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**THE INFLUENCE OF CONTEXTUAL  
ASPECTS ON NEW ZEALAND MUSLIM  
MALES' ENVIRONMENTALLY  
ETHICAL BEHAVIOUR**



**MASHITOH BINTI YAACOB**

**2009**

**THE INFLUENCE OF CONTEXTUAL  
ASPECTS ON NEW ZEALAND MUSLIM MALES'  
ENVIRONMENTALLY ETHICAL  
BEHAVIOUR**

A thesis  
submitted in fulfilment  
of the requirements for the degree  
of  
**Doctor of Philosophy in Philosophy**  
at  
**The University of Waikato**  
by  
**MASHITOH BINTI YAACOB**



THE UNIVERSITY OF  
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**2009**

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## Abstract

This study's aim was to investigate the strength of contextual aspects' influences on environmentally ethical behaviour (EEB). A survey method with a self-administered questionnaire was used and a cross-section of the Muslim male population of New Zealand was taken. The qualitative interviews and email questionnaires were also utilised to further explain the survey results. The linear regression analyses show correlations between contextual aspects (i.e., social, religious, economic, political, and demographic) and EEB (pre-cycling, re-use and recycling). Results indicate that the contextual aspects are influential on EEB in many ways and degrees. A model describing the relationship was developed. The economic aspect statistically significantly related to EEB the strongest. The qualitative interview and email questionnaire data support the findings of the survey. The relationship was positive, meaning that the more the consumers were influenced by the economic aspect to behave in an environmentally ethical way, the more they were likely to perform EEB. Compared to the economic aspect, white collar workers, number of household occupant, work involvement with the environment, type of house, and age had a weaker statistically significant relationship with EEB. The relationships were positive, meaning that the better the consumers' occupation (i.e., white collar workers), the more household member they had (i.e., 4 and above), the higher their level of work involvement with the environment, and the better their dwelling (i.e., bungalow or semi-detached houses), the more they were likely to perform EEB. However, the relationship between age and EEB was negative, meaning that the younger the consumers the more they were likely to perform EEB. However, the results of this study, from both the survey and the interview methods, indicate that demographic characteristics were not as important as the contextual aspects, particularly the economic aspect, in understanding consumers' EEB. This study shows that the economic aspect was very important in understanding consumers' EEB compared to the other contextual aspects even the political aspect was statistically significantly related to EEB via the economic aspect. Thus, the economic aspect should be used optimally by public and private sector managers to promote EEB.

## Acknowledgements

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*Syukur Alhamdulillah*

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# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 Introduction**

This chapter describes the research background, research problem, research significance, methodology, thesis outline, definitions, delimitations of scope and key assumptions.

### **1.2 Research Background**

This section presents the overall field of research, summary of previous studies, and indication of research gaps.

#### **1.2.1 The Overall Field**

The Influence of Contextual Aspects on New Zealand Muslim Males' Environmentally Ethical Behaviour (EEB) was a study of environmental ethics in the field of environmental management. In the non-technical area of environmental management, environmental ethics is seen as one of the long-term environmental management tools and "bottom-up" in character. The phenomenon studied was New Zealand Muslim males' EEB, namely, pre-cycling, re-use and recycling solid waste in the North Island of New Zealand. The contextual aspects influencing EEB of the New Zealand Muslim males are social, religious, economic, and political (see Chapters 4, 5, & 6).

Studies regarding the non-technical part of environmental management, especially community environmental awareness, have been conducted since the 1970s. Most of the authors (e.g., Ellen et al., 1991; Dunlap, 1991; Dunlap & Scarce, 1991; Inglehart, 1995; Mertig & Dunlap, 2001; Wall, 1995; White & Hunter, 2005) agree that public support for environmental concerns exists though the level of awareness of specific issues varies. However, studies have also shown that although the level of environmental awareness is high, this awareness is not translated into actions or behaviour in a broader sense (e.g., Greenberg, 2004; Oom Do Valle et al., 2005; Wall, 1995). In this respect, New Zealand is not an exception. Today, generally, New Zealand consumers have a broader knowledge, understanding, and awareness of the importance of the environment than when

*Silent Spring* was published in 1962. In those days many criticisms of the substantial use of chemical fertilisers and pesticides were ignored by New Zealand farmers and the government. According to Brooking et al. (2002) “Reference to Rachel Carson’s disturbing critique *Silent Spring* (1962) appeared in the *Journal of Agriculture* in 1965, but sustained questioning of chemical farming did not occur until the 1980s...” (p. 180). It is interesting to see whether or not new developments in the environmental fields and the many changes in the contextual aspects regarding the environment were able to influence New Zealand Muslim males’ environmental behaviour at least at a household level, and if so in what directions. This question is the central concern of this study. Thus, the relation between the influence of the contextual aspects and EEB was studied.

### **1.2.2 Summary of Previous Studies**

A search of the literature found that most previous researchers (e.g., Ebreo et al., 1999; Larsen, 1995; Moncrief, 1973; Shrum et al., 1995; Thogersen, 2000; Wall, 1995; White, 1973; Wilber, 1998) used social theories such as personality theory (e.g., locus of control and alienation) (Schwepker & Cornwell, 1991), psychographic theories, value change theories (that emphasize psychological aspects), social psychological theories (that contribute to the study of the relationship between attitudes and behaviours) (Wall, 1995; Huebner & Lipsey, 1981), rational choice theory (Wall, 1995), social dilemma theory, and theory of planned behaviour (Ajzen, 1985; Oom Do Valle et al., 2005) to explain environmentally ethical behaviour (EEB). A few contextual or situational theories such as cultural and social context (that shapes motivations) used in some of the previous studies (e.g., Hess, 1998; Oskamp et al., 1991; Vining & Ebreo, 1990) and a few others used religious aspects as their theoretical foundation, for instance, Hand and Van Liere (1984) used White’s (1973) thesis, a denominational diversity approach, and a ‘no difference’ approach (i.e., reflecting the diffusion of the anthropocentric ethos throughout culture away from purely religious institutions). In addition, Fowler (2003) used indigenous religions of Southeast Asian people, and Letcher (2003) used Eco-paganism in the United Kingdom.

Most of the studies used quantitative methods, a few studies used qualitative methods, and some studies approached the issue at a theoretical level

(Table 1.1). Most of the studies used primary data and some studies used secondary data. There are at least three popular models used by the previous researchers: the model of altruistic behaviour (by Schwartz, 1977; Oom Do Valle et al., 2005), the model of environmental behaviour (Grob, 1995; Oom Do Valle et al., 2005), and the model of environmental concern (Stern et al., 1995; Oom Do Valle et al., 2005). In addition, most of the previous studies used an attitude-behaviour model. Indicators used by the previous studies to explain EEB included attitudinal variables or elements of the social intrinsic aspect (S.I), elements of the social extrinsic aspect (S.E), elements of the religious aspect (Rel.), elements of the economic aspect (Econ.), elements of the political aspect (Pol.), and demographic characteristics (D.C) (Table 1.1). Environmental attitude/behaviour considered by the previous studies included general environmentally responsible behaviour (ERB), re-using and recycling activities (RU & RC), pre-cycling activities (PC), and personal conservation attitude (PCA) (Table 1.2).

Many studies found that general environmental concerns are not strongly related to a specific EEB (e.g., Mainieri et al., 1977; Shrum et al., 1994; Wall, 1995). Rather, specific environmental attitudes and/or beliefs such as perceived behaviour control, perceived consumer effectiveness, internal locus of control and social altruism linked positively to EEB (e.g., Ebreo et al., 1999; Ellen et al., 1991; Larsen, 1995; Mainieri et al., 1997; Oom Do Valle et al., 2005; Schwartz & Miller, 1991; Schwepker & Cornwell, 1991; Shrum et al., 1994). Personal psychological features such as social conscience, personal norms and satisfaction also contribute positively to EEB (De Young, 1986; Huebner & Lipsey, 1981; Oom Do Valle et al., 2005; Oskamp et al., 1991; Shrum et al., 1995; Thøgersen, 2000).

The elements of the economic aspect are found by many studies (e.g., Ebreo et al., 1999; Hess, 1998; Mainieri et al., 1997; Schwepker & Cornwell, 1991; Shrum et al., 1994; Shrum et al., 1995; Thøgersen, 2000; Wilber, 1998) to be strongly related to EEB.

On the other hand, the previous studies (e.g., Ebreo et al., 1999; Oom Do Valle et al., 2005; Oskamp et al., 1991; Shrum et al., 1995; Vining & Ebreo, 1990; Wall, 1995) found that the social extrinsic variables such as social pressure, friends, and family members are not related to EEB as strongly as the attitudinal variables and when they are, more often than not, resulted in indirect relations to

**Table 1.1: Indicators Used by Previous Studies in Explaining EEB**

No.	Previous Studies: (*) Empirical Study	S.I	S.E	Rel.	Econ.	Pol.	D.C
1.	Baharuddin 1992	-	-	✓	-	-	-
2.	Bryer 1999	-	-	✓	-	-	-
3.	Buttel 1987	-	-	-	-	-	✓
4.	De Young 1986(*)	✓	✓	-	-	-	-
5.	Dunlap 1991	-	✓	-	-	✓	-
6.	Dwevedi 1990	-	-	✓	-	-	-
7.	Ebreo et. al., 1999(*)	✓	✓	-	✓	-	✓
8.	Ellen et. al., 1991(*)	✓	-	-	-	✓	✓
9.	Fowler 2003(*)	-	-	✓	-	-	-
10.	Hand and Van Liere 1984(*)	-	-	✓	-	-	-
11.	Hess et. al., 1998	-	✓	-	✓	-	-
12.	Hoge 2005	-	-	✓	-	-	-
13.	Huebner and Lipsey 1981(*)	✓	✓	-	-	-	-
14.	Kalland 2002	-	-	✓	-	-	-
15.	Larsen 1995(*)	✓	✓	-	-	-	-
16.	Letcher 2003(*)	-	-	✓	-	-	-
17.	Mainieri et. al., 1997(*)	✓	-	-	✓	-	✓
18.	Mawil 1990	-	-	✓	-	-	-
19.	Moncrief 1973	-	-	✓	✓	✓	-
20.	Morrison and Dunlap 1986	-	-	-	-	-	✓
21.	Nasr 1990	-	-	✓	-	-	-
22.	Oom Do Valle et. al., 2005(*)	✓	✓	-	-	-	-
23.	Oskamp et. al., 1991(*)	✓	✓	-	✓	-	✓
24.	Richert and Nash 1990(*)	-	-	-	-	✓	-
25.	Schwartz and Miller 1991(*)	✓	-	-	-	✓	✓
26.	Schwepker and Cornwell 1991(*)	✓	-	-	✓	-	✓
27.	Shrum et. al., 1994	-	✓	-	✓	-	✓
28.	Shrum et. al., 1995(*)	✓	✓	-	✓	-	✓
29.	Smith 1984	-	-	-	-	✓	-
30.	Thogersen 2000(*)	✓	✓	-	✓	-	-
31.	Van Liere and Dunlap 1980	-	-	-	-	✓	✓
32.	Vesilind and Gunn 1999	-	-	✓	-	-	-
33.	Vining and Ebreo 1990(*)	-	✓	-	-	-	✓
34.	Wall 1995(*)	✓	✓	-	-	✓	✓
35.	White 1973	-	-	✓	-	-	-
36.	Wiegel 1977(*)	-	-	✓	-	-	-
37.	Wilber 1998	-	-	✓	✓	✓	-
38.	Ujang 1993a, and 1993b	-	-	✓	-	-	-

**Table 1.2: Environmental Attitude/Behaviour Used by the Previous Studies**

No.	Previous Studies: (*) Empirical Study	ERB	RU & RC	PC	PCA
1.	Baharuddin 1992	✓	-	-	-
2.	Bryer 1999	✓	-	-	-
3.	Buttel 1987	✓	-	-	-
4.	De Young 1986(*)	-	✓	-	-
5.	Dunlap 1991	✓	-	-	-
6.	Dwevedi 1990	✓	-	-	-
7.	Ebreo et. al., 1999(*)	-	✓	✓	-
8.	Ellen et. al., 1991(*)	-	✓	✓	-
9.	Fowler 2003(*)	-	-	-	✓
10.	Hand and Van Liere 1984(*)	-	-	-	✓
11.	Hess et. al., 1998	-	✓	-	-
12.	Hoge 2005	✓	-	-	-
13.	Huebner and Lipsey 1981(*)	✓	-	-	✓
14.	Kalland 2002	✓	-	-	-
15.	Larsen 1995(*)	✓	✓	-	-
16.	Letcher 2003(*)	-	-	-	✓
17.	Mainieri et. al., 1997(*)	-	✓	✓	-
18.	Mawil 1990	✓	-	-	-
19.	Moncrief 1973	✓	-	-	-
20.	Morrison and Dunlap 1986	✓	-	-	-
21.	Nasr 1990	✓	-	-	-
22.	Oom Do Valle et. al., 2005(*)	-	✓	-	-
23.	Oskamp et. al., 1991(*)	-	✓	-	-
24.	Richert and Nash 1990(*)	-	✓	-	-
25.	Schwartz and Miller 1991(*)	✓	✓	-	-
26.	Schwepker and Cornwell 1991(*)	-	-	✓	-
27.	Shrum et. al., 1994	-	✓	-	-
28.	Shrum et. al., 1995(*)	-	-	✓	-
29.	Smith 1984	-	-	-	✓
30.	Thogersen 2000(*)	-	-	✓	-
31.	Van Liere and Dunlap 1980(*)	✓	-	-	-
32.	Vesilind and Gunn 1999	✓	-	-	-
33.	Vining and Ebreo 1990(*)	-	✓	-	-
34.	Wall 1995(*)	-	✓	✓	-
35.	White 1973	✓	-	-	-
36.	Wiegel 1977(*)	✓	-	-	-
37.	Wilber 1998	✓	-	-	-
38.	Ujang 1993a, and 1993b	✓	-	-	-

EEB. Meanwhile, many authors' analyses of religious scriptures found that religions are in support of EEB (e.g., Baharuddin, 1992; Bryer, 1999; Dwevedi, 1990; Hoge, 2005; Mawil, 1990; Nasr, 1990; Vesilind & Gunn, 1999; Ujang, 1993a & 1993b). However, despite such findings, except for Fowler (2003) and Letcher (2003), empirical studies by Hand and Van Liere (1984), and Wiegel (1977), found that religions/churches are not positively and/or strongly related to EEB. Meanwhile, some studies (e.g., Dunlap, 1991; Schwartz & Miller, 1991; Richert & Nash, 1990) found elements of the political aspect to be related positively with EEB. Other studies (e.g., Hess, 1998; Moncrief, 1973; Van Liere & Dunlap, 1980; Wall, 1995; Wilber, 1998) found that the elements of the political aspect (e.g., government, and national policy) are not strongly and/or positively related to EEB.

The results found with respect to demographic variables' relation to EEB are mixed. Some studies found income (Schwartz & Miller, 1991; Vining & Ebreo, 1990), education (Ebreo et al., 1999; Morrison & Dunlap, 1986; Schwartz & Miller, 1991; Van Liere & Dunlap, 1980; Wall, 1995), and age (Van Liere & Dunlap, 1980; Vining & Ebreo, 1990) to have positive relationships with EEB, but some do not find income (Mainieri et al., 1997; Morrison & Dunlap, 1986; Van Liere & Dunlap, 1980), education (Buttel, 1987; Mainieri et al., 1997; Oskamp et al., 1991; Schwepker & Cornwell, 1991; Shrum et al., 1994; Vining & Ebreo, 1990), and age (Ebreo et al., 1999; Mainieri et al., 1997) to be strongly related to EEB.

However, occupation was found to have no strong and/or positive relationships with EEB (Buttel, 1987; Ebreo et al., 1999; Schwepker & Cornwell, 1991; Shrum et al., 1994; Van Liere & Dunlap, 1980). Women compared to men were found to engage more in EEB (Ebreo et al., 1999; Mainieri et al., 1997; Schwartz & Miller, 1991; Shrum et al., 1995). Home owners compared to renters were found to have a positive relationship with recycling (Oskamp et al., 1991; Schwartz & Miller, 1991). Urban residents compared to rural residents were found to have higher environmental concern and showed a positive relationship with pre-cycling behaviour (Schwepker & Cornwell, 1991; Van Liere & Dunlap, 1980). Wall (1995) found that family composition affects both pre-cycling and recycling behaviour. Ebreo et al. (1999) found that household size and years of

residence do not have any relationship with environmental concern, but type of housing has some relationship with recycling behaviour.

### **1.2.3 Indication of Research Gaps**

A search of the literature discovered that, except for Fowler (2003), Hand and Van Liere (1984), and Letcher (2003), religious theories are not being used as theoretical foundations in the previous empirical studies to explain environmental behaviour (see section 11.4.1). In addition, no empirical study on the relationship between Islam and environmentally ethical behaviour (EEB) was located (see sections 11.4.1 & 11.4.2).

A review of the literature also revealed that none of the studies has studied all the contextual aspects (i.e., social, religious, economic, and political) simultaneously in one research project (Table 1.1) (see section 11.4.3). The review also found that none of the previous empirical studies tested the influence of all the contextual aspects on EEB independently from attitudinal aspects (see section 11.4.4). In addition, except for a very few studies (e.g., Ebreo et al., 1999; Ellen et al., 1991; Mainieri et al., 1997; Wall, 1995) others did not use more than one type of EEB (i.e., either re-use/recycling being the most popularly used, or pre-cycling).

Of the literature reviewed, only Black et al. (1985), who studied personal and contextual influences on household energy adaptations, considered that in a cross-sectional study, a behaviour-attitude model (in the present study the term used is 'contextual aspects-behaviour model') is equally possible in that contextual aspects cause behaviour that, in turn, influences self-reports of behaviour/attitude. However, Black et al. (1985) used the constructs of contextual aspects such as economic suffering from energy costs and house ownership status alongside the attitudinal variables such as personal norms for efficiency and ascription of responsibility for conservation. Consequently, the findings showed that except for the economic aspect (i.e., economic suffering from energy costs) the effects of the contextual aspects on EEB are almost entirely indirect (see section 11.4.4).

Except for Ellen et al. (1991) who studied the relation between demographic characteristics and the political aspect, a search of the literature found that no other previous studies investigated the relation between

demographic characteristics and the contextual aspects that influenced EEB (see section 11.4.6).

Despite overwhelming support for EEB from religious scriptures, empirical findings by Hand and Van Liere (1984), and Wiegel (1977) that religions (in this case, Christianity) caused a negative influence on environmental behaviour, thus posing the question: do these results suggest that the religion is at fault, or is it the interpretation of the religion that is at fault? None of the previous empirical studies found answered this question (see section 11.4.7).

### **1.3 Research Problem**

This section presents the research problem and its solution; the major theory; and the research objectives, questions, and hypotheses.

#### **1.3.1 Research Problem and Solution**

This study addresses the problem:

*How have the contextual aspects, experienced by New Zealand Muslim males, influenced their environmentally ethical behaviour (EEB) regarding household solid waste?*

The research problem centred on EEB among New Zealand Muslim males concerning domestic solid waste in the North Island, New Zealand, during 2002 to 2007. All the boundaries of the research problem are justified in section 1.8.

Essentially, I argue that the contextual aspects, experienced by New Zealand Muslim males, are influential on EEB. Such contextual aspects related to New Zealand Muslim males' EEB regarding solid waste in many ways and degrees. The resultant model (Figure 11.2) shows how the relationships between the contextual aspects and EEB occurred. In future studies, it is hoped, different appropriate strategies can be used under different conditions to see how the contextual aspects influenced EEB.

#### **1.3.2 The Major Theory**

This section presents the insights from four major theories/models of EEB and the insights from the Islamic perspective on environmental ethics employed in the present study (that are also covered in Chapter 2 and Chapter 3, respectively). The four major theories/models of EEB employed are the theory of planned behaviour,

Schwartz's (1977) model, the model of environmental concern, and White's (1973) thesis.

The present study merges insights from the four theories/models of EEB with perspectives from Islamic environmental ethics to develop a contextual aspects-behaviour model to explain EEB. The goal is to obtain a better understanding of EEB in terms of the direct influence of contextual aspects (Figure 11.2). The hypothesised model (Figure 11.1) is estimated based on findings of the previous studies discussed in Chapter 2, insights from the four major theories of EEB, and insights from the perspectives of Islamic environmental ethics.

The theory of planned behaviour used by Oom Do Valle et al. (2005) proposed five relevant predictors of EEB (in this case, recycling behaviour): the attitude toward the act; subjective norms (social norms or social extrinsic aspect); perceived behaviour control; specific knowledge about what, how, where, and when to perform the EEB; and perceived performance and convenience of the provided logistics service (i.e., parts of the contextual aspects studied by the present study).

Schwartz's (1977) model of altruistic behaviour explained EEB in terms of the interrelationship among four main constructs: personal norms, social norms (subjective norms or social extrinsic aspect), awareness of consequences, and ascription of responsibility.

The model of environmental concern by Stern et al. (1995) proposed five major constructs that precede EEB: behaviour commitments and intentions, specific attitudes, general attitudes (worldview and folk ecological theory), values, and position in the social structure (i.e., the institutional constraints and incentives).

The central idea of Schwartz's (1977) model of altruistic behaviour and the model of environmental concern (Stern et al., 1995) is that the influence of the contextual aspects (i.e., subjective norms or social norms or social extrinsic aspect, the individual's external conditions, and position in the social structure) on behaviour is not direct but mediated by attitudinal variables such as personal norms. The theory of planned behaviour, however, proposes that the influence of subjective norms on behaviour is both direct and indirect (i.e., mediated by attitudinal variables such as personal norms) (Oom Do Valle et al., 2005).

Oom Do Valle et al. (2005) found that social norms are directly related to EEB as well as mediated by personal norms and that contextual aspects such as the individuals' external conditions and position in the social structure (i.e., perceived convenience) are mediated by perceived behaviour control. However, social norms, the individual's external conditions and position in the social structure (i.e., contextual aspects) were not assessed independently from the attitudinal variables (i.e., personal norms, the perceived behaviour control, and other attitudinal constructs).

White (1973) argued that religion specifically Christianity in the West, is the root cause of destructive behaviour towards the environment. Hand and Van Liere (1984) and Wiegel (1977) tested this argument empirically in Washington State and New England, respectively, by measuring the relationship between the frequency of church attendance and EEB. Their findings provide some support for White's (1973) thesis in that the more frequent one's church attendance is the less environmental concern one has. However, whether or not the lack of EEB among church goers should be attributed to the religion (i.e., Christianity) or to the inability of the religious leaders) to link the teachings of the religion to their daily behaviours such as EEB is not clear.

Islam is a *deen* (a way of life), thus, its religious principles and values precede the behaviours of its followers. Islam views humans as part of the universe in terms of being elements which are complementary to one another in an integrated whole. Yet Islam also views humans as a unique part of the universe in the sense of being granted the responsibility of a *khalifah* (caliph or vicegerent) on earth. As a *khalifah* a human is only a manager and a beneficiary of the earth and not an owner in an absolute sense. All of the resources created by God are put as a trust in human hands. It is clear in Islam that the responsibility of humans is not merely to perform religious rituals but also involves social, economic, political and every other aspect of life including the environment. As a *khalifah*, the individual is accountable to God, the human community and the community of other created beings. A *khalifah* is expected to establish the laws of God that help to bring out the best potential of the human soul which includes caring for and managing the environment responsibly, preserving the beautiful and holy signs of God in nature for people to reflect on and learn from. Religious figures such as *imam* and *ustaz* are seen as being the people who are closer to the teachings of

Islam - the Qur'an and *Sunnah* (i.e., the tradition of the Prophet Muhammad s.a.w). Thus, they are expected to take up various responsibilities for the teachings including presenting EEB verbally and behaviourally to the Muslim community members.

The present study employed insights from the four theories/models and from Islamic environmental ethics because they encompass the relevant contextual aspects' predictors of EEB, comprising the elements of the social extrinsic aspect or subjective norms or social norms (i.e., family members, neighbours etc), the elements of the religious aspect (i.e., religious institutions, religious figures and their teachings), and the elements of the economic and the political aspects (i.e., position in the social structure - the institutional constraints and incentives), identified in the previous studies (e.g., De Young, 1986; Ebreo et al., 1999; Huebner & Lipsey, 1981; etc) (see Table 1.1).

### **1.3.3 Research Objectives, Questions, and Hypotheses**

The first objective of this study was to investigate the relationships between contextual aspects and environmentally ethical behaviour (EEB). Under this objective, the question asked was: Which contextual aspects were significantly related to EEB? Based on the findings of the previous studies, the present study hypothesised that the social aspect, the economic aspect, and the political aspect would all be significantly related to EEB while the religious aspect would not (see sections 2.2.2, 2.2.3, 2.2.4, 2.2.5, & 2.3).

However, based on the Islamic environmental ethics presented in Chapter 3, it was reasonable to hypothesise that the Muslim participants would be highly influenced by the religious aspect – particularly from their own understanding of the teachings of the religion about the environment compared to the role played by the religious figures. In addition, based on Chapter 4, an additional hypothesis about the influence of the social aspect was drawn: Family values; wider community values; similarities of environmental values shared by Muslims and other New Zealand communities; and mass media would play a huge role in influencing the EEB of the participants. Meanwhile, based on the discussion in Chapter 5, it was only natural to hypothesise that the EEB of New Zealand Muslim males would stem substantially from their economic hardship due to their being economic migrants compared to other elements of economic influences.

Based on Chapter 6, an additional hypothesis about the political influence drawn was that the role played by local governments and environmental NGOs relative to other elements of the political aspect would be a big influence on the New Zealand Muslim males' EEB.

The second objective was to investigate the relationships between demographic characteristics and EEB. Under this objective, the question asked was: Which demographic characteristics were significantly related to EEB? The study hypothesised that house ownership status and type of dwelling would be significantly related to EEB while age, marital status, education level, occupation, personal income, household total income, the presence of children, number of household member, and the level of work involvement with the environment would not (see section 2.3).

The third objective was to investigate the relationships between independent variables (i.e., demographic characteristics, the different contextual aspects themselves, and EEB) and the contextual aspects that influenced EEB. Under this objective, the question asked was: Which independent variables were significantly related to the social aspect, the religious aspect, the economic aspect, and the political aspect? Based on the findings in section 10.2.2 the study hypothesised that house ownership status and type of dwelling would be significantly related to the social aspect, the religious aspect, the economic aspect, and the political aspect, while age, marital status, education level, occupation, personal income, household total income, the presence of children in a household, number of household member, and the level of work involvement with the environment would not (see also sections 2.2.6 & 2.3). Meanwhile, the researcher was not able to hypothesise the relationship among the contextual aspects, and the influence of EEB on the contextual aspects – the researcher did not find any findings on such relationships reported by the previous studies.

#### **1.3.4 Summary of the Research Contributions**

Answering the research questions provided contributions to understanding EEB presented in section 11.4. In summary, this research made eight contributions.

First, the present study primarily used Islamic environmental ethics, as expressed by Islamic religious scholars, as its theoretical foundation (see Chapter 3). To the writer's knowledge, this approach has not previously been used by any

empirical studies to explain EEB among Muslim consumers (see section 11.4.1). Thus, the interpretation of the findings of the present study on EEB from the perspective of Islamic environmental ethics is a unique contribution to the body of knowledge.

Second, the present study empirically examined the relationship between religion, as reflected by Muslim religious figures and their teachings, and EEB. The literature contained very few empirical studies of the relation between religion and environmental behaviour, let alone an empirical study on the relation between Islam and environmental behaviour. Hence the empirical finding of the present study, that the religious aspect could work as both a positive influence and a negative influence on environmental behaviour, can be considered a unique contribution to knowledge about EEB (see section 11.4.2).

Third, the present study tested the contextual aspects (i.e., social, religious, economic, and political) simultaneously in one study responding to Hess's (1998) request for the economic aspect to be addressed by policy-makers together with other contextual aspects. Thus, this study contributes to the body of knowledge by answering the question of which of those contextual aspects was the most significant when they were compared with each other as well as what combinations of these contextual aspects should be taken seriously by policy-makers in addressing environmental behavioural problems (see section 11.4.3).

Fourth, the present study provides a new way of looking at the phenomenon of EEB in that it views EEB in the perspective of contextual aspect-behaviour relation/model not in the context of attitude-behaviour relation/model. Consequently, the present study provides a new way of understanding the phenomenon in that it explains EEB from the perspective of the direct influence of contextual aspects, closing the gap in the literature that explains environmental behaviour from the perspective of the indirect influence of contextual aspects via attitude. In addition, the present study was able to find that in the absence of the attitudinal variables, the economic aspect and a few household/demographic variables appear to be the dominant direct influences on EEB, making it easier to work on realizing environmental policies (see section 11.4.4).

Fifth, the present study obtained some new information concerning the phenomenon in that EEB was not only influenced by the contextual aspects but in turn also influenced the contextual aspects. Another interesting finding was that

the contextual aspects were influencing each other, hence, creating indirect effects on EEB (see section 11.4.5).

Sixth, the present study investigated the relationship between demographic characteristics and contextual aspects that influenced EEB. Consequently, the present study was able to answer questions about which of the demographic characteristics were significantly related to each one of the contextual aspects (see section 11.4.6).

Seventh, the present study was able to answer the question: is it religion that causes the lack of environmental attitude/behaviour among its followers, or is it the interpretation of the religion that cause such attitude/behaviour among religious followers. Although the present study found that the religious aspect was not statistically significantly related to EEB, the result suggests that religion (in this case, Islam) is not at fault. The statistically insignificant relationship between Islam and EEB was due to Muslims seeing Islam as providing general reasons for being concerned about the environment, rather than as a specific motive for EEB. This because Muslims take for granted that their religion is central to their way of life – it is almost in no need of mention as far as their EEB (or, indeed, their behaviour in general) is concerned (see section 10.2.1 [b]). In addition, the insignificant role played by the religious figures in incorporating the teachings of Islam about environmental concern in their sermons also contributed to the statistically insignificant relationship between Islam and EEB (see section 11.4.7).

Eighth, Morrison and Dunlap (1986) claimed that “Education is the only indicator of socio-economic status consistently and strongly related to environmental concern among the general public” (p. 587). However, the present study found that, in the model (Figure 11.2), of 17 variables tested, education was the only one that was *not* statistically significantly related to any of the dependent variables to be included anywhere in the model (see 11.4.8).

#### **1.4 Justification for the Research (Significance of the Research)**

The research problem of the present study is important on several theoretical and practical grounds.

### **1.4.1 The Importance of Environmentally Ethical Behaviour (EEB)**

The extent of and influences on EEB among consumers are particularly important issues to be investigated due to a mounting problem caused by domestic solid waste. Although in per capita tonnage term New Zealand still produces less waste than most OECD countries, *The New Zealand Waste Strategy* (2002) states that the waste problem is large and growing, and that New Zealanders dispose of 3.4 million tonnes of waste into landfills alone each year (Ministry for the Environment, 2002).

New Zealand has around 4 million people, and around 800,000 households (Statistics New Zealand, 2006). According to Campbell (2006), a typical household wastes 14 percent of its food, and an average family of four throws out two thousand dollars worth of fruit, vegetables, meat, and bread every year.

Solid waste is a potential threat/hazard to public health and the environment because it can, for instance, produce greenhouse gases like methane. It also increases the costs of operating refuse sites, collection and disposal of wastes (Southland Regional Council, 1996).

Many Regional/District/City Councils in New Zealand reported that among the main issues of concern, with regard to solid waste is the amounts and types of solid waste produced, and the methods for disposing of this waste (e.g., Southland Regional Council, 1996; Auckland City Council, 2006; Taranaki Regional Council, 2004). The increased volume of waste is due to an increased population and their socio-economic behavioural changes, and to the increase of non-organic and potentially hazardous components of the waste stream (Southland Regional Council, 1996).

According to Taranaki Regional Council in its *Regional Waste Strategy for Taranaki* (2004) “The long-term challenge for New Zealand is seen as the need to break the link between economic growth and the production of waste and to achieve sustainable growth by the more effective use of resources” (p. 1). One way to address this challenge is by switching the focus of waste policies from ‘end of pipe’ solutions (i.e., dealing with disposal of waste) to prevention of waste solutions such as EEB (i.e., pre-cycling, re-use and recycling) by consumers.

### **1.4.2 The Importance of the Research Problem**

It is important to be able to explain EEB using as many perspectives as possible for the purpose of understanding the phenomenon and for policy making. Previous studies did not examine environmental theories and religious foundations to explain environmental behaviour (see sections 1.2.3, 2.2.3, 2.3, and 11.4.1); thus, the present study has enriched the literature on EEB by considering such perspective.

### **1.4.3 The Importance of Research Methodology Used**

It is important to be able to explain the relation between EEB and the religious aspect by using religious indicators empirically not just theoretically (see Chapter 7 for justification on type of research used). Hence, the present study was able to answer issues debated in the literature on such a relation (see sections 11.4.2, and 11.4.7).

### **1.4.4 The Usefulness of the Research's Findings**

The present study used only variables of contextual aspects to explain EEB. Although the present study acknowledged that EEB is largely based on attitudinal variables, found by many previous studies (see Chapter 2), it is important for the findings of such studies to effectively facilitate EEB policy making processes and the implementation of such policies. Attitudinal variables such as internal locus of control, alienation and personal norms, although found by many studies to be statistically significantly related to EEB, are not only harder to incorporate into EEB policies, but also difficult to implement/enforce compared to contextual aspects such as price, taxes, and subsidies (see sections 11.4.4, 11.6.1, 11.6.2, and 11.6.3).

## **1.5 Methodology**

This section presents an introductory overview of the methodology used in the present study with reference to Chapters 7, 8, and 9. In addition, justifications, based on the purpose of the research, for the methods used are also presented.

### **1.5.1 Types of Research and Designs**

The type of research conducted by the present study was an applied, descriptive, correlational and quantitative research. However, qualitative research methods were also used where needed to obtain qualitative data for a further explanation of survey data and findings.

During a pilot study of survey questionnaire exploratory research design was used to develop, refine and test the questionnaire and procedures (see section 8.3.2). In the final study descriptive and correlational designs were used to describe the frequency of New Zealand Muslim males' EEB and the relationship of such frequencies with contextual aspects. The aim of this study was to find out the strength of the relationship between EEB and contextual aspects; thus, a cross-sectional study design was used (Kumar, 1996) (see also section 7.2).

To obtain a structured data collection and a structured approach to data analysis a survey method was used (De Vaus, 2002). Although Kumar (1996) has emphasized that "observation is the most appropriate method of data collection" (p. 105) for assessing behaviour, such a method could cause alterations of normal behaviours and discomfort for the participants in the present study (see also sections 7.2, and 7.4.2). To complement and further explain quantitative data obtained qualitative data were collected through in-depth interview and email questionnaire.

Quantitative research allowed variables which had previously been identified and measured (Perry, 1998) to be used in the present study, allowed the quantification of variation in the frequency of EEB and in contextual aspects, allowed the measurement of the variation on an interval scale (Kumar, 1996), and allowed a degree of generalisability and replication (De Vaus, 2002) (see also section 7.2). Meanwhile, qualitative research used in the present study enabled further explanation of the findings from quantitative data obtained.

### **1.5.2 Research Instruments**

The main instrument used in the survey (besides secondary data to obtain demographic and other information about the Muslim population) was a newly constructed questionnaire because the type of questionnaire required to address the research problem was not readily available. Furthermore, in addressing the research problem, merely secondary data were not enough to draw meaningful

conclusions or findings (Kumar, 1996) (see also section 7.4.1). The questionnaire was constructed by developing the concepts or constructs for the questionnaire to measure, and by piloting the questionnaire (see sections 8.3.1, and 8.3.2). Five summed rating scales were used; one to assess the frequency of EEB, and another four to assess the degree of influence of four contextual aspects (i.e., social, religious, economic, and political) on such behaviour (see section 7.4.4). For collection of qualitative face-to-face interview data the researcher was the instrument, and for collection of email questionnaire data Yahoo email service was used. Both face-to-face and email questionnaires made use of consent forms and interview guides.

### **1.5.3 Data Collection Method**

A few steps pre-requisite to data collection included studying relevant secondary data; observing a New Zealand Muslim Yahoo-group (the primary internet news group used by New Zealand Muslims); corresponding with relevant academics, individuals, mosques/Islamic centres and NGOs; and participating in community seminars/events. Such steps were necessary to ensure that the respondents had the information required, were willing to share the information with the researcher, and understood what was expected of them in the questions (Kumar, 1996) (see also sections 7.5.1, and 8.4.1).

Instead of random/probability sampling, non-random/probability sampling was used because the sampling frame (i.e., names and/or addresses of all Muslim households) was not available. Consequently, a quota and snowball designs were used (see sections 7.5.2, and 8.4.2). The sample size is justified and presented in sections 7.5.3, and 8.4.4, respectively.

Both collective administration and mailed questionnaire methods were used, respectively, to distribute the questionnaire and to collect it (see sections 7.4.6, and 8.3.3). Questionnaires were sent to 20 mosques/Islamic centres around the North Island to be distributed to 1057 of approximately 2915 Muslim households in the studied areas. Most questionnaires were returned via post-paid envelopes, and a few via drop-in boxes placed in the mosques/Islamic centres. The response rate was 28 percent with 299 questionnaires un-distributable. Of 211 households that responded 7 questionnaires were incomplete leaving 204 completed questionnaires (see sections 8.3.3, and 8.4.1).

Non-response bias was addressed by comparing the demographic characteristics of the sample with those of the population, by comparing early and late responders, by substituting variable means for missing data, and by excluding cases with severe missing data (see sections 7.5.4, 8.3.4, and 8.4.3).

To explore further the findings of the survey, in-depth interviews with 10 individual New Zealand Muslim males were conducted by the researcher. The interviews collected information on EEB such as pre-cycling, recycling and reusing, possible influences on pre-cycling, recycling and reusing decisions, inter-relations between the influences, and demographic background of participants. Only the key information from the interviews was included in transcripts.

In addition to the individual interviews, email questionnaire were conducted with 2 religious figures such as *imam*, and *ustaz*. Inputs from the religious figures were obtained via emails because the researcher was not in New Zealand to conduct a face-to-face interview.

Research ethics during data collection is presented in section 8.6.1 (see also section 8.6).

#### **1.5.4 Data Analysis Method**

The survey data were analysed using SPSS version 12. Multivariate analysis (i.e., linear regression) was the main method of analysis used. However, univariate (i.e., frequency distributions) and bivariate (i.e., crosstabulations and mean comparisons) were also used, mainly for testing the representativeness of the sample and during the preparation of data for multivariate analysis.

In preparing the survey data for multivariate analysis, a number of initial analyses were conducted. First, a reliability test was conducted to obtain Cronbach's Alpha values to assess the reliability and unidimensionality of each item (i.e., 21 items per scale of five scales) in the questionnaire (see sections 7.4.7, and 8.3.4). The reliabilities of the scales are high (i.e., 0.808 to 0.954) (see section 8.3.4). In addition, a validity test was conducted. Besides taking extra care during the construction stage of the questionnaire, factor analysis was also conducted (see sections 7.4.8, and 8.3.5). The results of the factor analysis show that the scales represented the proposed underlying constructs of EEB and contextual aspects (i.e., social, religious, economic, and political) (see section 8.3.5).

Second, checks of sample representativeness were conducted. The comparison of the sample with the Muslim population shows little difference (see section 8.4.3). In addition, *t*-tests and chi-square were used to compare early responders and late responders. The results show no significant differences between the two groups in their response to self-reported EEB, contextual aspects, and demographic characteristics asked about in the questionnaire. Thus, the results of both comparisons satisfied the conclusion that the survey respondents were probably similar to the non-respondents and lateness of response did not affect the results of the study.

Third, the accuracy of the sample was tested using the sampling error and the 95 percent level of confidence and it was found that the sample was most influenced by the economic aspect and least influenced by the religious aspect in performing EEB. Analysis of variance (ANOVA) and *t*-tests were also conducted on the sample, and found that the differences between the mean score of the groups in each contextual aspects variable tested almost certainly reflected a real population difference rather than being due to sampling error. A test of the sufficiency of numbers for meaningful subgroup analysis was also conducted on demographic variables using frequency analysis.

As mentioned earlier, in addressing the research problem, the main statistical process adopted was linear regression analysis. Almost all the variables used in this study were interval-level variables, thus, linear regression analysis was appropriate. A few nominal and ordinal demographic and household variables were converted into sets of dummy variables to make them appropriate for linear regression analysis (see sections 7.6, and 8.5).

Meanwhile, the qualitative interview data from both face-to-face and email questionnaires were made into textual data (in the form of transcripts) and explored using pre-determined concept/thematic approach or framework approach. The qualitative data were analysed using word processors (a computer software programme) for data searching, sorting and copying. The 'search' functions was used in searching large amounts of text for specific terms, and the split screen functions was used in sorting and copying data into separate analytic files. Passages of text were identified and labels of pre-determined themes were applied to indicate thematic ideas studied. Each theme was charted by completing a table where each case has its own row and columns represent subtopics. Cells

contain relevant summaries from the data set. All the text associated with a thematic idea was examined together for patterns and connections and different cases were compared in that respect.

The findings of survey data analysed using linear regression analyses and the findings of qualitative interview data (i.e., face-to-face and email questionnaire), in addressing the research problem, are summarised below in section 1.5.5. Research ethics during data analysis for both survey data and qualitative data is presented in section 8.6.2 (see also section 8.6).

### **1.5.5 A Summary of the Findings of Data Analysis**

Analyses of survey data between independent variables (i.e., contextual aspects and demographic characteristics) and dependent variable EEB found that the economic aspect was statistically significantly related to EEB (see section 9.2.1) followed by a few demographic characteristics namely occupation (white collar workers), number of household occupants, work involvement with the environment, type of house/dwelling, and age. The results from the analyses of qualitative interview data (i.e., face-to-face and email) support that of the analyses of the survey data. The interviewees reported a strong influence of economic aspect on their EEB, and less influence by other contextual aspects (i.e., social, religious, and political) and demographic characteristics (see section 9.3.1).

Analyses of survey data between independent variables (i.e., the demographic characteristics, the contextual aspects, and EEB) and the dependent variables (i.e., each of the contextual aspects) found that political aspect, religious aspect, economic aspect, marital status, and household total income had a statistically significant relationship with the social aspect. The social aspect, political aspect, and number of children in a household had a statistically significant relationship with the religious aspect. The political aspect, EEB, occupation (white collar workers), and social aspect had a statistically significant relationship with the economic aspect. Meanwhile, the social, economic and religious aspects had a statistically significant relationship with the political aspect, but none of the demographic characteristics had a statistically significant relationship with the political aspect (see section 9.2.2).

Analyses of qualitative interview data found that the relationship among the contextual aspects themselves dominates compared to the relationship between

the demographic characteristics and the contextual aspects, or the relationship between EEB and the contextual aspects (see section 9.3.2) supporting the result of the quantitative data analysis presented in section 9.2.2. The results of the qualitative data analysis also show that among the contextual aspects religious aspect was actually governing or dictating the other contextual aspects in influencing EEB.

## **1.6 Outline of the Thesis**

Chapter 1 first describes the research background by outlining the overall field of study, summarising previous studies, and indicating the research gaps that then leads into the focus of the research problem. In describing the research problem, Chapter 1 first states the research problem and its solution; presents the major theories used in this thesis; outlines the thesis objectives, questions, and hypotheses; and summarises the contributions of this thesis. Chapter 1 also presents the justifications or significance of this thesis on several theoretical and practical grounds. It also provides an introductory overview of the methodology used, the research instruments employed, a summary of findings of the data analysis, a brief description of each subsequent chapter of this thesis, the definitions of several key terms used, and the delimitations of scope and key assumptions.

Chapter 2 reviews the relevant literature to identify research issues that are worthy of researching. A comprehensive review of literature on EEB indicates varying hypotheses of relationships between EEB and contextual aspects. Chapter 2 discusses the literature on issues of theory, methodology and results (i.e., on the relationships between EEB and the contextual aspects) by categories/themes (i.e., social, religious, economic, political, and demographic aspects). In each of the categories Chapter 2 provides: first a review of the theoretical foundations for the hypotheses relating EEB and contextual aspects, second, a review of the aspects of methodology used to study the relationship between EEB and contextual aspects, and third a review of the results/findings and summary.

Chapter 3 explains Islamic environmental ethics, to which all Muslims should be expected to adhere in their interactions with the environment. The chapter explains the Islamic worldview and the concept of *tawheed* adhered to by Muslims in relation to the environment, the constant reminder of Qur'anic verses

and the tradition of the Prophet (s.a.w) on human interaction with the environment, the requirement of *iman* on EEB, the social and religious functions of the environment, the Islamic sources' prescriptions of ethics of treating every aspect of creation, Islam on EEB, and individual responsibility as a *khalifah*. This chapter then draws an additional hypothesis about the influence of the religious aspect. The role of this chapter is also to explain the quantitative and qualitative results of the religious influence.

Chapter 4 discusses socio-religious experiences of Muslims in New Zealand that may influence the New Zealand Muslim males' EEB. The discussion centres on family values; wider community values shared with friends, neighbours and co-workers; similarities of environmental values shared by Muslims and other New Zealand communities; the role of mass media such as newspapers, magazines, television and radio. The role of this Chapter is to draw an additional hypothesis about the influence of the socio-religious aspect and to explain the quantitative and qualitative results of the socio-religious influence.

Chapter 5 elaborates on the economic experiences of Muslims in New Zealand that may influence the EEB of the New Zealand Muslim males. The focus of this chapter is on the Muslims in New Zealand as economic migrants; the economic values they hold in respect of the environment; and the role of vendors such as supermarkets, second hand shops, and flea markets in influencing their EEB. This chapter is used to draw an additional hypothesis about the influence of the economic aspect and to explain the quantitative and qualitative results of the economic influence.

Chapter 6 discusses the political elements that may influence the EEB of Muslims in New Zealand. The discussion focuses on the impact of environmental policies, laws and regulations; the role of New Zealand local governments; the role of politicians and political parties; the role of environmental non-governmental organizations (NGOs); and the state of Muslims involvement in New Zealand politics. This chapter plays a role in drawing an additional hypothesis about the influence of the political aspect and in explaining the quantitative and qualitative results of the political influence.

Chapter 7 justifies the methodology used in this thesis, such as the adoption of quantitative research as the main method and a qualitative research method in particular qualitative interview technique as the supporting method, the

use of exploratory research design during the pilot test, descriptive and correlational designs during final study, a cross-sectional study design, a survey method, and qualitative interview method instead of other methods such as observation or case studies. Chapter 7 also justifies the choice of participants, research instruments, the scales, questionnaire administration, reliability and validity tests, research procedures, and data analysis method adopted in this thesis.

Chapter 8 describes the method used in this thesis, first introducing the participants and their demographic characteristics. Chapter 8 then describes the construction of a research instrument (the questionnaire), the pilot test procedure, the questionnaire administration and collection, the tests of reliability and validity along with their results, the design of qualitative interview face-to-face, the design of qualitative interview via email, and lastly the detailed research procedures. In describing the research procedures, Chapter 8 starts with the description of data collection that involved sampling procedure for both quantitative survey method and qualitative interview method followed by the test of representativeness of the sample, and the accuracy of the sample size for quantitative survey method. A description of how the quantitative survey data and the qualitative interview data are analysed, and the research ethics adopted during data collection and during data analyses are also presented in Chapter 8.

