

THAILAND

National Health System Profile

1. TRENDS IN POLICY DEVELOPMENT

The general focus of the government administration these days is to introduce reforms for a result-based administration or Management by Objectives (MBO). It is being stressed to decentralize authority to tackle the poverty problems. As a result, the Ministry of Public Health, as a government agency responsible for public health, is now realigning and readjusting its administrative set up, in accordance with the prevailing central policy of reform and at the same time to conform to the National Development Plan of Economy and Society (Issue 9, 2002 - 2006). The National Development Plan of Economy and Society is the central development plan of the country.

The evolution of the public health policy, besides conforming to the National Development Plan of Economy and Society, is to incorporate many specific factors within the public health domain. Public health initiatives under this policy reflect the reality to tackle the current public health problems. These specific factors are:

1. A macro-economic environment: is necessary for forming the public health strategy. Since the economic situation reflects the well-being of people in the society, it also shapes the total health condition of people and their healthcare expenditures. Furthermore, it helps in directing the healthcare investment of the society, and the adaptation of different strategies of healthcare with vicissitude of the economy. In considering the economic factors, various economic indicators are used; and they are the Net National Product (NNP), Economic Growth Rate, Inflation rate, Interest rates and Budget deficits or surplus.
2. The legal and Political factors: to realize that, public-health related laws and regulations have to be in place with the laws and regulations regarding the protection of environment. The government policies accompanied by new laws and regulations have to be considered for the public health. There are Constitutional provisions regarding health care, political stability, direction of political development which always brings about changes in the policy of the administrations. For example, nowadays, the government policies having significant impacts on the public health policy are decentralization of authority and the government administration reformation.
3. The socio-cultural factors: the socio-cultural condition and trends also are factors determining the public health strategies, especially those concerning behaviour and attitude of the people. Therefore in forming the public health policy and planning, besides having the global picture of the whole country, in the level of provincial planning or lower, the studies of the local socio-cultural factors are extremely important; indigenous factors, like local migration of people, alien labours, local conflicts, etc., are needed to be carefully considered in order to devise appropriate strategies.

The basic policy of tackling the problems of poverty will ensure sustainable quality of life. It is the key share of the government policy. The Ministry of Public Health (MOPH) have joined in the principal direction in helping mitigate people's plight in the area of public healthcare services, like providing health security, creating public-health related jobs for providing job

opportunities. Moreover, MOPH also creates incomes from the medical product manufacturing, facilitating healthcare knowledge propagation and inducing the involvement of people in developing the public health, and thus helping heighten the quality of life of the local communities. The poverty related problems may be classified into 6 major problem groups:

1. The problems of vagrants.
2. The problems of making a reasonable living.
3. The problems of people enticed.
4. The problems relating to assisting by ensuring students income from proper jobs.
5. The problems of private debts.
6. Other problems

The poverty stricken people who could not be registered under the above mentioned groups too will receive healthcare subsidies and aids. These people are the aged, the disabled, those and deprived of socio-economic opportunities, labours, and those troubled by various disasters and tragedies. Their problems are taken as the responsibilities of MOPH and the related agencies. Appropriate solutions, strategies and tactics are devised to tackle their problems in the areas of public health, but these solutions are to be a part of the overall principal policy of eliminating poverty of the country.

The aim is to jointly resolve the problems of poverty and mitigating people's plight, to enable them to lead a healthy life as the part of vision is to achieve a Healthy Thailand and the Health Millennium Development Goals (HMDGs).

The strategy of solving the problems of poverty and mitigating people's plight has four components:

1. Promotion of a holistic healthcare.
2. Strategy of health security and providence.
3. Strategy of creating healthcare-related careers.
4. Strategy of sustainable public health system as a component for eliminating poverty and helping the poor.

For decentralization of authority of public health administration, the Ministry of Public Health has established 52 Provincial Public Health Committees which are to undertake the responsibilities of developing a health care system to cater to the needs of the communities. It has also established the Public Health Decentralization Support Group and Development Committee under the Bureau of Policy and Strategy. These efforts are being made according to the guidelines of the Government Reformation to develop the knowledge base, strategies and plans of the decentralization to provide supports and prepare the local organizations with respect to the decentralization of authority of the public health operations.

2. TRENDS IN SOCIO-ECONOMIC DEVELOPMENT

2.1 Economic trends

In the last three decades Thailand has been quite successful in improving its economy. It has been increasing its role in the world economy. Thailand's international trade has increased from US \$56113 million in 1990 to US \$156331 million in 2003. However, Thailand is moderately

indebted as debt service ratio was 59 percent of export of goods and services. The GDP of Thailand has increased rapidly. It has increased from US \$85,345 million in 1990 to US \$142,953 million in 2003 with average annual economic growth estimated as of 2004 is 7 percent.

Thailand has successfully reformed and improved in its administration in various sections, including that of public health due to which the quality of life of Thailand's people has partially improved. It can be seen that the Human Development Index (HDI) of the year 1990 was found to be 0.715, ranking medium at 76 from 177 countries worldwide; which has improved in terms of HDI value as 0.784 with ranking as 74 among 177 countries in 2004.

Similarly, Thailand has performed well in terms of Gender Development as Gender Development Index was 0.781 ranking at 58 among 177 countries in 2004 (Human Development Report, 2006).

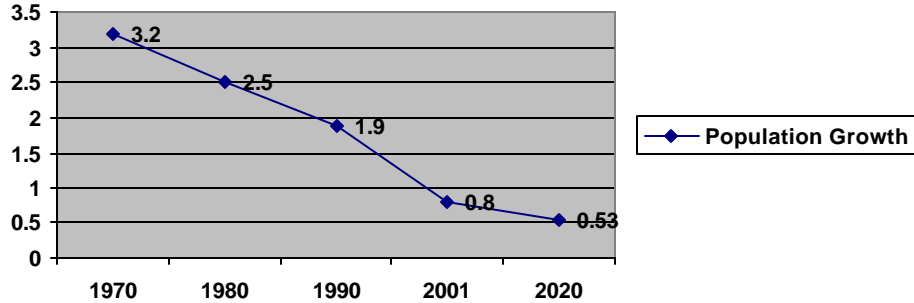
Thailand's labour force is abundant. It has been able to export some of its labour force, but it is not much. (Annual Thailand Statistics of the Bureau of National Statistics, Books 40, 45, 49). In the year 1990, Thailand had a total workforce of 31,749,600 persons of which 710,000 were unemployed i.e. about 2.24 percent of the total workforce. In the year 1998, within the period of the Financial Crisis, there were 33,352,900 working persons, of them 1,137,900 were unemployed, or about 3.41 percent of unemployment rate. However, in 2002 when the economy started to recover, the unemployment rate has declined to 1.76 percent with 616,000 unemployed out of 34,969,600 working persons.

3.5 percent of population are living on less than US\$ 1-/day in Thailand (Thailand Health Profile 2001-04).

The living standard in Thailand has been much improved, as one can see that 57 percent of the population living in poverty in year 1962 has gone down to 11.4 percent in the year 1996. However, in the year 1997, the financial crisis also hit Thailand, like other economies around the world. The economic growth has slowed down; as a result, unemployment increased, and so did the amount of people living in poverty due to lowered incomes. The rising inflation, which was as high as 8.1 percent, also hit the economy. Consequently, the percentage of population living in poverty increased to 15.9 percent. In the year 1999, the number of households having income below the line of poverty which is set at 20,000 baths per household per year, was 3,917,717 (data from the Household Social Welfare Census under the Project of Hiring the Volunteer Students and Financial Professionals for Strengthening Social Welfare in Villages, 1999). Later on, as the economy improved, the percentage of population living in abject poverty has decreased to 14.2 percent in the year 2000 i.e. 8.9 million people. This suggests that the economic condition has significant impact at the grass-root level. During the period from 2000 to 2002, the economic growth has sustained and the income level of Thai people has increased, the percentage of population living in poverty was 13.1 percent (8.2 million people) in year 2001, and 9.8 percent (6.2 million people) in year 2002. Among the population living in poverty, 86.2 percent were in rural areas. About 2 in 3 of them lived in the North Eastern region of Thailand.

2.2 Demographic trends

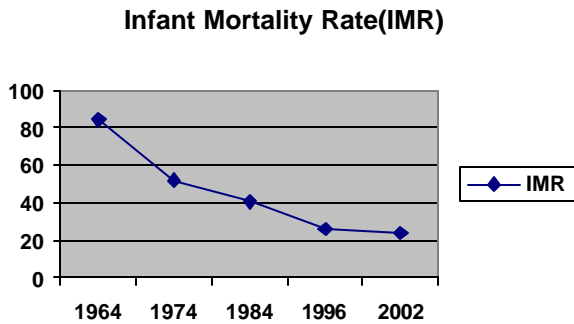
Thailand ranks number 19 in the world in terms of its population. Its share is one per out of the world population. It has reached the population of 50 million in the year 1984, 60 million in 1996, and 62.8 million in the year 2006. It is estimated that it will reach 70 million in 23 years (2019). It can be seen that the population fluctuation has been due to the following factors, i.e. growth rate, decrease in the death rate and migrations. The Thai population has been growing at a decreasing rate which can be seen from the Annual Population Growth Rate in a period of ten years; the growth rate of 1980 was 2.65, that of 1990 was 1.96, and it was 0.8 percent in 2001 and estimated to be 0.53 in 2020. All these decreases are due to the success of Thailand's family planning programme. The fertility rate is 1.6 (2003), which is lower than the Reproduction rate i.e. one female has less than 2 babies. On the other hand, the death rate has been decreasing, from 6.2 in year 1970, to 5.3 in 1980, and to 4.5 in 1990, but has been up to 8 percent in 2002 due to the improvement of database systems of population registrations and death data. All these data are from the Ministry of Interior Affairs.



Source: Thailand Health Profile 2001-2004

The infant mortality rate which used to be as high as 84.3 in 1964 has been decreased to 24 in 2002 and 16.3 in 2007 (Mahidol- Population Gazette). Therefore, it is believed that Thai will have more aged population than young population in the near future, which can be seen from the estimated average life expectancy of 67.9 years for males and 75 years for females in 2003 (as per Research Institute of Population and Society, Mahidol University). The portion of working population shows an increase.

These factors have gradually changed the old population structure of Thailand. It is found that the percentage of aged population has been rising rapidly at the rate of 5.4 percent in the year 1980, 7.2 percent in 1990 and 11 percent in 2006. It is estimated that the percentage of aged population will be 15.9 percent in 2020. The working population (aged 15 to 59 years) has shown a slight increase, from the 56.2 percent in the year 1980, to 67 percent in 2006, while the portion of young population (aged 0 – 14 years) shows a decrease from 38.3 percent in the year 1980 to 30.6 percent in 1990, and 22 percent in 2006. These changes are taking place despite the much lowered infant mortality rate.



Source: Thailand Health Profile 1999-2000 & Research Institute of Population and Society, 2003 and 2004

Earlier, 80 percent of the population used to live in rural areas, but people, at an increasing rate, have now been moving to urban areas. The urban areas have greatly expanded. It can be assessed by the growing number of Municipalities from 136 in 1995 to 1,129 in year 1999. It is the result of upgrading the status of ‘Sukhapibal’ to be ‘Tambol Municipality’. The population in urban areas has increased from 30 percent of total population in 1990 to 33 percent in 2005 and is estimated to further go up to 34.7 percent, whereas rural population has declined from 69.9 percent of total population in 1990 to 67 in 2005. (Thailand Health Profile 1999-2000)

2.3 Social trends

The adult literacy rate among Thailand population too has gone up from 78.6 in 1970 to 95 percent in 1997. The trend, however, reversed after the economic crises, as the literacy rate went down to 93.1 in 2000. It is estimated that literate population of 15 years and above will reach to 97 percent in the year 2010 (Thailand Health Profile 1999-2000)

In the year 2000, the government has taken effective measures to support and promote the country’s education, both within the school system as well as off campus education to cover all segments of society in each region. As a result of these efforts education has improved. It can be seen that the average number of schooling years of general Thai population of ages 15 and above, which was 6.8 in 1997 increased to 7.8 in 2003; and also the proportion of in-school students within the population of ages 3 to 21, which was 65.1 percent in 1997 rose to 74.9 percent in 2003.

In Thailand, Gross Enrolment Ratio (GNER) in primary education too has increased from 94 percent in 1998-99 to 96 percent in 2003 among both sexes. In case of both male and female children, GNER in primary education has gone up from 96 percent and 92 percent, respectively, in 1998/99 to 98 percent and 94 percent, respectively, in 2003.

On the contrary, in case of secondary education, GNER has declined from 83 percent in 2000-01 in both sexes to 81 percent in 2002-03. Similarly, GNER for the secondary education among male children has declined from 85 percent in 2000-01 to 82 percent in 2002/03 but in case of girl-child, it has stagnated at 81 percent in 2000-01 and 2002-03. (UNESCO)

The data of the year 2002 reveals that among the bachelor degree receivers, both male and female of ages 20 or more, 80,585 were male, and 132,458 were female (from the Survey of Employment and Unemployment of Workforces, middle to upper level, 2002, by the Bureau of National Statistics). This shows that larger number of female students graduated than males.

There is a greater transnational labour migration into Thailand due to globalization. There has been a growth rate of 1.1 percent in the labour force during 1990-2003 (World Development Indicators, 2005).

The educational level among the general Thai workforce is higher. There are more people with education of higher than primary. In 1998, 12.1 percent of the workforces were secondary school graduates and 4.6 percent high school graduates but in 2003, these were 13.9 percent and 7.5 percent, respectively. It has been achieved, because the government has provided education opportunities in the workplaces and factories.

Social Security Schemes: Report of Social Situation, First Year, 2nd Issue, June, 2004, suggests that security of life and property of Thai people is still causing anxiety. Since the number of reported cases of property disputes and violence against women have increased steadily in the first quarter of 2004, there were 15,784 cases in property matters, 11,823 cases of offence against life and sex, an increase of 0.85 percent and 2.5 percent, respectively, during the same quarter of the last year. From these statistics of the National Police Bureau, it is found that most cases of offences against property, life, or bodily offences and sexual offences are reported during the first and the last quarters of the year. This may be due to the fact that during these periods, it is tourist season with many public holidays. There are many festivals being held during this period; thus providing opportunities for the thieves and other criminals. The National Police Bureau has taken measures to curb these increasing crimes by implementing the schemes such as “Leaving the House to The Police Program” during holidays. It has element of security provided on.

Regarding housing security, it is found that people living in both rural and urban areas, have higher level housing security. In 1990, 90 percent of Thai population owned, leased or rented their houses. The population living in the 4,860 congested localities of which 1 in 3 are in Bangkok and the suburban Bangkok are found to have better housing security and higher quality of life since the past ten years. This is because the government has been trying to improve people’s quality of life in these congested areas through the Program of Houses for the Poor, Program of Secured Houses and encouragement of the involvement of people in improving their living environment.

The government has many projects both in private and public sectors for promoting health and providing health security for all the people. The agencies directly responsible for these health programs, like the Office of National Health Insurance and the Office of Social Security which provides compensations for sickness or injuries of private sector employees, have been established.

2.4 Food supply and nutritional status

The number of underweight new-born infants, below 2500 grams, has decreased greatly from 10.2 percent in 1990 to 8.86 percent in 2003 (Mother and Child Report, Deptt. of Health).

