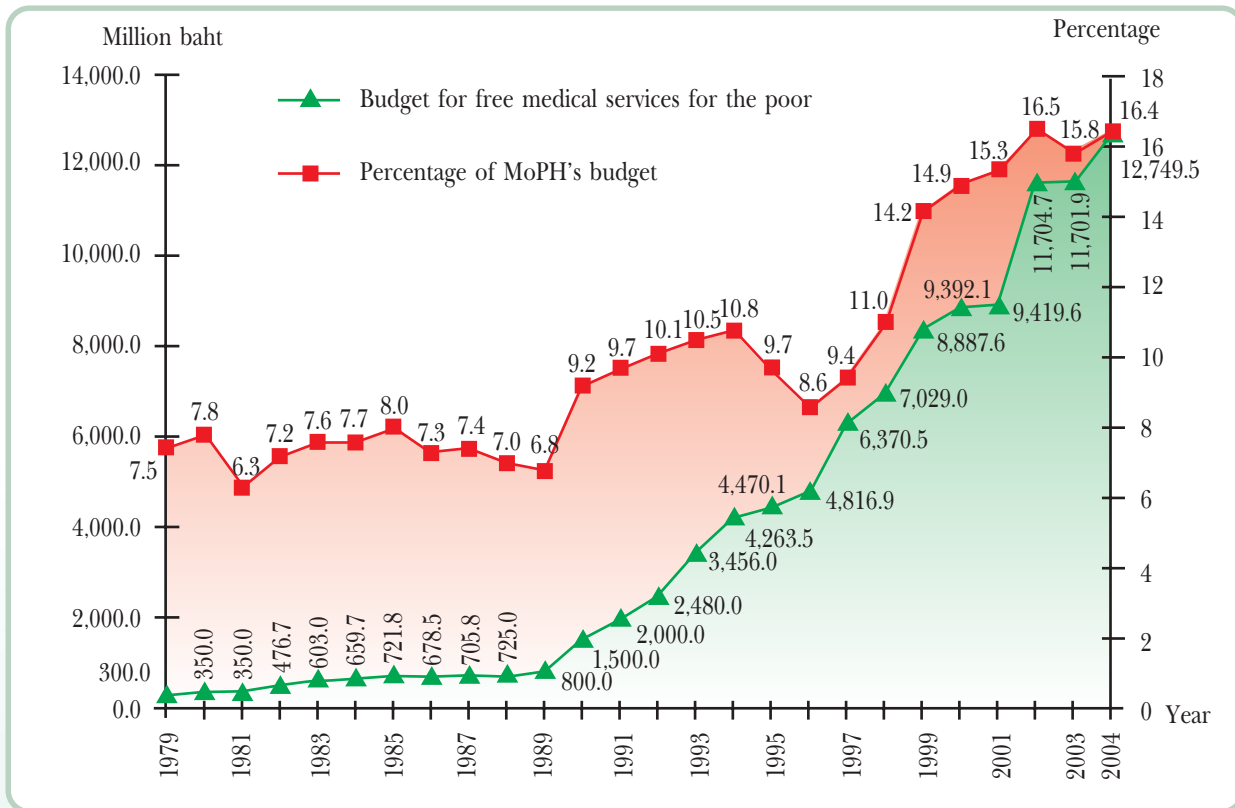
**Table 7.8** Budget for Free Medical Services for the Poor and Underprivileged during 1979-2004

Year	MoPH's budget (million baht)	Budget for free medical services for the poor and underprivileged (million baht)			Percentage of MoPH's budget
		Present value	2004 value	Increase/decrease (real terms, %)	
1979	3,976.9	300.0	901.3	-	7.5
1980	4,494.5	350.0	879.5	-2.4	7.8
1981	5,571.8	350.0	780.5	-11.3	6.3
1982	6,652.3	476.7	1,010.3	+29.4	7.2
1983	7,902.4	603.0	1,230.3	+21.8	7.6
1984	8,617.6	659.7	1,336.0	+8.6	7.7
1985	9,044.3	721.8	1,425.9	+6.7	8.0
1986	9,274.7	678.5	1,315.6	-7.7	7.3
1987	9,525.1	705.8	1,336.3	+1.6	7.4
1988	10,372.5	725.0	1,321.4	-1.1	7.0
1989	11,733.1	800.0	1,384.3	+4.8	6.8
1990	16,225.1	1,500.0	2,449.8	+77.0	9.2
1991	20,568.6	2,000.0	3,089.3	+26.1	9.7
1992	24,640.4	2,480.0	3,681.0	+19.2	10.1
1993	32,898.1	3,456.0	4,967.8	+35.0	10.5
1994	39,318.7	4,263.5	5,828.2	+17.3	10.8
1995	45,832.6	4,470.1	5,775.6	-0.9	9.8
1996	55,861.2	4,816.9	5,879.2	+1.8	8.6
1997	67,574.3	6,370.5	7,367.6	+25.3	9.4
1998	63,705.1	7,029.0	7,518.5	+2.0	11.0
1999	59,227.3 (62,787)	8,405.6 (8,887.6)	8,962.9 (9,476.9)	+19.2 (+26.0)	14.2 (14.2)
2000	60,640.9 (63,001)	8,910.1 (9,392.1)	9,354.9 (9,861.0)	+4.4 (+4.1)	14.7 (14.9)
2001	61,097.2 (61,563)	8,966.3 (9,419.6)	9,264.5 (9,732.9)	-1.0 (-1.3)	14.7 (15.3)
2002	70,923.2	11,704.7	12,012.3	+29.7	16.5
2003	74,133.9	11,701.9	11,788.1	-1.9	15.8
2004	77,720.7	12,749.5	12,749.5	+8.2	16.4

**Source:** Bureau of Policy and Strategy, Ministry of Public Health.

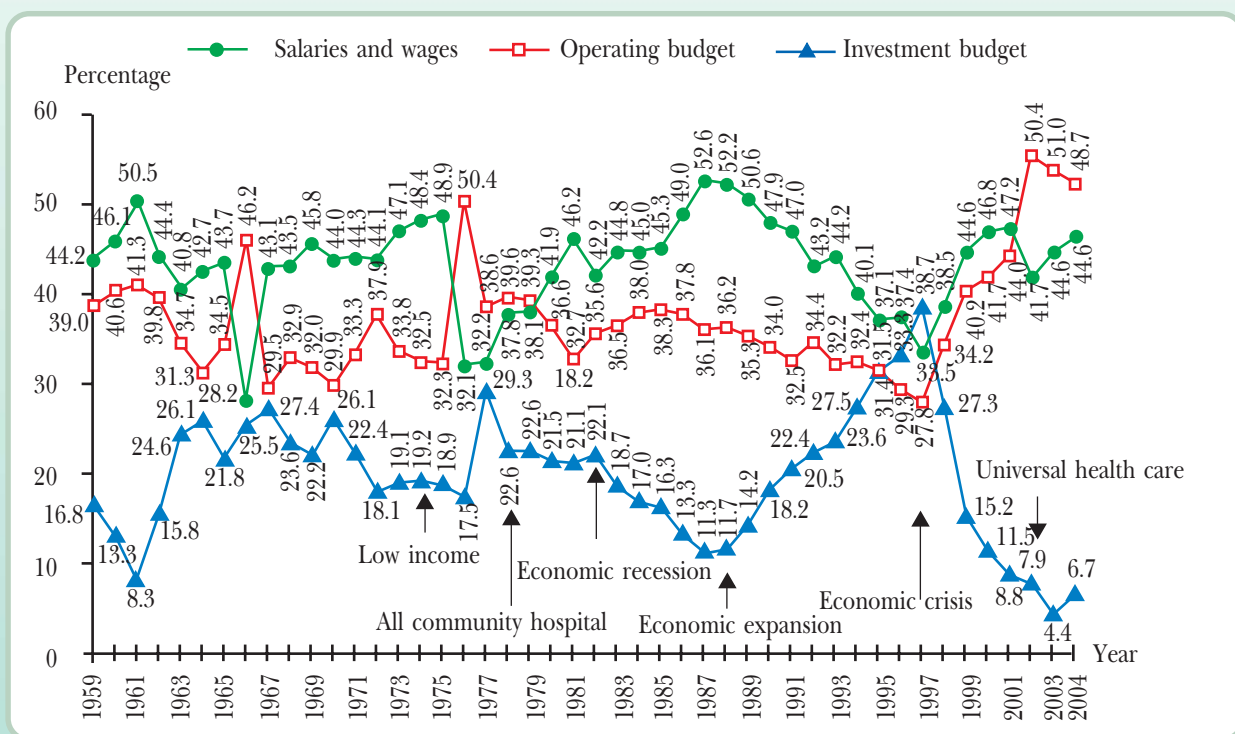
- Notes:**
1. Figures in ( ) include the loans from the Asian Development Bank and the World Bank, i.e. 482 million baht for 1999; 482 million baht for 2000; and 453.3 million baht for 2001.
  2. Numbers of health insurance cards (non-30-baht co-payment): 24,336,250 cards for 2002, 24,330,386 cards for 2003, and 24,359,065 cards for 2004.

**Figure 7.12** Budget for Free Medical Services for the Poor and Underprivileged as Percentage of MoPH's Budget, 1979-2004



Source: Bureau of Policy and Strategy, Ministry of Public Health.

**Figure 7.13** Percentage of MoPH Budget by Budget Category, 1959-2004



Source: Bureau of Policy and Strategy, Ministry of Public Health.

## 6. Summary of Adjustments of the Ministry of Public Health between 1997 and 2004

6.1 Reduction in the production of health personnel in academic institutions under the Ministry of Public Health by more than 60%.

6.2 Reduction in investment budget from 38.7% in 1997 to 6.7% in 2004.

6.3 Retention of the budget for essential programmes such as HIV/AIDS prevention and control, consumer protection, and health care for the poor and underprivileged, which has been expanded to cover all uninsured people so that they will have access to medical and health services.

6.4 Reorientation of the mission and restructuring of the MoPH in 2002 that will result in the MoPH being downsized in the future. Certain agencies will be transformed into agencies under the supervision of the MoPH, i.e. health facilities will become public organizations, or a kind of state agencies with more flexibility in their operations.

6.5 Preparation of the plan and steps for the decentralization of health administration systems, in the form of an Area Health Board, in cooperation with all concerned.

6.6 Implementation of the universal coverage of healthcare scheme, covering all 75 provinces and Bangkok Metropolis since 2002. Such a system has dramatically changed the country's health service system through the capitation payment mechanism, including staff salaries, and encouraging the people to use a primary care unit near their home.



## CHAPTER 8

# Major Public Health Programmes and Activities Implemented in Thailand

Traditionally, public health programmes and activities in Thailand are mainly implemented by the public sector, especially the Ministry of Public Health (MoPH) serving as the prime agency responsible for all Thais' health nationwide. Later, with more complex public health problems such as pollution, HIV/AIDS, etc., the MoPH alone is not able to solve such problems, which are associated with other social problems. As a consequence, numerous cooperative efforts among relevant governmental agencies, private agencies and non-governmental organizations (NGOs) have been made so as to help resolve the problems. At present, there are 300–500 NGOs registered with MoPH (Primary Health Care Division and Bureau of AIDS, TB and STIs, 2004) and working in support of the public sector. As their structures are not complex and they are more flexible in their implementation, NGOs have become a powerful force in social mobilization in formulating directions, through exchanges of ideas and experiences, aiming to achieve the highest efficiency of programme operations.

In addition, the Thai Health Promotion Foundation was established in 2001, using the 2% of funds specifically earmarked from excise duties on tobacco and alcohol. At present, the Foundation has been in operation with an annual budget of approximately 1,500 million baht by the Office of the Thai Health Promotion Foundation (ThaiHealth or Sor Sor Sor in Thai), under the supervision of a governing board chaired by the Prime Minister.

This chapter demonstrates only **some major public health** programmes and activities implemented in Thailand between 2001 and 2003.

### 1. Universal Health Security Scheme

The MoPH is the core agency that implements the universal coverage of health care or 30-baht healthcare scheme, beginning on a pilot scale in six provinces in April 2001 and later expanded to another 15 provinces on 1 June 2001, finally to all provinces in January 2002. As a result, in FY 2003, 47.7 million Thai citizens or 74.7% of all 63.8 million people nationwide were covered by the universal healthcare scheme, leaving only 3.2 million people or 5% of total population without any health insurance coverage, while the rest had already been covered by other health insurance schemes (see details in section 6.2.5, health security coverage, in Chapter 6, Thai Health Service System).

### 2. Health Promotion

Health promotion programmes are mostly implemented by public sector agencies and NGOs with a



variety of approaches such as health behaviour modification for positive impacts on health, physical and social environment modification, and support for individual and community self-healthcare purposes.

Major achievements of such programmes and activities are as follows:

## **2.1 Support for Policy Recommendations and Measures for Health Promotion**

Thai Health and its partnership agencies have been promoting legal and social measures in minimizing negative impacts and preventing youths from alcohol consumption. For such a purpose, the government has issued rules banning advertisements of all alcoholic beverages at all radio and television stations during 05:00-22:00 hrs beginning 1 October 2003. During other periods, advertisement bans are imposed on those having a message inviting people to drink.

## **2.2 Campaigns and Support for Social Mobilization for Health Promotion**

**2.2.1 Campaign on Health Promotion throughout Thailand.** The government has declared 2002-2004 "Health Promotion throughout Thailand Years". The MoPH has organized the Empowerment for Health events twice on 17 February 2002 and 23 November 2003 to encourage the people to participate in building/promoting their own health or practising healthy behaviours and to expand this kind of effort so that it becomes a Thai lifestyle at the regional level in all 12 regions nationwide. Besides, ThaiHealth and all its partnership members organized a fair entitled "the gathering of happiness-promoting people" (ruam phon khon sang suk) on 10-12 November 2003 to encourage Thai people to create healthy status or conditions on a sustainable basis.

**2.2.2 Campaign on Exercise for Health.** The MoPH has been supporting Thai people to exercise by launching several projects such as move for health and 30-person running for health, and by setting up health promotion clubs. Such efforts aim to raise awareness so that the people will exercise for 30 minutes every day and at least 3 days a week. At present, there are totally 35,532 health promotion (with exercise) clubs and 47.3% of the people aged 6 years and over exercising 30 minutes every day and at least 3 days a week (the target is 50%). With such achievements, Thailand has been honoured to host the 6th Global Conference on Health Promotion in Bangkok in August 2005.

**2.2.3 Promotion of Health Food Consumption.** Efforts or projects for the promotion of health food consumption include: hotline "1675" for good eating and good health, nutrition hotline, eating according to age, cleanliness and safety for illness prevention, children love green vegetables, and promotion of vegetarian food consumption.

**2.2.4 Campaign on Non-Smoking.** The Action on Smoking and Health Foundation (ASH Thailand), an NGO, has been successfully implemented non-smoking campaigns among Thai people. As a result, the smoking rate had dropped from 30.1% in 1976 to 21.6% in 2003. During fiscal years 2001-2003, the projects implemented include non-smoking campaigns among children, youths and women, smoking cessation promotion among smokers, Quit-Line 1600 for smoking cessation counselling, raising social awareness and celebrating the World No Tobacco Day through the mass media, expanding non-smoking areas to cover restaurants, offices, monasteries, sports arenas and events, establishing a network for non-smoking in Southeast

Asia, and monitoring and disclosing unacceptable tactics of tobacco companies. Importantly, with support from ASH Thailand, the MoPH has issued rules or regulations for tobacco consumption control, including the MoPH Announcement (No. 10) of 2002 and (No. 13) of 2003 designating 20 categories of places as non-smoking areas, and the MoPH Announcement (No. 8) of 2004 requiring that cigarettes produced in or imported into the country have a pictorial warning depicting the danger of tobacco on each pack and the picture must be of four colours covering an area of not less than 50% the total area of both sides. This is to make the people aware of the danger of toxic substances in cigarette smoke and to prevent youths from starting smoking.

### 2.2.5 Health Promotion for Particular Age Groups.

**1) Mothers and Infants Group.** The MoPH has launched a surveillance programme for pregnant women across the country. In 2003, 75.2% of pregnant women received four antenatal or pre-natal care services as required and 56.3% of them had screening test for thalassemia. Regarding exclusive breast-feeding promotion, the breast-feeding rate was only 16.3% in 2001 (lower than the 30% target) and only 98.5% of the 804 target hospitals could implement the baby-friendly programme. Importantly, health facilities at all levels have been supported to implement the mother-to-child transmission (MTCT) prevention of HIV for pregnant women attending antenatal care clinics. All HIV-infected pregnant women would receive antiretroviral drug AZT until they had labour pain. Newborns would also receive AZT and powder milk (infant formulas). As a result, the MTCT rate had dropped from 18.6% in 1996 to 9.0% in 2001 and the MoPH was given a recognition award in 2001. In 2003, the MTCT rate was recorded at 9.3%.

Regarding newborn health promotion activities, the MoPH has launched a project on asphyxia reduction and can reduce the rate of newborns with such condition to 35.3 per 1,000 live births (higher than the target of 30 per 1,000 live births). A project on development of child day-care centres was implemented in 4,332 centres, but only 13.9% of which could meet the criteria of good centres.

**2) School-age and Youth Group.** In addition to implementing projects on health status monitoring and dental health promotion among primary and secondary schoolchildren, the MoPH, in cooperation with the Ministry of Education, has launched the Health-Promoting Schools Project aimed at making each school become a starting point for physical and mental health promotion for schoolchildren and the community. In 2003, out of 29,377 schools participating in the project, 12,372 schools (42.1%) could meet the criteria for health-promoting school.

Besides, the Thai Health Promotion Foundation, in cooperation with the Ministry of Education, has initiated **the Full-of-Fun (Saen Sanuk) Schools Project** aimed at developing a teaching/learning process for health and well-being in a holistic manner. This initiative aims to cover 300 schools by 2005, which will result in the students having been instilled with life-skills and disciplines so as to help create their own physical, mental, social and spiritual well-being.

**3) Working-age Group.** The MoPH has implemented health promotion activities to encourage males to play a more active role in reproductive health, rather than having only females playing such a role. Family planning services are provided to all target groups nationwide, in cooperation with the Community

and Population Development Association, the Integrated Population and Health Development Association of Thailand, and the Reproductive Health for Quality of Life Development Association of Thailand. Health promotion activities for males and females of menopausal age are carried out at 188 clinics for males (1.9% of the 9,931 target clinics) and at 4,146 clinics for females (41.7% of the target).

Another important activity supported by the MoPH is the **Health-Promoting Hospitals Project**, aimed at improving hospital service systems according to the health-promoting hospital principles in a more systematic manner. In 2003, 572 (68.8%) out of all 831 MoPH hospitals participated in the project, but only five hospitals (0.6%) met the criteria for the HPH project. This low achievement was due to the fact that most of the hospitals were more interested in improving themselves according to the hospital accreditation (HA) criteria. Besides, several other health promotion projects have been simultaneously launched such as the Healthy Workplaces Project with 2,691 workplaces participating in 2003, out of which 1,585 (58.9%) met the criteria for such effort. This project has not been successful as expected because only a few small and medium-sized enterprises (SMEs) participated and it lacks the participation of local administrative organizations.

**4) Elderly Population Group.** The MoPH has been monitoring and supporting community health promotion programmes for the elderly by organizing a national week for elders to raise social awareness about the value of the elderly, providing physical check-up services, and holding forums demonstrating the capacity of senior citizens clubs. Besides, the Senior Citizens Council of Thailand under the Patronage of HRH the Princess Mother has been serving as a focal point for approximately 7,000 senior citizens associations/clubs throughout the country. Major activities undertaken include raising awareness about self-value of elders groups, supporting the setting up of forums for exchanging ideas among elders, providing knowledge about health, and organizing health-related activities to promote self-healthcare for elders.

In FY 2002, the MoPH organized a national seminar for elders clubs and networks. On 20 August 2002, a joint statement of senior citizens networks was made, specifying that they will support health promotion among Thai elders so that they will be able to take care of their own health and to live a longest life possible with quality in society, unite all their forces as **“alliance of senior citizens networks of Thailand”** to further enhance the quality of life of the elderly. A pilot project on health-promoting monasteries is being implemented in 24 wats (Buddhist monasteries) to encourage religious organizations to take part in the development of health and environment especially for the elderly.

Regarding the movement for legislation related to the elderly, the MoPH had been a core agency in drafting an elderly bill since 1995. After the bureaucratic reform law was effective, the work related to the protection and promotion of the rights of the elderly was transferred to the Ministry of Social Development and Human Security, which coordinated the legislation process. Finally, **the Elderly Act of B.E. 2546 (2003) has been enacted** (as published in the Government Gazette, volume 120, part 130 gor, dated 31 December 2003). The MoPH is involved in implementing one of the sections of the Act, i.e. section 11(1)—an elder has the rights to health protection/promotion and to support for medical and health services that have been specifically set up for the elderly in a convenient and rapid manner. At present, an announcement of the

MoPH is being prepared in accordance with the provisions of the Act.

## 2.3 Mental Health Promotion

**2.3.1 Establishment of Mental Health Crisis Centre.** The MoPH has set up a mental health crisis centre aimed at providing 24-hr assistance and advice to the people with critical problems. To date the centre has helped 39 cases of attempted suicide so that they all have primary life safety. Networks for health crisis counselling have been set up at the regional level in 11 agencies; the target is to expand such networks to cover all agencies nationwide by the end of FY 2004.

**2.3.2 Promotion of Community-Based Mental Health Programme.** The MoPH has promoted the prevention of mental health problems in communities by encouraging community members to take care of their own mental health condition, using village health volunteers as core persons in each community. This project has been implemented in 620 villages/communities in 31 provinces and is expected to cover 3,350 villages/communities in 76 provinces by the end of FY 2004. This effort will provide the people with mental immunity for taking care of mental health of the individual, family and community.

**2.3.3 Family Mental Health Promotion and Problem Prevention Project.** The MoPH has developed a questionnaire for assessing the quality of marriage. The questionnaire was distributed for self-assessment by 60,162 families in 19 provinces. Other activities implemented include campaigns on “bonding the relations within family” and campaigns through radio and television on love and bonding within families.

**2.3.4 Development of Children's Emotional Quotient.** The MoPH has developed the body of knowledge of emotional quotient (EQ) and promoted the inclusion of EQ assessment in the health and physical education section (in the primary school curriculum), especially for Thai children aged 3-11 years. This is to help them know how to manage their own emotion by themselves.

## 2.4 Expansion of Health Promotion Networks to All Sectors of Thai Society

ThaiHealth has supported the establishment of provincial networks for health promotion in 12 provinces nationwide. The establishment of professional networks to play a role in health promotion, such as dental health network, has been supported. Civil sector networks aiming to expand their self-healthcare activities have also been supported, such as networks of workers in different workplaces. Such efforts aim to promote social movement with a specific direction and power in sparking changes on a wider scale.

## 3. Disease Prevention and Control

### 3.1 Communicable Disease Control and Prevention

#### 3.1.1 Prevention and Control of HIV/AIDS

**1) Access to Antiretroviral Drugs for People Living with HIV/AIDS Project.** The MoPH started providing HIV/AIDS patients with a combination of three antiretroviral (ARV) drugs in 2001. Since 1 October 2003, the MoPH has implemented the policy on universal access to ARVs, i.e. providing all HIV/AIDS patients with ARVs. As of June 2004, 849 hospitals within and outside the MoPH have participated in

implementing this policy and have covered 35,000 HIV/AIDS cases; its aim is to cover 50,000 cases by the end of FY 2004. The Government Pharmaceutical Organization (GPO) has conducted research studies on ARV formulation and production; and at present it can produce a single tablet containing three ARVs, called GPO-VIR, as well as other ARVs, resulting in the drugs' prices being much lower than before.

**2) Development of AIDS Vaccines Project.** The MoPH has implemented anti-AIDS vaccine trials for two kinds of candidate vaccines, i.e. r-BDG-HIV-1 E and r-Vaccina Dis-HIV-1subtype E. It has been found that both candidate vaccines are safe and immunogenic in monkeys at a satisfactory level. The results of the trials will be reported to the Subcommittee on AIDS Vaccine Trials for consideration. Another project on AIDS vaccine trials in humans (phase 3) is being planned for two candidate vaccines (ALVAC and AIDSVAX B/E), using the prime-boost technique, on 16,000 volunteers in communities in Chon Buri and Rayong Provinces. The trials will begin around the end of 2004.

**3) Assistance for HIV-Infected People.** A number of AIDS-related NGOs have implemented programmes to help people living with HIV/AIDS, including providing temporary shelters, shelters for the terminally-ill, hospice care, counselling, care for children affected by HIV/AIDS, financial support for emergency cases, and funds for occupation start-up; promoting/protecting access to ARVs; and establishing networks of people living HIV/AIDS.

**3.1.2 Prevention and Control of Dengue Haemorrhagic Fever.** The MoPH implemented the following projects in FY 2003: campaigns on Aedes mosquito-larva-free villages and schools, Thai people and youths against DHF, Aedes larva index surveillance, and capacity building for the people and community for environmental improvement. As a result, for the Aedes-larva-free campaign, it was found that 6.3% (620) of 9,764 villages surveyed and 73.4% (5,016) of 6,833 schools surveyed were Aedes-larva-free; and thus more villages have to be encouraged to actively implement this project.

**3.1.3 Prevention and Control of Tuberculosis.** Efforts have been made to accelerate and expand the directly observed treatment, short-course (DOTS) for tuberculosis. In 2002, the coverage was recorded at 88.1% of the target (772 out of all 876 districts) and the cure rate at 76.4% in 2003.

**3.1.4 Prevention and Control of Malaria.** An emphasis on malaria control is placed as a lot of people are residing in 30 border provinces and especially in five provinces with high malaria prevalence. The activities implemented include setting up checkpoints at border crossings, setting up malaria clinics at malaria control offices and mobile clinics, providing radical treatment for all positive cases, chemical/residual spraying for mosquito control, destroying mosquito-breeding places, and encouraging the people to protect themselves from mosquito bites. As a result, in 2003 the malaria incidence rate dropped to 0.64 per 1,000 population.

