

CHAPTER ONE

INTRODUCTION

Chapter one discusses the background, the objectives and the scope of the study before discussing the organisation and limitations of the study.

1.1 Background of the Study

Malaysia is located in the tropics and enjoys an abundance of rainfall throughout the year, averaging 2300mm annually. It has a tropical climate influenced by the northeast (November- March) and Southwest (May-October) monsoons. There is no prominent dry season. It has instead two peak wet periods during the inter-monsoon periods in the months of April and October. Although Malaysia has an abundance of water, the rainfall is not even. As a result, there are water stress and water surplus states.

The river systems are an integral part of the water resource system. The rivers in Peninsular Malaysia originate from the central range; Titiwangsa and they flow through the coastal plains either into the Straits of Malacca or the South China Sea. The rivers are relatively small by world standard.

According to the 1997 Annual Environmental Quality Report, three main rivers in Selangor Darul Ehsan are polluted. They are Sungai Buloh, Sungai Kelang and Sungai Sepang (New Straits Times, October 22 1998). It is also found that the state has the highest number of industrial sources of pollution, in particular reference to the Klang River basin. Besides industrial pollutants, the rivers were polluted with ammoniacal nitrogen ($\text{NH}_3\text{-N}$) largely due to livestock farming and domestic waste; earthworks and land clearing activities caused suspended solids pollution.

The quality of river water is important to be monitored as the river systems are an integral part of the water resources system. River systems as a whole, with

or without impounding reservoirs, are estimated to contribute about 97% of the raw water supply source in Malaysia (Tay Soon Chuan, ASWSN, 1991, p.15).

The consequence of pollution creates an opportunity cost to the use of water in other areas (Sivalingam, 1997(a), p. 235). For example, if the water at the upstream is polluted, it may not be suitable for use downstream. Pollution also reduces the river's life support capability. Decontaminating water is very expensive and requires sophisticated techniques.

Although water is a natural resource, it can only safely be consumed after a thorough and complex treatment. Water treatment involves cost. The construction of infrastructures like dams and water storage facilities, purifying, storage and distribution of water supply all involve cost. This means that water although is a natural resource in abundance, it is not a free economic good.

Water crisis is a global issue. Malaysia cannot wait until it strikes to overcome the problem because any water development project will take at least five years from initiation to completion. It would be too late to look into the problem after it has struck as massive irreversible socio-economic damages may have been inflicted by then.

In Malaysia, water supply planning and development for domestic and industrial purposes is the responsibility of the respective state. In Selangor Darul Ehsan, it is under the Jabatan Bekalan Air Selangor (JBAS) or Selangor Water Supply Department.

The government's objective is to provide safe water to all users that is the industrial and domestic users. This is substantiated under the Sixth Malaysia Plan where the government expected that 98% of the urban community and 79% of the rural community would be provided with water supply. However the water supplied is desirably be clean and the supply is constant and steady. Such characteristics of water are prerequisites to attract foreign investment and the image of the country is very much depended on it.

Selangor Darul Ehsan comprises 7,961 square kilometres. Under the Seventh-Malaysia Five-year Plan, the population is expected to increase by 4.2% per annum due to an increase level of net in-migration from neighbouring states. An analysis of location favoured by investors showed that the state of Selangor Darul Ehsan is one that is expected to continue to receive the largest number of projects. Together with the state of Johor and Terengganu, they accounted for 44% of the total proposed investment. Due to these factors, the demand on water is expected to increase (Seventh Malaysia Plan).

As demand escalates due to increasing population, industrialisation and tourism which is very much emphasised by the government recently, competition for water is stiffer, so it is crucial that water is channelled to the consumer that valued it most. As any expansion needs time and huge funds, current water supply issues such as non revenue water needs to be monitored so that no unnecessary expansion is required and the demand for water can be met. Water should be priced to give it a value to be valued.