Chapter 9 presents the empirical explanation in terms of patterns of data in table format (for quantitative survey data) and point format of distilled summaries of interviewees' views/reports (for qualitative interview data) for each of the three hypotheses (see section 1.3.3) of this thesis of the relationships between:

1. The independent variables (i.e., contextual aspects and demographic characteristics) and dependent variable (EEB) – hypotheses 1, and 2.
2. The independent variables (i.e., demographic characteristics, contextual aspects themselves, and EEB) and the dependent variables (i.e., contextual aspects) – hypothesis 3.

Chapter 10 discusses the findings based on the thesis's objectives, questions, and hypotheses. The discussion centres on evidence from the quantitative and qualitative data and to what extent the objectives are achieved. This chapter also relates the findings of this thesis to the literature reviewed in Chapter 2, discussing the extent to which the findings support or contradict the

findings of the existing literature, and to what extent the findings fill the gaps in the existing literature.

Finally, Chapter 11 summarises the whole thesis by providing an overview of the links between chapters, conclusions of the research problem by providing a model based on the thesis's findings, and the contribution of this thesis to the body of knowledge (i.e., about EEB) in terms of theory, methodology, and findings. This chapter also provides a discussion on the implications of this thesis on theories/models of EEB, environmental policies, the Muslim community and the wider community in New Zealand, and the private sectors.

## 1.7 Definitions

In this section, key and controversial terms are defined in order to establish positions taken in this research (Perry, 1998). The key terms in the present study are *contextual aspects* which comprises the *social, religious, economic, and political aspects; environmentally ethical behaviour* (EEB) which comprises *pre-cycling, reuse and recycling; domestic or household solid waste; and recyclable items*.

The *social aspect* utilised in the present study is defined as the *social extrinsic aspect*. Previous researchers such as Oom Do Valle et al. (2005) and Schwartz (1977) term it as 'subjective norms.' The elements of the *social extrinsic aspect* used in the present study are time, family, friends, neighbours, co-workers, television programmes, and advertisements. These elements are what *social extrinsic aspect* or subjective norms are defined to be, and used by the literature reviewed in Chapter 2 (e.g., Dunlap, 1991; Ebreo et al., 1999; Larson, 1995; Oom Do Valle et al., 2005; Oskamp et al., 1991; Thøgersen, 2000).

In the literature, as far as the relation between the *religious aspect* and EEB is concerned, the *religious aspect* has a broad meaning that covers elements such as religious scriptures (Vesilind & Gunn, 1999; White, 1973), the teachings of founders of religions (Vesilind & Gunn, 1999), and religious institutions (Hand & Van Liere, 1984; Wiegel, 1977). The *religious aspect* utilised in the survey questionnaire of the present study is defined in terms of contextual elements of the religion of Islam. Therefore, the elements of the *religious aspect* utilised in the survey questionnaire of the present study are *imam, ustaz*, other religious figures, or committed religious people, and religious teachings. These elements are chosen

because the initial aim of the present study, in this matter, was not to test whether or not Islam (i.e., the Qur'an and *Sunnah*) influences EEB of Muslims; rather the present study was set out to test whether or not local religious figures and their teachings influence EEB of Muslims around them. However, it was found that exploring merely the influence of religious figures and their teachings on the EEB of the Muslim respondents limits the explanation of the EEB of the Muslim respondents from the religious aspect. Hence, in the qualitative interview variables such as their personal understanding of Islamic teaching, the Qur'an, the tradition of the Prophet (s.a.w), and the concepts lawful, prohibition and moderation were explored.

As far as the relation between the *economic aspect* and EEB is concerned, the literature provide a broad meaning of the *economic aspect* that covers elements such as urbanization and technology (Moncrief, 1973), and products' attributes (Mainieri et al., 1997; Schwegker & Cornwell 1991; Thogersen, 2000). The elements of the *economic aspect* utilised in the present study are price, cost effectiveness, financial subsidies, taxes, supermarkets, shops, and manufacturers. These elements are what the *economic aspect* is defined as being and were used by most of the empirical studies reviewed in Chapter 2 (e.g., Hess, 1998; Oskamp et al., 1991; Shrum et al., 1994; Shrum et al., 1995; Wilber, 1998).

In the literature, as far as the relation between the *political aspect* and EEB is concerned, the *political aspect* has a broad meaning that covers elements such as voting choices, writing complaint letters to politicians, making phone calls to officials, boycotting environmentally unfriendly products, donating to and becoming volunteers for environmental organizations (Dunlap, 1991), democracy (Moncrief, 1973), and political parties (Van Liere & Dunlap, 1980; Wall, 1995). The elements of the *political aspect* utilised in the present study are consumer associations' opinions, or views; politicians' opinions, views, appeal, or instruction; government instruction, policy, or appeal; environmental NGOs' opinions, or views; environmental laws; and recycling centres. These elements are what the *political aspect* is defined as being and were used by most of the literature reviewed in Chapter 2 (e.g., Dunlap 1991; Richert & Nash, 1990; Schwartz & Miller, 1991; Smith, 1984; Wilber, 1998).

*Pre-cycling* behaviour utilised in the present study is defined as “the purchase of products that benefit or cause less harm to the environment than do

more conventional consumer goods” (Ebreo et al., 1999, p. 108). *Pre-cycling* behaviours utilised in the present study are:

1. shop at a flea market, or a second hand shop for items such as furniture instead of buying them new,
2. buy items such as perfume, ink pens, or dishwasher liquid in refillable containers instead of non-refillable ones,
3. buy produce with as little packaging as possible such as loose fruit and vegetables,
4. take one’s own basket or bags when going shopping rather than using the ones provided by the shop,
5. buy products where they or their packaging can be used again rather than those that can only be used once,
6. buy products with the phrase ‘environmentally friendly’<sup>1</sup> on the label,
7. buy canned drinks or glass bottled drinks rather than plastic bottled drinks,
8. buy bulk packs rather than small packs of products that one’s household consumes in quantity,
9. use almost every bit of the food that one prepares for one’s family and throw away as little as possible, or, where practicable, make compost,
10. buy handkerchiefs rather than tissue, and washable nappies rather than disposable nappies.<sup>2</sup>

*Reuse* behaviour utilised in the present study is defined as a form of EEB that, according to De Young (1986) is “centred within the household, involving a form of direct at-the-source recycling [whereas *recycling*] involves a link between the household and the community because it involves a community-scale organization – if only to store the collected materials prior to sale [and] recycling requires manufacturing energies and produces waste of its own, whereas re-use does not” (p. 444). In addition, *recycling* also uses energy in transportation and processing. In New Zealand, the Local Government Act 1974 (amended in 1996) listed *reuse* and *recycling* in second and third place in the three ‘Rs’ of waste hierarchy (listed from most desirable to least desirable where reduce the generation of waste is in the first place) or disposal options<sup>3</sup> (Ministry for the Environment, 2005; Auckland Regional Council, 2006). *Reuse* and *recycling* behaviours utilised in the present study are:

1. try to get something repaired rather than buying a new item,
2. take old recyclable items to a recycling centre,
3. sort out household waste according to whether or not it is recyclable,
4. reuse paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire,
5. feed one's pet or livestock with one's household organic waste,
6. compost household organic waste,
7. freeze food leftovers for another meal, or for unexpected guests,
8. reuse plastic items such as bottles, bags, and containers,
9. recycle food cans, drink cans, or foil,
10. reuse textiles, such as old baby clothes for a new baby,
11. recycle or reuse glass bottles and jars.

The term *domestic or household solid waste* utilised in the present study used a definition by the New Plymouth District Council (2000) “cold ashes, sweepings, dust, paper, bottles, bones and waste food, cans, cartons, or other food containers, or any other refuse arising or resulting from domestic housekeeping operations” (p. 1).

The term *recyclable items* utilised in the present study is defined as “items which are so designated from time to time by the Council and which are collected or accepted at any Refuse Disposal Site by or on behalf of the Council for recycling or reuse” (New Plymouth District Council, 2000, p. 1).

### **1.8 Delimitations of Scope and Key Assumptions**

In the present study, the research problem centred on environmentally ethical behaviour (EEB), that includes pre-cycling, reuse and recycling of domestic solid waste. This area of interest was chosen due to the vital importance of this area being investigated for a better management of domestic solid waste in terms of pre-cycling, reuse and recycling described in section 1.4.1. In addition, the choice was also due to the relative neglect of the specific research problem, and the relative neglect of the research methodologies by previous researchers described clearly in sections 1.2.3, 1.4.2, and 1.4.3 as well as in Chapters 2 and 7. Another reason for the choice was the usefulness of potential applications of the research's

findings for public policies, the private sector and the community concerned explained in section 1.4.4.

The coverage of type of respondents was limited to Muslim males. This study did not compare Muslims with non-Muslims, such as Christians from diverse denominations, Hindus, Buddhists, and secularists. The reason was the present study utilised Islamic environmental ethics as its theoretical foundation. In addition, this study employed a non-probability sampling procedure and the sample was collected only within a specific community (i.e., Muslim community); thus, no claims for significance of the findings of the study beyond these delimitations will be made. The reason for the choice of the non-probability sampling procedure was because the sampling frame (i.e., names and/or addresses of all Muslim households) was unavailable.

The target respondents of the present study were heads of households, who are mostly males attending a weekly Friday congregation prayer in mosques where the distribution of the questionnaire took place; thus, gender was not included in demographic variables tested in this study (see also section 11.7).

The geographic boundaries of any study cannot be arbitrary (Perry, 1998). In the present study, restricting the research problem to the North Island New Zealand is based on this area being more populated than the rest of New Zealand; about 21,054 Muslims live there compared to only 2,583 Muslims in the South Island (New Zealand Census, 2001). Within this boundary, the data and the conclusions of this research should apply; outside this boundary, no claims for significance of the findings of the study is made. The choice of the geographic boundary was assumed not to affect the representativeness of the sample since the number of Muslims in the South Island was fairly small.

The findings of this study are specific to the Muslim male population and the social, religious, economic and political conditions of North Island New Zealand in the period between 2002 and 2007 in the middle of the energy/oil crisis due in part to the situation in Iraq (the second largest oil producer in the world). Similar conditions no doubt existed elsewhere in the world at the same time and may exist elsewhere in the future. In particular, the price increases in products experienced by Muslim households in the North Island New Zealand between 2002 and 2007 may be experienced by households in other places as well. But predictions about those conditions are complicated by the fact that changes in the

national and international energy situations will undoubtedly affect consumers' attitudes/behaviour towards EEB in complex ways. Understanding of such effects can only come from a body of literature built over a period of time.

Using both quantitative survey method and qualitative interview method by the present study balanced the quantitative material with the qualitative. The narratives of the qualitative interview were used to add meaning to numbers of the quantitative survey while the numbers were used to add precision to the narratives. No doubt that the mixture between qualitative interview and quantitative survey methods used, in some ways, provides stronger evidence for the conclusions through the convergence and corroboration of the findings, thus, adds insights and understandings to the phenomenon studied. But, in some ways, such mixture produces conflicting findings – in this case, nonetheless, the researcher had greater knowledge and was able to modify interpretations and conclusions of the study accordingly. However, having followed that path, apparent problems of mixing the two styles of research methodology aroused, particularly in using qualitative results to further explain the quantitative results, and in interpreting conflicting results. It was a very difficult task for a single researcher to bring together the quantitative and qualitative material. In some ways, they cannot really be compared; they are kind of exploring different things – each aspect or variable has been operationalised in the quantitative survey in sometimes quite limited ways, for example, the religious aspect with its restriction to just some elements of the Islamic faith while the qualitative interviews were really dealing with the aspect or variable in its fullness, opening up its meaning and definition considerably.

## **1.9 Conclusion**

This chapter laid out the foundations for the thesis. It introduced the research problem, research objectives, research questions, and research hypotheses. Then the research was justified, definitions were presented, the methodology was briefly described and justified, the thesis was outlined, and the limitations were given. On these foundations, the thesis proceeds with a detailed description of the research in the chapters that follows.

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<sup>1</sup> The phrase might be misleading, but it surely tells a lot about a person's environmentally ethical behaviour (EEB) if he/she chose the products with that phrase.

<sup>2</sup> Some people might choose tissue rather than handkerchiefs, and disposable nappies rather than washable nappies for hygienic reasons or for thinking that the detergent used to wash the items caused more harm to the environment than disposing the items as solid waste. But some might choose handkerchiefs and washable nappies for the exact same reasons. It is worthy of note that it does not mean that the first group are not practising environmentally ethical behaviour (EEB) though some of them might make the choice simply because of convenience without any considerations for the environment. In any case, it would surely tell a lot about the person's EEB.

<sup>3</sup> The first place in the hierarchy is reduction, the fourth place is recovery, the fifth is treatment, and the last place is residual disposal (Ministry for the Environment, 2005).

## **CHAPTER 2**

### **LITERATURE REVIEW (RESEARCH ISSUES)**

#### **2.1 Introduction**

This chapter discusses the literature on the issues of theory, methodology and results of the relationship between environmentally ethical behaviour (EEB) (i.e. pre-cycling, re-use and recycling) and contextual aspects (i.e. social, religious, economic and political). A comprehensive review of literature on EEB indicates varying hypotheses of relationships between those EEB and the contextual aspects. This chapter contributes to the existing literature in three ways. In each of the categories (i.e., social, religious, economic, political, and demographic aspects) of the literature reviewed this chapter provides: first a review of the theoretical foundations for the hypotheses relating EEB and contextual aspects, second, a review of the aspects of methodology used to study the relationship between EEB and contextual aspects, and third a review of the results/findings and summary.

This research attempts to explain the relationships between consumers' decisions on whether or not to engage in a particular EEB and the degree to which certain contextual aspects influence those decisions. In line with that attempt this chapter aims to build a theoretical foundation upon which the research is based by reviewing the relevant literature to identify research issues (Perry, 1998). Some of the existing literature already provides some answers to parts of the research problem. Based on a comprehensive review of the literature this chapter (Lyons, 2005):

1. places each work in the context of its contribution to the understanding of the issue under review,
2. describes the relationship of each work to the others under consideration,
3. identifies new ways to interpret the issue in previous research,
4. sheds lights on gaps in previous research,
5. resolves conflicts amongst seemingly contradictory previous studies,
6. identifies areas of prior scholarship to prevent duplication of effort,
7. points the way forward for further research, and

8. places the researcher's original work (i.e. the present study) in the context of existing literature.

## **2.2 Previous Studies**

Generally researchers have consistently noted several aspects that drive people to adopt environmentally ethical behaviour (EEB) (Buttel, 1987). According to Mainieri et al. (1997) "Behaviour is a function of both personal and situational characteristics" (p. 192). Thus, EEB can be influenced by either one or both characteristics. For the purpose of discussion in this section studies on personal characteristics are discussed under the social intrinsic aspect category and studies on situational aspects are discussed under the categories of social extrinsic aspect, religious aspect, economic aspect, political aspect and demographic aspect. In each of these categories the first question discussed is the theoretical foundations used, followed by methodology used, research findings, and summary.

### **2.2.1 Social Intrinsic Aspect**

#### ***Theoretical Foundation:***

Many social theories are used by researchers (Ebreo, 1999; Larsen, 1995; Moncrief, 1973; Shrum et al., 1995; Thøgersen, 2000; Wall, 1995; White, 1973; Wilber, 1998) to explain environmental behaviour. A large portion of the research on environmentally ethical behaviour (EEB) such as recycling has been conducted from the perspective of attitude-behaviour theories (more often from a psychological perspective) (Shrum et al., 1994). Other such attitude-behaviour theories are personality theory (such as locus of control and alienation) (Schwepker & Cornwell, 1991), psychographic theories, value change theories (that emphasize psychological aspects), social psychological theories (that contribute to the study of the relationship between attitudes and behaviours) (Huebner & Lipsey, 1981; Wall, 1995), rational choice theory (Wall, 1995), social dilemma theory, and theory of planned behaviour (Ajzen, 1985; Oom Do Valle et al., 2005). The studies that use such attitude-behaviour theories normally examine social intrinsic aspect to explain a particular EEB.

#### ***Methodology:***

Most of the studies use quantitative methods, and a few studies approach the issue at theoretical level. There are at least three popular models used by the researchers: the model of altruistic behaviour (Schwartz, 1977; Oom Do Valle et

al., 2005), the model of environmental behaviour (Grob, 1995; Oom Do Valle et al., 2005), and the model of environmental concern (Stern et al., 1995; Oom Do Valle et al., 2005).

***Research Finding:***

Oom Do Valle et al. (2005), based on their study using a combined theory of planned behaviour and model of altruistic behaviour with elements from the model of environmental behaviour and the model of environmental concern, proposed a comprehensive structural equation model to explain recycling behaviour. Generally, the results of their study support the use of the theory of planned behaviour as a basis for modelling recycling participation. The authors found that recycling behaviour is indirectly determined by personal psychological features, such as social conscience, but not by general ecological attitudes. The authors also found that the individual perceived behaviour control (such as those who are aware of their own individual contribution) has a positive influence on recycling behaviour. However, the authors also found that attitudes towards recycling and recycling participation, although statistically significant, were not positive.

Thøgersen (2000) studied the influence of moral concerns (i.e., environmental concerns) on consumer buying or pre-cycling decisions with environmental implications. The author proposed that two conditions make moral reasoning in the buying situation more likely: environmental concern and the absence of other highly involving characteristics such as a high price. Thøgersen (2000) claimed, “The study confirms that when these conditions are met... environment-friendly buying behaviour is based on moral reasoning” (p. 451). The study shows that even when the economic aspect (such as the perceived price of goods with environmentally friendly packaging) are small and moral norms (such as environmental concerns) are active, economic considerations still influence buying or pre-cycling decisions, at least for some consumers. In addition, Hess (1998) asserted that pricing (economic motivation) and environmental ethics (social intrinsic motivation) complement each other and “do not jeopardize each other in the context of environmental policy” (p. 214). Hess (1998) believed that “moral suasion alone will normally not have a dramatic effect on individuals’ behaviour... probably not affect believers and non-believers symmetrically” (p. 214). Thøgersen (2000) also found that the personal norms to

pre-cycle (such as avoiding packaging waste) depend on the individual's awareness regarding packaging waste and on his/her beliefs about his/her ability to contribute to solving the waste problem.

Mainieri et al. (1997) studied the relation between pre-cycling and aspects (in particular environmental concern) that influence pre-cycling. The authors found that although respondents expressed their general concern toward the environment, they did not display their concern in their purchasing behaviour. However, the authors found that respondents' specific attitudes about environmental consumerism were related to their reported number of purchases of environmentally friendly products and to their general environmental purchasing behaviour. The specific consumer belief, as oppose to general concern about the environment, emerged as a significant predictor of environmental consumerism. The stronger the pro-environment belief in the consumers the more likely it is for them to engage in pre-cycling behaviour.

An extensive review of studies on environmental attitudes and recycling behaviour done by Shrum et al. (1994) suggests that general environmental attitudes are not related to any particular environmental behaviour. The studies reviewed suggest that trait or personality variables such as an internal locus of control are correlated positively with post-purchase behaviours such as recycling. The authors' review of the literature also found that previous studies suggest that environmental attitudes correlate with behaviours, but the correlation is stronger when the attitudes are related to specific environmental behaviour, for example, attitudes towards recycling strongly correlate with recycling behaviour. The authors noted that the influence of values on behaviour is indirect, mediated by beliefs about recycling. Wall (1995) like the previous researchers (for instance, those whose works were reviewed by Shrum et. al., 1994) found that general environmental concerns have a weak positive effect on recycling and attempts to pre-cycle, suggesting that general environmental attitudes have a limited influence on environmental behaviour. Shrum et al. (1994) also noted that previous studies found that inconvenience is a very powerful motivator to avoid recycling.

Ellen et al. (1991) studied the relationship between perceived consumer effectiveness (PCE) and environmental behaviour to identify the types of behaviours that are and are not influenced by PCE. The author used social dilemma theory to predict how PCE will influence these types of behaviour,

because the problem of saving the environment is a social dilemma “(i.e., a situation where the collective good can be achieved if almost all community members sacrifice)” (Ellen et al., 1991, p. 105). This theory predicts that the degree to which the individual feels his/her efforts make a difference affects his/her performance of individually oriented activities such as recycling. The authors found that PCE<sup>1</sup>, the degree to which an individual can make a difference in the quality of the environment<sup>2</sup>, was related positively to intent to purchase environmentally safe products.

Shrum et al. (1995) studied the relationship between psychographic profile (using attitudinal and trait variables) of consumers and their purchasing or pre-cycling behaviour. Shrum et al. (1995) found that consumers’ perception of themselves as opinion leaders led them to actively exchange product information through word-of-mouth communications with others. This activity strongly influences consumers on whether or not to buy green (pre-cycle).

Schweper and Cornwell (1991) found several attitudes toward the environment (i.e. ecologically conscious living, and litter), locus of control and perceptions of pollution to be significant predictors of environmental purchasing behaviour (pre-cycling). The authors found that purchase intention on behaviour suggest that an internal locus of control is correlated positively with intent to purchase ecologically packaged products. The authors also found that individuals with an internal locus of control who were concerned with litter and believed that pollution was a problem, and who had a favourable attitude toward environmentally conscious living were more likely to intend to buy environmentally packaged consumer goods.

Huebner and Lipsey (1981) studied the role of locus-of-control variables in explaining ecologically responsible behaviour. The authors (1981, p. 56) said:

There may be some doubt whether locus of control is best viewed as a personality trait or as an attitude, but in either event, the findings of the present study are consistent with findings in both those domains – the relationship of locus of control to specific target behaviors is considerably stronger when it is measured in situation specific-terms than when it is measured more broadly.

The authors found that locus of control was significantly associated with environmentally responsible activities and personal conservation attitudes.

Larsen (1995), and Schwartz and Miller (1991) suggested that altruism is one of the forces behind recycling behaviour. Larsen (1995) claimed that people engage in environmentally responsible or ethical behaviour because of their concerns about social altruism or society in general, thus, the behaviours are perceived as contributing to the welfare of the community to which they belong.

Ebreo et al. (1999) examined the relation between respondents' beliefs about environmentally responsible consumerism and environmental attitudes, motives, and self-reported recycling behaviour. The authors found that respondents with higher concern for the environment also have higher ratings of the importance of conservation-related and kind-to-nature product attributes, and claimed to confirm the earlier studies on the relation between general environmental concern and attitudes toward recycling. The authors also found that the respondents' belief in positive consequences of recycling relate positively to their recycling behaviours. The results also suggest that participants are more likely to act in an environmentally responsible manner if they are concerned for the environment and concerned about the environmental norms of their community. The authors also found that people recycle because it gave them satisfaction.

De Young (1986) also found that respondents' recycling and re-using behaviour are positively associated with the satisfactions they gain from being frugal and from participating in conservation activities. Oskamp et al. (1991) investigated aspects encouraging or deterring recycling. The authors claimed that among the most useful predictors of recycling are degree of intrinsic satisfaction associated with the behaviour, and sense of personal efficacy – some authors refer to it as internal locus of control.

***Summary:***

Most of the studies in the social intrinsic aspect (or intrinsic motive) category used psychographic characteristics of consumers such as attitudes and beliefs, and psychological features such as personal values and trait variables to explain environmental concern or environmental behaviour (Shrum et al., 1994). Many studies focused on the relationship between environmental attitudes and actual environmental behaviours (Shrum et al., 1994). The results are inconsistent. Some studies show a positive relationship and some show a weak or no relationship (Mainieri et al., 1997).

According to Dunlap (1991) people are concerned about not only the quality of life but life itself, for human and other species. Thus, the diversity and intensity of environmental problems, as experienced by the public, are themselves proposed as an explanation for the widespread nature of environmental concern. The fact that environmental concerns are so widespread has led many researchers (including Manieri et al., 1997; Oom Do Valle et al., 2005; Thogersen, 2000) to use an environmental concern model to explain environmentally ethical behaviour (EEB). Most of the studies found that general environmental concerns are not strongly related to a specific EEB. However, specific environmental attitudes and/or beliefs such as environmental attitudes and beliefs towards pre-cycling, recycling, and consumerism, perceived behaviour control, perceived consumer effectiveness, internal locus of control and social altruism linked positively to EEB (Ebreo et al., 1999; Ellen et al., 1991; Larsen, 1995; Mainieri et al., 1997; Oom Do Valle et al., 2005; Schwartz & Miller, 1991; Schwepker & Cornwell, 1991; Shrum et al., 1994). Personal psychological features such as social conscience, personal norms and satisfaction also contribute positively to EEB (De Young, 1986; Huebner & Lipsey, 1981; Oom Do Valle et al., 2005; Oskamp et al., 1991; Shrum et al., 1995; Thogersen, 2000).

### **2.2.2 Social Extrinsic Aspect**

#### ***Theoretical Foundation:***

There are a few contextual or situational theories such as cultural and social context (that shapes motivations) used in some of the previous studies. The studies that used such situational theories normally examine the social extrinsic aspect to explain a particular environmentally ethical behaviour (EEB).

#### ***Methodology:***

Most of the studies used quantitative methods, and a few studies approached the issue at theoretical level. Most of the studies used primary data and some studies used secondary data.

#### ***Research Finding:***

Although the study by Oom Do Valle et al. (2005) used attitude-behaviour theories (that tend to examine intrinsic social motives in relation to environmental behaviour) the authors also found that higher standards of recycling involvement relate to household members possessing stronger subjective norms (or social extrinsic motives), that is, those more influenced by social pressure. This result

underlines the importance of subjective norms in explaining recycling behaviour. According to the authors, subjective norms act directly to influence behaviour as well as indirectly (internalized by the individual, thus becoming personal norms) to influence recycling behaviour. The authors found that subjective norms or social extrinsic motives have a positive influence on personal norms. This finding supports Schwartz's (1977) model of altruistic behaviour but other elements of Schwartz's model were only partially achieved, for example, while Schwartz's model claims that subjective norms or social extrinsic motives do not have a direct influence on behaviour but rather an indirect effect through personal norms the result of the study showed that subjective norms or social extrinsic motives do have a direct impact on behaviour.

Larsen (1995) and Thøgersen (2000) found that the elements of the social extrinsic aspect such as social pressure could influence the decision to engage in environmentally responsible or ethical behaviour such as recycling and pre-cycling behaviour. According to Thøgersen (2000), the increase in social pressure can increase (compliance) or decrease (defiance) pre-cycling behaviour (such as avoiding packaging waste). According to Thøgersen (2000) "Research on intrinsic social motivation indicates that when behaviour is motivated by extrinsic social pressure there is often a small step from compliance to defiance" (p. 449). Larsen (1995) claimed that individuals perform environmentally responsible or ethical behaviour because the behaviours are expected of them as members of their community.

Dunlap (1991) reported that a survey by Environment Opinion Study found that when people decided whether or not to take environmental actions there were many contextual aspects involved in their decision, such as information availability, convenience, and community.

Ebreo et al. (1999) found that social influence was not strongly related to environmentally responsible behaviour. However, the study showed respondents' motive to recycle due to the influence of one's family and friends was to some extent related to re-using and recycling behaviours.

Wall (1995), using secondary data, studied both recycling and consumers' intended purchasing (pre-cycling) behaviour. The author studied selected perceptual, situational and structural influences on environmental lifestyle choices to understand the barriers to public behavioural commitment to the environment in

particular recycling, and consumer attempts to purchase organically grown foods. The author also studied the relationship between attitude and behaviour. Wall (1995) found that people are more likely to act when a recycling programme existed in their areas such as curbside recycling programme because they believe that others are likely to cooperate and because the benefits to be gained from recycling, such as personal satisfaction and social approval, outweigh the costs when convenience is increased. Wall (1995, p. 465) concluded that:

levels of the environmental behaviours examined here [in the study] will remain low, regardless of concern, unless an environmental issue is linked to immediate personal concerns, or societal arrangements exist that help to reduce the costs of compliance and facilitate cooperative action.

Oskamp et al. (1991) claimed that the most useful predictors of recycling are contextual aspects such as convenience of behaviour, knowledge of environmental issues, family composition and neighbour's expectations. The authors found that friends and neighbours who recycle influence recycling behaviour of respondents, thus suggesting that social influence could be used effectively as a stimulus to promote recycling behaviour. The authors also found that general pro-environmental attitudes do not predict curbside recycling behaviour, but attitudes specific to recycling do.

Hess (1998) re-interpreted the 'social customs' approach, which was developed in the context of labour market, and used the approach to examine whether it is an adequate framework for explaining recycling behaviour of households. Hess (1998) tried to explain why each individual contributes (in terms of recycling behaviour) to the provision of a public good (i.e. the environment) and thus offers a partial escape from the free-rider<sup>3</sup> problem. According to the author (1998, p. 204):

In the real life of industrialized countries, public concern and social norms affect individuals' behaviour towards the environment – in addition to purely economic thinking... it is worth the effort to integrate non-economic motives such as the need to conform with others into the world of economics.

Ebreo et al. (1999) found that personal inconvenience did not relate to whether or not respondents would perform environmentally responsible behaviour. The authors found practicality (such as logistic items) was also not related to whether or not respondents would act in an environmentally responsible

manner. However, Vining and Ebreo (1990) who studied the difference in knowledge, motives, and demography and their relation to recycling behaviour found that personal inconvenience and the practical logistics of engaging in environmentally responsible behaviour can be important deterrents to recycling behaviour.

Oom Do Valle et al. (2005) found that communication strategies such as television, advertising etc do not positively influence perceived behaviour control, thus, were assumed to have indirectly failed to influence behaviour.<sup>4</sup> The authors attribute the failure of such communication strategies (in positively influencing recycling behaviour) to aggressive and offensive television advertisements that resulted in defiant behaviour among consumers. Shrum et al. (1995) also found that media, especially magazines, rather than television influence consumer decisions on whether or not to buy green (pre-cycle). Wall (1995) found that media exposure has statistically significant effects on environmental attitudes. Higher media exposure on environmental programmes results in greater environmental concern but does not directly affect recycling behaviour. However, Vining and Ebreo (1990) found that publicity and knowledge about recycling positively correlated with recycling behaviour.

Other findings are by Ebreo et al. (1999) who found that respondents believe that shopping in an environmentally responsible manner is important in terms of conserving resources, but not necessarily important in terms of protecting living organisms. On the other hand, Wall (1995) found safety concerns have strong effect on the pre-cycling behaviour.

Other researchers such as De Young (1986), and Huebner and Lipsey (1981) suggested that anywhere in the world, personal feelings and affection contribute a lot to raising the level of environmentally ethical behaviour (EEB). They also agreed that the media have a significant role in raising environmental awareness that may then be translated into EEB. For years both electronic and print media such as National Geographic (TV, internet, and print), MSNBC, EMS, ABC Science News, CNN Nature News, BBC Science and Nature, magazines and newspapers have been providing many reports on local and global environmental issues. According to Galifianakis (1995) 80 per cent of Americans receive their environmental information from the media, and 50 per cent of newspapers have assigned their reporters to cover environmental issues. The effort was also

recognized by media awards such as the American, and British Environment and Media Awards, for example in 1994 print media *Geographical* magazine was short listed for the award (*Geographical*, 1994). The number and type of environmental issues and conflicts reported play an important role in making specific environmental problems into big global issues. The media discuss environmental issues in terms of degree of risk, covering the politics, the economics, the social aspect and even the racial aspects of environmental stories, in addition to the scientific questions involved (Sachsman, 1999). According to Sachsman (1999) “they have set their own environmental agendas instead of relying on the value judgement of their sources” (p. 88). Thus, environmental news brings with it cultural symbols in relation to the environment as well as strong emotional pleas and moral values. The media are well aware of the vast and complex nature of the environmental issues that cover almost every aspect of life. However, the Greenaccord Association in its inaugural international media forum (De Blas, 2003, p. 4) states in the preamble:

Many of the issues are extremely complex and contentious. They cover almost all of the activities of people and the rest of the natural world, including economics... energy, education, culture and agriculture. They don't lend themselves to easy headlines or straightforward narratives and they are often subverted by cheap slogans and over simplistic analysis.

Rather, for the media to successfully play their part in promoting environmental awareness they have to present the issues along with their complexities.

***Summary:***

Most of the studies found that social pressure such as from the community at large, family, neighbours, and friends relates strongly (directly or indirectly) to environmentally ethical behaviour (EEB) (Dunlap, 1991; Ebreo et al., 1999; Hess, 1998; Larsen, 1995; Oom Do Valle et al., 2005; Oskamp et al., 1991; Thogersen, 2000; Wall, 1995). Other social extrinsic aspect such as personal convenience and the logistics of engaging in EEB either have no relationship (Ebreo et al., 1999) or have a negative relationship (Vining & Ebreo, 1990) to EEB. Most of the researchers agree that print media rather than electronic media (such as television) relate indirectly to EEB (Oom Do Valle et al., 2005; Shrum et al., 1995; Wall, 1995). Other social extrinsic aspect – conserving resources, knowledge and publicity of EEB, and safety concerns – are also found by the studies to be

positively correlated with EEB such as recycling and pre-cycling (Ebreo et al., 1999; Vining & Ebreo, 1990; Wall, 1995).

### **2.2.3 Religious Aspect**

#### ***Theoretical Foundation:***

A search of the literature found few studies that used religions, religious institutions or religious figures as their theoretical foundations to explain the specific environmentally ethical behaviour (EEB). In no case has any other environmental ethical or philosophical theory been used as the theoretical foundation in any empirical studies designed to explain environmentally ethical attitudes and/or behaviour. However, a study by Hand and Van Liere (1984) used a combination of White (1973)'s model, a denominational diversity model, and a 'no difference' model while Wiegel (1977) used attitude-behaviour theory.

#### ***Methodology:***

Most of the studies on religions, religious institutions and religious figures in association with the environment were approached at theoretical level. However, some studies such as by Fowler (2003) and Letcher (2003) used qualitative methods in their approach. There have also been a few empirical studies using quantitative methods (Hand & Van Liere, 1984; Wiegel, 1977).

#### ***Research Finding:***

Some authors (Kalland, 2002; White, 1973) assert that some religions have no relation with environmentally ethical behaviour (EEB) and go on to suggest that some religions actually encourage humans towards environmental destruction. While authors such as Moncrief (1973) believe that religions, in particular the Judeo-Christian, have very little indirect influence on human negative environmental behaviour many others (Baharuddin, 1992; Bryer, 1999; Dwevedi, 1990; Fowler, 2003; Letcher, 2003; Mawil, 1990; Nasr, 1990; Vesilind & Gunn, 1999; Wilber, 1998; Ujang, 1993a; Ujang 1993b) believe that it is the interpretation of religions that causes environmental behaviour to be positive or negative towards the environment. These authors believe that the sacred texts and teachings of the prophets and founders of religions are totally innocent of negative attitudes or behaviours towards the environment.

White (1973) argued that religion strongly influences what people do to their environment, and that Christianity (particularly in the West) has been a bad influence on the relationship between humans and the environment. An empirical

study of citizens of New England by Wiegel (1977), for example, provides some support for White's thesis. Wiegel (1977) found that environmental participants were more liberal in their religious philosophies (measured by the degree of involvement in religious teachings and prayer and belief in the infallibility of the Bible). In addition, Hand and Van Liere (1984) studied a random sample of the population of Washington State using a mail survey and found that non-Judeo-Christians (those who responded 'none'; 'belief in God, no religion'; 'agnostic'; and 'atheist') were more supportive of pollution control, population control and conservation. The least supportive were Baptists, Mormons and conservative Christian sects. The author also found that the greater the frequency of church attendance the less environmental concern (and the stronger mastery-over-nature viewpoint) was found among the Baptists, Mormons and conservative Christian sects. However, among the more liberal denominations such as Episcopalians and Lutherans, the higher the church attendance the greater their environmental concern. The findings of Hand and Van Liere (1984), and Weigel (1977), then suggest some support for White's thesis. But the question remains: do these results suggest that it is the religion or the interpretation of the religion that is at fault? In addition, the results are more supportive of the denominational diversity model which takes account of denominational differences than White's model (i.e., non-Judeo-Christians have greater concern for the environment).

White (1973) personally doubted that environmental problems can be avoided simply by more science and more technology. He believed that a new religion or new interpretations of the old ones are needed. He believed that human ecology is deeply conditioned by beliefs (religions) about our nature and destiny, and being a historian himself, gave historical evidence for his claim, in particular, on the influence of Christianity. He claimed that people in the West continue to live today as they have lived for about 1700 years, "very largely in the context of Christian axioms" (White, 1973, p. 24) that nature has no reason for existence except to serve humans. He stated that in the Judeo-Christian story of creation "Man named all the animals, thus establishing his dominance over them" (White, 1973, p. 25). All non-human creations are to serve human's purposes. And although the human body is made of clay, humans are not simply part of nature but are made in God's image. Christianity not only established a dualism of human and nature but also insisted that it is God's will that humans exploit nature

for their proper ends. He argued “The fact the most people do not think of these attitudes as Christian is irrelevant. No new set of basic values has been accepted in our society to displace those of Christianity” (White, 1973, p. 29). He claimed that “Both our present science and our present technology are so tinctured with orthodox Christian arrogance toward nature” (White, 1973, p. 29-30).

According to White (1973), even the greatest spiritual revolutionary in Western history, St. Francis, failed to promote an alternative Christian view of humans’ relation to nature – to substitute the idea of human’s limitless rule of creation with the idea of the equality of all creatures, including human. He claims “by destroying<sup>5</sup> pagan animism<sup>6</sup> Christianity made it possible to exploit nature in a mood of indifference to the feelings of natural objects” (White, 1973, p. 25). But the author admits that the interpretations of Christianity on human relations with nature are different in different contexts. The negative interpretations may apply to the medieval West but not to Greeks and Latins who have different “tonality of piety and thought” (White, 1973, p. 26). According to White (1973) “The Greeks believed that sin was intellectual blindness, and that salvation was found in illumination, orthodoxy – that is clear thinking. The Latins ... felt that sin was moral evil, and that salvation was to be found in right conduct” (p. 26). However, Hoge (2005) argued that Judeo-Christians have not destroyed the environment any more than other people. He noted that the Greeks who cleared forests for timber and the Egyptians who totally changed the Nile Valley from swampland to high-intensity cropland were not influenced by Judeo-Christian teachings.

Like White (1973) who argued that the environmental crisis today has risen from the dualism and anthropocentrism rooted in Christianity, Kalland (2002) argued that Native American and Asian religions too have features that facilitate serious degradation of the environment. The author also refuted the attribution of environmental problems to modernization and westernization as far too simplistic. Indeed, she sees worldviews and cosmologies as full of contradictions not coherent constructions, and that “Reading ecological insight from religious texts tends to be based on selective reading of these texts, ignoring evidence to the contrary” (Kalland, 2002, p. 147). Thus, to prove her claim that religions in Asia facilitate environmental degradation no less than Judeo-Christian tradition, modernization and westernization, she presented the contrary evidence (from the popular beliefs of Buddhism, Zen and Shinto taking the case of Japan)

that according to her has been ignored. According to Kalland (2002), a study of the holistic approach to nature held by the Japanese (in particular) raises a few points of concern as to how useful such worldview for the protection of the environment can be. Admitting that her reading is equally selective, Kalland (2002) concluded that “the holistic approach, viewing nature as the totality of all things may legitimize pollution” (p. 155). Such a view blurs the “distinction between nature created by gods and artefacts created by people... Litter or a vending machine are just as much a part of nature as a crane or a pine tree” (Kalland, 2002, p. 155). She also concluded that “viewing nature as a process [where everything decays and dies only to give birth to new lives in an endless cycle] may make its quantity unimportant” (Kalland, 2002, p. 155) and that “enhancement and refinement of nature [e.g., a garden and *bonsai*] may imply reductions” (Kalland, 2002, p. 155). She also concluded that “a divine nature [perspective by the Japanese in particular] may open for its appropriation and exploitation” (Kalland, 2002, p. 155) as:

[h]uman beings are considered to become indebted to nature when exploiting it, but can “repay” harm that has been inflicted upon nature, animate or inanimate, through, for instance, memorial rites... leaving the rest to nature itself to mend. A divine nature is, therefore, by no means a guarantee against environmental degradation, as has often been claimed.

However, unlike White (1973), Kalland (2002) believes that the answers to environmental problems are not religious but social, giving the example of Japan as the industrial country achieving the largest forest cover relative to her land area after periods of deforestation, and changing Tokyo from one of the most polluted major cities to one of the cleanest. The author claimed that these achievements were accomplished not by “searching for religious clues but ... via painful experience, confrontation and political pressure” (Kalland, 2002, p. 155).

Moncrief (1973) agreed with White (1973) that “Human ecology is deeply conditioned by beliefs about our nature and destiny – that is, by religion” (White, 1973, p. 24) but rejected the claim that it is the primary conditioner of human behaviour towards the environment. Hoge (2005) and Moncrief (1973) present an alternative set of hypotheses based on cultural variables as an explanation of the environmental crisis we face today. Moncrief (1973) argued, “The forces of democracy, technology, urbanization, increasing individual wealth, and aggressive

attitude toward nature are directly related to environmental crisis” (p. 39). He admits that lack of personal moral direction contributes to bad behaviour towards the environment but like Kalland (2002), does not agree that it is restricted to any one religion or culture. He argued that it is almost a universal tendency to maximize self-interests and to shift production costs to society to promote individual ends. Moncrief (1973) agrees with White (1973) that “Judeo-Christian tradition has probably influenced the character of each of these forces [other aspects than religions]<sup>7</sup>” (Moncrief, 1973, p. 39-40) indirectly but disagrees with White (1973) that it is the “historical root of our ecological crisis” (Moncrief, 1973, p. 31) for lack of historical or scientific support. Thus, it is fair to say that Moncrief (1973) believes that other contextual aspects are more influential than religious ones on consumers’ EEB.

Others like Fowler (2003) and Letcher (2003) see spiritual beliefs such as the ideas of nature in Eco-pagan and indigenous religions as being a motivating aspect for people to use non-violent direct action such as to protest construction projects that damage the environment and to protect natural resources. Letcher (2003) believes that religions are the foundation that belief systems, thoughts, and institutions are based on and grow consciously or unconsciously. Fowler (2003) asserts that indigenous religions contain sentiments that encourage conservationist ethics and in some cases support the goals of conservation biology. Fowler (2003) claims that qualitative evidence from her study on the indigenous people of Karendi in Sumba, Indonesia, and their religion (as in other indigenous communities in Southeast Asia) suggests that the notion of sacredness is linked to conservationist management techniques. According to Fowler (2003) the resource management techniques of the indigenous people “are shaped by the belief that they are responsible for taking care of inherited goods and items that were valuable to their ancestors” (p. 319).

Bryer (1999), Vesilind and Gunn (1999) and Wilber (1998) see religions and religious texts as offering or providing a useful foundation for environmental ethical codes for humans to strike a balance between human needs to utilise nature to survive and human responsibility as a steward of the earth. The interpretations of Torah and Talmud are the sources of *Halacha* (Judaism’s system of behavioural rules) (Bryer, 1999), some interpretations of Bible are the source of stewardship (the ethical concept in Christianity), and interpretations of the Qur’an

are the source of Syari'ah (Islamic law – among others concerning environmental protection). Bryer (1999), for instance, highlights an analysis by the Chief Rabbi of Jerusalem on the chapter of Genesis (2:15) on the verb 'to till' which means to utilise nature and be productive, and the verb 'to keep' which means to avoid ecological damage. Hoge (2005) and Vesilind and Gunn (1999) also highlight the first chapter of Genesis and the second chapter of Genesis in such manner, that is, not as self-contradictory but as emphasising the balance between human needs and human responsibilities towards nature.

The criticism of religious texts as being self-contradictory (as claimed by Kalland, 2002), is not new, nor is it restricted to the environment; rather it is as old as the religious texts themselves. However, in this section only the claims on the subject of the environment are discussed. One can claim that the Qur'an also contains apparently 'self-contradictory' passages on the subject of the environment, for example:

- i. The Qur'an (31:20<sup>8</sup>, 45:13<sup>9</sup>) states that God created heaven and earth and all that is in them for the sake of human beings. But the Qur'an (40:57<sup>10</sup>) also points out that humans exist side by side with other creatures and that human life depends on those other creations in a system of which humanity is only a part, hence, several verses in the Qur'an (6:38<sup>11</sup>, 55:8-10<sup>12</sup>, 27:18-19<sup>13</sup>, 2:205<sup>14</sup>, 54:28<sup>15</sup>) call for environmental protection. One could therefore claim that the Qur'an is contradicting itself in saying the earth is created for the sake of human beings and then demanding that human beings protect it.
- ii. In line with the Qur'an, the teaching of the Islamic scholar Imam Hasan (quoted in Sayyid, 1994) that one should engage in exploring the earth for wealth as if one would live forever, and at the same time urge one to engage as *khalifah* with the responsibility to protect the environment as if one would die tomorrow can be seen as a self contradictory teaching.

However, Muslims see those 'contradictions' as a way in which the religious texts provide them with ethical principles to assist one to strike a balance between human needs and human responsibility towards nature with 'moderation' as the key concept of behaviour in the effort to strike such balance. Muslims embrace the Islamic core ethical concepts that apply in every aspect of their life. These

include, for instance, concepts such as *halal* (lawful), *haram* (forbidden), *khilafah* (caliphate), moderation, no waste, and no transgression. Muslims regard these ethical principles to mean that Islam accepts the use of natural resources for human needs but is against the exploitation of such resources for human greed. Muslims evaluate human use of environmental resources on the basis of the benefit in comparison to harm that it yields. According to the World Assembly of Muslim Youth (2005) “Benefits and harm, judged as such in the light of Islamic knowledge and clear evidence should be considered carefully and weighed up” (p.2). The concept of moderation is emphasized in the Qur’an (55:7-9):

And the Firmament has He raised high, and He has set up the Balance (of Justice), in order that ye may not transgress (due) balance. So establish weight with justice and fall not short in the balance.

In Islam, ‘moderation’ is offered to Muslims as a solution in a normal situation, but in a morally difficult situation where human needs appear to outweigh environmental needs the priority goes to human needs (but not human greed). For example, until the distribution of wealth in the world is just and fair, Islam views the starving people of India over-exploiting their environmental resources for their physiological needs to survive as morally justified.

White (1973) admits that if St. Francis’ approach (that is nature is important to God and to love God is to take care of His creations) toward nature had prevailed the Western environment would have been different. Vesilind and Gunn (1999) affirm that people, not religions are the cause of environmental degradation because people tend to accept certain religious dogmas “when there is sufficient need for such beliefs and when there exist strong leaders who promote certain religious dogmas” (p. 85). Hoge (2005, p. 5) also noted that:

the mastery-over-nature view is associated with a literal interpretation of the Bible and an eschatological vision of history, while the stewardship-of-nature view is associated with a more scientifically-informed worldview, internationalism, and a longer view of history.

