CHAPTER TWO

RESEARCH METHODOLOGY AND

DESCRIPTION OF SURVEY

2.1 INTRODUCTION

This chapter will present research methodology and a brief description of the survey. The first section presents the research framework. This is followed by a discussion of the methods of analysis. The third section presents a brief description of the survey. In the final section, a brief description of the key explanatory variables used in this study are presented.

2.2 RESEARCH FRAMEWORK

Generally, environmental research so far has paid very little attention to the central role and behaviour of human beings. While research has been carried out to assess the level of knowledge and awareness that various segments of the population have on environmental issues, rarely is there understanding that the right knowledge can affect human behaviour, which in turn affects the living environment. The living environment has an impact on how we live and affects the quality of our lives. This study utilizes this basic research framework to measure knowledge and awareness and

how people perceive the importance of their own roles and behaviour in environmental preservation and conservation. Participation of the people can only be effected if they understand the contributions/destructions that can emerge from their own behaviour. Establishing a sense of ownership and responsibility can only come with greater information and understanding that the earth belongs to all of us. It is only when there is realization that the environment once destroyed may never recover or cannot be rehabilitated that more and more people will take it upon themselves to spare some time to care for it.

This study will identify various demographic and social characteristics in relation to behavioural patterns and level of environmental awareness and knowledge. The main sources of information, awareness of various environmentally friendly actions programmes and their own attitude and behaviour towards wastes, form some of the critical areas for policies and programmes. Among some of the hypotheses that will be tested are

(i)   Younger persons are more aware of environmental issues and hence more likely to be proactive in environment programmes;

(ii)   Higher education increases knowledge of environmental issues and hence educated persons are more likely to participate in environmental programmes;

(iii) People who are staying in low cost houses who are generally poor are less aware of environmental issues and less likely to participate in environmental friendly programmes;

(iv)   Malays who are generally more neighbourhood conscious are more likely to care for their environment and hence more likely to participate in environmental programmes;

(v)   Females who are more likely to handle household marketing and wastes are more likely to be concerned about their end result of the household wastes or old/unwanted items.

2.3   METHODS OF ANALYSIS

Using household survey data, bivariate analysis would be used to assess awareness and knowledge using various measures. Among others knowledge about preservation of the environment, comes from measures of their knowledge on the effects of environmental pollution and disposal of household wastes. Attitude towards preservation of the environment is measured by their self perception on their own roles in preserving the environment, in caring for public places and possibly actions taken to tackle environmental issues.

To measure behaviour towards household wastes, the amount disposal each week, separation of household wastes and methods of disposing old or unwanted things are considered. To measure their participation in environmental issues, their willingness to participate in environmentally friendly programmes such as car pooling, ensuring vehicles do not emit black smoke, bringing basket to market, tree planting and reporting environmental pollution to authority are used. Recycling is also view as an

important way to tackle environmental issues. Participation in recycling programmes is measured by whether respondents know the location of the nearest recycling center, send things for recycling, choose recyclable items and volunteers at recycling center.

Those measures are cross tabulated with background variables such as gender, age group, educational level, ethnic group and type of living quarters. Where possible, Chi-square is used to test for differences across categories of various independent variables.

Apart form bivariate analysis, multivariate analysis is also utilized. As the dependent variables are mostly dichotomous, that is associated with two qualitative choices, logistic regression analysis is used. This technique transforms the problem of predicting probabilities within a (0,1) interval to the problem of predicting the odds of an event occurring within the range of the entire real line.

The logistic regression model may be specified as follows:

$$P(Y_t=1) = \frac{1}{1 + e^{-z}}$$

where

$$z = B_0 + B_0 X_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + \ldots\ldots\ldots\ldots +B_k X_k$$

Y_t is assumed to depend on k explanatory variables, X_k, k=1,2,3....K. The parameters of the model are estimated using the maximum-likelihood method based on the SPSS Logistic Regression procedure. The Model Chi-Square value indicates whether the estimated coefficients are significantly different from zero, while the $\chi2$ Goodness of Fit shows the fit of the model on the data.