Most of the underweight infants were born among the poor and the unemployed. Besides this, there are other nutritional factors causing birth of such underweight infants, like the iodine deficiency. Even among primary schools some students are found to be undernourished.

Apart from the problem of malnutrition which was common in the previous years, the problem of overweight is also being noticed. This is due to the fast changes in lifestyle and the rapid growth of the economy. Also the adoption of western culture has changed the Thai ways of living and eating habits. Nowadays, people often eat out, consume cooked food from food-shops or food hawkers. These foods are often low in nutritional value, high in calories and cause sicknesses like overweight and high cholesterol. From the report of Food and Nutritional Status in Thailand, the 3rd in 1986 and 4th in 1995, the problem of overweight increased from 9.3 percent to 13.6 percent among the population of children. Therefore, overweight is now regarded as a top public health problem in Thailand.

On the other hand, the problem of underweight decreased among children from 15.2 percent in 1990 to 12.2 percent in 1997 and further declined to 9 percent in 2003 (Mother and Child Report, Deptt. of Health).

In Thailand, Goitre, which is Iodine Deficiency Disorder (IDD), directly affects both physical and brain development among school-age children. As a result of strong efforts on the IDD elimination, the prevalence of IDD in primary school children in 15 provinces with high rate of severe Goitre has dropped from 19.31 in 1989 to 1.745 in 2002.

The problem of iron deficiency among pregnant women too has been found reduced. Its rate of 27.3 percent in 1988 decreased to 12.9 percent in 1996 but increased to 13.9 percent in 1998 during the period of Financial Crisis. After that it again decreased to 11.9 percent in 2001 (Thailand Health Profile 1999-2000).

2.5 Lifestyle and Risk Factors

In the past, Thai families were extended families in their own characteristics; the relationship among relatives was close, seniors taking care of juniors and juniors respecting seniors. Therefore, families' ties were much stronger, especially among the families in villages or tambols. However, now more families live in isolation, due to economic factors like higher cost of living; migration of family members, mostly into towns to make their own living. However, the towns were not fully developed and equipped to accommodate the influx of rural population. It caused congestion in cities. It has also resulted in a large workforce moving out of agricultural sector. Further, the impact of engulfment of western culture due to globalization has resulted in attenuation of Thai traditional practices and behaviours, like eating. Earlier Thais consumed home-prepared food within the houses, but now they consume fast-foods which are high in fat and calorie as sugar intake per person has increased from 12.7 in 1983 to 29.1 kilograms/person in 2001. They exercise less, too. From the provincial health survey of 2001, it is found that 16.6 percent of respondents aged 15 and above, had health exercise for 3-5 days in the last week and

27.8 percent had more than 5 days' exercise. The government has attempted to solve this problem by promoting physical exercise every day throughout the country.

In Thailand, only 17 percent housewives prefer less-high-fat diet consumption whereas 14.6 percent youth and 12.7 percent factory workers preferred less-high-fat diet consumption.

The current growth of economy and the influence of the West have resulted in high income for Thai people together with materialism and consumerism. The Thai people like others too seek good tastes and for that they often spend more than income, taking unnecessary things like alcohol, cigarette and addictive drugs, which are also hazardous to health. However, with higher education and awareness among general population, such unnecessary and hazardous consumption has reduced. The data of 1986 to 2001 regarding the Population's Behaviour of Drinking and Smoking (Bureau of National Statistics) show that the smoking population has decreased from 27.4 percent in 1986 to 20.6 percent in 2001. However, population of about 10 million in the age group 15 or above is still smoking. Of them 88 percent are regular smokers. The population of the age range 15 to 24, both male and female, though a small population group, has been found to be at health risk due to higher smoking, but the population of age group 35 or above has been found to have decreased smoking rate.

The situation of alcohol consumption, on the contrary, has gone up from 31.5 percent in 1991 to 32.6 percent in 2001, and this trend shows upward hike. The quantity of alcohol intake has increased from 1,604.4 million litres in 1997 to 1,926.1 million litres in 2001; the trend of whisky drinking has levelled off while that of drinking beer has been going up steadily; wine consumption too has increased 4 times as much. Currently, about 15.3 million Thai people, or 32.7 percent of population of ages 15 or above, take alcohol; the population group of ages 25 to 59 has the highest alcohol drinking rate, at 39.3 percent, and below it is the young population group. The people who drink alcohol every day constitute 7.1 percent of the population and most of them are senior people (Data from the Population's Behaviour of Drinking and Smoking, 1986-01, Bureau of National Statistics).

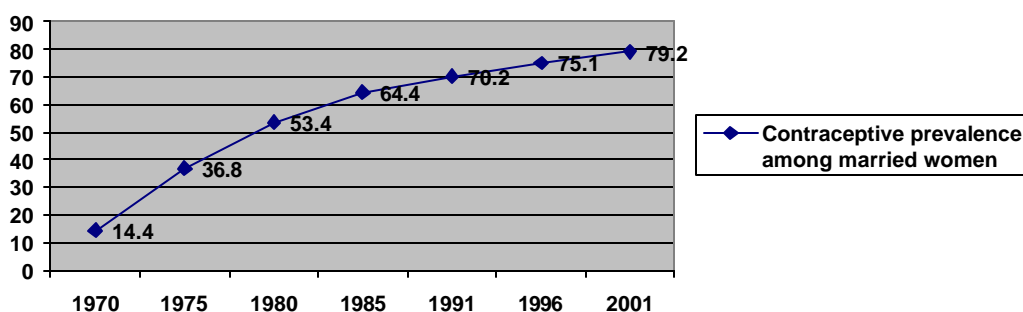
In 1991, The MOPH has launched the program of General Health Check for people in order to examine the status of the public health of the population by stipulating a general random health check in every 5 years so as to pin-point the generally unknown diseases among various communities, especially the recurring diseases which are generally ignored by the general population. The findings show that high blood pressure problem is more among the aged. Most of such people live in urban areas and are well -to-do, rather than in rural areas. From the first health check in 1991, it is found that the population, both male and female, living in urban areas had higher rate of high blood pressure than the population living outside urban areas; the male urban population is 3.5 times higher, while among the female it is 2.8 times higher. Other than this only 10.2 percent of the people examined were aware of their high blood pressure problem. Of them 71.3 percent had received medical treatment and 61.5 percent had been able to curb their problem by maintaining their blood pressure below 160/95 mm mercury. In the 2nd General Health Check during 1996 to 1997, the aged admitted of suffering from high blood pressure; the findings were that 15.3 percent of interviewees had known of their high blood pressure, but 24.8 percent of them had been found to actually have high blood pressure; while 49.2 percent of all health-checkees had normal high blood pressure, 50.2 percent had higher than normal blood pressure. This General Health Check suggests that among the Thai aged people, about half of them have high blood pressure, but have not received medical treatment due to negligence, or

had treatments but not enough to curb it. While in the group of people, who were told of not having high blood pressure, 20.2 percent of them actually had high blood pressure.

In addition to the findings of the 2nd General Health Check of 1997, the problem of overweight among Thai people too was noticed. It is found that the average weight of Thai people is 56.0 ± 13.6 kg (sample mean \pm s.d.), while the average body mass index is 22.4 ± 4.4 . The checking of blood cholesterol shows that 34.4 percent have cholesterol level of 200 – 299 mg%, while 1.4 percent has cholesterol level of more than 300 mg%. Further, the findings show that 4.7 percent of the population of Bkk Metro have cholesterol level of up to 300 mg%. It is higher than the reports of other areas. The checking of blood glucose level shows that 4.7 percent of the country's population has blood glucose level of more than 126 mg%.

The government has seen and understood the severity of the aforementioned problems and has devised various solutions like establishing dedicated agencies for each problem or launching campaigns to stimulate people to understand and involve them in solving the public health problems. Some of the campaigns are Healthy Thailand, which is the principal campaign consisting of many sub-campaigns like To-Be-No.1, Health Building with Power, Food Safety for Health, Shop able Fresh Markets, Health Enhancement Hospitals, Health Enhancement Schools, and Addictive Drug Hotline.

Nowadays, as a result of Thailand's successful family planning programme, the growth rate of the population has been decreasing ever since. This trend is continuing. The other factors are that the people's lifestyle has undergone changes. Women are more educated and they value family planning. They are also required to work for a living as the living cost is higher than it was. Therefore, they have less time for raising children. It can be seen that contraception rate among the married women, is now higher and increasing, like 14.4, 36.8, 53.4, 64.4, 70.2, 75.1 and 79.2 respectively in the years 1970, 1975, 1980, 1985, 1991, 1996 and 2001 (data as per Division of Family Planning and Population).



In spite of the fact that Thailand has very good contraception programme, the abortion rate is higher than standard, at 19.54 per every 1,000 newborns (from the Survey of Abortions and Family Planning of Thailand, 1999, by Division of Family Planning and Population, Department of Health). From the sickness reports of all patients who have received medical services of the Public Health in the country in 1988, it has been found that 102.1 patients per hundred thousand of the population were sick due to abortion. The rate decreased to 97.04 in 2002.

3. HEALTH AND ENVIRONMENT

3.1 General protection of the environment

The MOPH has stipulated strategy regarding better management of natural resources and environment, which is in tune with the National Development Plan of Economy and Society (Issue 9, 2001-06) by stipulating in the 3^d Strategy of Natural Resource Deployment in the Public Health Plan. The followings are its component:

- 1) Increasing the efficiency of better utilization of natural resources and environment.
- 2) The preservation and improvement of natural resource and environment.
- 3) The protection, preservation and improvement of community environment, arts and cultures, and tourism resources.
- 4) The tackling of pollution Problems

1. Residences: The number of highly congested residential colonies in Thailand tends to increase from 1,802 in 1997 to 2,265 communities in 2000. Of these congested colonies, 1,220 were in BKK, 452 in sub-urban BKK and 593 in other provinces. In 2000, there were 442,525 households staying in these congested residences. The rapid growth of these settlements have caused many environmental problems, which adversely affect health of the people living there, such as dirty water, indisposed wastes, shortage of clean drinking water, and bad sanitation practices, which often cause diarrhoea.

2. Food Safety: The eating culture of Thai people has changed, from eating home-cooked food to eating out, or eating finished, semi-finished or instant food. The mass and rapid cooking is popular, and is often found to be non-hygiene both in food material and containers, resulting in deterioration of food quality. The survey of food preparation in 2001 has found that only 20.1 percent, 8.1 percent, 13 percent and 51.7 percent of restaurants, fresh markets, school canteens and hospital canteens, respectively, meet the hygiene standard. Therefore, the consumers are exposed to unclean food and sub-standard food. Also, in 2001, there was close monitoring of cooking processes like checking of food, food containers and the hands of food preparers. The findings showed that the bacteria Coli form was found in 12,587 food samples out of 70,477 samples (17.8%), 11,332 food containers out of 58,907 samples (19.2%) and 6863 of 37,306 samples of food preparers (18.4%). The reports of the Department of Medical Science, 1993-01, show that there were excessive residues of pesticides and growth stimulant Zalbutanol in vegetables and fruits and it also show an upward trend from 16.2 percent in 1996 to 30.1 percent in 1997.

3. Water Safety: In the Campaign to supply and ensure Drinkable Tap Water in urban and rural areas in 2001, it was found that rain water, underground water and tap water were mostly not meeting the quality of water for human consumption. It is often due to excessive contaminations of bacteria and chemicals like cadmium, iron, lead, manganese, excessive suspension in water and the non-standard cleansing of water. The result is that most Thai people are at health risk due to the poor quality of drinking water. In other words, about 43 million of Thai people drink non-standard waters; the group of people at the highest risk is the rain-water drinking group, next is the underground water drinking group and the packaged water drinkers are at the lowest risk of health hazard caused by poor quality of water.

4. Wastes: The disposal of domestic wastes is not up to the hygiene standard in most residences in urban areas; wastes from tour buses, trains are dumped into public places unhygienically. It is found that in the rural areas, 97 percent of the households have proper toilets and in 60.3 percent of sampled provinces (45 of 75), 100 percent of the households have toilets.

3.2 Water supply and sanitation

1) The sourcing and development of clean water:

In 2000, there were programs of drinking water source development in which 27,311 wells were drilled, 4,329 water tanks were built and 9,21 villages were provided tap water systems. Consequently, 91 percent of rural people were able to access clean water in 2000.

2) The solving of sanitation and environment problems:

- The Campaign of Hygiene Toilet in Every House due to which 98.1 percent of households were having proper toilets in 2000.
- The disposal of wastes from hospitals: there have been projects of establishing water treatment systems and furnaces for contaminated wastes in hospitals. As a result, the number of MOPH-governed hospitals having water treatment systems increased from 608 to 863 and furnaces for contaminated wastes from 113 to 750 in 2000.

3) Food Hygiene: The Program of Clean Food Good Taste is to promote the quality of food in local communities and monitoring restaurants in tourist sites. It was organized to ensure the food sold to the people and tourists is hygienic and safe to eat. There are 13,639 restaurants, who have joined this Program and 5,221 (38.3%) of them have been successfully certified with “Clean Food Good Taste” signs, which is higher than the expected 30 percent.

4) The Strategic Campaign of Dwellable City by MOPH has aimed at promoting decentralization of authority to local agencies, which is an effort to increase the capability of the local administrations. The sub-campaigns of Dwellable Thailand have been launched in 169 municipal areas, 972 Tambol Authorities, and 318 schools.

4. HEALTH RESOURCES

4.1 Human resources for health

The public health personnel include medical doctors, dentists, pharmacists, nurses, medical technicians and other 50 job titles. In Thailand there are many institutes, both public and private, producing public health personnel. The production of public health personnel in the public institutes is the responsibility of the Ministry of University Affairs and the colleges under the MOPH. Their further education or training are under the responsibility of the Institute of Prabromratchanaka of the MOPH. The data of output of the public health personnel in 2003 show that there are 1,318 medical doctor graduates, 431 dentist graduates, 807 pharmacist graduates and 1,499 professional nurse graduates. In addition, there are 3,284 primary nurses being matriculated for the professional nurse education and training.

Since the MOPH has demands of 18,203 medical doctors, 6,641 dentists, 7,801 pharmacists and 107,028 nurses, it has drafted a master plan of public health training program to reach an output of 54,400 personnel in next 10 years in order cover the demands in the period. It has prepared a budget of 59.6 million baths for supporting this master plan, which is supposed to produce 596 – 1,250 medical doctors per year, an increase of 200 dentists and 1,000 nurses per year. Further, it has also prepared a budget of 9.6 million baths to locate these personnel to different districts where their services are needed.