Thus, religious texts face a danger of misinterpretation, in particular of being interpreted in such a way as to support one’s self-interest. However, as far as Judeo-Christian and Islamic tradition are concerned, those religions come not only with scriptures (as life manuals) but also prophets (as life teachers) to rightly

interpret and demonstrate the scriptures in daily life (Al-Qur'an, 62:2<sup>16</sup>), in order to avoid the danger of misinterpretation and misbehaviour. Many (Nasr, 1990; Ujang, 1993a; Ujang, 1993b) believe that the practice of misinterpretation (deliberately or unconsciously) to justify misbehaviour (such as towards the environment) prevailed because people allowed it to do so by distancing themselves from their religious scriptures and their prophets' teaching.

Several authors (Baharuddin, 1992; Bryer, 1999; Dwevedi, 1990; Mawil, 1990; Nasr, 1990; Vesilind & Gunn, 1999; Wilber, 1998; Ujang, 1993a; Ujang, 1993b) agree that religions provide the environmental ethical codes for their followers to strike a balance between meeting their needs and responsibility towards the environment. But they also agree that a majority of followers of these religions, religious institutions and religious figures in the community do not fully utilise the remedies that are already there in their religions to solve environmental problems we face today. For example, Wilber (1998) sees moral values as necessary counterparts in a system based on personal interest. But Wilber (1998, p. 1604) argued that religious value has diminished in modern society because of a twofold change:

First, the repudiation of the social character and responsibility of religion has meant its banishment to a purely private matter. Second, the elevation of self-interest as a praiseworthy virtue in turn has undermined that privatized religious ethic.

Wilber (1998) also asserts that moral values from religion that are inculcated by families, churches, governments, and schools are important in shaping behaviour. However, he thinks that the roles played by these institutions are insufficient. Nasr (1990) believes that the strictures and injunctions in the religions and cultures of the East were originally sympathetic towards nature but that the materialistic orientation of the West has affected the cultures of the East. He gives the example of environmental exploitation in India, Sri Lanka and Japan by their own people who belong to such sympathetic religions and cultures. Dwevedi (1990) believes that many world religions share the perspective that the abuse and exploitation of nature for immediate gain is unjust and unethical. According to Dwevedi (1990) it is a historical fact that "Muslims, Hindus and Buddhists were careful to observe moral teachings regarding the treatment of nature; not only common people but also rulers and kings followed those ethical guidelines and tried to create an example for others, but sadly it remains historical" (p. 201).

Regardless of whether or not the religions, religious institutions, or religious figures are seen as posing a positive or negative influence on human relations to their environment, most of the authors agree that religions, religious institutions or religious figures have a certain degree of influence on human environmental behaviours. More empirical studies on the degree of such influence would be very interesting to explore. The interest of the present study is on the influence of religious figures and their teachings on EEB of consumers.

***Summary:***

Not many studies have used quantitative methods in explaining the relationship between religions and environmental behaviour. The reason is probably due to religions being seen as providing concerns towards nature generally but not in terms of specific behaviour. According to many studies (Huebner & Lipsey, 1981; Mainieri et al., 1997; Oom Do Valle et al., 2005; Shrum et al., 1994; Thogersen, 2000; Wall, 1995) general environmental attitudes or concerns do not highly correlate with specific environmentally ethical behaviour (EEB). Studies (Huebner & Lipsey, 1981; Mainieri et al., 1997; Oom Do Valle et al., 2005; Shrum et al., 1994) show that only specific environmental attitudes or concerns are highly correlated with specific EEB. These empirical studies when they are conducted failed to “look at both general and specific environmental attitudes, and... people’s attitude toward Biblical teachings while controlling other possible sources of bias” (Hoge, 2005, p. 4-5). Hoge (2005) analyzed a few empirical studies (Hand & Van Liere, 1984; Shaiko, 1987; Wiegel, 1977) and found that they generally support White’s (1973) thesis, but he also found that those studies were not without limitations, in particular, the limitation in the coverage of type of respondents. The studies failed to “compare Christians from diverse denominations, [with non-Christians such as] Jews, Muslims, Hindus, Buddhists, devotees of tribal religions such as those of American Indians, and secularists” (Hoge, 2005, p. 4). Thus, the results of the studies have a limited generalisability power. Hoge (2005) noted that “empirical research is needed to assess if specific religious factors played an important role or failed to play any role in actual behaviours...” (p. 5). The important gap left in the literature as far as the relationship between religions and EEB is concerned is surely an interesting one to explore.

## 2.2.4 Economic Aspect

### *Theoretical Foundation:*

There are a number of economic indicators used as theoretical foundations by researchers to explain environmentally ethical behaviour (EEB). Among those indicators are monetary incentives, product attributes, and cost or price.

### *Methodology:*

Some studies (Moncrief, 1973; Wilber, 1998) approached the issue of economic aspect in relation with the environment at theoretical level but most of the studies (Ebreo et al., 1999; Mainieri et al., 1997; Schwepker & Cornwell, 1991; Thøgersen, 2000) used quantitative methods and produced convincing empirical results.

### *Research Finding:*

Moncrief (1973) claimed that urbanization is one of the causes of the United States' environmental crisis. He gave the example of the frontier era of American history. In the course of United States' urbanization (Moncrief, 1973, p. 36-37):

Forest needed to be cleared to permit farming. Marshes needed to be drained. Rivers needed to be controlled. Wildlife often represented a competitive threat in addition to being a source of food. Sod was considered a nuisance – to be burned, plowed, or otherwise destroyed to permit “desirable” use of land.

Moncrief (1973) also claimed that technology is linked to the environmental crisis. The French revolution “involved a redistribution of the means of production and a reallocation of the natural and human resources that are the integral part of the production process” (Moncrief, 1973, p. 34). This was possible because technological innovations in England had already amplified by several times the productive capacity of each worker prior to the revolution. Thus, huge factories emerged and more natural resources were needed. Population growth increased the demand for goods and services, leading to increased waste from production and consumption. Moncrief (1973, p. 39) also pointed out that:

It is very evident that the idea that the technology can overcome almost any problem is widespread in Western society ... [despite] strong evidence that much of man's technology, when misused, has produced harmful results...

Hess (1998) also emphasized that “purely economic motives are important and should be addressed by policy-makers together with social motives” (p. 203).

The author asserts that “incentive or charge will have positive effects on individuals’ contribution towards the public good” (Hess, 1998, p. 213-214). Wilber (1998) also thinks that financial incentives such as “a value-added tax on consumer goods, to highly targeted ones, such as excise taxes on luxury consumer goods or the carbon content of goods” (p. 1605) to guide people’s behaviour are effective. But he also believes that those financial incentives are difficult to implement extensively because economic growth is based on the value of individual consumption and growth is seen as desirable. From Wilber’s arguments, it is fair to say that the economic aspect in the form of financial incentives is not very influential in shaping consumers’ environmentally ethical behaviour (EEB). This is not because consumers do not want to take up those incentives but because of the lack of such incentives as they are seen by economists, policy makers and researchers as ineffective in the long run. For example, Oskamp et al. (1991) claim that previous studies found monetary concerns were strongly related to recycling behaviour, and that when monetary incentives ended, recyclers stopped recycling.

Wilber (1998) also touched on the designs of goods by manufacturers that make it harder for people to behave environmentally ethically. Wilber (1998) cited large corporations’ obsession with “competing through product innovation and differentiation resulting in an emphasis on stylistic and physical obsolescence” (p. 1606). Thus, products are designed to be thrown away after use or to be used for less than their physical capacity due to changes in styles, or have been created to break down faster than they should. There are also products that physically can’t be repaired when a component breaks down such as electric jugs and toasters. People have to continually buy new products, causing energy and natural resources waste. However, Wilber (1998) stated that price increases due to lack of natural resources will force manufacturers to reduce wasteful practices although this will also cause unemployment and “a crisis in economic growth” (p. 1606) if it is not well planned.

An empirical study by Thøgersen (2000) found that product attributes such as whether packaging is environmentally friendly have independent or direct influence on purchasing or pre-cycling behaviour. Shrum et al. (1995) also found that product attributes (except for the brand) such as “new products”<sup>17</sup> (p. 80) and products’ performance relate to the consumers’ decision to buy green (pre-cycle).

In addition, Mainieri et al. (1997) found that product attributes affect both pre-cycling and recycling behaviour. Product quality, prior use of the product, cost of the product, the product's size, and product safety in relation to the environment are some elements of the economic aspect that influence purchase decisions. However, the authors found that product safety in relation to the environment was less significant to consumers. The authors also found that people's self-reported level of participation in recycling was positively related to reports of their general environmental buying behaviour but not to their self-reported purchases of environmentally benign products.

Schwepker and Cornwell (1991) also found that product attributes have a positive relationship with willingness to engage in pre-cycling behaviour. The authors found that people are willing to purchase products in larger packages with less frequency, products in less attractive packages that eliminate unnecessary packaging, and products in redesigned packages which contribute less solid waste. The authors found that consumers are also willing to purchase products in recyclable and biodegradable packages rather than similar products whose packages are not.

Ebreo et al. (1999) found that respondents were very concerned about human safety in relation to products. Respondents thought that whether products were derived from animals or tested on animals was less important than other environmental concerns. They rated products that have general implications for the environment, such as conserving energy, the highest. Their second highest concern was in relation to renewable resources, and limited amount of packaging. Respondents rated in third place concerns about products in terms of composition of the packaging such as products being packaged in returnable bottles.

Shrum et al. (1994) noted that in the case of recycling, it appears that many non-recyclers consider the price (in terms of money and time) of recycling to be too high. Shrum et al. (1995) found that the price of products also influences consumers' pre-cycling decisions and could deter them from pre-cycling.

***Summary:***

Moncrief (1973) claimed that the elements of the economic aspect such as urbanization, technology and increasing demand for goods and services caused environmental degradation. There are a number of studies (Ebreo et al., 1999; Hess, 1998; Mainieri et al., 1997; Oskamp et al., 1991; Schwepker & Cornwell,

1991; Shrum et al., 1995; Thøgersen, 2000; Wilber, 1998) suggesting that economic solutions to the economic cause of environmental degradation lie with consumers. Hess (1998) and Wilber (1998), for instance, believe that financial incentives to consumers would encourage environmentally ethical behaviour (EEB), and, would thus curb some aspects of environmental degradation. But Wilber (1998) also thinks that such incentives are difficult to implement, and Oskamp et al. (1991) thinks that it is not effective as a long term solution as proven by previous empirical studies on the effectiveness of such incentives to consumers. Wilber (1998) argues that environmentally unfriendly product design discourages EEB among consumers and that manufacturers should be forced to reduce wasteful practices. A good example is in some European countries such as Germany where manufacturers are required to recycle old cars. While it is true that manufacturers might be forced to reduce such practices when prices increase due to lack of natural resources, EEB by consumers is more effective. Such consumers choose to buy environmentally friendly products and this could force manufacturers to produce more environmentally friendly products and reduce their wasteful practices. Many studies (mostly empirical ones such as Ebreo et al., 1999; Mainieri et al., 1997; Schwepker & Cornwell, 1991; Shrum et al., 1995; Thøgersen, 2000) found that the availability of products with environmentally friendly attributes has a strong positive relationship with EEB of consumers. However, as noted by Shrum et al. (1994) and found in an empirical study by Shrum et al. (1995) price can be a huge deterrent to EEB (i.e., pre-cycling). Thus, here, we can see a two way relationship between consumers' behaviour and product attributes. However, the present study addressed only the influence of price, cost effectiveness and vendors on consumer behaviour, not the influence of consumers on product attributes or manufacturers.

### **2.2.5 Political Aspect**

#### ***Theoretical Foundation:***

There are a number of political indicators used as theoretical foundations by researchers to explain environmentally ethical behaviour (EEB). Among those indicators are national policy, government, law and regulation, political parties, environmental NGOs, and politicians themselves.

***Methodology:***

Some studies (Dunlap, 1991; Hess, 1998; Moncrief, 1973; Smith, 1984; Wilber, 1998) approached the issue of political aspect in relation to the environment and environmental behaviour at a theoretical level and some of the studies (Richert & Nash, 1990; Schwartz & Miller, 1991; Van Liere & Dunlap, 1980; Wall, 1995) used quantitative methods and produced convincing empirical results.

***Research Finding:***

Dunlap (1991) has identified two kinds of people's behaviours towards the environment: first, people who focus on individual responsibilities, and second, people who focus on political actions. The emphasis on individual responsibilities includes changes in social and economic aspects of their lives. They feel that they have ecological responsibilities to recycle, and to buy organic products, as well as to reduce power consumption. Political actions or behaviours include voting choices, writing complaint letters (including emails) to politicians, and making phone calls to officials as well as boycotts of non-environmentally friendly products. They also donate to and become volunteers for environmental organizations. This group sees business and industry rather than individuals as the major cause of environmental problems and that therefore they have a primary responsibility to solve them, and it is government's job to make sure the business and industry do so. However, they also support individual responsibilities such as enforcement<sup>18</sup> of recycling, and re-using.

Moncrief (1973) claimed that democracy forces government to adopt policy that directly relates to the environmental crisis. He gives the example of American national policy designed to convey ownership of the land and other natural resources into the hands of the citizenry that was successfully achieved by Thomas Jefferson. Thus, Moncrief (1973, p. 36) argued:

the natural resources of the nation came to be controlled not by a few aristocrats but by many citizens ... decisions that ultimately degrade the environment are made not only by corporation boards and city engineers but by millions of owners of our natural resources.

Moncrief (1973) also argued that the inability of institutions such as government to act decisively when faced with issues of balancing economic profits and environmental well-being definitely link to the environmental crisis. In addition, Dunlap (1991) reported that in the 1980s research done by National Opinion

Research Center, Roper Organisation, Harris, CBS polls and Cambridge Reports show that the majority of the public did not think government did enough in terms of funding and regulations in relation to the environment.

Dunlap (1991) also reported that previous research found that pro-environment opinions do not automatically translate into behaviours like voting. A Survey by Environmental Opinion Study in 1991 showed that half of the public said that whether or not a candidate was pro-environment made no difference to their voting decisions.

Wilber (1998) claimed that laws and regulations could influence individual values and behaviour codes. This claim is based on the argument that humans are able to change the values they currently hold, and the fact that “a principal objective of publicly proclaimed laws and regulations is to stigmatize certain types of behaviour and to reward others” (Wilber, 1998, p. 1605). The author argued that the law may not stop an individual from having a negative attitude towards the environment but it can punish some negative environmental behaviour, and gradually, the behaviours will come to be seen as inappropriate by the public. However, he admits that there is very little evidence of political actions on preventive measures being successful. Thus, it is fair to say that the political aspect has little influence in shaping consumers’ environmentally ethical behaviour (EEB), not because consumers do not feel obligated to obey the laws and regulations on preventive measures imposed but because of the lack of enforcements of such laws and regulations.

However, other researchers such as Schwartz and Miller (1991) suggest that recycling law is one of the forces behind recycling behaviour. The recycling legislation stimulates behavioural change. Some of the other studies also support Schwartz and Miller’s (1991) suggestion. Richert and Nash (1990) in their study for the Maine Waste Management Agency claim that regulations on solid waste bring about recycling behaviour, giving an example of legislation in Maine where 50 per cent of municipal solid waste must be recycled within 3 years. Thus, Maine has a returnable bottle law, requirements to recycle office paper, and a ban on aseptic containers. Dunlap (1991) also claimed that political measures in the forms of incentives including economic ones (such as already discussed) and disincentives, and bans can modify individual environmental behaviour, giving

the example of Oregon's Bottle Bill which has reduced litter and increased recycling.

Van Liere and Dunlap (1980) used among others political variables to explain the public's environmental concern. The authors admit to having only limited success in explaining public's environmental concerns using those variables as the relationships between the variables and the environmental concerns are not that strong (in fact, very modest). The authors found that Democrats (assumed to be pro-environment) are more concerned about environmental quality than are Republicans (assumed to be pro-business) but the relationship was not strong enough. Thus in the US political party is not a crucial variable in explaining variation in environmental concern among the general public.

Wall (1995) found that political party's affiliation (in particular New Democratic Party or NDP in Canada) correlated statistically significantly with environmental attitudes. The higher the involvement with NDP the greater the environmental concern though not directly linked to recycling behaviour. However, the author found that political involvement (in NDP) correlated with attempting to purchase organic foods. He also found that those who have access to recycling programmes, in particular access to a curbside programme, tend to do more recycling than those who do not have that access.

Dunlap (1991) claimed that NGO influence on consumers' behaviour were tremendous referring to the success of the Sierra Club and Nature Resources Defence campaign against the use of Alar, which resulted in such an effective consumer boycott of apples that growers quickly stopped using Alar. According to Dunlap (1991) Cambridge Reports in 1990 found half of consumers reported "avoiding the purchase of products by a company that pollutes the environment" (Dunlap, 1991, p. 36).

Smith (1984) writes on why individuals support private environmental 'public interest' groups. According to Smith (1984) "Early political science research adopted a pluralist explanation of interest groups, arguing that individuals choose to join such groups because they supported the groups' goals" (p. 132). According to Smith (1984) others suggest that individuals join such groups because they receive some type of selective incentives (i.e., gains that are private or subject to some form of exclusion<sup>19</sup>).

***Summary:***

Moncrief (1973) claimed that national policy resulted from democratic practices, and indecisive governments cause environmental degradation. Dunlap (1991) also reported a few findings of empirical studies showing that the public believe government is at fault. However, Dunlap (1991) also found that the difference in politicians' view on the environment did not have any influence on voting preference. Studies (Dunlap, 1991; Richert & Nash, 1990; Schwartz & Miller, 1991; Wilber, 1998) also suggest that enforcement of environmental laws and regulations could encourage environmentally ethical behaviour (EEB). However, Wilber (1998) noted that environmental laws and regulations have not been very successful in enforcing EEB. Hess (1998) asserts that as far as government's influence is concerned "conscious appeals were all in all more effective than threats to impose sanctions [for example, paying penalties]..." (p. 216). However, other studies (Dunlap, 1991; Richert & Nash, 1990; Schwartz & Miller, 1991) suggest that environmental laws and regulations are among the forces for EEB such as recycling. Some researchers (Van Liere & Dunlap, 1980; Wall, 1995) found that involvement in political parties is not a strong influence on EEB. Despite the issue of the real reason people join environmental NGOs discussed in Smith (1984) – the groups' goals or the gain of some type of selective incentives – study by Dunlap (1991) on the influence of environmental NGOs on consumers' behaviour found that NGOs have considerable influence on EEB, especially pre-cycling.

**2.2.6 Demographic Aspect*****Theoretical Foundation:***

There are a number of socio-demographic variables used as theoretical foundations by researchers to explain environmentally ethical behaviour (EEB). Among those indicators are income, education, age, occupation, gender, whether one is home owner or renter, resided in urban or rural areas, family composition, and type of housing.

***Methodology:***

Some studies (Morrison & Dunlap, 1986; Schwartz & Miller, 1991) approached the issue of the demographic aspect in relation to environmental behaviour at theoretical level but most of the studies (Ebreo et al., 1999; Mainieri et al., 1997; Oskamp et al., 1991; Schwepker & Cornwell, 1991; Shrum et al., 1995; Van Liere

& Dunlap, 1980; Vining & Ebreo, 1990; Wall, 1995) used quantitative methods and produced convincing empirical results.

***Research Finding:***

Morrison and Dunlap (1986) investigated the accusation that environmentalism is elitist: supporters of environmentalism are from upper socio-economic strata, environmental reforms have underlying benefits to environmentalists and/or costs to non-environmentalists or the least privileged, environmental reforms have intentionally or not distributed benefits to environmentalists and costs to the least privileged. Morrison and Dunlap (1986) claimed that “Education is the only indicator of socio-economic status consistently and strongly related to environmental concern among the general public” (p. 587).

Schwartz and Miller (1991) explained consumers’ behaviour (such as pre-cycling and recycling) using demographic aspect. According to the authors a Roper Organization poll conducted for S.C. Johnson and Son found the greenest category is those who have a higher proportion of white collar workers, a higher level of education, and a higher proportion of women. Shrum et al. (1995) also found that women tend to engage in pre-cycling or purchasing environmentally consciously more than men. Mainieri et al. (1997) also found that women held more pro-environmental attitudes than did men and were also more likely to report that they purchase products that benefit the environment. However, the authors found that age, income, and education did not have a significant relationship with any of the dependent variables.

Schwartz and Miller (1991) concluded that “People who regularly engage in pro-environmental consumer behaviour are an elite group, with higher-than-average levels of educational attainment and household income” (p. 34).

Van Liere and Dunlap (1980) also used demographic variables to explain the public’s environmental concern. In terms of gender, Van Liere and Dunlap (1980) found a modest positive association, indicating that women are more concerned about the environment than men. The authors found that younger people tend to be more concerned about environmental quality than older people. They also found that education has a positive relationship with environmental concern but that income and occupation do not. Thus, on the whole the hypothesis that social class is positively associated with environmental concern is weak. The authors concluded that younger, well-educated and politically liberal persons tend

to be more concerned about environmental quality than their older, less, educated, and politically conservative counterparts.

Wall (1995) found that education has statistically significant effects on environmental attitudes: the higher the level of education the greater the environmental concern. However, education does not have great effect on any recycling behaviour. Oskamp et al. (1991) also found that demographic variables explain only a small part of variance in people's behaviour.

Unlike Van Liere and Dunlap (1980) Ebreo et al. (1999) found that concern about environmental issues increased slightly with age. The authors also found that educational level and gender made a slight difference to the degree environmental concern in product rating with women rating environmentally friendly product attributes more highly than men. However, respondents in different occupational categories did not rate conservation-related attributes or nature-related attributes differently. The study shows demographic characteristics such as education level and age have little relation to environmentally responsible behaviour. However, gender is strongly related to environmental behaviour with women being more environmentally responsible than man, confirming the results of other studies.

Like many others, Vining and Ebreo (1990) also found that demographic variables explain only a small part of motivation to practise environmentally responsible behaviour. However, the authors found some degree of positive relationship between age and recycling behaviour as well as between income and recycling behaviour. Other demographic variables show no relationship to recycling behaviour.

A relatively large number of studies (Buttel, 1987; and Shrum et al., 1994) have found little or no relationship between demographic characteristics and environmental attitudes and behaviours. When relationships have been found, they typically have less explanatory power than the psychographic variables. Like others Schwepker and Cornwell (1991) too found that demographic variables are not as important as socio-psychological variables in understanding the ecologically concerned consumer. Thus, demographic variables continue to explain only modest levels of variance.

Schwartz and Miller (1991) found that home owners were more likely than renters to recycle glass, cardboard, plastic, and newspapers. Oskamp et al. (1991)

also found those who live in a single – family house, and those who own their own home, were much more likely to recycle, compared to renters, and residents of condos, apartments, or mobile homes, though the latter groups also had the same city recycling pick up service available to them.

Van Liere and Dunlap (1980) found that urban residents are more likely to be environmentally concerned than rural residents. In addition, Schwepker and Cornwell (1991) found that residents of smaller communities were less concerned about litter and pollution than were residents of larger cities, and hence less inclined to purchase ecologically packaged products.

Wall (1995) also found that the presence of children affects positively both recycling and pre-cycling behaviour. On the other hand, Ebreo et al. (1999) found household size and years of residence were unrelated to conservation-related attributes and nature-related attributes.

Ebreo et al. (1999) tested whether the attitudes and self-reported behaviours of respondents were related to the type of housing in which they resided and found it has some effects on level of participation in various recycling activities, and the type and amount of materials they had recycled. Ebreo et al. (1999) found that 95 per cent of the respondents living in single-family dwellings reported that they had recycled in the past year, compared to 88.8 per cent of the respondents living in other forms of housing. This shows that type of housing has some influence but is not a strong predictor for recycling behaviour.

***Summary:***

The results of the studies that used such demographic variables to explain environmental behaviour are mixed. Some show positive relationships between demographic aspect, and some show little or no relationships. For example, Schwartz and Miller (1991), and Vining and Ebreo (1990) found income to have some positive relationship with environmentally ethical behaviour (EEB), but Mainieri et al. (1997), Morrison and Dunlap (1986), and Van Liere and Dunlap (1980), found little or no such relationship. Ebreo et al. (1999), Morrison and Dunlap (1986), Schwartz and Miller (1991), Van Liere and Dunlap (1980), and Wall (1995) found that education is strongly related to EEB, but Buttel (1987), Mainieri et al. (1997), Oskamp et al. (1991), Schwepker and Cornwell (1991), Shrum et al. 1994, and Vining and Ebreo (1990) did not find education to have a significant relationship with such behaviour. Van Liere and Dunlap (1980), and

Vining and Ebreo (1990), found age to have a significant relationship with EEB, but Ebreo et al. (1999), and Mainieri et al. (1997) found little or no such relationships. However, most of the researchers (Buttel, 1987; Ebreo et al., 1999; Schwepker & Cornwell, 1991; Shrum et al., 1994; Van Liere & Dunlap, 1980) found occupation to have either no positive relationships or no relationships at all with EEB. Most of the researchers (Ebreo et al., 1999; Mainieri et al., 1997; Schwartz & Miller, 1991; Shrum et al., 1995) also agree that in terms of gender, women engage more in EEB. Oskamp et al. (1991) and Schwartz and Miller (1991) found that home owners compared to renters have a positive relationship with recycling. Schwepker and Cornwell (1991) and Van Liere and Dunlap (1980) found that urban residents compared to rural residents have higher environmental concern and showed a positive relationship with pre-cycling behaviour. Wall (1995) found that family composition affects both pre-cycling and recycling behaviour. Ebreo et al. (1999) found that household size and years of residence do not have any relationship with environmental concern. However, Ebreo et al. (1999) found that type of housing has some relationship with recycling behaviour.

### **2.3 Conclusion**

In conclusion, this chapter has identified and reviewed the dimensions of theory, methodology and findings of the literature. It has discovered that there is a lack of religious indicators as theoretical foundations used in the studies to explain environmental behaviour. In addition, no empirical study on the relationship between Islam and environmental ethical behaviour was located. Thus, the present study chose to use Islamic environmental ethics as its theoretical foundation. Islamic environmental ethics is explained in detail in Chapter 3.

The present study chose religious figures (such as *imam*, *ustaz* etc) and their teachings as the variables, because, unlike Hand and Van Liere (1984), initially the present study was not intended to test whether or not Islam as a *religion* influences Muslims' environmental behaviour in a positive or negative manner. The interest of the present study in this area was to test whether or not religious figures and their teachings influence Muslims' environmental behaviour. However, it was then found that such variables were limited in their ability to explain the EEB of the Muslim respondents from the religious aspect. In other words, exploring merely the influence of religious figures and their teachings on

the EEB of the respondents did not justify any conclusion on whether or not the respondents were influenced by the religious aspect. Hence, in the qualitative interview variables such as the subjects' personal understanding of Islamic teaching, the Qur'an, the tradition of the Prophet (s.a.w), and the concepts lawful, prohibition and moderation were explored. Based on the discussion above, which concluded that the majority of religious followers distance themselves from their religions and their prophets' teaching, it is fair to hypothesize that religious figures and their teachings do not have a significant relationship with the Muslim respondents' environmental behaviour.

This chapter also discovered that social extrinsic aspect was rarely studied in previous research compare to social intrinsic aspect. The reason is probably that many studies claimed that such social extrinsic aspect only serves as indirect influence on environmental behaviour. However, some studies also show that the aspect can be a direct influence on environmental behaviour (Oom Do Valle et al., 2005) as discussed above. Thus, the present study chose to study the influence of this aspect on consumers' environmental behaviour with variables such as family, friends, neighbours, co-workers, television and advertisements. However, based on the mixed results by studies discussed above it was hard to hypothesize on the relationship between the aspect and consumers' environmental behaviour. The present study chose not to study the social intrinsic aspect for the obvious reason that this aspect has been studied previously and studies have produced convincing results as discussed earlier.

The above discussion on the influence of the economic aspect on environmental behaviour also shows that except for product attributes, financial incentives were found to have less effect on long term environmental behaviour, and price to have a strong negative relationship to environmental behaviour. The present study chose to study the influence of economic aspect in terms of price, cost effectiveness, financial subsidies and taxes on consumers' environmental behaviour. The present study was not interested in finding out the relationship between product attributes and consumers' environmental behaviour simply because the positive relationship was proven very convincingly in previous studies. Based on the discussion above on the results of the previous studies, it was fair to hypothesize that the economic aspect does have a significant relationship with consumers' environmental behaviour.

The reviewed studies on the relationship between the political aspect and environmental behaviour produced mixed results. Studies that used laws and regulations as variables produced a weak relationship with environmental behaviour, but studies on the influence of environmental NGOs produced a strong relationship with environmental behaviour. This chapter also discovered that there is a lack of empirical studies using variables such as politician, voting behaviour, policy, curbside programmes such as recycling. The present study chose to study the influence of the political aspect on consumers' environmental behaviour using variables such as consumer association, politician, policy, government, environmental NGOs, environmental law, and recycling centres. Based on the mixed results by studies discussed above it was hard to hypothesize on the relationship between such aspect and consumers' environmental behaviour.

Except for variables such as gender, house owner compared to renter, urban residents compared to rural, family composition, and type of house, based on the discussion on the influence of other demographic characteristics on environmental behaviour it was fair to hypothesize that demographic characteristics do not have a strong relationship with consumers' environmental behaviour. Initially, the present study did not use gender as one of its demographic variables simply because a large number of previous studies have shown that women are more likely than men to engage in EEB. Another reason was that this research studies 'one voice' representing a household. In Islam, males are heads of household and so were selected to represent the voice of a household. Having said that, in the qualitative interview couples were included to ensure that the household 'one voice' is representative. However, the present study still chose to use variables such as house owner compare to renter, family composition, and type of house because although they were proven by previous studies to have a strong relationship with environmental behaviour those studies were very few. Variable urban residents compare to rural was not chosen because of financial and time constraint. All respondents for the present study were from major cities. Demographic variables used in the present study were age, marital status, education, occupation, income, work involvement with the environment, house owner, and type of house.

It is worthy of note that Islamic environmental ethics was used as the main theoretical foundation, although social extrinsic, economic, political and

demographic variables were also used to test their influences on consumers' environmental behaviour. The reason was people's moral (religious) reasoning does not simply stop when they are faced with other influences such as social extrinsic, economic, political or demographic aspect in their daily activities. For example, one's moral reasoning does not stop when one interacts with neighbours, enters a supermarket (Thogersen, 2000), decides whether or not to comply with laws and regulations, or whether one is a man or a woman. Those other aspects might be more influential than the religious aspect in consumers' daily decisions on their behaviour but the moral (religious) aspect does not just simply vanish. All in all, the present study set out to study the relation between contextual aspects and EEB in the context of contextual aspects-behaviour relation/model as oppose to attitude-behaviour relation/model. It is also worthy of note that research questions and hypotheses (Chapter 1) have been developed based on the findings of the previous studies (Chapter 2), the Islamic environmental ethics (Chapter 3), and the background studies of contextual aspects (Chapters 4, 5 and 6) .

Notes:

\* The English meaning of the Holy Qur'an used in this chapter is quoted from a translation by Abdullah Yusuf Ali at the URL:

<http://www.islam101.com/quran/quran/Yusuf/quranYusuf.html> (24/10/02)

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<sup>1</sup> Perceived consumer effectiveness (PCE) is related to the concept of perceived behavioural control (PCB), which has been studied by theorists in the areas of learned helplessness, locus of control, and perceived control (Ellen et al., 1991).

<sup>2</sup> A domain-specific construct related to locus of control (Ellen et al., 1991).

<sup>3</sup> A free-rider is someone who enjoys the benefits that others bring in without having to do the work or contribute a fair share of the costs (*The Stanford Encyclopedia of Philosophy*, 2005).

<sup>4</sup> This assumption is based on some studies that found that contextual aspects influence behaviour indirectly, that is, through intrinsic social aspects such as perceived behaviour control.

<sup>5</sup> Substituting it with the cult of saints which are not in natural objects but in heaven (White, 1973).

<sup>6</sup> For example the practice of placating the (guardian) spirit in charge (of protecting nature from humans) before one cut a tree, mined a mountain or dammed a brook (White, 1973).

<sup>7</sup> Democracy, technology, urbanization, increasing individual wealth, and an aggressive attitude toward nature (Moncrief, 1973).

<sup>8</sup> "Do ye not see that Allah has subjected to your (use) all things in the heavens and on earth, and has made his bounties flow to you in exceeding measure, (both) seen and unseen? Yet there are

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among men those who dispute about Allah, without knowledge and without guidance, and without a Book to enlighten them!”

<sup>9</sup> “And He has subjected to you, as from Him, all that is in the heavens and on earth: Behold, in that are Signs indeed for those who reflect.”

<sup>10</sup> “Assuredly the creation of the heavens and the earth is a greater (matter) than the creation of men: Yet most men understand not.”

<sup>11</sup> “There is not an animal (that lives) on the earth, nor a being that flies on its wings, but (forms part of) communities like you. Nothing have we omitted from the Book, and they (all) shall be gathered to their Lord in the end.”

<sup>12</sup> “In order that ye may not transgress (due) balance. So establish weight with justice and fall not short in the balance. It is He Who has spread out the earth for (His) creatures.”

<sup>13</sup> “At length, when they came to a (lowly) valley of ants, one of the ants said: "O ye ants, get into your habitations, lest Solomon and his hosts crush you (under foot) without knowing it." So he smiled, amused at her speech; and he said: "O my Lord! so order me that I may be grateful for Thy favours, which thou hast bestowed on me and on my parents, and that I may work the righteousness that will please Thee: And admit me, by Thy Grace, to the ranks of Thy righteous Servants."”

<sup>14</sup> “When he turns his back, His aim everywhere is to spread mischief through the earth and destroy crops and cattle. But Allah loveth not mischief.”

<sup>15</sup> “And tell them that the water is to be divided between them: Each one's right to drink being brought forward (by suitable turns).”

<sup>16</sup> “It is He Who has sent amongst the Unlettered a messenger from among themselves, to rehearse to them His Signs, to sanctify them, and to instruct them in Scripture and Wisdom,- although they had been, before, in manifest error.”

<sup>17</sup> Shrum et al. (1995) use this term (in the questionnaire) to indicate new products in the market. In addition, the author explain that green consumers relate to new products because they are actively seeking for information on new products that are environmentally friendly due to the lack of such products in the market.

<sup>18</sup> For example a City Council can refuse to pick up rubbish that has not been separated into recyclable and non-recyclable materials.

<sup>19</sup> Smith (1984) did not mention what form of inducements or exclusions, but he did mention that if the inducements are in the forms of provision of a public good (directly or indirectly) as a result of the group's activities without the ability to exclude non-members from its enjoyment, it will not be a sufficient motivation to sustain a large pressure group. He described these groups as pressure groups.

## CHAPTER 3

### ISLAMIC ENVIRONMENTAL ETHICS

#### 3.1 Introduction

The purpose of this Chapter is to discuss the Islamic elements that are the foundation of Islamic environmental ethics, to which all Muslims should be expected to adhere in their interactions with the environment. The role of this Chapter is to draw an additional hypothesis about the influence of the religious aspect and to explain the quantitative and qualitative results of the religious influence. This chapter first discusses the Islamic worldview and the concept of *tawheed* adhered to by Muslims in relation to the environment, the constant reminder of Qur'anic verses and the tradition of the Prophet (s.a.w) on human interaction with the environment, the requirement of *iman* on environmentally ethical behaviour (EEB), the social and religious functions of the environment, the Islamic sources' prescriptions of ethics of treating every aspect of creation, Islam on EEB, and individual responsibility as a *khalifah*. The Islamic perspective on environmental ethics is essential for this study, given that the respondents are Muslims. The opinion, discussion, and measurement of EEB of the target respondents are largely based on the Islamic perspective.

#### 3.2 The Islamic Worldview and the Concept of *Tawheed*

The Islamic worldview includes a complete Islamic philosophical system, including ethics. It is a *deen*: a balance of worldly and godly affairs. To Muslims, Islam is a way of life, and religion and culture are one, not separated. Therefore, while for Muslims the core elements in Islamic culture are universal, Muslims can take elements of any culture that is not against the Qur'an and *Sunnah* (tradition of the Prophet s.a.w). In fact, Islamic civilization incorporates the learning and wisdom of many cultures (Esposito, 1991).

The Islamic worldview of the environment is derived from the Qur'an which emphasizes that the universe is created with a purpose. Muslims believe that in order to know Allah and obtain *iman* (faith)<sup>1</sup> and *taqwa*<sup>2</sup> they need to acquire knowledge (using all their senses) about themselves and the physical environment around them. Muslims believe that achieving *iman* and *taqwa*

through contemplating Allah's creation is one of the meanings and purposes of nature created by Allah. In this effort they are constantly reminded by the Qur'an (words of Allah) that every aspect of life is integrated. The concept of *tawheed*, for example, teaches them not merely about the oneness of God but also the worldview that every aspect in life is integrated and that no one aspect can be dealt with separately. Muslims see that by acquiring knowledge of the environment they will gain knowledge of themselves too because of the teaching that life itself is integrated with other elements of the environment (Tolu-e-Islam Movement, 2001).

Muslims put their faith in God and declare that there is no god but God, and God is great in the sense "that the Divine Consciousness has really no foreseeable borders in the universe and that God is really the Almighty Creator and the Governor of destinies of the entire Creation and destiny of every one of us" (Antonov, 2004, p. 3). Thus, the principle of *tawheed*<sup>3</sup> becomes the main ethical rule of every discussion of ethics in Islam. "As an ethical rule, *tawheed* dictates the acceptance of God as the only source of all values: not to do so would lead one to *shirk*. This is the negation of *tawheed*, which is the cardinal sin in Islam" (Islam Online, 2005, p. 2). Hence, for Muslims, God is the basis for values that are necessary to sustain persons and the natural environment.

Muslims believe that in discussing environmental ethics, *tawheed* "should also be at the center of the Muslim's interest, regarding nature... pervades his/her search for knowledge and discovery" (Islam Online, 2005, p. 2). Therefore, the goal of their research about nature, is to discover the truth; and the assertion of *tawheed* in dealing with ecological issues reminds them of the ultimate goal of every human effort, that is to know and discover the truth, which, for Muslims is that there is One and Only One Creator. Under the principle of *tawheed*, Muslims believe that "the natural world is brought under moral control; nature and ethics are integrated and the intent and action, purpose and goal, means and ends is achieved" (Islam Online, 2005, p. 3).

The role of a worldview is important particularly to control human desires because knowledge about the physical environment and of how the earth functions gives humans the power to exercise their God given free will to change the environment according to what they want. Thus, a worldview is significant to curb human desires and guide human needs. Since a worldview emerges from a group

of beliefs and values, religions provide the answers to questions about humans in relation to values such as; where did they come from, what is the purpose of their existence on earth, where are they destined to go, and what are the principles and values that determine their conduct including towards the physical environment (Baharuddin, 1992).

Thus, with the worldview of *deen* (or balance in godly and worldly affairs) and belief in the concept of *tawheed* (or oneness of God and every aspect in life is integrated) one would anticipate that a Muslim would perform a number of EEB including pre-cycling, reusing and recycling to protect the environment.

### **3.3 The Qur'anic Verses and *Sunnah***

This section presents the verses of the Qur'an and the *Sunnah* that serve as constant reminders to Muslims about what Islam considers as good and bad interactions with the environment.

Islamic ethics is derived from two fundamental sources – the Qur'an<sup>4</sup> and the *Sunnah*<sup>5</sup>. Ethics in Islam was revealed in the Qur'an and exemplified by Prophet Muhammad (s.a.w) more than 1400 years ago. In the Qur'an God urges humans "to exercise reason in understanding revelation" (Nanji, 1991, p. 107). According to Nanji (1991), it is "this rational inquiry into the meaning of revelation [that] led Muslims to elaborate rules for ethical behaviour and the principles upon which such rules could be based" (p. 107). Nanji (1991, p.107) further explained:

The relationship between the Qur'an and the life of the Prophet [Muhammad (s.a.w)], as a model behaviour, would also be elaborated, to extend the framework within which values and obligations could be determined. The process of determination and elaboration, however, involved the application of human reasoning, and it is this continuing interaction between reason and revelation, and the potential and limits of the former in relation to the latter, that provided the basis for formalised expressions of ethical thought in Islam.

Muslims believe that all actions should follow the best understanding of what is right based on knowledge of the truth (as revealed in the Qur'an and exemplified by the *Sunnah*), and careful thought (the exercise of reason) (World Assembly of Muslim Youth, 2005). They believe that the truth is only from God

because God is not limited in knowledge, does not make mistakes, and is not selfish or corrupt (World Assembly of Muslim Youth, 2005).

The Qur'an teaches that Islamic ethics may be classified into two categories. Firstly, they remind people about the basic ethical values and the consequences of not following them. Most of the Qur'anic teachings of ethical principles or their applications to practical life situations are there to remind people about the principles, not through introducing people to them, because people are already aware of them (Al-Qur'an, 2:188<sup>6</sup>). Muslims believe that the ability to distinguish ethical (good) and unethical (evil) behaviour has been clearly bestowed on every individual by God.<sup>7</sup> In other words, Muslims believe that the ability to differentiate between good and evil is part of the *sapien sense*<sup>8</sup> of every human being. There is thus no excuse for people to consciously deviate from the basic ethical values such as justice, truthfulness, honesty, helping the weak and so forth. However, if people do deviate from such values then they will face the consequences of such deviation (Al-Qur'an, 91:7-10<sup>9</sup>) (Amjad, 2000). Such basic ethical values are also applied to the environment.

The second category is concerned with the application of the basic ethical principles to practical life situations along with the prescription or prohibition of conduct such as the prohibition of excessive consumption (Al-Qur'an, 6:141,<sup>10</sup> 7:31,<sup>11</sup> 30:30,<sup>12</sup> 55:1-9<sup>13</sup>) which is based on the universal principle of justice. In this case the Qur'an does not merely remind people to keep the value of justice in perspective, while utilising God given natural resources, but has gone further to prohibit behaviour that is based on such injustice. According to Amjad (2000, p. 5) there are two reasons for this teaching:

1. In the absence of such divine prescriptions or prohibitions, there could have been a significant difference of opinion and, subsequently, a significant deviation in human application of these ethical values to practical life situations. People could have gone to extremes in such applications;<sup>14</sup> and
2. Deviations in such applications affect the moral and spiritual cleansing of individuals, which, in turn, affects success or failure in the hereafter.

Thus, with the constant reminders and explicit prohibitions of excessive consumption by the Qur'an and the *sunnah* and the believe that *sapien sense* is

bestowed on every individual one would expect that a Muslim would be highly motivated to perform EEB in order to avoid waste.

### 3.4 The Requirement of *Iman* on EEB

The Qur'anic principal that each environmental element is created by God with its own religious and social functions dictates that each should be protected by human beings who carry the responsibility of *khalifah* on earth. The practical application of ethical principles to interaction with the environment is thus part of the basic code of ethical conduct in Islam: Adopting EEB is as much a part of Islamic ethics as dealing with fellow human beings in a just manner.

EEB may be performed due to other reasons than religion such as social, economic, or political reasons. However, religious reasons are particularly important for not only do they trigger higher commitments (Barclay, 2007), they also govern other aspects of life such as social, economic, and political. A Muslim is convinced in his/her heart and mind, through evidence and reasoning that the Qur'an is, indeed, the word of God and the truth, and that Prophet Muhammad (s.a.w) is truly the final Prophet and Messenger of God (World Assembly of Muslim Youth, 2005). Thus, what counts as EEB does not change according to contextual aspects. For instance, whether one is rich or poor one ought not to waste food. In fact there are a number of Qur'anic verses that establish the correlation between the human act of faith or even the act of disbelief and the conditions of the environment (Al-Qur'an, 30:41, 42:31<sup>15</sup>). The Qur'an tells many incidents where ethical behaviours due to a great faith yielded in positive results (Al-Qur'an, 7:96,<sup>16</sup> 11:52,<sup>17</sup> 14:7<sup>18</sup>) whereas unethical behaviour due to disbelief resulted in negative impact on the environment (Al-Qur'an, 20:124,<sup>19</sup> 13:13,<sup>20</sup> 17:68-69,<sup>21</sup> 11:44,<sup>22</sup> 18:42,<sup>23</sup> 68:29,<sup>24</sup> 35:45,<sup>25</sup> 16:112<sup>26</sup>) (Abu-Sway, 2002).

The norms of a society may well be the same as those of Islam, and as a good citizen a Muslim should follow social norms unless they are inconsistent with Islam. So if EEB is required in a particular society, why does a Muslim need an Islamic basis for EEB? The answer is that the major motivating force for a Muslim to adhere to any ethical principles is simply that it is a direct requirement of *iman* (the articles of faith<sup>27</sup> of Islam which is not merely a declaration but also has to be followed with good deeds) irrespective of cost or benefit (Amjad, 2000) in this world. It has already been shown that EEB such as pre-cycling, re-using

and recycling are acts of faith. For Muslims, this provides a firmer basis for EEB, based on faith in Allah, than merely that EEB is required by society. This is because, from an Islamic perspective, beliefs based on no more than limited human knowledge might be wrong, whereas Allah is All Knowing.

### **3.5 The Religious and Social Functions of the Environment**

The Qur'an in a number of verses reveals that everything in this universe is created by God in due proportion and measure both quantitatively and qualitatively, and that He has produced therein everything in balance (54:49<sup>28</sup>, 13:8<sup>29</sup>, 15:19<sup>30</sup>). Muslim scholars argued that there are two Qur'anic (20:53-54,<sup>31</sup> 24:41,<sup>32</sup> 44:38-39,<sup>33</sup> 6:95<sup>34</sup>) reasons for the requirement of EEB upon human beings towards the environment.

First, the environmental elements whether known to human beings or not have their religious function. The environmental elements are the signs or evidence of the existence of God and His greatness (i.e. infinite wisdom, power, and grace) (Al-Qur'an, 45:3-5<sup>35</sup>). Islam considers the universe as a book of signs pointing to God (Abu-Sway, 2002). Furthermore, each creature is created, in a manner appropriate to its kind, with wisdom, value, and purpose that is to consciously serve, worship and glorify God though humans may not understand how they do so (Al-Qur'an 17:44,<sup>36</sup> 13:15,<sup>37</sup> 21:79,<sup>38</sup> 22:18<sup>39</sup>). Thus, the function of environmental elements as signs of their Creator is the sound basis for EEB for Muslims. This dictates that human beings must not mistreat any of the elements of the environment and species because each have their individual and unique role to play in glorifying God, and in bringing humans to know and understand the Creator by showing God's infinite power, wisdom, and mercy. Muslims believe that if ethical behaviour towards the environment is based merely on human need (bearing in mind that with our limited knowledge we cannot be aware of all the beneficial functions of all things), it will lead to distortion of the dynamic equilibrium set by God, and misuse of His creation. To allow unethical behaviours toward the environment will destroy the basic elements and species of the creation. Thus, a loss of signs that reflect the greatness of the creation and the chance for future generations to experience these signs is also lost. A Muslim cannot be more wrong than to think that the continued existence of just a part of creation is sufficient to lead him/her to contemplate the glory, wisdom, and might

of God in all the aspects that are intended because species differ in their special qualities, and each evidences God's glory in ways unique to it (Islam Set, 2004).

