

CHAPTER 1

BACKGROUND

1.1 INTRODUCTION

Population growth, rural migration to cities and industrialisation fuel the process of urbanisation. Major cities swelling with inhabitants create challenges in terms of living spaces, solid waste disposal and health issues. As a result of rapid urbanisation, pollution has become increasingly prevalent in most cities. Urban problems include air pollution caused by motor vehicles and factories, water pollution due to toxic waste materials, solid waste, sewage or effluence from factories and noise pollution due to traffic and construction. Problems in solid waste disposal have become increasingly critical. Cities increasingly run out of space for landfill as the mounting pressures of waste generation become more apparent. In certain cases, local municipalities resolve in constructing incinerators that convert solid wastes into other forms of pollutants. Whilst solving the issue of space, incinerators may not prove to be worthwhile alternatives in the long run. Various reports have highlighted the detrimental effects of incinerators on health and the environment (New Sunday Times, 2001 and Sahabat Alam Malaysia, 2000).

This study looks into an aspect of urban environmental pollution particularly solid waste issues within the setting of two squatter communities in Petaling Jaya, namely Kg. Sg. Kayu Ara and Kg. Pelumut. Why squatter communities? Squatter communities are integral components of urban cities especially in rapidly developing countries. According to surveys carried out by the Selangor State Government and Dewan Bandaraya Kuala Lumpur in 1997 and 1998, the estimated squatter population residing in the Klang Valley totaled some 300,000 (Keizrul, 2000). Approximately

130,000 living in Wilayah Persekutuan and 170,000 in Selangor. Out of the total, it is estimated that between 20,000 – 40,000 or an average of 10 per cent of the squatter population occupy river reserves (Keizrul, 2000).

In 2000, the Municipal Council of Petaling Jaya (MPPJ) estimated a total of 16,300 squatter population in Petaling Jaya¹. Of these, 3200 or 20 per cent occupy river reserves. Squatter communities are often considered 'illegal' settlers in urban areas due to the status of their dwellings. The majority of squatter communities are made up of lower income groups, largely migrants who lack resources to purchase formal properties in the city. The need for foreign manpower for urban development especially in the construction and industrial sectors also contribute to the mushrooming of these communities in Malaysia.

A careful assessment of squatter community statistics show that many of these 'villages' have been established many years before (MPPJ, 2000). Kg. Sg. Kayu Ara was established more than 30 years whilst Kg. Pelumut was established more than 20 years ago (MPPJ, 2000). The permanent settlers of these areas are 'licensed' and recognised in terms of their TOL status (temporary settlement). Their houses and land occupation status may not be subjected to taxation but legal as temporary status. On the other hand, there are also settlers comprising of illegal or semi-legal immigrants who depend on the cheapest living options within the squatter areas due to their economic background.

The legal and social aspects of squatter communities are complex. Due to the lack of legal status, waste management facilities and services at these areas are generally lacking. As squatter communities are often located along river basins, this points to the need to understand waste management issues amongst squatter

¹ <http://www.mppj.gov.my/websetinggan/setinggan/webjabatan/senarai.htm>

communities. Therefore, this research provides an important towards developing policy directions in addressing the solid waste problems amongst the poorest communities in urban areas. In addition, in the case of Selangor as the Government strives towards a 'free' squatter community state by 2005, understanding the profile and characteristics of squatter communities would enable the government to integrate relevant environmental and solid waste management programmes and facilities at the relocated areas of these communities.

Picture 1: Rubbish thrown into the river in Kampung Sungai Kayu Ara



Courtesy of WWF Malaysia Photo Library

A study conducted in 1996 found that the Local Municipal Council of Petaling Jaya (MPPJ) only collected about 40 per cent of the total wastes from squatter communities (Tan, 1996). The remaining wastes were burnt or thrown into nearby rivers. In most cases, wastes at squatter communities are generally disposed to a common dumping area on the banks of the river which invariably gets washed down

to the river as evidenced in Picture 1 (Keizrul, 2000). In addition, being located within river basins, the rivers are conveniently transformed into dumpsites. Hence discharge from these squatter communities becomes a major source of pollution and the situation will worsen if these attitudes do not change.