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Multivariate analysis would be used to explain participation in environment programmes. Participation is measured by whether they send items for recycling, volunteer at a recycling center or purchase recyclable goods or used items. Four measurements of knowledge and attitude would be used as explanatory variables in addition to socio-economic variables such as gender, age group, educational level, ethnic group and type of living quarters. They are as follows:

i)   Knowledge on the effects of environmental pollution;

ii)   Knowledge on household wastes disposal;

iii)   Attitude towards handling of household wastes including separation of household wastes, knowledge on location of recycling center, methods of disposing old and used things and perception on self role in preserving the environment.

iv)   Attitude towards five environmentally friendly actions: car pooling, bringing own basket to market, ensuring vehicles do not emit black smoke, reporting environmental problems to the authorities and tree planting.

2.4   BRIEF DESCRIPTION OF SURVEY

This study is based on data collected by a group of undergraduates of University of Malaya in 1998. The cross-sectional research on environmental issues was conducted among the residents of Section 17, Petaling Jaya, Selangor, Malaysia (S17).

This place is located less than 1 km west of Kuala Lumpur, the capital of Malaysia. It is under the administration of the Petaling Jaya Municipal Council (MPPJ) (Figure 2.1)

Figure 2.1: Map of Section 17, Petaling Jaya and S17A
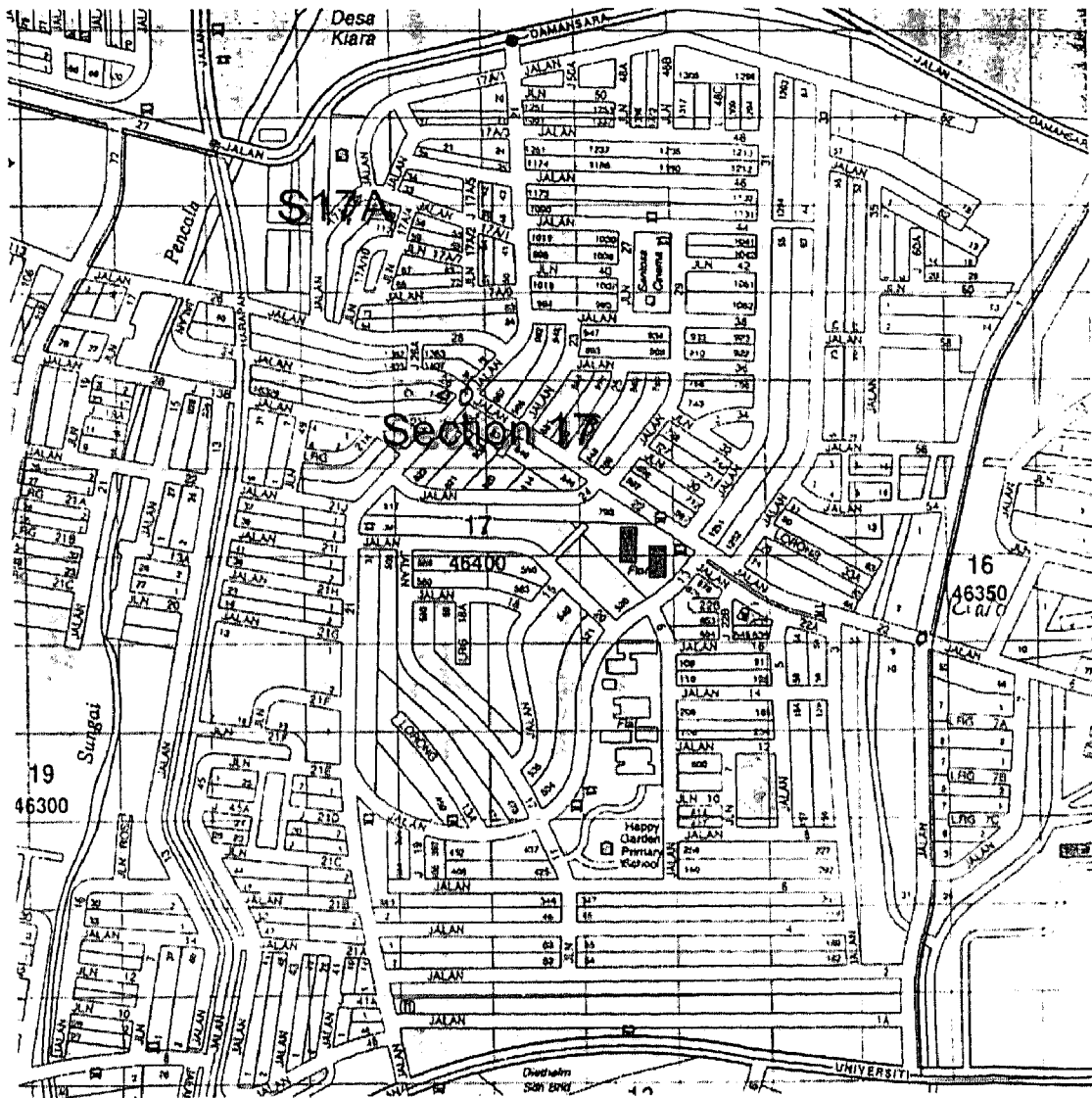
A random sampling design was used to select a representative sample of 709 cases from the listing of all living quarters in this area. A total of 3402 living quarters are listed in S17 (S17A is the area where the squatter houses are located). The living quarters include single and double storey terrace houses, detached and semi-detached houses, flats and apartments, squatter houses, shop houses and others.