**3.1.5 Filariasis.** Efforts have been made for controlling filariasis among immigrant workers from Myanmar by providing them with drug diethylcarbamazine citrate 300mg every six months each, conducting surveillance of the disease, and educating them about disease prevention. This has resulted in a reduction of filariasis prevalence from 8.46 per 100,000 population in 1992 to 0.57 per 100,000 in 2003, and a decrease in the rate of blood microfilaria positivity to 0.06%.



**3.1.6 Poliomyelitis.** The polio eradication programme is implemented not only by the public sector, but also by the private sector. Rotary International and Lions Clubs nationwide also donate four million dosages of polio vaccine each year, totally worth 30 million baht, as well as manpower in giving oral vaccines to children. As a result, the polio immunization has covered more than 90% of the target population. Besides, other activities are also implemented, including the surveillance of cases with acute flaccid paralysis (AFP), case investigation and disease control within 24 hours after an AFP case is identified. As of 2003, Thailand had not had any polio cases for over six years. It is believed with confidence that at present there is no polio case in the country.

**3.1.7 Leprosy.** The leprosy control programme focuses on people's participation in identifying new cases in the community and giving proper treatment to each and every case. The short-course treatment has been introduced, using a combination of drugs or multidrug treatment (MDT) according to the WHO criteria, since 1994. A campaign on public participation in leprosy elimination to pay tribute to His Majesty the King in commemoration of His Majesty's Birthday on 5 December 2002 (Por Ror Ror 2545 Project). The effort could identify 467 new cases and all were given MDT; and the prevalence of leprosy dropped to 0.03 per 1,000 population in 2003,

## **3.2 Prevention and Control of Non-communicable Diseases**

**3.2.1 Prevention and Control of Heart Diseases and Diabetes.** The MoPH has launched campaigns to raise public awareness about the prevention and control of cardiovascular diseases, particularly hypertension in normal and at-risk conditions to reduce the risk of paralysis and heart diseases. A weeklong campaign was conducted on the World Heart and Diabetes Day in all 76 provinces across the country. Efforts were also made to develop a model for heart surgery services, conduct an epidemiological study on cardiovascular disease in Thailand (a 5-year project, 2003-2007), which is now in its preparatory stage. To commemorate Her Majesty the Queen's 72nd Birthday in 2004, an eye and heart project was launched in 2003, aimed at performing a heart operation on 7,200 patients (3,253 surgeries were performed in 2003) and performing a cataract surgery on 100,000 patients (68,801 cases had such surgery in 2003). Follow-up care was given to all such patients.

**3.2.2 Prevention and Control of Cancer.** The MoPH has launched a project on the prevention and control of cervical cancer among females aged 35 years and above, by examining them to identify first stage cervical cancer. To date, 285,738 women (53.4% of the target of 534,741 women) have been examined, and of those examined, 429 cases were found to have cancer. With regard to the prevention and control of breast cancer, a campaign has also been launched to encourage women aged 35 years and above to do a monthly self-breast examination.

## **3.3 Reduction of Risks from Consumption**

**3.3.1 Control of Alcohol Consumption.** The MoPH has appointed a National Committee on Alcohol Consumption Control to monitor the policy implementation on this matter. The committee has specified three strategies for this purpose as follows: (1) strategy on knowledge management, (2) strategy on

campaigns and partnerships for behaviour change, and (3) strategy on legal aspects involving legislation and law enforcement.

**3.3.2 Control of Tobacco Consumption.** The MoPH in cooperation with the Action on smoking and Health Foundation and other NGOs has issued three Ministerial regulations (see section 2.2.4 in Chapter 8, Campaigns on Non-smoking). Besides, financial support (24.7 million baht) was provided by the Thai Health Promotion Foundation for a pilot study on non-smoking law enforcement in 13 provinces, scheduled for completion on 30 September 2004. To date, 46 cases of tobacco law violation have been arrested.

### **3.4 Control and Prevention of Drug Addiction**

The present government has attached top priority to the control of drug abuse; and the MoPH has also been involved in the war on drugs through its drug dependence treatment and rehabilitation programme, uniting the powers of the land in campaigns against drug use, and controlling the drugs and their precursors. In FY 2003, 474,421 drug addicts were provided with the treatment and rehabilitation services; in mobilizing the powers of the land, the “To Be Number One” Project was implemented to encourage youths not to be involved with drugs. At present, there are 8.3 million members of the project. The MoPH’s exhibition on “uniting forces to conquer drug abuse” was held on 26 November 2003 and another exhibition on “uniting the powers of the land to eradicate drugs” was held jointly with other agencies concerned on 27-28 November 2003. The declaration of victory over the drug war was made on 3 December 2003.

### **3.5 Prevention and Control of Road Traffic Accidents**

**3.5.1 Reduction of Risk Factors.** In FY 2003, the MoPH implemented several major projects on risk reduction, such as “drive safety and be lucky in the new year”, “Songkran safety, join forces in preventing traffic accidents”, “public relations campaigns on reducing accidents among the people through the 3-mor and 1-khor principles (motorcycles, safety helmets, don’t drink and drive, and driving licences), “100% helmet use among health personnel”, all beginning on 1 April 2003. In addition, some NGOs, such as the Drink Don’t Drive Foundation conducted a campaign on non-drunk driving in major communities in Bangkok and vicinities as well as in educational institutions.

**3.5.2 Development of Emergency Medical Service System.** In FY 2002, the Narenthorn Emergency Medical Service System Office was established under the MoPH with partial funding from the universal healthcare scheme. The system for emergency medical services was initiated in seven provinces: Bangkok, Khon Khaen, Nakhon Ratchasima, Nakhon Sawan, Phetchaburi, Lampang, and Songkhla. The system in each province was implemented as a network covering the entire province. In FY 2003, the services were provided at the accident sites for 20,221 cases. In FY 2004, the system will be expanded to another 13 provinces: Chiang Mai, Chiang Rai, Phayao, Pathum Thani, Nonthaburi, Samut Prakan, Phitsanulok, Udon Thani, Chon Buri, Surat Thani, Phuket, Prachin Buri, and Ayutthaya.

**3.5.3 Research for Reduction of Road Traffic Accidents.** The Thai Health Promotion Foundation has provided financial support to the Ramathibodi Foundation to implement a programme on knowledge management for reducing traffic accidents, including 13 projects, such as documentary research on



road safety and development of model for community empowerment for traffic accident prevention.

## 4. Thai Traditional and Alternative Medicine

A total of 89 public and private agencies are involved in the development of Thai traditional and alternative medicine. For Thai traditional medicine, 28 agencies have formed a network entitled the Federation of Thai Traditional Medicine of Thailand whose major achievements are as follows:

**4.1 Conservation and Protection of Thai Traditional Medicine Wisdom.** The MoPH has established a committee on protection and promotion of wisdom on Thai Traditional medicine and medicinal plants under the Protection and Promotion of Thai Traditional Medicine and Medicinal Plants Act, B.E. 2542 (1999).

**4.2 Research and Development on the Knowledge of Thai Traditional and Alternative Medicine.** Inaugurated on 26 September 2003, the Museum of Thai Traditional Medicine was established by the MoPH to collect all the knowledge and technology related to this matter. Research studies are being conducted on toxicity of six Thai Traditional and herbal medicine formulas. Efforts are also being made to collect the knowledge and wisdom on the use of propitious plants, mushrooms, and mollusks as a medicine.

Regarding alternative medicine, the activities implemented include the collection of knowledge about yoga and situation of homeopathy in Thailand, and a research study on holistic health care.

**4.3 Provision of Thai Traditional and Alternative Medical Services.** In FY 2003, Thai traditional medicine services were available in 2,311 healthcare facilities, 19.8% of the target of all 11,687 facilities nationwide.

**4.4 Development of a Prototype of Thai Traditional Medicine Centre.** In FY 2003, the MoPH experimented on a model of Thai traditional health promotion centres in 26 state health facilities and 15 Bang Chak gasoline stations.

## 5. Rehabilitation Services for the Disabled

**5.1 Rehabilitation Services for Patients and the Disabled.** In FY 2003, 9,791 pieces and 2,150 sets of prosthesis/orthosis were provided to persons with disabilities attending rehabilitative service units across the country. Meanwhile, the National Health Security Office has allocated a budget of four baht per eligible person for medical rehabilitation care under the universal healthcare scheme.

**5.2 Community-based Rehabilitation (CBR).** Efforts have been made to develop a network of allies of disabled persons and the community to work jointly on the establishment of a system for case detection and disability prevention.

Besides, several NGOs have implemented activities aimed at helping the disabled to help themselves in terms of leading daily life and occupation, creating their sense of self-esteem, preparing them to live happily in society, building the capacity of caregivers of disabled persons, and supporting the establishment of disabled persons' community to help them to take care of each other.

## 6. Development of Civic Sector Health System

During the two decades of the implementation of the Primary Health Care programme in Thailand, aimed at achieving “health for all by the year 2000”, the model and mechanism of the programme has constantly been modified/developed. The process of participation in social and health development of village health volunteers (VHVs) has been substantially improved. In the national health reform efforts, the alliance of VHVs has proposed that the role of civic sector be regarded as one of the key elements in the health system development, and that the mechanism of health management by the people be included as a “civic sector health system” in the organization and management element. All such processes have evolved from the PHC approach aimed at encouraging self-reliance in health among the people, through community-based management with support of the Primary Health Care Division (formerly Office of Primary Health Care) of the Department of Health Service Support.

Major achievements of the activities are as follows:

**6.1 Development of Capacity of the Civic Sector.** Capacity building activities were implemented through training in health care for 3.53 million VHVs, community members, community organization members, health network members, health civil society members, and family health leaders.

**6.2 Promotion and Support of People's Participation in Health System Development.** Financial support was provided to villages so that they could manage their own community health system. In FY 2003, 18,041 villages were able to set up such a system (50.3% of the 35,681 target villages).

## 7. Consumer Protection in Health

This kind of activities is implemented by the public sector and consumer protection organizations. In July 1999, 17 consumers organizations jointly set up the Federation of Consumers Organizations with the aim of supporting, empowering and protecting the rights of consumers, supporting them to take part in the policy and rule formulation process in society that will affect consumers. At present, the Federation has 25 members and their major achievements are as follows:

**7.1 Campaigns on Health Consumer Protection at the Policy Level.** Policy recommendations have been made on the protection of consumer's health such as pushing for legislation on the setting up of an autonomous agency for consumers, according to section 57 of the Constitution; at present, a collection of 50,000 names of people who support the bill is underway. The law, if passed, will set up a consumers council that deals with policy formulation, law and measures for consumer protection, and social movements (such as the one on the MoPH drug purchase scandal). Another movement is also ongoing for people's law on drugs aimed at protecting people's welfare regarding drug use in a full-cycle manner, developing the drug industry for raising the level of self-reliance, and restructuring the drug control agency.

**7.2 Legal Measures for Consumer Protection.** Two ministerial rules have been announced as required by relevant law: one on criteria, methods and conditions on good manufacturing practices (GMP) for producing modern drugs, announced on 5 June 2004, and the other on food produced from

genetically modified organisms (GMO), effective 11 May 2003, requiring that 22 types of food have a label saying “genetically modified”.

**7.3 Food Safety Project.** The government has declared the year 2004 “Food Safety Year” aimed at making Thailand a country having food with quality and safety according to international standards, and promoting food exports and tourism. In this connection, the MoPH has placed emphasis on three categories of food: fresh food, processed food, and cooked-for-sale food. Through combined efforts of all sectors concerned, the food safety programme has been implemented since 2003. As a result, the levels of chemical contamination in six types of fresh food have satisfactorily dropped (see Table 4.43 in Chapter 4). As of January 2004, the MoPH has given 76,089 food-safety plaques to fresh-food sellers recognizing that their fresh food is safe. With regard to readily cooked-for-sale food, health officials have inspected the hygienic conditions of restaurants and food-stalls across the country and have given a “Clean Food, Good Taste” plaque to 23,055 restaurants or food-stalls (16.6% out of 138,510 places). Concerning processed food, the GMP control measures have been introduced to 9,453 food-manufacturing plants nationwide, and 4,470 plants (64.9% of 6,887 plants inspected) have met the GMP requirements (January 2004).

Besides, the MoPH, in cooperation with other public sector agencies, organized a “Food Safety Fair to Pay Tribute to the Mother of the Land” in commemoration of the 72nd Birthday Anniversary of Her Majesty the Queen on 6-9 December 2003. Another special campaign on “Food Safety in Schools” was conducted, in cooperation with the Ministry of Education, the Bangkok Metropolitan Administration, and schools in all 175 educational administration zones throughout the country. To date, 5,154 schools have taken part in the campaign, having student volunteers serving as “FDA official juniors” in inspecting food hygiene conditions in their schools and neighbouring communities. Out of a total of 14,925 food samples tested for borax contamination, only 3.1% were positive; and of 15,342 food and utensil samples tested for bacterial contamination, only 14.4% were found positive.

**7.4 Development and Certification of Medical and Health Laboratories.** Since 1997, the MoPH has implemented nine programmes on certification of laboratories for consumer protection and public health specimen analyses, especially on health products, to ensure that the procedures are of acceptable standards. As of March 2004, 115 laboratories have been certified, including five public health laboratories, 26 health products laboratories, 70 laboratories dealing with health check-ups for workers seeking overseas jobs, and 14 laboratories dealing with pesticide residuals in fresh vegetables/fruits.

## **7.5 Development and Promotion of Health Product Manufacturing**

**7.5.1 Raising Standards of Production in Modern Medicine Manufacturing Factories.** Between 1983 and 2003, the MoPH supported 133 drug manufacturing industries to meet the GMP requirements, 75.6% of all such industries nationwide. According to the ministerial rule on this matter, all drug manufacturers are required to meet the GMP standards by 5 June 2004.

**7.5.2 Development of Hospital Quality Standards.** In 1997, the Institute of Hospital Quality Improvement and Accreditation (HA-Thailand) was established under the Health Systems Research Institute

(HSRI). At present, there are 82 HA-certified hospitals, including 63 public hospitals and 19 private hospitals (March 2004).

**7.5.3 Promotion and Development of Quality of Community Health Product Manufacturing According to the Sufficiency Economy Principle.** This effort is in accordance with the government policy on “One Tambon, One Product”. In 2002, the MoPH could develop 4,607 food products, 2,327 of which (50.5%) met the Food Act requirements, 154 items of herbal medicines, nine of which (5.8%) were registered, and 318 items of cosmetics, 226 of which (71%) met the Cosmetics Act requirements.

**7.6 Support for Health Service Business Project.** The MoPH has set a policy on promotion of healthcare business by having Thailand as an Asian hub of medical and health care within five years (2004-2008). Its strategies include the promotion of health services and health products in three categories: (1) medical services (curative/dental care and annual check-ups), aimed at providing services to one million foreign patients in 2005 with a revenue of 23.1 billion baht; (2) health promotion services (Thai traditional massage, spa, and long-term health care), aimed at increasing revenue to 6.75 billion baht in 2005; and (3) health product services (Thai medicinal herbs and cosmetics), aimed at increasing revenue to two billion baht in 2005.

**7.7 Awareness Raising and Rights Protection for Consumers.** The MoPH has set up a complaints/call centre that provides 24-hr service through hotline number “1556” and other phone numbers 0-2590-7354-5 or fax 0-2590-7356, and by mail at P.O. Box 52, Nonthaburi Post Office. Its aim is to receive complaints and provide information on unfair consumption of health products. The civic sector has also set up the Consumer’s Rights Protection Centre, using telephone numbers 0-2952-5060-2, to also take complaints from consumers.

Besides, the network of consumers organizations has organized a forum/council for consumers, holding activities for consumers to exchange the products whose quality was not as advertised for the good ones. This is to encourage consumers to be aware of the unfairness according to consumer’s rights. The Foundation for Consumers has also conducted public relations campaigns through all forms of the mass media on the protection of consumer’s rights.

## **7.8 Capacity Building of Consumers in Health**

**7.8.1 Campaigns on Disseminating Consumer Protection Information through all the Mass Media and Consumer Hotline.** In the FY 2003, 304,457 calls were received and responded to by the Hotline centre; an average of 834 calls each day.

Besides, the Foundation for Consumers has published a magazine “Smart Purchase” or Chalad Sue and organized a TV series on “consumers council” on Channel 11 every Thursday during 10:30-11:00 hrs to provide consumers with the knowledge about good consumption, discuss issues affecting consumers, and suggest solutions to the problems. Forums for consumers were held to discuss and find the solutions to consumer’s problems such as those on high medical service fees, what should consumers do, etc.

**7.8.2 Campaign on Reading Food-Product Labels.** The campaign has been conducted through all forms of the mass media to encourage consumers to read and understand the labels on food packages,

to have a good attitude about label reading so as to help them make a correct decision when buying any food products.

## 8. Human Resources Development for Health

### 8.1 Development of Medical and Health Administrators

Efforts have been made to train medical and health administrators at all levels, but not all target groups have been covered yet (Table 8.1).

**Table 8.1** Number of Trainees in the High-, Middle- and Primary-level Medical and Health Administrators Training Courses, 1995-2003

Training course	Total target	Number trained until 2003	Percent
High-level medical and health administrators	900	860	95.6
Middle-level medical and health administrators	5,200	3,784	72.8
Primary-level medical and health administrators	40,000	7,854	19.6
<b>Total</b>	<b>46,100</b>	<b>12,498</b>	<b>27.1</b>

### 8.2 Promotion of Quality of Medical and Health Professions

Both public and private sector health agencies are mostly involved in the production of medical and health personnel; in addition, other professional organizations are also involved in the promotion of professional quality of such personnel, such as the Medical Council, the Dental Council, the Nursing Council, the Rural Doctors Foundation, other professional associations, etc.

According to section 38 of the 2002 National Health Security Act, no more than 1% of the budget has been earmarked for preliminary financial assistance to any healthcare recipient who is affected by the health service rendered by any service unit. This kind of assistance mechanism has already been operational.

## 9. Health Research

### 9.1 Research Projects on Health System Reforms

The Health Systems Research Institute supports research packages related to health system reforms at the operational level, in collaboration with various public sector agencies, NGOs, and civil society at all levels, in seven major aspects: health system protection, healthy public policies and health impact assessment, prevention and control of health threats, health services delivery, health research system, health information system, and consumer's capacity building system. The results of these research studies will be used in formulating policies on developing a desirable health system for the Thai people.

### 9.2 Research Projects on Diseases and Health Problems



**9.2.1 Anti-AIDS Traditional Medicine.** The MoPH has been conducting research studies on anti-HIV/AIDS traditional medicines on a full-cycle scale, originally planned for five years (1997-2001), and later extended for another three years to 2004. The project has experimented on the anti-microbial and immunogenic properties of more than 85 types of medicinal herbs and more than 300 extracts. Its preliminary results have shown that several medicinal herbs/extracts have such properties, according to the in vitro tests; and further in vivo tests have to be carried out with respect to their toxicity and clinical efficacy. In collaboration with the Kunming Institute of Botany (KIB), the MoPH conducted a study on quality development of herbal medicines, i.e. SH formula of KIB. Phases I/II clinical trials are being conducted at San Patong and Nakhon Phing Hospitals of Chiang Mai Province and at Lamphun Hospital. Based on the satisfactory results of its Phase III trial, the medicine has already been registered as a traditional medicine that will be marketed soon.

**9.2.2 National Newborn Screening Project.** The MoPH health facilities provided a thalassemia screening service to all newborns across the country between 1996 and 2003. The programme revealed that among the 2,696,637 newborns screened, 8,742 were found abnormal; 5,037 of the abnormal cases could be followed up for a confirmatory test; and 941 cases were confirmed as thalassaemic. All the confirmed cases have been given treatment and this effort can help prevent mental retardation among Thai children.

**9.2.3 Research Package on Diseases and Health Problems.** The Thai Research Fund (TFR) through the National Health Foundation (NHF) has provided financial support for health research studies through the health research network coordinated by NHF. Under the network, 16 research packages are being implemented; among them six are related to diseases, seven related to health problems, and three related to health system support.

## 10. Development of International Health

### 10.1 Development of Global Cooperation

**10.1.1 Cooperation with the Global Fund to Fight AIDS, Tuberculosis and Malaria.** The United Nations has set up the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM or Global Fund), aimed at providing funding support to countries with the problems of such major diseases in a total amount of approximately US\$ 60 billion (or 27,000 trillion baht). Thailand has signed a grant agreement with the Global Fund which has agreed to support five projects totally worth US\$ 211 (approximately 9.3 billion baht) for the prevention and control of HIV/AIDS, tuberculosis and malaria for five years (2003-2007), being implemented by both public and private sectors.

Besides, the Global Fund Board unanimously resolved in January 2003 to appoint Dr Suwit Wibulpolprasert, Deputy Permanent Secretary for Public Health as the representative of Thailand, as Vice Chairperson of the Board, under the chairmanship of His Excellency Tommy G. Thompson, Secretary of Health and Human Services of the USA. In addition, other representatives from Thailand also served as members on the ethics committee and chair of the committee on assessment of the Executive Director of the

Global Fund. The Thai delegates were greatly honoured to perform such duties. And Thailand also hosted the 6th Global Fund Board meeting, held in Chiang Mai, on 15-17 October 2003.

**10.1.2 The 56th World Health Assembly.** The WHA was held on 18-28 May 2003 at the WHO headquarters in Geneva, Switzerland, at which Thailand played an active role in pushing for the following:

1) The WHA unanimously adopted the draft resolutions on SARS and chemical safety on 26 May 2003; Thailand played a key role in drafting them.

2) Thailand played an active role in negotiating the assessment rates that WHO Member States have to pay for the biennium 2004-2005; and the WHA adopted the proposal to use the UN criteria, i.e. fixing the maximum at 22% and the minimum at 0.001%. As a result, Thailand agreed to contribute 0.2893% of the WHO budget for the biennium without asking for any reduction; and this had resulted in developed countries not daring to ask for any reduction either. Overall, the WHO budget could be maintained at US\$ 880, rather than being reduced to US\$ 860.

3) The calculation of the proportion of WHO staff members from developing countries. The WHA, by a majority vote, adopted the draft resolution, which Thai delegates took part in the drafting, using the progressive weighting principle based on the population of each country. As a result, the quota of WHO staff from Thailand has increased from 2-8 persons to 4-12 persons.

Besides, a Thai medical doctor, Dr Wattanee Yenjittr was conferred a Leon Bernard award for her outstanding contributions in the rehabilitation of visibility-impaired individuals. The award presentation ceremony was held on 22 May 2003 in the WHA plenary.

**10.1.3 IV Inter-governmental Forum on Chemical Safety (IFCS Forum IV).** Three forums of this kind were held previously; the 4th one was co-hosted by the Chulabhorn Research Institute (CRI) and the Ministry of Public Health and held at the UN Convention Centre in Bangkok, on 1-7 November 2003. The opening ceremony of the Forum was presided over by HRH Princess Chulabhorn, the CRI president. Approximately 600 participants from 130 member countries of the IFCS attended the event.

At the Forum, Thailand played an active role in pushing for the following:

1) The Forum resolved for the first time to request member countries to prohibit or limit the sale and use of highly toxic pesticides, particularly those classified by WHO as highly toxic and extremely toxic.

2) The Forum resolved to set up an ad hoc experts group to support the capacity building efforts of developing countries so that they will be capable of handling their chemical safety programmes. This resolution was originally proposed by Iran; and Thailand supported it so that it was successfully passed for the first time.

3) A Thai delegate (Dr Suwit Wibulpolprasert) was elected president of the IFCS Executive Board for the three-year term of 2003-2006.

## **10.2 Cooperation with Neighbouring Countries and Other Developing Countries**

**10.2.1 Cooperation between Thailand and the Lao People's Democratic Republic.** Thailand has constantly provided technical and financial assistance to Lao PDR for health development. In 2002, the Thai MoPH donated 100 inpatient beds, 80 walkers, 80 oxygen tanks, and 500,000 gelatin capsules of vitamin A.



**10.2.2 Cooperation between Thailand and the Union of Myanmar.** Prime Minister Dr Thaksin Shinawatra and Public Health Minister Mrs Sudarat Keyuraphan visited Myanmar during 19-20 June 2001 to discuss the Thai-Myanmar border health cooperation. After that three meetings/exhibitions were held on this matter; the third one in Chiang Rai Province on 28-29 September 2003, during which the Thai Public Health Minister gave one million condoms to the Myanmar Ministry of Health. Both countries agreed to cooperate in the programme on AIDS, TB and malaria prevention and control along the border, and to exchange information on pharmaceuticals, food, and Thai traditional medicine.

**10.2.3 Cooperation between Thailand and the Socialist Republic of Vietnam.** In 2002 and 2003, Thailand provided technical assistance to Vietnam by organizing study tours for 112 medical and health officials from Vietnam. And in 2004, the Department of Technical and Economic Cooperation plans to sign a memorandum of understanding on Thai-Vietnamese overall technical cooperation.

**10.2.4 Cooperation between Thailand and Cambodia.** A memorandum of understanding on health cooperation was signed between the Thai Ministry of Public Health and the Cambodian Ministry of Health during a joint border health meeting held on 3-4 May 2001. In accordance with the MOU, the Thai Public Health Minister has given four lots of medicines, worth 7.5 million baht to Cambodia; and 30 training courses were organized for medical and health personnel from Cambodia in FYs 2002-2004.

**10.2.5 Cooperation between Thailand and Malaysia.** The 3rd Malaysia-Thailand Health Conference was held on 12-14 March 2003 in Phuket Province of Thailand. It was the first ministerial meeting on traditional medicine (cooperation relating to medicinal plants), exchange of information on holistic medicine, disease surveillance and control, food inspection, research, and health tourism.