1.2 PROBLEM ANALYSIS

The 2000 Census data show that about 62 per cent of Malaysians were urban dwellers compared with 51 per cent in 1991. The disparity of rural and urban community is on the rise with the urban proportion expected to increase to 77 per cent by 2020 (DOS, 2000). The level of population growth and migration, coupled with increasing level of affluence corresponds to an increase in waste generation in major cities.

It has been reported that Kuala Lumpur and Selangor produced 7,922 tons/day in 2000 (The Star, 24/10/2000). This is expected to increase to 11,728 tons/day in 2010. For the states of Negeri Sembilan, Melaka and Johor, the waste generated for 2000 was 2633 tons/day in total. This is expected to increase to 3539 tons/day by 2015 (The Star, 24/10/2000). It has been estimated that the average Klang Valley resident produced 1.56kg of garbage every day in 1998, enough to fill all 88 floors of the Twin Towers in nine days (The Star, 24/10/2000).

Based on field surveys of 30 municipalities in 1994, it was estimated that households generated the most solid waste comprising up to 40 percent, followed by industrial and construction wastes, shops and markets (Mohd Nasir et al., 1995). The estimates varied in areas of heavy industry, such as Shah Alam and Johor Bahru, where the percentage of industrial waste was higher than that for households (Mohd Nasir et al., 1995).

It has been estimated that about 40 – 70 per cent of the annual operating budget of local authorities is channeled into collection and disposal of solid waste (<http://www.kpkt.gov.my>). Based on a conservative figure of 40 per cent, it is estimated that in 2001, MPPJ spent RM36 million of the total operating budget of RM90.6 million² on waste management. The significant resources spent on waste management reflect the magnitude and urgency for local authorities to manage and improve solid waste disposal with concerted efforts from the public.

1.3 IMPORTANCE OF STUDY

Solid waste pollution creates a number of negative impacts on the quality of life. It is important to understand the significance of continuous pollution in order to facilitate the design of appropriate measures to address adverse impacts. The Government has introduced massive campaigns to combat the issue of waste pollution such as through the National Recycling Campaign and Love Our Rivers Campaign. As highlighted, squatter communities form fairly sizeable components of urban peripherals. Understanding the profile and characteristics of squatter communities would capture a major component of the urban poor and include these communities within on-going campaigns and programmes.

Urban waste problems have far reaching implications not only upon human health (UMPA News, 1999, LESTARI, 1998 and Hardoy et al., 1987) and quality of life (The Star, 16/1/2001) but also the ecology and environment (News Straits Times, April 1995). The Economic Planning Unit publishes the Malaysian Quality of Life Report for selected years (1999 and 2002). Amongst others, it reports the average urban river quality index shows that the average urban river quality index has

² Operating expenditure obtained from the MPPJ Public Relations Department, 2002.

declined from 76 points in 1990 to 68 points in 2000 (EPU, 2002). Disposal of household waste, farm sewage, effluents from industries, heavy metals and suspended solids due to erosion have been identified as contributors to the degradation of river quality (EPU, 2002). Hence, understanding the causes and contributions to urban waste problems is an important step towards designing positive programmes to address the problems.

1.4 STUDY OBJECTIVES

The main objectives of the study are:

1. Highlight the level of environmental awareness and behavioural issues of squatter settlements through case studies of Kampung Sungai Kayu Ara and Kampung Pelumut;
2. Identify areas for community participation and joint action with local authorities;
3. Discuss implications for policies and programmes to alleviate urban environment pollution.

1.5 LITERATURE REVIEW

The burgeoning problems of solid waste, have resulted in a proliferation of studies and programmes on waste management to improve the situation (Bennagen, M.E.C. et al., 2002, MUCED-DUCED case studies, 2002, Gray-Donald, 2001, Tan, 2000, The World Bank, 1999, UMP, 1999; MPP-EAS, 1996; Mohd. Nasir et al., 1995). The literature review covers aspects waste management, squatter communities, river quality and mechanisms and participation towards waste management improvements.

