CHAPTER 1

Introduction and Objectives

1.1 Background:

With the rapid development of information technology, information networks, as powerful tools, can have a critical role in disease control. As most people accept that rational decision making should be based on adequate and accurate information, without timely, complete and accurate disease data collection, analysis and dissemination, the existing and potential health problems in the future cannot be identified and predicted. Thus, it would be impossible to make appropriate and cost effective disease control/prevention strategies.

Great efforts have been made over the past decade in China to establish an efficient national disease reporting system. The system links all the country's provincial centers of health and epidemic prevention and covers the entire population in China. Thirty-five notifiable diseases morbidity and mortality data are collected monthly through this on-line network, and information on outbreaks of other types of disease and some public health information are also reported routinely from the provinces. The Center of Computer Science of the Chinese Academy of Preventive Medicine(CAPM) rapidly compiles and analyzes the data, and delivers feedback to the provinces within a few days. This system has been effective in monitoring disease epidemics at various levels within the public health system. It also facilitates health planning, disease prevention and control. As in China, Thailand has also established a disease surveillance system, and has obtained benefits from utilizing this information for making and modifying health planning and disease control/prevention strategies.

The increase of international commerce and trade has accelerated population movement within and between countries, providing an environment that facilitates disease transmission. The evidence from malaria surveillance in Asia shows that increasing the volume of population movement in the region causes spread of malaria and multidrug resistance in the area, increases the burden of disease, and makes more difficult the malaria control of each country. This picture indicates that to make disease control/prevention strategies, limiting concern to the health and disease pattern within each country cannot be effective in control and eradication. To establish a regional health information system and to make joint actions for prevention are urgent in this geographical area, China and Southeast Asia). With the co-operation between CAPM and MOPH, China, and institutes in Thailand, and with support from TDR/WHO,

the plan of establishing a regional information network has begun.

1.2 Rationale:

The region of China and Southeast Asia represents a large area with high population morbidity due to infectious diseases and with rapid economic development, which leads to high disease flow within and between countries. Each country has collected data on health resources, disease, environment, demography, economic and social factors. However, since there is a lack of communication channels exchanging information and coordinating actions, some public health problems are left unresolved, including some serious ones. In order to utilize health resources more effectively and to introduce more effective disease prevention strategies, establishing an on-line electronic information system is a critical step for controlling disease. This telecommunication system can potentially provide access to much of the available information of the region.

Among the problems of this region, malaria spread in the border areas and multiple drug resistance of falciparum malaria are among the most serious issues in communicable disease control. It shows the urgent necessity of developing a dynamic surveillance system of regional disease information to provide a useful database on which to build more effective regional strategies for malaria control. This system will combine the economic and health/disease data bases to form an integrated information system for tackling epidemiologic and economic facets of communicable disease control in the context of rapid economic change, with initial focus on malaria as a pilot study.

Without doubt, to establish such a regional information network will enhance the capability of disease control programs. It can help decision makers in allocating resources more efficiently and equitably, in order to improve the health status and quality of life of the people. The importance of surveillance systems has been widely recognized by decision makers. But to establish and maintain this information system it is also necessary to invest a lot of manpower, materials and financial support. This investment will come partly from reducing the support for other health care programs, so decision makers will need to judge whether the investment is worthwhile, and what would be the effects or benefits in the short term and long term. Do these benefits outweigh the cost? Priority will need to be given to those programs in which benefits are greater than costs.

Countries which will join the network will need to consider these questions. Apart from political and other considerations, decision makers will need to consider what are the benefits they can obtain for their own country. Is this information helpful for them? As long as they find it is

beneficial to their country, they will be willing to participate and support this regional information system enabling the network to be developed progressively.

In order to answer these questions, the focal point is the comparison of the benefits and costs of establishing the network, although some long term benefits cannot be predicted at this moment, and it is not possible at this juncture to justify all the potential benefits. The requirement and methods of using the information among countries and organizations may be very different, so that the benefits that can be obtained will be different. But justification of benefits in general is useful, in order to better understand in which areas the system can support decision making. It not only can answer the questions of why do we need this system and is it a worthwhile thing to do, but it also can highlight the possible ways of using this information system to solve existing health problems and to continually improve the system.

One of the major potential outputs of such a network is utilization of the information to enhance national capacity in health policy planning. Health policy planning should be based on adequate and reliable information. The analysis of existing health problems and predicting the trend of disease patterns will allow decision makers to carry out rational planning of health care delivery services and of health care interventions for the most effective use of scarce resources.

Malaria has been endemic in Southeast Asian countries and China for many centuries. It not only reduces the people's health status and quality of life, and threatens their safety, but also it has a serious impact on socio-economic development. Governments have put lots of effort into control of the disease. Although the morbidity and mortality have been markedly reduced in recent decades, there is still a long way to go to eliminate the disease. So how to utilize the limited resources more efficiently is crucial for achieving the goal.

Application of economic theory can evaluate, in terms of allocative efficiency and equity, how well the resources are being allocated across the provinces. It can be used to assess the problem of health resource allocation, and to provide options for improvement, so the decisions can be made which lead to greater efficiency and equity in the allocation of these resources.

To explore the determinants of the risk of malaria is also important. We can observe that health care systems alone cannot solve all the health problems, and some health problems are caused by factors which are outside the control of the health care sector, such as industrialization, deforestation, poor water supply, road and dam building, etc. Multisectoral co-operation

is needed in order to conduct more effective disease control measures.

1.3 Research Questions and Objectives

1.3.1 Research Questions:

1.   What   are   the   benefits   of   establishing   a economic/health/disease information network?

2. How can economic/health/disease data be used for health policy planning?

1.3.2 General Objective:

This study aims to assess the economic and health benefits of developing a regional network based on economic/health/disease infrastructure, and to explore in this context appropriate methodology of data analysis for health policy planning.

1.3.3 Specific Objectives:

1. To identify the potential output from such a network.

2. To develop a dynamic model that describes the relationship between malaria morbidity and socio-economic, health care and environmental factors as a pilot study.

3. To define an empirical model using Thai data.

4. To evaluate the allocative efficiency and equity of health resource allocation across Thai provinces.