A structured questionnaire was administered to the sample using face to face interview. The respondent was either the head of the living quarters or one of the members living there who felt able to respond. The questionnaire consists of 38 questions (Appendix 2.1). They cover: -

a)   Demographic and social background of respondents such as gender, age, ethnic group, marital status, education level, occupation, number of members in the living quarter, type of living quarters and ownership of the living quarters;

b)   Attitude towards awareness of environment issues such as recycling, car pooling, reducing use of plastic bags and reporting of environment violation;

c)   Sources of environment information;

d)   Household waste management including quantity of waste, waste separation, type of wastes and knowledge and attitude of household wastes.

The data collected are coded and entered into the computer using Microsoft Excel and were analyzed using SPSS.

2.5 DESCRIPTION OF KEY VARIABLES

Characteristics of Living Quarters

The respondents comprise a mix of persons from rich and poor background as reflected by their living quarters. As expected the majority is from the middle-income group, which is reflective of residents living in this area. The main mode of accommodation comprises terrace houses, apartments and shop houses, while a fifth live in high cost housing consists of detached and semi-detached houses. Low cost houses comprise squatter houses and low cost flats contribute about 25.7 per cent of total the living quarters of the respondents (Table 2.1).

Table 2.1: Types of Living Quarters

Type of Living Quarters	Frequency	Per Cent
High Cost	153	21.6
Medium cost	374	52.8
Low cost & Squatter houses	182	25.6
Total	709	100.0

Of the 709 living quarters, 408 or 58 per cent are owner-occupied houses (including those by spouse and family members). The rest live in rented accommodation, with a small percentage in housing owned by employers or organizations.

The average number of persons per living quarter is 5.2 (Table 2.2). The average number is highest in medium cost houses. Low cost houses, which are

normally smaller in size, have the least number of members in their living quarters, averaging of 4.8 members.

Table 2.2: Mean Number of Members by Type of Living Quarters

Type of Living Quarters	Mean
High Cost	5.1
Medium cost	5.4
Low cost & Squatter houses	4.8
Total	5.2

Background of Respondents

About 33 per cent of the respondents are the head of the household themselves while 45 per cent are close family members (spouse, parents or children) and relatives and the rest are non-family members (Table 2.3). Non-family members are either colleagues or fellow tenants. S17 has a fairly large student and working population from nearby universities or offices who live together in rented accommodation.

Of the total respondents interviewed, 43 per cent are males (Table 2.4). The lower percentage of male respondents may have been affected by the time of interview, which is mostly during the day.

The majority of respondents are below 30 years old. Some 22 per cent are 31 – 40 years old and 16 per cent are in their forties with some 20 per cent above 60 years of age.

Table 2.3: Relationship of Respondent with Head of the Household

Relationship	Frequency	Per Cent
Head of household	231	33
Close family member & relatives	319	45
Non-family member	159	22
Total	709	100

As S17 is largely a Chinese area, the bulk of respondents are Chinese, with Malays making up 16 per cent, Indians and others, some 11 per cent. Being located close to two major universities as well as many private colleges and offices, it is not surprising that about half of the respondents have some form of tertiary education ranging from diploma holders to post-graduates.

Table 2.4: Demographic Profile of Respondents

Characteristics		Frequency	Per Cent
Gender	Male	308	43
	Female	401	57
Age Group	<21	52	7
	21 – 30	247	35
	31 – 40	152	22
	41 – 50	114	16
	>50	143	20
Ethnic Group	Malays	112	16
	Chinese	521	74
	Indians & others	76	11
Educational Level	None or Primary	92	13
	Secondary	268	38
	Tertiary	347	49
Total		709	100

N.B: One case did not reveal his/her age & 2 cases their educational level.