1.5.1 Household Waste Behaviour

Various studies on household waste behaviour have been undertaken (C. Bennagen *et. al.*, 2002, Tan, 2000 and Taylor *et. al.*, 1999). C. Bennagen *et. al.*, 2002 identifies some household attitudes and behaviour with regard to waste management within community-based waste management programmes. The study found that mandating households to segregate their wastes through local ordinances are important to promote compliance. The study also found that it is necessary that the community residents are made aware of the benefits of waste segregation for them to engage in a waste management programme and at the same time problems in implementing waste segregation and resource recovery are considered when designing community programmes. The study also highlighted that a good baseline information on waste management related concerns are required for effective waste management and decision-making at the local level.

Tan, 2000 found that attitude towards handling of household wastes and towards environmentally friendly actions are better measurements of participation in environmental programmes compared to knowledge on the effects of environmental pollution and household waste disposal. The study concluded that so long as the public does not link environmental issues as directly affecting themselves, they are unlikely to respond to any programmes.

Taylor *et. al.* 1999 conducted a study (370 respondents) in three of Petaling Jaya Municipality's sections (Section SS1, Section 17 and Kg. Dato' Harun). The study also found that waste conditions are worse in low-income living areas and residents of low income areas are more aware of and sensitive to adverse health implications from improperly managed waste.

1.5.2 Municipal Waste Management

Various aspects of pollution and solid waste management have been highlighted in several studies. Municipal waste is defined as the combined domestic, commercial and institutional wastes generated in a given municipality or locality. This does not include scheduled wastes generated by manufacturing enterprises (DOE, 1995).

The urban areas of Asia now spend about US\$25 billion on solid waste management per year. This figure is expected to increase to at least US\$50 billion in 2025 (The World Bank, 1999). A study by LESTARI in 1998 highlighted that over a period of ten years from 1975 to 1985, there was an almost five fold increase in the amount of waste generated daily by the population of Kuala Lumpur. The study also stated that the type of waste generated has become complex with increased affluence and consumerism over the decades.

The Government through the Ministry of Housing and Local Government recently initiated intensive campaigns to encourage recycling practices to reduce the problems of waste disposal. Presently, recycling practices are still not widespread with limited sorting of waste at source by house owners (JICA, 1999). It has been observed that sorting is mainly carried out at collection and dumping stages by scavengers, collection staff and private parties comprising middlemen, traders and manufacturers (JICA, 1999). Therefore, it can be concluded that the majority of separation and recycling of waste, are done only for economic reasons (JICA, 1999).

The JICA, 1999 study highlighted that a Government survey conducted in 1994 showed that only 2 per cent of the total solid wastes generated by Malaysians were recycled, while most of it were sent to landfills or were illegally dumped. Growth of wastes in urban areas of Malaysia was attributed to increasing population growth and

in increasing waste generation per capita. The study also reported that local authorities do not serve squatter areas, however, some local authorities have had to provide collection bins to stem the tide of increasing rubbish in water bodies, streets and excessive open burning. Waste dumping by squatter communities along rivers have been blamed for causing floods and pollution (Harian Metro, 18/02/2002 and 25/09/2000).

1.5.3 Squatter Communities

Studies on squatter communities in the past 2 decades concentrated dominantly on the health and socio-economic perspective of the communities (Khairuddin et al., 1984; Hardoy et al., 1989). Hardly any research analysed the behaviour of squatter communities in relation to environmental attitudes and interests. One study undertaken in 1976 highlighted the status of solid waste disposal in four squatter communities as part of a wider study (Pirie et al., 1976). The study covered 2670 respondents in four squatter communities namely in Chan Sow Lin, Kampung Haji Abdullah Hukum, Kampung Pandan and Kampung Muniandy. It is found that over 70 per cent of the respondents in two villagers burned their rubbish while 68 per cent that dumped their rubbish in the river in one village and 22 per cent threw their rubbish in communal dumps in another village.