Second, each of the elements of the environment has its social function: in other words, human beings need them. Disregard for the environment, be it partial or total, will bring disaster to human beings. Plants, for instance, are the basic source of sustenance for animals and human beings on earth (Al-Qur'an, 80:24-32<sup>40</sup>). Plants not only supply nutrients but they also enrich and protect the soil from erosion by wind and water. They conserve water by slowing runoff, moderate the climate, and produce oxygen. They possess medical as well as economic values as medicines, oils, perfumes, waxes, fibres, timber, and fuel (Al-Qur'an, 56:71-73<sup>41</sup>). Animals in turn provide sustenance for plants, themselves and human beings. Their dung and bodies when they biologically degrade enrich the soil and the seas. They provide food (such as meat, milk, and honey) for one another and for human beings; they contribute to the distribution of plants by their movements and migrations; they provide human beings with leather, hair, wool, medicines, perfumes; and they also serve as transportation. In addition, plants and animals are objects of beauty. The aesthetic value of these creatures fulfils the human need for peace of mind. God created plants and animals that excite wonder and joy in the human soul to satisfy humans' peace of mind, which is essential for the proper functioning and full performance of human beings (Islam Set, 2004).

With such Qur'anic reasons of their existence a Muslim realizes that EEB is required to sustain the environmental elements both to continuously glorify Allah and to serve human needs.

### **3.6 Islamic Sources' of Ethical Prescriptions for the Treating of Every Aspect of Creation**

Between them, the Qur'an, the *Sunnah*, the *Syari'ah* are a complete guide to the ethics of how to treat every aspect of creation – animals, plants and trees, land and soil, water, and air.

#### **3.6.1 Fauna**

The Qur'an (6:38<sup>42</sup>) emphasises that animals form communities like those of humans. The Prophet (s.a.w) was sent by God as a mercy to all beings (Al-Qur'an, 21:107<sup>43</sup>). Muslims are asked to give special respect and good treatment to animals and not to kill them<sup>44</sup> except for food which should be carried out in

accordance with *Syari'ah* (Islamic law) (Abu-Sway, 2002). The Prophet (s.a.w) said: “The merciful are shown mercy by the All-Merciful. Show mercy to those on earth, and He Who is in heaven will show mercy unto you”<sup>45</sup> (Islam Set, 2004, Section 2, No. 4, p. 2).

In conducting slaughtering, the Prophet (s.a.w) commanded that the suffering of the animal, including psychological suffering, be limited. Thus, a Muslim must not prolong the slaughtering of the animal,<sup>46</sup> and must use a sharp object which will save the animal from the pain that would occur if a blunted object was used. A Muslim also must hide the sharp object from the sight of the animal. Furthermore, a Muslim must also hide the slaughtering of one animal from the sight of other animals. Prophet (s.a.w) said: “... and excel in slaughtering; sharpen your blade [so you may] relieve your slaughtered [animal]<sup>47</sup> ... Would you like it to die twice? Why didn't you sharpen your blade before laying it down?”<sup>48</sup> (Abu-Sway, 2002, p. 5).

The Prophet (s.a.w) also commanded human beings to provide for the needs of animals under their care and in general, and he warned that whoever causes an animal under their care to die of starvation or thirst is punished by God in hell fire<sup>49</sup> (Islam Set, 2004). He also told a story of a person whose sins God pardoned for the act of giving water to a thirsty dog, and a person who will be punished in hell fire for tying a cat without feeding it or allowing it to find food on its own.<sup>50</sup> Then when the people asked, “O Messenger of God, is there a reward in doing good to these animals?” (Islam Set, 2004, Section 2, No. 4, p. 3). He said, “There is a reward in doing good to every living thing”<sup>51</sup> (p. 3). In the Prophetic tradition, animals and especially livestock have rights regarding their treatment by human beings. Those rights are (Islam Set, 2004, Section 2, No. 4, p. 4):

[T]hat he spend on them the provision that their kinds require, even if they have aged or sickened such that no benefit comes from them; that he not burden them beyond what they can bear; that he not put them together with anything by which they would be injured, whether of their own kind or other species, and whether by breaking their bones or butting or wounding; that he slaughter them with kindness if he slaughters them, and neither flay their skins nor break their bones until their bodies have become cold and their lives have passed away; that he not slaughter their young within their sight; that he set them apart individually; that he make comfortable their resting places and watering places; that he put their males and females together during their mating seasons; that he not discard those which he takes in hunting; and neither shoot them with anything that

breaks their bones nor bring about their destruction by any means that renders their meat unlawful to eat.<sup>52</sup>

Clearly, the protection of animals in Islam also extends to hunting and fishing activity including the prohibition of hunting tools that cause continuous pain such as traps that lock on the leg of the animal. Hunting out of necessity (for food) is permitted; if it is for fun, fur, games or sport,<sup>53</sup> it is detested; and if it causes injustice to people, by destroying their fields and property, it is prohibited (Abu-Sway, 2002). The Prophet (s.a.w) did not tolerate any hunting which was not out of necessity; as many incidents show. The Prophet (s.a.w) said: “Do not ‘ride’ on silk and tiger fur”<sup>54</sup> (Abu-Sway, 2002, p. 7). This means that the fur of wild cats cannot be used whether for sitting on saddles or in homes. Once, in the absence of the Prophet (s.a.w), when a member of his travelling group took away two chicks from a bird, the bird become anxious, and when the Prophet (s.a.w) came and saw this, he said: “Who caused her to become bereaved [by taking away] her two children? Return her two children to her!”<sup>55</sup> (Abu-Sway, 2002, p. 5-6). In another *hadith*<sup>56</sup>, the Prophet warned people of the punishment on the Judgment Day for needlessly killing or ill-treating animals (Abu-Sway, 2002, p. 6):

‘No human being kills a sparrow or [something] larger, without right, except that God will ask him about it (hold him responsible!) on the Day of Judgment.’ It was said: ‘O Prophet of God! What its right?’ He said: ‘Its right is that you slaughter it and eat it, not that you decapitate it and throw it!’<sup>57</sup> ... ‘If you kill a sparrow senselessly, it will hasten to God on the Day of Judgment saying: ‘O Lord! So and So killed me for play and not for use!’<sup>58</sup>

In line with many *hadith*<sup>59</sup>, hitting animals, marking them in the face, setting them against one another (such as ‘wrestling’ bulls), riding on weak animals or putting too much load on animals (i.e. more than the animals can carry without harm) are prohibited in Islam. Animals are protected in Islam not only regarding physical harm but also from insult and curse. Once, the Prophet (s.a.w) set a camel free after it has been cursed by a member of his travelling group (Abu-Sway, 2002).

The protection of animals in Islam can also be seen in the story of Prophet Sulayman (a.s) in the Qur’an (27:18-19<sup>60</sup>); who changed the path of his army to avoid hurting a colony of ants. His position towards the ants was then confirmed

by a *hadith* where the Prophet Muhammad (s.a.w) prohibited the killing of four creatures – the ant, the bee, the hoopoe and the sparrow-hawk. The Prophet Muhammad (s.a.w) also prohibited that a fire be lit upon an anthill, and related that an ant once stung one of the prophets, who then ordered that the whole colony of ants be burned. God revealed to him, “Because an ant stung you, you have destroyed a whole nation that celebrates God’s glory”<sup>61</sup> (Islam Set, 2004, Section 2, No. 4, p. 3). Furthermore, the Prophet (s.a.w) prohibited the killing of bees and any captured livestock for killing them is a form of corruption included in what God has forbidden (Al-Qur’an, 2:205<sup>62</sup>) (Islam Set, 2004).

In another Qur’anic (11:40<sup>63</sup>) verse on Prophet Noah (a.s), God commanded him to take with him a pair of every species into the ark to prevent the extinction of any species. And even during the pilgrimage in Mecca, killing of animals and cutting of plants are not only prohibited but also punished (Al-Qur’an, 5:98<sup>64</sup>) (Abu-Sway, 2002).

### **3.6.2 Flora (Plants and Trees)**

Islam prohibits cutting or destroying plants without justification and encourages planting or growing more plants and trees. Thus, the destruction of plants or forest by harvesting (for timber and fuel, grazing, and all other utilization of plants) in excess of its natural regeneration is also forbidden. The Prophet (s.a.w) once said: “When doomsday comes, if someone has a palm shoot in his hand, he should plant it” (De Chatel, 2003, p. 2). Even when all worldly hope is lost for human beings, one should sustain nature’s growth (De Chatel, 2003). Planting and protecting plants are acts of worshipping God and are greatly rewarded. The Prophet (s.a.w) said: “There is none amongst the believers who plants a tree, or sows a seed, and then a bird, or a person, or an animal eats thereof, but it is regarded as having given a charitable gift [for which there is great recompense]”<sup>65</sup> (De Chatel, 2003, p. 1).

Islam advocates the protection of plants even during wars, as mentioned earlier; undoubtedly, it must be more so during peace time (Abu-Sway, 2002). With the aim of preventing the destruction of valuable habitat for God’s creatures, the Prophet (s.a.w) prohibited mankind to unjustifiably cut down any tree which provides valuable shelter to humans and animals. He said: “He who cuts a lote-tree [without justification], God will send him to Hellfire”<sup>66</sup> (Abu-Sway, 2002, p. 10). Thus, the act of deforestation without justification and the activities that cause

acid rain which then leads to the destruction of forest are prohibited and are clearly a great sin that will be severely punished.

### 3.6.3 Land and Soil

Land and soil are essential sources for the sustenance of human life and the lives of other creatures (Al-Qur'an, 55:10<sup>67</sup>). The word 'earth,' that is considered by Islam to be a source of purity and a place for worship of Allah, occurs in the Qur'an 485 times (Mawil, 1990). Muslims believe that God has made the soil fertile for vegetation to grow, upon which the livelihood of humans and animals depend. The solid constituents of the human body, living animals and plants are made from the minerals of the earth (Al-Qur'an, 30:20<sup>68</sup>). Muslims are taught that God has also made the land as the home or habitat for all creatures (Al-Qur'an, 71:17-18<sup>69</sup>), and land also has value as open space (Al-Qur'an, 71:19-20<sup>70</sup>). He has made the mountains to catch and store the rain and to perform a role in stabilizing the crust of the earth (Al-Qur'an 77:25-27,<sup>71</sup> 79:30-33,<sup>72</sup> 15:19-20,<sup>73</sup> 36:33-35<sup>74</sup>). Thus, Muslims should give thanks to God by maintaining the productivity of the soil, and not exposing it to erosion by wind and flood. In activities that relate to the soil such as building, farming, grazing, forestry, or mining, Muslims should preserve and enhance soil fertility and prevent soil degradation. To cause degradation of the soil is to deny God's tremendous gifts<sup>75</sup> for so many forms of life depend on it, and such acts of destruction are forbidden in Islam. The Prophet (s.a.w) declared: "The whole earth has been created as a place of worship for me, pure and clean"<sup>76</sup> (Islam Set, 2004, Section 2, No. 3, p. 2). In the time of the Prophet (s.a.w) the practice of Islamic environmental ethics towards land and soil can be traced through the concept of *hima* which mean protected zones (unused areas) and it has been continuously practised by Saudi Arabia and a few other Muslim countries (Mawil, 1990).

Protecting the land and keeping it clean from pollution are also indicated in many other *hadith*. For example, the Prophet (s.a.w) asked Muslims to clean their courtyards,<sup>77</sup> and remove obstacles from the path of people,<sup>78</sup> which means the removal of material obstacles or solid waste, which constitute a kind of pollution. To prevent pollution, the Prophet (s.a.w) also prohibited the act of relieving oneself in the path of people, or in the shade where people usually rest,<sup>79</sup> and where there are water sources such as ponds, rivers and so forth.<sup>80</sup> In the light of these *hadith*, if human waste is considered a great pollution to land and water

bodies, then it must be more so for chemicals such as pesticides, herbicides and so on. Therefore, Muslims must stop the uncontrolled use of these chemicals.

Once the Caliph Umar Ibn Al-Khattab sent a new governor (Abu Musa) to a place named Al-Basrah, and the new governor addressed the people saying: “I was sent to you by ‘Umar Ibn Al-Khattab in order to teach you the Book of your Lord [i.e. the Qur’an], the *Sunnah* [of your Prophet], and to clean your streets”<sup>81</sup> (Abu-Sway, 2002, p. 11).

### 3.6.4 Water

It is stated in the Qur’an that one of the functions of water is as the basis and origin of life (Al-Qur’an, 21:30,<sup>82</sup> 2:164,<sup>83</sup> 6:99,<sup>84</sup> 22:5,<sup>85</sup> 25:48-49,<sup>86</sup> 56:68-70,<sup>87</sup> 67:30<sup>88</sup>). It purifies the body and clothing of all dirt, impurities and defilement so that human may encounter God clean and pure (Al-Qur’an, 8:11<sup>89</sup>). The Qur’an emphasizes that water bodies like lakes, seas, and oceans, which God has made as habitat for many beings, play important roles in the sustenance of life and the development of the earth (Al-Qur’an, 16:14,<sup>90</sup> 5:96<sup>91</sup>) (Islam Set, 2004). In the time of the Prophet (s.a.w) the concept of *harim* or inviolable zones was practised. The inviolable zones can be found in association with wells, natural springs, underground water channels, rivers and trees planted on barren land (Mawil, 1990).

The Qur’anic verses emphasize the importance of the protection of water which is fundamental to the preservation and continuation of life in its various forms. Thus, the Qur’an forbids all acts that cause or lead to the destruction of the biological or social function of water – be it destroying or polluting it. The juristic principle is, “what leads to the prohibited is itself prohibited” (Islam Set, 2004, Section 2, No. 1, p. 4).

Muslims believe that since God has created water as so important for the sustenance of life, every living being is entitled to use it without monopoly, usurpation, despoilment, wastage, or abuse. In the Qur’an (54:28<sup>92</sup>), God commanded the people of Thamud and their camels that the water should be shared between them. In addition, the Prophet (s.a.w) said “Muslims are to share in these three things: water, pasture, and fire”<sup>93</sup> (Islam Set, 2004, Section 2, No. 1, p. 5). Excessive use of water is forbidden; this applies to private use as well as public, and whether the water is scarce or abundant. The Prophet (s.a.w), once said to his companion Sa’d, who was washing for prayer, “What is this wastage, O

Sa'd? "Is there wastage even in washing for prayer?" asked Sa'd; and he said, "Yes, even if you are by a flowing river!"<sup>94</sup> (Islam Set, 2004, Section 2, No. 1, p. 5).

The Qur'an stated that every living being on earth, by the will of God is made to be dependent for their existence on water (Al-Qur'an, 16:65,<sup>95</sup> 30:24,<sup>96</sup> 50:9<sup>97</sup>). To protect water sources, the Prophet (s.a.w) prohibited a person to take a bath in clean still water.<sup>98</sup> Many *hadith* emphasized the proper use of water without wasting it. The Prophet (s.a.w) even limited the use of water for ablution. He performed ablution three times daily and said: "Whoever increases [more than three] he does injustice and wrong"<sup>99</sup> (Abu-Sway, 2002, p. 12). He also said: "There will be a people amongst this *Ummah* [community] who will transgress in their supplication and ablution"<sup>100</sup> (Abu-Sway, 2002, p. 12). The Prophet (s.a.w) gave a number of examples on how to save water such as the use of only one *mudd* of water (a measure equal to a handful of water) for ablution<sup>101</sup> and clean oneself with only the amount of water needed (Abu-Sway, 2002).

### 3.6.5 Air

Air is not in any way less important than other environmental elements discussed earlier for the sustenance and preservation of life (Al-Qur'an, 7:57<sup>102</sup>) such as for human and animals to breathe, and for the vitally important role of the winds in pollination (Al-Qur'an, 15:22<sup>103</sup>). The Qur'an emphasizes that the winds are also clear evidence of God's omnipotence and grace, and the perfection of design in His creation (Al-Qur'an, 2:164). The biological and social functions of air and its elements make it vital for its protection from impurity and pollution. Hence, according to Muslim scholars' interpretation any activity that pollutes the air and ruins its function is an attempt to obstruct God's wisdom toward His creation and is forbidden (Islam Set, 2004).

At the time of the Prophet (s.a.w), even activities that resulted in offensive smells and odours in public places were prohibited. The prohibition of Muslims relieving themselves near places of rest (such as under a tree) or near people's paths mentioned earlier, is one of the preventive measures for air pollution (i.e. offensive smells) and offensive scenes. Another *hadith* that can be associated with the protection of fresh air is the prohibition by the Prophet (s.a.w) of people who eat garlic or onion from coming to the mosque or near to other Muslims until the

smells dissolved.<sup>104</sup> Thus, if the smells of onions and garlic were given such ruling by the Prophet (s.a.w), it must be more so for tobacco associated with smoking, and other emissions such as carbon monoxide associated with vehicles, chlorofluorocarbons (CFCs) and carbon dioxide associated with industry. Smoking is clearly prohibited by many Islamic jurists such as Al-Qardawi who said “it is physically, psychologically and economically harmful [in the sense that the tobacco industry results in a lost of time and money in treating the resulting diseases, and misuse of the land which could be used to plant a nutritious crop and so forth]”<sup>105</sup> (Islam Set, 2004, p. 6). It is not only polluting the air but also harming the health of the smokers, people around them and other environmental elements. As for other emissions from vehicles and factories, the activities must be subjected to a strict justification, and everyone should minimise them.

With such detailed prescriptions by the Islamic sources (the Qur’an, the *Sunnah*, the *Syari’ah*) concerning the ethics of treating every creation on earth one would hypothesise that religious influence plays a major role in mobilizing a Muslim’s EEB.

### **3.7 Islam on EEB (Pre-cycling, Re-use and Recycling)**

It is often argued that the increase in human population causes environmental problems such as natural resource depletion and environmental pollution, therefore the fertility rate especially in developing and under developed countries should be reduced. However, according to Gunn and Walker (2003, p. 82):

The affluent nations contain only about 5% of the earth’s population but consume around 30% of its resources... If 17% of the global population lived an affluent lifestyle comparable to the people of North America, Western Europe, Japan and Australasia, they would consume (and generate waste) the equivalent of the entire [current] global population’s resource use and waste.

Thus, it is the people’s lifestyle that is the biggest cause in environmental destruction and natural resource depletion. This fact leads to a much less popular argument that resource depletion, and environmental problem are caused by unfair distribution of wealth, and environmental exploitation by the rich to sustain their extravagant lifestyle, and by the poor to sustain their life. Today, there is increasing awareness of economic injustice between richer and poorer countries. The main cause of this gap is interest on debt, and the only solution for the poor

countries is to maximise the utilisation of their natural resources, which leads to environmental destruction. For example, a major factor in rain forest destruction is the need for under developed and developing countries to pay the interest on huge loans made to them by the World Bank, and International Monetary Fund (IMF), as well as poverty on a local level that is made worse by interest charges<sup>106</sup> (World Assembly of Muslim Youth, 2005), and exploitation by greedy people to make money from cutting down forests.

Islam forbids excessive or wasteful behaviours (Al-Qur'an, 6:141, 7:31,<sup>107</sup> 5:87,<sup>108</sup> 20:81<sup>109</sup>). Muslims believe that waste generation is largely a result of people's wasteful behaviour. Islam's prohibition of wastefulness requires the pre-cycle and re-use of goods and recycling of materials and waste products as much as possible, instead of their disposal as trash. Therefore, Muslims are expected to reduce the accumulation of waste by changing their wasteful behaviour in purchasing and using goods and in handling waste. A Muslim should restrain himself or herself from engaging in wasteful behaviour, and should take up measures such as pre-cycling where waste can be eliminated at their sources, which is the best way in eliminating waste. Pre-cycling, thus, is in conformity with the Islamic juristic principle: "[d]amage shall not be eliminated by means of similar or greater damage" (Islam Set, 2004, Section 3, No. 1, p. 2). For example, if the recycling technology adopted to eliminate solid waste causes similar or greater damage to the environment than simply dumping the waste in a landfill then a Muslim should turn to pre-cycling activities.

Re-use and recycling are compatible with Islamic principles as well as the Islamic ethics of not wasting things (World Assembly of Muslim Youth, 2005). Therefore, Islam is strongly supportive of the maximum re-use and recycling activities. The Qur'an emphasizes that there should not be wastage through excess. For example there should be no throwing away unused food, packaging or utensils from extravagant meals or because of excessive waste (Al-Qur'an, 6:141):

It is He Who produceth gardens, with trellises and without, and dates, and tilth with produce of all kinds, and olives and pomegranates, similar (in kind) and different (in variety): eat of their fruit in their season, but render the dues that are proper on the day that the harvest is gathered. But waste not by excess: for Allah loveth not the wasters.

The waste chain occurs due to using more than one's need and money is also wasted by not re-using or recycling materials such as mending or passing on used clothes, or equipment (World Assembly of Muslim Youth, 2005).

Pre-cycling, re-use and recycling can be conducted individually and/or collectively. However, as the present study deals with individual behaviour, only individual responsibility is discussed in section 3.8.

The discussions above indicate that Islam sees pre-cycling is in conformity with the Islamic principle of 'damage should not be eliminated by means of similar or greater damage', and reusing and recycling are compatible with Islamic principle and ethics of not wasting things. One would say that these are enough reasons for a Muslim to perform EEB.

### **3.8 Individual Responsibility as *Khalifah***

According to the Tolu-e-Islam Movement (2001, p. 1) there are two extreme views about the relationship between people and their environment:

[First,] nature is definitely hostile to man and takes a fiendish delight in bringing to naught his noblest enterprises ... [Second,] nature is completely indifferent to man and his ideals. It simply does not care whether man succeeds or fails. Human history may well prove to be a brief episode in cosmic evolution. The earth may on rolling round the sun for ages after man has disappeared from its surface.

The first implies that human and nature are two old enemies. In order for one to prevail the other must cease to exist. The latter implies that the relationship between humans and nature is simply no more than a cosmic cycle. The Qur'anic view on the relationship between people and the environment does not resemble either of these two extremes. In the Qur'anic view, nature is friendly to humans, responsive to their intellect, and sympathetic to their moral endeavour because both humans and nature are created by Allah. Hence, fundamentally there is no conflict between them. Humans can live and develop only with the help of nature. By acquiring scientific knowledge humans can obtain this help from nature. Humans together with the help of nature must utilise this knowledge for the achievement of their moral ends in the light of Divine Guidance, not to merely pursuing the knowledge to satisfy the endless human imagination. The knowledge must be utilised for the benefit of humankind in accordance with values as laid down by Revelation (Tolu-e-Islam Movement, 2001).

In Islamic environmental ethics it is clear that the relation between humans and the environment should be determined by human needs, not human desires. Muslims are taught that although the various components of the natural environment serve humanity as one of their functions, this does not mean that human use is the sole reason for their creation. Unfortunately, today what are most valued by many people are market value and profit, not the satisfaction of human religious and social needs. Therefore, resources are exploited not only for daily use but also to satisfy the desire for market value and profit. The level of daily needs has been upgraded to the level of market value to gain more profit. This attitude has resulted in a huge gap between the rich and the poor in the world today.

According to Ujang (1993a) humans may have been created with higher potential than other creatures but other creatures too are worthy of respect and protection, though human beings are more worthy of charity if a choice must be made. The Qur'an (16:90<sup>110</sup>) states that all human relationships are to be based on justice and equity. The Qur'an (13:8) emphasizes that everything with Allah is measured. Thus, Muslims believe that the balance of the universe (as symbolized by *Qa'abah* in Mecca) created by Allah must be preserved. The Qur'an (2:29<sup>111</sup>) states that the environment is not in the service of the present generation alone, rather it is the gift of Allah to all ages, past, present and future (Mawil, 1990).

In Islam, the basic role of humans on earth is to worship God (Al-Qur'an, 51:56<sup>112</sup>). To worship God means fulfilling all that God has demanded including all actions that the human being performs in accordance with the Islamic worldview. For example, the adoption of EEB such as pre-cycling, re-use and recycling for the sake of God is an act of worshipping God and is rewarded in this life and the hereafter.

Islam prescribes two categories of responsibilities to human beings; individual and collective. For the purpose of this section, the focus is on individual responsibility. The responsibility of a Muslim to Allah cannot be fulfilled without fulfilling his or her responsibility towards himself or herself, his or her family, and to the 'community' he or she lives in. The Qur'an (6:38) states that 'community' here does not mean only the human community but includes the communities of other creatures as well. All of the resources created by God are put as a trust in human hands (Islam Set, 2004).

Regarding individual responsibility, a Muslim is responsible for his or her own self that is for his or her speech, behaviour, and deeds, and will be judged by God on the Day of Judgment (Al-Qur'an, 75:14-15<sup>113</sup>). The use of speech, behaviour, and deeds in relation to the environment will also be judged on the Day of Judgment. Thus, a Muslim should stand against all kinds of corruption, be it moral, political, economic, social or environmental. Muslims are taught that life cannot be organized without responsibility. The Prophet (s.a.w) described responsibility with an analogy of a ship (Al-Balagh Foundation, 2003, p. 4):

The example of him who sets the limits of Allah and then contradicts them is like a people who were traveling together on a ship. It happened that some of them took the upper part, while others took the lower part of it. Those who took the lower part, while seeking for water came near those who were above them. Those who were above, told them: We will not allow you to take water because you will hurt us. In response to their answer, those who below said: We can make a hole in the bottom of the boat without hurting those above us. In this case, if they leave them to do what they want, all will perish while if they took their hand (help them) all will be saved.<sup>114</sup>

Muslims believe that since humans are equipped with *sapien sense*, every human being is individually responsible for his/her deeds (Al-Qur'an, 53:36-42,<sup>115</sup> 16:93<sup>116</sup>). Islam views each human being as the 'trustee' or 'vicegerent' or 'caliph' (*khalifah*) on this earth (Al-Qur'an, 2:30-31,<sup>117</sup> 6:156,<sup>118</sup> 27:62,<sup>119</sup> 35:39<sup>120</sup>). The responsibility as *khalifah* is so onerous and burdensome that no other creature would accept it (Al-Qur'an, 33:72<sup>121</sup>) (Baharuddin, 1992). Thus, human beings have great responsibilities and are not supposed to cause corruption in any form on earth. Humans are part of the universe (in the sense of being elements which are complementary to one another in an integrated whole) yet also a distinct part of the universe (in the sense of being granted the position of a *khalifah* on earth). As a *khalifah* a human is only a manager and a beneficiary of the earth and not an owner in an absolute sense (Islam Set, 2004).

The Qur'an (5:48,<sup>122</sup> 67:1-2<sup>123</sup>) makes it clear that humans on earth are continuously tested for 'good' and 'evil' by God. The story of Prophet Adam (a.s) in the Qur'an (2:35-36,<sup>124</sup> 7:27,<sup>125</sup> 20:117,<sup>126</sup> 20:120-121<sup>127</sup>) according to Nanji (1991, p. 108):

reflects all of the potential for good and evil that is already built into the human condition and the unfolding saga of human response to a continuous divine revelation in history. It

exemplifies the ongoing struggle within humanity to discover the means that allows for balanced action and submission to the divine criterion. It is in the sense that the word Islam stands for the original revelation, requiring submission to achieve equilibrium, and that a Muslim is one who seeks through action to attain that equilibrium in personal life as well as society.

Therefore, the position of vicegerent is a test (Al-Qur'an, 6:165<sup>128</sup>) for human beings in carrying out various responsibilities on earth (Al-Qur'an, 10:14<sup>129</sup>). The Prophet (s.a.w) said (Abu-Sway, 2002, p. 2-3):

Verily, this world is sweet and appealing, and Allah placed you as vicegerents therein; He will see what you will do. So, be careful of [what you do in] this world and [what you do to/with] women, for the first test of the children of Israel was in women!<sup>130</sup>

One of the tests by God is on the manner in which humans treat and relate to the environment. Having been given free will human beings have a choice; it is whether to base their actions upon divine guidance, or upon personal desires. The Qur'an tells the repeated history of people and generations that failed to base their actions upon divine guidance like the people of Prophet Noah (a.s) (Al-Qur'an, 7:69<sup>131</sup>) and the people of 'Ad (Al-Qur'an, 7:74<sup>132</sup>) and calls for the vicegerency to be practised by other people or generations after them. The Qur'an also tells that any attempt to achieve prosperity away from divine revelation and guidance always lead to destruction (Al-Qur'an, 30:9<sup>133</sup>).

Thus, Muslims should behave in a way that maintains the balance that exists within the environment (Al-Qur'an, 15:19) because the environmental elements are the signs (Al-Qur'an, 45:13,<sup>134</sup> 16:12<sup>135</sup>) of God's greatness, and the circle of the environmental elements available for the benefit of human beings is much greater than of the environment itself (Al-Qur'an, 31:20,<sup>136</sup> 14:32,<sup>137</sup> 38:36,<sup>138</sup> 43:12-14<sup>139</sup>). For example, Muslims believe that the amount of honey stored by bees is much greater than their actual need. This 'excess production', which seems like a waste of time and energy for them, has a hidden purpose that stated in the Qur'an in Chapter 16 called an-Nahl (the Bee). Bees produce honey not only for themselves but also for human beings (Al-Qur'an, 16:69<sup>140</sup>). Muslims believe that bees, like other creatures such as chickens that lay at least one egg a day although they do not need to do so and cows that produce much more milk than their offspring needs are also dedicated to the service of man (Yahya, 1999).

God prescribes such responsibilities to them as God prescribes the responsibilities as *khalifah* to human beings. The difference is that such creatures never failed to fully perform their responsibilities compared to human beings who generation by generation repeatedly failed to do so.

The fact that the world is a temporary place and will ultimately come to an end (Al-Qur'an, 13:2<sup>141</sup>) and that Muslims are encouraged to be mindful of death and the judgement day does not mean that they should exploit the world as much as they can; rather it is a reminder of the Hereafter and the Day of Judgment where good deeds and evil deeds will be measured, rewarded and punished. This fact should make Muslims behave in a positive and constructive way on earth where the environment itself will benefit. Muslims are guided by the principle of (World Assembly of Muslim Youth, 2005, p. 6):

Prepare for the Hereafter as if you were going to die tomorrow, and prepare for this life as if you were going to live forever. There should be an attitude of long term in this life with a strong and clear consciousness of accountability to God in the next life, on the Day of Judgement, which is faced by the individual after death, at any moment a possibility.

The relationship between the environmental elements and the responsibilities expected from human beings is best reflected by the Qur'anic (11:61<sup>142</sup>) verse revealed to the people of Thamud where Prophet Saleh (a.s) was sent to this people to remind them (Abu-Sway, 2002, p. 5):

about their origination from earth, the creation of every individual from the nutrition of the earth or from its components that make up their bodies. Despite being (created) from this earth and its elements, Allah appointed them vicegerents so that they may inhabit it! He wanted them to be vicegerents as a species, and as individuals to replace those who came before they did!<sup>143</sup>

The human quality that covers the concept of the ideal ethical value in the Qur'an is summed up in the term *taqwa* (pious) (Al-Qur'an, 49:11-13<sup>144</sup>). According to Nanji (1991) it represents the moral grounding that underlies human action, the ethical conscience which makes human beings aware of their responsibilities to God and society.

The Islamic sources (Al-Qur'an and *Sunnah*) state that the responsibility of a Muslim is not merely to perform religious rituals but also in social, economic, political and every other aspect of life including the environment. The individual

as *khalifah* is accountable to God and to the community. The Qur'an affirms the dual dimension of human and social life that is material and spiritual. However, these aspects are not seen as conflicting with each other; instead "[t]he Qur'an, recognising the complementary between the two, asserts that human conduct and aspirations have relevance as act of faith within the wider human, social and cultural contexts" (Nanji, 1991, p. 108-109).

The Prophet (s.a.w) declared, "The world is beautiful and verdant, and verily God, be He exalted, has made you His *khalifah* in it, and He sees how you acquit yourselves"<sup>145</sup> (Islam Set, 2004, Section 1, p. 3). Damage of all forms and kinds is forbidden in Islam. The Prophet (s.a.w) declared: "There shall be no damage and no infliction of damage"<sup>146</sup> (Islam Set, 2004, Section 3, p. 1). Thus, prevention of damage on earth is better than treatment of damage. "Another of the most important juristic rules is the averting of harm takes precedence over the acquisition of benefits" (Islam Set, 2004, Section 3, p. 1). Therefore, all activities of the Muslims in relation to utilization of environmental resources must be done without causing significant damage, injury or corruption (Islam Set, 2004).

"God's wisdom has ordained that His creatures shall be of service to one another" (Islam Set, 2004, Section 2, p. 1). Muslims believe that it is the performance of such ordained service that makes up the dynamic balance in the environment where the creation is maintained. "Overexploitation, abuse, misuse, destruction, and pollution of natural resources are all transgressions against the divine scheme" (Islam Set, 2004, Section 2, p. 1). For the sake of religious and social functions of the environmental elements mentioned earlier, the protection of natural resources from narrow-sighted self-interested people who relentlessly disrupt the dynamic equilibrium set by God is a mandatory responsibility of the Muslims as commanded in the Qur'an (28:77,<sup>147</sup> 26:151-152,<sup>148</sup> 7:56,<sup>149</sup> 3:104<sup>150</sup>). Muslims believe that "In many situations, injustice occurs due to lack of accountability" (World Assembly of Muslim Youth, 2005, p. 5). Islamic sources (Al-Qur'an and *Sunnah*) stress that on the Day of Resurrection, human beings will be judged individually, thus, Muslims believe that the ultimate responsibility for right and ethical actions lies with the individual.

According to World Assembly of Muslim Youth (2005, p. 5) "in all situations, the natural consequences in this life may be a reward or punishment from God. All good is from God, and all evil and mischief is allowed by God to

show the results of the misuse of the free will.” World Assembly of Muslim Youth (2005) further explain that for those who disobey God’s laws, He first let them taste only a part of these consequences to give them a chance to repent, and obey Him before then punishing them more severely if the disobedience continues. The Qur’an (30:41 & 42:30) warns:

Mischief has appeared on land and sea because of (the meed) that the hands of men have earned, that (Allah) may give them a taste of some of their deeds: in order that they may turn back (from Evil) ... Whatever misfortune happens to you, is because on the things your hands have wrought, and for many (of them) He grants forgiveness.

However, Muslims believe that God is not testing people’s faith only in the form of the punishment such as mischief and misfortune but also in the form of abundance of rewards and ease to see whether those rewarded become arrogant and forget Him, or are more grateful and obedience to Him (World Assembly of Muslim Youth, 2005).

Muslims believe that Islam is a way of life that tames and reduces human evil desires and replaces them with human needs. Hence (World Assembly of Muslim Youth, 2005, p. 6):

[P]racticing Islam should reduce consumerism, and the excessive burdens that it places on nature... [because a practising Muslim will work hard] to establish the laws of God which help to bring out the best potentials of the human soul where part of these being to care for and manage the environment responsibly, preserving the beautiful and holy signs of God in nature for us to reflect on and learn from.

According to Islam Set (2004, Section 4, No. 1, p. 2):

Religious awareness and Islamic guidance should employ all possible means at all levels to call all individuals to commit themselves to Islamic ethics, morals, and manners in dealing with the environment, their sustainable use and development.

Thus, the concept of Islamic ethics in the case of EEB as far as individual responsibility is concerned is not merely to be known, understood, or pondered by Muslims. Islamic ethics must be translated into ethical behaviours. Thus, the most vital responsibility of individual Muslims towards the environment is to adopt a life style that does not cause harm to the environment.

A Muslim can be environmentally responsible in almost every aspect of life. He or she might want to spend less on private transport, personal security, and private education and health and instead use the money for public amenities in the same areas. Thus, a wider public need would be effectively met and utilization of natural resources would be minimised. A Muslim might also want to stop using material goods to define his or her social status or to obtain some level of acceptability within many social groups (Doughlas & Isherwood, 1979). A Muslim also might want to reconsider taking bank loans that are easily available to buy almost every luxurious item. In addition, a Muslim might want to think twice before subscribing to credit cards, because Islam never endorses a person living in debt especially when it is due to excessive behaviour. Michaelis (2000, p. 16-17) observed:

The new consumer credit industry has provided a substantial additional set of incentives to increase consumption, and helped to remove the constraints on consumption, in the last three to four decades.

The market today offers so many choices available for the same product that sometimes one ends up buying the same thing more than once, just a different brand or label. Of course we are entitled to a reasonable quality of life, but let us not mistake it with quantity of stuff. One should start asking oneself ‘where does this stuff come from and where does it go when one has done with it?’ One might want to start developing skills for more self-reliance such as gardening, carpentry, do it yourself and so on. Whenever possible, one might want to consider changing transportation modes to biking, walking, car-pooling and living closer to work. One should also start to re-think one’s conceptions of ‘money’ and ‘goods’, of what they actually represent.

With the believe that Allah assigns an individual a responsibility as a *khalifah* to manage the environment wisely a Muslim should be expected to perform EEB as a way to fulfil such responsibility because his or her conduct will determine his or her fate in the afterlife.

### **3.9 Conclusion**

The Qur’an and *Sunnah* as the sources of ethics in Islam – where Islamic environmental ethical codes have established – outlined the ethical behaviours involved in the interaction between humans and the environment including pre-

cycling, re-use and recycling behaviours in their daily lives. Therefore, additional hypothesis about the influence of the religious aspect should be ‘the Muslim participants would be highly influenced by the religious aspect’ is a reasonable hypothesis.

Notes:

\* The English meaning of the Holy Qur’an used in this chapter is quoted from a translation by Abdullah Yusuf Ali at the URL:  
<http://www.islam101.com/quran/quran/Yusuf/quranYusuf.html> (24/10/02)

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<sup>1</sup> *Iman* is the vivid sense of God’s laws which set every fibre in the body vibrating in unison with the infinite power immanent in the universe (Tolu-e-Islam Movement, 2001).

<sup>2</sup> *Taqwa* is when *iman* is actually expressed in a way of life, and when it inspires and informs the conduct of man (Tolu-e-Islam Movement, 2001).

<sup>3</sup> The Islamic faith of Oneness; in other words, “the Oneness of God, the recognition of Him as One, Absolute and Transcendent” (Islam Online, 2005).

<sup>4</sup> The Muslim’s Holy Scripture, “embodying the message revealed by God to the Prophet Muhammad [s.a.w] (d. 632)...” (Nanji, 1991, p. 106).

<sup>5</sup> “The exemplification of that [God’s] message in the perceived model pattern of the Prophet’s actions, sayings and norms...” (Nanji, 1991, p. 106).

<sup>6</sup> “And do not eat up your property among yourselves for vanities, nor use it as bait for the judges, with intent that ye may eat up wrongfully and knowingly a little of (other) people’s property.”

<sup>7</sup> Contrary to evolution theory, “According to Islam, man has not come into existence on his own and neither is he a product of natural forces that had somehow, by pure chance, combined to produce life. On the contrary, man is a creation of an All Wise, and a Most Merciful Creator. God gave man life and with that also gave man the freedom and the authority to do good or to indulge into evil. This authority and this freedom was given to man for the basic purpose of testing him, as to how he uses his authority and freedom. As a part of this test, God also gave man the basic knowledge of ‘good’ and ‘bad’ at the time of his inception” (Amjad, 2000, p. 4).

<sup>8</sup> *Sapient sense*, according to Amjad (2000) “refers to the necessary sense that every normal human being possesses” (p. 6) in order to live and function efficiently and harmoniously with others such as the sense of right and wrong, good and evil, justice, compassion, and simple decency. “Derived from homo sapiens, the term was first coined by Roy Abraham Varghese in his book ‘Great Thinkers on Great Questions’” (Amjad, 2000, p. 6).

<sup>9</sup> “By the Soul, and the proportion and order given to it; And its enlightenment as to its wrong and its right;- Truly he succeeds that purifies it, And he fails that corrupts it!”

<sup>10</sup> “It is He Who produceth gardens, with trellises and without, and dates, and tilth with produce of all kinds, and olives and pomegranates, similar (in kind) and different (in variety): eat of their fruit in their season, but render the dues that are proper on the day that the harvest is gathered. But waste not by excess: for Allah loveth not the wasters.”

<sup>11</sup> “O Children of Adam! wear your beautiful apparel at every time and place of prayer: eat and drink: But waste not by excess, for Allah loveth not the wasters.”

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<sup>12</sup> "So set thou thy face steadily and truly to the Faith: (establish) Allah's handiwork according to the pattern on which He has made mankind: no change (let there be) in the work (wrought) by Allah: that is the standard Religion: but most among mankind understand not."

<sup>13</sup> "(Allah) Most Gracious! It is He Who has taught the Qur'an. He has created man: He has taught him speech (and intelligence). The sun and the moon follow courses (exactly) computed; And the herbs and the trees - both (alike) prostrate in adoration. And the Firmament has He raised high, and He has set up the Balance (of Justice), In order that ye may not transgress (due) balance. So establish weight with justice and fall not short in the balance."

<sup>14</sup> For example, if the Qur'an has stopped at reminding people of being just to others and has not explicitly prohibit excessive behaviour in consumption people could have consumed to the extremes and caused injustice in the distribution of wealth or even food in the world.

<sup>15</sup> "Nor can ye frustrate (aught), (fleeing) through the earth; nor have ye, besides Allah, any one to protect or to help."

<sup>16</sup> "If the people of the towns had but believed and feared Allah, We should indeed have opened out to them (All kinds of) blessings from heaven and earth; but they rejected (the truth), and We brought them to book for their misdeeds."

<sup>17</sup> "And O my people! Ask forgiveness of your Lord, and turn to Him (in repentance): He will send you the skies pouring abundant rain, and add strength to your strength: so turn ye not back in sin!"

<sup>18</sup> "And remember! your Lord caused to be declared (publicly): "If ye are grateful, I will add more (favours) unto you; But if ye show ingratitude, truly My punishment is terrible indeed.""

<sup>19</sup> "But whosoever turns away from My Message, verily for him is a life narrowed down, and We shall raise him up blind on the Day of Judgment."

<sup>20</sup> "Nay, thunder repeateth His praises, and so do the angels, with awe: He flingeth the loud-voiced thunder-bolts, and therewith He striketh whomsoever He will..yet these (are the men) who (dare to) dispute about Allah, with the strength of His power (supreme)!"

<sup>21</sup> "Do ye then feel secure that He will not cause you to be swallowed up beneath the earth when ye are on land, or that He will not send against you a violent tornado (with showers of stones) so that ye shall find no one to carry out your affairs for you? Or do ye feel secure that He will not send you back a second time to sea and send against you a heavy gale to drown you because of your ingratitude, so that ye find no helper. Therein against Us?"

<sup>22</sup> "Then the word went forth: "O earth! swallow up thy water, and O sky! Withhold (thy rain)!" and the water abated, and the matter was ended. The Ark rested on Mount Judi, and the word went forth: "Away with those who do wrong!""

<sup>23</sup> "So his fruits (and enjoyment) were encompassed (with ruin), and he remained twisting and turning his hands over what he had spent on his property, which had (now) tumbled to pieces to its very foundations, and he could only say, "Woe is me! Would I had never ascribed partners to my Lord and Cherisher!""

<sup>24</sup> "They said: "Glory to our Lord! Verily we have been doing wrong!""

<sup>25</sup> "If Allah were to punish men according to what they deserve. He would not leave on the back of the (earth) a single living creature: but He gives them respite for a stated Term: when their Term expires, verily Allah has in His sight all His Servants."

<sup>26</sup> "Allah sets forth a Parable: a city enjoying security and quiet, abundantly supplied with sustenance from every place: Yet was it ungrateful for the favours of Allah: so Allah made it taste of hunger and terror (in extremes) (closing in on it) like a garment (from every side), because of the (evil) which (its people) wrought."

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<sup>27</sup> *Tawheed* (belief in one God), *Risalah* (Prophethood) and *Akhirat* (Day of Judgment) (Amjad, 2000).

<sup>28</sup> “Verily, all things have We created in proportion and measure.”

<sup>29</sup> “Allah doth know what every female (womb) doth bear, by how much the wombs fall short (of their time or number) or do exceed. Every single thing is before His sight, in (due) proportion.”

<sup>30</sup> “And the earth We have spread out (like a carpet); set thereon mountains firm and immovable; and produced therein all kinds of things in due balance.”

<sup>31</sup> “He Who has, made for you the earth like a carpet spread out; has enabled you to go about therein by roads (and channels); and has sent down water from the sky.” With it have We produced diverse pairs of plants each separate from the others... Eat (for yourselves) and pasture your cattle: verily, in this are Signs for men endued with understanding.”

<sup>32</sup> “Seest thou not that it is Allah Whose praises all beings in the heavens and on earth do celebrate, and the birds (of the air) with wings outspread? Each one knows its own (mode of) prayer and praise. And Allah knows well all that they do.”

<sup>33</sup> “We created not the heavens, the earth, and all between them, merely in (idle) sport: We created them not except for just ends: but most of them do not understand.”

<sup>34</sup> “It is Allah Who causeth the seed-grain and the date-stone to split and sprout. He causeth the living to issue from the dead, and He is the one to cause the dead to issue from the living. That is Allah: then how are ye deluded away from the truth?”

<sup>35</sup> “Verily in the heavens and the earth, are Signs for those who believe. And in the creation of yourselves and the fact that animals are scattered (through the earth), are Signs for those of assured Faith. And in the alternation of Night and Day, and the fact that Allah sends down Sustenance from the sky, and revives therewith the earth after its death, and in the change of the winds,- are Signs for those that are wise.”

<sup>36</sup> “The seven heavens and the earth, and all beings therein, declare His glory: there is not a thing but celebrates His praise; And yet ye understand not how they declare His glory! Verily He is Oft-Forbear, Most Forgiving!”

<sup>37</sup> “Whatever beings there are in the heavens and the earth do prostrate themselves to Allah (Acknowledging subjection),- with good-will or in spite of themselves: so do their shadows in the morning and evenings.”

<sup>38</sup> “To Solomon We inspired the (right) understanding of the matter: to each (of them) We gave Judgment and Knowledge; it was Our power that made the hills and the birds celebrate Our praises, with David: it was We Who did (all these things).”

<sup>39</sup> “Seest thou not that to Allah bow down in worship all things that are in the heavens and on earth,- the sun, the moon, the stars; the hills, the trees, the animals; and a great number among mankind? But a great number are (also) such as are fit for Punishment: and such as Allah shall disgrace,- None can raise to honour: for Allah carries out all that He wills.”

<sup>40</sup> “Then let man look at his food, (and how We provide it): For that We pour forth water in abundance, And We split the earth in fragments, And produce therein corn, And Grapes and nutritious plants, And Olives and Dates, And enclosed Gardens, dense with lofty trees, And fruits and fodder,- For use and convenience to you and your cattle.”

<sup>41</sup> “See ye the Fire which ye kindle? Is it ye who grow the tree which feeds the fire, or do We grow it? We have made it a memorial (of Our handiwork), and an article of comfort and convenience for the denizens of deserts.”

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<sup>42</sup> “There is not an animal (that lives) on the earth, nor a being that flies on its wings, but (forms part of) communities like you. Nothing have we omitted from the Book, and they (all) shall be gathered to their Lord in the end.”

<sup>43</sup> “We sent thee not, but as a Mercy for all creatures.”

<sup>44</sup> Only in limited cases some animals are allowed to be killed when they endanger the life of human beings, such as some breeds of dog that attack humans without provocation.

<sup>45</sup> *Hadith* related by Abu-Dawud and at- Tirmidhi on the authority of ‘Abd-Allah ibn ‘Amr (Islam Set, 2004).