**10.2.6 Cooperation between Thailand and the People's Republic of China.** In 2002, a bilateral project on health cooperation was launched with the establishment of a Southeast Asian Institute of Thai-Chinese Traditional Medicine. Participating in this effort from Thailand are Mahidol, Huachiew Chaloeprakit, Ubon Ratchathani, and Mae Fah Luang universities; while those from China are Shanghai, Beijing, Nanjing, and Chengdu universities of traditional Chinese medicine. With regard to the cooperation in the development of herbal medicine, China gave 11 herbs for planting in Thailand on an experimental basis. Cooperation is also extended to other programmes such as mental health and the development of standards for the import of food and medicines.

**10.2.7 Economic Cooperation Projects in the Greater Mekong Subregion.** The Greater Mekong Subregion (GMS) comprises six countries: Laos, Myanmar, Thailand, China (Yunnan Province), Vietnam and Cambodia. Thailand has been supporting health programmes in neighbouring countries as well as activities for the prevention and control of communicable diseases and the development of minority groups along the borders. Major activities being carried out are the Mekong Basin Disease Surveillance (MBDS) Project, the Mekong Roll Back Malaria Initiative in the GMS Project, and the Human Resources Development Project.

Besides, MoPH hospitals located along the borders provide health services free of charge to the people from neighbouring countries; during FYs 1996-2003, a total of 37,083 cases received such services.

## Chapter 9

# Economic Dynamics and Health Implications

In Thailand, there was a severe economic recession during 1978-1987, an economic boom between 1988-1996, which ended with another severe economic crisis started in 1997, followed by recovery since 2002. This section analyses the impact of these economic dynamics on health systems. The strategies that were developed after the 1997 economic crisis are also discussed.

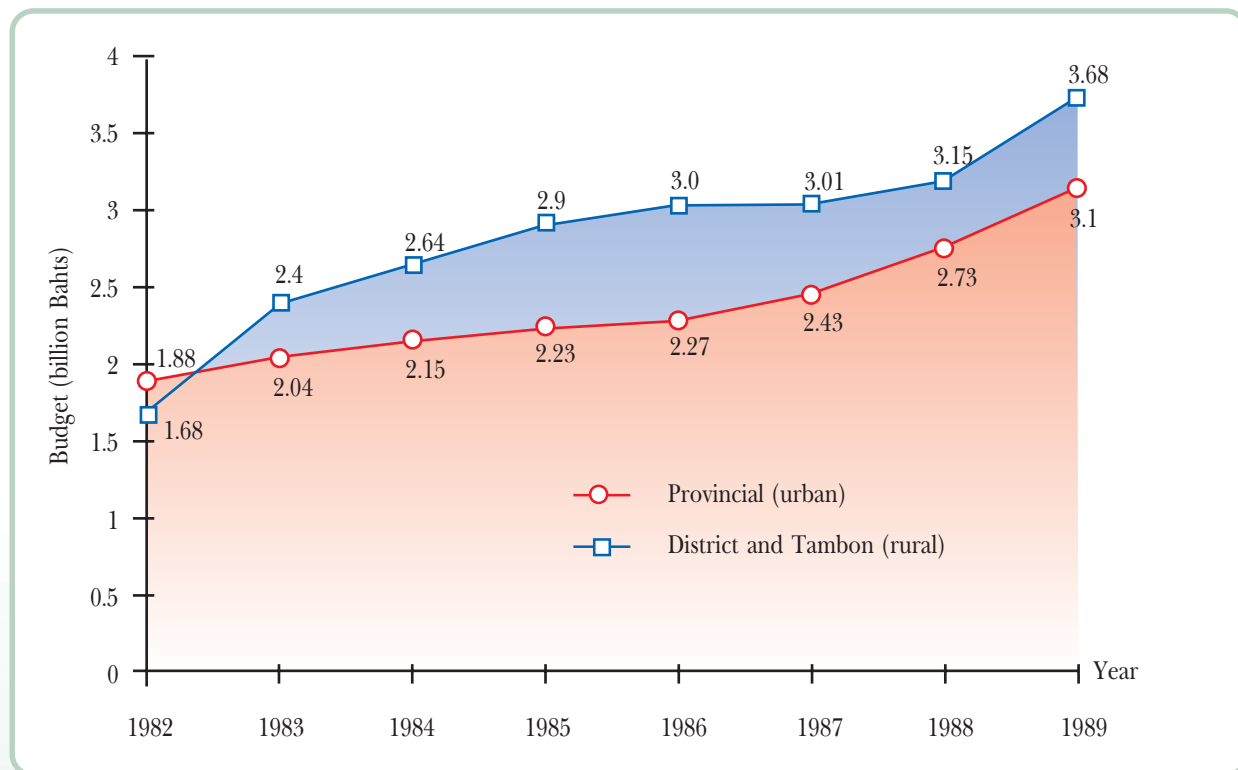
### 1. Good Health and Health Care Systems in the Economic Recession (1978-1987)

Before 1997, Thailand faced with economic crisis twice, in 1978 and 1983. Such crises were attributable not only to over-borrowing but also to oil price rises, resulting in inflation, high interest rates and reduced liquidity. In 1985 the government had to devalue the Baht by approximately 15 percent. An IMF credit loan of US\$1,500 million, equivalent to the 1998 value of about US\$3,600 million, was obtained. At that time, due to cuts in the government budget, the MOPH had to reduce the targets of a number of development programmes such as those on construction of community hospitals and manpower production. The proportion of the investment budget in 1987 was reduced to a mere 11.3 percent, similar to the level in the year 2000 (Figure 7.13). During the decade of 1978-1986, the Thai people's health status improved greatly with a more equitable and efficient health services delivery system, even though the economy was not so good at that time.

That was the decade of integrated rural development based on the basic minimum needs (BMN) approach, which resulted in the universal coverage of rural health facilities. It was the decade of primary health care development and health for all, with successes realized through increased coverage of immunization, family planning, maternal and child health, nutrition, and sanitation programmes.

These movements were made possible through **strong political leadership and commitment**, in spite of the more or less dictatorial military governments. There was a definite policy to reform budget allocations - by minimizing investments in urban hospitals and increasing investments at the district and subdistrict levels. 1983 was the first year that the budget for rural health centers and community hospitals combined was higher than that of the urban provincial hospitals (Figure 9.1).

Figure 9.1 Shift of budget allocation due to the rural development program



Source: Bureau of Health Policy and Plan, MoPH.

Among a number of tangible achievements, three are demonstrated below:

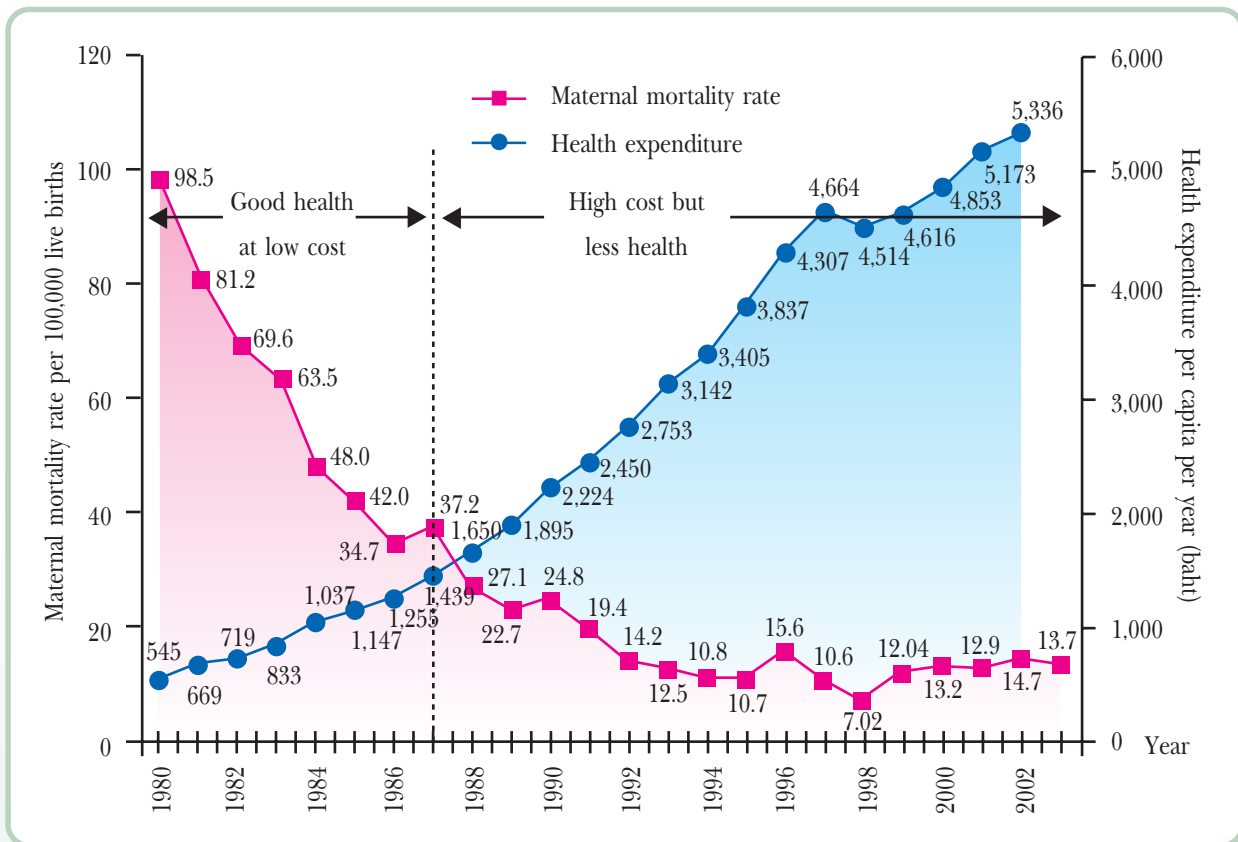
**1.1 Better distribution of health facilities and personnel.** The difference in population-to-doctor ratios of the poorest region (the Northeast) as compared to the richest region (the capital, Bangkok), used to be as high as 21-fold in 1979, but dropped to 9-fold in 1987 (Figure 6.3). The distribution of health facilities, particularly community/district hospitals also improved. Between 1977-1987, the number of district hospitals was doubled while the number of beds quadrupled. The doctor-to-bed ratio was also reduced from 1:10.8 in 1979 to 1:8.1 in 1987 (Figure 6.7).

**1.2 Increasing coverage of essential public health services.** The coverage of basic immunization, particularly OPV<sub>3</sub> and DPT<sub>3</sub>, rose from 20-30 percent in 1982 to 70 percent in 1986 (Table 5.8 and Figure 5.12). During the same period, the coverage of sanitary latrines increased from 35 percent to 70 percent, and those with access to safe drinking water also increased from 20 percent to 60 percent (Figure 4.35 and Figure 4.37).

**1.3 Improvement of the overall health status.** The maternal mortality rate fell by four-fold, from 130.3 per 100,000 live births in 1978 to less than 30 per 100,000 live births in 1988 (Figure 5.1). The infant mortality ratio also declined, although to a lesser extent, from 50 per 1,000 live births to 38 per 1,000 live births during the same period (Figure 5.2).

Thus the decade 1978-1986, despite the economic down turn was virtually the decade of **“Good Health at Low Cost”** (Figure 9.2).

Figure 9.2 “Good Health at Low Cost” and “High Cost but Less Health”



Source: Updated from Thailand Health Profile 1997-1998.

## 2. Worsening Health Systems During the Economic Boom (1988-1996)

During the economic boom years of 1988-1996, Thailand enjoyed double-digit economic growth and was regarded as the fifth tiger in Asia. The public budget was large and the government paid a great deal of attention to the social sector, increasing the MoPH budget by over 10 percent annually for many years. In this decade, the MOPH budget increased **more than four-fold**, and health and drug expenditure increased three-fold, in real terms (Table 6.50 and Figure 6.37). The proportion of health budget in the overall government budget increased from 4.2 percent in 1989 to 7.7 percent in 1998 (Figure 6.37). However, a huge amount of budget was earmarked for investment activities, e.g., new buildings and sophisticated medical equipment. The MoPH’s capital expense category went up to 38.7 percent in 1997, the highest ever in the last 35 years (Figure 7.13). Despite the large amounts of budget and health expenses, there were many problems.

In one health insurance scheme, the civil servant medical benefits scheme (CSMBS), expenses had risen from 4,316 million Baht in 1990 to 16,440 million Baht in 1998, a four-fold increase in just eight years (Table 9.1). This occurred with less than 2 percent annual increase in the number of civil servants during the same period. Such a rapid rise in expenditures was attributable to the extravagant use of expensive imported drugs and technologies and to embezzlement in the health system infrastructure, particularly in the private sector.

**Table 9.1** Expenditure in the Civil Servant Medical Benefits Scheme, 1990-2003

Fiscal year	Expenditure (million ฿)	Increase (percent)
1990	4,316	-
1991	5,127	18.79
1992	5,854	14.17
1993	7,906	35.05
1994	9,954	25.90
1995	11,156	12.08
1996	13,587	21.79
1997	15,503	14.10
1998	16,440	6.04
1999	15,174	-7.7
2000	17,062	12.44
2001	19,180	12.41
2002	20,475	6.75
2003	22,679	10.76

**Source:** Comptroller Department, Ministry of Finance.

It was the decade of bubble growth in the private sector, mainly among the for-profit hospitals, with a rise from 9,974 beds and 1,094 doctors in 1987, to 29,945 beds and 3,244 doctors in 1997, a more than three-fold increase in ten years (Table 6.6 and Table 6.32). The proportion of beds in the private sector rose from 11.4 percent to 22.6 percent (Table 6.32 and Figure 6.24), and the proportion of doctors increased from 11.4 percent to 19.6 percent, in the same period (Table 6.6 and Figure 6.4). But the bed-occupancy rate was only slightly above 44.3 percent, an oversupply of 235 percent. As a result, a false demand was created. For example, the average caesarian section rate in private hospitals was above 50 percent, and in some hospitals it went up to 75 percent.

It was the decade of investments in high technologies that were complex and expensive. That was evidenced by rapid increases in the number of CT scanners, as well as MRI machines from 6 in 1990 to 26 in 1999 (Figure 6.29). Less attention was paid to the national drug policy and the national essential drug list. During the last five years of that decade, drug expenses increased as high as 20 percent in some years, surpassing those of health spending and GDP. Imported drugs were increasingly popular, with the proportion of imported drugs rising from 27.7 percent in 1988 to 40.7 percent in 1997 (Figure 6.27).

It was the decade of expansion of the nontransparent health care system, from irrational prescribing, kickbacks from prescribing drugs and using high technology equipment, including referring patients to private hospitals, to commissions from the procurement of health technologies, and unreasonable charges for private health services.

It was the decade of increased inequities in the health system as evidenced by the disparities in the Northeast's and Bangkok's population-to-doctor ratios, which rose from 9-fold in 1987 to 14-fold in 1997 (Figure 6.3). That was due to the internal brain drain from the rural public sector to the urban private sector. In 1997, before the burst of the bubble economy, 126 MoPH doctors representing 22 percent of the new doctor recruits, resigned while serving in their second year of compulsory service (Table 6.7). As a result, some 21 district hospitals had no doctors. The net loss of MoPH's doctors increased from 8 percent of the new recruits in 1994 to 45.1, 60.6 and 52.8 percent in 1995, 1996 and 1997, respectively. The doctor-to-bed ratio of the district hospitals decreased from 1:8.1 in 1987 to 1:15.3 in 1998 (Figure 6.7).

More importantly, it was found that the poor, despite holding free medical care cards, had to pay for health services such as buying drugs for self-medication or from private facilities. In 1992, health spending in relation to income of the poorest decile was 8.2 percent, more than six times higher than that of the richest decile which was 1.3 percent (Figure 4.10). It is worth noting that this proportion has declined to 3.4 times in 1998, following the economic crisis.

It was the decade of emerging and re-emerging health problems, with increased severity, such as HIV/AIDS, violence, drug abuse, accidents, cancer, and cardiovascular diseases. The estimated HIV positive patients increased from less than 10,000 in 1987 to 850,000 in 1997. Some diseases once under control have re-emerged as a health threat, such as tuberculosis.

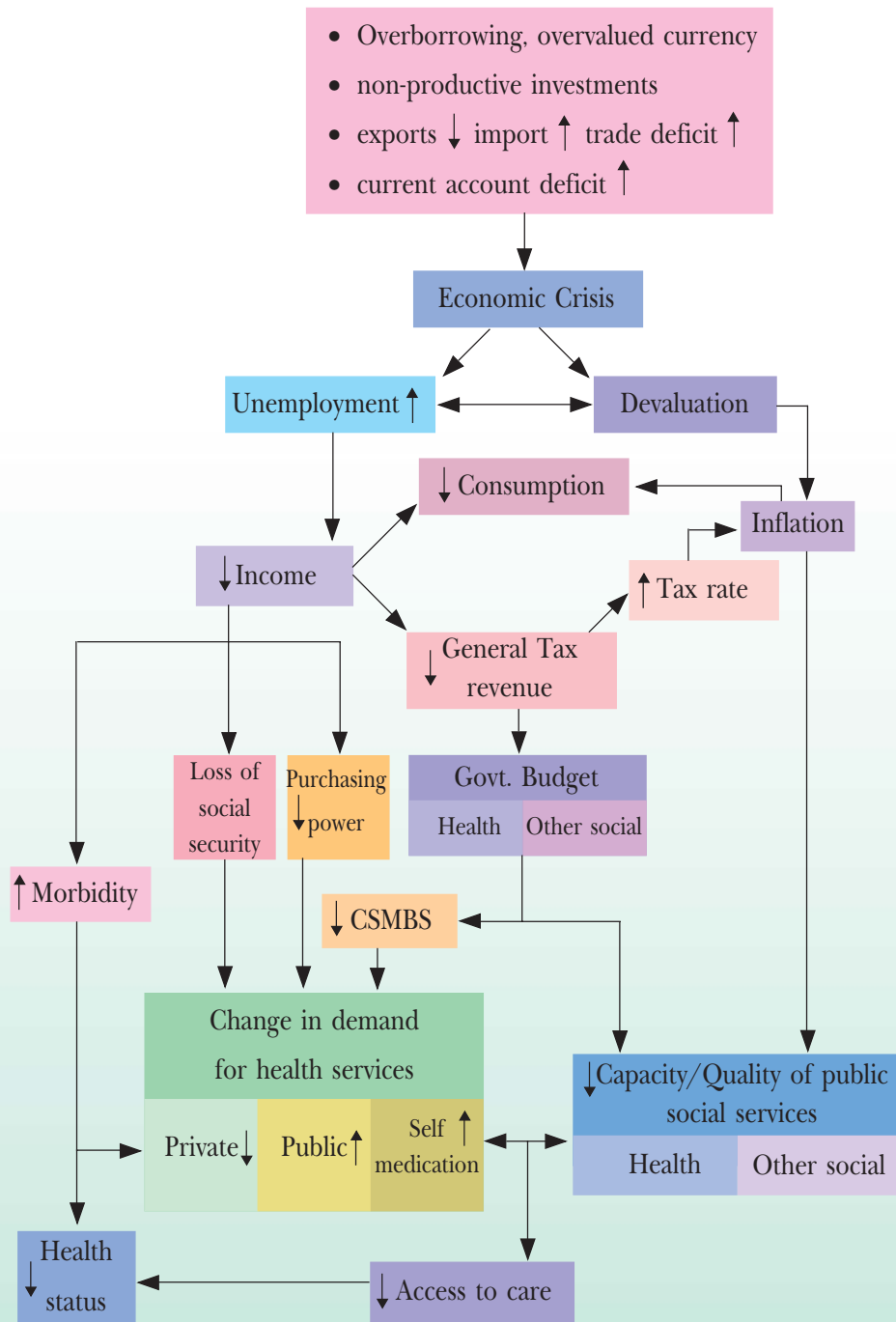
Although the decade of 1988-1997 was considered the decade of high economic growth, it was also the decade of **"High Cost but Less Health"** (Figure 9.2).

### 3. Health Systems Implications from the 1997 Economic Crisis

The decision of the Thai government to open its financial market in 1993 with the permission of the Bangkok International Banking Facilities (BIBF), without good monitoring and control measures in place, was the starting point of the 1997 economic crisis. Huge amounts of foreign currency were brought in for non-productive investments, particularly in the oil refinery, automobile, real estate and private hospital industries. The overvalued currency reduced its competitiveness and slowed down exports, resulting in the large current account deficit which was as high as 8 percent of GDP in 1996. Attacks on the local currency in early and mid-1997 resulted in great loss of foreign reserves and rapid devaluation after the introduction of the "managed float" policy of the Central Bank of Thailand on 2 July 1997. The major outcomes were bankruptcy of industries and businesses, increased unemployment, high interest rates and high inflation. This in turn resulted in decreases in income, consumption, general tax revenue and the total government as well as health budgets. These changes, coupled with their implications on education and other social sectors, are expected to pose serious health repercussions. The conceptual framework of the overall health implications is shown in Figure 9.3



**Figure 9.3** Framework of Analysis: Health Impact from the Economic Crisis in Thailand



CSMBS = Civil Servant Medical Benefit Scheme

**Source:** Adapted from Musgrove P., *The Economic crisis and its impact on health care in Latin America and the Caribbean*, 1994.



### 3.1 Impact on Health Status

The impact of the economic crisis on physical health has been more apparent in relation to nutritional status. The prevalence of underweight schoolchildren increased from 10.5 percent in 1994, to 12.2, 12.2, 10.6, 11.5 and 11.5 percent in 1997, 1998, 1999, 2000 and 2001, respectively (Figure 5.9). The prevalence of low-birth-weight newborns increased from 8.2 percent in 1996, to 8.5, 8.6, 8.5, 8.8, 8.1 and 8.9 percent in 1997, 1998, 1999, 2000, 2001, and 2002 respectively (Figure 5.3). Prevalence of anemia in pregnant women also increased from 12.9 percent in 1996, to 13.0, 13.9, 13.3, 12.6, 11.9 and 12.0 percent in 1997, 1998, 1999, 2000, 2001, and 2002, respectively (Figure 5.10). Those living below the poverty line and the unemployed were more affected. However, the overall nutritional status of children under 5 remained unchanged. Some infectious diseases experienced slight increases in incidence but not mortality, e.g., Malaria, Measles, diarrhea in children, and Dengue Haemorrhagic Fever. The incidence of malaria increased from 1.5 in 1996, to 1.8, 2.2, 2.1, 1.6, 1.2, 0.82 and 0.64 per 100,000 population in 1997, 1998, 1999, 2000, 2001, 2002, and 2003, respectively (Figure 5.16). This increase in malaria incidence also occurred during the previous economic crises (1979-1982 and 1986-1988).

The under five mortality rate also increased from 11.6 per 1,000 live births in 1995 to 16.7, 14.5, 11.9, 12.3, 11.7 and 12.0 per 1,000 population in 1998, 1999, 2000, 2001, 2002 and 2003, respectively (Figure 5.4).

At the same time, some health problems seem to be improving, e.g., road traffic accidents and occupational diseases have decreased (Figure 5.34). The reduction in traffic accidents may relate to the reduction in the number of vehicles. The number of automobiles sold decreased from 589,126 in 1996 to 144,065 in 1998 a 75.5 percent reduction (Table 5.21). The incidence of occupational injuries decreased from 4.5 percent in 1996, to 3.8, 3.4, 3.0, 3.3, 3.2, 2.9 and 3.0 percent in 1997, 1998, 1999, 2000, 2001, 2002, and 2003, respectively (Figure 4.12). Furthermore, the prevalence of smoking, the number of cigarettes and the amount of alcoholic beverages sold declined. Smoking prevalence which increased from 22.8 percent in 1993 to 23.4 percent in 1996, decreased to 20.6 percent in 2001 and increase to 21.6 percent in 2003. There was a total reduction of one million smokers from 1996 to 1999. From 1997 to 2000, the quantity of tobacco sold went down by 24.6 percent, but increased again at 6.3 percent in 2003 (Table 4.60). The per capita consumption of alcoholic beverages went down by 19.0 percent from 1997 to 1999 but since 2003 there was an increased alcoholic consumption (Table 4.64).

Other physical health indicators did not show any clear changes in trends.

On the other hand, the mental health status seems to be more sensitive, with the impact immediately detected among the unemployed. The results of 11 telephone surveys conducted in 1997 and 1998, by the Department of Mental Health, clearly show that the prevalence of stress and suicidal ideas were approximately two-fold higher among the unemployed.

### 3.2 Impact on the Pattern of Health Seeking Behaviour

A greater number of people not able to afford institutional health services resorted to buying drugs at pharmacies for self-medication. A survey conducted by the National Statistical Office revealed a drop

in monthly household health spending at public health facilities from 343 Baht in 1996 to 264 Baht in 2001, a 23.0 percent reduction. On the other hand, there was an increase in monthly household expenses on self medication from 41 Baht in 1996 to 46 Baht in 2001, a 12.2 percent increase (Table 6.52). A survey in 1999 found that the number of outpatients attending private hospitals decreased by 20-70 percent. For the public sector, the most recent statistics from MOPH provincial and district hospitals show an average annual increase in outpatient visits of 6-15 percent between 1992 and 2000 (Table 4.5), and an average annual increase in inpatients of 4.8 percent during the same period (Table 4.6) because the expenditure for health care at the public facilities is more affordable. Several sporadic surveys also show the same trend (Table 4.98 and 4.99 in Thailand Health Profile 1999-2000).

### **3.3 Impact on Health Expenditures and Public Health Budget**

The rate of real term increase in total health expenditures in 1997 dropped to only 3.7 percent and then plunged to -9.5 percent in 1998, for the first time ever (Table 6.50). The drug expense was also reduced by -17.3 percent in 1998 (Table 6.50). The government health expenditure fell at a rate greater than that in the private sector, and the proportion of public expenditures to the total health expense declined from 37.8 percent in 1997, to 32.95 percent in 2000 (Table 6.49). The MOPH's budget was reduced from 67.57 billion Baht in 1997, to 61,097 billion Baht in 2001, a 9.6 percent reduction in real terms (Figure 6.37). This decrease in public health budget, initially, will not affect operations, as the Ministry responded by reducing its capital investments. Its proportion of capital budget reduced to 11.5 percent and 8.8 percent in 2000 and 2001, respectively (Figure 7.13).