Table 4.1 The geographical distribution of medical doctors, dentists, pharmacists, professional nurses and technical nurses in different regions of Thailand, with ratios of public health personnel to population, 2002

Personnel Regions	Medical doctors		Dentists		Pharmacists		Professional nurses		Technical nurses	
	Qty	: pop	Qty	: pop	Qty	: pop	Qty	: pop	Qty	: pop
BKK	7,504	1:767	1,788	1:3,218	2,295	1:2,507	19,889	1:289	3,808	1:1,511
Central	4,135	1:3,566	828	1:17,810	1,543	1:9,557	21,545	1:684	7,979	1:1,848
N. Eastern	2,972	1:7,251	758	1:28,432	1,438	1:14,987	16,860	1:1,278	6,617	1:3,257
Northern	2,698	1:4,499	681	1:17,824	1,200	1:10,115	15,456	1:785	4,957	1:2,449
Southern	1,678	1:4,984	416	1:20,105	874	1:9,569	10,933	1:765	4,654	1:1,797
Total	18,987	1:3,295	4,471	1:13,991	7,350	1:8,511	84,683	1:739	28,015	1:2,233

Source: Report of Health Resources, Bureau of Policy and Strategy, MoPH, 2002

It is also found that more public health personnel, be they medical doctors, dentists, pharmacists, professional nurses or technical nurses, work in public organizations rather than private ones. This could be due to the fact that there are more government hospitals than private ones. There are 977 government hospitals with the facilities for in-door patients. Only 319 private clinics have similar facilities, i.e. a ratio of 3:1 (government to private). The percentages of various health professionals employed in public and private organizations are given in Table 4.2.

Table 4.2 The distribution of medical doctors, dentists, pharmacists, professional nurses and

Public Health Personnel	Public		Private		Ratio Public : Private	Total
	Qty	%	Qty	%		
Medical doctors	14,996	78.9	3,991	20.4	4:01	18,987
Dentists	3,954	88.4	517	14.6	9:01	4,471
Pharmacists	6,553	89.1	797	12.6	7:01	7,350
Professional nurses	74,739	88.2	9,944	11.4	8:01	84,683
Technical nurses	27,590	98.5	425	1.5	65:01:00	28,015

Source: Report of Health Resources, Bureau of Policy and Strategy, MoPH, 2002

Table 4.3 shows the rural-urban distribution of public health personnel. Since the primary cares are mostly in rural areas, secondary and tertiary cares are located in urban areas. The public health personnel like public community health officers, public health technical officers, and public health administrative officers are in the rural areas, while medical doctors, dentists, pharmacists, professional nurses, technical nurses and dental officers are deployed in urban areas.

About 95.8 percent of medical doctors, 86.8 percent of dentists, 96 percent of pharmacists, 93.6 percent of professional nurses and 92.4 percent of technical nurses work in urban areas; while 97.5 percent of the public health administrative officers, 88.9 percent of community health officers and 83.8 percent of public health technical officers work in rural.

The ratios show that the number of rural population per one medical doctor is very high according to the standard of the 9th National Development Plan of Economy and Society, which stipulates that the ratio of medical doctors to rural population must not exceed 1:6000 by the end of the Plan i.e. by the year 2006.

In the BKK Metro, one medical doctor takes care of 952 persons, one dentist per 6,614 persons, one pharmacist per 4,667 persons, one professional nurse per 279 persons and one technical nurse per 1,511 persons.

While in the North Eastern region, there is one medical doctor per 7,251 persons, one dentist per 28,432 persons, one pharmacist per 14,987 persons, one professional nurse per 1,278 persons and one technical nurse per 3,257 persons.

From the distribution of public health professionals at different levels of health care, primary care, secondary care and tertiary care, it is found that most of the health professionals are in the tertiary care level. Other public health professionals like public health technical officer, public health administrative officer, and community health officers are found mostly in the primary and secondary care levels. Dental officers are mostly found in the secondary care level.

Nearly 79 percent of medical doctors work in the tertiary care, while 46.8 percent dentists work in tertiary care and 40 percent work in secondary care level. Similar distribution is found among pharmacists - 50.6 percent in tertiary care and 45.4 percent in secondary care, while most professional nurses (64.4%) and technical nurses (61.4%) work in tertiary care.

Remarks:

1. Primary cares are Offices of Community Health, Office of Ampur Public Health, Branch hospitals, Nursery stations/service centres, PCU (Primary Care Unit).
2. Secondary cares are Community hospitals, Somdej Prayuphratch Hospital, Other Technical Regional Centres.
3. Tertiary cares are regional or general hospitals, hospitals belonging to other government agencies, specialist hospitals.

4.2 Financial resources for health care

The government's financial source has been the biggest funding source of the MOPH, yet during the years 1980 – 1989, the allocated budget decreased from 29.9 percent in 1980 to 19.7 percent in 1989. However, after 1989 the government's allocated budget for the MOPH started to rise again and reached 37.1 percent in 1997 and 63.4 percent in 2003. It is due to the fact that during the said period, Thai economy started to recover, the economic growth was steady and rapid plus the government's policy of human-centered development. Efforts were put into the health insurance to cover all people and promote good health for all. Budget allocation for public health increased from 4.2 percent in 1989 to 7.7 percent in 1998. However, after the Financial Crisis, the government had to lower the budget allocation in order to comply with the IMF agreements. In 2001, the budget allocation was 6.7 percent of the country's total budget.

It is seen that the budget for MOPH were quite high in the past decade. Budget data shows that during 1969-01, the allocation was about 2.7 – 7.7 percent of the total country budget, or about 0.4 to 1.0 percent of the GDP. This is because the foreign debt burden and the budget for security have decreased, until the outbreak of the Financial Crisis in 1997, which has hiked the foreign debt from 5 percent in 1997 to 10.9 percent in 2001. The MOPH, consequently, has been allocated lower budget, in the fiscal year 2001 - 58,692.2 million baths plus another 2,400 million baths from the Health Insurance Funds, totalling 61,097.2 million baths, or about 6.7 percent of the total country budget. In the fiscal year 2003, MOPH received 69,133.94 million baths or 6.915 percent of the total country budget. However, in term of real value of the budget, it is found that the 2001 budget was lower than the 1996 budget. It is note-worthy that during 1997 to 2001, there was a lot of foreign loan. In 1997 the loan was 1,360 million baths, 1998 =1,360 million baths, 1999 = 3,560 million baths, 2000=2,360 million baths, and 2001 = 446 million baths.

From the perspective of expenditures, it can be seen that about 31-53 percent of budget was for the salary, 28-50 percent for the operation, while a portion of investment was dependent on the economic situation i.e. about 11-39 percent.

The Private Financial Sources: initially, private sector was the largest financial source for the public health financing. Since the coverage of the health insurance has not been 100 percent, 30 percent of the population is without health insurance. This suggests that these people are to pay for their healthcare. Also, Thai people are used to taking care of their own health, like buying one's own medicine, when sick. This suggests that the household financial source for the healthcares is very important in the MOPH's determining the provision of public health services. In fact, the households provided 60 percent of the total healthcare expenditure in 1980.

In Thailand, total health expenditure was around 3.5 percent of GDP in 2003. Public health expenditure of total expenditure on health was 63.4 percent in 2003, whereas private health expenditure of total expenditure on health was 36.6 percent during same period.

The financial sources from the households in healthcare account for 73.9 percent of the total health care expenditure. In the year 1989, the households' contribution to the health care increased to 80.1 percent due to the fact that the government had reduced public health budget, resulting in increased financial burden on the households in taking care of their health. After 1989 until the 1997's Financial Crisis, the household's financing health has a decreasing trend

i.e. 62.9 percent, but it increased to 66.8 percent in 2000. In the future, the economy is expected to be better and thus the government will be able to provide more financial support for the public health plus the policy of public health reformation, which aims to increase the health insurance to cover every one and improving the quality of the public healthcare establishments and services. More people are expected to use public health services, instead of buying their own medication. This also contributes to the decreasing trend of household's healthcare spending.

The financial aids from abroad: it is found that the foreign health financial aids tend to decrease, from 1.44 percent in 1980 to 0.15 percent in 1990, and the decrease propensity is continuing to be 0.14 in 2000. On the contrary, Thailand is now becoming a financial aids provider rather than a receiver.

In the efforts to heighten the public health insurance, the MOPH, as the principal responsible agency, has pushed forwards many programs to respond to the government's policy. One of them is the program of 30 baths for Every Disease, which started in the April of 2001. It has begun with the participation of the MOPH healthcare establishments by launching a pilot program in 6 provinces covering 1.3 million eligible people. During October of the same year, the program was expanded to the 75 provinces and some districts of the BKK Metro with participation of 1,017 government healthcare establishments and 103 private establishments covering 38.8 million rightful people. In April of 2002, the program of 30 baths for Every Disease has successfully covered all the districts of Thailand with 45 million eligible people under its coverage and participation of healthcare establishments in all the covered districts. As a result, the rightful people now have easier and cheaper healthcare access. Further, the MOPH also encourages people to have their own families' dedicated healthcare establishments, which are near their homes by allowing people to register their choices of their dedicated healthcare establishments at their nearby Community Health Centres. Regarding payments for the "Health Insurance for All" project, the Office of the Permanent Secretary of MOPH will be responsible for allocating the fund to each Provincial Public Health Office according to its population size. The Provincial Public Health Office will in turn allocate the fund to each of its healthcare establishments, according to its population size.

4.3 Physical infrastructure for health

The total numbers of healthcare establishments, which have in-patient beds, were 1,293 with 1,34,453 beds in 2002. Of them, 94.7 percent are generic healthcare services and 5.3 percent are for specialized healthcare services.

There are 973 healthcare establishments belonging to the government, while 320 to private, with a private to government ratio of 1:3.6, and are classified as generic healthcare services and specialized healthcare services as the followings:

- For the government establishments, there are 915 generic healthcare services (74.7%) and 93,268 beds
- For private establishments, there are 309 generic healthcare services (25.3%) and 28,511 beds
- For the specialized healthcare services establishments, the government has 58 (84%), 12,271 beds and the private has 11 (16%), 403 beds.

The dispersion of the public healthcare establishments concentrates in certain areas. The government's healthcare establishments of different scales have been expanded to cater to all the needs quite well, especially those establishments under the MOPH, which is the principal government agency for the public health affairs. In 2002, the MOPH had 94 Regional/General Hospitals, 722 Community Hospitals, which cover about 82.4 percent of the total Ampurs; 9,804 PCUs for catering the tambols, and 69,331 Primary Public Health Centres in the communities catering 94.4 percent of the villages. Regarding the dispersion of the public health facility in terms of the bed to population ratio, it is found that the ratio is increasing in all regions and the whole country. Nevertheless, there is high concentration of beds in the BKK Metro, with the ratio of one bed to 213 people; while in the Central region it is 1:391; in the N. Eastern region, it is 1:759; in the Northern and Southern region, and they are 1:496 and 1:465, respectively.

The overall bed occupancy in the healthcare establishments is 72.26 percent. The bed occupancy in the government establishments (81.74%) is more than that in the private one (37.66%). The bed occupancy of the MOPH's establishments is 86.15 percent. The expansion of the private healthcare services depends much on the economic conditions and the market demand. In the year 2000, there were 13,099 drug stores and 10,875 clinics.

4.4 Essential drugs and other supplies

The National Drug Policy: According to the 9th plan of the MOPH under the guideline of the National Development Plan of Economy and Society, Issue 9 (2002-06), it is stipulated in the 3^d strategy, which regards the development of basic health factors and health enhancement in the aspects of drug supply.

Regarding the drug uses, there are the following policies:

- The drugs must be efficient, safe, with good quality, with reasonable prices, evenly distributed by both public and private agencies.
- To mandate that the drugs consumed must be efficient and effective in healing, to reduce unnecessary drug consumption.
- To encourage the domestic pharmaceutical industry, so as to be self-sufficient in drug production and consumption; the related R&D must be emphasised and promoted; drug exports are to be promoted, too.
- To encourage the use of the domestic materials and resources in producing drugs.
- To encourage the R&D of herbal medicines in order to understand and evaluate their healing capacity, efficiency and safety, and also to promote the safe and efficient uses of herbal medicines and traditional methods in healthcares and therapies.
- To encourage the uses of drugs, according to the National Accounts of Major Drugs in both public and private sectors.
- To improve the efficiency in administration of drug affairs, and to amend to the related laws and regulations so as to ensure maximum protection to the consumers.

Drug-related laws: The regulating regime is through The Pharmacy Act 1967, the Ministerial Regulations, Ministerial Announcements, the Ministerial Orders, and their amendments. Besides, there are other laws and regulations which have been issued according to the stipulation of the

Pharmacy Act 1967. These laws and regulations are being amended and notified from time to time.

The idea of classifying the drugs which are essential to the well being of the public has been initiated since 1972 by the MOPH. It then framed the policy and appointed the Department of Medicine to prepare and maintain a National Account of Essential Drugs. However, after the restructuring of the Ministry in 1972, the maintenance of the National Account of Essential Drugs has been transferred to the Division of the Regional Hospitals. The major objective of the National Account of Essential Drugs, which has been adopted since 1970, is to be a template for the MOPH's hospitals to assort their drug inventories. Later on, it has been revised and ameliorated by incorporating the factors of budget frugality and the convenience of drug inventory management. It has been published as "The MOPH Account of Essential Drugs" in 1979.

Since the idea of the above National Account of Essential Drugs agrees with the recommendation of the WHO, Thailand has started to have its own national Account of Essential Drugs, for which the MOPH has designated a committee, the National Account of Essential Drugs Committee in 1981. The committee is to identify and classify the essential drugs in health establishments of each level, to provide advice and recommendation on how to make uses of the National Account of Essential Drugs and follow up and evaluate the results there from.

After the Panel of the Ministers has approved to designate the National Drugs Policy, and has installed a committee, the National Committee of Drugs in 1982, the preparing and maintenance of the National Account of Essential Drugs has been transferred to the Subcommittee of the Development of the National Account of Essential Drugs, which is the subcommittee under the National Committee of Drugs. The subcommittee has reviewed and improved the National Account of Essential Drugs from time to time as necessary until 1996. The maintenance of the National Account of Essential Drugs is under the WHO's principle regarding drugs, which define "principal drugs" in the National Account of Essential Drugs as that they are important drugs that cannot be left out, and they are necessary for the public health of the population and for solving the public health problems of a country.

The National Account of Essential Drugs, 1999, is divided into two parts:

1. Account of Essential Drugs for hospitals and public health establishments
2. Account of Essential Drugs for primary public health affairs

Account of Essential Drugs for hospitals and public health establishments consist of drug items assorted, according to the pharmacologic and therapeutic classification, into 23 groups, totalling 932 items. The drugs that can be produced within the hospitals by their Pharmacy sections and have been approved by the Subcommittee of the Development of the Hospital Account of Essential Drugs, are also added to the drug list of the hospitals or the public health establishments' National Account of Essential Drugs.

Drug Procurements: The Office of Permanent Secretary of the MOPH and the Food and Drug Administration, together with the Mixed Committee of Public and Private for the Resolutions of the Medical and Public Health Issues are the working agencies that respond to the preparation of

the qualification of drug requirements of the country, which are used as the guideline for both private and public to plan the sourcing of the essential drugs.

The National Pharmaceutical Organization is one of the working agencies for (i) mobilization of resources from private and public (ii) to enhance and expand the capability of the productions of the essential drugs which are primary for the prevention and curing of diseases and for the public health purposes so that the drug supply meets the nation's demand. The Organization also monitors the quality of drugs, efficient sourcing of the essential drugs and strategic drugs which are required to be imported. The procurement of the strategic drugs is usually by price biddings in order to acquire the drugs with reasonable prices and with stipulated quality. The organization also monitors the stocks of drugs to maintain a suitable reserve level of each essential drug. It is also responsible for preparing the necessary drug ingredient chemicals, proper procurement and storages of them for meeting any crisis to control the supply and demand of drugs, and to control the quality of drug ingredient substances.