<sup>46</sup> *Hadith* of sound authority, related by al-Bukhari and Muslim on the authority of ‘Abd-Allah ibn ‘Umar; and hadith related by Abu-Dawud on the authority of ‘Abd-Allah ibn ‘Abbas and Abu-Hurayrah (Islam Set, 2004).

<sup>47</sup> Narrated by Muslim (Abu-Sway, 2002).

<sup>48</sup> Narrated by Al-Hakim; he stated that it is a sound *hadith* according to the methodology of Al-Bukhari (Abu-Sway, 2002).

<sup>49</sup> *Hadith* of sound authority, related by al-Bukhari and Muslim on the authority of ‘Abd-Allah ibn ‘Umar and Abu-Hurayrah (Islam Set, 2004).

<sup>50</sup> Narrated by Al-Bukhari (Abu-Sway, 2002).

<sup>51</sup> *Hadith* of sound authority, related by al-Bukhari and Muslim on the authority of Abu-Hurayrah (Islam Set, 2004).

<sup>52</sup> According to ‘Izz ad-Din ibn ‘Abdas-Salam, in *Qawa ‘id al-Ahkamfi Masalih al-Anam*, quoted by Islam Set (2004), “within a discussion of *huquq al-‘ibad* [i.e. the rights of every creature], there are the rights or legal and moral claims of human beings and other creatures upon each legally responsible person. The rights or legal claims of animals are less comprehensive than those of man, and are subject to limitations such as the defense of human life and property and the requirements of human beings for food. It is, however, significant that in Islam the concept of rights or legal claims enforceable by law applies to animals as well as human beings” (Notes, p. 3).

<sup>53</sup> *Hadith* on sound authority, related by al-Bukhari and Muslim on the authority of ‘Abd-Allah ibn ‘Umar (Islam Set, 2004).

<sup>54</sup> Narrated by Abu Dawud (Abu-Sway, 2002).

<sup>55</sup> Narrated by Abu Dawud (Abu-Sway, 2002).

<sup>56</sup> The saying of the Prophet s.a.w.

<sup>57</sup> Narrated by Al-Nasa’i, 7/ 207; and by Al-Hakim who stated that it has a sound chain of narrators. His statement was approved by Al-Mundhiri and Al-Dhahabi (Abu-Sway, 2002).

<sup>58</sup> Narrated by Ahmad, Al-Nisa’i and Ibn Hibban from the report of Al-Sharid (Abu-Sway, 2002).

<sup>59</sup> The Prophet (s.a.w) asked one to look for alternative ways to mark animals such as non poisonous paint...etc (Narrated by Muslim). He prohibited the practice of setting animals against one another (Narrated by Abu Dawud). He also prohibited riding on weak animals (Narrated by Abu Dawud, Ahmad, and Ibn Hibban). Once, the Prophet (s.a.w) was travelling with a group of companions, and a member of the group seems to have some difficulty in driving her camel, she was annoyed, and cursed the camel. The Prophet (s.a.w) heard that and said: ‘Now that it is cursed, unload it and allow it [to roam free]’ (Narrated by Muslim). The Prophet (s.a.w) also said: “There is reward in [caring for] every living being” (Narrated by Muslim) (Abu-Sway, 2002).

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<sup>60</sup> “At length, when they came to a (lowly) valley of ants, one of the ants said: "O ye ants, get into your habitations, lest Solomon and his hosts crush you (under foot) without knowing it." So he smiled, amused at her speech; and he said: "O my Lord! so order me that I may be grateful for Thy favours, which thou hast bestowed on me and on my parents, and that I may work the righteousness that will please Thee: And admit me, by Thy Grace, to the ranks of Thy righteous Servants."”

<sup>61</sup> *Hadith* of sound authority, related by al-Bukhari and Muslim and others on the authority of Abu-Hurayrah (Islam Set, 2004).

<sup>62</sup> “When he turns his back, his aim everywhere is to spread mischief through the earth and destroy crops and cattle. But Allah loveth not mischief.”

<sup>63</sup> “At length, behold! there came Our command, and the fountains of the earth gushed forth! We said: "Embark therein, of each kind two, male and female, and your family - except those against whom the word has already gone forth,- and the Believers," but only a few believed with him.”

<sup>64</sup> “Know ye that Allah is strict in punishment and that Allah is Oft-forgiving, Most Merciful.”

<sup>65</sup> Narrated by Al-Bukhari, III:513 (De Chatel, 2003), and Muslim (Abu-Sway, 2002).

<sup>66</sup> Narrated by Al-Tirmidhi (Abu-Sway, 2002).

<sup>67</sup> “It is He Who has spread out the earth for (His) creatures.”

<sup>68</sup> “Among His Signs in this, that He created you from dust; and then,- behold, ye are men scattered (far and wide)!”

<sup>69</sup> "And Allah has produced you from the earth growing (gradually), And in the End He will return you into the (earth), and raise you forth (again at the Resurrection)?"

<sup>70</sup> “And Allah has made the earth for you as a carpet (spread out), That ye may go about therein, in spacious roads.”

<sup>71</sup> “Have We not made the earth (as a place) to draw together. The living and the dead, And made therein mountains standing firm, lofty (in stature); and provided for you water sweet (and wholesome)?"

<sup>72</sup> “And the earth, moreover, hath He extended (to a wide expanse); He draweth out therefrom its moisture and its pasture; And the mountains hath He firmly fixed;- For use and convenience to you and your cattle.”

<sup>73</sup> “And the earth We have spread out (like a carpet); set thereon mountains firm and immovable; and produced therein all kinds of things in due balance. And We have provided therein means of subsistence,- for you and for those for whose sustenance ye are not responsible.”

<sup>74</sup> “A Sign for them is the earth that is dead: We do give it life, and produce grain therefrom, of which ye do eat. And We produce therein orchard with date-palms and vines, and We cause springs to gush forth therein: That they may enjoy the fruits of this (artistry): It was not their hands that made this: will they not then give thanks?"

<sup>75</sup> ‘Gifts’ here is in the form of free use of the resources on earth.

<sup>76</sup> *Hadith* of sound authority, related by al-Bukhari, Muslim, and at-Tirmidzi, on the authority of Jabir ibn Abd-Allah and others (Islam Set, 2004).

<sup>77</sup> Narrated by Al-Tirmidhi (Abu-Sway, 2002).

<sup>78</sup> Narrated by Al-Bukhari and Muslim (Abu-Sway, 2002).

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<sup>79</sup> Narrated by Muslim, Ahmad, and Abu Dawud (Abu-Sway, 2002).

<sup>80</sup> Narrated by Abu Dawud, Ibn Majah, Al-Hakam, and Al-Bayhaqi (Abu-Sway, 2002).

<sup>81</sup> Narrated by Al-Darimi (Abu-Sway, 2002).

<sup>82</sup> “Do not the Unbelievers see that the heavens and the earth were joined together (as one unit of creation), before we clove them asunder? We made from water every living thing. Will they not then believe?”

<sup>83</sup> “Behold! in the creation of the heavens and the earth; in the alternation of the night and the day; in the sailing of the ships through the ocean for the profit of mankind; in the rain which Allah Sends down from the skies, and the life which He gives therewith to an earth that is dead; in the beasts of all kinds that He scatters through the earth; in the change of the winds, and the clouds which they Trail like their slaves between the sky and the earth;- (Here) indeed are Signs for a people that are wise.”

<sup>84</sup> “It is He Who sendeth down rain from the skies: with it We produce vegetation of all kinds: from some We produce green (crops), out of which We produce grain, heaped up (at harvest); out of the date-palm and its sheaths (or spathes) (come) clusters of dates hanging low and near: and (then there are) gardens of grapes, and olives, and pomegranates, each similar (in kind) yet different (in variety): when they begin to bear fruit, feast your eyes with the fruit and the ripeness thereof. Behold! in these things there are signs for people who believe.”

<sup>85</sup> “O mankind! if ye have a doubt about the Resurrection, (consider) that We created you out of dust, then out of sperm, then out of a leech-like clot, then out of a morsel of flesh, partly formed and partly unformed, in order that We may manifest (our power) to you; and We cause whom We will to rest in the wombs for an appointed term, then do We bring you out as babes, then (foster you) that ye may reach your age of full strength; and some of you are called to die, and some are sent back to the feeblest old age, so that they know nothing after having known (much), and (further), thou seest the earth barren and lifeless, but when We pour down rain on it, it is stirred (to life), it swells, and it puts forth every kind of beautiful growth (in pairs).”

<sup>86</sup> “And He it is Who sends the winds as heralds of glad tidings, going before His mercy, and We send down pure water from the sky,- That with it We may give life to a dead land, and slake the thirst of things We have created,- cattle and men in great numbers.”

<sup>87</sup> “See ye the water which ye drink?... Do ye bring it down (in rain) from the cloud or do We?... Were it Our Will, We could make it salt (and unpalatable): then why do ye not give thanks?”

<sup>88</sup> “Say: “See ye?- If your stream be some morning lost (in the underground earth), who then can supply you with clear-flowing water?”

<sup>89</sup> “Remember He covered you with a sort of drowsiness, to give you calm as from Himself, and he caused rain to descend on you from heaven, to clean you therewith, to remove from you the stain of Satan, to strengthen your hearts, and to plant your feet firmly therewith.”

<sup>90</sup> “It is He Who has made the sea subject, that ye may eat thereof flesh that is fresh and tender, and that ye may extract therefrom ornaments to wear; and thou seest the ships therein that plough the waves, that ye may seek (thus) of the bounty of Allah and that ye may be grateful.”

<sup>91</sup> “Lawful to you is the pursuit of water-game and its use for food,- for the benefit of yourselves and those who travel; but forbidden is the pursuit of land-game;- as long as ye are in the sacred precincts or in pilgrim garb. And fear Allah, to Whom ye shall be gathered back.”

<sup>92</sup> “And tell them that the water is to be divided between: Each one’s right to drink being brought forward (by suitable turns).”

<sup>93</sup> *Hadith* related by Abu-Dawud, Ibn Majah, and al-Khallal (Islam Set, 2004).

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<sup>94</sup> *Hadith* related by the Imam Ahmad in the Musnad and by Ibn Majah on the authority of 'Abd-Allah Ibn 'Amr, with a transmission of weak authority (Islam Set, 2004).

<sup>95</sup> "And Allah sends down rain from the skies, and gives therewith life to the earth after its death: verily in this is a Sign for those who listen."

<sup>96</sup> "And among His Signs, He shows you the lightning, by way both of fear and of hope, and He sends down rain from the sky and with it gives life to the earth after it is dead: verily in that are Signs for those who are wise."

<sup>97</sup> "And We send down from the sky rain charted with blessing, and We produce therewith gardens and Grain for harvests."

<sup>98</sup> Narrated by Muslim (Abu-Sway, 2002).

<sup>99</sup> Narrated by Abu Dawud, Al-Nasai', and Ibn Majah (Abu-Sway, 2002).

<sup>100</sup> Narrated by Abu Dawud, Ibn Majah, Ibn Habban and Al-Hakim (Abu-Sway, 2002).

<sup>101</sup> Narrated by Al-Tirmidhi (Abu-Sway, 2002).

<sup>102</sup> "It is He Who sendeth the winds like heralds of glad tidings, going before His mercy: when they have carried the heavy-laden clouds, We drive them to a land that is dead, make rain to descend thereon, and produce every kind of harvest therewith: thus shall We raise up the dead: perchance ye may remember."

<sup>103</sup> "And We send the fecundating winds, then cause the rain to descend from the sky, therewith providing you with water (in abundance), though ye are not the guardians of its stores."

<sup>104</sup> Narrated by Ahmad, Abu Dawud and Ibn Hibban (Abu-Sway, 2002).

<sup>105</sup> Quoted by Abu-Sway (2002) from Yusuf Al-Qardawi, *al-Sunnah Masdaran lil-Ma`rifati wal-Hadarah*, Cairo: 1977, Dar al-Shuruq, p. 286.

<sup>106</sup> It is against Islam to pay, to receive or to charge interest.

<sup>107</sup> "O Children of Adam! wear your beautiful apparel at every time and place of prayer: eat and drink: But waste not by excess, for Allah loveth not the wasters."

<sup>108</sup> "O ye who believe! make not unlawful the good things which Allah hath made lawful for you, but commit no excess: for Allah loveth not those given to excess."

<sup>109</sup> "(Saying): "Eat of the good things We have provided for your sustenance, but commit no excess therein, lest My Wrath should justly descend on you: and those on whom descends My Wrath do perish indeed!"

<sup>110</sup> "Allah commands justice, the doing of good, and liberality to kith and kin, and He forbids all shameful deeds, and injustice and rebellion: He instructs you, that ye may receive admonition."

<sup>111</sup> "It is He Who hath created for you all things that are on earth; Moreover His design comprehended the heavens, for He gave order and perfection to the seven firmaments; and of all things He hath perfect knowledge."

<sup>112</sup> "I have only created Jinns and men, that they may serve Me."

<sup>113</sup> "Nay, man will be evidence against himself, Even though he was to put up his excuses."

<sup>114</sup> Quoted by Al-Balagh Foundation (2003) from *Sunnan al-Tirmidhi, Kitab al-Fitan*, vol. 4, p.470, *Hadith* No. 2173.

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<sup>115</sup> “Nay, is he not acquainted with what is in the Books of Moses-And of Abraham who fulfilled his engagements?- Namely, that no bearer of burdens can bear the burden of another; That man can have nothing but what he strives for; That (the fruit of) his striving will soon come in sight: Then will he be rewarded with a reward complete; That to thy Lord is the final Goal.”

<sup>116</sup> “If Allah so willed, He could make you all one people: But He leaves straying whom He pleases, and He guides whom He pleases: but ye shall certainly be called to account for all your actions.”

<sup>117</sup> “Behold, thy Lord said to the angels: "I will create a vicegerent on earth." They said: "Wilt Thou place therein one who will make mischief therein and shed blood?- whilst we do celebrate Thy praises and glorify Thy holy (name)?" He said: "I know what ye know not." And He taught Adam the names of all things; then He placed them before the angels, and said: "Tell me the names of these if ye are right."”

<sup>118</sup> “Lest ye should say: "The Book was sent down to two Peoples before us, and for our part, we remained unacquainted with all that they learned by assiduous study:"”

<sup>119</sup> “Or, Who listens to the (soul) distressed when it calls on Him, and Who relieves its suffering, and makes you (mankind) inheritors of the earth? (Can there be another) god besides Allah? Little it is that ye heed!”

<sup>120</sup> “He it is That has made you inheritors in the earth: if, then, any do reject (Allah), their rejection (works) against themselves: their rejection but adds to the odium for the Unbelievers in the sight of their Lord: their rejection but adds to (their own) undoing.”

<sup>121</sup> “We did indeed offer the Trust to the Heavens and the Earth and the Mountains; but they refused to undertake it, being afraid thereof: but man undertook it;- He was indeed unjust and foolish.”

<sup>122</sup> “To thee We sent the Scripture in truth, confirming the scripture that came before it, and guarding it in safety: so judge between them by what Allah hath revealed, and follow not their vain desires, diverging from the Truth that hath come to thee. To each among you have we prescribed a law and an open way. If Allah had so willed, He would have made you a single people, but (His plan is) to test you in what He hath given you: so strive as in a race in all virtues. The goal of you all is to Allah; it is He that will show you the truth of the matters in which ye dispute.”

<sup>123</sup> “Blessed be He in Whose hands is Dominion; and He over all things hath Power;- He Who created Death and Life, that He may try which of you is best in deed: and He is the Exalted in Might, Oft-Forgiving.”

<sup>124</sup> “We said: "O Adam! dwell thou and thy wife in the Garden; and eat of the bountiful things therein as (where and when) ye will; but approach not this tree, or ye run into harm and transgression." Then did Satan make them slip from the (garden), and get them out of the state (of felicity) in which they had been. We said: "Get ye down, all (ye people), with enmity between yourselves. On earth will be your dwelling-place and your means of livelihood - for a time."”

<sup>125</sup> “O ye Children of Adam! Let not Satan seduce you, in the same manner as He got your parents out of the Garden, stripping them of their raiment, to expose their shame: for he and his tribe watch you from a position where ye cannot see them: We made the evil ones friends (only) to those without faith.”

<sup>126</sup> “Then We said: "O Adam! verily, this is an enemy to thee and thy wife: so let him not get you both out of the Garden, so that thou art landed in misery.”

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<sup>127</sup> “But Satan whispered evil to him: he said, "O Adam! shall I lead thee to the Tree of Eternity and to a kingdom that never decays?" In the result, they both ate of the tree, and so their nakedness appeared to them: they began to sew together, for their covering, leaves from the Garden: thus did Adam disobey his Lord, and allow himself to be seduced.”

<sup>128</sup> “It is He Who hath made you (His) agents, inheritors of the earth: He hath raised you in ranks, some above others: that He may try you in the gifts He hath given you: for thy Lord is quick in punishment: yet He is indeed Oft-forgiving, Most Merciful.”

<sup>129</sup> “Then We made you heirs in the land after them, to see how ye would behave!”

<sup>130</sup> Muslim, *Sahih* (Abu-Sway, 2002)

<sup>131</sup> "Do ye wonder that there hath come to you a message from your Lord through a man of your own people, to warn you? call in remembrance that He made you inheritors after the people of Noah, and gave you a stature tall among the nations. Call in remembrance the benefits (ye have received) from Allah: that so ye may prosper."

<sup>132</sup> "And remember how He made you inheritors after the 'Ad people and gave you habitations in the land: ye build for yourselves palaces and castles in (open) plains, and care out homes in the mountains; so bring to remembrance the benefits (ye have received) from Allah, and refrain from evil and mischief on the earth."

<sup>133</sup> “Do they not travel through the earth, and see what was the end of those before them? They were superior to them in strength: they tilled the soil and populated it in greater numbers than these have done: there came to them their messengers with Clear (Signs). (Which they rejected, to their own destruction): It was not Allah Who wronged them, but they wronged their own souls.”

<sup>134</sup> “And He has subjected to you, as from Him, all that is in the heavens and on earth: Behold, in that are Signs indeed for those who reflect.”

<sup>135</sup> “He has made subject to you the Night and the Day; the sun and the moon; and the stars are in subjection by His Command: verily in this are Signs for men who are wise.”

<sup>136</sup> “Do ye not see that Allah has subjected to your (use) all things in the heavens and on earth, and has made his bounties flow to you in exceeding measure, (both) seen and unseen? Yet there are among men those who dispute about Allah, without knowledge and without guidance, and without a Book to enlighten them!”

<sup>137</sup> “It is Allah Who hath created the heavens and the earth and sendeth down rain from the skies, and with it bringeth out fruits wherewith to feed you; it is He Who hath made the ships subject to you, that they may sail through the sea by His command; and the rivers (also) hath He made subject to you.”

<sup>138</sup> “Then We subjected the wind to his power, to flow gently to his order, Whithersoever he willed.”

<sup>139</sup> “That has created pairs in all things, and has made for you ships and cattle on which ye ride, In order that ye may sit firm and square on their backs, and when so seated, ye may celebrate the (kind) favour of your Lord, and say, "Glory to Him Who has subjected these to our (use), for we could never have accomplished this (by ourselves), "And to our Lord, surely, must we turn back!"”

<sup>140</sup> “Then to eat of all the produce (of the earth), and find with skill the spacious paths of its Lord: there issues from within their bodies a drink of varying colours, wherein is healing for men: verily in this is a Sign for those who give thought.”

<sup>141</sup> “Allah is He Who raised the heavens without any pillars that ye can see; is firmly established on the throne (of authority); He has subjected the sun and the moon (to his Law)! Each one runs (its course) for a term appointed. He doth regulate all affairs, explaining the signs in detail, that ye may believe with certainty in the meeting with your Lord.”

<sup>142</sup> “To the Thamud People (We sent) Salih, one of their own brethren. He said: "O my people! Worship Allah: ye have no other god but Him. It is He Who hath produced you from the earth and settled you therein: then ask forgiveness of Him, and turn to Him (in repentance): for my Lord is (always) near, ready to answer.””

<sup>143</sup> Quoted by Abu-Sway (2002) from Sayyid Qutb, *Fi Zilal al-Qur'an*. 12th Edition (Dar al-Shuruq) Vol. 12, p. 1907.

<sup>144</sup> “O ye who believe! Let not some men among you laugh at others: It may be that the (latter) are better than the (former): Nor let some women laugh at others: It may be that the (latter) are better than the (former): Nor defame nor be sarcastic to each other, nor call each other by (offensive) nicknames: Ill-seeming is a name connoting wickedness, (to be used of one) after he has believed: And those who do not desist are (indeed) doing wrong. O ye who believe! Avoid suspicion as much (as possible): for suspicion in some cases is a sin: And spy not on each other behind their backs. Would any of you like to eat the flesh of his dead brother? Nay, ye would abhor it...But fear Allah: For Allah is Oft-Returning, Most Merciful. O mankind! We created you from a single (pair) of a male and a female, and made you into nations and tribes, that ye may know each other (not that ye may despise (each other). Verily the most honoured of you in the sight of Allah is (he who is) the most righteous of you. And Allah has full knowledge and is well acquainted (with all things).”

<sup>145</sup> *Hadith* of sound authority, related by Muslim on the authority of Abu Sa'id al-Khudri (Islam Set, 2004).

<sup>146</sup> *Hadith* related by the Imam Malik in the *Muwatta'* with an incomplete transmission; and by al-Hakim in *al-Mustadrak* with a complete chain of transmission; and he described it as of sound authority on the conditions of Muslim. This and subsequent legal principles are well known, and unless otherwise referenced, are found in the books of *al-Ashbah wa 'n-Naza'ir* by Lalal ad-Din 'Abd ar-Rahman as-Suyuti and Zayn al-'Abidin ibn Nujaym, and in the *Majalat al-Ahkam al-Adliyah* (Islam Set, 2004).

<sup>147</sup> "But seek, with the (wealth) which Allah has bestowed on thee, the Home of the Hereafter, nor forget thy portion in this world: but do thou good, as Allah has been good to thee, and seek not (occasions for) mischief in the land: for Allah loves not those who do mischief."

<sup>148</sup> "And follow not the bidding of those who are extravagant,- "Who make mischief in the land, and mend not (their ways)."

<sup>149</sup> “Do no mischief on the earth, after it hath been set in order, but call on Him with fear and longing (in your hearts): for the Mercy of Allah is (always) near to those who do good.”

<sup>150</sup> “Let there arise out of you a band of people inviting to all that is good, enjoining what is right, and forbidding what is wrong: They are the ones to attain felicity.”

## CHAPTER 4

### SOCIO-RELIGIOUS EXPERIENCE OF MUSLIMS IN NEW ZEALAND

#### 4.1 Introduction

This chapter discusses the socio-religious elements that may influence the environmentally ethical behaviour (EEB) of Muslims in New Zealand. The role of this Chapter is to draw an additional hypothesis about the influence of the socio-religious aspect and to explain the quantitative and qualitative results of the socio-religious influence. The discussion focuses on family values; wider community values shared with friends, neighbours and co-workers; similarities of environmental values shared by Muslims and other New Zealand communities; role of mass media such as newspapers, magazines, television and radio.

#### 4.2 Family Values

Muslims in New Zealand hold Islamic values (and other cultural values that are not contrary to Islamic values) for everything in their lives including the environment. Muslims in New Zealand consist of many ethnic groups or nationalities such as “South Asian (Indian, Pakistani, Bangladeshi, and Fijian Indian), Arabs, Malaysians, Indonesians, Iranians, Somalis, people from the Balkans, and some Pakeha, and many others represented in smaller numbers” (Shepard, 2002, p. 233). According to Shepard (2002), “they are from approximately 35 nationalities” (p. 233). Though Muslims in New Zealand consist of many ethnic groups or nationalities (who migrated to New Zealand as early as 1868) they hold the same social values, that is, Islamic values. As to whether individuals have a greater sense of ethnic or Islamic identity, Shepard (2002) noted that several Muslim leaders have told him that “Islamic identity was more central,” (p. 246), and Shepard (2002, p. 248) further observed:

In this community people would relate to each other primarily on the basis of their Islam rather than their ethnicity, and their interpretation of Islam would slough off or modify the distinctly ethnic interpretations and build on the common core of belief and practice shared by all Muslims.

Islam places great emphasis on family and family values. Islam emphasizes that a family cannot function smoothly without rules and

responsibilities. In Islam, man, women and children have their specified roles to play in a family life.

A husband and a father in Islam is an *imam* for his family on whose shoulder rests the religious responsibility of his family. As such he is given the position of authority to maintain order and discipline which can only be maintained through a central authority. However, this does not mean that he is free to dictate upon the family his terms, like a tyrant or an oppressor. He must use his authority with love, compassion and must communicate and consult with his wife to obtain the best possible outcomes together. The Prophet (s.a.w) was never an authoritarian in his home. His authority was the most compassionate and kind authority. A wife is not subjugated or inferior to a husband rather the Qur'an stresses the equity and mutual support between a wife and a husband. The Qur'an tells that husband and wife should, like garments, cover and protect each other (al-Qur'an, 2:187).

Parents must love their children, respect their feelings and opinions and recognize their need for self-esteem especially among their friends. They must treat all their children whether boys or girls equally. Parents are charged with the duties to raising children from birth to early adulthood – moulding the deeds and attitudes of their children, and helping them to develop morally. This is done not merely through verbal teachings but also via behaviour. Parental guidance and, particularly, example have a considerable impact on their children' moral development.

Parents must also prepare their children for their social and economic roles as citizens and realize that the world of tomorrow will be determined by what they make of their children. Thus, in the case of the environment, a head of a Muslim household would take it as his responsibility to educate and share values about the environment with his wife and children and encourage them to accept the values which will help them later on when they have their own family to be able to continue practising such values. Muslim men, women and children take their roles seriously because they sincerely believe that they are accountable for their conduct (on earth) on the Day of Resurrection.

Thus, since in Islam all members have specific roles one would expect a great influence by family members on the EEB of New Zealand Muslim males.

### 4.3 Role of Wider Community Values

New Zealand is a bi-cultural society (Maori and Pakeha) that holds certain beliefs that then act as the fundamental determinants of their attitudes and behaviour towards the environment. However, New Zealand is now becoming multi-cultural as more and more opportunities are open for immigrants, particularly from Asia, the Middle East, Europe, and Pacific Islands.

The main religions and beliefs such as Christianity, Buddhism, Hinduism, and Islam (introduced by these immigrants) have principles that include a set of suggested behavioural modes towards the environment. However, in practice, these principles are rarely translated into behaviour outside their cultural rituals. For example, indigenous communities in New Zealand hold the value of respecting the relationship between humans and the environment. However, with the expansion of secular education, in many cases the old values have come to be seen as ‘superstitious’ belief and have been to varying degrees replaced and invaded by new secular values based on scientific understanding of the environment.

Thus, New Zealand’s socio-religious environment is unique – a small population with considerable cultural diversity. There are also high levels of participation in outdoor activities. New Zealanders value their environment for recreational, aesthetic, economic, cultural, religious, and spiritual reasons. As a country of “rich diversity of people, cultures and beliefs [the people] draw their values from different sources” (The Report of New Zealand Royal Commission on Genetic Modification, 2001 [The Report, 2001], Chapter 3, p. 24). The Report (2001), in Chapter 3 sections 12 to 37, noted that many people draw their values from Maori culture, Eco-spirituality, Judaeo-Christian tradition, some from other religious beliefs, some from philosophy, some from experiences and reflections of life, and some from the United Nations Declaration of Human Rights.

Since in New Zealand the dominant communities are the Maori people and the European or Pakeha, other New Zealanders, and especially immigrants always find they have to learn about these “two cultures” (The Report, 2001, Chapter 3, p. 18). These two groups (Maori and European Pakeha) hold the dominant values in the community. According to the Report (2001), “Values give rise to goals, which in turn determine policies and strategies” (Chapter 2, p. 11). This means the values they hold have the major influence on New Zealand policy including

environmental policies (e.g. domestic solid waste – pre-cycling, re-use and recycling) that have to be followed by all New Zealanders. Muslims in New Zealand are no exception in having to learn these two cultures. According to Shepard (2002), Muslims “have drawn a distinction between being “Muslims in New Zealand”, that is an immigrant community surviving in an alien environment, and being “Muslims of New Zealand”, that is a community developing forms of Islamic expression appropriate to the local society and interacting significantly with the society” (p. 248). According to Shepard (2002), at present the community is predominantly “Muslims in New Zealand” (p. 233-254).

Today, according to the Ministry for the Environment (1997) the dominant New Zealand environmental values are “largely twentieth century concepts that owe much to modern scientific thinking” (Chapter 1, p. 3) such as “intrinsic value”<sup>1</sup> (Chapter 1, p. 3) and “sustaining complex ecological processes for their life-sustaining ‘services’” (Chapter 1, p. 3). However, the traditional values of Maori and Pakeha are still central. This is clearly apparent in the Report of New Zealand Royal Commission on Genetic Modification in 2001 (The Report, 2001).

According to the Report (2001), there are three “spheres” (Chapter 2, p. 13) of values commonly held by New Zealanders. They are:

1. cultural, ethical and spiritual; broadly reflects the value of the Treaty of Waitangi, freedom of choice and participation.
2. environment and health; the uniqueness of New Zealand and its cultural heritage, sustainability and well-being.
3. economic and strategic; being part of a global family and other aspects of well-being.

The Report (2001) goes on to say that the sources of New Zealanders’ values or worldviews are (Chapter 3, p. 18-24):

1. Maori culture; that is, its spiritual values have a unique ecological approach to the environment. They prioritise the duty of “obligated stewardship” (Chapter 3, p. 19). Maori believe that humans through genealogy can be traced up to Gods, the Earth Mother and Sky Father. Thus, they believe that they have to honour all living creatures as kin.<sup>2</sup> They also believe that they bear the spiritual costs associated with

environmental degradation, irrespective of who initiates the transgression (*hara*). This fear of harm is a very strong drive to action to prevent further degradation of the environment.

2. Eco-spirituality; that is, the ecological worldview based on an assumption of the interconnectedness of all life, including humans. All of people's lives, economy and mental well-being are ultimately dependent on maintaining the health of the natural world. Thus human beings are connected or related to the environment. In addition human beings are dependent on their environment. The ecological view preaches that while "knowledge is sought to nurture our understanding of ecology and how the system works it ought to be done with respect for all living things, respect for the boundaries and limits of nature within which we are content to live, and respect for the connections and the processes that allow life to continue" (Chapter 3, p. 21).
3. Other cultures and beliefs and religious belief; that is, the Judaeo-Christian tradition which in various ways preaches that "understanding the place of humans in the biosphere, and the responsibilities that flow from an understanding of that relationship as one of "stewardship", of responsibility to future generations, of discovery and awe rather than exploitation and ownership" (Chapter 3, p. 22). The submitters from the Judaeo-Christian tradition "spoke of a duty to care for the environment" (Chapter 3, p. 22-23) rather than dominion. Many also submitted that "commercial considerations should not outweigh ethical ones" (Chapter 3, p. 24). And "many submissions affirmed the importance of recognising the values of the Maori world view" (Chapter 3, p. 24).

According to the Report (2001), although New Zealand is a pluralistic society "a common core of values" (Chapter 3, p. 24) does exist. According to the Report (2001, Chapter 3, p. 25):

Maori ... drawing on their spiritual and cultural heritage, have a strong sense of the sacredness and interconnectedness of the earth and all life forms. Judaeo-Christian groups draw on the biblical tradition to reach the same conclusion. Those who come from the ecological world view have a similar holistic understanding of ecosystems based on their perception of the intrinsic value of all life.

The Report (2001) named the common core values as (Chapter 3, p. 25):

1. the uniqueness of Aotearoa (New Zealand)
2. the uniqueness of our cultural heritage
3. sustainability
4. being part of a global family
5. the well-being of all
6. freedom of choice
7. participation

Having identified these common core values; it is interesting to look at how these values link/relate to practical decision-making. As the Report (2001) put it “Values need to be set in a framework that allows decisions to be made” (Chapter 3, p. 26). In general, the environmental choices New Zealanders make in their lives, individually or nationally, might be expected to reflect the values they hold. Thus, it is not too much to say that behaviours such as pre-cycling, re-use and recycling are influenced by ethical considerations based on the common core values New Zealanders hold.

The Report (2001) in Chapter 3, sections 48 to 70 outlined two main approaches to link/relate the common core values to practical decision-making: Pakeha and Maori. The Report (2001) in section 59 has identified four key elements in the ethical decision-making process (Chapter 3, p. 28):

1. a clear statement of the values to be used as criteria (our common core).
2. full information on the specific data relating to the case to be decided.
3. a holistic approach that looks at both the data and the values in a connected manner.
4. appropriate participation by stakeholders (all who have an interest) in the decision-making process.

The Report (2001, Chapter 3, p. 28) in section 60 also points out:

Participants in the process will bring a diversity of views. Different interpretations of the values may be made, and different assessments of the significance of the data as well as proposed solutions. Some values will be of higher significance than others. For example, the preservation of human life or the ecosystem will take precedence over freedom of choice if a particular decision puts human life and the ecosystem at risk. Weighing the claims of one stakeholder group against those of another also requires fine

judgement. Building a consensus that takes account of all the key elements is required in order to avoid flawed decisions.

For Maori, “a bad way of going about decision-making cannot lead to a good outcome; the process shapes the decision” (The Report, 2001, Chapter 3, p. 28).

Friends, neighbours and co-workers of Muslims in New Zealand are people from various cultures – Maori, Pakeha and others. Thus, it is to be expected that the EEB of the New Zealand Muslim males will be influenced by environmental values of such friends, neighbours, co-workers, and other people they encounter.

#### **4.4 Similarities of Environmental Values**

Environmental values held by Muslims in New Zealand do not clash with the mainstream environmental values held by the majority of New Zealanders. On the contrary, Muslims in New Zealand might be influenced by some of these environmental attitudes and practices of the dominant groups. This may be due to several reasons: most of the Maori and Pakeha values are not against Islamic values as far as the environment is concerned; the open mindedness of Islam; and the tolerant nature of New Zealand people towards the freedom of religious practice in New Zealand. Thus, the EEB of New Zealand Muslim males was expected to be influenced by the environmental values of their New Zealand friends, neighbours and co-workers because:

1. Most of the Maori values and the Pakeha values towards the environment are not against Islamic values. Like Maori, Muslims have a distinctive view concerning water which is reflected in their daily rituals such as ablution or *wudu* before performing a prayer, personal hygiene and so forth. Rain, which carries great importance for all living things, including human beings, is mentioned in various verses of the Qur'an, where substantial information is given about rain, its proportion<sup>3</sup> and effects (Al-Qur'an, 43:11, 30:48, 25:48-49, 50:9) (Yahya, 2003b).

Islam also preaches respect for environmental elements as does the ecological worldview. The Qur'an acknowledges that humankind is not the only community to live in this world (Al-Qur'an, 6:38). Humans may have

been created with greater self potential<sup>4</sup> than other creatures but they too are worthy of respect and protection (Ujang, 1993a).

Muslims too believe that Allah's creation is to be discovered as does the Judaeo-Christian tradition, to find ways to revere Him. Muslims are asked to think with their minds and hearts of the numerous signs that God has created in the universe, and ask themselves, the questions 'why' and 'how', so they will be able to understand that the entire universe is the proof of the existence and power of God (Yahya, 2003d). For example, how does this extraordinary ecological balance exist on earth? A person who is seeking answers to questions such as this does not remain insensitive to things happening around him or her, and doesn't plead ignorance about the extraordinary nature of the world (Yahya, 2003f). Muslims believe that religion shows the way to know God, and that science helps us to better see and investigate the realities addressed by religion. The Qur'an always urges people to think, to reason and to explore everything in the world in which they live (Al-Qur'an, 50:6-7, 50:9-10, 16:11) (Yahya, 2003a and 2003c).

Like the Report (2001), in Chapter 3 sections 8, 11, 39, 60, 76, 77, 113, & 118, Islamic values too accept that human beings are the priority if a choice must be made out of any environmental issues that put humans at risk, and, Islam also requires decision making through a *musyawarah* or *syura'* or a meeting to reach a decision by consensus. And as in the Maori approach to decision-making, Muslims also require correct results to be obtained by correct means or process. To Muslims a good outcome does not justify a bad means.

2. Islam is a very open minded religion towards other people, cultures, and knowledge. According to Yahya (2003e), both the Qur'anic wisdom and the Prophetic teaching give Muslims a global outlook on the world, transcending all cultural barriers. In the Qur'an God states (Al-Qur'an, 49:13):

O mankind! We created you from a single (pair) of a male and a female, and made you into nations and tribes, that ye may know each other (not that ye may despise (each other)). Verily the most honoured of you in the sight of God is (he who is) the most righteous of you. And God has full knowledge and is well acquainted (with all things).

This verse clearly encourages cultural relationships between different nations and communities. In another verse of the Qur'an it is stated that "To God belong the East and the West: Whithersoever ye turn, there is the presence of God. For God is all-Pervading, all-Knowing" (Al-Qur'an, 2:115). Thus Muslims should see the world with a universalistic and cosmopolitan vision. The *hadith*, or sayings of the Prophet (s.a.w) also encourage this vision. In a popular *hadith*, the Prophet (s.a.w) tells Muslims that wisdom is the lost property of the Muslims; he takes it from wherever he finds. This means that Muslims should be very pragmatic and broadminded in adapting and using the cultural and scientific achievements of non-Muslims; those non-Muslims are also creatures and servants of God, even though they might not recognize that they are (Yahya, 2003e).

In the Qur'an, God invites us to think about how we came into being, what is the purpose of our life, why we will die and what awaits us after death. We must question how we and the universe came into existence and how they continue to exist. While doing this, we must relieve ourselves of all constraints and prejudices (Yahya, 2003e).

Among other things (such as the pillars of Islam; prayers, fasting, pilgrimage, alms and *jihad*<sup>5</sup>), Muslims are instructed to examine nature and learn from it because people can know God only by examining His creations. Because of this, the Qur'an defined true Muslims as people who think about the creation of the heavens and the earth. Therefore, a Muslim should take an interest in science, which is a very important form of worship. In many verses of the Qur'an, God instructs Muslims to investigate the heavens, the earth, living things and their own existence and to think about them. For example, in the Qur'an, God encourages scientific knowledge from the sciences of astronomy (Al-Qur'an, 67:3), geology (Al-Qur'an, 50:6-8), botany (Al-Qur'an, 6:99), (Al-Qur'an, 16:66), archaeology and anthropology (Al-Qur'an, 30:9), and a person's own body and spirit (Al-Qur'an, 51:20-21) (Yahya, 2003e).

3. New Zealand people are relatively tolerant of other religions, and believe in religious freedom: as Shepard points out (2002) "Prejudice is mainly a

matter of ignorance and thus amenable to education” (p. 237). The International Religious Freedom Report for New Zealand (2002, p. 1-2) also stressed:

The law provides for freedom of religion, and the Government generally respects this right in practice. The Government at all levels strives to protect this right and does not tolerate its abuse, either by governmental or private actors.

Moreover, at the level of societal attitudes, the International Religious Freedom Report for New Zealand (2002) said: “Amicable relations exist among the various religious communities in society. Incidents of religiously motivated violence are extremely rare” (p. 2). Islam shares the same view of religious tolerance (Al-Qur’an, 2:256):

Let there be no compulsion in religion: Truth stands out clear from Error: whoever rejects evil and believes in God hath grasped the most trustworthy hand-hold, that never breaks. And God heareth and knoweth all things.

This tolerance has been shown in several cases. Shepard (2002) reported state schools “allowing headscarves and some variants to the uniforms and even bathing suits” (p. 236) that suited Muslim moral values for Muslim girls, “accommodating on matters of diet” (p. 236), “allowing time for *salat*” (p. 236). During the incident of graffiti being sprayed on the Islamic centre in Wellington, “the Muslims received considerable support and sympathy from the local churches, a Jewish congregation and other agencies” (p. 237). Incidents of discrimination, harassment and violence are “isolated and result more from racial than religious motives” (p. 237). Generally, they are “downplayed by Muslims and by the local authorities” (p. 237). As for the incident of Hamilton mosque being burnt in 1998, Shepard (2002, p. 238), reported:

The City Council provided space while they were rebuilding and donations from the community, spearheaded by some church groups and the local Jewish community, assisted them in building a protective fence and installing a security system.

#### 4.5 Role of Mass Media

In the 1960s and 1970s, the field of environmental journalism began following the development and activities of environmental organizations in the 1960s after the publication of Rachel Carson's *Silent Spring* in 1962.

From *Silent Spring* to Al-Gore's "An Inconvenient Truth" mass media have generated public interest in environmental issues. In New Zealand, environmental journalism has become well-established across the media.

New Zealand local media – newspapers, magazines, radio, television, etc – play a vital role in public environmental awareness. Environmental change is slow and incremental. This is difficult for media to document. Environmental journalists have to grasp, communicate and synthesize scientific, political and economic issues, and they have to do it on deadline with accuracy, authority and readability (Patel, 2006). Thus, environmental journalism in New Zealand relies not only on government sources but also scientists, academics, and NGOs.

Environmental stories covered by New Zealand media – newspapers, magazines, radio and television programmes – including those related to tourism, logging, trade, education, sanitation, food production, water, energy, public health, public policy, and international relations that have strong environmental components.

*New Zealand Herald* (founded in 1883), one of the daily leading newspapers in New Zealand, under its news section dedicates a segment for reports on environmental issues. Its reports on environmental issues range from global environmental issues such as global warming, oil and energy crises to local environmental issues such as pollution and recycling. *New Zealand Listener* (launched in 1939), a weekly magazine, dedicated a column named 'Ecologic' for environmental issues starting from the March 24-30 2007 issue. Environmental issues submitted by columnists range from the global ones such as global warming, consumerism, and buy and throw away lifestyle to local environmental issues such as carbon footprint, pre-cycling, supermarket packaged food, and the use of plastic bags in the supermarkets. Other newspapers and magazines like *The Dominion Post*, *The Marlborough Express*, *The Nelson Mail*, *Otago Daily Times*, *Scoop*, *The Southland Times*, *Taranaki Daily News*, and *Waikato Times* also report on environmental issues under various sections such as politics, business, regional, local news etc.

Maori Television (launched in 2004) features an informative and empowering half hour eco series dedicated to preserving the future of planet earth every Tuesday at 10.30pm. It looks at the range of different green initiatives being developed to reduce the human impact on the planet. Meanwhile, every Tuesday at 7.10pm and Wednesday at 2.10pm TVNZ 7 (launched at 12 noon on March 30, 2008) airs an environmental series from the United Kingdom, with stories about the people on the front-line protecting planet earth. It focuses on environmental issues affecting all, from development, human rights and health perspectives. TV3 (a corporate channel, that began broadcasting on November 26, 1989) features a half-hour current affairs programme weeknights at 7pm. On August 3, 2006 it covered a story of EEB among a group of people in New Zealand. The story entitled 'The Freegan Way' highlighted the life of a group of people who practice self-sustenance lifestyle – small farming, pre-cycling, reusing and recycling – and survive on paying virtually nothing for groceries. Other television channels including TV One, TV2, TVNZ 6, Prime broadcast environmental issues in the news almost daily. The pictures of starving children around the world are constantly aired on New Zealand television channels. Breaking news on environmental crises such as landslides, hurricanes, tsunamis occurred around the world are also aired on New Zealand television and radio channels.

Everyday citizens rely on television, radio, newspapers, magazines, and online news sources to keep them alerted to the important issues of the day. The media educate and influence thousands of people throughout the local media market on the environmental issues. By featuring environmental issues media raise awareness, and influence of what issues are considered news, and encourage pro-environment policy decisions.

There are more than fifty online newspapers in New Zealand that are widely read, reaching many people with reports, views and comments on a wide range of environmental issues including environmental policies of the local, state, or federal government, and increasing the visibility of environmental issues in the news. In addition, there are more than seventy radio stations that are widely listened to by New Zealand people, seven government owned television channels, four corporate television channels, and twenty four regional television channels.

With that number of sources of information and the constantly active role of New Zealand media in featuring environmental issues on their channels it is

reasonable to expect that will substantially influence the EEB of New Zealand Muslim males.

#### 4.6 Conclusion

Some of the Muslims in Zealand, in particular the Maori and Pakeha Muslims, inherited their ancestors' environmental values. Muslims in New Zealand also share the common core values held by New Zealanders today concerning the environment. Muslims in New Zealand do have their differences in other social aspects but they also have obvious similarities on environmental views. Islam, to a certain degree is open to other cultures and New Zealanders are relatively tolerant of different religious practices in New Zealand. Thus, it is not surprising to learn that Muslims in New Zealand may find themselves influenced by the social values of the dominant communities as far as the environment is concerned (or in particular as far as pre-cycling, re-use, and recycling are concerned) as well as from their own values derived from the Islamic values they hold such as family values. In addition, New Zealand media influence on the EEB of New Zealand Muslim males was also not to be taken for granted.

Notes:

The English meaning of the Holy Qur'an used in this writing is quoted from a translation by Abdullah Yusuf Ali at the URL:

<http://www.islam101.com/quran/quranYusuf/quranYusuf.html> (24/10/02)

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<sup>1</sup> Leopold (1966) in his essay, *The Land Ethic*, observed (also discussed in Koch, 1992), science teaches us to understand the complex ecological processes of our lives. In time we come to appreciate ecosystems for their own sake. Organisms and species are worthwhile and good in their own right as ends in themselves. The result is a challenge to prevailing definitions of value and a call for a scientifically informed appreciation of nature.

<sup>2</sup> Maori values emphasize "the protection of places with ancestral and mythological associations" (Ministry for the Environment, 1997, Chapter 2, p. 9). In the Maori description of the creation of the world, when the sky father (*Ranginui*) joined the earth mother (*Papatuanuku*), they produced children of which six are well known; *Tane* (revered ancestor of the forest, birds, and humans), *Tawhirimatea* (revered ancestor of the elements), *Tumatauenga* (revered ancestor of war), *Tangaroa* (revered ancestor of the sea), *Rongomatane* (revered ancestor of peace, kumara, and cultivated plants), and *Haumiatiketike* (revered ancestor of fern root and uncultivated foods) (King, 2003; Ministry of Justice, 2001). Thus, land, sea and sky are parts of a united environment. Maori values also emphasize "human use, particularly natural food-bearing potential" (Ministry for the Environment, 1997, Chapter 2, p. 11). According to the Ministry of the Environment (1997), the Maori have a concept of "territorial defence" (Chapter 2, p. 12) mainly for "ancestral burial

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grounds” (Chapter 2, p. 12) and the “tribal customs to allocate and regulate resource use” (Chapter 2, p. 12) such as “some bird species, fish stocks, and shellfish gathering areas” (Chapter 2, p. 12). Thus, “some sites were rendered *tapu* (sacred and off-limits), and some species were subject to *rahui* (temporary harvesting bans) or to complex *tikanga maori*<sup>2</sup> (harvesting protocols)” (Ministry for the Environment, 1997, Chapter 2, p. 12-13). In addition, “Maori view water as a living thing, animated by a spiritual force, *mauri*, which pervades all of nature and can be easily defiled not only by pollution but by other actions” (Ministry for the Environment, 1997, Chapter 2, p. 11).