In 1999, while total health expense increased by 2.63 percent, the GDP expanded by -0.08 percent. Thus the percentage of GDP on health increased to 6.1 percent in 2000 (Table 6.50).

### **3.4 Impact on Private Health Care Facilities**

When people's purchasing power falls, the utilization of private health services also drops, resulting in a decrease in private hospitals' revenue. With a greater burden of foreign debt due to the Baht devaluation and increasing interest rates, all private hospitals are in great difficulty. A survey in December 1997, when the Baht was devalued by 40 percent, revealed an increase in debt of approximately 10 billion Baht or \$US250 million. Almost every hospital had to close down some buildings or floors. All private hospitals reduced overtime payments and salaries of staff, and some resorted to laying off a number of employees. It has been predicted that one-third of private hospital beds will be closed down in 2000-2001. All private hospitals had to undergo restructuring, such as joining the social security health insurance scheme, revising marketing strategies focusing on packaged services and inviting more health package tours. In 1999, 25 private hospitals joined the Social Security Health Insurance Scheme, an increase of 32.05 percent from 1998 (Table 9.2). Generic drugs were also used to replace the more expensive imported products previously used. Since 2000, some foreign investors started to hold big shares of some big private hospitals.

**Table 9.2** Number and Proportion of Hospitals Having Entered into a Contract with the Social Security Office, 1991-2005

Year	Principal contractor/hospitals					Subcontractor/hospitals				
	Public		Private		Total	Public		Private		Total
	No.	Percent	No.	Percent		No.	Percent	No.	Percent	
1991	119	86.9	18	13.1	137	-	-	0	-	-
1992	118	81.4	27	18.6	145	838	92.4	69	7.6	907
1993	119	76.3	37	23.7	156	748	89.2	91	10.8	839
1994	122	68.9	55	31.1	177	1,019	78.7	275	21.3	1,294
1995	126	66.7	63	33.3	189	1,206	63.6	691	36.4	1,897
1996	126	63.6	72	36.4	198	1,210	42.6	1,629	57.4	2,839
1997	127	64.5	70	35.5	197	1,340	46.9	1,517	53.1	2,857
1998	127	62.0	78	38.0	205	1,263	56.0	994	44.0	2,257
1999	128	55.2	104	44.8	232	1,522	39.9	2,294	60.1	3,816
2000	130	52.8	116	47.2	246	1,621	40.4	2,393	59.6	4,014
2001	133	50.8	129	49.2	262	801	39.1	1,247	60.9	2,048
2002	136	50.7	132	49.3	268	899	40.0	1,351	60.0	2,250
2003	137	50.9	132	49.1	269	946	36.4	1,654	63.6	2,600
2004	144	51.8	134	48.2	278	931	37.0	1,586	63.0	2,517
2005	147	53.6	127	46.4	274	919	35.0	1,706	65.0	2,625

**Source:** Social Security Office, Ministry of Labour.

**Note:** Since 2001, numbers of subcontractors are not accumulated numbers.

## 4. Health Strategies in Response to the Economic Crisis

### 4.1 Strategy 1: Establishment of an Equitable Health System

**4.1.1 Expansion of Health Insurance Coverage.** In 2001, 71 percent of the Thai people are covered by one of the many health insurance schemes, mainly tax based finance. The 29 percent uninsured are the low and middle income self-employed. During the crisis, there were more poor people and the coverage had to be even further expanded. The main schemes of expansion are the publicly subsidised voluntary health card scheme and the social welfare health insurance scheme. The coverage of the social welfare scheme increased from 12.7 percent in 1991 to 31.5 percent in 2001. The health card scheme also increased from 4.5 percent in 1991 to 22.1 percent in 2001. (Table 6.69). The new government started a universal health insurance scheme which cover every Thai from 1st October 2001. This resulted in 95 percent of coverage in 2003. The next step, apart from universal coverage, is to reduce the gap between the benefits and expenses of each scheme. This is the mandate under the National Health Security Act, 2002.

#### 4.1.2 Protection of Safety Net

It is notable that despite the decrease in the overall MOPH budget during the crisis, the budget for the social welfare health insurance was increased to 25.3 percent in real terms in 1997. Thus, the proportion of the MOPH budget for this scheme rose from 9.4 percent in 1997 to 15.3 percent in 2001. (Table 7.8 and Figure 7.12). Nevertheless, we need to make sure that there will be equitable and transparent distribution for the efficient use of these resources. National and provincial level committees were set up including involvement of senior citizens and the media, to oversee the allocation and use of this budget.

#### 4.1.3 Sustaining of the Production of Rural Doctors

In 1995, in response to rapid internal brain drain, a project for the production of doctors for rural people was launched. Students whose domiciles are in provincial areas are selected to study medicine at provincial hospitals; and upon graduation they are required to work in their own domicile for at least three years. One important point is to build up a “**crusading spirit**” towards social services among these students. After the economic crisis, even though there was a great reduction in the enrollment of students in other programs, the number of students in this project increased and was maintained at 300 per year.

The problem of doctor shortages has also become less severe. It is worth noting that in 1998 the MOPH had a net loss of doctors of only 33.3 percent of the new recruits as compared to 52.8 percent in 1997. This figure reduced to 11.5 percent in the year 2000 (Table 6.7). Those who had resigned some time ago reapplied for civil service, resulting in a situation of “**reverse brain drain**”. The doctor-to-bed ratio in the district hospitals increased from 1:15.3 in 1998 to 1:13.9, and 1:10.9 in 1999, and 2001, respectively (Figure 6.7).

## 4.2 Strategy 2: Creation of a more Efficient Health Service System

### 4.2.1 Technical Efficiency

(1) **Reform of drug management.** This was done through reducing the number of drug items in all of MOPH’s facilities, and enforcing more use of Essential Drugs. A collective provincial procurement system for all district and provincial hospitals, which was developed since 1990, was implemented nationwide in 1998. As only drug factories with Good Manufacturing Practice (GMP) were included in the system, the drug quality can be assured. In 2001, a 24.62 percent saving was achieved with Baht 507 million saved from drug purchases (Table 9.3). This savings occurred despite the fact that drug prices were allowed to increase from 1997 to 1999 by 22.85 percent for imported products and 20.63 percent for locally produced products. This system has been further expanded to regional level.

**Table 9.3** Progress of the collective provincial bargaining system, 1997-2003

Year	Coverage		Value of Purchase (Million Baht)		Saving		Average collective purchasing per province (Million Baht)
	Provinces	Items	Usual	Collective	Amount (Million Baht)	% saving	
1997	33	-	247.14	189.23	57.91	23.44	5.73
1998	60	2,168	691.30	523.69	171.47	24.67	8.73
1999	75	4,491	1,209.90	874.21	335.69	27.75	11.65
2000	74	8,173	1,831.10	1,286.74	549.46	30.01	17.39
2001	74	9,041	2,060.57	1,553.29	507.28	24.62	21.57
2002	70	8,581	2,443.36	1,956.01	487.30	16.70	16.34
2003	67	7,889	n.a.	1,593.8	n.a.	n.a.	15.96

**Source:** Provincial Hospital Division, Ministry of Public Health.

(2) **Reform of the Civil Servant Medical Benefit Scheme (CSMBS).** Under the current reform, actions have been taken with regard to reducing inpatient bed-days in special wards, and abolishing the use of private sector services, and prescribing only essential drugs. With such measures, about 1,187 million Baht was saved in 1999 (Table 9.3). However, after 2000 the expenditure started to rise. A DRG based payment for in-patient will be started in 2002. In the future, this scheme should be harmonized with the Social Security System, using the capitation payment method that would result in a further savings.

(3) **Autonomous Hospital.** Another way of improving management efficiency is to allow public hospitals more autonomy in managing their financial and manpower resources as “state-supervised hospitals” under the **Public Organization Act**. This is to provide flexibility in management, increased efficiency, and most importantly, increased community participation. An action plan to allow 7 MOPH hospitals to become “Autonomous Hospitals” in the year 2000 was approved by the cabinet. Nevertheless, lessons about autonomous hospitals learned from other countries, like Malaysia, Singapore and Zambia warn Thailand to proceed cautiously. So far only one 180 beds district hospital was autonomized. Decentralization of health facilities to local governments is also in process, which parallels the process of political decentralization.

**4.2.2 Efficiency in Allocation of Health Resources.** It is well known that health expenditures that focus on community-based health promotion, disease prevention and primary medical care will be more efficient than those focussing on curative care. Therefore, during this crisis, one of the important strategies was to invest in persuading/encouraging the Thai people to exercise, control their diet, quit smoking, avoid drunk driving, and avoid sexual promiscuity. An Act to establish a “**Health Promotion Fund**” financed with earmarking from 2 percent of tobacco and alcohol excise taxes was promulgated in late 2001. After the economic crisis, through the conditions set under an ADB loan, the budget for EPI vaccines, MCH programmes, and community HIV/AIDS prevention were either saved or reduced less. The current government has also embarked on an integrated national ‘Healthy Thailand’ policy, which started at the end of 2004.



### 4.3 Strategy 3: Development of Quality Health Service System

The public sector health care system in Thailand is regarded as fairly acceptable as evidenced by a high number of clients at all levels, from health centers to hospitals in large cities. But it has not been rated so satisfactory by the clients.

Thus, in addition to increasing the health insurance coverage, it is needed to improve the quality of all health facilities, including those at the Tambon level. This can be achieved through financial incentives, after-hour services, and the **hospital accreditation system**. This system has been developed since 1997 under the Institute for Hospital Development and Quality Accreditation. Until 2004, 82 hospitals have been accredited. Under the UC system, it will be expanded to cover the entire nation in the near future.

### 4.4 Strategy 4: Empowering Society

This is a horizontal strategy that cuts across the above 3 strategies. Stronger and wiser civil societies need to be created and supported, from the village to the national level. It is the strength and conjoined efforts of these empowered civic groups that will ensure that those who hold the power will try their best to achieve better quality, more efficient and equitable health systems. Since 1992, the MOPH allocated about \$US 1.5 million per year to support health service oriented NGOs and \$US 2.4 million to support NGOs on HIV/AIDS. These budgets were maintained after the economic crisis.

A new constitution, the so-called “people’s constitution” was enacted in 1997, despite resistance from most politicians. Political and social reform have become the national agenda. A new national education act was also passed in 1999. A Prime Minister Office’s regulation setting up a “Health Systems Reform Office”, was announced in July 2000. Its purpose is to work towards enactment of a comprehensive National Health Act in three years. This act will focus on health systems reform toward **promoting health rather than curing diseases**. It is expected that through nation wide social movements, this act will ensure future sustainable health development for the Thai.

## 5. Health in the economic recovery phase (from 2002)

The recovery of the Thai economy started in 2002. The economic growth rate increased from 2.1 percent in 2001 to 5.4, 6.3 and 6.0 in 2002, 2003, and 2004, respectively. This is inspite of the negative impact from the Avian Influenza outbreak and the Tsunami’s disaster.

The recovery resulted in rapid increase in the demand for private health services (Table 9.4). In addition, this demand is also further increased by the government policy to invite influx of foreign patients.

The result is another episode of ‘brain drain’ from public rural hospitals to the private urban hospitals. The number of resigned doctors in the MoPH, which used to reduce greatly after economic crisis, increased to 756 or 74.6 percent of new recruits (Table 6.7).

In order to respond to increasing demand on human resources, the government approved a project to increase production of 10,678 doctors from 2005 to 2014.

**Table 9.4** Health Seeking Behavior

Behavior	1991	1996	2001	2003	2004
No treatment	15.9	6.9	5.4	5.9	5.3
Traditional	5.7	2.8	2.5	2.9	4.4
Self proscription	38.3	37.9	24.2	21.5	20.9
Health Centre	14.8	20.8	17.4	23.9	24.6
Public Hospitals	12.9	12.9	34.8	33.1	30.2
Private facilitate	12.4	18.7	15.0	19.4	22.7

**Source:** Health and Welfare Survey, National Statistical Office, 1991, 1996, 2001, 2003, 2004.





## CHAPTER 10

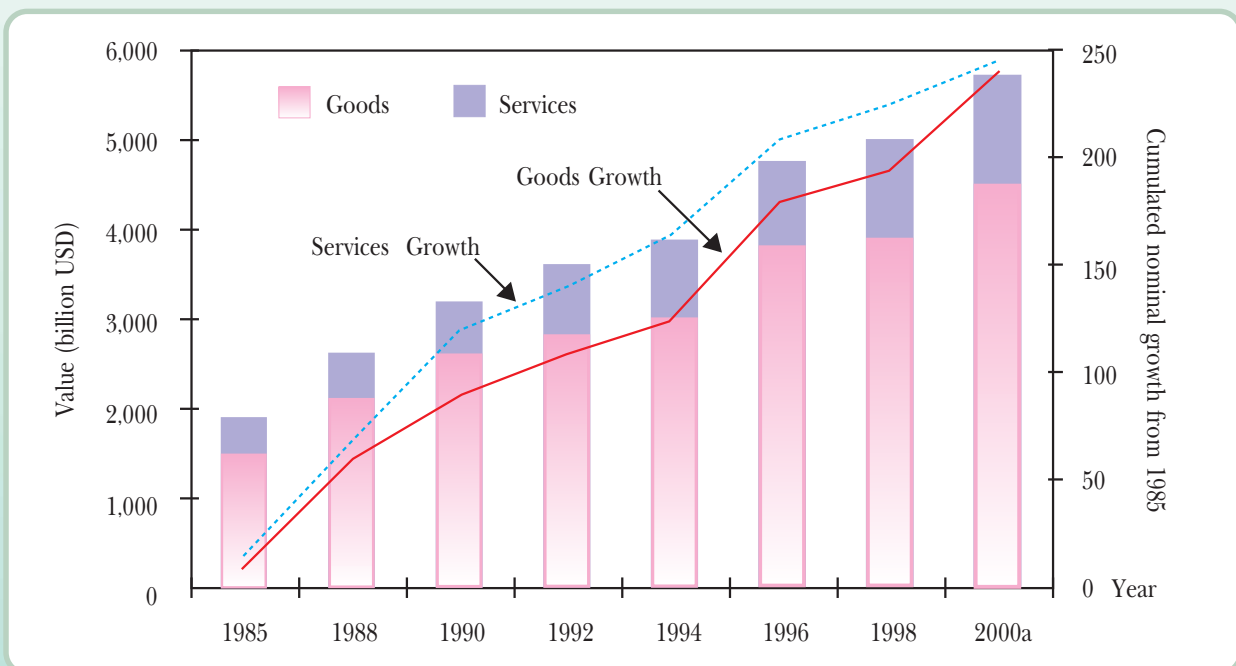
# Health Systems and International Trade

The implication of international trade on health have been recognized for centuries. For example the path of the Black Death (from Plaque) followed international trading routes in the 14th century. The first international Sanitary Conference in Paris in 1851 was also catalysed by the overruns of cholera in Europe since 1830.

International Health Organizations were created mainly based on the purposes of controlling infectious diseases spreaded through international trade/travel. These are, for example, Pan American Sanitary Bureau (1902), Health Organization of the League of Nations (1919), and finally the WHO (1948).

In the past few decades there was a **strong** and rapid trend toward globalization of trade. This was accomplished through several international trade agreements supported by globalization of world economy, scientific advance, and the creation of vast communication webs. The size of the international trade in 2000 was estimated at \$US 7 trillion. About 20% of this (\$US1,400 billion) are trade in services. Global size of health services sector is estimated at \$US 3,000 billion, mainly internal market, no definite figure for international trade, however. The figure for Thailand was around \$US 5 billion or 0.17 percent. The size of global pharmaceutical trade was around \$US 400 billion. Thailand shared around \$US 1 billion, or 0.25 percent. Twenty-five countries accounted for more than 80% of international trade (Figure 10.1).

**Figure 10.1** Growth of trade among OECD countries 1985-2000

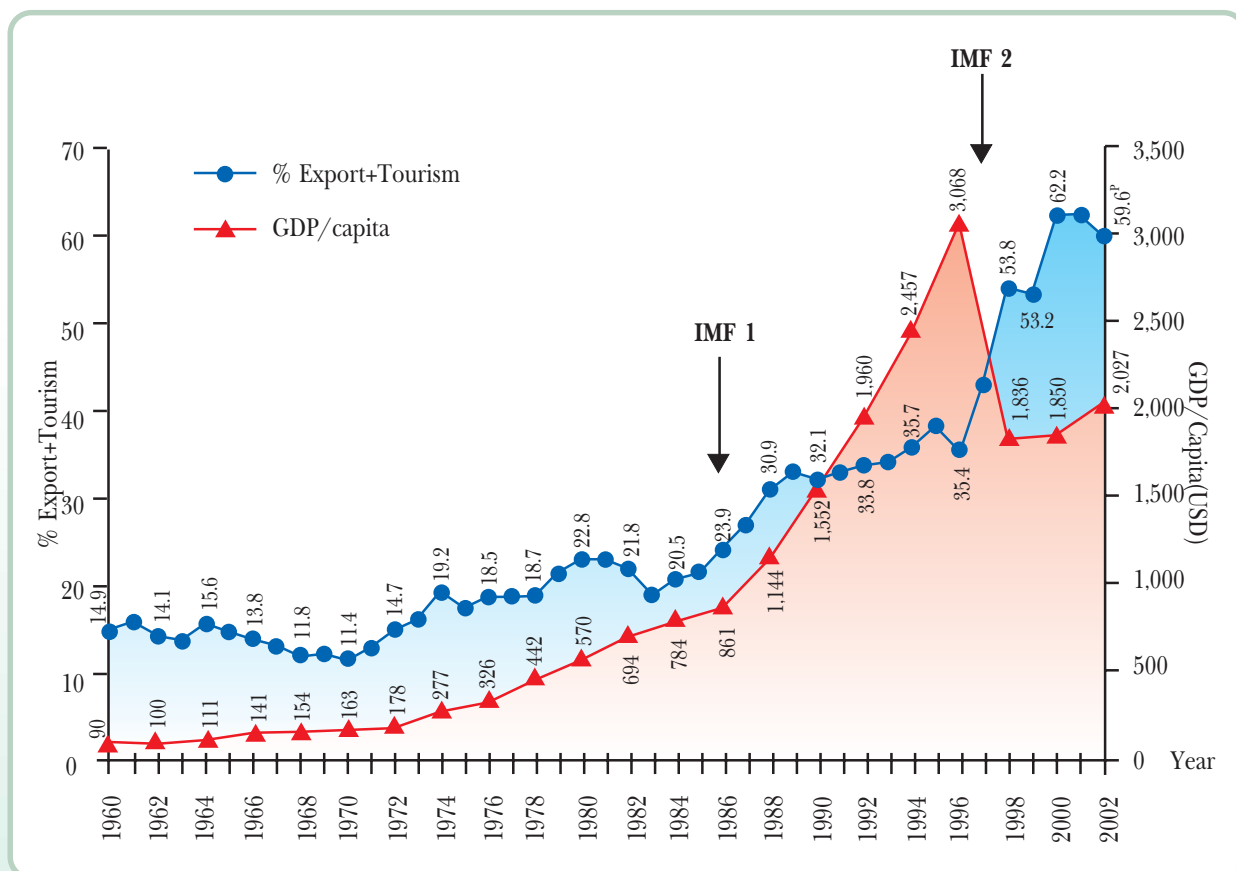


**Source:** OECD-Eurostat, OECD Statistics on International trade in services, 2001. IMF, Balance of Payments Statistics Yearbook, 2000.

**Note:** a 2000 OECD estimates

International trade is accounting for an increasing share of GDP in both developed and developing countries. For example, more than 60% of the Thai GDP in 2001 was contributed by international trade (Figure 10.2).

**Figure 10.2** Percent of Export and Tourism in the GDP, Thailand 1960-2002



**Source:** National Economic and Social Development Board.

**Note:** P = preliminary figure.

## 1. World Trade Organization (WTO)

### 1.1 Origin of WTO

The devastating protectionist policies of many countries in early 1930's, which led to the collapse of the world economy, was the impetus for 23 countries to sign a treaty, in 1947, establishing **GATT** (the General Agreement on Tariffs and Trade). The GATT's objective was to promote and regulate the liberalization of international trade through “**rounds**” of **trade negotiations**.

The eighth round of Multilateral Trade Negotiations, held in Uruguay in 1986 (known as Uruguay Round) and concluded in April 1994 by the signing of Marrakech Agreements, had led to the establishment of a new **permanent** international trade organization known as the **WTO** (the World Trade Organization).

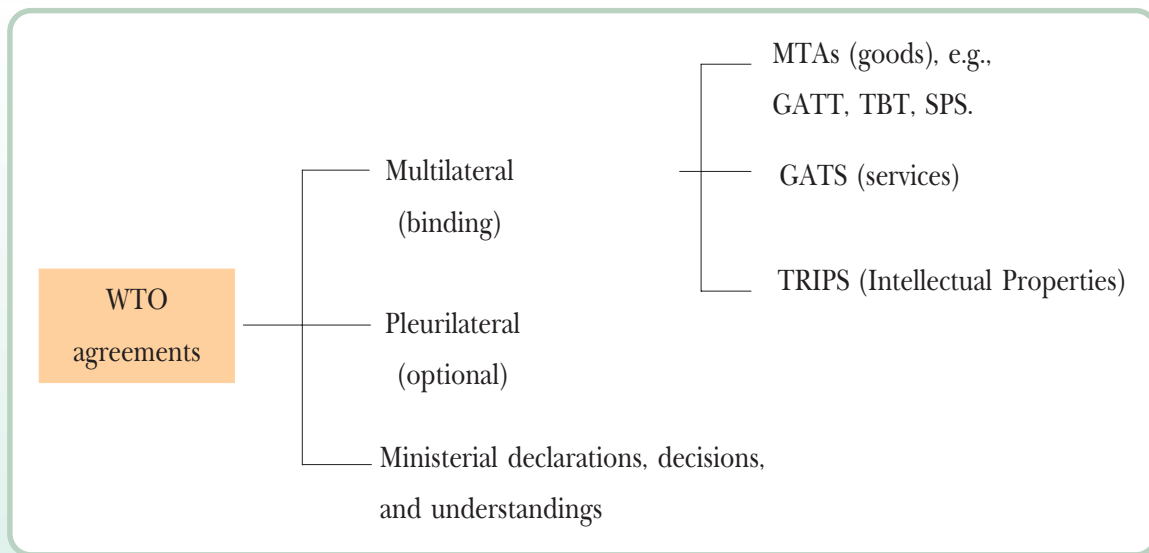
The first seven round of trade negotiations dealt mainly with the issue of tariff. In the 8<sup>th</sup> round, additional issues of intellectual properties and trade in services was also negotiated.

### 1.2 Teeth and Claws of WTO (Figure 10.3)

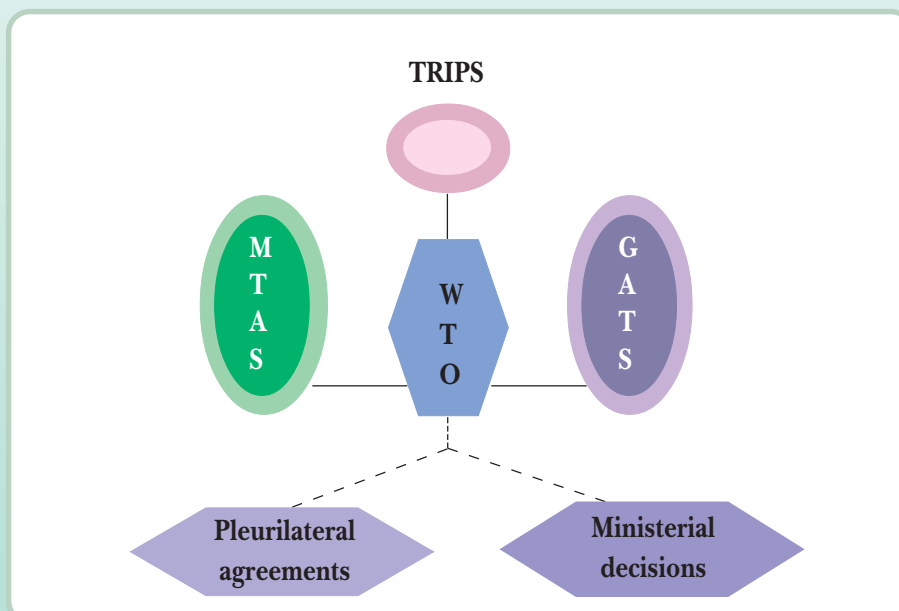
The instrument under WTO consists of multilateral agreements that become **binding** upon Member States when **they join WTO**, and pleurilateral agreements that are **optional**. The legal framework constituting the WTO has been compared to a tricycle (Figure 10.4):

“A driver (WTO), two large wheels (13 MTAs-Multilateral Agreements on Trade in Goods and GATS-General Agreement on Trade in Services) and a smaller one (TRIPS-Agreement on Trade Related Aspects of Intellectual Property Rights)”.