MOPH is the government agency, which is to provide support and provide aid to the domestic production of drugs by procuring and reserving necessary drug ingredient substances. Besides, it is to facilitate by eliminating various obstacles so as to promote the private productions of the essential and primary drugs for the public health. It is also to encourage and educate people to use the proper primary health drugs in their own self-medications.

In the year 1986, the Office of Prime Minister has announced the 7th issue of the Regulations of the government inventories, which stipulate that the public health establishments under the MOPH are to deploy no less than 80 percent of the allocated drug budget to procure the drugs according to the National Formulary, while the public health establishments under other government agencies are to spend no less than 60 percent of the drug budget to procure the drugs according to the National Account of Essential Drugs.

MOPH is responsible for promoting and restoring health and updating the drug usage standard. Moreover, the MOPH is to improve the present measures and laws regarding the diagnosis, the suitability and updating of the National Formulary by considering the needs of the public health. Therefore, the MOPH has taken measures to improve the drug administration systems in different government agencies, both at the national and regional level so that the government public health establishments, drug foundations and PCUs can manage their drug resource efficiently and economically. Besides, it also provides the required knowledge, technology and suitable personnel for the above public health establishments.

Apart from the above responsibilities, MOPH and the Ministry of University Affairs have collaborated in providing courses of clinical pharmacology, the exchanges and dissipation correct and current information and knowledge of prudent drug usages. They also provide measure and methodology to help in improving general people's capability of prudent and economical drug purchases and consumptions. This includes the necessary knowledge about the deadly drugs and the potential danger of improper uses of some common drugs so people can lower their consumptions.

Thailand has enacted the protection of intellectual property rights since 1979. The Drug Patent Act then protected only the right of the drug production processes. However, on 21st of August,

1985, the Association of Pharmaceutical Products and the American Chamber of Commerce in Thailand have appealed to the government to have the Drug Patent Act amended to also protect the right of drug products and the patent age to be extended from 15 years to 20 years. For this appeal, Thailand has then amended the Act accordingly in 1986.

Later on, on 30th September, 1992, the Drug Patent Act 1979 has been amended again to extend the Drug Product Patent age from 15 years to 20 years, and also appointed the Committee of Drug Patents to look after the prices of drug to prevent them from hiking too much since the drug products which had the protecting patents, monopolized the market.

In the year 1993, the “Temporary Measure” was amended to become the Safety Monitoring Program (SMP). On 31st May, 1994, it was mandated that the drug products which had received their first Drug Patents between 1st January, 1986 and 30th September, 1991, were to be monitored under the SMP.

The SMP was for the original drug products, and the Measures of Bioequivalence was for the generic drug products which had the same ingredients as the original drug products. These measures had been effective since 22nd August 1989.

After the MOPH had incorporated the SMP into the procedure of new drug registration, it received complaints and opinions from consumers, specialists, intellectuals from government and private agencies, both from within and without the country, that the above measures had created market monopoly for the original drug products, which were usually too expensive to be affordable by the majority of the patients, like most AIDS patients and HIV carriers. As a result, in 2001, Thailand made an amendment to separate the SMP from the new drug registration and thus, from the drug monopoly and allowed the generic drug products to have the bioequivalence during the SMP period of the original drugs (Bolar Provision). The principle of this amendment is to protect the safety of the consumers and the highest possible benefits to the country.

Compliance with the international practices and the Patent Laws of Thailand: The Pipeline drug products are still governed by the Food and Drug Administration’s “Temporary Measures” of 1994, which regulates the related SMP and bioequivalence studies of new drugs dated 31st May, 1994 so as to comply with the obligation that Thailand has to the USA. However, the FDA mandated the pipeline product distributors to report their drug items within 180 days.

During 9th – 13th May, 2001, the 4th WTO Ministerial Conference held in Doha, Qatar, the Thailand’s standpoint was that we supported the inclusion of the meeting agenda of TRIPS and that of the public health in this 4th conference hoping that the problem of patient’s accessibility to the necessary drugs would be resolved.

In this 4th WTO Ministerial Conference, Thailand had its financial minister as the head of Thailand representative team of which one was from the MOPH. The MOPH representative tried his best to persuade the Ministry of Commerce to understand the importance of the public health problems, which were the consequences of the agreements regarding the intellectual property right that were covered in the trade agreements under the WTO, especially the problem of patient’s accessibility to the necessary drugs like AIDS patients and HIV carriers’ due to the fact that most AIDS drugs were new and patented. Thus, the prices are too high to be affordable due

to monopoly created by the drug patents. The issue of solving this problem of expensive drugs and inaccessibility of necessary drugs was an important issue being attended by many developing countries and the international organizations like WHO and UNAIDS. There was need to balance the TRIPS agreements of the WTO and the impacts they have on the public health of the people. It is the rights of the patients to receive proper medical treatment and the society too as a whole. Instead of looking forward to the one sided commercial benefits from the agreements one should see the society as a whole in the present world, which can survive under the principle of the free trade of the WTO.

4.5 International partnership for health

Thailand has already evolved a mechanism of international health co-operations in the form of an aids receiving country, bilateral co-operation or multilateral co-operation. In the year 1998, Thailand had established a committee for the international health co-operation affairs, which has the responsibilities of forming policies regarding the international health co-operation with other countries, international agencies, private organizations and other co-operation groups. The committee is to support the government policy in solving the economic and social problems of the country and of the region and also to monitor and control these international co-operations to ensure that they are programming towards the pre-decided goals. Furthermore, an operation committee for co-operations with the neighbouring countries and developing countries has been set up to take care of planning, implementation and following up and reporting the progress of related co-operations with those countries.

For the time being, Thailand has made certain achievements as desired in the policy. Thailand has been able to build up certain bilateral public health co-operations with its neighbouring countries like the People's Republic of Lao, the Republic of Burma (Myanmar), the Kingdom of Cambodia, the Socialist's Republic of Vietnam, Timor-Laste and other Asia Pacific Countries like Maldives. In addition, multilateral co-operations are also established like the Mekong Basin Disease Monitoring Project, which is the multilateral co-operation of 6 countries which include China, the Kingdom of Cambodia, and the People's Republic of Lao, the Republic of Burma, the Socialist's Republic of Vietnam and Thailand.

Besides, Thailand also has long-term co-operation with other countries such as Thai-US public health co-operation which commenced since 2001 and also co-operations with other countries in the form of issue-specific projects such as with Australia, Japan, and Germany. It also has co-operations with international organizations, like WHO, UNICEF, UN agencies, Global Fund to Fight AIDS, Tuberculosis and Malaria.

Allocation and Use of Resource

The resources that are deployed in developing the co-operations of public health are from two major sources - the budget from each of the participating countries and the budget from the international organizations or other organizations. In case of Thailand, most of the allocated budget is under the control of the Ministry of Foreign Affairs and some part is received from the budget allocated for normal programs of the MOPH.

In developing the international health co-operation, there are many obstacles and constraints. The important ones are to be studied and solved for successful development of the international co-operation. They are given below:

1. There is a lack of continuity in development at the national level, of the outlook and strategy of future development of international health collaboration.
2. Each responsible agency's follow-up system of the international health co-operation program at the national level is not efficient enough to meet the standards. Various co-operation projects still scatter around in different responsible agencies.
3. The involvement of the private organizations and general people's organizations is rather minimal.
4. There is a need to reconsider the concerning government policies and international trade agreements under the WTO.
5. The new public health issues such as the safety in food, drug, and pharmaceutical products.

Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) is an independent fund for the purpose of providing financial support. It has been registered with Rissre du Commerce at Geneva Switzerland. The Fund provides support to the projects which are proved to be pragmatic in controlling AIDS, Tuberculosis and Malaria. It is stipulated that the donor (recipient) countries must build up partnership mechanisms among the government agencies, private organizations, the private developing organizations and other international organizations within their respective countries, by setting up Country Coordinating Mechanism – CCM. Further they must prepare precise and efficient action plan called Country Coordinating Plan – CCP, and the projects proposed must pass the Technical Review Panel – TRP.

Thailand has an important role within this Fund since Thailand has its representative in the Transitional Working Group – WTG, which is responsible in shaping the structure, policy, orienting direction and determining the future operative measures of the Fund. Also, Thailand has actively participated in many important sub-committees like that of Governance, Eligibility Criteria, Result-based Disbursement and Technical Review Panel. Moreover, Thailand has sent specialists to work full-time in the Technical Supporting Secretariat (TSS).

Thailand has jointly organized workshops, on the principle and methodology of managing the fund, with India, China and Japan in order to provide intellectual and technical support to the countries within the South East Asian region and the West Pacific region so that the countries in these regions are able to meet the criteria of the Fund and receive more funds. Besides, Thailand is also one donor country of this Fund contributing annual fund of 1 million dollars for 5 years (2003-2007).

On the part of Thailand, the Department of Disease Control has been appointed as the Principal Recipient which acts as the principal liaison body to coordinate in applying for the fund. The Health System Research Institute (HSRI) has been appointed as the Local Fund Agent who is responsible for following up the progress of the projects, receiving the fund, financial management of those projects. HSRI is also to report to the Principal Recipient about the progress of the fund-receiving projects, appraise the effectiveness of the Country Coordinating Mechanism (CCM) and report to the Fund.

At present there are 4 projects in Thailand that have received fund support from the GFATM Thailand has received a total of 209.65 million US dollars, or about 9,200 million baths of funds during the 5-year term (2003-2007), ranking first in term of the amount received among the Asian countries and ranking third in the world. As a result, Thailand will have enough resource deployed in the efforts to successfully solve the problems of AIDS, Tuberculosis and Malaria.

5. DEVELOPMENT OF THE HEALTH SYSTEM

5.1 Health policies and strategies

The MOPH is authorized and responsible for the strengthening of the public health and hygiene, preventing and controlling diseases and recovering the energy-level of the population. It has established its goals and a 3-year strategy for pursuing the goals so that the subordinating agencies adhere to the principal goals and their strategy is in operation according to estimates of the public health budget required for achieving the goals.

The followings are the target of MOPH's policies:

1. To improve the organization structure, culture and the operation procedure in order to have good administrative system and to become a learning organization of public health.
2. To develop and provide mechanism in facilitating the involvement of all concerned parties in monitoring the public health system as a whole.
3. To increase the capability of the medicines, public health and biology of health, in order to be on the front line of world competition.

The middle-term goals of the MOPH's services are following:

1. The important public health problems in different age groups of the population are to be lowered.
2. The people have health security with standard and quality health services, and to encourage people to take part in taking care of health and the public health environment.
3. The healthcare products and services are to be of the quality and up to the standard of international requirement.
4. To have good governance in the public health administration.

The MOPH's strategies in pursuing the goals according to the policies are:

1. Improving the sanitation behaviour of the people and to prevent and control diseases with involvement of all concerned parties.
2. To increase the varieties and capacity of the research, including bio-medicines, development, transfer, applications of technology and knowledge.
3. To develop the system of health security and public health services to be holistically efficient with equal quality services for all.
4. To promote people's involvement in developing public health, managing public health environment accordingly and efficiently.
5. To encourage innovations, develop mechanism of facilitating innovations of health products and services, which make use of domestic resources to further enhance the Thai

traditional wisdom so that the products and services are of better quality and meet the international standard.

6. To develop and improve the systems and procedures of operations of public health management to make them better and more efficient.

The devising of the public health strategic plan: The strategic plan is very important for the result-oriented management (or Management by Objectives). Therefore, the strategic plan will be designed carefully in order to conform to the desired goal and the strategy of achieving the goal of the superior operation unit, so as to achieve the goal successfully.

Millennium Development Goals (MDGs)

The progress made towards achievement of health related Millennium Development Goals is given at Annex-2.

5.2 Inter-sectoral cooperation

Change in policy, organization structure, and the ways to allocate the budget have been achieved both at the central and the provincial administrations to facilitate these result-oriented functions of administration. It has helped to increase the efficiency in deploying the allocated budget and have good outcomes for the people and the country as a whole.

According to the principle of MBO, the MOPH has adjusted its paradigm regarding the public health management by allowing different operation units to have higher working flexibility while maintaining the connectivity among the related units so as to maintain the coherency of the whole organization at the same time ensuring that the line of command of ministry -> department -> division/province is still valid.

The new perspective of the MOPH stipulates that each subordinating unit to study the impacts of the superior unit's strategy in order to adhere to it as the direction for guiding its operation in pursuing a common goal.

5.3 Organization of the health system

The organizational structure at the central level of the MOPH consists mainly of the Office of Permanent Secretary of MOPH and 3 task clusters, described below:

1. The Office of Permanent Secretary of MOPH is responsible for the drafting of policies, plans, and supervising, monitoring and appraising the outcomes of the operation units of the Ministry. It also administers to ensure that the execution is in line with the law, undertakes legislation of laws regarding the health establishments and other related affairs and is also responsible for the production and development of public health personnel.
2. The Task Cluster for the development of medicines is responsible for the development of medical science, the therapeutics and recovery of potency, development and transfers of medical knowledge and technology for therapy and recovery of health. The cluster is also responsible for establishing healthcare standard, and developing alternative medicines for the provision of quality public health services to the public for the purpose of good

mental and physical health of the people. The Task Cluster comprises 3 departments - the Department of Health, the Department of the Development of Thai Medicines and Alternative Medicines and the Department of Mental Health.

3. The Task Cluster for development of Public Health is responsible for the development of public health science for promoting health, controlling and preventing diseases, research and development of knowledge and technology, transfer of knowledge for promoting health and controlling and preventing diseases for the purpose of good mental and physical health of the people. It comprises 2 departments - the Department of Disease Control and the Department of Health.
4. The Task Cluster of Health Service Support is responsible for supporting the public health service providing units, the systems and mechanism facilitating public health service provision and the public health system. They are also responsible for administering the protection of consumers of healthcare services and drug products for the purposes that the general people can take care of their health efficiently and receive standard and quality health services and products. The Cluster consists of 3 departments - the Department of Service Support, the Department of Medical Science and the Food and Drug Administration.

The organizational structure of the regional agencies which are under the administration of the Office of Permanent Secretary of MOPH, consist of Provincial Public Health Offices, hospitals, Ampur Public Health Offices, the PCUs and the community clinics. The above agencies are the major healthcare service providers who help the people promote health, control and prevent diseases, and provide medical treatment and recover health. They utilize the knowledge and technology that have been developed and transferred from the technical Department and adjust and apply them appropriately according to the specific requirements of their regions. The organizational relationship between the technical Department at the centre and the regional public health operation agencies is basically staff relationship in which the centre provides support to the regional agencies, but does not command.

For healthcare at the primary level, there are the PCUs providing the services within the scope of Tambol and village. They are responsible for arranging a suitable aggregate of health services for the rural people in their responsibility areas which normally have 1,000 – 5,000 people. There are fulltime public health personnel stationed at the public health units such as Sanitation Officers, Midwife Nurses and Technical Nurses. In addition, Dental Officers, Technical Nurses and Public Health Officers are also working there. Ampur Public Health Offices are responsible for the assistance, supports, supervision, monitoring and appraisal of their accomplishments.