<sup>3</sup> For example; the amount of water that evaporates in one second is the same as the amount of rain that falls in one second.

<sup>4</sup> Since human possess ‘aql’ (Arabic) or “the power of mind”.

<sup>5</sup> ‘Jihad’ is commonly defined as ‘holy war’ by Western writers, but according to Islam ‘jihad’ is a struggle to embrace the truth (or to remain in the true path) and to protect Islam and Muslims from evils, and the greatest ‘jihad’ of all is to control or protect oneself from sinful desire.

## **CHAPTER 5**

### **ECONOMIC EXPERIENCE OF MUSLIMS IN NEW ZEALAND**

#### **5.1 Introduction**

This chapter discusses the economic aspect that may influence the environmentally ethical behaviour (EEB) of the Muslims in New Zealand. The role of this chapter is to draw an additional hypothesis about the influence of the economic aspect and to explain the quantitative and qualitative results of the economic influence. The focus of this chapter is on the Muslims in New Zealand as economic migrants; the economic values they hold in respect of the environment; and the role of vendors such as supermarkets, second hand shops, and flea markets in influencing their EEB.

#### **5.2 Economic Migrants**

Most of the Muslims in New Zealand are economic migrants – having migrated for economic betterment. Another big portion of Muslims in New Zealand are international university students – some are funded minimally by a scholarship, and some are self-funded.

The earliest Muslims migration to New Zealand was in 1868 to work in the gold mining industry in the south of the country. According to the census results of 1874 this first arrival of Muslims was 17 males of Chinese origin. When the industry declined they returned to their home country without leaving any Muslim heritage (Federation of Islamic Association of New Zealand [FIANZ], 2003; Islam dan Masjid di Selandia Baru, 2004; Rahman, 2003; Shepard, 2002). Their involvement in the New Zealand economy – the gold mining industry – was quite significant since the survival of the New Zealand economy at this point depended mostly on gold as well as wool, kauri timber and gum for several decades.

Starting from about 1907, the next Muslim group arrived to take up permanent residence. They were Gujerati Indian men who opened small shops, mainly in towns south of Auckland (FIANZ, 2003; Shepard, 2002). These were small family businesses – their family members, especially their sons, helped them in the shops. But most of the other family members stayed in their home

country. The economic focus of the New Zealand government was on agriculture which had an effect on their businesses. In particular, government emphasis on agriculture supplied them with cheaper agricultural products for their shops.

From 1910 onwards, Muslim men of Asian origin, mostly from the Indian sub-continent, migrated to New Zealand mainly for economic reasons and they sent their earnings to their home country (Rahman, 2003). They probably worked in the agricultural and forestry sectors that flourished during this period.<sup>1</sup>

Meanwhile, the “unrestricted access to the British market – something which was denied to most other countries – ensured above-average returns for nearly all our [New Zealand] agricultural exports” (Ministry for the Environment, 1997, Chapter 3, p. 9). This strategy managed to stabilize the New Zealand economy. This gave the Gujerati Muslim men the confidence – especially in the mid to late 1940s – to start to bring in their other family members. Most of them worked as share milkers, some of them with a view to owning a small farm of their own. But Gujerati Muslim migrants were business-minded, and mostly preferred to open their own businesses – mainly small shops and dairies again – and became city-dwellers (Rahman, 2003).

During the Second World War, the government introduced import controls. Due to these controls, according to the Ministry for the Environment (1997), “consumer goods in New Zealand were often more expensive or of lower quality than those available overseas” (Chapter 3, p. 10). This has strengthened a “do-it-yourself repair and maintenance culture” (Ministry for the Environment, 1997, Chapter 3, p. 10). Machinery and gadgets were re-used and recycled. This culture may be seen as an environmentally positive aspect of New Zealand economic life which has largely disappeared.

In the 1950s, New Zealand explored another economic activity – an industrialization programme. “Large hydro dams were built and technology and raw materials were imported from overseas to help build up the domestic manufacturing sector” (Ministry for the Environment, 1997, Chapter 3, p. 9). This attracted many migrants, including Muslims into the country. From the 1950s onwards, according to FIANZ (2003), “sizeable numbers of Muslims began establishing a firm foothold in this country [New Zealand]” (p. 1).

The New Zealand economy continued to prosper in the following years. This period of prosperity attracted many more Muslims to migrate to New

Zealand. According to Shepard (1985), “in the mid-sixties, a considerable number of Muslims of Indian origin have come from Fiji, some to study and more to work in shops or industry” (p. 183), and “in the late 1960s and early 1970s a small number of better-educated people, professionals, and white-collar workers settled in New Zealand from several Muslim countries” (p. 183).

Then, in the 1970s, steps to diversify the economy and liberalize trade were taken. Through Closer Economic Relations (CER) free access to the Australian market was achieved. New Zealand government subsidies for agricultural production were increased (Ministry for the Environment, 1997). It is hard to say much about the involvement of Muslims in agricultural activities since it was minimal at this period. They owned only small farms and most of their economic activities were still focused on small shops and dairies.

A bigger economic involvement of local Muslims was when a *Halal* meat industry was introduced in the mid 1970s. This took place when “the revolutionary government in Iran signalled a willingness to purchase large quantities of New Zealand lamb on condition that it be *Halal*” (Shepard, 2002, p. 250). Then “the New Zealand meat industry moved promptly to comply. In the process, a considerable number of New Zealand abattoirs shifted to *Halal* slaughter” (Shepard, 2002, p. 251). At first slaughterers were imported from Muslim countries such as Iran who stayed in the country for only a few months of the year, but later more and more Muslims became permanently involved in this industry, mainly as slaughterers. Shepard (1985) estimated that “in the 1979-80 seasons there were about 20, and this has increased to nearby 140 in the 1983-84 season” (p. 203)

In the late 1970s, Muslims in New Zealand began to take a greater interest in the international trade in *Halal* meat. According to Shepard (1985), “New Zealand’s trade with the Middle East and other Muslim areas has been a small but significant and growing proportion of total exports in the 1980s” (p. 198-199). The meat requires *Halal* certification before it can be exported to Muslim countries. FIANZ has been interested in providing *Halal* certification for meat exported to Muslim countries since 1979. The interest was strengthened by the fact that some Muslim countries such as Kuwait and United Arab Emirates indicated a desire for FIANZ to be their certifying agent in the mid 1980s. However, the New Zealand Meat Board has resisted this and preferred the

certification to be handled directly by the government of the importing countries or by local agents other than FIANZ.

According to Shepard (1985), “evidently since April, 1983 the New Zealand Meat Board has used the services of a company owned by a Muslim businessman in Wellington” (p. 206). New Zealand Meat Board resistance was based on “fear that FIANZ may overcharge for *Halal* certification, but FIANZ leaders insist that their only interests are to help New Zealand and to gain greater recognition for their organization” (Shepard, 1985, p. 207).

In the mid 1980s, Shepard (1985) reported that “FIANZ representatives have had discussions with meat board representatives” (p. 207) and this has led to FIANZ involvement in *Halal* certification. This development has given FIANZ a business opportunity (since 1984) to provide a *Halal* certification service, which then became its main economic activity. At present it is qualified to certify for the whole Muslim world and is the sole certifier for the United Arab Emirates, Saudi Arabia and Kuwait. It deals with 26 abattoirs that employ about 130 *Halal* slaughterers. Though FIANZ is seriously involved in *Halal* certification, it does not have a monopoly. There are other certifying agents such as New Zealand Islamic Meat Management, an independent Wellington-based company run by a Muslim of Egyptian origin. Iran makes its own separate arrangements with the meat producers (processors) (Shepard, 1985).

Besides the large number of Muslims in New Zealand involved in the *Halal* meat industry, some were involved in other professions as well. Between 1970s to 1980s, according to Shepard (1985) from his analysis of the census data 1981, “the majority of wage-earners appear to be blue-collar workers or small shopkeepers” (p. 181). According to Shepard (1985), there were also “a significant group of university-trained professionals and government employees [as well as] overseas students, including upper level secondary students, university undergraduates and graduate students, and some professionals in specialist courses” (p. 181-183). It seems that economic and educational opportunities were what brought most of them to New Zealand. Shepard (1985) estimated that, “in 1983 there were probably over three hundred such students in New Zealand... [and there were also] individuals and families connected with the Malaysian, Egyptian and Indonesian embassies in Wellington” (p. 183).

In May 1992, Immigration regulations were introduced based on a point-based system, that gave priority to skilled and educated people. A substantial number of professional Muslims have migrated under this system (Rahman, 2003). Immigration policy continues to be based on building up skill levels in the workforce and to addressing skill shortages (New Zealand Treasury, 2003).

As far as the economic involvement of Muslims in New Zealand is concerned, from the analysis of the census data 2001, of the total Muslim men (9162) in New Zealand 9.0 percent were self-employed people whose businesses operated at a loss or who reported that they had no income (Morant, 2006). In comparison, of the total men (1388316) in New Zealand only 3.8 per cent fell into this category and of the total women (1501221) in New Zealand only 5.7 (Statistics New Zealand, 2001). Of the total Muslim women (7614) nearly 15.9 per cent fell into this category (Statistics New Zealand, 2001). Most of the Muslim women were probably homemakers.

Of the total Muslim men 58.6 percent were blue collar workers, and 21.5 percent were white collar workers, earning \$30000 or more per annum. In comparison, of the total men in New Zealand 46.2 percent were blue collar workers, and 40.9 percent white collar workers (Statistics New Zealand, 2001). About 58.2 percent of the total Muslim women earned less than \$30000 per annum. Meanwhile, about 62.2 percent of the total women in New Zealand earned less than \$30000 per annum (Statistics New Zealand, 2001). Only about 9.5 percent of the total Muslim women in New Zealand were white collar workers. In comparison, about 20.3 percent of the total women in New Zealand were white collar workers (Statistics New Zealand, 2001). Please refer Table 5.1 and Table 5.2 for the figures discussed above.

**Table 5.1: Total Personal Incomes and Sex, Aged 15 Years and Over (Muslim Population, Census Usually Resident Population Count 2001)**

	Loss or Zero Income	\$1-\$10000	\$10001-\$20000	\$20001-\$30000	\$30001-\$40000	\$40001-\$50000	\$50001 & Over	Not Stated	Total
Male	828	2589	1572	1212	723	453	792	993	9162
Female	1212	2316	1338	777	357	174	195	1245	7614

Source: Statistics New Zealand 2001 (Census 2001)

**Table 5.2: Total Personal Incomes and Sex, Aged 15 Years and Over (General Population, Census Usually Resident Population Count 2001)**

	Loss or Zero Income	\$1-\$10000	\$10001-\$20000	\$20001-\$30000	\$30001-\$40000	\$40001-\$50000	\$50001 & Over	Not Stated	Total
Male	52266	227634	246615	214944	176406	114942	317808	140394	1388316
Female	85683	350277	392193	208536	135192	68304	107589	181686	1501221

Source: Statistics New Zealand (2001) (Census 2001)

As has been discussed above, most of the Muslims in New Zealand are immigrants who came to New Zealand for economic reason. Thus, it was not surprising to find that the economic aspect is a major influence on their EEB. As economic migrants most of them had to start from scratch, thus the economic aspect was their priority. In addition, as shown in Table 5.1 most of them belong to the lower and middle class income categories. They did not have a lot of money to start with. Thus, there was a high probability that their EEB stemmed substantially from their economic hardship.

### 5.3 Economic Values

According to Mings and Marlin (2000), “many economic systems are strongly influenced by the religious beliefs of their populations [perhaps] no religion on earth is having more of an impact on the economic lives of world’s citizens than the religion of Islam” (p. 77). Islam teaches that Muslims should behave according to Islamic economic values stated in the Qur’an, and waste is sinful and it is imperative to economize and be sufficient (Siddiqi, 2004) as luxurious lifestyles may lead to (Davis, 2004, p. 2):

arrogance, pomp, grandeur or moral laxity... [attitudes that] lead to extravagance and waste and result in unnecessary pressure on resources [hence] reducing societies' ability to satisfy the needs of all.

However, many people who profess to be Muslims do not live according to those Islamic values. For instance, they live extravagant lifestyles etc ... In this thesis, general statements about the beliefs or behaviour of Muslims should be taken as referring to conscientious belief in and adherence to Islamic ethics as explained in Chapters 3 and 4.

Muslims believe that global economic problem “does not lie in the weakness of growth rates of natural resources and their failure to keep up with the population growth rate but it lies in the failure to make ideal use of natural resources [as well as in] ingratitude for the blessing [attitude and] squandering the natural, mineral and animal resources” (Tashkiri, 2004, p. 17). On this matter, the Qur’an (14:34) revealed:

And He giveth you of all that ye ask for. But if ye count the favours of Allah, never ye be able to number them. Verily, man is given up to injustice and ingratitude.

Muslims strongly believe in the avoidance of waste revealed in the Qur’an (7:31, 2:183, respectively):

O Children of Adam! wear your beautiful apparel at every time and place of prayer: eat and drink: But waste not by excess, for Allah loveth not the wasters.

O ye who believe! Fasting is prescribed to you as it was prescribed to those before you, that ye may (learn) self-restraint.

They believe that by avoiding waste and keep their utilization only to their basic needs of life “will necessitate a human ecological balance to be maintained... [and] preserve price stability... and provide plenty for the sustenance of life” (Choudhury, 2004, p. 22).

The *Syari’ah* and *Sunnah* set ethics and values that are incorporated in explicit forms in everyday social and economic relationships (Reilly & Zangeneh, 1990). The economic behaviour of every Muslim is governed by Islamic ends and values. The Islamic stance on economic behaviour is very clear: a Muslim must strike a balance between the two extremes of ‘worldly benefit’ and the ‘Hereafter’ (Council of Muslim Theologians, 2004, p. 1):

Islam teaches that man's success lies neither in asceticism nor in materialism, that man should neither shun nor renounce material, nor be enslaved and motivated by it. Islam advocates a just balance between the two extremes. It adopts a balance between the spiritual development of an individual and his material needs. "Poverty can lead to kufr," warned the Holy Prophet (Sallallaahu Alayhi Wa Sallam) once, whilst also pronouncing in another tradition that materialism is to be the chief downfall of this ummah. This golden rule is clearly enunciated in the following verse of the Holy *Qur'an*. "O Lord! Grant us good in this world and good in the hereafter" "Good in this world" includes economic prosperity

acquired by honest and lawful means, and "good in this hereafter" means striking a balance in the world towards achieving it.

Islam prescribes moderation in all aspects of human life including consumption behaviour (Council of Muslim Theologians, 2004). Muslim consumers are obliged to purchase in moderation, though what level of consumerism is considered moderate is debated among different schools of Islamic economic thought. Nevertheless, Muslims around the world do have the idea of the level of moderation in consumption – roughly to purchase what one needs, within affordability, and useful for oneself and family; to make ideal use of what one has; always to be grateful for Allah’s blessings; and always avoid wasteful behaviour. This attitude towards consumption theoretically does away with the need for advertising and luxurious items, which exist as responses to consumerism. ‘Moderation in consumption’ is an important aspect in avoiding waste and in avoiding falling into ‘the demand for luxury goods.’ In addition, Muslims are taught about Islamic economic behaviour from as small matter as ‘eat when only you feel hungry and stop before you get too full’ to ‘do(s) and don’t(s) in war.’ Thus, Muslims are for the traditional ‘do-it-yourself repair and maintenance culture’ of New Zealand.

Muslims value the interests of society over self-interests. They believe, in accordance with Islamic economic values, that focusing solely on economic self-interest will decrease the economic prosperity of the whole community – which will in turn damage the individual interest regardless of how wealthy that individual is. If the economic prosperity of the community is decreased inevitably it will disturb an individual interest regardless of how wealthy that individual is. Thus, Muslims believe that the wellbeing of an individual member and of his or her community are interconnected. Muslims ought not to consume more than their needs because the excess belongs to other community members in need as prescribed in the concept of *zakat*<sup>2</sup> in Islamic economic system – that is the rich must give up a part of their possessions to the poor to meet a wide range of social responsibilities. *Zakat* explained in the Qur’an (2:177) as:

It is not righteousness that ye turn your faces towards east or west; but it is righteousness – to believe in Allah (SWT) and the Last Day, and the Angles, and the Book, and the Messengers; to spend of your substance, out of love for Him, for your kin, for orphans, for the needy, for the wayfarer, for those who ask, and for the ransom of slaves; to be steadfast in prayer, and practice regular

charity; to fulfil the contracts which ye have made; and to be firm and patient, in pain (or suffering) and adversity, and throughout all periods of panic. Such are the people of truth, the Allah-fearing.

Thus, since Muslims hold the economic values of non-waste behaviour, balance in 'worldly benefit' and the Hereafter, 'moderation in consumption,' and social interests rather than self-interests one would expect the EEB of New Zealand Muslim males to be influenced substantially by the economic aspect. Certainly they would be particularly concerned about price and cost effectiveness because Islam has put huge emphasis on economic responsibilities of Muslims and the consequences of wastage behaviour – they would be extra careful on their financial expenditures, and utilization of food or household items so not to waste.

#### **5.4 Role of Vendors**

Today, people are more and more dependent on supermarkets. Milk is not obtained directly from cows, and vegetables are not obtained directly from family gardens. As supermarkets supplanted family cattle and vegetable gardens solid waste disposal became more widespread because supermarket products like milk and vegetables come in packages. As for the organic waste, home composting is now making a modest comeback, but not enough to reduce the volume of organic waste that goes to landfill. Thus, the role of a supermarket is substantial in solid waste disposal as it supplies daily household products. It can help the EEB of consumers by making environmentally-friendly products the norm so that many people on limited budgets would be able to have a greener choice, and thus, perform EEB.

Since 1980s, New Zealand supermarkets put more 'green' products on the shelf such as ozone-friendly spray cans and refrigerators. Within three years of their introduction, in the late 1980s, ozone-friendly spray cans had displaced the ozone-depleting CFC spray cans. Their market victory was assisted by their being small, low-cost items, being no more expensive than the damaging cans they were replacing, and the government ban of those cans. In addition, since the government ban of CFC imports, the locally-made fridges are less damaging to the ozone layer.

Supermarkets in New Zealand like Pak 'N' Save stores provide grocery cartons for re-use as carry-home containers. They also have signs at the checkout

such as 'say no to plastic bags,' and in the North Island, charge for plastic shopping bags 10 to 15 cents each, and offer cheap (a dollar or so) reusable shopping bags. New Zealand supermarkets also sell products in plastic packaging and containers that can be reused and recycled. For example, two-thirds of all cans on supermarket shelves are made from steel that can be recycled. New Zealand supermarkets such as Pak 'N' Save and New World also sell calico bags, other non-plastic alternatives, and reusable bags made of fully recyclable Polypropylene. Customers are also encouraged to bring their own carry-bags from home when shopping at these supermarkets. Their checkout staffs are trained to ask customers whether they require carry-bags, and to pack things efficiently to minimise the number of bags dispensed.

However, from 1986, New Zealand supermarkets started to sell milk in cardboard and plastic containers. By 1993, 85 percent of milk was sold in disposable containers (Ministry for the Environment, 1997, Chapter 3). This does not help New Zealand to reduce disposal containers like cardboards and plastics although the plastic containers could be reused.

In 2004, the packaging and packaged goods industry, local and central government and the recycling operators of New Zealand have signed the New Zealand Packaging Accord 2004-2009. This was a voluntary initiative to cut down on wasteful packaging and reduce the proportion of packaging in New Zealand total waste stream. In addition, they were to save resources when they design, make and choose packaging and do their best to recover and reuse materials. Inevitably, products that ended up in supermarkets, grocery stores etc would be less packaged.

The retailers such as Foodstuffs, Progressive Enterprises and Warehouse have an Accord target to reduce plastic shopping bag consumption by 20% by June 2009 (The New Zealand Packaging Accord 2004-2009, 2008). Warehouse have been actively marketing reusable bags and offering consumers a 20 cent rebate if they make use of this bag when making a purchase at the Warehouse. Warehouse also encourages customers not to take a bag and mark their purchase with tape for security purposes instead.

In 26th July 2007, 646 New Zealand supermarkets joint 'Make a Difference' campaign to reduce the number of plastic bags used at their checkouts. The logo 'Make a Difference' reminds shoppers from the time they

pick up their shopping trolley through to when they check out that they can choose whether to take a plastic bag (The New Zealand Packaging Accord 2004-2009, 2008).

The foodstuff companies are to comply with the environmental policy in place, which is to minimise the negative environmental impacts of their business activities. One that related to waste reduction, apart from the attempt to discourage plastic bag use, is that waste recycling bins are provided at all stores. Recyclers specialising in these materials are contracted to collect them.

In addition, second hand shops and flea markets provide consumers with the opportunity to perform EEB such as pre-cycling. Buying at second hand shops, flea markets or farmers' markets can produce far less waste due to less packaging involved. Local produce such as fruit are also more available and cheaper in flea markets or farmer's markets than in the supermarkets. Friends of the Earth (2005, p. 4) reported that:

A study in Austria found that shoppers going to producer-consumer co-operative stores generated 75% less waste than those using supermarkets... A survey of stallholders at a farmers' market in Birmingham found that most of the stallholders thought that selling at a farmers' market reduced their waste, as they were not forced to 'grade out' produce, which they would have to if they sold to supermarkets.

The availability of second hand shops and flea markets with cheaper produce/products may be preferred by New Zealand Muslim males over the supermarkets. This tendency may have an indirect contribution to their EEB.

Thus, New Zealand Muslim males may be influenced by the economic aspect partly because supermarket green policy has encouraged them to perform EEB such as pre-cycling, recycling and reusing. In addition, the availability of second hand shops and flea markets provides venues and opportunities for the New Zealand Muslim males to perform EEB.

## **5.5 Conclusion**

Given that Muslims in New Zealand are economic migrants, it is not surprising if the finding of this research indicates that the pre-cycling, re-use and recycling behaviours are largely motivated by economic influences such as price and cost effectiveness of the products they purchased. Most of them were lower and middle class income earners (Table 5.1). Thus, of the three economic elements discussed

above their economic hardship for being economic migrants was predicted to have relatively high influence on the EEB of New Zealand Muslim males compared to the other economic elements.

However, the economic values they hold in respect of the environment and the role of vendors were not to be dismissed in calculating the influence on their EEB. They hold economic values as prescribed by Islam that wasteful behaviour is sinful. Thus, they were careful with their financial expenditures, and utilization of food or household items so not to waste. Meanwhile, vendors such as supermarkets adopted green policy (The New Zealand Packaging Accord 2004-2009, 2008) that encouraged the New Zealand Muslim males to perform EEB, and the availability of second hand shops and flea markets provides venues and opportunities for the New Zealand Muslim males to perform EEB.

Thus, if there was any economic influence on the EEB of the New Zealand Muslim males one would expect it to come substantially from their status as economic migrants, and the rest would be from the economic values they hold and the role of vendors.

Notes:

The English meaning of the Holy Qur'an used in this writing is quoted from a translation by Abdullah Yusuf Ali at the URL:

<http://www.islam101.com/quran/quranYusuf/quranYusuf.html> (24/10/02)

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<sup>1</sup> Rahman (2003) does not say what the Asian Muslims economic activities were.

<sup>2</sup> *Zakat* is quite similar to the tax system except that *zakat* is a moral and religious obligation, and tax is an economic obligation. The action of non-Muslim governments such as Singapore to collect *zakat* on behalf of the Muslim authorities is seen by Muslims as fulfilling economic and political responsibilities towards its Muslim minority not as enforcing a religious obligation.

## **CHAPTER 6**

### **POLITICAL EXPERIENCE OF MUSLIMS IN NEW ZEALAND**

#### **6.1 Introduction**

The purpose of this chapter is to discuss the political elements that may influence the environmentally ethical behaviour (EEB) of the Muslims in New Zealand. The role of this Chapter is to draw an additional hypothesis about the influence of the political aspect and to explain the quantitative and qualitative results of the political influence. This chapter focuses on the impact of environmental policies, laws and regulations, and the role of New Zealand local (including regional) governments; the role of politicians and political parties; the role of environmental non-governmental organizations (NGOs); and the state of Muslims involvement in New Zealand politics.

#### **6.2 Environmental Policies, Laws and Regulations, and the Role of New Zealand Local Government**

Between the 1950s and the 1990s several acts were enacted relevant to solid waste management: Health Act 1956, Explosives Act 1957, Local Government Act 1974, Dangerous Goods Act 1974, Litter Act 1979, Toxic Substances Act 1979, Pesticides Act 1979, Transport Amendment Act 1989, Building Act 1991, Resource Management Act 1991, Biosecurity Act 1993, and Historic Places Act 1993. However, only Health Act 1956, Local Government Act 1974 and 2002, Litter Act 1979, and Resource Management Act 1991 are relevantly related to domestic waste studied by the present study. In addition, the 2002 New Zealand Waste Strategy (NZWS) is also relevant.

The Health Act 1956 empowers but does not require territorial authorities to provide works for the collection and disposal of refuse. It specifically identifies certain waste management practices as nuisances (Section 29) and offensive trades (Third Schedule) (Southland Regional Council, 1996).

Under the Health Act 1956 the Ministry of Health is responsible for assessing, identifying, and investigating the public health risks associated with solid waste management. It is also responsible for conducting surveillance and evaluation of the public health performance of solid waste management, developing contingency plans and response capability to deal with a solid waste

management contamination/hazard incident, and maintaining an information service relating to solid waste management (Southland Regional Council, 1996).

The Local Government Act 1974 administered by the Department of Internal Affairs requires territorial authorities to provide disposal facilities for domestic waste, and gives them the discretion to provide waste collection and other waste initiatives (Southland Regional Council, 1996). Later, the Local Government Act 2002 requires a district waste management plan to be in place by 30 June 2005 (Taranaki Regional Council, 2004).

The Litter Act 1979 also administered by the Department of Internal Affairs requires territorial authorities to provide litter receptacles in public places (Southland Regional Council, 1996).

The Resource Management Act 1991 requires every regional council to prepare a Regional Policy Statement which gives an overview of the main resource management issues including domestic/household solid waste management in the region and how they are to be dealt with (Southland Regional Council, 1996). Sections 15 and 30 of the Act identify functions of regional councils with regard to controlling the discharge of contaminants into the environment (Southland Regional Council, 1996).

The 2002 NZWS sets a national framework and objectives for managing and minimising waste. The NZWS is not a statutory document, thus it relies on the voluntary actions of central and local government, industry associations, businesses, Maori and community and voluntary sectors to implement the Strategy's programmes and achieve the national targets. The NZWS emphasises minimising waste and managing it better. The NZWS is considered an evolving document where many current policies and proposals require further consideration and consultation from time to time. The review of the NZWS document and its progress by the Ministry for the Environment started in 2003, and the Regional Waste Management Forum will review the progress and targets sections of this document every five years starting in 2009 (Taranaki Regional Council, 2004). The NZWS strong emphasis on waste minimisation encourages policies that drive resource efficiency and waste reduction. Such policies include (Taranaki Regional Council, 2004, p. 1):

1. Green purchasing – favouring products and services that minimise their environmental effects throughout production, use and disposal. Buying

environmentally preferable products and services increases the size of the market for them, and encourages other producers to improve products and processes in order to compete.

2. Waste minimisation programmes – assessing an organization's procedures to develop waste to reduce the volume of waste the organization produces.
3. Triple Bottom Line Reporting – accounting that measures an organisation's social, environmental and financial performance, informing better waste minimisation and management decisions.
4. Extended Producer Responsibility (EPR) – encouraging producers and importers to consider the entire lifecycle of their products preventing wastes at source, practising design for the environment and setting up take-back and recycling schemes.
5. Design for the Environment – covers elements of product design that reduce waste and other environmental effects.
6. Cleaner Production programmes – focuses on production processes rather than on the product itself, aiming to improve resource efficiency and reduce waste generated during production.

Under the NZWS waste policy a hierarchy is adopted in all regional/district solid waste management plans: reducing the amount of waste produced, reusing waste, recycling waste, recovering resources from waste, and appropriately disposing of residual wastes (Manawatu-Wanganui Regional Council, 2006).

Local governments' administration and collection procedures of household waste are centred on how households should put out their household waste for collection (e.g., the maintenance of receptacles, approved receptacles to be used, types of recyclables items accepted, timing to put the waste out for collection, etc.). A breach of these procedures results in the waste not being collected. A breach may also be treated by the council as a deposit of litter under the Litter Act 1979.

However, while EEB such as recycling and composting are encouraged it has not been required due to the location and type of refuse disposal facility not always being practical (Southland Regional Council, 1996). In addition, although environmental policies such as Extended Producer Responsibility (EPR), cleaner production (CP), etc. are currently cited in the solid waste management plans of

most regional/district councils in New Zealand, many do not implement them satisfactorily (Ministry for the Environment, 1997, Chapter 3, p. 10).

Environmental policies, laws and regulations alone are hardly effective without the role of local governments – New Zealand Muslims, on their own, may find such policies, laws and regulations hard to relate with their EEB. This is probably because to be aware of such policies, laws and regulations would take a proper study, or a lawyer, a politician or a person (such as a farmer) who is involved in dealing with such policies, laws and regulations. Since Muslims in New Zealand are rarely a lawyer or a politician, are not heavily involved in politics, and are hardly a farmer their knowledge and awareness concerning environmental policies, laws and regulations are rather limited. In addition, the state of involvement of Muslims in New Zealand politics has been minimal – their political activities are confined within their own community and they tend to avoid political issues including those that relate to the environment.

Thus, it is hypothesised that environmental policies, laws and regulations would not be a big influence on their EEB. Nonetheless, local governments had put much planning and implementation efforts into managing New Zealand household solid waste. Thus, should there be any political influence on the EEB of Muslims in New Zealand the source of influence would be the role played by the local governments relative to other elements of the political aspect.

### **6.3 The Role of Politicians and Political Parties**

Political parties started to develop in New Zealand, in particular the Labour Party which was formed in 1916 (New Zealand Labour, 2004). However, “most historians regard the Liberal Party, which began its rule in 1891, as the first real party in New Zealand politics” (New Zealand Labour, 2004, p. 1). Labour won an election for the first time in 1935. The Liberal Party then merged with the Reform Party to form the National Party in 1936 (National, 2004). At this stage, there was nothing in the parties’ manifesto about environmental protection. The main concerns of the Labour Party and the National Party were parliamentary seats and the economy, respectively. For example, the Labour Party was “formed for the purpose of electing members to Parliament to represent Labour interests” (Brown, 2008, p. 3), and the interest of the National Party was largely economic freedom (Nestor, 2008).

The first-past-the-post electoral system made it difficult for smaller parties to realistically compete with either of the two large ones. In 1978, this situation triggered some anger among the public, because the main alternative party, Social Credit received 16% of the vote but only one Parliamentary seat out of 92 (in 1981, it won 21% and two seats). In response, the Labour government established a Royal Commission on the Electoral System to propose a reform. It delivered its results in 1986, recommending the Mixed Member Proportional (MMP) system used by Germany (King, 2003). Although both Labour and National did not support the recommendation, they were compelled to commit to holding a referendum on this proposal and, MMP was adopted for the 1996 election (Tanahaka.de, 2002).

Over the years, a number of other parties developed. Among the main ones that made their way to Parliament – thanks to MMP – is the Green Party (Green, 2004) formed in 1972 as the Values Party at Victoria University Wellington, which merged with a number of other environmentalist organizations in 1990 to form the Green Party of today. It focuses primarily on environmental issues – climate change, peak oil, genetically engineered organisms, sustainability, taxing the indirect costs of pollution, etc as well as on issues of social justice and world peace. Locally, the party was behind various environmental campaigns including recycling and reuse of waste (Green, 2004).

The party's politicians, Jeanette Fitzsimons, the late Rod Donald, Phillida Bunkle (who took their seats in Parliament in 1996), Ian Ewen-Street, Sue Bradford, Sue Kedgely, Nandor Tanczos, Keith Locke (the party's MPs of 1999) with over 20 other Green representatives at local government level, including the Mayor of Dunedin, Sukhi Turner (Green, 2004) were active in environmental reform activities. In 1999 the Green Party's policy themes were safe food (including opposition to genetic engineering), nature conservation and strong communities (Green, 2004). The Green Party petition for a Royal Commission of Inquiry into GE was well supported (Green, 2004), and a \$15 million 'green' package was negotiated in the first Labour/Alliance budget which included spending on organics, smoking cessation programmes, energy efficiency, legal aid and other assistance for environmental organisations, biosecurity, complementary health planning and natural resource accounts (Green, 2004).

The Royal Commission of Inquiry into Genetic Modification began hearings in October 2000. The first Green sponsored statute (the Energy Efficiency and Conservation Act) which was first introduced as a private members' bill by Jeanette Fitzsimons in 1998, gained majority support and was passed (Green, 2004).

Other political parties<sup>1</sup> were also formed in New Zealand but the Green Party was the only one that had environmental issues as its top priority in its policy.

Since 1935, government has alternated between the two major parties – Labour and National, though all governments since 1996 have required some form of support from one or more of the minor parties. And most of the political issues that seem unable to be resolved are disputes about controls of natural resources such as land, seabed and foreshore and so forth between Pakeha and Maori. However, nobody can be certain that even if Maori had been in power after 1840 that the New Zealand environment would be safe from destruction today. Nobody can be sure that they would not be as 'bad' as Pakeha if not worse in their treatment of the environment. In addition, there was no significant resistance by Maori to environmental destruction (even when there was some, the motive was largely the same as Pakeha – economic) before 1840s towards Church Missionary Society (CMS) occupation of lands and traders of flax and kauri timber, in fact, Maori were a significant part of the activities. Significant resistance by Maori to Pakeha occupation emerged only in the 1860s (the land wars). Before that time, the disputes were between the different Maori tribes including competition to participate in the new economy brought in by Pakeha. Furthermore, elsewhere, many of the governments of former colonies of European powers and even countries that have never been politically colonized (for example, Japan and Thailand) have adopted the European or Western style of development that causes large scale environmental destruction in a very short period of time. And this fact is true for Muslim countries around the world as well.

The establishment of political parties (since approximately 1891) has been said to facilitate executive dominance by means of the cabinet system, and on the other hand to facilitate democratic control of the executive. The political parties are by nature "office-seeking and policy-implementing organizations which present their policies to the electorate in general elections and then, under the

theory of the mandate, implement these when elected to office” (Keith, 1993, p. 2-3).

Under MMP, “decisions are being taken in a more measured way, with greater input from a wider range of interests” (Boston et al., 2003, p. 20). However, certain issues were not to be compromised by the parties in coalition. For instance, in May 2002, “the Greens declared that it would not support any government ... that failed to extend the moratorium on the release of genetically modified organisms when it expired in October 2003” (Boston et al., 2003, p. 20). This resulted in “a negative impact on the aggregate level of the centre-left vote” (Boston et al., 2003, p. 20).

According to Dann (2002), in New Zealand “twentieth-century modernity” (p. 285) has achieved “the social democratic form of the state” (p. 285), where the New Zealand government is regulating and managing economic production and consumption via state-owned industries and companies,<sup>2</sup> to ensure “fair distribution of the fruits of economic activity” (p. 285). In New Zealand, the management of the national economy which was left to ‘the market’ (including non-democratic international institutes such as World Trade Organisation who determined or set by default consumer regulatory standards and guidelines) has been brought back into the hands of New Zealand people. Through regulatory agencies such as Environmental Risk Management Authority and Australia New Zealand Food Authority, for instance, the public can submit their views though the degree of response from the agencies is in question. Dann (2002) claimed that these agencies base their decisions on “old paradigm scientific advice and privilege economic considerations over environmental and ethical concerns” (p. 285)

The concern of the politicians and the major political parties (Labour and National) were more towards popular issues to win votes during elections although throughout New Zealand’s political history environmental conservation has received more support from Labour governments than under National governments. The only political party which had environmental issues as its main concern was the Green Party (see also section 6.2.2). However, the party was a ‘minor’ party (Green, 2004). Thus, presumably, the impact of its environmental policies on the public including in influencing the EEB of New Zealand Muslim males was fairly small.

#### 6.4 The Role of Environmental NGOs

The influence of European colonial attitudes towards New Zealand was a dominant influence on behaviour; from the Treaty of Waitangi in 1840 until the formation of New Zealand government in 1850s the New Zealand public came to perceive the environment as the source of wealth. Thus, it has been exploited rapidly throughout the years.

However, in the late 1960s, a major change in attitude and behaviour towards the environment took place. An important change in New Zealand environmental history was the growing public awareness of the quality of the environment, and this has often put considerable pressure on New Zealand governments. The pressures led to the establishment of many environmental policies, laws and regulations, and finally a comprehensive environmental regulation – the Resource Management Act (1991).

The emergence of widespread environmental concern in New Zealand is usually traced to opposition to the Manapouri hydro-electric project culminating in the success of the “Save Manapouri” campaign that presented a petition to Parliament opposing the raising of the Lake by up to 30 metres; the petition was signed by almost 10% of the population (Wheen, 2002). Since then, New Zealanders have developed many mechanisms to promote environmental ethical values through a network of environmental movements such as the Royal Forest and Bird Protection Society, Biodynamic Association of New Zealand, Friends of the Earth, and Royal Society of New Zealand.

According to Wapner (2002), environmental NGOs are no longer a marginal phenomenon that is “sociologically interesting but politically irrelevant” (p. 37). Wapner (2002, p. 37) said:

Almost everyone, except the most hardened political realist, acknowledges that NGOs influence world political affairs... almost all states, international governmental organizations (IGOs) and multilateral institutions such as the World Bank either worry about pressure from NGOs or look to them as partners in governance.

Environmental NGOs are political organizations today more than before as well as “cultural agents that shape the way vast numbers of people understand themselves and the world around them” (Wapner, 2002, p. 38).

Environmental NGOs in New Zealand have in no small way been influencing the public and national political agenda as early as the 1860s, from the acclimatization societies through to Greenpeace today. The NGOs offer a timely challenge to traditional notions of state-centred policy-making on the environment. The NGOs also function as a force that critically monitors the social rationality of the policymaking process and of policies themselves (Wapner, 2002). In various cases environmental NGOs in New Zealand influence the public and the government, ranging from campaigning in a purely reactive capacity at the edge of political activity, to the adoption of proactive stances that have allowed environmental NGOs to dictate the pace of change to the government, and to integrate themselves fully in the various stages of policy response – from accumulation of data to the actual negotiation and implementation process. According to Princen and Finger (1994), the key role of environmental NGOs in politics illustrates how NGOs act both as independent bargainers and as agents of social learning, to link biophysical conditions to the political realm at both the local and global levels.

The early environmental NGOs like acclimatization societies (as early as in the 1860s) had no environmental motives; rather their motives were economic and sporting. However, starting from the late 1880s, most cases of environmental protection in New Zealand were championed by the public rather than the government – there were calls for environmental protection and preservation from both the scientific elite and popular environmental groups. Public concern about the environment was expressed through NGOs. For example, in 1888 the Dunedin and Suburban Reserves Conservation Society was established to improve and preserve the natural attractions of that city. Between 1891 and 1899 other societies took similar steps, such as in Taranaki, Nelson, Wellington, Christchurch, Auckland, and Birkenhead. Most chose to use the name Scenery Preservation Society. The members of these NGOs “were mainly middle-class males – lawyers, politicians at national and local level, newspaper men, and businessmen – while the most active members of the groups were typically scientists or men with surveying experience” (Star & Lochhead, 2002, p. 124). Star and Lochhead (2002, p. 126) further observed:

The significance of the scenery preservation societies went beyond campaigns to reserve land. They sought effective management of reserves at a time when there was scarcely any political awareness

of the need. They drew attention to damage caused by vandalism, browsing animals, weed invasion, and fire. The Taranaki society undertook fencing of reserves, and a campaign launched by it in 1898 resulted in the Noxious Weeds Act 1901. This group also successfully lobbied for a Board of Conservators for Egmont Reserve. Appointed in 1892, it set a precedent for Tongariro and later national parks, while curators were also appointed for the island sanctuaries.

Perhaps the greatest achievement of these early environmental NGOs was the Scenery Preservation Act 1903, according to Star and Lochhead (2002), “which in turn provided the groundwork for the current system of parks and reserves” (p. 127) such as Waitomo Caves, and Flagstaff Hill (Star & Lochhead, 2002).

A few years later more environmental NGOs were established. Some of the most popular ones were the Christchurch Beautifying Association and the short-lived New Zealand Forest and Bird Protection Society (1914 to about 1918). Others are, the Native Bird Protection Society (1923), now the Royal Forest and Bird Protection Society – the largest NGO working on forest conservation (Rainforestweb.org, 2004) and with 40,000 members in 56 branches throughout the country it is most probably the largest NGO in New Zealand (The Royal Forest and Bird Protection Society of New Zealand, 2004), and the New Zealand Forestry League (1916). These groups “developed network [with] locally based conservation groups, such as the Nelson Bush and Bird Society founded by Perrine Moncrieff in 1928, and the tramping clubs that emerged in the 1920s with the growth of outdoor recreation” (Star & Lochhead, 2002, p. 130).

The NGOs did to some extent influence government policy. They actively scrutinized and criticized government agencies particularly on the need for active management. Relentless pressures were put forth “through the press, direct political lobbying, and the groups’ own publications” (Star & Lochhead, 2002, p. 131). These efforts have “ensured that existing laws were adequately implemented and improved” (Star & Lochhead, 2002, p. 131). Along with the Royal Society which was “first established in 1867, representing scientists and fostering scientific endeavour in New Zealand” (Royal Society of New Zealand, 2004, p. 1), “the groups helped to shape policy on the control of browsing animals and of erosion and flooding... [as well as] the creation of an administrative structure for protection of native flora and fauna” (Star & Lochhead, 2002, p. 131).

In 1919, the New Zealand Forestry League (formed in 1916)<sup>3</sup> “secured the establishment of an independent Forestry Branch, which, initially at least, seemed to offer better hope of protection than Lands or Internal Affairs” (Star & Lochhead, 2002, p. 131). From the 1920s to 1987, though it was a long struggle, the Royal Forest and Bird Protection Society, the New Zealand Forestry League, locally based conservation groups, such as the Nelson Bush and Bird Society (both founded in 1928), and the tramping clubs which emerged in the 1920s, supported by the Royal Society of New Zealand campaigned for ‘unity of control’ by one governmental body over forest conservation. The groups finally achieved this aim with the establishment of the Department of Conservation in 1987 (Star & Lochhead, 2002).

Another achievement of these 1920s groups, particularly the Native Bird Protection Society, New Zealand Forestry League, the Bird Society, and the Royal Society was a campaign against the introduction of foreign and indigenous species that had not formerly been present in the reserve areas, which resulted in “a successful campaign in 1927 to prevent transfer of South Island robins to Kapiti” (Star & Lochhead, 2002, p. 131).

The substantial increase in the use of artificial chemical fertilizers and later pesticides caused some reactions from NGOs as well. The Food Reform Society was formed in 1922. The society promoted composting methods, and formed the first Humic Compost Club in Auckland in 1941. In 1943 the Food Reform Society and Humic Compost Club joined forces with a new name, Soil and Health Association of New Zealand. They managed to influence the Auckland City Council to operate a municipal compost scheme in 1950, though in the 1960s it was closed and was not revived until the 1990s “possibly because of contamination by inorganic materials” (Brooking et al., 2002, p. 179). They also managed to obtain support from “the New Zealand branch of the British Medical Association and the Inter-Departmental Committee on Utilization of Organic Waste... [and] Official recognition came ... [from] the Department of Agriculture and from the Royal Commission on the Sheep-Farming Industry” (Brooking et al., 2002, p. 180). By “1956, fifteen branches were established throughout New Zealand with 4000 members... A report in 1984 noted ‘there were no more than 70’ organic farmers, as opposed to home gardeners” (Brooking et al., 2002, p. 179).

In 1937, a hunter organization, Ducks Unlimited was established in North America (Ducks Unlimited, 2004a) and it became a global organization. Its branch in New Zealand like its branches elsewhere, is also dedicated to the conservation of New Zealand wetlands. Its activities include wetland restoration and development, conservation programmes for threatened waterfowl, advocacy and education of wetland values. It owns over 445.15 hectares (approximately 4.45 square kilometres) of wetland in Otago and Wairarapa, and helped preserve and restore wetland in Manawatu, Bay of Plenty, Waikato and Northland regions (Ducks Unlimited, 2004b). Another organization was the Biodynamic Association of New Zealand in 1939. They managed to get support from Ben Robert, Minister of Agriculture. “By 1985 they had 500 members, including farmers, orchardists, and viticulturists” (Brooking et al., 2002, p. 179).

Another successful effort achieved by NGOs in protection of environmental resources was the preservation of 9,166.23 hectares (about 91.66 square kilometres) of Waipoua kauri forest. In 1908, the forest in Northland was surveyed by botanist Leonard Cockayne, who suggested that because of its scientific and scenic values it should become a national park. But it was not until the 1930s that the suggestion was seriously taken into action by the New Zealand public. After several years of public pressure, from the original Maori owners of Waipoua in the 1930s, Auckland Institute and Museum in 1932, a Waipoua Forest Preservation Committee in 1946, a prominent zoologist Professor Valentine Chapman and Mc Gregor, the Whangarei Progressive Society, and the Whangarei branch of the Forest and Bird Protection Society, a petition was launched in 1947 calling for the entire forest to be preserved as a national park. The Whangarei Progressive Society and the Whangarei branch of the Forest and Bird Protection Society presented 50,000 signatures to Parliament after it had circulated nationally through its branches. Additional scientific support came from the hosting of the Pacific Science Congress in Auckland in 1949. Finally, “in 1952 Parliament gazetted the whole of Waipoua forest as a sanctuary under the Forest Act 1949, which left it under NZFS jurisdiction but set aside for preservation” (Roche, 2002, p. 191). It is worthy of note that the tactics used in this campaign were copied by the 1970s and 1980s environmental movements in their challenges to NZFS.

According to Wheen (2002), “The 1960s was a period of rapid growth in levels of public concern for environment and conservation throughout the Western

world” (p. 265). Public pressure by conservationists such as the ‘Save the Whales’ campaign resulted in “The Marine Reserves Act 1971... and the Marine Mammals Protection Act 1978” (Wheen, 2002, p. 266). Public pressure also influenced the government to adopt ‘balanced use’ as its management goal in managing the Crown’s forests; water and soil; land conservation; indigenous flora and fauna; recreation; education; historic, cultural, scenic, aesthetic, amenity, and scientific values of environmental elements; and all other relevant considerations, along with production (Wheen, 2002).

In 1977 and 1980, a mounting concern for the natural environment by the Native Forests Action Council (formed in the early 1970s, it later changed its name to the Maruia Society in 1988, and in 1999 to the Ecologic Foundation<sup>4</sup> (Hager & Burton, 2000; The Ecologic Foundation, 2004), and the Friends of the Earth as well as the public led to “the emphasis on natural, intrinsic, and scientific values ... in the reserves and national parks legislation” (Wheen, 2002, p. 266).

In 1981, pressure from environmentalists to conserve rivers and lakes of national significance led to the introduction of water conservation scheme by Parliament “to preserve the natural, wild, scenic, recreational, wildlife, or scientific features of water bodies, and the Motu became the first river for which a water conservation order was issued” (Wheen, 2002, p. 266).