**Figure 10.3** Teeth and Claws of WTO



**Figure 10.4** WTO frameworks (Tricycles)



### 1.3 Functions, structures and members of WTO (Figure 10.5)

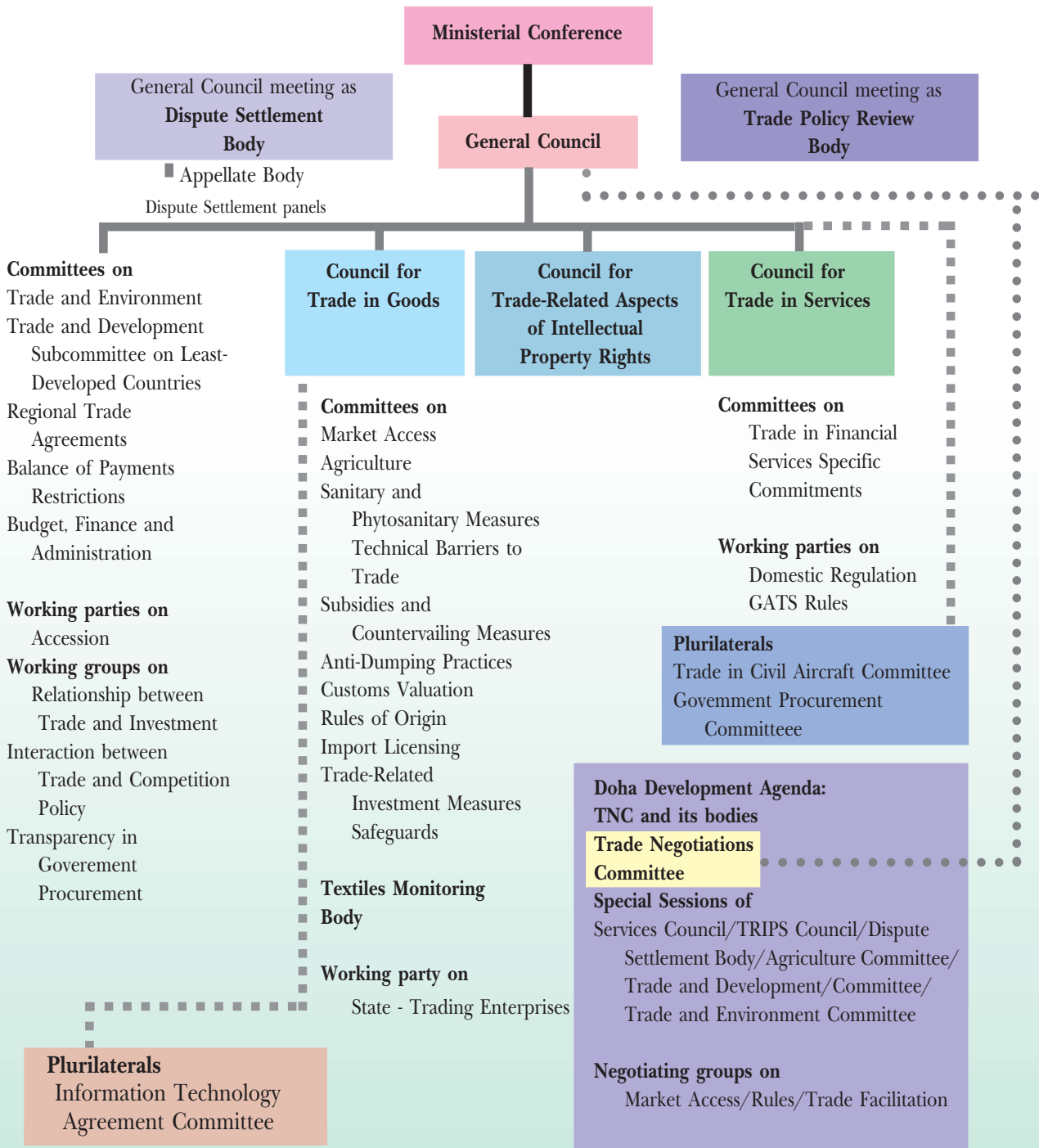
#### 1.3.1 Functions WTO has 5 main functions:

- (1) Administers and implements its trade instruments.
- (2) Conduct **multilateral trade negotiations**
- (3) Oversees national trade policies.
- (4) **Resolves trade disputes** among its members
- (5) Impose **trade sanctions**.

#### 1.3.2 Structures (Figure 10.5)

WTO's highest authority is the Ministerial Conference, which meets every two years. The day-to-day work of WTO falls upon the General Council and the Secretariat.

Figure 10.5 Structure of WTO



**Key**

- Reporting to General Council (or a subsidiary)
  - Reporting to Dispute Settlement Body
  - ■ ■ ■ Plurilateral committees inform the General Council or Goods Council of their activities, although these agreements are not signed by all WTO members
  - ● ● ● Trade Negotiations Committee reports to General Council
- The General Council also meets as the Trade Policy Review Body and Dispute Settlement Body

ที่มา: [www.wto.org](http://www.wto.org).

### 1.3.3 Members

As of December 2004, WTO has 148 members and 31 observers. Thailand is one of the founding members of WTO since its inception in 1995.

## 1.4 General principles of WTO

### 1.4.1 MFN (Most - Favoured Nation)

Members must accord all of the treatments to one member no less favourable than they accord to other members.

### 1.4.2 National treatment

Members must treat investors from other member countries no less favourable than their nationals.

### 1.4.3 Transparency

Trade related information must be made readily available to all.

### 1.4.4 Mutual Recognition

Mutual recognition of market authorization, degrees, curricula, and licenses.

### 1.4.5 Progressive liberalization and preferential treatment for developing countries

Trade liberalization should be gradually and progressively implemented. Possible negative implications to developing countries should be avoided.

### 1.4.6 Domestic regulation

Domestic regulations must be reformed to go along with international trade agreements.

## 1.5 WTO and public health

### 1.5.1 Protection of Health

Multilateral agreements under WTO usually contain provisions for **the protection of human health and safety**. For example Articles XX (b) under the General Exceptions section of the GATT allows “**each contracting party to set its human, animal or plant life or health standards**”. However, these standards must not represent an “**unjustifiable discrimination or a disguised restriction on international trade**”.

### 1.5.2 Health related WTO agreements

Many of the WTO agreements have health implications. For example, GATT liberalize the trade on alcohol and tobacco which may result in increase consumption and health risk. However, there are four WTO agreements, which have high direct health impact, i.e.,

- (1) MTAs (Trade in goods)
  - (1.1) TBT (Agreement on Technical Barriers to Trade)
  - (1.2) SPS (Agreement on Sanitary and Phyto-Sanitary Standard)
- (2) GATS (Trade in services)
- (3) TRIPS (Intellectual properties)



## 2. MTAs and Health-SPS and TBT

When GATT reduces the tariff barrier to international trade, non-tariff barriers became real concern. These are dealt with mainly under TBT and SPS.

The WTO Agreements on Sanitary and Phyto-sanitary Measures (SPS) was drawn up to ensure that countries apply measures to protect human and animal health (Sanitary measures) and plant health (phyto-sanitary measures) **based on the assessment of risk**, or on the other words, **based on science**. The SPS Agreement incorporate, therefore, safety aspects of foods in trade.

The Agreement on Technical Barriers to Trade (the TBT Agreement). It covers all technical requirements and standards (applied to all commodities), such as labeling, that are not covered by the SPS Agreement.

As a natural consequence, the SPS Agreement recognized the standards and related texts of the **Codex Alimentarius Commission** (WHO and FAO) as international points of reference.

Thailand is one of the world top food exporter. Thus the active involvement in the SPS negotiation and the CODEX mechanisms has been a high priority. This is a collaborative effort among several ministries, i.e., Ministry of Commerce, Ministry of Industry, Ministry of Agriculture and Cooperatives, and Ministry of Public Health. The involvement not only ensure the fair treatment for Thai products, but also improve the standard of food products for local consumption.

## 3. Liberalization of Trade in Health Services - GATS

Initially, many countries, especially the developing ones, were reluctant to include trade in services in the Uruguay Round Negotiations, the reason being that international trade in services is significantly different from that in goods. The latter involves trans-border transactions, while the former could call for the exercise of the right of establishment, which would have implications for development strategy, resource mobilization, social objective, etc.

Thus the principle put forward as the main objective of GATS was to ensure that **priority be given to developmental issues**, and that **national regulations remain supreme**. In effect, the **Agreement allows Member Countries to select their service sectors for opening to international competition in the light of their national development strategy**.

### 3.1 Modes of international trade in services

In contrast to trade in goods, which mainly deal with cross border trade, trade in services encompass 4 main modes (Figure 10.6).

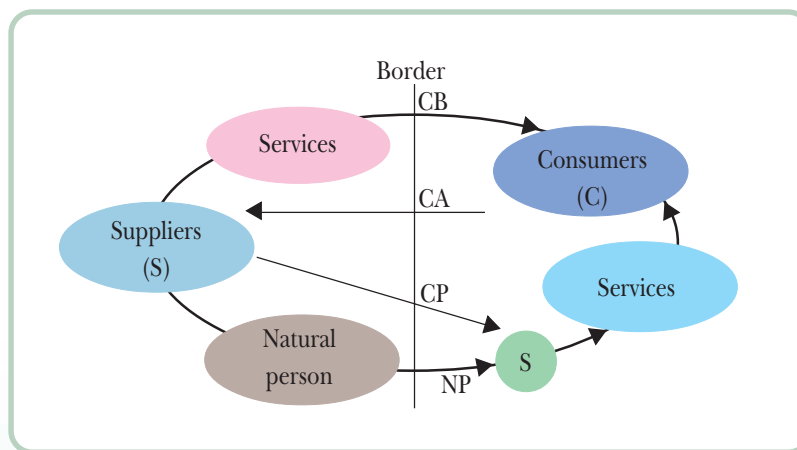
**3.1.1 Cross Border Trade (CB)**, e.g., Telemedicine, teleconference and teleeducation, subscription of journals and database on Internet.

**3.1.2 Consumption Abroad (CA)**, e.g., Travelling abroad to seek high technology or cheaper health services.

**3.1.3 Commercial Presence (CP)** i.e., Foreign investment in hospital operation, medical and dental services, and management of health care.

**3.1.4 Movement of Natural Person (NP)**, e.g., Emigration of doctors from developing to developed countries, and import of specialist from developed countries into the facilities invested by foreign capital in the developing countries.

**Figure 10.6** Mode of international trade in services



### 3.2 Services under GATS

Twelve services categories are included in GATS. At least five of which are directly related to health, i.e., Business, Education, Distribution, Finance, and Health service sectors. The professional services under Business services deal with recognition and movement of health professions. The Education services relate mainly to training and education of health professions. The distribution services relate to pharmaceutical distribution, i.e., drug stores. The Financial services include Health Insurance. The Health services include hospital services, medical and dental services, diagnostic services, and management of health services facilities.

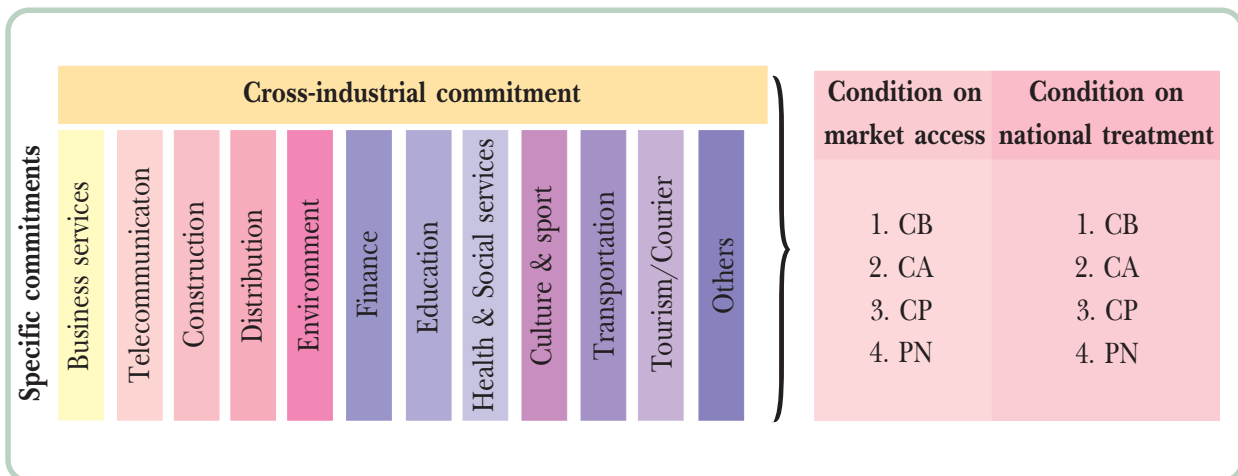
**3.3 Member commitments** (Figure 10.7): These are **voluntary** commitments proposed by each member on **conditions** for Market access and National treatment. Members may modify or withdraw any commitments in the schedule at any time after three years have elapsed and negotiations on compensation to affected countries.

**3.3.1 The General commitments (Cross-Industrial):** These voluntary commitment apply to every sector of trade in services.

**3.3.2 The Specific Commitment:** GATS Agreement allows Members to choose the service sectors and activities to which Members wish to apply the market access (called the “**market access commitments**”). Members can indicate it in the schedule of specific commitment and place conditions and limitations on it (called the “market access limitation”).

It was found that Thailand committed to GATS within its legal framework. This means that Thailand does not have to amend its legislation to comply to its commitment to GATS. However, it has to be prudent in extending the commitment to the full extent of its legal framework. This is because in case that future situation require reduction in the degree of trade liberalization, amendment of legal framework need prior negotiation with and compensation to member countries. Emergency safeguard measures (ESM) should be negotiated for, before expanding its GATS commitment.

**Figure 10.7** Member's commitments



### 3.4 Potential health implications

International trade in health services can generate financial resources, thus improving the infrastructure and upgrading technology capacity.

The Thai experiences showed that international trade in services may have negative impact on the equitable distribution of health personnel. The opening of financial market by establishing the Bangkok International Banking Facilities (BIBF) in 1993, had resulted in mushrooming of the urban private hospitals and internal brain drain of human resources (see Chapter 9).

The government is now negotiating the free trade Agreement with many countries. One of the issue is the expansion of health service market with Japan. It was estimated that if the same trend of expansion of international health service trade continues, there will be a requirement of 910-1372 medical doctors in 2015.

## 4. Protection of Intellectual Properties-TRIPS

### 4.1 Rationale and Scope of TRIPS

Since large industries such as computer software manufacturers, pharmaceutical companies, and agri-food enterprises depend on protection of intellectual property in order to ensure innovation, it was argued that the TRIPS Agreement was a crucial foundation for the global trading order.

This Agreement is annexed to the WTO Agreement. Its main aim is to strengthen and harmonize certain aspects of the protection of intellectual property at the global level. It covers both categories of intellectual property: **industrial property** (trademarks, patents, geographical denominations, industrial designs and models, and unpatented know-how), and **literary and artistic property** (copyright and neighbouring rights)

### 4.2 Main Requirements of TRIPS

4.2.1 The Agreement requires Members to grant **patent** for any invention, whether **product or process**, in all fields of technology for **20 years**, and without discrimination as to place of invention or origin of the product. They **may** also grant **patent for microorganisms or non-biological and microbiological**

**processes.** Member Countries are allowed to make certain exclusions, such as plants and animals, diagnostic, therapeutic and surgical methods for the treatment of humans and animals, and essentially biological processes for the protection of plants and animals. The Thai patent act has already included all these exclusions.

4.2.2 The Agreement makes provisions for the use of **patent without authorization of the patent holder**, with a number of conditions and limitations. These are included in the mechanism of parallel import, government use and compulsory licensing.

4.2.3 In the dispute on the infringement of process patent, the defendant should take **responsibility** for proving that the process is different from the patented one.

4.2.4 Members are given **transitional period** for implementation of the Agreement, one year for industrialized countries, five or ten years for developing countries, and eleven years (extendable) for least developed countries. However, Members must provide exclusive marketing rights for five years to the applicant for the pharmaceutical product patent even before the expiry of the transitional period.

Due to trade pressures from major trading countries, Thailand amended its patent act, which comply with TRIPs since 1992, eight years before the TRIPs dead line.

### 4.3 Potential health implications

The impact of the TRIPs Agreement on a particular country will depend on the market structure, the situation of the local pharmaceutical industry, legal environment, its own national drug policy and other factors which make every country a special case. However, different views still remain on the impact of the Agreement:

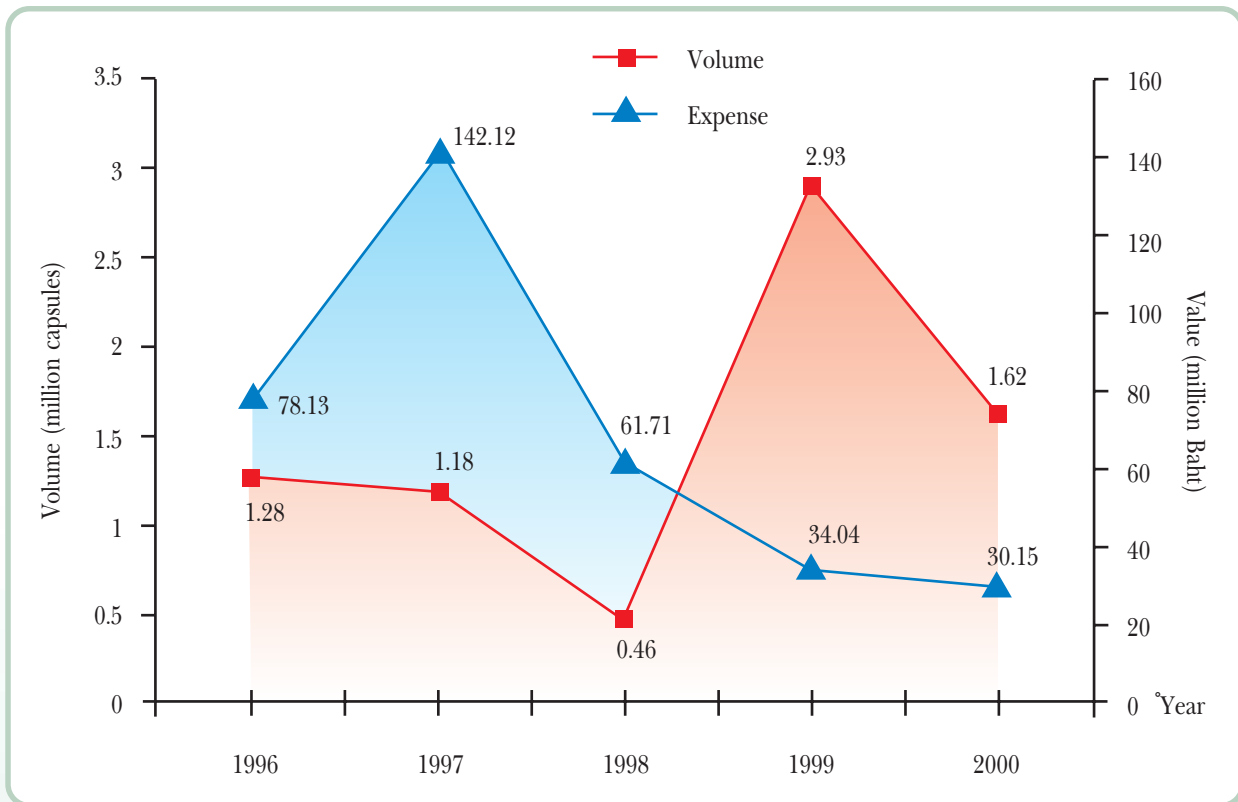
**4.3.1 Innovation:** Patent protection definitely promotes innovations in drugs and medical technologies. However, this may not be true for diseases that are predominantly found in developing countries.

**4.3.2 Cost escalation:** Many studies on the subject suggest that prices of patented drugs and the amount of patent royalties will increase. There could be real concentration of drug production in industrialized countries rather than transferring technology or foreign investment directly to developing countries. The new WTO patent system will not increase research and development in developing countries. Evidence in Thailand does not prove these implications. The price of Fluconazole, an anti-fungal drug, reduced ten times after expiry of market exclusivity (Figure 10.8).

**4.3.3 Transfer of Technology:** Some scholars argue that protection of pharmaceuticals will lead to an increase in the flow of technology transfer. There will be an increase in the magnitude of direct foreign investments, which will be to the benefit of the developing countries. The increase in resources devoted to research and development by local pharmaceutical companies in developing countries will lead to the development of new drugs suited to their own situations as well as better quality drug products and to end the “brain-drain” in developing countries. Research in Thailand found no increase in technology transfer after amendment of patent act.

**4.3.4 Local Production:** Patent protection may have both negative impact on local generic drug industry. At the same time it may also promote more local patented products.

**Figure 10.8** Expense and Volume of Fluconazole in Thailand, 1996-2000



Source: Drug Control Division, FDA, MoPH.

#### 4.4 Expansion of Intellectual Properties Protection under Bilateral Trade

##### Agreements

The bilateral Free Trade Agreements that the government are negotiating with some developed countries especially the USA and Japan, is likely to result in expansion of Intellectual Properties Protection, both patents and copyrights. For example, extension of patent life beyond 20 years, more conditions to limit use of compulsory licensing, and data exclusivity to delay generic drug registration. If these FTAs are signed with the above-mentioned conditions, it will affect the drug prices and accessibility to essential drugs.

## 5. Conclusion

The advent of the WTO has brought with it a new concept of international trade law, framed according to universal principles. The full integration of environmental and social matters represents the next generation of trade agreements. This inevitable shift in trade thinking is “already knocking at the door”. Strengthening provisions protecting public health in global trade agreements should not be used indiscriminately, for unadulterated trade protectionism. The public health community needs to understand the health ramifications of global trade agreements, and must concentrate on getting its own facts correct, so that public health is not “naively” used for other political ends, for example to justify unwarranted economic

protectionism. In areas such as tobacco and other hazardous commodities, food safety, liberalization of trade in services, and patent protection of pharmaceuticals the health sector has a clear role to play. However, before it advocates for certain policies the health fraternity needs to get its own house in order. Healthy-trade policies, for example a global war on tobacco, which are guaranteed to make an impact on the future burden of disease, are a means of reaching a more sustainable form of globalization.

In this regard, it is the responsibility of the health sector to ensure that its arguments are technically sound when advocating for protection of public health. Excessive measures, which impede trade unnecessarily should not be implemented. Health and trade policies should be aligned at global and national levels. The health sector should be adequately informed about the implications of global trade agreements. Finally the globalization and rapid transformation of the world's trade and financial system should not be seen as an end in itself, but rather as an economic tool which should be adapted so that marginalised populations and broader social policies are not neglected.

Although trade liberalization and economic globalization are often asserted as "inevitable and desirable", they present formidable challenges and uncertainties in the promotion of 'health' in many countries.

Coordinated and determined advocacy by health workers at national, regional and global levels could and should play a much greater role in mobilizing public and political support in this respect.

Several immediate challenges lie ahead of them:

- (1) To deal with national reform process now taking place at the country level to conform to WTO agreements.
- (2) Be ready for new round of trade negotiations, bilateral and multilateral.
- (3) To rapidly develop their institutional capacity on international health.
- (4) To develop strategies to alleviate any untowards health imports from international trade.

It is recommended that a comprehensive approach is required to strengthen the national capacity in order to benefit from the international trade. A conceptual framework was proposed (Figure 10.9). In Thailand, multi-sectoral mechanism are created for the development of Thai position in several international trade negotiation (Figure 10.10).