On the aspect of decentralization of the authority of the public health administration, the Constitution of the Kingdom, 1997, the section 78 stipulates that the government is to decentralize its authority to empower the regional authorities to make them self-reliant and make their own decisions regarding the regional affairs through the legislation of acts, plan and procedure of achieving the goal of the decentralization within 4 years (2001-04). In case the regional organizations are not ready to assume their new role within 4 years, the decentralization period is expanded to 10 years (2001-10). The regional organizations are stipulated to prepare themselves for the decentralization while the central government is stipulated to provide administrative assistance, and intellectual and technical supports for decentralization purpose. The Steering Committee of the Decentralization has also been established for the purpose of

forming the policy and procedure of the decentralization. The Steering Committee has so far drafted up two major plans:

1. The Master Plan of Decentralization which shapes the vision, the mindset and the direction of decentralizing the authority to the regional organizations. It also determines the tasks and operations that are to be assigned to the regional organizations. Some parts of the public health affairs are parts of the tasks and operations that are to be distributed out.
2. The Reformation Plan of Decentralization requires the establishment of specialized committee for the respective provinces, like the Regional Health Committee for the public health affairs.

The MOPH, in an effort to actualize the decentralization of the public health administrative authority to regional organizations, has designated the Regional Health Committees in 43 provinces. These regional committees are responsible for the coordination in forming policy, drafting plans of regional public health development, plans of resource requirement, and also planning budgeting and personnel. They are also responsible for defining the criteria and allocating the resources, supervising and inspecting and defining the criteria for appraising the outcomes of the regional public health administration. Currently, the committees are in the process of determining the forms and procedure of operation.

5.4 Managerial process

For the result-oriented management, the strategic plans are instrumental in the administration and operation of each department. The process of administration is described below:

1. Compliance of goals and strategy of the superior administrative units:
While the MBO allows each administrative unit to have more flexibility, they also need to accomplish the goals and comply with the strategy of the superior administrative units. As a result, each administrative unit is restrained by the goals and strategy of the superior units; each has the freedom on how to achieve the goals but not what to be achieved. The consequence is that each unit will work in concert towards a common goal set by the top management.
2. The compatibility with the regional problems and the capacity of the responsible administrative units:
In forming the strategic plans of the MBO administration, not only the compliance to the superior's goal is required but also the compatibility of the strategic plan with the regional problems and the capacity of the responsible administrative units. Therefore the data and information of the regional problems and the capacity of the responsible administrative units are required to be incorporated in forming the strategic plan in order that the subordinate units are able to comply with the superior's goals and strategy in solving their problems.
3. The best utilization of the existing resources:
The MBO management will compare the budget utilization and the results achieved in order to see the efficiency of each administrative unit. The same result achieved does not mean the same efficiency but if it is achieved with lower budget, then it is

definitely better efficiency. As an effect, the MBO will stimulate collectively the administrative units to best utilize their existing resources.

To provide the accountability of the success and failure of the administration, the MBO practice requires that in appraising the administrative results the factors for success or failure are identified so that the weakness can be amended and obstacles can be overcome in the next endeavours. One particular set of success indicators cannot be applied to different levels of different administrative functions; the correct performance appraisal of the personnel cannot be achieved this way.

5.5 Health information system

For the improvement of the management information system, the MOPH has been developing and improving the centralized database for collecting and storing data in a common database in order to provide necessary information for the managerial decisions and for other purposes. For example, the data storage system has been improved to be an Electronic Individual Records' system which collects data at the points of data generation. The MOPH has resolved to develop 3 levels of database i.e. the database for the PCUs or Tambol Health Centres, the database for the hospitals and database for the provincial public health administrations. The collected data (in operative units) also may be utilized by the data collecting units in order to improve the data quality. Furthermore, the MOPH has put efforts into developing the National Public Health Data Centre for the purpose of keeping data for the managerial decision-makings. Currently, the Ministry Operation Centre (MOC) is operational in which important data such as the policy indicators of the government and of the MOPH and the principal indicators (KPI) of each fiscal year are kept for the purpose of following up the progress and appraising the performance of the work for which the budgets have been allocated.

The health information system is divided into 2 groups, namely, the community-based information system, in which data is obtained usually from surveys, and the institution-based information system of which most data are from the reporting system. The details of the two groups of information system are as follows:

1. Community-based surveys:

They provide data which are difficult to collect within normal operation processes. Since the data generated from the normal operation process are in the form of report for those people, who have come to receive services at the healthcare centres, information from the people, who have not gone to the healthcare centres, will not be recorded. On the other hand, the health report systems normally cover the data of the health services provided within the government establishments (under MOPH), while those of the private health establishments are not available. In addition to this, community-based surveys provide more and better quality of data for assessing the coverage of healthcare services than the data from the normal operation process and also more varieties of data like incomes and expenditures of households etc.

2. Institution-based reports:

These are from two major groups of data sources - one is from the agencies under the MOPH and another is from the agencies not under the MOPH. The agencies under the MOPH are PCUs, regional/general hospitals, and community hospitals. The main data

sources from agencies which are not under the MOPH, include the Bureau of Registration. It keeps record of births and deaths of population. The collected data is analyzed and processed to produce some important ratios which can be used to indicate the efficiency, quality and justice in providing healthcare services.

The data from the private health establishments and other independent organizations are made available through the co-operation of those private and independent parties, who have helped in collecting data for MOPH through filling in report forms and replying survey forms. Some data from the above co-operation are not mandatory to send, but some data are mandatory to be submitted to the MOPH, under the law.

The current data kept by the MOPH database system for the purposes of a following-up progress, performance appraisal and for managerial decision making, could be classified into 3 categories: (i) Health status data (ii) Health Resource data and (iii) Health Service data.

1. Health status data: these are the data necessary for health administration and for evaluating the performance of the public health system. They need to be collected regularly. Some examples of such data are illness and death cases by gender and age groups, the causes of deaths, nutrition status of the children, mental health, the situation of the dental health and so on. These data are fundamental for the purposes of planning public health development and can be viewed in different perspectives such as region-wise, district-wise, ampur-wise and province-wise.
2. Health resource data: they are data of human resource, allocated budgets, health establishments and health equipments. They are useful in assessing the coverage of health services that government has provided to the people and the adequacy of the health resources. They are necessary data that must be collected regularly. They are arranged to show details at different levels like province and their respective health establishment.
3. Health service data: they are the data of health services received and the accessibility of health services like the out-patient data, in-patient data, hospital bed occupancy rate, average length of over-night stay, the coverage of health insurance, health education activities, immunization, provision of medical services, food and environment, school sanitation and family planning. These data are used to appraise the performance of the public health personnel at the community level and assess the efficiency in providing health services.

The disease Surveillance System monitors the spread-out of the communicable diseases. Individual cases of each disease are reported together with locations and their time of occurrence. These data are maintained mainly for the purpose of controlling diseases from spreading out, monitoring the disease and mitigating them in time. Within this data system, data are transferred up from tambol to province and then to the MOPH. There are two major goals for keeping this system (i) they are used as a systematic process of disease prevention and control within a region or overlapping areas among regions and (ii) they are used as a system of planning and appraising system, which are currently the most important objectives of the Disease Surveillance System.

5.6 Community action

The public health problems, however, cannot be solved by relying either on the efforts of the government or of private enterprises alone. The encouragement of the co-operation and involvement of the people and communities are necessary in realizing the mission of “Good Health for All”. This could be achieved through educating them in order to enable them to look after their health properly.

For evolving a strategy for developing primary public health services, Thailand has been encouraging and developing different forms of involvement of people on public health issues, especially for the rural communities, such as conducting health instructions, establishing public health volunteer units and encouragement for forming of health groups or societies like the exercise groups. At the same time, there have been many organizations that people have established by themselves to promote good health within their communities, both in urban and rural areas, under the leaderships of people from both public and private sectors. There are many aspects of public health in which these independent organizations have been involved like the development of healthcare services and the protection of consumers. Some examples of these independent organizations are the Family Planning Association, the Association of the Development of the People and Communities, Association of Rural Doctors Foundation and the Village Doctors Foundation. The MOPH has seen the strategic importance in these people’s involvements in public health affairs and has provided supports in various forms like the material supplies, equipment, places, man-power and budget. Till date, there have been many complimentable accomplishments made by these independent organization, for example, family planning, the provision of clean water and sanitation in districts, the development of community hospitals and government clinics, the dissipation of knowledge and information about health to the people, the revitalizing of the Thai herbs and Thai traditional medicines by encouraging hospitals to use herbs in healing disease and recovering health.

During the period 2000–06, National Public Health Act was drafted which stipulates the establishment of the National Health Committee. The Committee will comprise equal number of representatives from the government, intellectuals and general people representing all walks of life. Further, the Act also stipulates to have National Health Assembly meeting to be held at least once a year. This Assembly will provide a forum for the general people throughout the country to express their opinions on the requirements of the public health system development. It also stipulates the establishment of a public health research institute for which the MOPH is to allocate 3 percent of the public health budget. The purpose of establishment of such institute is to develop the knowledge of public health and the wisdom required for policy initiative, health administration and operation. However, the most important mission is to promote awareness about health service.

The wind of development, changes and reformation is now blowing everywhere in the Thai society and has its impact on all the systems, especially the system of government administration, which is steering towards a decentralization of authority. There is, of course, no exception for the public health administrative system, especially when the Reformation Acts of 1999 has been declared effective and has stipulated to share the administrative authority with the regional agencies. Along with that, regional committees of public health are being set up. They consist of representatives from the local authorities, professional administrators, representatives

from the general people, and other qualified persons for the purposes of jointly managing the transition, and to ensure that the decentralization is in line with the pre-set policy and up to the standard. The regional committees of public health are also responsible for the co-ordination of public health administration within the region. The designation of delegates from the general people from all walks of life is very critical in encouraging the involvement of general people in the public health system development.

The factors that motivate people's involvement in public health affairs are now in the declaration in the Constitution 1997, which is a constitution by the people and for the people. It has opened up opportunities for the general people to get actively involved into the development processes and also in solving various important and complicated problems of the country. Therefore, the scope of work and activities in which people will have direct involvement, is expected to increase in the near future.

5.7 Emergency preparedness

As stipulated in the National Development Plan of Economy and Society Issue 9 (2002 – 2006), the MOPH has resolved to develop emergency medical service system in the rural areas all over the country. It also has a policy of encouraging the involvement of the local people in this development. This rural emergency medical service system development has been listed as one of the top 4 policies of the MOPH. For this purpose, Narentorn Centre, the centre for administrating the emergency medical services system of MOPH, has been established in 2002.

The details of the work of the emergency medical services system are as follows:

1. Emergency case detection
2. Emergency reporting
3. The field operation of the emergency medical service team
 - Basic life support
 - Advanced life support
4. On scene care providing
5. Transportation and care in transit
6. Transfer to definitive care

On the preparedness of the medical and public health system for the cases of nation-wide health crisis, all levels of the country's administration right from the government agencies, the public organizations, regional agencies and the private organizations, have prepared themselves for crisis with respective crisis responsibilities and co-ordination requirements. The major co-ordinating agencies in cases of crisis, are the followings:

1. The Administrative Centre of Medical and Health Emergency Preparedness - stationed in the MOPH, chaired by the Permanent Secretary of MOPH, has the following responsibilities before, during and after emergencies:
 - 1.1. Administrating the operation system and providing support for the preparedness of the medical and health emergency, as has been planned.
 - 1.2. Coordinating the government agencies, other agencies and private organizations concerned in the cases of emergency, for helping people and providing them with emergency medical and health services.

- 1.3. Preparing reports, proposing recommendations, identifying problems and obstacles and other relevant issues to the Subcommittee of Medical and Health Emergency Preparedness, which is chaired by the Permanent Secretary of MOPH, for the purpose of improving the crisis management system and being well prepared for the upcoming emergency.
2. The Operative Centre of Medical and Health Emergency Preparedness: for the purpose of coordinating the emergency operations within the region (provincial level), has the Provincial Public Health doctor, as the chairman and has the following responsibilities:
 - 2.1. To coordinate the operation in emergency cases according to the pre-set plan of medical and health emergency preparedness.
 - 2.2. To coordinate the emergency operation and to coordinate with other concerned agencies, public or private, both within or outside the country, for emergency aids, in cases of crisis.
 - 2.3. To coordinate with concerned agencies and organizations to be alert and prepared for possible emergency cases all the time by conducting drill following the pre-set plan of medical and health emergency preparedness.
 - 2.4. To procure the resources necessary for medical and health emergency, so as to keep it current with up-to-date technology and well prepared for emergency.
 - 2.5. Preparing reports, proposing recommendations, identifying problems and obstacles, and other relevant issues to the centre-director of the Administrative Centre of Medical and Health Emergency Preparedness, for the purpose of improving the crisis management system and be well prepared for any emergency.

5.8 Health research and technology.

Thailand has developed its own facilities for researches in the field of health. A health research centre, under the MOPH, has been set up for this purpose. The academic and research activities in the research centre are also used to provide the medium and mechanism for developing research collaboration network with other researchers from the general society. These academic and research collaboration networks help in evolving the knowledge and technology regarding the public health affairs. The research centre has established the following goals to achieve:

1. Quality research outputs which can be used as alternative solutions to the public health development issues in order to meet Thai people's health requirements.
2. Efficient operation mechanism and performance are also recognized by concerned parties in helping the development of public health system forwards.
3. Developing ever-learning network of the people in public health affairs, for the purpose of providing the momentum of public health system development and extending the public health benefits to more people.
4. Development of fellowship network of public health researchers and institutes which is capable of conducting quality research, and is efficient and transparent in operation, for the long-lasting academic support of the public health system.

The Health System Research Institute (HSRI) has drafted a 3-year (2002-04) plan of research for the purpose of responding to various public health system reformation requirements. As a result,

the research projects which are relevant to the reformation are under way. They have the followings research features:

1. The knowledge and skills for defining the roles and functions of public health jobs and the structure and architecture of the public health system during the transition period.
2. The development of instrument and mechanism for administering the new public health system under the various constraints of the country.
3. The development of adequate and qualified intellectual and researching personnel for analysis work and for the purpose of providing feedback data to the new public health system.

6. HEALTH SERVICES

6.1 Health education and promotion

The National Development Plan of Health Issue 9 has prioritized the public health as the key public policy. Therefore, there have been strategies of reformation of public health system, legislations and financial measures for facilitating the public health to provide the common people with more healthcare alternatives, and, thus, better access to the healthcare services. Besides, there is also the development of disease prevention and control system, which is a network of co-operations extending to the surrounding countries, the system of disease monitoring, disease detection and investigation and also the development of the capacity building of the laboratory operations.

The main aim of provision of the health services at a primary care level is health promotion, disease prevention and other preliminary medical treatments. The preliminary treatments are provided by the public health officers at the health establishments with the community hospitals providing the basic disciplinary supports. The health services at the secondary care level and tertiary care levels aim at providing the medical and healthcare services in the establishments such as community hospitals, central hospitals, general hospitals, university hospitals and large-scaled private hospitals. In these health establishments, medical doctors of appropriate knowledge and medical specialists of different fields are responsible for providing a mix of quality healthcare services which include the health promotion, disease prevention, and medical treatment, potency recovery in body and mind to the people.

Firstly, there are provision and development of health knowledge and health behaviour of the medical and public health personnel in various health establishments, both public and private. Further, there are other forms of health education like broadcasting via the public media the health knowledge to the people to solve health problems, enacting health regulations, the declaration of National Health Commandments in order to ensure that people have better health behaviour.