Today, environmental policies and laws in New Zealand are often the result of lobbying by NGOs. There are several active NGOs in New Zealand today such as the Royal Society of New Zealand (Ministry for the Environment, 1997), and the Royal Forest and Bird Protection Society. There are also global organization such as Greenpeace, which was established in 1971, in Vancouver, Canada (Greenpeace, 2004). There is also the Federated Mountain Club which was formed in 1931.

Some of the organizations are affiliates to the Environmental and Conservation Organisations, founded in 1971 as CoEnCo, which then changed its name to Environmental and Conservation Organisations or ECO in 1976. It comprises 70 organisations at international, national, and local levels including Greenpeace and Friends of the Earth, Federated Mountain Clubs of New Zealand and the National Council of Women (formed in 1896), as well as Kapiti Environmental Action, and Save the Otago Peninsula (Environmental and

Conservation Organisations, 2004; National Council of Women of New Zealand, 2004).

Given the large account of environmental NGOs' role in environmental protection and conservation activities in New Zealand throughout the years, one would expect that the influence of such NGOs on the EEB of New Zealand Muslim males was huge.

## **6.5 The State of Muslim's Involvement in New Zealand Politics**

According to Shepard (2002, p. 243):

Few Muslims have participated prominently in politics, though some have attained high positions in their professions ... one Muslim has been president of the Ethnic Council of New Zealand for several years and came close to winning a seat in Parliament as a representative of the Labour party in 1999. Two other Muslims stood for one of the smaller parties."

The only Muslim MP is Ashraf Choudhary, a Pakistan-born (15 February 1949) migrant from the Punjab province in 1976 to New Zealand. He was an Associate Professor in Massey University specializing in agricultural engineering and land cultivation who until 2002, when he was elected to Parliament as a Labour list MP. Since entering Parliament, Choudhary has served on the Primary Production, Local Government and Environment, and Education and Science select committees (Labour, 2004). He was an Associate Professor in Massey University specializing in agricultural engineering and land cultivation. He was a founding member of the Federation of Islamic Associations of New Zealand (FIANZ). He worked with the New Zealand Federation of Ethnic Councils as its president, and was awarded a Queen's Service Order (QSO) for his community work in 2001 (Labour, 2004). He was a president and founding member of the Ethnic Council of Manawatu, former chairperson of Manawatu-Wanganui Mid-Central Health Ethics, former member of Ministerial Advisory Group on Immigration, and Justice of the Peace. He was also chairperson of Palmerston North Labour Party (Labour, 2004).

Most of Muslims' political activities in New Zealand are confined within their own community on issues such as the management of mosques, Islamic law (*Syari'ah*) in the community, the establishment and management of Muslim Associations, *Halal* meat certification issue and so forth. In this sense, their

political activities started in the late 1970s. The years 1977 to 1980 saw major Muslim organisational developments at both local and national levels. These groups tend to avoid involvement in political issues but concentrate their activities on religious issues such as to strengthen Qur'anic and *Sunnah* teaching among Muslims and to reach non-Muslims (Shepard, 2002), particularly to explain or present the true Islamic faith, and to educate non-Muslims about Islam and Muslims. Muslim Associations in New Zealand for instance, have organised annual 'Islam Awareness Week Programme' having different themes every year.

There were many local organisations formed in the Muslim community in New Zealand but none was related to the environment. The first local organisation was the New Zealand Muslim Association, established in 1950 in Auckland. The first members, a few Gujerati families, were joined by a few families from Turkey and the Balkans and later, in the 1960s, by Fijian Indians. In 1966 the International Muslim Association of New Zealand (IMAN) was established in Wellington (Shepard, 2002).

In the mid 1970s the Anjuman Himayat al-Islam, a mainly Fijian group, was formed. Meanwhile, the New Zealand Council of the World Muslim Congress was also formed, focusing mainly on publicising Muslim social and international political concerns. In 1976, the Anjuman Himayat al-Islam and the New Zealand Muslim Association merged and formed a new New Zealand Muslim Association. In 1977, the Canterbury Muslim Association was established in Christchurch. And in 1980, the Muslim community of Hamilton founded the Waikato-Bay of Plenty Muslim Association. Also, the Muslim community of Palmerston North formed the Manawatu Muslim Association in the same year. In 1989, the South Auckland Muslim Association became a separate association. In 1995, Otago Muslim Association was formed. These associations provided for the main religious services, including regular *salat* (prayer) and prayers and activities for *Ramadhan* and the main festivals, as well as basic religious teaching, Arabic instruction and various social activities. Some have also organised the provision of *Halal* food (Shepard, 2002).

At the national level, the first to be established was the Federation of Islamic Associations of New Zealand (in 1979), mainly to coordinate the activities of the individual associations, and to regulate contacts between New Zealand Muslims and Muslims abroad, in matters such as the solicitation of donations and

representation at international gatherings. Its objectives are (Federation of Islamic Associations of New Zealand [FIANZ], 2004):

To establish and maintain the highest standard of Islamic practice in accordance with the teaching of the Holy Qur'an and Sunnah. To undertake da'wa, education, welfare, and other Islamic activities. To strengthen Islamic unity and assist in the development of the Muslim community.

According to Shepard (2002, p. 244) FIANZ also:

assists local associations in fundraising, arranges visits by overseas speakers, distributes books, videos and other literature, and holds Qur'an recitation competitions. It has a committee to determine the dates of Eids... It is concerned to publicise Muslim viewpoints to the wider public on issues specifically concerning Muslims... it avoids comment on other political issues, however, as do the local associations... In 1990 FIANZ... created a business entity called AMANA Corporation with the goal of generating revenue for the Muslim community and making FIANZ financially self-sufficient.

There are also Muslim student associations at the universities and polytechnics. A nation-wide university students' organisation was established in 1997, which became the Muslim Students and Youth Organisation of New Zealand at the end of 1999. "There is also a New Zealand Muslim Sports Association, affiliated to FIANZ, which raised money to send a soccer team to Fiji in 1999 for a five-nations Muslim tournament" (Shepard, 2002, p. 244). Both local and national associations are involved in "trans-national organisations such as Muslim World League, the World Assembly of Muslim Youth, and the Regional Islamic Da'wah Council of South East Asia and the Pacific (RISEAP)" (Shepard, 2002, 244).

There is also a movement called Tabligh. Its main concern is "to recall Muslims to regular practice of the major obligations of Islam, such as *salat*, and it has tended to avoid involvement in political issues" (Shepard, 2002, p. 245). The movement holds regular local meetings, and has volunteer groups travelling within a country and internationally to spread their message. It is active in New Zealand. It holds annual national gathering (*ijtima*) since 1979 and arranges meetings at national and regional levels (Shepard, 2002). There is also a women's association, the Islamic Women's Council of New Zealand (IWCNZ), formed in 1991.

Although many Islamic organisations were established at local and national levels as mentioned earlier, none of them was set up for environmental purposes. However, IWCNZ did organise its annual conference having the environment as its specific theme in April, 2004, at Zayed College, Auckland. Many papers on environmental topics were presented. There were also exhibitions and workshops. Discussions were centred on bioethical issues such as Islamic spirituality in relation to the environment. Islamic views on genetic engineering, cloning, consumer society, cleanliness, green Islam, and domestic waste reduction were also discussed. Other related issues discussed included health issues such as diabetes, heart disease, cancer, diet, junk food, and breathing techniques. Other issues discussed were Islamic parenting, and Islamic history to solve current problems in Islamic community with emphasis on the rights of individuals.

Generally Muslims in New Zealand are not actively involved in national politics – at least not as much as in the social and economic aspects. As Muslims in a non-Muslim country, they tend to stay away from national political issues. The reason why Muslims in New Zealand largely avoid involvement in political issues may be because politics is commonly associated with power, and they have less interest in political power than in economic and social success. Most of them are immigrants who migrated to New Zealand for a better economic life.

This passive approach on national political issues is best illustrated by FIANZ, which stays away from any national political issues as much as possible, though this is not its formal policy. FIANZ officially says that it is contributing considerably in every area including politics. The most prominent political involvement by Muslims is by Ashraf Choudhary, the first Muslim MP. Perhaps the most active involvement by the Muslim community in national political issues was when the Prostitution Reform Bill 2003 and Civil Union Bill 2004 were discussed. Many Muslims in New Zealand very much wanted the Muslim MP to represent their views on national political issues but instead he abstained from voting on both these Bills. He was the only MP who abstained from voting. The Prostitution Bill was passed by 60-59 votes. If he had voted against the change, it would have failed, and some people (including some prominent members of the Muslim community) blame him for the bill's success. The reason for his abstention was not accepted by many Muslims. According to Goodenough (2003), "he [Choudhary] felt caught between his inability as a Muslim to support the bill,

and his view that some aspects of the bill were worth supporting. He felt abstention was thus the right decision” (p. 1). There were also some suggestions that he faced pressure from his party as it turned out that “the bill drew more of its support inside parliament from Labour and the Green Party ... Under New Zealand’s ‘mixed member proportional’ electoral system he owes his seat to his position on a party list, rather than the votes of a constituency electorate” (Goodenough, 2003, p. 1). However, it is interesting to note Rankin’s (1998, p. 2) views rightly or wrongly on this matter:

political parties are *vehicles* for getting capable but not necessarily famous people into Parliament. They [political parties] are not the employers or owners of the MPs that ride into Parliament in the vehicles [of] the sponsor. In a democratic parliament, MPs - all MPs - are individually accountable to the electorate,<sup>5</sup> not to the party ... Nevertheless MPs do, on the whole, act along corporate party lines. And it is important for political stability that they should. Indeed, they must if they wish to be re-elected with the support of the party whose vehicle they used last time. While parties provide stability and democracy, excessively tight party discipline can diminish both, leading to contrived caucus majorities, and to severe fractures when the pressure of trying to maintain such contrived unity finally gives way.

Many Muslims expressed their disappointments at Choudhary’s decision to abstain on the issue. Many felt that as a Muslim he should have voted ‘no’. Moreover, he took his oath on the Qur’an when he was sworn in as a new Parliamentary member in 2002. The Qur’an says clearly that prostitution is one of the abominable sins and not acceptable under any circumstances. Muslims in New Zealand do regard Choudhary as their representative in Parliament, but not all of his views are shared by all Muslims in New Zealand (Goodenough, 2003).

Not only are Muslims’ political activities confined within their own community but they also tend to avoid political issues including those that relate to the environment. Given that the state of involvement of Muslims in New Zealand politics has been minimal, the influence of political aspect on the EEB of Muslim males was expected to be fairly small.

## **6.6 Conclusion**

Of the many political elements discussed above local government and environmental NGOs were predicted to have relatively high influence on the EEB of New Zealand Muslim males compared to the other political elements. The

notable efforts by the local governments on solid waste management and the large account of NGOs role in environmental protection and conservation in New Zealand were seen as the biggest political contributing elements in influencing the EEB of the participants.

Other political elements discussed (environmental policies, laws, and regulations; politicians and political parties; and the political involvement of Muslims in New Zealand) were not predicted to have a big influence on the EEB of the respondents. The reasons, respectively, are that the environmental policies, laws and regulations cannot be easily linked to the EEB of the participants without a proper study, that the main concern of major political parties and politicians has not been on environmental issues, and that the Muslims tend to avoid political issues including those that relate to the environment.

Thus, if there was any political influence on the EEB of the New Zealand Muslim males one would expect to come from the local governments and environmental NGOs.

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<sup>1</sup> New Zealand First Party formed in 1993 (New Zealand First, 2004); The Association of Consumers and Taxpayers (ACT) Party (Act the Liberal Party, 2004) formed in 1995; the United Future formed in 2000 (New Zealand Parliament, 2008b), and the Progressive Party formed in 2002 (New Zealand Parliament, 2008a). Registered parties outside parliament (Christchurch City Libraries, 2005) include The Alliance which was formed in 1991 (Alliance New Zealand, 2004); Christian Heritage New Zealand formed in 1989 (Christian Heritage New Zealand, 2004); New Zealand Democratic Party formed in 1953 (Democrats for Social Credit, 2008); Aotearoa Legalise Cannabis Party founded in 1996 (Aotearoa Legalise Cannabis Party, 2008); Libertarianz formed in 1995 (Libertarianz, 2008); Mana Maori Movement founded in 1993 (Nation Master, 2008); and last but not least a new Maori Party formed after the Hiko demonstration in May 2004, protesting the Foreshore and Seabed Legislation recently introduced into Parliament.

<sup>2</sup> Though there are few of these compared with 20 years ago (i.e. before the 1980s Economic Reform). During the 1980s Economic Reform which has been carried out to the 1990s, the control of the economy has been handed from the government, to business. In the 1990s a number of state owned companies like Telecom were fully privatized – sold for \$4.25 billion. It was not until at least ten years later that the government realized that a full privatization was not a wise move compared to partial privatisation (Campbell, 2000).

<sup>3</sup> This organization no longer exists, though the exact year it ended is not known. According to Ms Jo-Anne Smith, a Curator of Manuscripts, Canterbury Museum, the minute book the museum holds ends in 1934 when the Canterbury branch went into recess (Smith, 2004).

<sup>4</sup> The Ecologic Foundation still keeps the name 'Maruia' for advertising its products from nature such as sheepskin and possum wool that is Maruia Nature Catalogue Online (The Ecologic Foundation, 2004).

<sup>5</sup> However, Choudhary is a Labour list MP, and thus effectively accountable to his party not the electorate, since it is the party that determines the position of an individual on the party list.

## **CHAPTER 7**

### **METHODOLOGY**

#### **7.1 Introduction**

This chapter justifies the use of the types of research, selection of participants, instruments, procedures and data analysis techniques described in Chapter 8.

#### **7.2 Types of Research**

This section justifies the use of types of research in the present study. This was an applied, descriptive, correlational and quantitative study (see Appendix A). However, qualitative research methods were also used where needed to obtain qualitative data for a further explanation of questionnaire survey data and findings. Research techniques, procedures and methods of both the survey and the qualitative interviewing were applied to collect information on environmentally ethical behaviour (EEB). The information obtained can be used in policy formulation, administration and enhanced understanding of the phenomenon (Kumar, 1996). Exploratory research design was used in a pilot study of the questionnaire survey to develop, refine and test the questionnaire and procedures. Descriptive and correlational designs were used in the full study to describe the frequency of New Zealand Muslim males' EEB, and the relationship of frequencies with contextual aspects.

Study design is part of research design (Kumar, 1996). A cross-sectional study design was used because the aim of this study was not to measure change but to find out the strength of the relationship between EEB and contextual aspects by taking a cross-section of the population with only one contact with the respondents at the time the study took place (Kumar, 1996).

A survey method was used to allow a structured data collection and a structured approach to data analysis. In addition, it enabled an understanding of what variables were linked to the frequency of EEB by looking at variation in variables across cases, and looking for other characteristics which were systematically linked with them. Thus the researcher was able to see if environmentally ethical cases systematically differed from others less environmentally ethical in some additional way (i.e., education, income etc) (De

Vaus, 2002). Meanwhile, a qualitative interview method was used to obtain qualitative data for a further explanation of the quantitative data and findings obtained.

Quantitative research allowed variables which had previously been identified and measured (Perry, 1998) to be used to explain the relationships between EEB and contextual aspects and how those findings might be used for policy formulation and administration. Quantitative research also enabled the researcher to quantify variations in the frequency of EEB and in contextual aspects (Kumar, 1996). It also enabled the researcher to measure them on an interval scale (Kumar, 1996). In addition, it allowed a degree of generalisability and replication (De Vaus, 2002). On the other hand, the qualitative research allowed for a further explanation of the quantitative findings in order to better understand the EEB phenomenon.

### **7.3 Participants**

This section justifies the choice of participants for the present study. The participants were Muslim males, aged 20 and above, heads of household and living in the North Island of New Zealand. Muslims were selected because this study used Islamic environmental ethics as its theoretical foundation. In Islam, males are heads of household and so were selected to represent the voice of a household. The age limit was to ensure that only heads of household completed the questionnaire in order to achieve uniformity in the sample.

Participants from the North Island were selected mainly because many more Muslims (about 21,054 people) live there than in the South Island (only 2,583 people), and also because of time, human and financial resource constraints. This choice was assumed not to affect the representativeness of the sample since the number of Muslims in the South Island is so small (New Zealand Census, 2001).

The participants came from a wide range of people – most were immigrants of over 30 nationalities and a few were Pakeha and Maori. Section 8.2 provides detailed description of the participants in the study while Chapters 3, 4, 5 and 6 present detailed account of their religious, social, economic and political background, respectively.

## **7.4 Research Instruments**

This section discusses justifications for the use of secondary and primary data, a questionnaire, forms and order of questions in the questionnaire, scales for survey data, pilot study, questionnaire administration, reliability of survey data, validity of survey data, qualitative face-to-face interviews, and email questionnaires.

### **7.4.1 Secondary and Primary Data**

Secondary data described in section 8.4.1 were used to obtain Muslim population demographic information, historical and other related information. To address the research problem primary data were specifically collected via questionnaire survey and qualitative interview to find out first-hand the frequency of environmentally ethical behaviour (EEB) and the influence of contextual aspects. The secondary data alone did not provide enough information to draw meaningful conclusions or findings in addressing the research problem (Kumar, 1996).

A newly constructed questionnaire was used because the type of questionnaire required to address the research problem was not available. The previous studies reviewed used questionnaires constructed to tap intrinsic social aspects that influence people's environmental behaviour (De Young, 1986; Ebreo et al., 1999; Ellen et al., 1991; Huebner & Lipsey, 1981; Larsen, 1995; Mainieri et al., 1997; Oom Do Valle et al., 2005; Schwartz & Miller, 1991; Schwepker & Cornwell, 1991; Shrum et al., 1995; Thogersen, 2000; Wall, 1995) whereas the present study aimed to tap the contextual aspects that influence EEB.

However, most of the variables used in the previous studies (Dunlap, 1991; Ebreo et al., 1999; Hess, 1998; Larsen, 1995; Oom Do Valle et al., 2005; Oskamp et al., 1991; Richert & Nash, 1990; Shrum et al., 1995; Thogersen, 2000; Wall, 1995) were also used selectively to construct the questionnaire for the present study. In addition, the primary data of qualitative face-to-face interview and email questionnaire obtained were used to draw meaningful conclusions from the quantitative findings on EEB phenomenon.

### **7.4.2 A Questionnaire**

According to Kumar (1996) "observation is the most appropriate method of data collection" (p. 105) for assessing behaviour. However, in the present study it was not acceptable because participants would not have been comfortable carrying on

their daily household routine under observation. Thus, the behaviour assessed in the present study was self-reported.

A structured questionnaire was used because it provided a straightforward way of obtaining information. It also provided data which allowed systematic comparison between cases with the same characteristics (De Vaus, 2002). While there is little difference between an interview schedule and a questionnaire, this study aimed to assess EEB and demographic characteristics that respondents may have felt reluctant to discuss. Thus, a questionnaire was better as it ensured anonymity (Kumar, 1996). In addition, the population was literate and sufficiently mature to be able to answer a questionnaire (Kumar, 1996): More than 70 percent aged 15 years and over had a primary, secondary or tertiary education and almost 60 percent of the total Muslim population were aged between 20 and 50 (New Zealand Census, 2001) (see also section 8.3.1).

#### **7.4.3 Forms and Order of Question in the Questionnaire**

Open-ended questions measured demographic characteristics in order to obtain exact information on age, income etc. The questionnaire was self-administered and used close-ended questions to gain information on environmentally ethical behaviour (EEB), contextual aspects, respondents' work involvement with the environment, house ownership status and type of house. Since close-ended questions provided ready made categories required information was obtained and responses were easy to analyse (Kumar, 1996).

Questions were grouped into sections for a better flow and followed a logical progression based on the objectives of the study in order to sustain respondents' interest (Kumar, 1996). In addition, the questions were arranged from easy to more difficult. Questions on demographic background were placed at the end of the questionnaire as once the respondents realised that the study posed no threat to them they would more willingly answer such questions (see also section 8.3.1).

#### **7.4.4 The Scales for Survey Data**

A summed rating scale was used to assess the frequency of EEB. Another four summed rating scales were used to assess the degree of influence of four contextual aspects (social, religious, economic and political) on such behaviour.

The scales assumed that each item had an equal value in reflecting behavioural frequency and degree of influence (De Vaus, 2002), for example, that pre-cycling was as important as re-use and recycling in the degree to which they reflected EEB. Kumar (1996) noted that this assumption is a limitation as scale statements seldom have equal attitudinal value. While a Thurstone scale might overcome that limitation the experts and the respondents involved may assess the importance of a particular statement differently (Kumar, 1996), so it was not used.

The questionnaire assessed how frequently members of the study population believed they behaved in an environmentally ethical way, using a five point scale. A higher scale score reflected more frequent EEB. The questionnaire also measured perception by the study population of the relative influence of social, religious, economic and political aspects on their EEB, using a five point scale. A higher scale score reflected more perceived influence of the relevant social, religious, economic or political aspect.

Interval-level measurement allowed use of a wider range of statistical methods and more powerful techniques (De Vaus, 2002) than could ordinal or nominal data. In addition to the numbered response categories, each item also provided an open category in which respondents could create their own answer. Responses were graded along a single continuum and only one answer was needed for each item.

The questions were arranged in a format which saved space, was easy to answer and assessed each behaviour frequency and perceived influences on it consecutively. For the purpose of data analysis responses to each statement were treated as a separate variable (De Vaus, 2002) (see also section 8.3.1).

#### **7.4.5 Pilot Study**

A pilot study is an integral part of instrument construction (De Vaus, 2002). It tested whether or not the questionnaire would be understood by the respondents. Specifically the pilot study was conducted to establish how to phrase each question, to evaluate how respondents interpreted the questions' meanings and to check whether the range of response alternatives was sufficient. The pilot study also enabled further evaluation of individual items and the questionnaire as a whole. Response analysis was used to revise questions where necessary, shorten the questionnaire, reorder questions and finalise its content. The final

questionnaire layout also aimed to ensure that it was clear to the respondents (De Vaus, 2002). The results of the pilot study enabled a check on item variance, meaning, redundancy, scalability, non-response, flow, timing and respondent interest and attention (see Appendix B).

Section 8.3.2 details the process of the pilot study carried out for the present study.

#### **7.4.6 Questionnaire Administration**

Both collective administration and mailed questionnaire methods were used to increase the response rate (Kumar, 1996). Collective administration was sometimes inappropriate as Friday is a working day and it was inappropriate to delay the respondents from getting back to work after the Friday Congregation Prayer. On the other hand, mailing was difficult because the population's names and/or addresses were unavailable. Consequently collective administration was used to distribute the questionnaire and mailing to collect it.

Section 8.3.3 provides detailed description on how the administration and collection of the questionnaire was carried out.

#### **7.4.7 Reliability of Survey Data**

Internal consistency, including Cronbach's Alpha, is often used with instruments that use Likert-type summated rating scales (Siegle, 2005). Since the present study used summated rating scales internal consistency, including Cronbach's Alpha, was used to test the reliability of the scales used. Moreover, Cronbach's Alpha will handle both binary and large-scale data (Alex Yu, 2005) such as in the present study.

The SPSS programme version 12 was used to assess the reliability and unidimensionality of each item.

Section 8.3.4 details the process and procedure of reliability tests done in the present study. The results of reliability tests obtained are also presented in that section.

#### **7.4.8 Validity of Survey Data**

To alleviate problems interpreting response meaning (De Vaus, 2002), questions were explicit and direct and patterns of responses were used to understand the

meaning of particular responses. In addition, content analysis (secondary data, documents, written records etc) was utilised to provide insight into the meaning of behaviour expressed in the questionnaire and to put a particular question response into context.

A construct validity approach was also used because it is based on statistical evidence. Questions asked measured not only tangible matters (e.g., age, income etc) but also less tangible concepts (i.e., the frequency of environmentally ethical behaviour [EEB], and the influence of contextual aspects) (Kumar, 1996). Thus, it was necessary to establish the construct validity of pre-cycling, re-use and recycling as examples of EEB; and of social, religious, economic, and political aspects as contextual aspects. Construct validation also assisted in establishing the contribution of each of those constructs to the total variance of the relationship between EEB and contextual aspects.

Principal components factor analysis (De Vaus, 2002; Rummel, 1967) was used to see if there was a pattern to responses, and hence what more general concept the items might reflect. Moreover, both rotated and unrotated factor analysis tested whether response patterns reflected the intended conceptual structure (i.e., to determine whether or not the scales represented the proposed underlying EEB and contextual aspects constructs); and to further assess the unidimensionality of each construct.

Section 8.3.5 provides the process and procedure of the validity tests undertaken as well as the results obtained.

#### **7.4.9 Qualitative Face-to-face Interviews**

Qualitative face-to-face interviews with 10 interviewees (again, New Zealand Muslim males who were heads of household) were conducted to explore further the findings of the survey, particularly to further explain the findings of the survey and draw meaningful conclusions.

Section 8.3.6 provides details of the design and procedure of the qualitative face-to-face interviews conducted in the present study.

#### **7.4.10 Email Questionnaires**

The reason for sending email questionnaires to New Zealand Muslim religious figures (i.e., imam, *ustaz* etc.) was to further explain the findings of the survey

particularly concerning the role of the religious figures in influencing New Zealand Muslim males' EEB. Email was used because the researcher was not in New Zealand to conduct them face-to-face, and relationships had already been developed with religious leaders which made email a feasible medium to gain useful information. However, in the end, only two completed questionnaires were received.

Section 8.3.7 explains the use of these email questionnaires in the present study.

## **7.5 Procedures**

This section discusses justifications for pre-requisites of data collection, sampling procedures, sample size, and non-response bias adopted in the survey of the present study as well as in the qualitative interviews.

### **7.5.1 Pre-requisites of Data Collection**

Steps pre-requisite to data collection were taken to ascertain whether or not potential respondents would: first, have the required information; second, be willing to share the information with the researcher; and third, understand what was expected of them in the questions, because if respondents did not understand a question clearly, their response could be wrong, irrelevant or make no sense (Kumar, 1996).

Section 8.4.1 details data collection process and procedure for both questionnaire survey and qualitative interview.

### **7.5.2 Sampling Procedures**

Non-random/probability sampling was used because the sampling frame (i.e., names and/or addresses of all Muslim households) was unavailable (Kumar, 1996). Thus, the sample obtained in this study was not a probability one and theoretically the findings of this study cannot be generalised to the total sampling population (Kumar, 1996). However, a wide variation of New Zealand Muslim males who were heads of household was included as the mosques and Islamic centres attended weekly by the sampling population were used to target that population. After data collection, representativeness tests of the survey sample were conducted to determine the degree of generalisation possible.

A quota design was used to ensure that participants met the criteria of being a Muslim, a male, aged 20 and above, and a head of a household. A snowball design was also used to select a survey sample as well as qualitative interview sample using networks. As the researcher knew little about the sampling population because no sampling frame was available, this design enabled the researcher to make contact through a few gatekeeper individuals (*imam* of the mosques and presidents of Islamic centres), who then directed the questionnaire to other members of the group.

Using this design, bias could arise from the choice of individuals at the first stage. In this study, such biases were controlled to the extent that firstly, the *imam*/presidents do not have a control (and it is religiously wrong to have such control) over what particular faction of Muslims should attend a particular mosque or Islamic centre; and secondly, that *imam* and presidents were selected from all the possible mosques/Islamic centres attended by the sample population. Hence, even if each *imam* and president chose only to select individuals in their own faction, all factions were nonetheless covered (Kumar, 1996). Section 8.4.2 provides further details of sampling procedures for both the questionnaire survey and qualitative interviews.

### **7.5.3 Sample Size**

The survey sample size depended on (De Vaus, 2002) limitations of costs, time, my own resources and skills, my department's support, and the effort the gatekeepers were prepared to devote to assisting me with the study.

The sampling error and the 95 percent level of confidence were used to help specify the degree of accuracy of the survey sample. The researcher assumed a population homogeneous on key dimensions so that a smaller sample would suffice (De Vaus, 2002). To test this assumption, the sampling error of key variables (social, religious, economic and political aspects) was calculated to ascertain variation in responses. In addition, to complement the small survey sample size of 204 cases obtained, 10 New Zealand Muslim males were interviewed face-to-face and two religious figures (such as *imam*, *ustaz* etc.) provided responses to an email questionnaire.

To assess sufficiency of numbers for meaningful subgroup analysis, frequency analysis was conducted on demographic variables.

Section 8.4.3 outlines further detail of the tests of representativeness of the survey sample size, and section 8.4.4 details sampling errors of key variables as well as the frequency analysis of demographic variables.

#### **7.5.4 Non-response Bias**

Non-response bias was addressed by comparing the demographic characteristics of the sample with those of the population (see section 8.4.3). The areas and the degree of bias were determined and adjustments made to neutralize the effect of non-response bias (De Vaus, 2002). Variable means were substituted for missing data and cases with severe missing data were excluded (De Vaus, 2002).

Non-response (De Vaus, 2002) was minimised by using publicity measures (e.g., announcing the research in New Zealand Muslim Yahoo Groups, mosques and Islamic centres) inviting participation; and by drawing an initial sample larger than needed, that is, questionnaires were distributed to 1057 New Zealand Muslim males who were heads of household of approximately 5200 to 7000 Muslim households in the North Island.

#### **7.6 Data Analysis**

SPSS programme version 12 was used to perform the analysis of the questionnaire survey data. The main method of analysis used for the survey data was multivariate. However, univariate (i.e., frequency distributions) and bivariate (e.g., crosstabulations and mean comparisons) were also used mainly for testing the representativeness of the sample and during the preparation of data for multivariate analysis.

A multivariate method of analysis was used because the research questions used five variables: the frequency of people's environmentally ethical behaviour (EEB) and four of the contextual aspects (social, religion, economy and politic) to which it was due. As almost all the variables used in this study were interval-level variables regression analysis was appropriate. A few nominal and ordinal demographic and household variables were converted into sets of dummy variables to make them appropriate for regression analysis.

The qualitative interview data were analysed using a pre-determined concept/thematic approach or framework approach. The study was a policy-relevant thesis whose objectives were set in advance and shaped by the

information requirements of the funding bodies (the Public Service Department of Malaysia and the National University of Malaysia) (Ritchie & Spencer, 1993). In addition, there was a need to link the analysis with quantitative findings that started from pre-set aims and objectives. Thus, the framework approach is appropriate because although it reflects the original accounts of the interviewees (that is, it is a “grounded” and inductive approach), it starts deductively from pre-set aims and objectives. The framework approach also allows for more structured data collection and, enables an analytical process that is more explicit and more strongly informed by a priori reasoning (Richards & Richards, 1994).

Section 8.5 describes further the process of data analysis for both the questionnaire survey data and qualitative interview data.

## **7.7 Conclusion**

This chapter has explained that this study was applied research, descriptive and correlational as well as quantitative although qualitative methods were also used where needed. It has also presented the rationale for the methods used: participants, instruments, procedures and data analysis. Having justified the methods used, the next chapter will describe the process and procedure of the methods carried out.

## **CHAPTER 8**

### **METHOD**

#### **8.1 Introduction**

This chapter describes the methods used in the present study. This includes: participants, instruments, procedures, data analysis, and research ethics.

#### **8.2 Participants**

This section provides descriptive data about the participants in this study. The participants were Muslim males living in the North Island of New Zealand, and their description such as age, marital status, occupation, education level and so on is presented here.

##### **8.2.1 Characteristics of Muslims in New Zealand**

According to the New Zealand Census of 2001, there were 23,637 Muslims in New Zealand, the vast majority (21,054) in the North Island. There were 15,318 Muslims in the Auckland region, 2,460 in the Wellington region, and 1,518 in the Waikato region; the remaining 1,758 were scattered all over the other regions. There were 6,159 Muslim households in New Zealand and the average occupants per household were approximately 3 to 4 people (New Zealand Census, 2001). The demographic characteristics of Muslims in New Zealand are presented in Appendix C.

##### **8.2.2 Characteristics of the Sample**

A sample of the North Island Muslim male population was selected. The sample was identified and contacted through Mosques and Islamic Centres (i.e., imams of the mosques and presidents of the Islamic centres). The sample comprised Muslim males, aged 20 and above, heads of household, and living in the North Island. The sample participating was 204. Of the respondents, 26.5% were in their 20s, 25.5% in their 30s, 31.4% in their 40s and 16.6% in their 50s and older. Most of the respondents (66.2%) were married. Overall, the sample was well educated: 70.6% had tertiary education and 29.4% had secondary education. More than half of the respondents (52.0%) were blue collar workers earning annually less than

NZ\$40,000, 27.0% were white collar workers earning more than NZ\$40,000 while the remaining 21.0% were not employed. The low income category (below NZ\$30,001) consisted of 32.8% of the respondents; 29.9% were in a middle income category (between NZ\$30,001 and NZ\$50,000); and 16.2% were in a high income category (NZ\$50,001 and over) while 21.1% reported no income (other than benefits). The annual total household income of the respondents followed a similar pattern: 24.0% in the low category, 31.4% in the middle category, and 36.3% in the high category, while 8.3% reported no earned income. Those who had children below 15 years of age consisted of 53.9% of the respondents. In addition, 22.1% of the respondents had no other household member, 26.5% had a total of 2 to 3 household members, 37.5% had 4 to 5 household members, and another 13.9% had 6 to 10 household members. Twenty-two percent owned the house that they live in, 15.7% owned the house but were still paying off a mortgage, 47.1% rented from a private landlord, and 15.7% rented from a public housing authority. Bungalow (single unit house) dwellers consisted of 41.7% of the respondents, 10.8% were in semi-detached houses, 20.1% were in terrace houses, 10.3% in apartment blocks, and 17.2% lived in flats. The characteristics of the sample (New Zealand Muslim males) are summarized in Appendix D.

### **8.3 Research Instruments**

The main method of data collection used was a survey and the instrument used was a questionnaire. The questionnaire was designed to cover important issues related to the frequency of environmentally ethical behaviour (EEB) and the influence of contextual aspects on it. Another method used was qualitative face-to-face interviewing. The main instrument used here was the interview guide which the researcher expanded on or departed from as appropriate in order to gain the information sought. An email questionnaire was also sent to a number of religious leaders, seeking information about their views and role, but only two responses were received. This section explains how the survey questionnaire was constructed, piloted, administered and collected, and tested for its validity and reliability as well as how the qualitative interview guide was designed.

### 8.3.1 Concepts (Constructs) and Questions (Questionnaire) Construction

In order to produce a valid and reliable research instrument (in the case of this study: a questionnaire) the concepts or constructs for the questionnaire to measure were developed. The concepts were clarified via three steps: obtaining a range of definitions of the concepts, deciding on the definitions, and delineating the dimensions of the concepts (De Vaus, 2002). All the concepts were defined in terms of indicators and variables reflecting them. Then, respondents showed by circling a number the frequency with which they manifested such behaviour or the strength with which a contextual aspect influenced it. Table 8.1 presents the process and elements in each process.

**Table 8.1: Developing Concepts/Constructs, Indicators, Variables and Decision Level/Working Definition**

No.	Concepts/Constructs	Indicators	Variables	Decision level (working definition)
1.	Environmentally ethical behaviour	a) Pre-cycling b) Re-use c) Recycling	a) Buy canned drinks etc. b) Re-use paper etc. c) Recycling foil etc.	Always = 4 Most of the time = 3 Sometimes = 2 Rarely = 1 Never = 0
2.	Contextual aspects	a) Social b) Religious c) Economic d) Political e) Others	a) Neighbours, etc. b) Imam, Ustaz etc. c) Price etc. d) Local authority etc. e) Others	Very Strong Influence = 4 Strong influence = 3 Some influence = 2 A little influence = 1 No Influence = 0
3.	Household information	a) Age b) Marital status c) Education level  d) Occupation e) Income  f) Work involvement with the environment. g) House owner status  h) Type of house/dwelling.	a) Range of age b) Range of Marital Status. c) Range of education level.  d) Range of occupation. e) Income per year  f) Range of scores  g) Range of house ownership status  h) Range of type of house/dwelling.	a) 20-29, 30-39 etc. b) Single or Married c) Primary, Secondary etc. d) Blue collar etc. e) \$10,000-\$20,000 etc. f) 0-4: higher score = higher work involvement with the environment. g) One choice of 5 house ownership status. h) One choice of 6 types of house/dwelling.

As can be seen in Table 8.1 the variables that were used in the study can be divided into three main groups: measures of the dependent variable (environmentally ethical behaviour [EEB]), measures of the independent and intervening variables (contextual aspects: social, religious, economic and political

influences) and measures of background variables including age, marital status, education level, occupation, income, work involvement with the environment, house ownership status, and type of house/dwelling. The way the background variables were asked in the questionnaire (see Appendix E) also enabled the researcher to calculate the household total income, the number of households with and without children aged below 15 as well as calculating the number of household members.

EEB is a concept that can be divided into a number of dimensions. Most previous studies have distinguished between pre-cycling, re-use and recycling behaviours. Questions regarding EEB were included in the questionnaire. On the basis of distinctions made by the previous studies the researcher initially distinguished between two dimensions of EEB and decided to look at the influence of contextual aspects on each of these dimensions. These were:

1. Pre-cycling: the respondents were asked to indicate how often they shopped at a flea market or second hand shop, bought refillable items, bought fruits and vegetables loose not packaged, used their own bag when shopping, bought products with reusable packages, bought products with 'environmentally friendly' label, bought canned or glass bottled drinks, bought products in bulk, used every bit of food, and bought a handkerchief. Response categories were labelled 'Always' to 'Never.' A higher number represented a higher frequency.
2. Re-use and recycle: the respondents were asked to indicate how often they repaired items, took items to recycling centre, sorted out household waste, re-used papers, fed animals with their household leftovers, composted organic waste, froze food leftovers for later consumption, re-used plastic items, recycled food cans, re-used textiles, and recycled glass bottles. Response categories were measured on a five-interval scale labelled 'Always' to 'Never,' with a higher number representing a higher frequency.

A measure of the degree of social influence was constructed from a number of variables suggested in previous studies. These questions asked how influential were family, friends, neighbours, co-workers, television and advertisements on a particular EEB. Religious influence was a scale constructed

from the Islamic environmental ethics literature and was intended to reflect the degree of religious contextual influence. This question asked how influential were the *imam*, *ustaz* or other religious figures and their religious teaching on a respondent's EEB. A variable to measure economic influence was constructed from a number of variables suggested in the literature, such as price, cost effectiveness, financial subsidies or taxes on a particular EEB. A variable to measure political influence was also constructed from the literature. This question asked how influential were consumer associations' views, or local government regulations for EEB. Each of these questions was answered within a measure of five-range interval scale labelled 'Very strong influence' to 'No influence.' The higher the number represents the higher influence.

Although the researcher set out to measure the EEB from the two dimensions (i.e., pre-cycling, and re-use and recycling) and initially decided to look at the influence of contextual aspects on each of these dimensions the scale reliability and validity tests showed that pre-cycling could not stand on its own as one scale (see sections 8.3.4 and 8.3.5). Thus, the researcher decided then to look at the EEB as only one dimension and to look at the influence of contextual aspects on this one dimension of EEB.

Based on the concepts that had been developed (see Table 8.1), the questions were constructed into three sections; Section A: Pre-cycling, Section B: Re-use and Recycling, and Section C: Demographic and Household Information. Section A contained questions on the frequency of pre-cycling behaviour and questions on the influence of contextual aspects. Section B comprised questions on the frequency of re-use and recycling behaviour and questions on the influence of contextual aspects.

Most of the questions attempted to measure any relationship between contextual influences (social, religious, economic and political) and EEB (pre-cycling, re-use and recycling) regarding domestic solid waste. However, to ensure that the effects of independent variables such as economic influence were not contaminated by other associated background characteristics the researcher introduced background (demographic and household) variables so that their effect could be removed (controlled) in the analysis. These variables were age, marital status, highest education level, occupation, income, family composition (the presence of children, and the number of household members), level of direct work

involvement with the environment, house ownership status, and type of house/dwelling.

The cover page for the questionnaire contained information including space to number the questionnaire, name of the university, the questionnaire title and thesis title, information about the sponsors, the supervisors and the researcher, the purpose of the study, confidentiality assurance, the purpose of any identifying number on the questionnaire, what would be done with the results, an offer to make the results available, how to return the questionnaire, a potential participant's right not to participate, how the respondent was selected, the importance of their response, an offer to answer any questions that might arise, and a contact telephone number as well as email address. The general instruction page of the questionnaire included a general instruction on how to fill out the questionnaire, specific instructions on how to answer some of the questions in the questionnaire, an example showing how to answer questions in the questionnaire, and a 'copy of results' request form at the end of the page with instructions on how to complete the form and send it to the researcher should the respondents wish to view the results of the study (see Appendix E).

### **8.3.2 Pilot Study**

A pilot study was conducted. "As a rule, the field test should not be carried out on the sample of your study but on a similar population" (Kumar, 1996, p. 19). The pilot sample was seven Muslim male students of the University of Waikato aged 20 and above, enough to detect problems with the questionnaire such as non-response, variation, response sets and so forth. They were told that the questions were being developed and they were asked to not only try to answer but help improve them, which they did.

Feedback from the pilot study participants was obtained within a week, and helped to avoid offensive questions, highlight questions that could be particularly useful and to highlight problems with language (e.g., too complex, ambiguous meaning, special meaning for the group etc.), as well as alerting the researcher to misunderstandings about the group. Based on this feedback questions and the questionnaire as a whole were amended.

The seven participants were given the amended questionnaire again and this time they were not told that the questionnaire was still under development.

They were asked only to answer the questionnaire. Completed questionnaires were returned within approximately a week. The answers were analysed. The researcher also analysed responses to open questions and ‘Others (please specify): \_\_\_\_\_’ and coded them to detect whether or not difficulties occurred in coding them. Coding difficulties highlighted some problems with question wording (e.g., ambiguity etc.). Based on response analyses, the researcher shortened the questionnaire, reordered the questions, minimised the sections, and finalised the layout to provide a 15 page questionnaire (see Appendix E).

### **8.3.3 Questionnaire Administration and Collection**

The questionnaire was printed as a booklet, numbered 1 to 1057. Bulk postage or reply-paid envelopes were used to minimise cost, with the return address being printed on the envelopes to minimise the effort involved in returning the questionnaire (see Appendix F).

The questionnaires were distributed on Fridays at mosques and other Islamic centres with the agreement of imam and presidents between January and March, 2005. Details of day and time were left to the centres to decide. The number of questionnaires allocated to each centre was estimated using regional statistical information from the New Zealand Census (2001). A detailed timetable of the survey was developed (see Appendix F), particularly indicating what dates various tasks were performed and listing the supplies needed (De Vaus, 2002).

The researcher handled most of the survey process, answering all queries from respondents and keeping a record of the number of questionnaires returned to allow calculation of the response rate. However, the researcher was grateful for assistance with distribution of the questionnaires by the authorities of the mosques/Islamic centres and some individuals in the sampling population.

Potential respondents were invited to participate via an announcement made in the mosques/Islamic centres and Muslims New Zealand Yahoo Groups a few days before distributing the questionnaires. A similar method was used to make three follow-up approaches at monthly intervals after questionnaire distribution. A few meetings with some members of the sampling population were conducted until August 2005.

Most questionnaires were returned via post-paid envelope. An alternative method was via drop-in boxes placed in the mosques/Islamic centres and collected

two months after distributing the questionnaires (i.e., in May 2005) and again in August 2005.

### **8.3.4 Tests of Reliability**

The instrument was based largely on variables found important in the literature on the environmentally ethical consumer. Five scales, each of 21 items, were included. The first measured frequency of EEB and the other four measured the influence of social, religious, economic and political aspects on that frequency. Most of the items constituting these scales had been utilized by previous researchers investigating environmentally concerned behaviour, including social (Ebreo et al., 1999; Oom Do Valle et al., 2005; Oskamp et al., 1991), political (Dunlap, 1991; Richert & Nash, 1990; Wall, 1995), and economic (Hess, 1998; Shrum et al., 1995; Thøgersen, 2000).

The five scales were developed to measure frequency of EEB (pre-cycling, re-use and recycling) and the influence of contextual aspects (social, religious, economic, and political) on EEB. The purpose of assessing these dimensions was to determine whether those who were positively influenced by contextual aspects would be more likely to perform EEB more often.

Scales were checked for unidimensionality to reduce the number of variables to be analysed: to ensure that each variable in each scale was scored in the same direction, that the scoring or number of categories of one variable did not bias the overall scale, that each scale had the same upper and lower limits so that the scores on each of the five dimensions could be compared easily, and that the items in each scale belonged together.

For each item of each EEB scale respondents were asked to indicate frequency of EEB by marking their score on a five-point scale ranging from '(4) Always' to '(0) Never.' The remaining measures (contextual aspects: social, religious, economic, and political) consisted of statements scored on a five-point scale ranging from '(4) Very strong influence' to '(0) No influence.' Each item was scored in the same direction, with a high score indicating either a high frequency of EEB or a high influence of the contextual aspects.

The mean of the interval variables was substituted for missing data. However, seven severely incomplete questionnaires had to be excluded from analysis.

Since all the variables had the same score range, each of the scale items contributed equally to the final scale.

Unidimensionality and reliability were checked for all scales. Item-total correlations indicated unidimensionality and reliability tested using Cronbach's alpha (an index of the internal consistency among items in a scale) for each subscale. Means and standard deviations were also computed for all of the scales. For each scale the alpha coefficient was well above 0.7 (see Table 8.2), ranging from 0.808 to 0.954. Items with an item-total correlation below 0.3 were not deleted (see Appendix G), if Cronbach's Alpha if Item Deleted showed no significant increase. Thus a summated scores scale was created by adding together the already weighted scores for each item in the scale.

**Table 8.2: Means, Standard Deviations, and Internal Consistency Reliabilities for Subscales**

Scale	Items	Means	Standard Deviations	Coefficient Alpha
<b>Environmentally Ethical Behaviour frequency:</b>	21	2.102	0.489	0.808
<b>Contextual Aspects:</b>				
Social	21	1.726	0.865	0.925
Religious	21	1.034	0.895	0.954
Economic	21	2.011	0.850	0.922
Political	21	1.400	0.867	0.940

Source: Analysis of Survey Data.

Since each of the scales had the same number of items, the final range of scores of each of the scales was the same. Each scale had a minimum range of score of 0 (least frequent or least influential) to a maximum range of score of 84 (most frequent or most influential).

Finally, because these scales potentially have many categories since there can be any number of possible scale scores between 0 to 84 it was desirable to have a collapsed version of the scale for cross-tabulation analysis. Because the scale was needed in its detailed form for interval-level analysis it was necessary to create collapsed versions of the scales in addition to the uncollapsed versions. To do this, frequency distributions of the scales were obtained and, using the cumulative percentage column for each scale, the distribution of each scale was collapsed into thirds. Because the items had previously been recoded so that low scores indicated low levels of either the frequency of EEB or the influence of

contextual aspects, the bottom third of each distribution was categorised as being either less-environmentally ethical or less-influenced by the contextual aspects, the middle third as moderately environmentally ethical or moderately influenced by contextual aspects, and the top third as being highly environmentally ethical or highly influenced by contextual aspects.