Figure 10.9 Conceptual framework for capacity strengthening

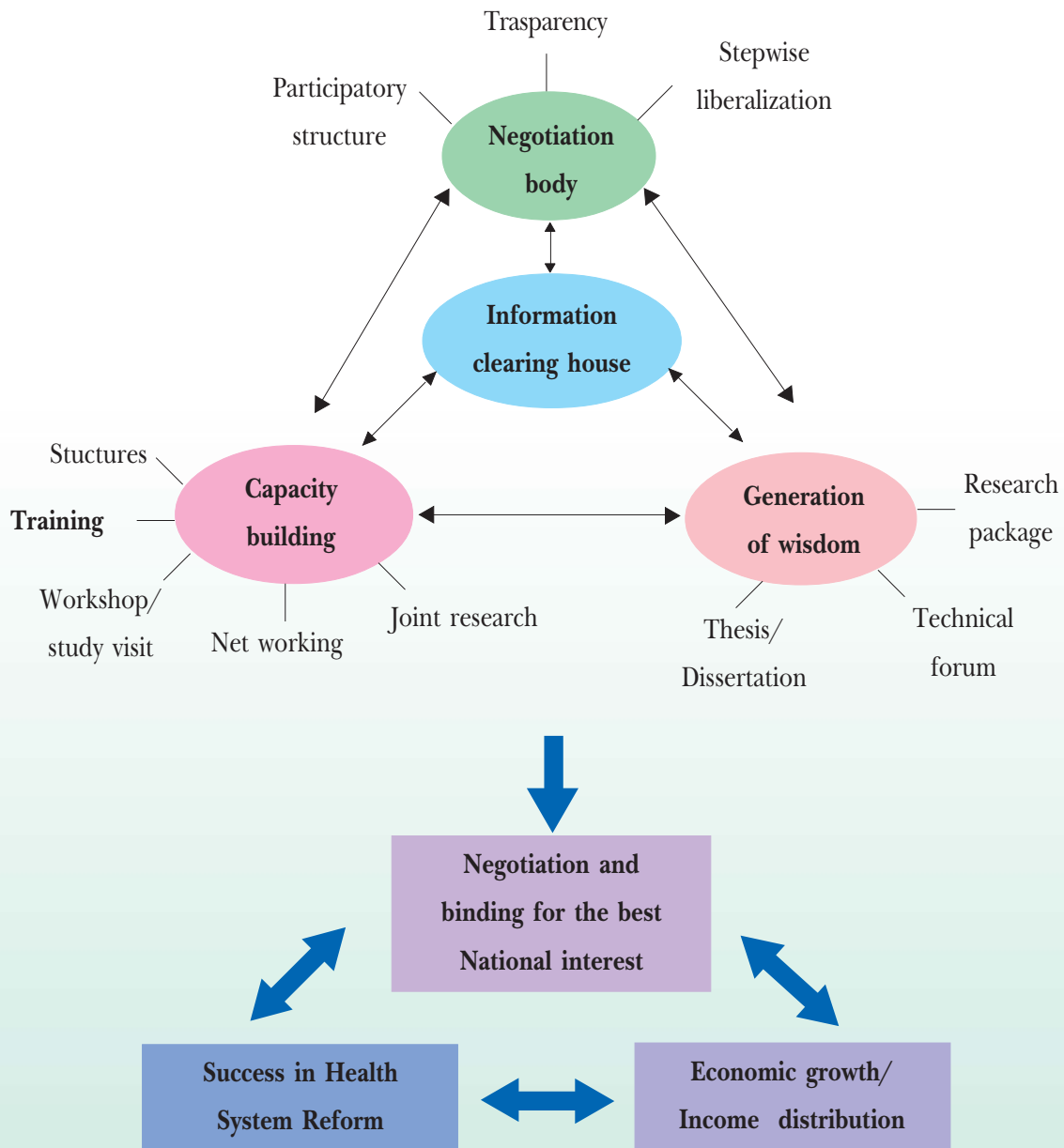
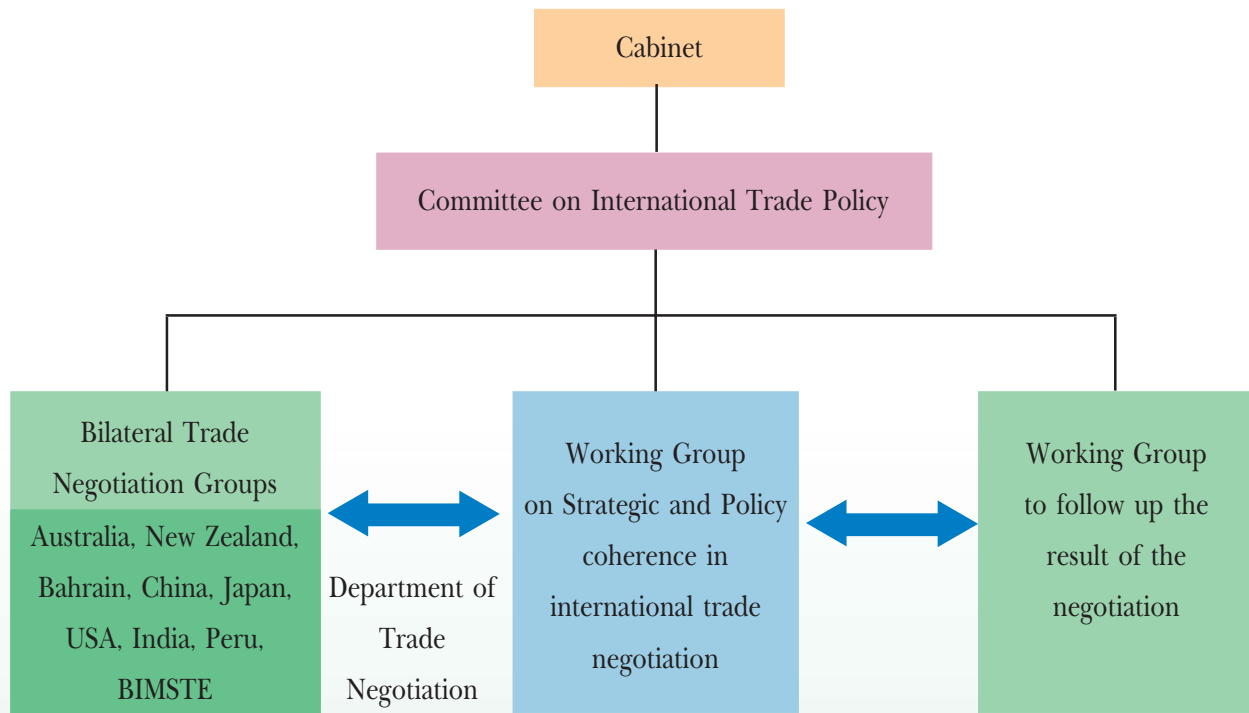




Figure 10.10 Trade negotiation structures - Thailand



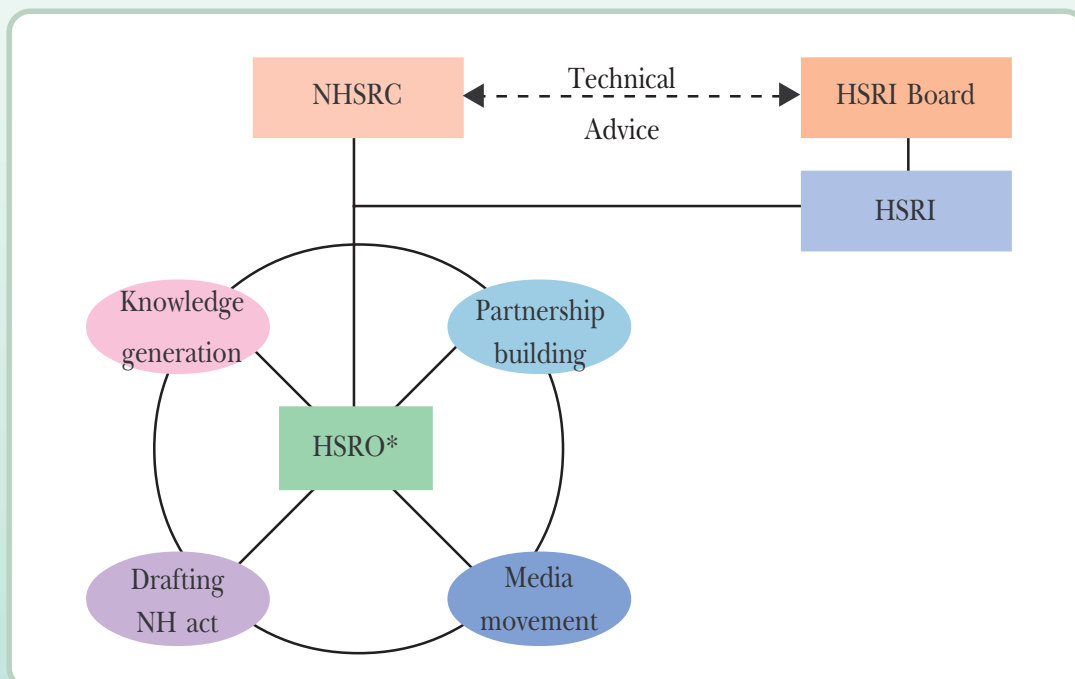
## CHAPTER 11

# Health Systems Reform and Decentralization

### 1. Overall movement of Health Systems Reform

The cabinet approved a national agenda for Health Systems Reform on May 9<sup>th</sup>, 2000. The Prime Minister Office's Regulation, entrusted the Health Systems Research Institute (HSRI) to establish a Health Systems Reform Office (HSRO), as the secretariat office for National Health System Reform Committee (NHSRC) under the chairmanship of the Prime Minister. The Committee's aims include drafting a National Health Bill to guide national health systems development, mobilizing the civil society and interest groups to re-orient their health needs and responsibility, and proposing essential health infrastructure to sustain the new health systems (Figure 11.1).

**Figure 11.1** Mechanism for health systems reform



\* HSRO is set up under HSRI's regulation

NHSRC = National Health System Reform Committee

HSRI = Health Systems Research Institute

HSRO = Health Systems Reform Office

## 1.1 Philosophy of the health systems

1.1.1 **Holistic approach:** Health should be defined as a dynamic state of complete physical, mental, social and spiritual well - being.

1.1.2 **Participatory:** To comply with the new constitution, all stakeholders must be regarded as partners in executing the health systems of the country.

1.1.3 **Healthy Public Policy:** Public policy promulgated in the country should be conducive to health development.

1.1.4 **Equity:** There should be an equitable distribution of health and health care services as well as fairness of financial contribution.

1.1.5 **Efficiency:** To achieve highest outcome from limited resources.

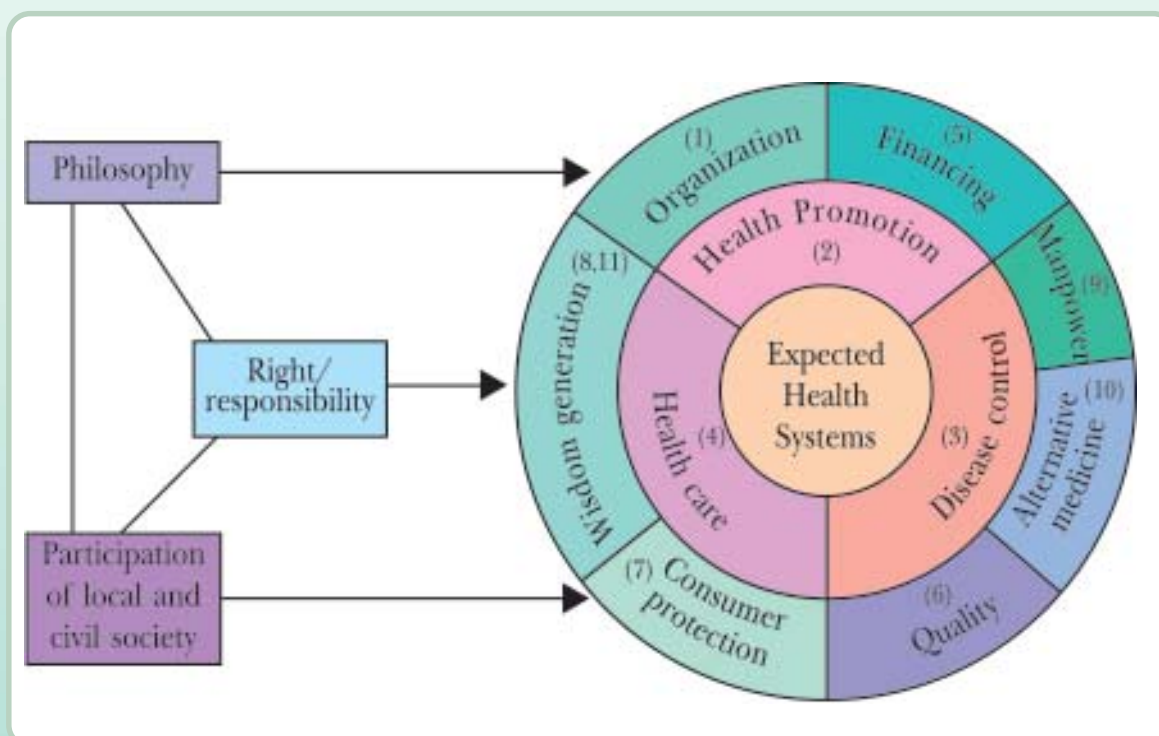
1.1.6 **Quality:** Quality accreditation should be undertaken by the state so that unqualified health care will not be disguised by distorted advertisement.

1.1.7 **Consumer empowerment:** Consumers should be empowered to be capable of safeguarding themselves from unjust propaganda and delivery of health services and products.

1.1.8 **Self-reliant:** To strengthen self care capacity and capacity on Research and Development of local wisdom.

## 1.2 Issues for health systems reform (Figure 11.2)

Figure 11.2 Main issues for Health Systems Reform.



**1.2.1 Mechanism for Health Systems Governance:** A national health committee will be set up to coordinate all the national health policies, which may influence people's health. This multi-stakeholder committee will be chaired by the Prime Minister.

**1.2.2 Health promotion:** Create mechanisms and environment which can proactively build up a healthy life style for people.

**1.2.3 Disease control and prevention:** Emerging diseases, which include infectious diseases, non-communicable diseases, injuries, and human toxic substances, should be effectively monitored under the national surveillance system. The national authority to provide technical support to the local government as well as network with other countries in disease control and prevention should be created.

**1.2.4 Health care:** The aim is to achieve efficient, equitable health care systems, which is holistically responsive to the demand in normal and crisis situation.

**1.2.5 Health care finance:** Aiming at a financial system, which guarantees universal access to essential health care without economic barriers.

**1.2.6 Quality improvement:** A new mechanism to support quality development and accreditation of all level of health facilities will be established.

**1.2.7 Consumer protection:** The system to safeguard the consumers' rights, investigate any violation, as well as compensate the litigation should be created.

**1.2.8 Technology assessment:** A central institute for technology assessment will be recommended to create wisdom for optimization of technology use.

**1.2.9 Human Resources for Health development:** A national mechanism would be established to take on the responsibility of planning and regulating the production and service of human resources for health.

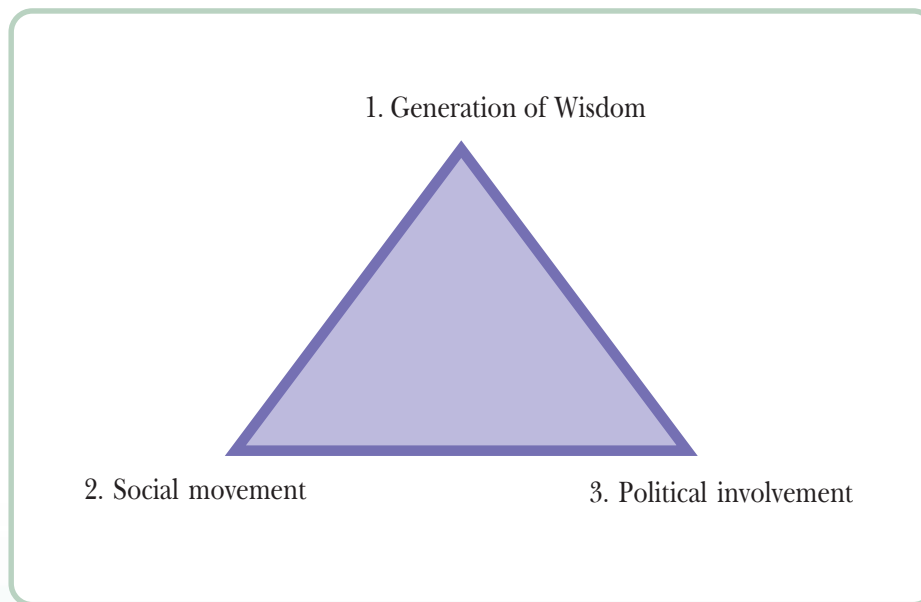
**1.2.10 Thai Traditional and Alternative Medicine:** Mechanisms to support and regulate the Thai traditional and alternative health services would be addressed.

**1.2.11 Health Research Systems:** A new structure for health research systems should be created to manage the national essential research agenda.

### **1.3 Strategy for Reform**

Successful and sustainable reform requires appropriate wisdom, social and political support. Strengthening of these three essential elements forms the national strategy for social reform. The so-called strategy of "Triangle that Moves the Mountain" (Figure 11.3).

**Figure 11.3** Triangle that Moves the Mountain



## 1.4 Progress

### 1.4.1 Strengthen health community

(1) Convening health assembly at district, provincial and national level since 2002.

(2) Support activities of health communities nationwide and collections of health

building experiences for exchanging of wisdom.

**1.4.2 Knowledge generation:** Review of literatures to summarize appropriate wisdom in supporting civil society movements and drafting of National Health Bill.

**1.4.3 Draft of National Health Bill:** The cabinet approved the draft National Health Bill and the Judiciary Board has finalized the detail revision. The Bill is ready to be submitted to the Parliament in early 2005.

## 2. Public Hospital Reform

### 2.1 Pressure for Reform of Public Hospitals

Management in public hospitals is highly centralized. The staffing pattern, staff payment and many other manpower management practices are all determined by the central government agencies involving the Bureau of the Budget, the Office of Civil Service Commission, the General Comptroller Department and the MOPH. Although hospitals can generate its own revenue through user charges, such revenue can only be used for manpower expenditures through centrally determined rates, rules and regulations. Budgetary allocation to hospitals is determined by the central ministry through line-item budgets. More than 70 percent of this budget are for staff salaries and cannot be used for other purposes. The operating budget has to be used up at the end of the fiscal year or surrendered to the government. Hospital performance assessment is hardly implemented except through routine supervision and the reporting system. Accountability is low and responsiveness to the patients is inadequate.

There are a few questions: Should Thailand create a new type of public hospital that will encourage efficient management and responsiveness to the patients? And should the country create private management under public ownership?

## 2.2 The Move towards Public Hospital Reform

With the economic crisis in 1997, the Thai government was faced with the unavoidable needs for reform at all fronts. The Asian Development Bank (ADB) offered a social sector reform loan (SSRL) to the Thai government so that the government could reform public institutions and policies in three major social sectors - education, labour and health. Conditions for the health sector included, among others, the need to **autonomize public hospitals**, focussing mainly on **those in the MoPH**. The loan required that at least one public hospital is autonomized by the beginning of 1999.

## 2.3 The Concept and the Strategy for Public Hospital Reform

**2.3.1 The possible spectrum for reform.** The technical team of the ADB proposed to avoid the terms that may result in misinterpretation that the reformed public hospitals are private companies whose aims are for profit. Finally the term autonomous public hospital was adopted. Many of the key characteristics of the autonomous public hospitals included the need for the hospitals to carry out public functions, the possibility to have flexible management practices by setting its own rules and regulations with regards to manpower and financial resources management.

**2.3.2 The organizational forms.** Because of the Act of Public Organizations passed in 1999, it is easier to establish the reformed public hospitals as public organizations and thus achieve many of the desirable characteristics described earlier. Under such provisions, a hospital board would be established to represent the state in overseeing the management of each new public hospital.

**2.3.3 Ensuring better responsiveness to the local communities.** It was quite clear that many of the advocates for public hospital reform were trying to identify the model where the central control by the Ministry of Public Health would be effectively replaced by the community where the hospitals are located.

This has been incorporated into the structure for hospital governance, i.e. the hospital boards. Representatives from communities will form a crucial part of the governing board of the hospital.

**2.3.4 Sources of finance.** While the reformed public hospitals can still impose user charges, the aim will not be for the hospitals to be totally self-financed. The government will be required to provide budgetary support to the hospitals. This would better reflect the obligation of the hospitals to carry out the government's policies and avoid the conventional budgetary practices. They will have to be more performance-based with clearly established accountability. The actual amount of budgetary support from the government would be determined and worked out on a one on one basis rather than through a uniform formula.

**2.3.5 Central control and coordination for the autonomous hospitals.** Conceptually the aim of establishing autonomous public hospitals is not to create a highly fragmented health system with each hospital minding its own business. Consequently it was suggested that the government establish an effective

mechanism that will carry out active roles in coordinating these public hospitals. The minimal control and coordinating function is to ensure proper expansion of the hospital infrastructure.

## **2.4 The Chosen Model and Its Implication**

Initially the Ministry of Public Health planned to have at least seven hospitals piloting the reform. This would cover a wide range of hospital sizes in various parts of the country. However due to skepticism of the public about the rationale for reform and the lack of concerted support from the political side and resistance from the health personnel, only one 120-bed community hospital has been made into an autonomous public hospital (Banphao Hospital, Samut Sakorn Province). Even though only one small community hospital has become autonomous, there are clear evidences that the present government system is poorly equipped to deal with the reform needed. The budgetary aspect posed immediate concerns. The conventional budgeting requirement needed to be changed but those involved were unprepared if not unwilling to change. The government could not successfully convince the public and the health personnel that the motive for reform is for better efficiency. There were actually conflicting views from government officials about the future of the autonomous hospital. The most crucial issue is the degree to which it is expected to be self-financed and its implication on the cost of services to the general public. Without clear directions and policies about health care financing for the population, it is not easy to convince the public that the new autonomous public status will not lead to increased user charges.

## **3. Decentralization and Devolution in the Health Sector**

### **3.1 The legislative background**

The Parliament passed the Act on Operationalization of Decentralization in 1999, as an organic law of the new constitution adopted in October 1997. It mandated that all ministries involved, including the MOPH, draw up detailed plans to devolve their functions, facilities and personnel to the local administration, mainly the tambon administrative organization (TAO) and the municipalities within the next 10 years (2010). The more important component of the legislation is the goal to increase the proportion of revenue of the local administration from the level of nine percent of total public revenue to 20 percent in 2001 and to 35 percent in 2006. Such redistribution would enable the local administration to take up active roles in providing various social services under their responsibility as mandated by the act. There are six major groups of functions to be carried out by the local administration. They include the building of essential infrastructure, the improvement of the quality of life (health services and education are the major two among this group), and social and community management, planning and local investment and tourism, environmental, civil, natural resources management, culture and local wisdom. The government plans to increase the local revenue by allowing them to collect more tax locally and also by allowing them to retain a larger portion of the tax collected to be used locally. Such an arrangement will reduce the revenue at the central level and will alter the roles and functions of the central ministries. This will then correspond with the needs to devolve facilities and manpower to the local governments.



## **3.2 The Debates about Decentralization and Health**

In order to meet the goal of decentralizing, the MoPH can simply transfer the various health services facilities and manpower as well as available budget to the local administration. This will result in shifting about 80 percent of the annual budget of the MoPH and around 90 percent of its staff to the local administration units.

### **3.2.1 The Concern over Fragmentation of Services**

The two basic units of local administration, the TAO and the municipalities, cover a limited geographical area with slightly different population sizes. The basic criteria for differentiating between the two are historical. Municipalities are those local administrative units established before the introduction of the TAO. They were present only in those selected locations with more developed economy. The TAO was introduced only in 1995 to establish local administration units all over the country. Both are smaller in size than a district. Both TAO and municipalities will generate more revenue to independently carry out their designated social functions without the need to coordinate with each other. Moreover health centers, community hospitals, general and regional hospitals are expected to coordinate closely for effective patient referral. Operated independently under separate local administration, the chain of patient referral will become even more fragmented.

Putting different health facilities under separate administrations will not pose problems in terms of patient referral if the financial mechanism is efficient. In the absence of such mechanism, the alternative is to put various levels of health facilities under the same administration. However the existing local administration is too small to take care of multiple level health facilities. Hence there is a need to create a larger local administrative unit for health by combining various local administrations in nearby localities to create a local area health board (AHB).

### **3.2.2 Concern over Good Governance**

Most local administrations, especially the TAO, were recently established. Most local administrations deal with small local development projects and they are oriented in creating more infrastructures such as local roads and sources of water supply. However they have not been trained to carry out maintenance functions let alone carry out continuous service provision. Last but not least, corruption and lack of transparency plague local politics. These were the major arguments among government officers who are against the transfer to local administration.

In the health sector, with the introduction of the area health board (AHB) it was also proposed that a multi-party governance be created within the area health board. Rather than a mere combination of various local administration in the nearby geographical area, the area health board will consist of representatives from the MoPH and respected persons who have experience in health and management. This will help to bring more expertise in planning and decision making and help to build up transparency and confidence in the local health administration. It will also help to guarantee that local civic groups or communities will be better incorporated in overseeing or contributing to the local health development efforts rather than leaving them exclusively to the politically inclined local administration.

### **3.2.3 Concern over Efficiency**

The local administration would continue to manage the transferred facilities in the conventional command and control manner, imposing various rules and regulations that will not allow enough flexibility in the use of available resources for service provision. The transformation of public hospitals into autonomous hospitals and the introduction of performance-based budgeting system are the two initiatives towards improving efficiency within public facilities. This can be supported by networking of all health facilities under the supervision of the AHB.

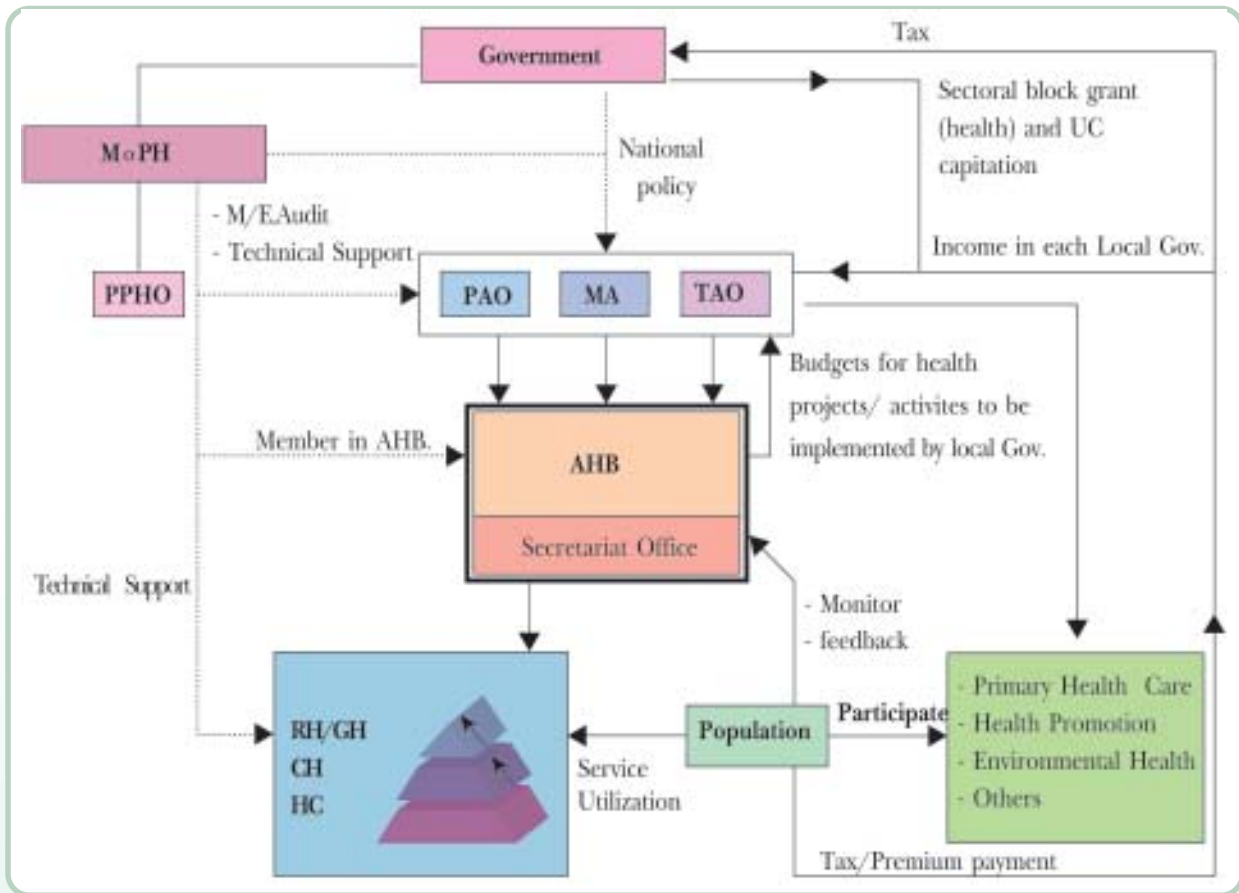
### **3.2.4 Concern over Future Employment Status and Conditions**

Like all changes, the call for transfer of personnel to the local administration created panic and a sense of instability among the health personnel. As civil servants they were guaranteed their life long employment with pension as well as many other welfare and benefits. The concern over the lack of transparency of the local administration further aggravated the issue for fear of being unjustly discharged from services. Moreover the present civil service system guarantees the possibility of transfer to any province throughout the country. With the new system it is likely that any health personnel working at a local administration will have less possibility of transferring to another province or local administration.