The related functions may be divided into 2 parts:

1. The promotions of health knowledge and technology and the health communication
2. The development of standard of health education in public health establishments

The problem of ignorance among people towards health poses a serious problem. If their behaviour continues like this, there will be a serious public health problem in the near future. To tackle this, government has formulated a health policy of encouraging the development of health behaviour by emphasizing on the health education and extending public health into the households. This policy is to help people to take proper care of their own health, their families' and their communities.

There are many government agencies involved in determining the strategies and undertaking the health education and behaviour changing in both education system and public health system, such as the Ministry of Education, Ministry of Interior Affairs, the Ministry of Agriculture and the Ministry of University Affairs. These government agencies collaborate in studying behavioural science, establishing media centres for dissipating health related knowledge and information in the centre and the regional areas. Further, they also promote and support the researches in health education that have influences on the behaviours of the youths, working people and the aged people. The concerned agencies can also exchange information and knowledge of related field and dissipate the correct information and knowledge to the people through mass media.

As for the health education in schools and communities, it is the responsibility of the concerned educational institutes, public media of the Public Health, family associations and community organizations to dissipate appropriate knowledge of primary health care according to the National Health Commandments. The MOPH has managed to attain co-operations from these organizations. Meetings are held, health pamphlets and manuals are distributed, instructions of health discipline and practices are held and the progress follow-ups are systematic and persistent. (The National Policy of Health Education)

The budget for health education has also been increased. In 2002, the allocated budget was 56.738 million baths, a 7.53 percent decrease from that in 2001. However, the budget in 2003 and 2004 are 99.397 million baths and 99.169 million baths respectively, an increase of 75.18 percent and 74.78 percent respectively. The budget of 2003 was the highest compared with the budget in 2002.

6.2 Maternal and child health/family planning/adolescent health

During the years 2002 to 2006, the most important goal of improving health of mothers and children is to lower the death rate of mother to no more than 18 deaths per 100,000 live births and the death rate of infants to no more than 15 deaths per 1000 live births (LB). From the population surveys of the National Bureau of Statistics, 1995 – 96, the infant death rate was 26.05 per 1000 LB. However, it was found later from the data of the Research Institute of Population and Society, 2003 and 2004 that the infant death rate had dropped to 20.0 per 1000 LB and in 2007 it is 16.3 per 1,000 LB (Mahido- Population Gazette- 2007). The death rate of mothers also decreased from 27.1 in 1988 to 14.7 per 100,000LB in 2003.

The improvement in care of pregnant women and of children by the public health personnel has helped in lowering the health problems of pregnant women from the time of conception to labouring. The public health personnel, who take care of mothers and children, are well trained to provide good quality health services for mothers and infants.

The promotion of youth health aims at promoting health and sanitation in the children from the age of 6 to 18 years in order to provide them opportunity to develop both a healthy body and mind. There are youth health promotion projects like sponsoring schools, which would be both education centre and also health promotion centre and the projects collaborated by schools and communities for providing better physical environment and healthy social settings for better health of youngsters. Other youth health projects are programs of health diet and safe food, encouraging exercise and providing health consultancy and health-care for the school personnel. The achievement of the youth health efforts from 1998 to 2002 is that 88.1 percent of the schools out of a total of 32,458 schools have joined the health promotion programs. As a result the problem of iodine deficiency in primary school children has mitigated. It is less than 1.7 percent in 2002 (Office of Health Promotion, Department of Health, 2004), the problem of underweight in the primary school children has reduced too from 12.2 percent in 1997 to 11.46 percent in 2001 (from the appraisal of the 8th National Public Health Plan).

About 98.8 percent of the pregnant women have received adequate health-care from the public health personnel.

About 98 percent of the deliveries conducted under the care of public health personnel.

About 62.5 percent of newly born babies meet the standard requirement of two times of after-birth health treatment.

Thailand's family planning programme has been very successful. In the year 2001, it was found that 79.2 percent of women in their fertility ages had adopted family planning. From the appraisal of the 8th National Public Health Plan (1997– 2001), it shows that the contraception rate in Thailand has steadily increased from 14.4 percent in 1970 to 79.2 percent in 2001, exceeding the targeted contraception rate of no less than 77 percent. Consequently, the population growth rate has steadily decreased from 3.3 percent in 1970 to 0.8 percent in 2001.

6.3 Immunization

The MOPH has been planning and working systematically on the building of the disease immunity since 1977 in order to lower the illness and deaths due to the diseases that could be prevented by vaccination. With the passage of time, the work on expanding immunity cover has been increasing the varieties of vaccines and the target groups, and from time to time adjusting the schedule of vaccinations, according to the changing epidemiological conditions.

There are some accomplishments from the past efforts. The last survey of the primary vaccine coverage in 2003 found 95 percent coverage of children less than one year of age, who had received BCG and 3 doses of DPT, Polio and hepatitis B. The coverage of pregnant women with TT was 90 percent.

When looking at the diseases which are vaccine preventable, it is found that in a five-year period, 1999-2004, various diseases have considerably decreased – the incidents of diphtheria disease has reduced from 51 cases in 1999 to 8 cases in 2003, pertussis decreased from 47 cases in 1999 to 26 cases in 2003, tetanus in infant decreased from 26 cases in 1999 to 6 cases in 2003. In addition to these diseases, cases of polio due to the wild poliovirus too have been absent since 1997.

The activities that have ensured that the target groups have received complete set of vaccines according to the standard are the regular updating of registration of the target groups within the responsibility areas, track them when they have not come to receive the scheduled vaccines, keeping reports of vaccine coverage, status of the target groups for the purpose of keeping track of the vaccine coverage within the responsibility areas. Furthermore, the central health agency assesses the regional vaccination progress by using the WHO standard surveillance of cluster sampling technique, besides reading reports.

Although the overall vaccine coverage of the country is rather high at more than 95 percent but within certain group of population like the hill tribe people the poor in urban and rural areas, the vaccine coverage is very low, especially those who have migrated into the country to find jobs and the people within the border provinces in the South. The solution to this problem is to dispatch mobile vaccination teams to reach these people in their areas, develop more convenient methods of vaccination, develop vaccine tracking information system for every concerned party and disseminate healthcare knowledge and educate people on disease prevention by vaccines so that they understand the benefit and importance of vaccination.

Currently the MOPH is using the survey data for assessing the overall countrywide vaccine coverage of 3-time DPT vaccination. In the latest survey of year 2003, the Department of Disease Control has randomly checked 12 provinces, one province from each health region. It shows that the 3-time DPT vaccine coverage in children of ages from 1 to 2 years was found to be 97.8 percent. However, the survey cannot show the vaccine coverage in the level of Tambol. The data 3-month public health activity reports are used to assess the tambol vaccine coverage wherein the data of 3-time Polio vaccination are used instead of the 3-time DPT vaccination in the assessing. The reason for using the Polio vaccine data is that the Polio is a major target disease that is to be eliminated so that the assessment outcome will better reflect the true vaccination coverage. Besides, the two vaccines are scheduled in the same period. The vaccination coverage is found to be more than 90 percent in 7,223 tambols out of a total of 7,301 tambols.

The data show that in 2002, there were 16.46 per 100,000 people having measles, 0.04 deaths per 1000 people but in 2003, the illness cases dropped to 7.20 per 100,000 people and 0.02 deaths per 1000 people. For the tetanus in infancy, 1.15 illness cases per 100,000 people with no death case in 2002 and 0.78 illness cases per 100,000 people in 2003. For the Polio, no case of illness or death has been reported (data from the Division of Epidemiology, Department of Disease Control, 2004).

In the past two-year period (2002-03), the MOPH has not brought in new vaccines. The latest vaccine used was to vaccinate target group of children throughout the country to prevent brain inflammation GE.

The last survey of the primary vaccine coverage in 2003 found 95 percent coverage of children less than one year of age who had received 3 doses of DPT.

6.4 Prevention and control of locally endemic diseases

Filariasis & Leprosy

The Elephantiasis incidence has decreased from 8.46 in 1992 to 0.58 per 100,000 people in 2001. This accomplishment is better than the 8th Plan's target of not more than 3.0 per 100,000 people. The incidence of Elephantiasis during the outbreak period has also decreased to less than 6.0 per 100,000 people in the last 20 years. The same is true for Leprosy. At the time of launch of the Leprosy control program in 1998, its prevalence was 5 per 1000 people which dropped to 0.05 per 1000 people in 2001 i.e. 100 times decrease. It no longer poses public health threat. (From the appraisal of the 8th National Public Health Plan 1997-02, MOPH)

HIV/AIDS

Thailand had 27,291 AIDS patients in 1998, which is the highest. The AIDS cases have been decreasing since the year 1999 and have become 13,585 in 2003. Most of the AIDS patients are in the age group of 25 – 29 years old (26.22%) and most (44.2%) are *hirees* by occupation (data from the Division of Epidemiology, Department of Disease Control, March 2004). This is the result of the efforts of the MOPH in preventing and controlling diseases, providing proper medical cares, and developing knowledge and research of AIDS. The efforts are mainly to improve the community's strength to develop a social attitude in which proper behavioural preferences are adopted.

Tuberculosis

Tuberculosis has been found to be coming back posing a grave threat to the public health. Despite the fact that there have been direction and concrete measures in preventing and controlling the disease, AIDS and the various problems of drug resistance have further complicated the Tuberculosis problem. Currently, the MOPH has tried to cure the Tuberculosis patients by using short-term drugs under direct supervision (DOTS), which is being implemented into the Ampurs and communities.

6.5 Prevention, control and management of common diseases and injuries

Diarrhoea: is still an important public health problem since the illness rate is still the highest. In 2001, the acute Diarrhoea incidents in children under 5 and all other age groups were 7,193.59 and 1,945.67 per one hundred thousand people, respectively. Within the past 10 years' period of tracking, the Diarrhoea has shown a decreasing trend. It decreased from 4.59 in children under 5 and 1.22 in all other age groups per 100,000 people in 1987 to 0.82 and 0.33 in 2001, respectively (From the appraisal of the 8th National Public Health Plan 1997-01, MOPH). It is suggested to be the result of the Diarrhoea prevention and control measures imposed by the MOPH, the changing of the unhygienic practices and providing adequate health knowledge for lowering the risk of Diarrhoea through various media like radio, television and publications.

Acute Respiratory Infection in children: the illness rate and the deaths due to Pneumonia are still high especially in the children under 5. But the disease is showing a declining trend. Its morbidity has decreased from 4.3 percent in 1990 to 1.57 percent in 2001 and the deaths due to the disease from 19.2 per 100,000 people in 1992 to 2.34 in 2001 (From the appraisal of the 8th

National Public Health Plan 1997-01, MOPH). By adopting the Standard Case Management accompanied by improved reporting system and increase in public's health knowledge via various media, the efficiency in identifying the pneumonia has been fairly good.

The important non-communicable Diseases: the MOPH has put efforts into controlling and preventing the Cervix cancer by diagnosing the women from the age of 35 to 45 who are likely to have cervix cancer in future. Medical personnel are also trained for diagnosing the cervix cancer accurately and efficiently. Apart from that, there are campaigns for preventing and controlling cardiovascular diseases and diabetes through educating people to change their vulnerable behaviour, providing disease diagnosis, providing medical treatment and health advice and increasing the standard of full-cycle therapeutics.

The MOPH is aware of the severity of the problems of accidents and other public hazards. The campaign of "Driving without Drinking" is organized to alert people to have proper conduct in driving. On the other hand, the rescue systems are also developed in order that the injured persons in accidents can receive prompt help, and thus succeed in lowering the disability rate and death rate from the accidents. The accident emergency rescue systems like EMS, Emergency Medical Service, and Narentorn Life – Rescue Team are founded. On-site medical treatment systems are also developed. Further, the quality of the emergency medical service units in the Regional Hospitals and General Hospitals have also been improved.

7. TRENDS IN HEALTH STATUS

7.1 Life expectancy

The average death rate of the population in Thailand was 5.0 per one thousand people in 1997. It has increased to 6.1 per one thousand people in 2002. From the population and housing census of the Office of National Statistics of year 2000, the population structure of Thailand has changed to a structure of aged population. The proportion of aged female population has increased as shown by increase in their life expectancy since birth in the 1995-96's survey of population fluctuation. In this survey, it was found that females have higher average life expectancy than males. The data show that the average life expectancy since birth of males was 69.9 years while that of females was 74.9 years. When region-wise comparison was conducted, it had shown that the average life expectancy of the population in the Bkk metropolitan was the highest at 79.7 years for females and 75.6 years for males while in the southern region, average life expectancy was 73.4 years for females and 68.1 years for males.

The Research Institute of Population and Society, Mahidol University, has estimated the average life expectancy of Thai population as on 1st July 2003 to be 67.9 years for males and 75.0 years for females. On the other hand, the population projection of the office of the Commission of the National Development of Economy and Society has also shown that by the year 2020, Thai males will have an average of life expectancy of 72.2 years while that of females will be 76.5 years.

7.2 Mortality

Infant Mortality: The infant mortality (deaths of children of lower than 1 year of age) of Thailand has tended to be lower. From the reports of the population fluctuation survey during the 1985 -86, the infant mortality was 40.7 per 1,000 live births. It has decreased to 26.1 in 1995-96, and the downward trend has continued. From the data of the Research Institute of Population and Society, Mahidol University, the infant mortality in 2003 has been estimated to be only 20 per 1,000 live births and in 2007 it is 16.3 per 1,000 live births (Mahidol- Population Gazette 2007). The steady decrease of the infant mortality has suggested the steady health development and sanitation improvement of the country in the past. The MOPH has launched many measures and programs for the purpose of decreasing the infant mortality, like the programs for improving nutrition and the immunization programs for building immunity and preventing diseases. However, there is discrepancy between the death data from the death registrations of the Registry Administration of the Ministry of Interior Affairs and the data from the survey data of the Office of National Statistics. This discrepancy is due to the fact that some deaths have not been registered. It may include the cases in which the infants have died within 15 days after the births but the parents may not have reported the deaths to the authority. Consequently, this has affected the accuracy of the deaths and also births data in the registration, which in 2002 shows that the infant mortality was 6.5 per 1,000 live births.

The MOPH, through the Bureau of Policy and Strategy, has conducted a study in 15 provinces and the Bkk Metro on the causes of deaths of the Thai population in 1998. In order to pin-point the true causes of deaths in Thailand, the study shows that the children under one year old die at the rate of 0.9 percent of the total interviewees - male infant deaths account for 1.7 times as many as the female children. The top cause of death found in this study was deaths during labour which account for 27.3 percent of the infant deaths, while the next common cause of infant death is the congenital malformation due to defected chromosomes, which accounts for 23.9 percent, and next is the premature birth and infant underweight which account for 18.9 percent (as per Health System Profile of Thailand 2004, Ministry of Public health, Thailand).

Under – 5 mortality: The data of the public health statistics of the MOPH show that the mortality of the children under 5 years has a steady decreasing trend. In the year 1982, the mortality of the children under 5 was 24.3 per 1,000 live births and in the year 1992, the infant mortality was 11.7 per 1,000 live births. However, in the years 1998- 99, the rate bounced up to 16.7 and 14.5 per 1,000 live births. In the years 2000 – 02, the rates were 11.9, 12.3 and 11.7 per 1,000 live births. The data from the 1998 study of the causes of deaths of the Thai population in 15 provinces and the Bkk Metro, for the purpose of pin-pointing the true causes of deaths in Thailand, show that within the age group of less than 5 years, male children die 1.5 times as many as the female children. Within this group of population, the causes of deaths are mostly external (29.3% of the total deaths of this group). The top cause of external deaths is drowning, infectious diseases (25.3%) of which the top one is the contracting of HIV which accounts for more than half of the total deaths, and the third is the chronic lower-respiratory diseases (as per Health System Profile of Thailand 2004, Ministry of Public health, Thailand).