More recent studies have examined solid waste management issues amongst squatter communities (Vikneswaran et al., DUCED-MUCED, 2002, WWF Malaysia, 1995). The DUCED-MUCED study of squatters in Tebrau River, Johor, observed that the squatters dealt with their domestic waste in the most simple and easy way through burning or disposing directly into the river. In a study of Sungai Penchala squatter areas in Petaling Jaya and Kuala Lumpur, 46 per cent of the squatter residents

burnt their rubbish while 52 per cent admitted to throwing rubbish into the river (WWF Malaysia, 1995).

Many squatter areas are often located in public areas (for example river reserves, Government Land). These communities often do not have legal land titles, consequently, they do not have proper waste disposal systems. Indiscriminate waste disposal causes river pollution and degradation of green areas. Squatter settlements located along rivers have been identified as a source of river pollution in Kuala Lumpur. A study showed that wastes generated from squatter areas amounted to about 200 tonnes per day (Ibrahim, 1996). As the waste collection system for squatter communities is restricted to central collection points, a significant proportion of the waste is discarded into rivers, costing the authorities millions of ringgit to clean up (LESTARI, 1998).

1.5.4 Mechanisms and Participation

A lack of policy guidelines is the most serious problem that hinders the success of recycling programmes (JICA, 1999). The study on squatter communities of Tebrau River recommended that in order to involve and encourage the squatter community to participate in waste management, it is important to provide relevant information and raise awareness to the community (Vickneswari et al., 2002). Another study, (MPPJ, 1993) highlighted in the JICA report indicated that 85.8 percent of the respondents agreed to cooperate in voluntarily separating waste if there is a clear policy imposed by the council. Therefore public education is important if the Government wishes to succeed in promoting recycling of solid wastes (JICA, 1999). Surveys of other countries reported that 63 per cent of the waste pickers surveyed on the streets of Hanoi, Vietnam stated that education is required to improve waste management

practices (Meletis, 2000³). The study of Metro Manila reported that households consider the active participation of the community residents as the most important factor for a successful SWM program (Bennagen, M.E.C et al. , 2002). In addition, the study also found that the households believe that waste management is a joint responsibility of the government and the community.

A mixture of policy interventions such as economic instruments and local community participation has been increasingly recognised as important tools for pollution reduction (The World Bank, 1999). An example extensively cited in the study is the PROPER Program (Program for Pollution Control, Evaluation and Rating) that has been implemented in Indonesia. The programme demonstrated effective pollution reduction by factories through local action, local negotiation and local empowerment through information of good and bad performing factories that are published in the local media.

The literature review highlights that few recent studies have been conducted on urban squatter communities in Malaysia. Most of these studies have not focussed systematically or exclusively on environmental issues pertaining to urban squatter communities. This study is therefore timely in analyzing a data set of two squatter communities to better understand issues of urban environmental pollution and approaches to facilitate improvements to the quality of life.

1.6 FRAMEWORK OF STUDY

Chapter 1 sets the background, discusses the problem analysis in detail and presents the objectives of the study. This is followed by an elaboration of the research framework design and study site in Chapter 2. Issues of research, sample and

³ Cited in Gray-Donald, 2001.

questionnaire design, formatting data set and cleaning are discussed. The bivariate analysis and multivariate model applied in the study are also presented, followed by description of key variables.

Chapter 3 presents the opinion and waste disposal practices of the respondents in Kg. Sg. Kayu Ara and Kg. Pelumut. The aim of this chapter is to highlight the relevant waste disposal behaviour of the respondents to provide a better understanding of what happens on the ground. A frequency distribution of ethnicity among respondents of Kg. Sg. Kayu Ara and Kg. Pelumut shows that the majority of Kg. Sg. Kayu Ara respondents are Malays while Kg. Pelumut respondents are mainly Indians. As the two squatter communities are located in the vicinity of each other, it is assumed that their environmental conditions are similar. Hence, the two areas are combined and analysed as one to provide ethnic diversity. Chapter 3 also provides a better understanding of the general environmental awareness, behaviour and opinion of the respondents on environmental issues.

Chapter 4 presents the awareness, attitude and participation of the respondents in environmental issues. Finally, Chapter 5 presents the multivariate analysis and discusses policy implications based upon the findings of this study.