1.2 Scope of the Research

The focus of this study is on the demand and supply of water among domestic and industrial users. The reason for this is because water demand by domestic and industrial users has been rising more rapidly than demand for irrigation. For example, water demanded by industrial and domestic users doubled from 1980 to 1990 but demand for water for irrigation increased by only one-fifth (Sivalingam, 1997(a), p. 236).

Selangor Darul Ehsan is chosen because it is the country's main economic hub which also experiences vibrant economic growth. The country's major airports and seaport are located in this state and they form the main entrance and exit points of the country. The state is also well linked to the rest of the states in the peninsula by comprehensive road and rail networks. In 1997,

Selangor Darul Ehsan, recorded a growth rate of 10.7% (New Straits Time, October 23rd 1998).

Despite the importance of the economic role played by the state, it is one of the water-stress states in Malaysia (see Figure 1, p.5).

1.3 Objectives of the Study

This research project discusses the management of water resources, the demand and supply of water in the 1990's and into the next millennium in the state of Selangor Darul Ehsan, Malaysia.

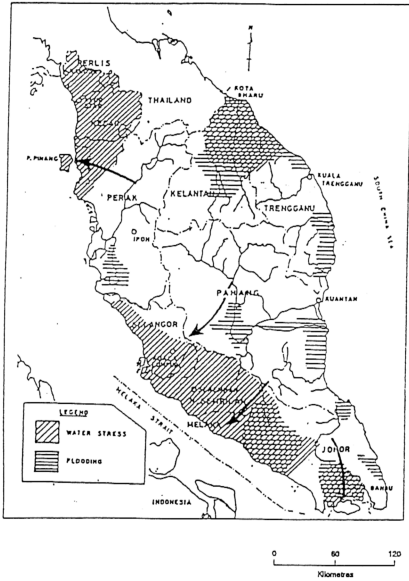
The supply and demand of water is analysed to assess whether there is enough water in the state to understand the underlying factors causing the water rationing experienced by the state in March to July 1998.

It is also to highlight the importance of water as a scarce resource. Water is scarce because there is a mismatch between the demand for and supply of water. The demand of water is on the upward trend due to industrialisation, urbanisation and population growth. However the supply of natural freshwater is fixed through the water cycle.

This study focuses on the sustainability of water resources development in the state of Selangor. Sustainability means to be able to cover all costs involved supplying the water to end users. The water authorities have to source for raw water, treat the water before distributing it to users and they are also responsible for the maintenance of the system. Substantial costs are involved and the burden is on the state to secure financing. The Federal Government only provides grants to cover up to two-thirds of the capital cost and low interest loans at concessionary rates to cover the remaining third (Sivalingam, 1997(a), p.250).

Currently the only source of revenue is from water rates collected from users. Therefore, it is important that the state achieve self- financing through an appropriate structure of water tariffs. This study looks into the current water tariffs and suggests how it can be restructured to achieve self-financing and to promote the sustainable development of water resources.

Figure 1. Water Problem Area in Peninsula Malaysia



Source: Welch and Lim (1985).

1.4 Limitations of the Study

A few limitations were experienced while carrying out the research. Up-to date and unambiguous data were not easily available. Moreover, reports from various departments differ in extent and coverage. Because of the limited data available the results of the project is interpretative rather than definitive.

1.5 Organisation of the Study

The research is reported in eight chapters.

Chapter One presents the introduction to this study. It provides a brief background of the study, the objectives of the study, the scope of the study, the organisation and limitations of the present study.

Chapter Two reviews the literature review relevant to this study.

The research methodology used in this study is presented in Chapter Three.

Chapter Four discusses the supply and demand for water in Selangor Darul Ehsan.

Chapter Five presents a discussion of non revenue water (NRW).

Chapter Six attempts to discuss the water rates in Selangor Darul Ehsan and compare the rates with another state in the country.

Chapter Seven presents the management issues.

Chapter Eight summarises the findings of the research, recommends some reforms in the management of water and suggestion for further research. The conclusion and the implication of this study are presented at the end of the chapter.