Maternal Mortality Ratio: Within the deaths of mothers in the death registration database of Thailand, it has not been stated clearly that the deceased mothers are in their pregnancies or not. This has resulted in much-lower-than-normal maternal mortality. From the death registration data of the year 2002, there are 115 women died (or 14.7 per 100,000 women) who had gone for

labour. However, the maternal mortality data of the Department of Health, from the Safe Motherhood Program in the same year, show a mortality of 24.92 per 100,000 live births. This discrepancy suggests that the maternal mortality data of Thailand is not accurate. The Department of Health, therefore, has established a dedicated maternal death reporting system separated from the general death registrations of the country. (Death Certificate)

Since the year 2002, the MOPH has been improving the mortality database system through creation of awareness among the medical doctors about the importance and benefits of the death data and the proper stating of the causes of deaths. As a result, the mortality data has been much improved in their quality.

Causes of Deaths

Of the deaths in Thailand, both the deaths that need autopsy and the natural deaths, about 30 percent take places within the healthcare establishments while the rest 70 percent take places outside healthcare institutions. The MOPH's reports have been making use of the death data from the death database of the death registrations of the Ministry of Interior Affairs Department of Administration. The data are then processed to register death information of the country since the year 1996. The mortalities of Thailand during 1999 – 03 were 5.9, 5.9, 6.0 and 6.1 per one thousand people, respectively. A little more of Thai people die in each year, with males' deaths outnumbering the females' within all age groups, all regions and in every year. The reports of the public health statistics, the MOPH 2002, show that in the northern region, the death rate was 7.2 per 1,000 people, higher than death rates of all the other regions. The death rate of the southern region was the lowest, at 5.2 per 1,000 people. Nevertheless, it is well understood that the death data of the database of the death registrations of the Ministry of Interior Affairs Department of Local Administration is not complete. It is low in quality and quantity, especially of the cases of infant deaths within 15 days since births. From the report of the 1995-39 survey of the population fluctuation conducted by the Office of National Statistics, it was found that the completeness of the death registration was 94.8 percent.

From the causes of deaths data of Thailand, it is found that the main causes of deaths among Thai people have shifted from infectious diseases and communicable diseases to the diseases that are induced by daily lifestyle and behaviour.

In 1982, from the public health statistics of the MOPH, which have been compiled from the data collected from the death certificate issuing, the top three causes of deaths were heart disease followed by accidents and poisoning, and cancers of all kinds. While the 4th-7th important causes of death, grouped in infectious diseases, were tuberculosis of all kinds, Pneumonia, Malaria and Diarrhoea, respectively. The Hypertension and the diseases of blood vessels in brain are not classified as important causes of deaths.

The MOPH has conducted a study, in 15 provinces and the Bkk Metro on the causes of deaths of the Thai population in 1998 in order to pin-point the true causes of deaths of Thai population. In the study, interviews were conducted to trace one year back for the true causes of all the deaths within the studied provinces. The study shows that of all the deaths, 58.8 percent were male (higher percentage of male deaths than female) except within the age group of the aged people over 75 years old, which shows higher female deaths than male ones. Among the overall causes

of deaths, circulation diseases account for 18.6 percent of total deaths (proportion of female deaths is 21.4 percent, higher than the 16.5 percent of male deaths) followed by cancers and tumours which accounts for 16.2 percent of all deaths (the proportion of female deaths is 16.5%) and infectious diseases, accounting for 15.5 percent (proportion of male deaths is 18.2% and female is 11.7%). The major disease within the infectious diseases is HIV infection, found in males 2 times those in females. The deaths caused by external factors come forth at 12.4 percent of all deaths (male 16.5%, female 6.6% of all deaths or the number of males dying from external causes is 2.5 times as many as the females).

The deaths due to breast cancers in women have an upward trend from 1.6 per 100,000 people in 1997 to 4 per 100,000 people in 2001. The deaths due to diabetes also show an upward trend from 7.5 per 100,000 people in 1997 to 13.2 per 100,000 people in 2001.

Table 7.1: The rankings and rates of deaths per 100,000 people, by the importance of cause of deaths in years 1982, 1992 and 2002

Causes	1982		1992		2002	
	Order	Rate	Order	Rate	Order	Rate
Heart Diseases	1	34.1	1	56.0	4	24.6
Accidents and Poisoning	2	33.5	2	48.5	2	55.3
Cancers	3	26.1	3	43.5	1	73.3
Tuberculosis	4	12.0	9	6.3	9	10.8
Pneumonia	5	9.6	7	11.4	5	21.1
Malaria	6	7.8	not in the rank		not in the rank	
Diarrhoea	7	5.8	not in the rank		not in the rank	
hypertension and the diseases of blood vessels in brain	Not in the rank		4	16.9	3	26.6

7.3 Morbidity

The MOPH, through the Bureau of Policy and Strategy, has worked out a data collecting system for outpatient morbidity, which consists of 21 disease groups according to the *International Classification of Disease* version 10 (ICD-10). The concerning health establishments include all the hospitals, government clinics and mobile medical units. The data coverage is estimated to be 97 percent of all health establishments in the country. From the comparison of the data between the years 1992 and 2002, it has been found that the highest incident of sickness in outpatients is respiratory diseases with the 1992's data showing a rate of 203.7 per 1000 people and the 2002's data showing a rate of 447.7 per 1000 people. The digestive system diseases were rated third in 1992 at 115.0 but have become second in 2002 at a rate of 244.1. (See Table 7.2)

Table 7.2: The top 5 diseases in terms of rates of sickness in outpatients throughout the country per 1,000 people (in 1992 there were 17 disease groups, in 2002 there were 21 disease groups)

Sr. No.	1992			2002		
	Causes of Sickness	Cases (in million)	Rate	Causes of Sickness	Cases (in million)	Rate
1	Cardiologic diseases	11.684	203.7	Cardiologic diseases	24.410	447.7
2	Symptoms signs unclearly stated	6.839	119.2	Digestive system diseases	13.400	244.1
3	Digestive system diseases	6.597	115	Muscular and structural system diseases	9.453	172.2
4	Accidental poisoning	3.700	64.5	Symptoms Signs unclearly stated	.8.985	163.7
5	Infectious and parasitic diseases	3.694	64.4	Circulatory system diseases	7.248	132.0

Studying the living pattern of the respondents, it is found that among the people who had reported of sickness and feeling sick in all disease groups, more lived in the rural areas than in urban areas; except in the cases of the respiratory diseases, heart disease and blood vessel diseases, allergy and neuro-mental diseases, where more people from urban areas reported of sickness and feeling sick than their counter parts in villages.

7.4 Disability

The surveys of health and welfare of the Office of National Statistics in 1996 and 2001,(there were nationwide surveys), reveal the disability rates of 1.7 and 1.8 in their respective years. In 2001, the types of disability that were frequently noticed were the disability in physique and the patient's movements (46.6% of all disabled people). It was followed by disability in hearing and communication (21.9%) and the disability in intelligence and learning (20.4%). The northern region showed more disabilities than other regions, at the proportion of 2.3 percent of all disabled people.

The Department of Mental Health, MOPH has classified the mental diseases of Thailand as paranoid/schizophrenia, depression, retarded IQ, convulsion, addictions to addictive substances and other mental health problems, including the symptom of attempting to commit suicide. In the fiscal year 2002, there were 1,765,448 mentally challenged patients (rate of 2,811.23 per 100,000). In the fiscal year 2001, there were 1,371,259 mentally challenged patients (rate of 2,200.74 per 100,000). In the fiscal year 1997, there were 1,215,598 such patients (rate of 1,998.81 per 100,000). It suggests that from the year 2001 to 2002, the increase of these patients is more than during the year 1997 to 2000.

8. Outlook for the future

In the result-based management - Management by Objectives (MBO), the devising of the public health strategic plan will be according to the target areas and to cover all age and gender groups in order to improve the people's health. One of the outstanding public health strategies is the Healthy Thailand strategy by the MOPH as the overall goal of the public health directing the health endeavours throughout the country. The policy of Healthy Thailand of the year 2004 concentrates on 5 health aspects - exercise, diet, emotion, disease reduction and environment

according to different age groups and regions through holding appropriate activities. All related activities and plans governing them will be integrated so that the implementation of the plans can be achieved.

8.1 Basic health Indicators including the U.N. Millennium Development Goals

See Annex-1.

Annex-1

Country reported Data for Basic Health Indicators including health related MDG Indicators

Indicator	Latest available data	Year	Source	Remarks
POPULATION AND VITAL STATISTICS				
Total population (in million)	62.8	2006	10	
Population density (persons per sq km)	122	2006	11	
Sex ratio (males per 100 females)	102.7	2006	10	
Population under 15 years (%)	22	2006	10	
Population 60 years and above (%)	11	2006	10	
Crude birth rate (per 1000 population)	12.7	2002	10	
Crude death rate (per 1000 population)	8	2002	10	
Natural (population) growth rate (%)	0.8	2001	1	
Total fertility rate (per woman)	1.6	2003	10	
Urban population (%)	33	2005	1	
SOCIOECONOMIC SITUATION				
Gross National Income per capita (US\$)	2,548	2004	1	
Adult literacy rate (%) T	93.1	2000	2	
M	94.9	2000-2004	3	
F	90.5	2000-2004	3	
Prevalence of low birth weight (weight <2500 grams at birth) (%)	8.86	2003	1	MCH Report

Indicator	Latest available data	Year	Source	Remarks
Prevalence of underweight (weight-for-age) in children <5 years of age (%)	8.6	2003	1	Excluding Bangkok
HEALTH SYSTEM				
INPUTS				
<i>Facilities</i>				
Number of hospital beds	134,453,	2002	1	
Population per hospital bed	465	2002	1	
Hospital beds per 10,000 population	22	2002	1	
Number of health centres	69,331	2002	1	
<i>Human resources</i>				
Number of physicians	18,987	2002	9	
Population per physician	3,295	2002	9	
Physicians per 10,000 population	2.8	2002	1	
Nurses per 10,000 population: Professional nurses	13.7	2002	1	
<i>Budgetary resources</i>				
Total Expenditure on Health (THE) as % of Gross Domestic Product (GDP)	3.5	2003	11	
Public Expenditure on Health (PHE) as % of Total Expenditure on Health (THE)	63.4	2003	11	
Private Expenditure on Health (PvtHE) as % of Total Expenditure on Health (THE)	36.6	2003	11	
Social Security Expenditure on Health (SSHE) as % of Public Expenditure on Health (PHE)	32	2003	11	
Tax funded Health Expenditure (TaxFHE) as % of Public Expenditure on Health (PHE)	81.12	2001	1	
External Resources for Health (Ext Res HE) as % of Public Expenditure on Health (PHE)	0.2	2002	4	
FUNCTIONS				
Pregnant women attended by trained personnel during pregnancy (%)	86.8	2003	1	MCH Report
Deliveries attended by trained personnel(%)	98	2001	7	

Infants attended by trained personnel (%)	62.5	2003	1	College of Population, Chulalongkorn University
Women of childbearing age using family planning (%)	77.8	2003	1	
Infants reaching their first birthday that have been fully immunized against diphtheria, tetanus, and whooping cough (%)	98	2005	12	
Infants reaching their first birthday that have been fully immunized against poliomyelitis (%)	98	2005	12	
Infants reaching their first birthday that have been fully immunized against measles (%)	96	2005	12	
Infants reaching their first birthday that have been fully immunized against tuberculosis (%)	99	2005	12	
Women that have been immunized with tetanus toxoid (TT) during pregnancy (%)	74.57	2002	1	60 Provinces
Environment				
Population with safe drinking water available in the home or with reasonable access (%)	93	2000	7	
Population with adequate excreta disposal facilities available (%)	98	2000	7	
OUTCOMES				
Life expectancy at birth (years): Male	67.9	2003	1	Estimated
Female	75.0			
Healthy Life Expectancy Male	57.7	2002	4	
Female	62.4			
Infant mortality rate (per 1000 live births)	16.3	2007	10	
Under-five mortality rate (per 1000 live births)	20.4	2007	10	
Maternal mortality ratio (per 100,000 live births)	14	2003	1	
Out-of-Pocket Spending on Health (OOPS) as % of Private Expenditure on Health (PvtHE)	73.9	2003	11	
GENDER EQUITY				
Life expectancy at birth ratio (females as a % of males)	110.4	2003	1	Computed value

Seats held in parliament (% of women)	10.6	2005	11	Computed value	
Professional and technical workers (% women)	55	1992-2001	6		
Ratio of earned income (females as a % of males)	0.61	1991-2001	6		
Adult literacy ratio (females as a % of males)	95.4	2000-2004	3		
Primary school enrolment ratio (females as a % of males)	95.9	2002-2003	3		
Secondary school enrolment ratio (females as a % of males)	98.7	2002-2003	3		
MDG HEALTH RELATED INDICATORS					
G1.T2.I4 - Prevalence of underweight children (under-five years of age)	8.6	2002	7	Excluding Bangkok	
G1.T2.I5 - Proportion (%) of population below minimum level of dietary energy consumption	2.2	2002	11		
G4.T5.I13 - Under-five mortality rate (probability of dying between birth and age 5)	20.4	2007	10		
G4.T5.I14 - Infant mortality rate	16.3	2007	10		
G4.T5.I15 - Proportion (%) of 1 year-old children immunized for measles	96	2005	12		
G5.T6.I16 - Maternal mortality ratio	14	2003	11		
G5.T6.I17 - Proportion (%) of births attended by skilled health personnel	98	2001	7		
G6.T7.I18 - HIV prevalence in pregnant women (%)	1.4	2002	7		
G6.T7.I19 - Condom use in high risk population	96.50	2003	1		
G6.T7.I20 - Ratio children orphaned / non-orphaned in schools	289,000	2001	7		Number of AIDS orphans
G6.T8.I21a - Malaria death rate per 100,000 in children (0-4 years of age)	0.014	2003	1		
G6.T8.I21b-Malaria death rate per 100,000 (all ages)	0.7	2001	7		Incidence rates
G6.T8.I21c - Malaria prevalence rate per 100,000	117	2001	7		

G6.T8.I22a - Proportion (%) of population under age 5 in malaria risk areas using insecticide-treated bed nets				
G6.T8.I22b - Proportion (%) of population under age 5 with fever being treated with anti-malarial drugs				
G6.T8.I23a - Tuberculosis death rate per 100,000	10.8	2002	1	
G6.T8.I23b - Tuberculosis prevalence rate per 100,000	48.4	2001	7	
G6.T8.I24a - Proportion (%) of Smear-Positive Pulmonary Tuberculosis cases detected and put under directly observed treatment short course (DOTS)	96.7	2002	1	
G6.T8.I24b - Proportion (%) of Smear-Positive Pulmonary Tuberculosis cases detected cured under directly observed treatment short course (DOTS)				
G7.T9.I29 - Proportion (%) of population using biomass fuels)	30.5	2002	7	
G7.T10.I30a - Proportion (%) of population with sustainable access to an improved water source, rural	91	2000	7	
G7.T10.I30b - Proportion (%) of population with sustainable access to an improved water source, urban	97	2000	7	
G7.T11.I31 - Proportion (%) of urban population with access to improved sanitation	99.5	2000	7	
G8.T17.I46 - Proportion (%) of population with access to affordable essential drugs on a sustainable basis				

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Millennium Development Goals (MDGs)

The progress made towards achievement of health related Millennium Development Goals is given here:

GOAL 1: ERADICATE EXTREME POVERTY AND HUNGER

TARGET: 2	Halve between 1990s and 2015, the proportion of people who suffers from hunger			
Indicators	1990	2002	MDG Target	
			2015	Status
Proportion of population below national food poverty line (%)	6.9	2.2	3.4	Target Already Achieved
Prevalence of underweight children under five years of age	18.6	8.6*	9.3	

* excluding Bangkok

Status and Trends :

The MDG Target of halving the proportion of people who suffer from hunger has been achieved. Adult and child nutrition rates have improved steadily over the last decade. As it can be observed the proportion of undernourished people in Thailand has declined sharply from 6.9 percent in 1990 to 2.2 percent in 2002. Importantly, the evidence also suggests that the main cause of protein energy malnutrition of Thai people is not poverty or deprivation but the lack of knowledge and nutritional education. According to nutritional surveillance, the proportion of children under five with protein and calorie deficiency dropped from 18.6 percent in 1990 to 8.6 percent in 2002.