## **3.3 The Proposed Aggregated Model and its Implication on the Future Health Care Financing System**

It was proposed to establish a new local health administration, the area health board (AHB). The AHB will be responsible for health development activities in the local administration units involved. It was proposed that a number of nearby local administration be combined to form one AHB. The size of an AHB could be one district through the aggregation of local administration units within the boundary of a district or it could be larger than one district through a combination of a number of local administration units from a few districts. The main reason is to allow the economy of scale as well as the possibility of having a combination of health facilities of various levels within one local administration, thus allowing better referral and sharing of service responsibility among various levels of health providers (Figure 11.4).

**Figure 11.4** The Proposed New Decentralized Health System



- |                                       |  |
|---------------------------------------|--|
| PHO = Provincial Public Health Office | PAO = Provincial Administrative Organization |
| MA = Municipalities                   | TAO = Tambon Administrative Organization     |
| AHB = Area Health Board               | RH/GH = Regional/General Hospital            |
| CH = Community Hospital               | HC = Health Centres                          |

**Source:** Public Sector Reform and the future development of health insurance in Thailand.

The AHB will consist of a governing board and a secretariat office. Board membership will consist mainly of representatives from the concerned local administration units. There are representatives from MoPH. There are also members appointed from among the civic groups and those with expertise and experiences in health and planning and management. Such a unit will need to have legal status in order to make decisions on behalf of the local administration concerned.

The second important feature of the new decentralized health system is the combination of health facilities at various levels within the same AHB to form a single unit of service providers. Such health services facilities aggregation will require the new type of management structure and should not follow the present hierarchy of command within the MoPH. In this case the district hospitals and health centers within the same aggregation should have a role in the overall planning and management of the new organization. Thus it allows the possibility of sharing resources to achieve the set objectives while allowing day to day decisions to be made closest to where the action is.

The third feature is the allocation of a sectoral block grant from the central ministry to the AHB. Despite the increase in local revenue of up to 35 percent of total public revenue by the year 2006, it is **unreasonable to expect all budgets for health to be absorbed by the revenue generated locally**. It is therefore important for the central government to create a health sectoral block grant, which will be a mix of the central government block grant with a matching grant from AHB. The capitation budget of the Universal Coverage of Health Insurance can also be managed by the AHB.

The fourth feature is the relationship between the AHB and the service facilities. The service aggregation should not be required to follow all the rules and regulations of the local administration. They should be allocated financial resources based on the expected results and performances. They should then be entrusted to make their own decisions with regards to human resources requirement and management.

### 3.4 Comparison of the Alternative Models for Decentralization

The two extreme models of decentralization can be compared (Table 11.1).

**Table 11.1** Comparing the two models using certain criteria

	Direct Transfer Mode 1	Network Model (AHB) 2
1. Equity	Low	High
2. Efficiency	Low	High
3. Service referral	Poor	Better
4. Good governance	Questionable	Possibly better
5. Direct control by LA	High	Medium
6. Responsiveness	High	Medium
7. Resistance	High	Medium
8. Smooth transition	Low	Medium

**3.4.1 Equity.** It is likely that the direct transfer of health facilities will lead to a poorly coordinated model with difficulties of shifting needed resources to the poorer areas. The network model will allow better possibility of resources reallocation to achieve more equity.

**3.4.2 Efficiency.** The network model creates a larger pool of resources, especially human resources, which result in better economy of scale.

**3.4.3 Service referral.** The direct transfer model will create barriers between various levels of health facilities due to a sense of different ownership. The network model proposed to tackle this by creating a new aggregated service provider unit that combines all levels of health facilities under one management.

**3.4.4 Good governance.** The joint management body, under the network model, may help to bring better governance. The local administrations will gradually develop their skill with the support of the central MoPH and the local civil society.

**3.4.5 Control by and responsive to local administration.** The direct transfer model will allow each local administration unit a better control over the health facilities that presumably will lead to better response to local needs. The network model also allows some control by the local administration, but not as much as the direct transfer model.

**3.4.6 Resistance from health personnel.** Direct transfer to the local administration created the highest resistance because of many skepticisms about the lack of transparency and the unsettled administration system. The network model may slightly improve this with the promise to give autonomy to the service providing units.

**3.4.7 Transition.** The direct system will likely to hold back the existing service due to worries among health personnel while the network model will have participation from personnel in Provincial Health Office who have worked for a long period of time. This will facilitate another transition.

### **3.5 Health Financing within the New Decentralized System**

There are two major sources of funds for the AHB within the proposed decentralized health system, the centrally allocated sectoral block grant and the locally allocated budget. It was expected that the two sources combined should not be lower than the level spent by the central government within each locality. The funds available could be allocated to various groups working to improve the health of the people in the locality. It was proposed that a certain amount of budget be allocated to each local administration unit to carry out projects or activities that could be implemented locally to improve people's health. The remaining amount will then be allocated to the network health facilities to provide services based on the agreed results or outputs.

With the movement towards universal coverage, the AHB can also serve as a decentralized mechanism to implement the new scheme. The role of the AHB will vary depending on the design of the new scheme. The minimal role of the AHB is to ensure the collection of assessed contribution of various population groups based on the formula used. Part of the contribution may be kept and used by the AHB to ensure access to health services for each population within the locality. The extent of funds to be expended by the AHB will depend on the payment methods set by the central authority. The AHB may have to decide how many different packages will be made available to the population within each area and then collect the added contribution according to the assessed contribution determined by the central authority.

## **4. Implementing the Decentralization**

### **4.1 The Needs for Research and Development**

With the limited time frame before the detail operation plan is finalized and approved, one crucial strategy is to place the first phase of the operational plan in the period of intensive study on decentralization. During the period only a selected number of provinces is including the local administration units will be reorganizing and developing various aspects of the new decentralized health system. Many crucial issues will need to be addressed through research and development activities. Some of the more detailed issues include:

**4.1.1 The area health board (AHB):** There is a real need to study its mission, composition, legal status, method of work and status of personal.

**4.1.2 Health service facilities:** There is a need to study the status the facilities and their personnel, the financing mechanism, the coordination among facilities within network, the comprehensive care, and the conditions for final transfer to the local administration.

**4.1.3 The budget and financial aspect:** There is a need to study the appropriate proportion of various source of budget, accounting and information system for efficiency and equity of resources used.

**4.1.4 The new provincial and district health offices:** What should the limits of their new roles be in order to ensure equity, efficiency and quality? What are the steps toward new roles and the requirement for capacity building?

## **4.2 The Need for Capacity Building**

### **4.2.1 The local administration units (including the AHB's)**

The primary target for development is the local administration unit. Although municipalities have existed for more than five decades, they are still relatively inexperienced with regards to health development. Only a few municipalities have their own health service facilities and have been actively planning and allocating budget for health. Almost all Tambon Administration Offices have no experiences with health development activities of any kind. Thus, there is a need to strengthen capacity of the local administrations in the areas of priority setting, planning, budgeting, and resource allocation. They also need the capacity for setting their output and outcome as well as monitoring and evaluation.

### **4.2.2 The Service Providers network**

The service providers in the new decentralized health system are expected to work in a multi-level network with a relatively larger size of organization and the new setting for joint decision making within the organization. Another aspect that will be required from the service providers is the ability to be more responsive to the needs of the local communities and to carry out a mix of health services aimed at health promotion, diseases prevention and curative services.

### **4.2.3 The provincial and district health officers**

At present the two offices are mainly involved in budget allocation and logistics supports to the various providers. In the new decentralized system these functions are going to be taken over by the AHB and the secretariat office of the AHB. The provincial and district health offices will work to ensure the compliance with the national policies and the technical standard requirement, the roles that have not been well carried out at present. The officers in the two offices will have to be good communicators and advocates. There is a need to strengthen their monitoring and evaluation capacity including inventing new tools and methods.

## **4.3 Capacity for Central Monitoring and Support**

Despite the first few years for research and development in selected provinces, there is a need for intensive support and monitoring as well as continuous learning for further improvement for the first 10



years of the decentralization effort. The process will involve various groups of people and decision-makers but **the MoPH will have to be responsible for the ultimate outcome.** The MoPH needs to strengthen its capacity in working closely with local administration. Its function as coordination between the concerned ministries can help the local administration and the AHB to improve their decision making and resource allocation. It can point out the needs for changes in the budgetary processes and practices of the central government as well as the local administration.

## 5. Progress of Implementation

Until December 2004, there was not much progress in decentralization of the health sector. Some activities, programs, and budgets, particularly those related to sanitation and water supply, are devolved to the local administration. There is still no movement in the devolution of rural health facilities, for example, the development of guidelines or conditions for devolution. The studies on the roles of AHB in certain provinces were halted.

In 2004, only 23.5 percent of national revenue was allocated to the local administration. There is a very high chance that the 1999 organic law on the operationalization of decentralization will be amended to allow more time for implementation.





# Chapter 12

## Civil Society and Health Development

### 1. Definition and Evolution

#### 1.1 Definition

Civil Society can be defined as

“An autonomous sphere of social interactions in which active individuals with common civic consciousness come to work together for public interest. Civil societies are characterized by their partnership, love and compassion under a system of interactive learning through action”.

Civil societies may be informal network/groups, e.g., housewife group, elderly group. They may also be formal structures, e.g., associations or foundations.

#### 1.2 Evolution

Civil Society movement evolves from several factors:-

**1.2.1 Social crisis:** Some situations and problems that state by itself can not solve, e.g., environmental crisis, HIV/AIDS and drug abuse.

**1.2.2 Evolution of urban middle class:** particularly businessmen, professionals, academics and educated people with better socio-economic status.

**1.2.3 Democratic development:** which allow the free expression of idea and movement of the people.

**1.2.4 Communication:** which facilitates interactions, transfer of information, and social movements.

**1.2.5 Inefficiency and non-transparent public sector:** which reduce its ability to solve complicated social problems.

There may be four steps of civil society development, i.e., emergence of consciousness, founding the organization, formulation of common ideology and crystallization and institutionalization of ideology into an accepted way of life. The civic movement in Thailand is evolving from step 3 to step 4.

### 1.3 Component of civil society (Figure 12.1)

Civil Society organizations consist of 3 important components, i.e.,

**1.3.1 Civic consciousness:** This includes the idea and acceptance to gather together freely with love, compassion, common understanding and interactive learning through actions aiming at public benefit.

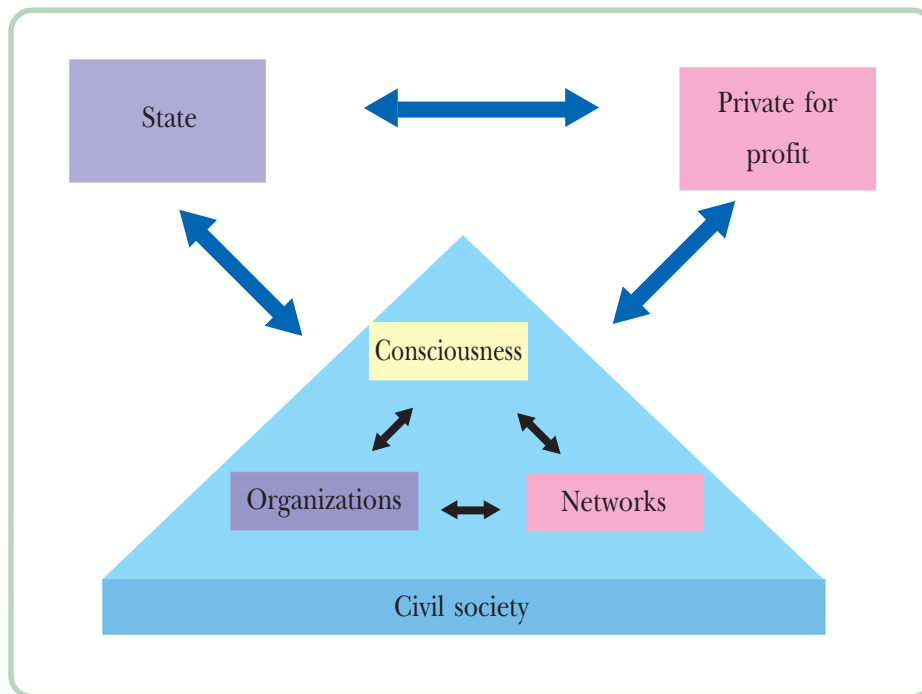
The relationship is horizontal and partnership in nature.

**1.3.2 Civic organization:** Civil societies must have systematic management to support interactive learning through actions towards solutions of social problems. The organizations may be formal or informal. They may be ad hoc or more permanent. They may range from a few to a large number people. Members may be public employees, businessmen or lay people. However, the movements must possess complete civic consciousness.

Those non-public organizations in the community, which are founded by vertical manipulation with out partnership, and civic consciousness, should not be classified as civic organizations.

**1.3.3 Civic network:** This includes structures or processes, which link members within organizations or inter-organization linkages. Effective communication channel and constructive engagement are two major important components for successful networking. Effective networking helps unite power of consciousness into strong 'social power'.

**Figure 12.1** Component of civil society



## 1.4 Types of civic organization

Civic organizations may be classified by their main objectives into 3 types, i.e.,

**1.4.1 Support and services:** These groups aim mainly at providing supports and services to members or to those non-possesses. They usually organize in the form of philanthropic bodies, e.g., Children protection foundation, Foundation for the blind, Associations of Oversea Chinese.

**1.4.2 Right and Policy:** These groups aim at social movement on human right and advocacy of policy for public interests. Some are formal groups, e.g., Consumer protection foundation, Health Promotion Institute, Association for human right and freedom. Others are informal groups, e.g., Drug action group, Rural doctor society.

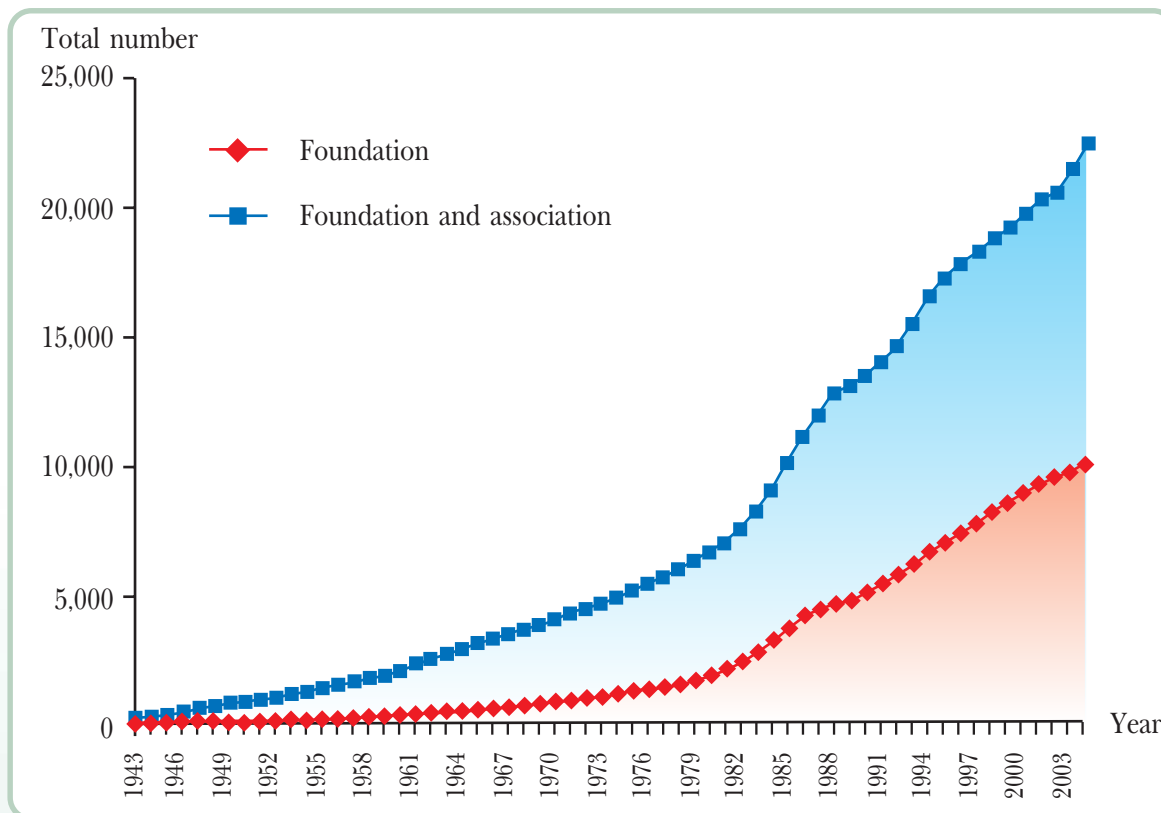
**1.4.3 Knowledge management:** These group aim at management support towards strengthening the power of wisdom of the society. Some of the examples are the National Health Foundation, Thailand Development Research Foundation and Thai Wisdom Foundation.

Nevertheless, one civil society organization may work under more than one main objective, particularly those in categories 1.4.2 and 1.4.3

## 2. Civil Society in Thailand

**2.1 Formal groups:** These may be in the form of foundations, associations and institutes set up under some legal infrastructures. They are usually registered with the Ministry of Interior. The member of this group rose rapidly in the last two decades (Figure 12.2).

Figure 12.2 Member of formal civic organizations in Thailand



Source: Office of National Culture Committee.

**2.2 Informal groups:** There are countless informal civil societies in Thailand. Many of them are at village/community level; others are at provincial, regional or at national level. There are some organizations, which link these civic organizations, e.g., Coordinating organization for NGOs on HIV/AIDS, Coordinating committee on NGOs on PHC.

### 3. Civil Society and Health Development in Thailand.

#### 3.1 State efforts in establishing civil society.

Before the modernization era, health was the responsibility of individual, families and community based on local wisdom. Development in modern medical sciences had taken away the capacity for self-reliance and also delayed the development of local health wisdom. In the two decades of health for all movement, new forms of people participation were developed.

Village health volunteer, traditional birth attendance and village sanitary craftsmen are example of some lay health manpower created in that era. Many community health funds, e.g., Village Drug Fund, Village Nutrition Fund, and Village Sanitary Fund were developed. These are group activities set up through vertical manipulation by the state. They lacked strong civic consciousness and could not be considered as real civic organizations. Their sustainability were quite low. Most of the village health funds have totally disappeared. Nevertheless, they created a certain level of community participation and became part of the mechanisms used by the state to improve the access to essential drugs, sanitation including the communicable disease control.

### **3.2 Real Civil Society in Health Development**

In the last two decades, there are mushrooming of civil society organizations devoted themselves to health development. These are in addition to existing philanthropic organizations. These newly created organizations may have very narrow and specific or wider objectives. Some of the examples are: -

#### **3.2.1 Tobacco Consumption Control**

There are at least two very active civic organizations advocating for tobacco consumption control. They are the Health Promotion Institute under the National Health Foundation and the Action for Smoking and Health Foundation (ASH). Their activities are based on knowledge management, social movements and political movements. Their campaigns received very strong support of young actors and actresses and the public media.

Their successes came out through partnership with other civic organizations one classic example is the nationwide smoking campaign run organized by the Rural Doctor Society in October 1987. This movement had successfully collected signatures of six million people to support non-smoking movement.

Their movements resulted in the promulgation of two acts in 1992, i.e., Tobacco Control Act and the Act to Protect Health of the Non-smokers. Their leaders also participate in the National Tobacco Control Committee, appointed by the Cabinet.

This is a very good example of using the strategy of “Triangle that moves the mountain” to solve difficult and complex social problems. The smoking prevalence in Thailand reduced from 30.1 percent in 1976 to 20.6 percent in 2001.

#### **3.2.2 “Jor Sor 100 Community” and health services in Bangkok**

Severe traffic jam in Bangkok, the capital City of Thailand, prompted the emergence of a live broadcast radio station, Jor Sor 100, since 1990. This station devotes itself to the live interactive report of traffic condition in all corners of the city and nearby provinces. Its countless members (formal and informal) communicate through radio waves with strong civic consciousness to reduce traffic problems, form a good example of “Air civic organization”. Since traffic jam is one of the important obstacle for emergency patient to reach the hospital in time. In addition, most public hospitals usually refuse to accept patient quoting full bed occupancy. When it is on air through Jor Sor 100 that there is an emergency case on their way to a hospital, drivers of vehicles always open their way for that patient and none of the public hospital dares to refuse the patient.

The success of this “air community” prompted the creation of many more “air community” on other specific issue.

### **3.2.3 Civic movement on HIV/AIDS**

The Social crisis from epidemic of HIV/AIDS started in late 1987s. During that period, there were more than 100,000 cases of new infection per year. Although the government is very active and the Prime Minister himself chairs the National AIDS Committee, the crisis is so severe than even the whole government cannot hope with the problems. More than 100 civil society organizations on HIV/AIDS have been created. In 1989, a coordinating committee for AIDS NGO was established at the national level. In addition, the same kind of committee among AIDS NGO in the northern provinces (with highest prevalence of HIV/AIDS) was also created. These NGOs work on different aspects from prevention campaign to community support of AIDS patients. In 1993, an association of business sector against HIV/AIDS was originated. The purposes are to mobilize resources from member companies to collectively tackle AIDS epidemic among their employees. More than 100 companies become its member in 2000.

These AIDS NGOs received strong support from the government. Each year the Ministry of Public Health provides around \$US 2 million to support their activities. These budgets are managed and allocated by the public-private coordinating committee.

The civic network on HIV/AIDS has participated actively in the Country Coordinating Mechanism (CCM) under the Global Fund to Fight AIDS, Tuberculosis and Malaria (GF). One of the NGO (The Care Thailand) has been accepted as the Principle Recipient of the Global Fund.

## **3.3 Supports for Civil Society on Health Development**

Financial supports to civil society on Health Development usually depend on their target activities. Those that provide services to the under privilege groups are usual supported by donation and public budget. Those that play the role of social movements are sometimes supported by foreign organizations. Since 1990, the Ministry of Public Health started to allocate some budgets (around \$US 1 million) to support civic organization for health development. This budget was increased to around \$US 2 million in 1992. After the economic crisis it was reduced back to less than \$US 1 million (Table 6.44). In 1992, the Ministry of Public Health started another fund to specifically support NGOs on HIV/AIDS. The figure increased from \$US 0.5 million in 1992 to \$US 3.5 million in 1997. After the economic crisis, although the amount in local currency remained the same, the value in \$US reduced to \$US 2.25 million due to change in currency exchange (Table 6.45).



#### 4. The way forward

It is clear that there is a very rapid increase in the number, size and roles of civic organizations for health development. In the recent movement toward total health system reform, the draft of the National Health Bill includes the creation of a National Health Committee. One-third of the members of this committee is from civil societies. A National Health Assembly will also be convened at least once a year. This is mainly the forum for people and civil societies to express their views and demands for health development policies.

Hopefully this bill will be approved by the parliament and promulgated as a people Health Constitution in 2005. It will then be the solid foundation for the sustainable development of civic organizations on health development in Thailand.



# Chapter 13

## International Health Development

### 1. The Changing Scopes, Functions, Organizations and Mechanisms of International Health

#### 1.1 The Scopes : International health encompass:-

“Public Health areas that go beyond national boundary, with shared interests among countries, and which countries consider them to be more efficiently implemented through international cooperation.”

The scopes of International Health is **moving from** mere cooperation on control of epidemics to broader areas of health development, e.g., food and drug control, knowledge development, and international trade.

#### 1.2 The Functions

##### 1.2.1 Criteria for International Health Functions

There are two types of international public health functions, i.e.,

(1) **Collective problems:** Those that respond to needs or problems that are common to all or most nations and can only be effectively met by governments acting in collaboration, because their solution transcends the limits of sovereignty of any one state. For example, like SARS and Avian Influenza.

(2) **Specific problems:** Those that are specific to individual countries or populations, but that justify international collective action due to shortcoming in national performance or because of moral imperatives. For example, HIV/AIDS epidemic in poor countries; health of the dispossess in poor countries; health in crisis like Tsunami.

##### 1.2.2 Essential International Health Functions

(1) The constitution of WHO, one of the main international health actors, defines 22 functions of the organization.

(2) The Conference on World Health Cooperation beyond 2000, held at the Mexican Health foundation in April 1998, identified a set of six global health functions, i.e.,

(2.1) **Health Surveillance:** establishing early warning systems on looming health crises and monitoring trends in health and disease to identify future needs.

(2.2) **Targeted Health Problem Solving:** tackling specific global health challenges, from the HIV/AIDS to smoking pandemics to the drug-resistant microbial threats spreading across borders.

(2.3) **Regulation and Setting of Norms and Standards:** establishing or harmonizing regulations and scientific, technical, and ethical norms and standards that crystallize the most current scientific approaches to health problems and issues.

(2.4) **Knowledge Management:** setting up mechanisms that enable research findings and lessons learned in one country to be shared so that others may benefit in the widest, most effective manner.

(2.5) **Serving as an Agent for Vulnerable Populations:** safeguarding the health of vulnerable populations in extraordinary situations, in which there is a breakdown of the state, or the state becomes the perpetrator of human rights violations against its own population, as in the case of displaced persons, victims of human rights abuses, and civil conflicts.

(2.6) **Strengthening National Capacity and Performance:** building on national efforts to improve health outcomes and strengthen the foundations of a global health systems.

## 2. The International Health Organizations/Mechanisms

### 2.1 The Evolution

The attempts at international health cooperation started as the result of some important epidemics that affected countries all over the world, dating back to the middle decades of the last century (Table 13.1). The early international health organizations were finally developed into the UN agencies such as the WHO, which was created in 1948. Today, a number of different UN organizations and the development banks have effective mandates in health (Table 13.2).