Challenges:

The MDG target of eradicating hunger has been met before stipulated time. Nonetheless, further action is needed to better monitor trends and implement targeted education campaign. Accordingly, priorities include:

- Establish and maintain nation-wide nutrition data including a nutrition surveillance system for vulnerable groups.
- Integrate nutrition education into school and lifelong learning programmes.
- Expand and enhance the effectiveness and efficiency of school lunch programmes.

GOAL 4: REDUCE CHILD MORTALITY

TARGET 5	Reduce by two-thirds between 1990 and 2015, the under-five mortality rate			
Indicator	1990	2007	MDG Target	
			2015	Status
Under-five mortality rate per 1000 Live Births	12.8	20.4*	4.3***	Unlikely to achieve
Infant mortality rate per 1000 Live Births	38.8**	16.3*	13.8	-

* Data from Mahidol Population Gazette - 2007, ** data for 1989 *** Because of Thailand's low initial U5MR, two-third reduction (to 4.3 per 1,000 live births) is considered not feasible. It is therefore being proposed that Thailand adopts the OECD U5MR as a target in 2000 (7 per 1,000 live births).

Status and Trends:

Although trend data for Under 5 Mortality (U5MR) is not available for the period from 1990 to 2002 (due to changes in data methodologies), indications are that Thailand has made great progress in reducing child mortality since 1990. As per available data the U5MR has declined from 12.8 to 11.6 per live 1,000 births during 1990-1995-96. The apparent increase of the U5MR to 16.9¹ per 1,000 live Births in 1998 is believed to be the result of technical change in the method of data collection rather than a real increase.

Infant Mortality Rate (IMR) has also declined from 38.8 to 26 per 1,000 live births, representing a drop of about one third. Progress was slightly more rapid in urban areas as at the beginning of 2001 the IMR was estimated at 22 per 1,000 live births. Whatever progress has been made in reduction of U5MR and IMR, is as a result of better health care and improved socio-economic situation. However, In Thailand, the primary cause of Infant and child mortality is parasitic infection and AIDS.

Challenges:

In Thailand, given the low baseline of 12.8 per 1,000 live births in 1990, reduction in child mortality by two thirds by 2015 to 4.3 per 1,000 live births were not feasible. MDG targets to reduce by half during 2005-2015. In order to meet these targets, priority is being given to the following:

- Greater investment in training for health personnel.
- Proactively involve families and their communities to improve the quality of life for children and adults.
- Improvement in health monitoring capacity.

¹ The under5 mortality rate is generally higher than the IMR. There could be technological problem with data collection resulting in its lower value than IMR or this may be the child mortality for the age group of 1-4 years.

GOAL 5: IMPROVE MATERNAL HEALTH

TARGET 6	Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio			
Indicator	1990	2002	MDG Target	
			2015	Status
Maternal Mortality ratio Per 100,000 live births	36.2	14.2*	9.05**	Unlikely to achieve
Proportion of births attended by skilled health personnel	90.8	98	-	-

* Data for 1999.

** Because of Thailand's low initial MMR, three fourth reduction (to 9.05 per 100,000 live births) is considered not feasible. It is therefore being proposed that Thailand adopts the OECD MMR as a target in 2000 (12 per 1000, 000 live births).

Status and Trends:

In Thailand, Maternal Mortality Rate (MMR) continues to fall as it has declined by about two thirds in the decade 1990-2000 from 36.2 to 14.2 per 100,000 live births. However, the increase to 17.6 per 100,000 live births in 2001 and 24 per 100,000 live births in 2002 is a result of an endeavour to expand the coverage and improve the technical aspects of data collection. With this in mind the Ministry OF Public Health set a target of 18 per 100,000 live births by 2006 as an MDG Plus target.

In Thailand, the leading causes of maternal deaths were haemorrhage, hypertension, sepsis and amniotic fluid embolism. However, with the initiative of Government's Safe Motherhood Programme, the proportion of births attended by health personnel increased from 91 percent in 1990 to almost full (98 percent) attendance in 2001.

Challenges:

In order to improve progress in reduction of MMR and to reach MDG Plus target to reduce MMR to 18 per 100, 000 live births by 2006 and reduce the MMR by half during 2005-2015, the following priorities have been set:

- Involve both parents and health personnel in improving health outcomes.
- Provide health care for women by involving community as Village health volunteers.
- Improve the training of health service personnel to be more effective in detecting and responding to childbirth complications.
- Analyze existing data to develop targeted strategies.

GOAL 6: COMBAT HIV, MALARIA AND OTHER DISEASES

TARGET 7	Have halted by 2015 and begun to reverse the spread of HIV/AIDS
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Indicator	1990	2002	MDG Target
			Status
HIV prevalence among pregnant women (%)**	0.0	1.4	Target Already Achieved
Rates of constant condom use of secondary school male students (%)***	21.7*	27.7	-

* Data for 1995

** HIV prevalence among 15-24 year old pregnant women is localized to include all pregnant women as prevalence is higher in older age groups in Thailand.

*** The international MDG indicator 'condom use rate of contraceptive prevalence rate' in the general population is mainly family planning purpose and is not relevant for monitoring HIV/AIDS. Therefore condom use in non-regular sexual encounters of secondary school male student is selected as a proxy for HIV/AIDS risk behaviour among the Thai youth.

Status and Trends:

Thailand has made tremendous progress in reversing the spread of HIV/AIDS. As per data, yearly new infections have fallen dramatically from an estimated 1,43,000 in 1991 to about 19,000 in 2003. Thailand, therefore, has already surpassed MDG Target 7, which calls for halting and beginning to reverse the spread of HIV/AIDS by 2015.

In the initial phases of the epidemic, HIV infection was predominantly concentrated among sex workers. A small proportion (about 10 percent) of such cases were occurring through injecting drug use, and men having sex with men. Thailand started monitoring HIV prevalence among pregnant women in 1989. In 1990, the survey reported zero HIV prevalence among pregnant women, which rose and peaked at 2.3 percent in 1995. After that, it has slowly dropped to 1.4 percent in 2002.

Thailand's success in reversing HIV spread can be attributed to the elements such as public health sector, good financial support for HIV/AIDS and openness about safe sex and condom. However, Thailand is still vulnerable to a resurgence of the epidemic. If Thailand falters in its effort to control the disease, the impact would be far-reaching - giving a major blow to the global response to HIV/AIDS. Many countries of the world which are trying to follow Thailand's example, would also lose initiative to prevent this disease.

Challenges:

Thailand has sets an MDG Plus target of reducing HIV prevalence among the pregnant women from existing prevalence 1.4 percent to 1 percent by 2006. Priorities for reaching this target include:

- Shifting the focus of prevention on the vulnerability of young people, mobile population, men having sex with men (gay) and injecting drug users.
- Revitalizing a broad-based response through a strong political leadership

TARGET 8	Have halted by 2015 and begun to reverse the incidence of Malaria and other diseases		
Indicator	1990	2001	MDG Target
	Status		
Incidence of Malaria Per 100,000	518	117	Target Already Achieved
Malaria death rate per 100,000	1.4*	0.7	
Prevalence of Tuberculosis per 100,000	35.3**	48.4	Target Potentially Achievable
Tuberculosis death rates per 100,000	6.8	5.6***	

* data for 1995 ** data for 1992 *** data for 1999

Status and Trends:

Thailand has been successful in combating the major diseases like malaria and tuberculosis. The number of incidence and death rates of malaria have been declining during the period of 1990-2001. It can be observed that incidence of malaria per 100,000 has declined from 518 to 117 in 2001 and malaria death rate per 100,000 from 1.4 in 1995 to 0.7 in 2001. This progress can be attributed to the number of malaria prevention efforts, including the use of insecticide-treated bed nets, DDT residual spraying, thermal fogging; and antilarval measures. These measures were estimated to cover 4 to 5 million people in 2001.

In terms of Tuberculosis (TB), Thailand was able to reduce its prevalence as well as death rates caused by it after several decades of consistent fighting with this disease. But more cases have been reported since the emergence of the AIDS epidemic. It is estimated that there were 80,000 to 100,000 TB cases in 1997 of which about 30,000 were those with HIV/AIDS infection. However, a relatively new and rapid treatment programme for TB known as directly observed treatment (DOTS) was introduced in 1996. By 2001, DOTS was introduced in every province with an estimated success rate of 73 percent.

Challenges:

Thailand has set an MDG Plus target to reduce malaria incidence in 30 border provinces to less than 1.4 per 1,000 by 2006. The priorities and strategies for halting the malaria epidemic and other diseases (including heart disease) include:

- Regional approach to combating malaria with the help of neighbouring countries.
- Monitor TB infection among people living with HIV/AIDS.
- Promote awareness and information about heart disease because many underlying causes of heart disease are behavioural rather than epidemiological. Therefore, the emphasis needs to shift strongly towards preventive care and health promotion.

GOAL 7: ENSURE ENVIRONMENT SUSTAINABILITY

TARGET: 9 Integrate The Principles of Sustainable Development Into Country Policies And Programmes And Reverse The Loss Of Environment			
Indicator	1990	2000	MDG Target
			Status
Proportion of Land area covered by forest (%)	28	33	Target Potentially Achievable
Ratio of area protected to maintain biological diversity to surface area (%)	12.4	17.6	
Energy use per 1,000 Bhat** GDP at 1998 price (kg of oil equivalent)	15.7	15.9*	
Carbon dioxide emission (metric tons per capita)	2.4	2.3	
Consumption of ozone-depleting CFCs (ODP tons)	7,262	3,586	
Proportion of population using solid fuel (i.e. fuel wood, charcoal) (%)	65.5	30.5*	

* data for 2002

** Bhat 1,000 was equivalent to approximately US\$ 40 before 1997 and US\$25 in 2003

Status and Trends:

Thailand has made some progress in protecting biodiversity and reducing carbon dioxide emissions as well as ozone depleting substances. During the past decade or so Thailand has been more active in conserving and regenerating forests. As a result deforestation slowed down and total forest coverage has also increased over a decade from 28 percent in 1990 to 33 percent in 2000. Consequently, the protected areas which help in maintaining biological diversity, increased from 12.4 percent to 17.6 percent during the same period. This progress is mainly attributed to the legal and policy measures related to land conservation which include the 1992 Forest Rehabilitation Act, the Cabinet Resolution on River Basin Classification and the ratification of the Convention of Biological Diversity in 2003.

In Thailand, energy consumption is increasing every year. During 1990-2002, energy consumption per GDP increased from 15.7 to 15.9 kg oil equivalent per 1,000 Bhat (at the 1998 price). Concerns for energy efficiency are reflected in the 9th National Economic and Social Development Plan, which aims to keep the rate of energy consumption growth lower than that of economic growth.

Estimates indicate that Carbon Dioxide emission in Thailand has averaged about 2.4 metric tons per capita during 1990 and 2000. Electricity production, transport and industry sector emit about 92 percent of total Carbon dioxide, while remainder is from residential, commercial, agriculture and construction activities. To access the Clean Development Mechanism the Carbon dioxide emission data was submitted to the International Panel on Climate Change in 2000.

Thailand has achieved significant reductions in use of chlorofluorocarbons (CFCs) – a drop from 0.1 kilogram to 0.6 kilogram per capita during 1990 -2000. Thailand has signed the Vienna Convention (ozone protection treaty) and Montreal Protocol in 1989 to follow international standards for clean environment.

Cooking with solid fuel such as charcoal and wood is a cause of pollution. The proportion of the population cooking with charcoal and fuel wood dropped from 66 percent to 31 percent during 1990-2002. Electric and gas stove cooking increased proportionally.

Challenges:

In spite of the fact that good progress has been made in terms of environmental up gradation, much more needs to be done to improve environment. Therefore, Thailand has introduced two MDG Plus targets: (i) to increase the proportion of municipal waste reused by recycling it to 30 percent by 2006 and (ii) to increase the share of renewable energy to 8 percent of the commercial primary energy by 2011. To achieve these targets key priorities include:

- Strengthening of the capacity of provincial and local administrative organization for effective environmental planning and management
- Create an active high-level policy forum
- Develop policy making tools such as the river basin ecology and strategic assessments of sustainable development
- Monitor closely all action plans and improve data collection.

TARGET: 10	Halve by 2015 the proportion of people without access to safe drinking water and basic sanitation			
Indicator	1990	2000	MDG Target	
			2015	Status
Proportion of urban population with sustainable access to an improved water source (%)	96.5	97	98.2	Target Already Achieved
Proportion of rural population with sustainable access to an improved water source (%)	76.4	91	88.2	
Proportion of urban population with sustainable access to an improved sanitation (%)	99	99.5	99.5	
Proportion of rural population with sustainable access to an improved sanitation (%)	83.1	97	91.5	

Status and Trends :

Thailand has high level of access to safe drinking water as well as sanitation facilities. The MDG targets have been achieved. The proportion of population having access to safe drinking water has increased from 80 percent in 1990 to 93 percent in 2000. This improvement was made in both urban and rural areas. The access to safe drinking water was achieved more in both rural rising 76 percent to 91 percent over the decade. The regional disparities that previously existed have been effectively eliminated. However, it should be noted that only a small proportion of the population, particularly among rural dwellers, have access to piped water which means they have still to rely on natural sources accompanied by improved water storage.

In Thailand, access to sanitary facilities has also improved as the proportion of household using these facilities increased from 86 percent to 98 percent during over the decade. In rural areas, access to quality sanitation increased from 83 percent to 97 percent. In urban areas, Thailand has already achieved the MDG target in 2000 (99.5 percent of population has access to sanitary

facilities). In addition, slum communities have also achieved 99 percent access to sanitary facilities.

Challenges:

In general, Thai people have excellent access to safe drinking water and sanitation. There is still room for improving the quality of water and sanitation facilities. In order to maintain standards and improve quality, the following strategies are suggested:

- Improve quality of drinking water at the local level
- Better access to piped water