**Table 13.1** Landmarks in international health

1830	Cholera overruns Europe,
1834	An official in France's Higher Council of Health makes the first call for an international conference to standardize prevention measures to fight the proliferation of disease and harmonize quarantine restrictions that obstruct commerce.
1851	The first International Sanitary Conference is held in Paris to produce an international sanitary convention, but fails.
1892	The International Sanitary Convention, restricted to cholera, is adopted.
1897	Another international convention dealing with preventive measures against plague is adopted.
1902	The International Sanitary Bureau, later renamed Pan American Sanitary Bureau, and subsequently Pan American Sanitary Organization, is set up in Washington, DC.
1907	L'Office international d'hygiene publique (OIHP) is established in Paris, with a permanent secretariat and a permanent committee of senior public health officials of Member governments.

1926	The International Sanitary Convention is revised to include provisions against smallpox and typhus.
1935	The International Sanitary Convention for aerial navigation comes into force.
1945	A United Nations conference in San Francisco unanimously approves the establishment of a new, autonomous, international health organization.
1946	The International Health Conference in New York approves the Constitution of the World Health Organization (WHO).
1948	The WHO Constitution comes into force on 7 April (now marked as World Health Day each year).
1951	The text of new International sanitary regulations is adopted by the World Health Assembly, replacing the previous International Sanitary Conventions.
1969	These Regulations are renamed the International health regulations, covering only cholera, plague, smallpox and yellow fever.
1978	A Joint WHO/UNICEF International Conference in Alma-Ata, adopts a Declaration on Primary Health Care as the key to attaining the goal of Health for All by the Year 2000.
1979	A Global Commission certifies the worldwide eradication of smallpox, the last known natural case having occurred in 1977.
1981	The Global Strategy for Health for All by the Year 2000 is adopted by the World Health Assembly and endorsed by the United Nations General Assembly, which urges other international organizations concerned to collaborate with WHO.
1988	The World Health Assembly resolves that poliomyelitis will be eradicated by the year 2000.
1994	WHO's Executive Board launches reform of the Organization in response to global change.
1997	WHO started the process for drafting the Framework Convention on Tobacco Control (FCTC). The FCTC was ratified by 40 member states on 30 November 2004. The FCTC comes into force on 28 <sup>th</sup> February 2005. It is the first international health law under the constitution of WHO.

**Source:** Adapted and updated from the World Health Report 1998.

**Table 13.2** U.N. Organizations and Comparative Advantage

Organizations	Perceived Strengths	Perceived Weaknesses
World Bank (+ Regional development bank)	<ul style="list-style-type: none"> <li>• financial resources, policy advice, and technical assistance</li> <li>• links to ministries of finance and planning</li> </ul>	<ul style="list-style-type: none"> <li>• centralized, weak country offices</li> <li>• narrow economic approach to health</li> <li>• perceived as Western dominated and ideologically driven</li> </ul>
UNICEF	<ul style="list-style-type: none"> <li>• effective at operational level</li> <li>• resources at country level</li> <li>• strong country offices (85% staff at country level)</li> <li>• advocacy role</li> </ul>	<ul style="list-style-type: none"> <li>• too driven by New York and narrow goals</li> <li>• sustainability of initiatives</li> <li>• vertical approach to health</li> </ul>
UNFPA	<ul style="list-style-type: none"> <li>• resources</li> <li>• strong advocacy role (family planning)</li> <li>• limited technical capacity</li> <li>• effective procurement service</li> </ul>	<ul style="list-style-type: none"> <li>• small, undergoing paradigm change from rigid population control to reproductive health</li> <li>• subject still vulnerable to political differences</li> </ul>
UNDP	<ul style="list-style-type: none"> <li>• broad development orientation</li> <li>• close ties to government</li> <li>• coordination role</li> </ul>	<ul style="list-style-type: none"> <li>• diverse competence at country level</li> <li>• poor on advocacy because of ties to government</li> </ul>
WHO	<ul style="list-style-type: none"> <li>• technical and scientific knowledge</li> <li>• network of experts</li> <li>• links with ministries of health</li> </ul>	<ul style="list-style-type: none"> <li>• weak at country level</li> <li>• two-thirds staff (of 5700) at central or regional level</li> </ul>

**Source:** Enhancing Performance of International Health Institutions: Pocantico Retreat, 1996.

In addition, many philanthropic organizations contribute significantly to international health, e.g., Wellcome Trust, Rockefeller Foundation, Ford Foundation, and Gate's Foundation. Recently, to tackle the emerging problems more effectively, some new mechanisms are created. The most significant are GAVI (Global Alliance on Vaccine Initiative) and GF (Global Fund to Fight AIDS, Tuberculosis and Malaria). These mechanisms are managed based on a non UN participatory governing structures.

## 2.2 The Need for Reform

### 2.2.1 Increasing Complex Health Challenges from Epidemiological Transition.

- (1) Preventable health problems affecting the poor and vulnerable populations.
- (2) Health problems associated with development and aging.
- (3) New and emerging diseases, environment-caused risks, and behaviour-associated

problems.

### **2.2.2 The Impact of Globalization and Interdependence**

- (1) International health risks from travel, trade and environmental risks.
- (2) International and regional trade agreements such as those under WTO (e.g., GATT,

TRIPS, GATS, TBT, and SPS), APEC, NAFTA and AFTA, as well as bilateral trade agreements.

### **2.2.3 Altered Institutional Landscape**

More and changing roles of international health actors, i.e.,

- (1) UN agencies (stable or declining)
- (2) Bilateral agencies (declining)
- (3) Development banks (increasing)
- (4) Civil society (increasing)
- (5) Business (increasing)

### **2.2.4 Outmoded UN Organizational Structures**

- (1) Confine only to government sectors
- (2) Outmoded regional structures
- (3) Strong bureaucracy

### **2.2.5 Inadequate Partnership with other Actors**

### **2.2.6 Lack of Mechanisms for Sharing Experiences between Countries.**

## **2.3 Proposal for reform**

The Conference for World Health Cooperation Beyond 2000 also offers three proposals for revitalizing the cooperation between key actors in international health cooperation, i.e.,

2.3.1 The international institutions and the member states that own them should redirect their current reform efforts from immediate structural issues toward more strategic issues, mainly concerning which essential functions must be performed.

2.3.2 International organizational active in health should reemphasize that international health functions are central to their role.

2.3.3 The performance of the essential functions must be strengthened above current standards at both the national and global levels.

## **3. Recent Successes in International Health Forum (2000-2004)**

### **3.1 In World Health Organization (WHO)**

#### **3.1.1 Leading roles in the Regional Committee (RC) and the World Health Assembly (WHA)**

Thai delegates are well prepared for every agenda item. In certain cases, Thai representatives were invited to chair drafting groups in the World Health Assembly for example the WHA resolution on SARS (WHA 56.29) and WHA resolution on migration of health workers (WHA 57.19).

These constructive leading roles have resulted in better connection to the senior level



administrator of WHO. Senior Thai health administrator was invited to be members of international committee/commission, for example, Dr.Pakdee Pothisiri as the commissioner in the Commission of Intellectual Property Rights, Innovation and Public Health (CIPIH).

### **3.1.2 The first Thai to be elected Regional Director of WHO South East Asia Region (WHO/SEAR)**

Dr.Samlee Plianbangchang was elected by SEAR member states to be the new Regional Director from March 2004 to February 2009.

### **3.1.3 Convening International Forum**

Several International meetings were convened by Thailand with the support of WHO, e.g., the biregional workshop on the GF, the biregional workshop on SARS and the biregional workshop on Avian Influenza.

### **3.1.4 Role and member of the Executive Board**

Thailand becomes member of the Executive Board (EB) since May 2004 until May 2007. It is also the member of the newly created Programme Budget and Administration Committee (PBAC).

### **3.1.5 Reform of the WHO Office in Thailand**

This work started since 1996, which resulted in more efficiency, transparency and participatory management.

## **3.2 Roles in other International Health forum**

Senior health officials and experts were invited to lead many international health mechanism, i.e. COHRED (Council for Health Research and Development) invites Prof.Charas Suwanwela as the chair. Now, Dr.Somsak Chunharas is one of the board member.

GFHR (Global Forum for Health Research) used to have Prof.Charas Suwanwela as chair.

GF Thai representative (Dr.Suwit Wibulpolprasert) was the board member and the Vice Chair of the Board from January 2003 to March 2004.

GAVI invited Dr.Viroj Tangcharoensathien to chair its Technical Review Committee and now the member of the Evaluation Committee.

IFCS (Intergovernmental Forum on Chemical Safety) approved Dr.Suwit Wibulpolprasert to be its President from November 2003 to September 2006.

## **3.3 Organization of Important International Meetings**

Several big international meeting were successfully hosted by Thailand. The biggest one was the XV International AIDS Conference in July 2004. Thailand is going to host the 6<sup>th</sup> Global Conference on Health Promotion in August 2005.

## **3.4 Bilateral health Cooperation**

Thailand has successfully engaged in bilateral health cooperation with all its neighboring countries. These cooperation enable better and more efficient control of cross border epidemics.

## 4. Situational Analysis of the International Health in Thailand

### 4.1 Problem of the Existing Systems

**4.1.1 Inadequate direction:** The clear vision and strategies of international health development has not been clearly developed at the national level.

**4.1.2 Inadequate structures:** The existing structures narrowly confine themselves in the government sectors, particularly the Ministry of Public Health (MOPH). The **International Health Division** of the MOPH mainly provide international relation services and lack the capacity for technical public health cooperations.

**4.1.3 Inefficient mechanisms:** The existing mechanisms are mostly fragmented, with little cooperation, lack of solidarity and work in a passive manner.

**4.1.4 Weak institutional capacity:** There is no such thing as international health experts in Thailand, and there is no definite plans to develop them. Those that used to work in this area are usually depend on personal capacity without continuity of wisdom. All international health information is scattered and can not be retrieved easily.

**4.2 Need for reform:** Apart from several changes at global level as mentioned in 2.2 above, there are also changes at the country level, during the past decade, which push for the reform of the existing system .i.e.,

**4.2.1 Level of development of the country:** Thailand has become middle income country since the last decade. In spite of the economic crisis, the GDP/capita is still at the level of \$US 2,000. This result in great reduction of international and bilateral aids grant to the country. Most bilateral health aids are terminated. The WHO country budget, at the level of \$US 6 millions-the 8<sup>th</sup> rank of the global WHO country budget, is going to be reduced. We even develop a “Thai AIDS Fund” to support the development of the poorer neighboring countries. This fund used to be as big as \$US 8 millions in 1996 and was reduced to \$US 2 millions in 2000.

**4.2.2 The economic dynamics:** The current economic crisis reduce greatly the public health budget as well as the Thai AIDS Fund. Thus the international health cooperation is becoming more important to health development. The increasing roles of the development bank in various structural adjustment programs, including health, are clearly evident. The recent economic recovery has again increase the Thai support to neighboring countries.

**4.2.3 Increasing health development capacity:** The past success in several aspect of health development in Thailand resulted in the accumulation of great social asset in health, both at the institutional and individual level.

This can be used to strengthen the Thai role in international cooperation and even help improve foreign currency situation. The number of WHO fellowships to Thailand (339 in 1997, and 225 in 1998) is at the level comparable to USA (Table 13.3). The difference is that fellowships to Thailand are more short term in nature.

**Table 13.3** Top Ten Host Countries for WHO Fellowships, 1992-1996

Country	Region					Total for top 10 countries	Remarks
	The Americas	South-East Asia	Europe	Eastern Mediterranean	Western Pacific		
1. United States of America	10.0						Africa has no countries represented among the top 10 host countries for WHO fellows. The top three countries in Africa are Benin (87 fellows), Kenya (74) and Senegal (65), totalling 1.8% of all awards.
2. Thailand		10.0					
3. India		8.5					
4. United Kingdom			7.5				
5. Egypt				6.2			
6. Indonesia		5.2					
7. Australia					4.7		
8. Jamaica	3.4						
9. France			2.7				
10. Philippines					2.6		
<b>Regional share of top 10 countries</b>	<b>13.4</b>	<b>23.7</b>	<b>10.2</b>	<b>6.2</b>	<b>7.3</b>	<b>60.8</b>	
<b>All others (121 countries)</b>			<b>39.2</b>			<b>100.0</b>	

**Source:** Global database, WHO.

No data available for years prior to 1992.

All figures include intraregional fellowships.

**4.2.4 Increasing regional and bilateral collaborating mechanisms:** Recently many new regional and bilateral health related collaborations are developed, e.g., the Mekong Basin Disease Surveillance Project (MBDS), ASEAN subcommittee on health and nutrition, the bilateral cooperation agreements with neighbouring countries, and the south-south collaboration. To benefit and contribute most to these collaborations, there is a need to rapidly strengthen the international health capacity.

**4.2.5 Increasing international health politics:** Issues related to resources allocation in International Organization, vested interests in international trade, politics in international organizations are affecting and maneuvering all developing countries including Thailand. Although the roles of the Thai delegates in these negotiating forum are quite significant, they depend mainly on individual capacity, there is no guarantee for continuity.

## 5. Future International Health Development

### 5.1 Development of Clear Vision and Strategies

Strategic plan for International Health Development (IHD) was developed and brainstormed in several multidisciplinary and multisectoral fora. It was then finally proposed to and approved by the International Health Development Policy Committee in July 1998. This strategic plan is still up to date and need further development.

#### 5.1.1 The vision :

**“International Health Development will be strengthened to facilitate development of the Thai Health Care Systems, to solve the priority health problems, to protect the benefits of the country and to foster the Thai image in international health fora”.**

#### 5.1.2 The strategies :

- (1) Development of effective international health structures and mechanisms
- (2) Human resources development
- (3) Development of Knowledge-based IH systems.

### 5.2 Framework for development

The future development should be based on conceptual framework in Figure 13.1, 13.2, and 13.3.

**Figure 13.1** Conceptual Framework for IHD

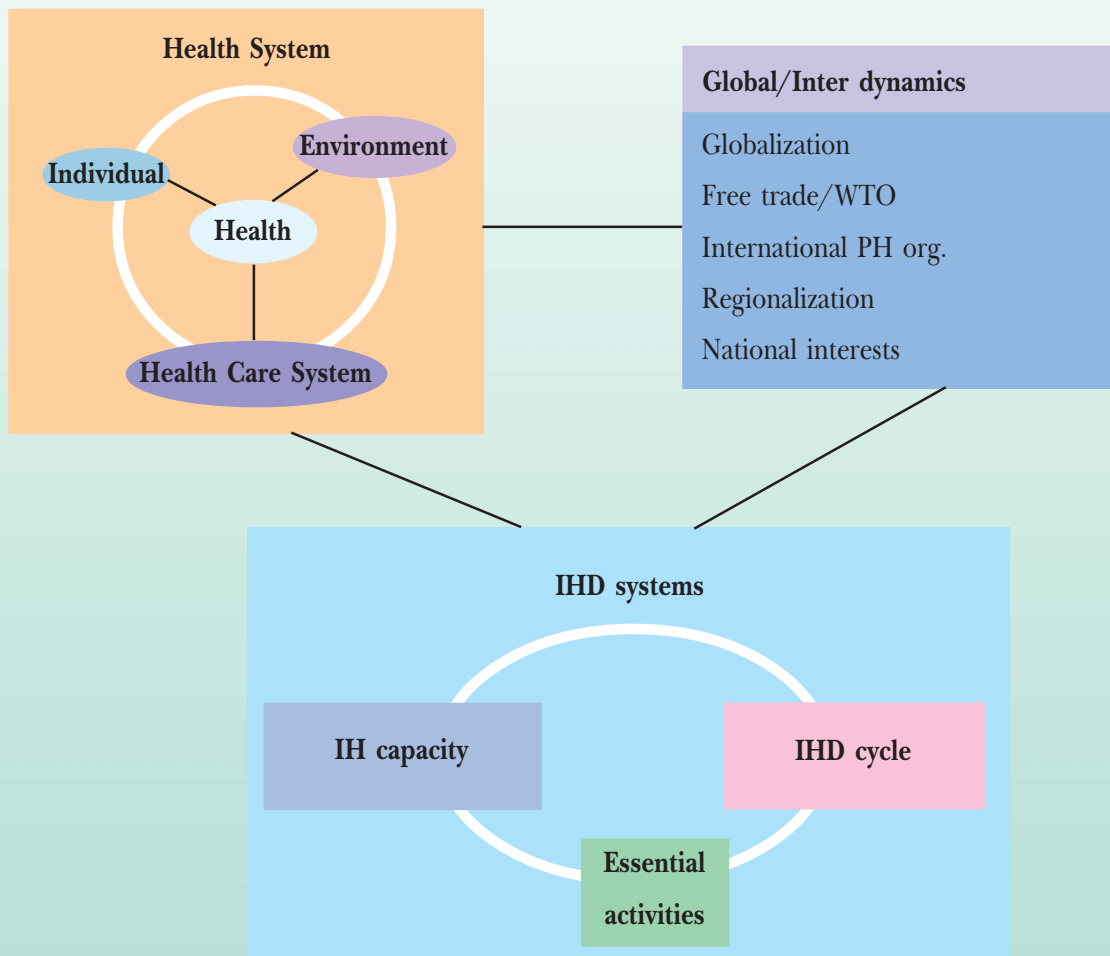
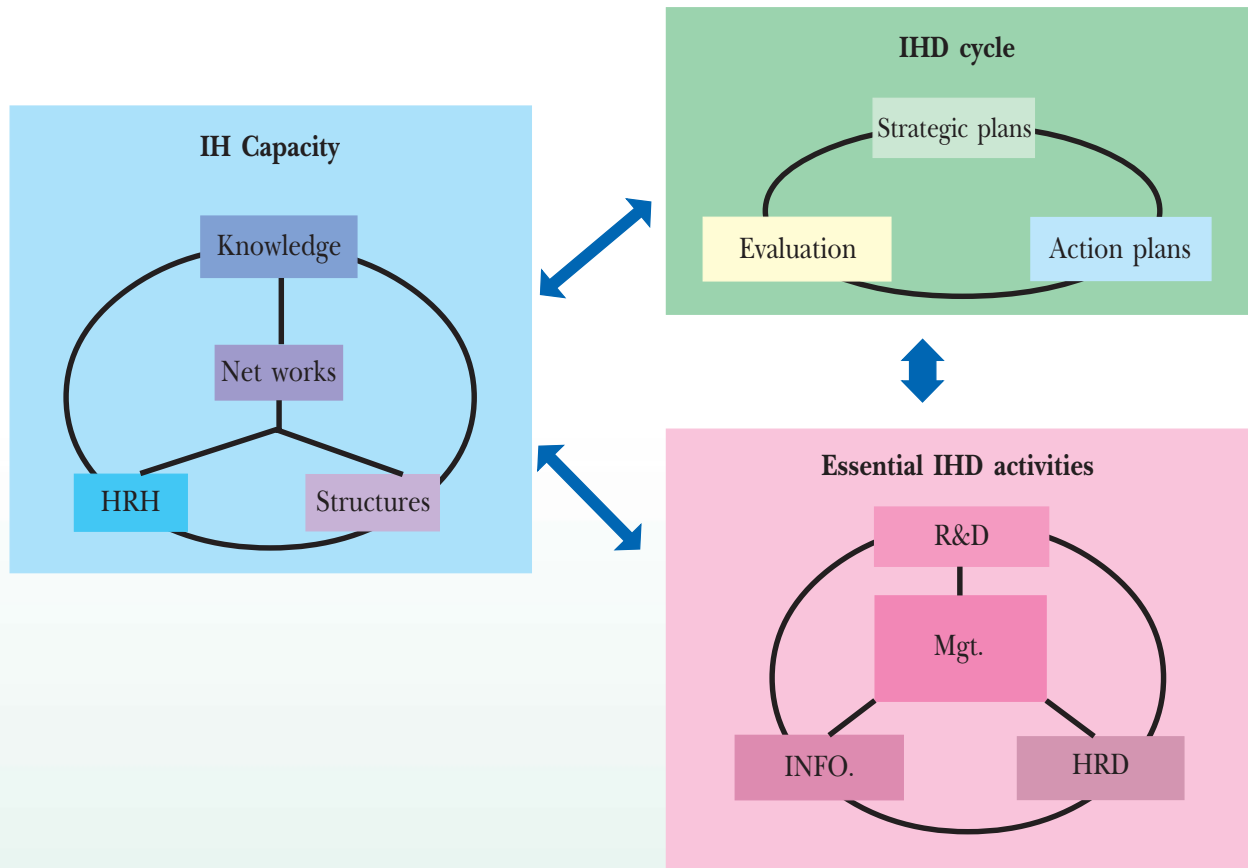
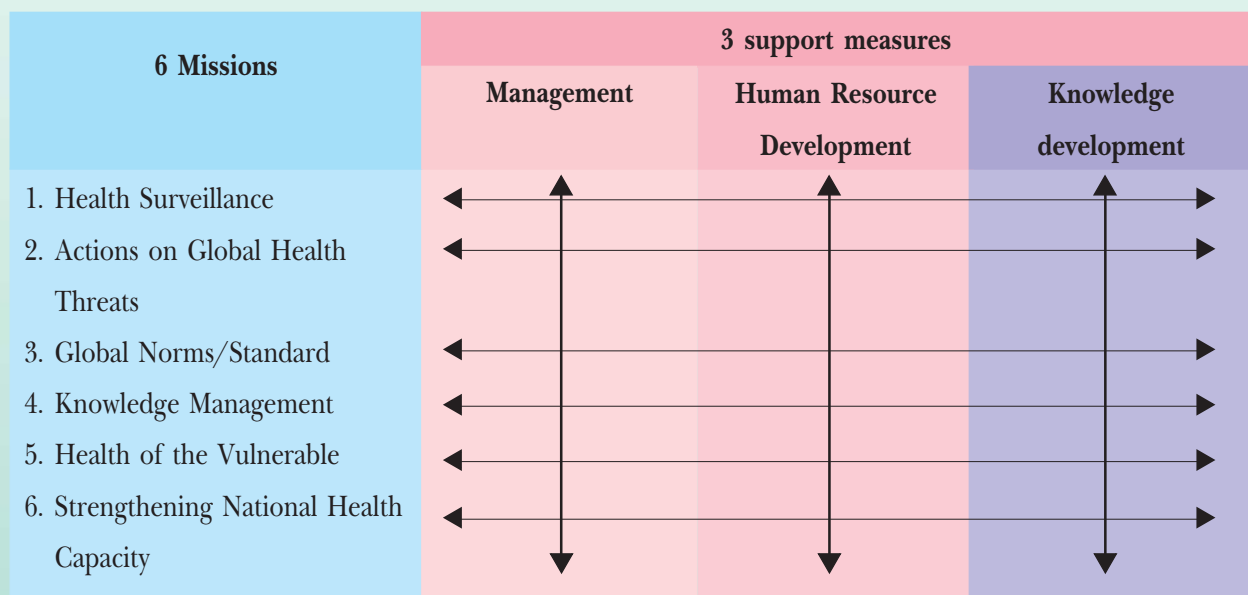


Figure 13.2 IHD systems



Mgt. = Management and networking

Figure 13.3 Framework of IHD



### **5.3 Strengthening and development of the new structures and mechanisms.**

5.3.1 The International Health Group under the Bureau of Policy and Strategy should be strengthened through staff support and management reform. More technical staff with international public health skill and experience need to be recruited/developed.

5.3.2 The WHO roles in Thailand may also be reformed to include three main functions, i.e., the WR office, the Liaison office to ESCAP, and the office for biregional projects, e.g., the Mekong Basin Disease Surveillance Project, the Mekong Basin Project for AIDS, Tuberculosis and Malaria.

5.3.3 More active participation from non MoPH government organizations and civil society in the international health activities.

5.3.4 Strengthen the WHO collaborating centers in Thailand.

5.3.5 Development of mechanisms to build more linkages with International Health Organization to increasing sharing and transfer of wisdom.

**5.4 Human resources development (HRD):** HRD should aims at strengthen international health wisdom at individual and institutional level.

5.4.1 Targeted human resources development on international health in all concerned government and non-government organizations. This include the English and other international language proficiency, communications and negotiation skill, and understanding of international etiquette, norms, protocol, rules and regulations, including general and specific public health issues.

5.4.2 More longterm fellowship for junior/middle level Thai public health specialists to work as fellow with relevant department of WHO/HQ.

5.4.3 Development of clearer and definite career path for international health experts.

5.4.4 Support Thai public health expert into the international health organization, as consultants, as expert committee members, as professionals and at higher management level.

### **5.5 Development of knowledge-based IH system**

#### **5.5.1 IHD researches:**

(1) Situation analysis of the WHO collaborating centers in Thailand and recommendation for future development.

(2) Implications of each of the several international trade agreements on health development in Thailand focus on the recommendations for capacity strengthening to prepare for most beneficial involvement.

(3) Situational analysis of all international training courses in Thailand, both long term and short term, and give recommendation for further improvement.

(4) Analysis of the potential of Thai public health experts to work in the international organizations and recommendation for strengthening.

(5) Evaluation of existing international health mechanisms at the regional and global

related to Thailand, and give recommendation on the appropriate role of Thailand.

(6) Development of guidelines and handbook for international health activities, for example, guideline for participation at the WHA.

**5.5.2 IHD networks:** Apart from the network of the IHD scholars, more higher level network as well as network in some specific areas to support IHD need to be developed and strengthened, e.g., HP/HSR network. Strong WHO collaborating centers in Thailand can be potential coordinators of several networks. These coordinating roles will increase the Thai strength to be accepted as center for coordination among countries in the Indochina region.

### **5.5.3 Support of International publications/communications**

(1) Publication of research papers from Thai researchers in international journals. This should be promoted both on a compulsory and voluntary basis.

(2) Support the publication/development of International journals/webpage in Thailand, e.g., the HSRI journal/webpage. An English version of the MoPH webpage was created since June 2000.

(3) Support the publication of specific reports in English, e.g., Thailand Health Profile, and Thai Health Report.



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