### **8.3.5 Tests of Validity**

Given that one environmentally ethical scale and four contextual aspect scales were developed for this research, exploratory factor analysis that incorporated principal components extraction was conducted to determine if the scales represented the proposed underlying environmentally ethical behaviour (EEB) and contextual aspects constructs.

An unrotated component matrix resulted in 2 factors. The two factors composed of 8 (i.e., factor 1) and 2 (i.e., factor 2) items each, emerged in which all items loaded above 0.30 cut-off value (established as the minimum acceptable loading (De Vaus, 2002), and each item loaded with its proposed constructs. Moreover, no item loading on any one factor loaded heavily on any other factor. Items EEBsectA (Pre-cycling) and EEBsectB (Re-use & Recycling) loaded on both factors but were heavier on one of the factors (i.e., factor 2). The 2 factors jointly accounted for 68.243% of the variance (see Table 8.3).

Table 8.3 displays the two major kinds of regularity in the interrelationships between the factors/patterns: Contextual Aspects and EEB. They involve respectively, 55.101% and 13.142% of the variance in the 21,420 pieces of information given by the 204 respondents on 105 Contextual Aspects and EEB variables asked in the questionnaire. This indicates that 68.243% of this information has an underlying regularity.

The number of factors reveals two independent patterns of relationship in the data. This could reflect either two different kinds of influence on the data, or two empirically different concepts for describing EEB and contextual aspects (Rummel, 1967).

From Table 8.3, contextual items loaded more highly on Factor 1 than they did on Factor 2 for the unrotated solution, while EEBsectA and EEBsectB loaded made up almost all of Factor 2, although they also loaded quite heavily on Factor

1. All the Contextual Aspects loaded on Factor 1 except that RelinfSectA loaded negatively on Factor 2 also, although primarily on Factor 1.

**Table 8.3: Factor Results for Environmental Ethical Behaviour (EEB) Measures and Contextual Measures\***

Variable (Group)	Factor 1 (Contextual Aspects) Unrotated	Factor/ 2 (EEB) Unrotated
<b>EEB:</b>		
EEBSectA (Pre-cycling)	0.473	0.642
EEBSectB (Re-use & Recycling)	0.499	0.632
<b>Contextual Aspects:</b>		
<b>Social:</b>		
SocinfSectA	0.792	**
SocinfSectB	0.828	**
<b>Religious:</b>		
RelinfSectA	0.712	-0.422
RelinfSectB	0.794	**
<b>Economic:</b>		
EconinfSectA	0.732	**
EconinfSectB	0.795	**
<b>Political:</b>		
PolinfSectA	0.829	**
PolinfSectB	0.857	**

Factor	Eigenvalue	% of Variance	Cumulative %
Contextual Aspects	5.510	55.101	55.101
EEB	1.314	13.142	68.244

Determinant of Correlation Matrix:	0.001
Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy:	0.804

\*Exploratory Principal Components Analysis with Unrotated Component Matrix.

\*\*Absolute value less than 0.30 (suppressed).

Source: Analysis of Survey Data

To assess the unidimensionality of each construct (EEB, and Contextual Aspects), separate factor analyses were conducted for the items in each scale (EEB, Social Aspect, Religious Aspect, Economic Aspect, and Political Aspect). The first 2 factors in the scales (except for the social scale in which only the first factor had eigenvalue over 1.5) had eigenvalue above 1.5. But the eigenvalue of the second factor in the scales were all just slightly above 1.5. Therefore, the researcher decided to present just the first factor. The odd variables whose variance the main factor account for the least was not eliminated because none of them had a negative value (see Appendix H).

In addition to the behavioural and contextual variables, demographic information was obtained. Previous research resulted in the following demographic variables being included: age, marital status, highest education level, occupation, and income. Also included were questions regarding family composition, work involvement with the environment, house ownership status, and type of house/dwelling.

The latter group of variables was included to see if they discriminated. It was expected that those who had children under 15 years of age or more members in their household would behave more environmentally ethically given that a larger household needs more resources and can less afford to waste. It was also expected that those who had direct involvement with the environment in their work would adopt more EEB. It was also anticipated that those who owned their own home would engage more in EEB as their sense of ownership would incline them to keep the place tidy by disposing of waste properly. Finally, those who lived in a bungalow or a single unit house with their own front and backyard were expected to engage more in EEB as they could more easily do so (e.g., composting).

### **8.3.6 Qualitative Face-to-face Interviews**

Since qualitative interviews were undertaken to complement the quantitative survey data to better understand the phenomenon (EEB) under study, the design of the interview guide (see Appendix I) was based on the questionnaire survey. Thus, the interview guide was designed to collect further information on EEB such as pre-cycling, recycling and reusing decisions in terms of activities and influences. It also collected information on the inter-relationship between contextual aspects (social, religious, economic, and political) as well as information on demographic backgrounds. Along with the interview guide, lists of pre-cycling, recycling, and reusing activities (see Appendix J) were also prepared to make it easy for the interviewees to provide information about the activities. In addition, a consent form was prepared to ensure that interviewees were fully informed about the research project and their rights as participants (see Appendix K).

### **8.3.7 Email Questionnaire to Religious Figures**

The email questionnaire was designed to collect information on the role of religious figures in influencing New Zealand Muslim males' EEB. The questions emailed to the participants (see Appendix L) were based largely on the interview guide for the face-to-face interviews. They sought information on the religious figures' EEB, their views on the activities at the mosques/Islamic centres, their views of Muslim community members, and their roles as religious figures. Information was also collected on their demographic backgrounds. In accordance with the guidelines of the University of Waikato's Human Research Ethics Regulations, information was sent to prospective participants about the research project to enable them to decide whether to take part or not (see Appendix M). It was hoped to gain information from about five religious figures but only two responses were received.

## **8.4 Research Procedures**

This section presents the data collection and sampling procedures of the questionnaire survey and qualitative interviews as well as information on survey sample representativeness and size.

### **8.4.1 Data Collection**

Several preliminary activities were undertaken prior to data collection. Secondary data from books, journals, bulletins, census, magazines, etc were obtained about the study population. The researcher also joined and observed continuously throughout the study the New Zealand Muslim Yahoo-group to gain basic insights into the community. The researcher contacted some Muslim academics, experts on the study of Muslims in New Zealand, individuals, imam, and Muslim NGOs in New Zealand in order to gain further knowledge about the community. The researcher also participated in several Muslim community activities: Islam Awareness Week, Mosque Open Day, seminars, talks, lectures, and community gatherings during the month of Ramadan (fasting month), *Eid* (the major festival of Islam after the month of Ramadan), and so forth.

To encourage the Muslim community to participate in the study, the researcher presented a seminar paper on the topic at a Muslim community conference. The researcher also contacted Muslim community leaders such as

imams or presidents of Islamic centres to introduce the research and consult on the possibility of conducting the study in the community. In the study area there were six mosques that had their own imams, as well as 26 Islamic Centres. They were approached via telephone and/or emails, and subsequently consulted by mutual agreement either via face-to-face interview or by email. Emails, letters, and phone calls were also used to ask the authorities of the mosques and Islamic centres for co-operation in distributing the questionnaire at the institutions. Of the 32 institutions contacted, 20 agreed to participate.

In January 2005, questionnaires were sent to the 20 Mosques and Islamic centres to be distributed to 1057 households in the North Island of New Zealand (see Appendix F). Thus, each household that agreed to take part in the study received a questionnaire via their local Mosque or Islamic centre. There were approximately 2,915 Muslim households in the areas covered, assuming that the average Muslim household comprised 3 to 4 members, and the Muslim population of the areas (based on the Population Census 2001) was known to be 14,571 people (New Zealand Census, 2001). As 211 households ultimately submitted their completed questionnaires and 299 were un-distributable, the response rate was 28%. However, 7 of the submitted questionnaires were insufficiently completed, leaving 204 completed questionnaires or approximately 7% of the estimated Muslim households in the area covered.

Meanwhile, to explore further the findings of the survey, qualitative interviews with 10 New Zealand Muslim males and five religious figures were conducted face-to-face and via emails, respectively. All of the interviews were conducted by the researcher in November 2007. Key information from the tape-recorded face-to-face interviews was transcribed.

#### **8.4.2 Sampling Procedure**

The sampling procedure of the survey utilised both quota sampling and snowball sampling, with the quota sampling embedded into the snowball sampling. Identifying and selecting participants by the researcher in step 1, by the imams and presidents in step 2, and by other people subsequently followed a quota sampling design. The procedure followed was:

1. The 20 imams and presidents who agreed to assist were invited to participate by completing a questionnaire, as they met the criteria for inclusion (a Muslim, male, aged 20 and above, and a head of a household).
2. The researcher then asked the imams and presidents to select others, who met the criteria and were attending the mosques or Islamic centres, and invite them to participate and give them a questionnaire.
3. Those participants were then asked by the imams or president to suggest others whom they knew met the criteria and either invite them to participate and give them a questionnaire, or give their name to the imam or president who would then invite them to take part and issue them a questionnaire.
4. Quota were defined according to the demographic variables age, marital status, occupation, education and income and the process continued until the quota were filled, with at least 15 participants being required for each demographic sub-group.
5. Questionnaires were returned to the researcher either by mail directly from the participant, or by being dropped into a box in the mosque or Islamic centre, from which the researcher collected them.

For the face-to-face interviews, 10 New Zealand Muslim males were selected by a multistage technique – snowball sampling (Neuman, 2006; Seibold, 2002; Silverman, 2005). The researcher made the initial contact and then asked for referrals to further possible participants. The researcher stopped the selection process when it reached 10 interviewees, the number that it was believed useful to explore the results of the survey as well as the number that could be conducted and analysed in the time available. Once a prospective participant agreed to be interviewed, a time was set to undertake it at their residence. A consent form was presented prior to the interview and any questions raised by the participant were addressed. In addition, the researcher explained she hoped to cover in the interview and the time commitment involved. Then, a recorder was plugged in and tested, and the interview started.

For the email questionnaire sent to religious figures, an advertisement was placed in the New Zealand Muslim Yahoo-group to invite participants from the religious figures. Direct emails were also sent to some religious figures – who

were not on the Yahoo-group that the researcher had email addresses for – inviting them to participate in the research. An information sheet was attached to the advertisement and the emails. In addition, any questions that prospective participants had about the research were addressed via email. Once the participants stated their agreement to be interviewed, the researcher emailed the interview questions to them. Only two completed questionnaires were received.

### **8.4.3 Representativeness of the Survey Sample**

Two checks were made on the representativeness of the survey sample. Respondent demographics were compared with those of male Muslims in New Zealand aged 20 and above, and the scores of those who responded early to the questionnaire were compared with those who responded later.

#### **1) Comparison with the Population of Muslim males in New Zealand**

Comparison of the survey sample with data from the New Zealand Census (2001) revealed that the sample had a somewhat smaller proportion of Muslim males in the age group 20 to 39 (52.0%) than did the actual Muslim male population (61.4%). In the age group of 40 and above the sample had a larger proportion (48.0%) than did the actual Muslim male population (38.8%). The sample had a slightly smaller proportion of unmarried people (33.8%) compared to 35.1% in the actual population, but a slightly larger proportion of couples (66.2%) than in the actual population (62.2%). The sample also had a smaller proportion of people whose highest level of education was school or secondary (29.4%) than the actual population (39.0%), and, conversely, a larger proportion of people with tertiary education (70.6%) compared to 38.6% in the actual population. The sample had a larger proportion of both blue collar (52.0%) and white collar (27.0%) workers compare to the actual population (32.0% and 22.1%). However, the actual population data included a large ‘No response’ group (45.9%), whereas all sample participants responded to this question. The sample had a smaller proportion of low incomes (32.8%) compare to 60.2% in the actual population, and a larger proportion of middle incomes (29.9%) and high incomes (16.2%) than in the actual population (14.9% and 9.8%, respectively).

Comparison was also made on household size, house ownership status, and housing type of the respondents with the values in the census data. The sample

and the population differed little with respect to household occupants (48.4% and 50.3% respectively between 1 and 3 persons, 51.6% and 49.7% having 4 or more), with the average household size for both sample and population being between 3 and 4 persons. A larger proportion of the sample owned or partly owned their house/dwelling (37.3%) compared to the actual population (26.8%) but the sample had a slightly smaller proportion of people who were renting (62.8%) than did the actual population (67.8%). The sample also had a smaller proportion of people who lived in a bungalow or semi-detached house (52.5%) compare to 71.1% in the actual population. However, the sample had a larger proportion of people living in a terrace house, apartment, flat or other type of private dwelling (47.6%) compare to the actual population (28.9%). Appendix N illustrates the characteristics of the sample against the Muslim male population.

Overall, the sample tended to be older, better educated, more blue collar workers, had a higher income, more house owners and a terrace house, apartment and flat dwellers than the actual Muslim male population, but in other respects it was closely representative of the actual population. Although many of the demographic characteristics of the sample differed from those of the actual population, this was not of concern because demographic characteristics had been shown by the majority of previous studies not to be significant determinants of responses to the environmental behavioural questions. In addition, the difference for most of the household characteristics between the sample and the actual Muslim male population were quite small. Moreover, for most of the household characteristics, the sample was quite diverse and fairly representative of the Muslim male population.

## **2) Comparison of Early and Late Responders**

In order to judge the representativeness of the survey sample, a comparison would have had to be made between those who responded and those who did not. This was of course not possible. However to gain an indication of the direction of any such difference, a comparison was drawn between those who responded immediately, and those who responded only after two or three requests and reminders. The two groups were compared to determine if they differed in their self-reported frequency of environmentally ethical behaviour (EEB), contextual influence, and socio-demographic characteristics.

Differences in responses for the two groups to continuous variables were assessed using *t*-tests, and for frequency variables using chi-square. These showed that they did not differ significantly at the 5% level to questionnaires that measured self-reported frequency of EEB, contextual influence, or demographic characteristics (i.e., interval variables: age, income and work involvement with the environment) (see Appendices O and P).

Based on the lack of difference between early and late respondents and small differences between sample data and census data proportions (particularly in the household characteristics), it was concluded that lateness of response did not affect the results of the study, and that the survey respondents were therefore probably similar to the non-respondents. In addition, the low response rate derived essentially from the questionnaire being too long, and a lack of time to complete it, rather than from any negative attitude toward the research itself. Thus, it is argued that the sample population and its responses were reasonably representative of the Muslim male population of New Zealand as a whole, as far as EEB – or lack of it – was concerned.

#### **8.4.4 Sample Size**

The survey sample size drawn for this study was 204 cases. Margins of error therefore ranged from 2.43 to 3.50 on key variables. There was therefore a 95 percent chance that between 57.5% and 70.9% of the New Zealand Muslim male population would say that social aspects had little influence on their environmentally ethical behaviour (EEB) and 80.3% to 90.3% would say that religion was not a big influence on such behaviour. The political aspect was not very influential on their EEB according to 67.3% to 79.7% of the population, while 41.5% to 55.5% of the population would say that economic aspects had little influence on that behaviour. Thus, EEB was considered by the respondents to be most influenced by economic aspects and least by religious aspects (see Appendix Q)

Mean differences in effect on environmentally ethical behaviour (EEB) of continuous demographic variables with three or more categories (occupation, income, and work involvement with the environment) were compared using analysis of variance (ANOVA) (see Appendix R). No significant differences were found between the three occupation groups and the four income groups. However

the degree to which a respondent's work involved the environment did have a significant effect ( $F_{2,201} = 5.34$ ,  $p < .01$ ) on their EEB scores. Post hoc tests showed that the group whose work had some involvement with the environment (SI) did not differ significantly from those who had none (NI) ( $\bar{x}_{NI} = 42.05$ ,  $\bar{x}_{SI} = 43.68$ , NS), but those whose work was highly involved with the environment (HI) reported significantly more EEB than did either of the other two groups ( $\bar{x}_{NI} = 42.05$ ,  $\bar{x}_{HI} = 47.85$ ,  $t_1 = -3.27$ ,  $p < .01$ ;  $\bar{x}_{SI} = 43.68$ ,  $\bar{x}_{HI} = 47.85$ ,  $t_1 = -2.36$ ,  $p < .05$ ).

However, the mean results for Contextual Aspects mean score between groups in all the variables tested indicate that there were differences between the groups in each variable. Mean differences in effect on social, religious, economic and political aspects of continuous demographic variables with three or more categories (occupation, income, and work involvement with the environment) were also compared using analysis of variance (ANOVA) (see Appendix R).

On the scores of social aspects significant differences were found between the three occupation groups ( $F_{2,201} = 5.74$ ,  $p < .01$ ), the four income groups ( $F_{3,200} = 4.87$ ,  $p < .01$ ), and the three groups of work involvement with the environment ( $F_{2,201} = 8.03$ ,  $p < .001$ ). The post hoc tests on occupation groups showed that the unemployed group (UG) and white collar group (WG) did not differ significantly ( $\bar{x}_{UG} = 31.33$ ,  $\bar{x}_{WG} = 32.31$ , NS), but blue collar group (BG) reported significantly more social aspects influence than did either of the other two groups ( $\bar{x}_{UG} = 31.33$ ,  $\bar{x}_{BG} = 40.28$ ,  $t_1 = -2.93$ ,  $p < .01$ ;  $\bar{x}_{WG} = 32.31$ ,  $\bar{x}_{BG} = 40.28$ ,  $t_1 = -2.67$ ,  $p < .01$ ). Post hoc tests on income groups showed that the no income group (NIG) and the high income group (HIG) did not differ significantly ( $\bar{x}_{NIG} = 31.33$ ,  $\bar{x}_{HIG} = 28.88$ , NS). The no income group (NIG) also did not differ significantly with low income group (LIG) ( $\bar{x}_{NIG} = 31.33$ ,  $\bar{x}_{LIG} = 38.90$ , NS). But LIG reported significantly more social influence than did HIG ( $\bar{x}_{LIG} = 38.90$ ,  $\bar{x}_{HIG} = 28.88$ ,  $t_1 = 2.62$ ,  $p < .05$ ). While middle income group (MIG) did not differ significantly from LIG ( $\bar{x}_{MIG} = 40.79$ ,  $\bar{x}_{LIG} = 38.90$ , NS), it reported significantly more social influence than did NIG and HIG ( $\bar{x}_{MIG} = 40.79$ ,  $\bar{x}_{NIG} = 31.33$ ,  $t_1 = 2.74$ ,  $p < .01$ ;  $\bar{x}_{MIG} = 40.79$ ,  $\bar{x}_{HIG} = 28.88$ ,  $t_1 = 3.15$ ,  $p < .01$ ). Post hoc tests on groups with work involvement with the environment showed that the group whose work had no or little involvement with the environment (NI) did not differ significantly from those who had some direct involvement with the environment (SI) ( $\bar{x}_{NI} = 30.77$ ,  $\bar{x}_{SI} = 36.92$ ,

NS). While the group whose work was highly involved with the environment (HI) did not differ significantly from those who had some direct involvement with the environment (SI) ( $\bar{x}_{HI} = 43.26$ ,  $\bar{x}_{SI} = 36.92$ , NS) it reported significantly more social influence than did NI ( $\bar{x}_{HI} = 43.26$ ,  $\bar{x}_{NI} = 30.77$ ,  $t_1 = 4.37$ ,  $p < .001$ ).

On the scores of religious aspects significant differences were found between the three occupation groups ( $F_{2,201} = 4.03$ ,  $p < .05$ ). However, the post hoc tests did not show any significant difference between the occupation groups ( $\bar{x}_{BG} = 25.22$ ,  $\bar{x}_{WG} = 17.50$ , NS). Significant differences were also found between the four income groups ( $F_{3,200} = 3.55$ ,  $p < .05$ ), and the three groups with work involvement with the environment ( $F_{2,201} = 7.00$ ,  $p < .01$ ). The post hoc tests on the income groups showed that HIG did not differ significantly from NIG and LIG ( $\bar{x}_{HIG} = 14.30$ ,  $\bar{x}_{NIG} = 18.42$ ,  $\bar{x}_{LIG} = 23.57$ , NS). While MIG did not differ significantly from NIG and LIG ( $\bar{x}_{MIG} = 26.00$ ,  $\bar{x}_{NIG} = 18.42$ ,  $\bar{x}_{LIG} = 23.57$ , NS) it reported significantly more religious influence than did HIG ( $\bar{x}_{MIG} = 26.00$ ,  $\bar{x}_{HIG} = 14.30$ ,  $t_1 = 2.95$ ,  $p < .01$ ). The post hoc tests on groups with work involvement with the environment showed that NI differ significantly from SI and HI ( $\bar{x}_{NI} = 15.91$ ,  $\bar{x}_{SI} = 23.54$ ,  $t_2 = -2.71$ ,  $p < .01$ ;  $\bar{x}_{NI} = 15.91$ ,  $\bar{x}_{HI} = 27.58$ ,  $t_2 = -3.53$ ,  $p < .01$ ). However, HI did not differ significantly from SI ( $\bar{x}_{HI} = 27.58$ ,  $\bar{x}_{SI} = 23.54$ , NS).

On the scores of economic aspects significant differences were found between the three occupation groups ( $F_{2,201} = 7.63$ ,  $p < .01$ ), the four income groups ( $F_{3,200} = 7.65$ ,  $p < .001$ ), and the three groups with work involvement with the environment ( $F_{2,201} = 4.05$ ,  $p < .05$ ). The post hoc tests on the occupation groups showed that UG did not differ significantly from BG and WG ( $\bar{x}_{UG} = 41.23$ ,  $\bar{x}_{BG} = 46.32$ ,  $\bar{x}_{WG} = 35.16$ , NS). However, BG reported significantly more economic influence than did WG ( $\bar{x}_{BG} = 46.32$ ,  $\bar{x}_{WG} = 35.16$ ,  $t_1 = 4.04$ ,  $p < .001$ ). The post hoc tests on the income groups showed that NIG did not significantly differ from LIG and MIG ( $\bar{x}_{NIG} = 41.23$ ,  $\bar{x}_{LIG} = 47.58$ , NS;  $\bar{x}_{NIG} = 41.23$ ,  $\bar{x}_{MIG} = 43.48$ , NS), but HIG reported significantly less economic influence than did each of the other three groups ( $\bar{x}_{HIG} = 30.42$ ,  $\bar{x}_{NIG} = 41.23$ ,  $t_2 = -2.79$ ,  $p < .01$ ;  $\bar{x}_{HIG} = 30.42$ ,  $\bar{x}_{LIG} = 47.58$ ,  $t_1 = -4.94$ ,  $p < .001$ ;  $\bar{x}_{HIG} = 30.42$ ,  $\bar{x}_{MIG} = 43.48$ ,  $t_1 = -3.90$ ,  $p < .001$ ). The post hoc tests on the groups with work involvement with the environment showed that NI did not differ significantly from SI ( $\bar{x}_{NI} = 41.12$ ,  $\bar{x}_{SI} = 39.28$ , NS). However, HI reported significantly more economic influence than

did either of the other two groups ( $\bar{x}_{HI} = 48.00$ ,  $\bar{x}_{NI} = 41.12$ ,  $t_1 = 2.32$ ,  $p < .05$ ;  $\bar{x}_{HI} = 48.00$ ,  $\bar{x}_{SI} = 39.28$ ,  $t_1 = 2.85$ ,  $p < .01$ ).

On the scores of political aspects significant differences were found between the three occupation groups ( $F_{2,201} = 6.71$ ,  $p < .01$ ), the four income groups ( $F_{3,200} = 6.41$ ,  $p < .001$ ), and the three groups with work involvement with the environment ( $F_{2,201} = 7.75$ ,  $p < .01$ ). The post hoc tests on the occupation groups showed that UG did not differ significantly from WG ( $\bar{x}_{UG} = 24.09$ ,  $\bar{x}_{WG} = 25.16$ , NS). However, BG reported significantly more political influence than did either of the other two groups ( $\bar{x}_{BG} = 33.75$ ,  $\bar{x}_{UG} = 24.09$ ,  $t_1 = 3.06$ ,  $p < .01$ ;  $\bar{x}_{BG} = 33.75$ ,  $\bar{x}_{WG} = 25.16$ ,  $t_1 = 2.85$ ,  $p < .01$ ). The post hoc tests on the income groups showed that NIG did not differ significantly from HIG ( $\bar{x}_{NIG} = 24.09$ ,  $\bar{x}_{HIG} = 20.58$ , NS). LIG also did not significantly differ from MIG ( $\bar{x}_{LIG} = 33.57$ ,  $\bar{x}_{MIG} = 33.34$ , NS). However, LIG reported significantly more political influence than did NIG and HIG ( $\bar{x}_{LIG} = 33.57$ ,  $\bar{x}_{NIG} = 24.09$ ,  $t_2 = 2.75$ ,  $p < .01$ ;  $\bar{x}_{LIG} = 33.57$ ,  $\bar{x}_{HIG} = 20.58$ ,  $t_2 = 3.66$ ,  $p < .001$ ). MIG also reported significantly more political influence than NIG and HIG ( $\bar{x}_{MIG} = 33.34$ ,  $\bar{x}_{NIG} = 24.09$ ,  $t_1 = 2.79$ ,  $p < .01$ ;  $\bar{x}_{MIG} = 33.34$ ,  $\bar{x}_{HIG} = 20.58$ ,  $t_1 = 3.62$ ,  $p < .001$ ). The post hoc tests on the groups with work involvement with the environment showed that NI did not differ significantly from SI ( $\bar{x}_{NI} = 24.39$ ,  $\bar{x}_{SI} = 29.34$ , NS). However, HI reported significantly more political influence than either of the other two groups ( $\bar{x}_{HI} = 36.77$ ,  $\bar{x}_{NI} = 24.39$ ,  $t_1 = 4.29$ ,  $p < .001$ ;  $\bar{x}_{HI} = 36.77$ ,  $\bar{x}_{SI} = 29.34$ ,  $t_1 = 2.19$ ,  $p < .05$ ).

Thus, it can be concluded that the differences between the mean scores of the groups in each Contextual Aspects variable tested almost certainly reflected a real population difference rather than being due to sampling error (see Appendix R).

To test the significance of differences between pairs of sub-groups of the sample independent *t*-tests were also conducted. The results showed that the differences between mean scores of EEB and contextual aspects by age, marital status and highest education level were very likely due to sampling error. The differences between mean scores of contextual aspects by households with children or without, number of household members, house ownership status and type of house/dwelling were also very likely due to sampling error. However, the differences between mean scores of EEB by households differing on each of these

characteristics were very likely to hold in the actual population (see Appendix R). Significant difference between EEB scores was found between households with children aged below 15 (WC) and households with no children aged below 15 (NC) ( $\bar{x}_{WC} = 45.97$ ,  $\bar{x}_{NC} = 42.59$ ,  $t_1 = 2.37$ ,  $p < .05$ ). Significant difference between EEB scores was also found between households with 1-3 (1-3) members and households with 4 and above members (4+) ( $\bar{x}_{1-3} = 42.54$ ,  $\bar{x}_{4+} = 45.67$ ,  $t_1 = -2.20$ ,  $p < .05$ ). Significant difference between EEB scores was also found between those who owned outright the house they lived in (Own) and those who rented the house they lived in (Rent) ( $\bar{x}_{Own} = 46.36$ ,  $\bar{x}_{Rent} = 42.84$ ,  $t_1 = 2.39$ ,  $p < .05$ ). Significant difference between EEB scores was also found between bungalow or semi-detached house dwellers (BSD) and terrace house, apartment block or flat dwellers (TAF) ( $\bar{x}_{BSD} = 46.10$ ,  $\bar{x}_{TAF} = 42.00$ ,  $t_1 = 2.91$ ,  $p < .01$ ).

Frequency analysis was also conducted on demographic and household characteristics and demonstrated that there were a sufficient number for meaningful subgroup analysis; with 32 to 144 cases in each subgroup (see Appendix S). Although some of the numbers in the subgroups of demographic and household characteristics were imbalanced, this degree of imbalance was not a concern because a majority of previous studies have found demographic and household characteristics to have largely insignificant effects on responses to the environmental behavioural questions.

## **8.5 Data Analysis**

This section presents the data analysis procedures for both survey data and qualitative interview data. Multivariate analysis was used for the survey data obtained in the present study. In order to use regression analysis variables had to be in an appropriate form. This meant that all variables had to be either interval-level or dichotomous, but since some of the demographic background variables were not initially in this form they had to be changed in character. The demographic background variables which were measured at the nominal and ordinal levels were recoded to create two dichotomous variables coded 0 and 1. The respondent's marital status (nominal), respondent's level of education (ordinal), respondent's occupation (nominal), house ownership status (nominal) and type of house (nominal) variables were each converted into sets of dummy variables. Marital status was a two-category variable (single and married). This

variable can be represented by creating a dummy variable omitting one category – single. Level of education was converted into a dummy variable with secondary level of education being the omitted category. Occupation produced two dummy variables with unemployed being the omitted category. House ownership status and type of house/dwelling variables were each converted into a dummy variable. Renting was the omitted category for house ownership status variable, and terrace house/apartment block or flat was the omitted category for type of house/dwelling variable (see Appendix T).

During the analyses of survey data (in Chapter 9: Data Analysis), since the environmentally ethical behaviour (EEB) variables as well as the contextual aspect variables were interval-level variables it was appropriate to calculate the means of the scores by several subgroups. To obtain explanations of the relationship between EEB and contextual aspects cross-tabulation analysis and multiple regression analysis were used.

Qualitative interview data were analysed using a thematic coding approach that involves five stages of data analysis (Boyatzis, 1998; Fereday & Muir-Cochrane, 2006; Denzin & Lincoln, 2003). First of all, the researcher familiarised herself with the raw data by listening to audio tapes, reading transcripts and studying notes. Secondly, the researcher identified key issues, concepts and themes apparent in the data. This was carried out by looking for a priori themes derived from the aims and objectives of the study as well as new themes raised by the interviewees themselves or otherwise apparent in the data. A list of themes was compiled along with numerical codes and short text descriptors for each theme. Thirdly, the researcher annotated the transcripts and emailed responses with the codes, identifying text passages relating to the different themes. Since single passages could contain a number of different themes, each was recorded in the margin of the transcript or email. Fourthly, the researcher gathered together all the textual segments relating to each theme. Charts were formed comprising distilled summaries of key themes with entries for several interviewees. The charting process involved a considerable amount of abstraction, reduction and synthesis. Finally, the researcher used the charts to define concepts, map the range and nature of phenomena, create typologies and find associations between themes with a view to providing a greater understanding of the survey findings. The

process of mapping and interpretation was done based on the original research objectives as well as the new themes that emerged from the data themselves.

## **8.6 Research Ethics**

This section discusses research ethics in general as well as research ethics during data collection and data analysis of both survey data and qualitative interview data. The approval of the Psychology Department's Research Ethics Committee was obtained for the survey before the field study began (see Appendix U). Meanwhile, the ethical approval for qualitative interview was obtained from the Faculty of Arts and Social Sciences Research Ethics Committee (see Appendix V). This research was not focusing specifically on culture, ethnicity, and sexual orientation except on religion. In addition, it was not dealing with very private or sensitive matters and so was unlikely to create distress, embarrassment and psychological harm to respondents. In the questionnaire, participants were asked whether or not they considered religious aspects along with other contextual aspects (i.e. social, economic, and politic) when they made decisions on their environmentally ethical behaviours (EEB) regarding household solid waste. The researcher consulted local religious leaders to make an informed decision on research methodology and procedures, and how to avoid negative outcomes for participants or their collectives.

Although all participants were Muslim males, and most were immigrants, some Muslim males were Maori. Thus, steps were taken to recognise and protect the cultural and intellectual property rights of Maori individuals or collectives. Firstly, in terms of participation, Maori Muslim males were welcome to take part. Secondly, as protection, the research questionnaire was shown to a Maori University staff member (Mr. Te Taka Keegan, Computer Science Department) who assured the researcher that it was culturally safe as far as Maori were concerned (see Appendix W). Thirdly, in terms of partnership, the results were shared with all participants who wished to see them, including Maori participants.

As far as the researcher's gender was concerned, in a Muslim culture it is acceptable to ask the questions in the questionnaire survey and in the qualitative interview guides to male or female participants regardless of the researcher's gender. In addition, there were no potential risks or discomfort to face-to-face interviewees. It was made clear that a Muslim male participant could be

accompanied by his wife during a face-to-face interview should he wish to avoid being alone with a female – five of the 10 interviewees chose this option. Furthermore, the research does not involve any concealment of information or deception. Interviewees could choose to be identified in the research findings or not – seven of the 10 interviewees chose anonymity.

### **8.6.1 Ethics and Data Collection**

The researcher is ethically responsible to all people who might be affected by the study itself or its results, such as the participants, the research profession and professional colleagues, the wider public, and sponsors of the study (De Vaus, 2002). Thus, as far as participants were concerned, the researcher provided explicit information about the researcher, the study, the sponsors, and the supervisors, in the cover page of the questionnaire as well as in the informed consent forms. The researcher also explained her affiliation with the National University of Malaysia (UKM) and the University of Waikato. The researcher stated the questionnaire title, the thesis title and the purpose of the study. The researcher provided assurances about the confidentiality and anonymity of participants' responses and explained briefly the purpose of any identifying number on the questionnaire. The researcher indicated what would be done with the results and offered to make the results available. The researcher explained how to return the questionnaire and how the interviews were to be conducted. The researcher stated that participation was voluntary and that if people agreed to participate they had the right to refuse to answer any questions and to end their participation at any time. This also applied to the head of household's responses concerning other household members, such as their age, marital status, income, and so forth. The researcher explained how the respondent was selected and the importance of their response. Finally, the researcher offered to answer any questions that might arise and provided her contact address, emails and telephone number.

For the postal survey, a signed consent form was unnecessary. It was assumed that completing and returning the questionnaire demonstrated consent by the participants. As for the qualitative face-to-face interviews each of the potential participants was contacted by email, phone or in person and was provided with a consent form prior to the visit. The researcher then did a follow up by email,

phone or in person, asking whether they were willing to be interviewed. Informed consent was obtained prior to the interview, and the interviewee was given the opportunity at the end of the interview to confirm whether or not to remain anonymous – seven of the 10 interviewees chose to be anonymous. For the email questionnaire, an information sheet was attached to each of the emails inviting prospective participants. The participants were considered to give their consent upon replying to the emails stating their agreement to be interviewed. As far as privacy was concerned, participants were invited and not in any way pressured to participate (De Vaus, 2002).

The researcher is also responsible to people other than participants who might be affected by the study itself or the study results (De Vaus, 2002):

1. Colleagues and the profession – this study did not treat respondents and others in such a way as to discredit the research enterprise, and so did not undermine the chances for future researchers to research the same population. Sufficient details of the research such as the sampling, instruments, and other aspects of methodology are provided in this thesis to enable other professionals to properly evaluate and replicate the research. Since this study was publicly funded the researcher was expected to deposit the data in public archives to be made available to others for further analysis. This practice also reduces the likelihood of scientific fraud and the fabrication of results or sloppy data analysis. It also means that the data can be more effectively and widely used. However, only questionnaire survey data is deposited into public archives. Qualitative interview data, including tape of interviews, email response and transcripts, will be safely kept by the researcher in a locked cabinet for three years and used only for research purposes. The data will then be destroyed. In addition, no one besides the researcher will see any information provided by interviewees which is linked to interviewees' names. This is to maintain the confidentiality of personal information. The supervisors and the contributions of several people and parties are also acknowledged at the beginning of the study. Furthermore, the findings were used for the completion of the researcher's PhD thesis at the University of Waikato, Hamilton, New Zealand. The findings are also likely to be presented at conferences, in academic journals, seminars,

lecture presentations, and on the website of the Centre for General Studies, the National University of Malaysia: <http://pkukmweb.ukm.my/~ppu/>

2. Sponsors – the study was sponsored by the National University of Malaysia (UKM) and the Public Service Department of Malaysia. Thus, the researcher was responsible to these bodies (De Vaus, 2002) to:
  - a. Avoid overstating her expertise with a particular methodology.
  - b. Not over-claim what can be learned and applied from the research or the particular methodology.
  - c. Make the sponsor aware of the limitations of the study.
  - d. Not undermine research access by future researchers by respecting the confidentiality of privileged information regarding the sponsor gained in the course of the research/study.
3. The public – in reporting the research findings the researcher has ensured that she provided sufficient information so that the results are not misleading. Methodological details about data collection, sampling, and the ways in which data were prepared for analysis are provided for the reader. The researcher has attempted to collect, analyse and report the data without fear or favour. The researcher also made the sponsorship arrangements clear to the public. This includes the political context in which data were collected, the source of funds, and contractual obligations and sponsorship of the study that affected what data were collected and the way they were interpreted (De Vaus, 2002).

### **8.6.2 Ethics and Data Analysis**

Since the present study was primarily based on survey research, complemented with some qualitative information, replication is less achievable than with experimental research (De Vaus, 2002). Thus, safeguards against misreporting or misanalysis of survey results adopted in this study were:

1. Appropriate techniques and reasonable quality scales were used for data collection and analysis survey data. Thus, the validity and reliability of each of the scales used in this study was rigorously tested.
2. Data sets of the survey were made publicly available through data archives in which the researcher deposited her data sets and they are available to other researchers for secondary analysis at the National Statistics

Department of Malaysia.

## **8.7 Conclusion**

This chapter has detailed the methods used in this study, including methods of selecting the participants, constructing and administering the questionnaire and interview guides, sampling the population, and analysing the data. In addition, this chapter also presented some preliminary analysis of the survey data (i.e., tests of reliability, validity, representativeness of the sample, and sample size). The research ethics in dealing with participants and others which were carefully observed in this study have also been spelt out in this chapter. The next chapter presents the analysis of survey data and qualitative interview data.

## CHAPTER 9

### ANALYSIS OF DATA

#### 9.1 Introduction

This chapter presents summary tables and supporting descriptions to show patterns in the survey data. In addition to the survey data, this chapter also presents qualitative interview data.

#### 9.2 Patterns of Questionnaire Survey Data for Each Hypothesis

The survey data analyses for each hypothesis (Perry, 1998) are presented in this section.

##### 9.2.1 Independent Variables and Dependent Variable (EEB)

This section presents the analysis of the relationships between independent variables (i.e., contextual aspects and demographic characteristics) and dependent variable environmentally ethical behaviour (EEB) for hypotheses 1 and 2 (see section 1.3.3).

To determine relationships between independent variables (i.e., contextual aspects and demographic characteristics) and dependent variable (i.e., EEB) a partial correlation and regression coefficients analysis was conducted. The analysis made use of stepwise method to exclude insignificant independent variables that do not help to explain the variability in EEB. Table 9.1 presents partial correlation and regression coefficients and the excluded insignificant independent variables from SPSS.

##### ***Partial correlation:***

A partial  $r$  was computed between each independent variable and the dependent variable, and then these set of coefficients were compared to see which variable enables the most accurate predictions of scores on the dependent variable (i.e., has the strongest relationship) (De Vaus, 2002). Partial correlation coefficient for:

- i. EEB ( $X_7$ ) with *Economic* ( $X_1$ ) controlling for Occupation (White Collar Workers) ( $X_2$ ), Number of Household Occupant ( $X_3$ ), Work Involvement with the Environment ( $X_4$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) and Age ( $X_6$ ) = .473, i.e.,  $r_{71.23456} = .473$

**Table 9.1: Partial Correlation and Regression Coefficients from SPSS**

	Coefficients <sup>a</sup>										
	Unstandardised Coefficients		Standardised coefficients		t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta				Lower bound	Upper bound	Zero-order	Partial	VIF
(Constant)	29.209	2.799		10.434	.000	23.689	34.730				
Economic (X <sub>1</sub> )	.265	.035	.460	7.533	.000	.196	.334	.440	.473	1.098	
Occupation (White Collar Workers) (X <sub>2</sub> )	5.473	1.476	.237	3.708	.000	2.562	8.383	.099	.255	1.201	
Number of Household Occupant (X <sub>3</sub> )	.791	.333	.159	2.378	.018	.135	1.448	.175	.167	1.321	
Work Involvement with the Environment (X <sub>4</sub> )	1.447	.527	.167	2.745	.007	.408	2.487	.229	.192	1.087	
Type of Dwelling (Bungalow or Semi-detached House) (X <sub>5</sub> )	3.023	1.359	.147	2.225	.027	.343	5.703	.200	.157	1.289	
Age (X <sub>6</sub> )	-.123	.056	-.142	-2.202	.029	-.233	-.013	-.062	-.155	1.217	
	Excluded Variables <sup>a</sup>										
	Unstandardised Coefficients		Standardised coefficients		t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta	In			Lower bound	Upper bound	Zero-order	Partial	VIF
Social	-	-	.139		1.847	.066	-	-	-	.131	1.689
Political	-	-	.096		1.144	.254	-	-	-	.081	2.078
Religious	-	-	.107		1.569	.118	-	-	-	.111	1.384
House Ownership Status (Own Outright)	-	-	.047		.685	.494	-	-	-	.049	1.364
Household Total Income	-	-	-.086		-1.144	.254	-	-	-	-.081	1.650
Number of Children	-	-	.065		.776	.439	-	-	-	.055	2.063
Marital Status (Married)	-	-	.058		.777	.438	-	-	-	.055	1.607
Level of Education (Tertiary)	-	-	-.091		-1.458	.147	-	-	-	-.104	1.142
Occupation (Blue Collar Workers)	-	-	.016		.214	.831	-	-	-	.015	1.709
Personal Income	-	-	-.089		-1.110	.268	-	-	-	-.079	1.875

<sup>a</sup>Dependent Variable: EEB (X<sub>7</sub>)

Source: Analysis of Survey Data

- ii. EEB (X<sub>7</sub>) with *Occupation (White Collar Workers) (X<sub>2</sub>)* controlling for Economic (X<sub>1</sub>), Number of Household Occupant (X<sub>3</sub>), Work Involvement with the Environment (X<sub>4</sub>), Type of Dwelling (Bungalow or Semi-detached House) (X<sub>5</sub>) and Age (X<sub>6</sub>) = .255, i.e.,  $r_{72.13456} = .255$

- iii. EEB ( $X_7$ ) with *Number of Household Occupant* ( $X_3$ ) controlling for Economic ( $X_1$ ), Occupation (White Collar Workers) ( $X_2$ ), Work Involvement with the Environment ( $X_4$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) and Age ( $X_6$ ) = .167, i.e.,  $r_{73.12456} = .167$
- iv. EEB ( $X_7$ ) with *Work Involvement with the Environment* ( $X_4$ ) controlling for Economic ( $X_1$ ), Occupation (White Collar Workers) ( $X_2$ ), Number of Household Occupant ( $X_3$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) and Age ( $X_6$ ) = .192, i.e.,  $r_{74.12356} = .192$
- v. EEB ( $X_7$ ) with *Type of Dwelling (Bungalow or Semi-detached House)* ( $X_5$ ) controlling for Economic ( $X_1$ ), Occupation (White Collar Workers) ( $X_2$ ), Number of Household Occupant ( $X_3$ ), Work Involvement with the Environment ( $X_4$ ) and Age ( $X_6$ ) = .157, i.e.,  $r_{75.12346} = .157$
- vi. EEB ( $X_7$ ) with Age ( $X_6$ ) controlling for Economic ( $X_1$ ), Occupation (White Collar Workers) ( $X_2$ ), Number of Household Occupant ( $X_3$ ), Work Involvement with the Environment ( $X_4$ ) and Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) = -.155, i.e.,  $r_{76.12345} = -.155$

Since Economic has the strongest partial  $r$  (.473), it is the best predictor of EEB followed by Occupation (White collar workers) (.255), Work Involvement with the Environment (.192), Number of Household Occupant (.167), Type of Dwelling (Bungalow or Semi-detached House) (.157) and Age (-.155).

#### ***Partial regression coefficient:***

A partial regression coefficient was computed to indicate the effect of one independent variable on the dependent variable (i.e., EEB) with the effect of the other specified contaminating variables removed (De Vaus, 2002). Both unstandardised partial regression coefficients and standardised partial regression coefficients were used to explain the results.

Unstandardised partial regression coefficients:

Regression of:

- i. EEB ( $X_7$ ) with *Economic* ( $X_1$ ) controlling for Occupation (White Collar Workers) ( $X_2$ ), Number of Household Occupant ( $X_3$ ), Work Involvement with the Environment ( $X_4$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) and Age ( $X_6$ ) = .265, i.e.,  $b_{71.23456} = .265$ . To say  $b_1 = .265$  means that for each unit increase (numbers) in Economic ( $X_1$ ), EEB will increase by .265. This is independent of *Occupation (White Collar Workers)*, *Number of Household Occupant*, *Work Involvement with the Environment*, *Type of Dwelling (Bungalow or Semi-detached House)*, and *Age* which might be correlated with *Economic*. Thus, if New Zealand Muslim males are white collar workers, have the same number of household occupant, have the same level of work involvement with the environment, dwell in a bungalow or semi-detached house, and are at the same age the person with the higher Economic influence will, on average, perform more often EEB at the rate predicted (i.e., .265).

- ii. EEB ( $X_7$ ) with *Occupation (White Collar Workers)* ( $X_2$ ) controlling for Economic ( $X_1$ ), Number of Household Occupant ( $X_3$ ), Work Involvement with the Environment ( $X_4$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) and Age ( $X_6$ ) = 5.473, i.e.,  $b_{72.13456} = 5.473$ . To say  $b_2 = 5.473$  means that for each unit increase (status) in Occupation (White Collar Workers) ( $X_2$ ), EEB will increase by 5.473. This is independent of *Economic, Number of Household Occupant, Work Involvement with the Environment, Type of Dwelling (Bungalow or Semi-detached House)*, and Age which might be correlated with *Occupation (White Collar Workers)*. Thus, if New Zealand Muslim males have the same score of economic influence, have the same number of household occupant, have the same level of work involvement with the environment, dwell in a bungalow or semi-detached house, and are at the same age the person who are white collar workers will, on average, perform more often EEB at the rate predicted (i.e., 5.473).
- iii. EEB ( $X_7$ ) with *Number of Household Occupant* ( $X_3$ ) controlling for Economic ( $X_1$ ), Occupation (White Collar Workers) ( $X_2$ ), Work Involvement with the Environment ( $X_4$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) and Age ( $X_6$ ) = .791, i.e.,  $b_{73.12456} = .791$ . To say  $b_3 = .791$  means that for each unit increase (numbers) in Number of Household Occupant ( $X_3$ ), EEB will increase by .791. This is independent of *Economic, Occupation (White Collar Workers), Work Involvement with the Environment, Type of Dwelling (Bungalow or Semi-detached House)*, and Age which might be correlated with *Number of Household Occupant*. Thus, if New Zealand Muslim males have the same score of economic influence, are white collar workers, have the same level of work involvement with the environment, dwell in a bungalow or semi-detached house, and are at the same age the person with higher number of household occupant will, on average, perform more often EEB at the rate predicted (i.e., .791).
- iv. EEB ( $X_7$ ) with *Work Involvement with the Environment* ( $X_4$ ) controlling for Economic ( $X_1$ ), Occupation (White Collar Workers) ( $X_2$ ), Number of Household Occupant ( $X_3$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ) and Age ( $X_6$ ) = 1.447, i.e.,  $b_{74.12356} = 1.447$ . To say  $b_4 = 1.447$  means that for each unit increase (numbers) in Work Involvement with the Environment ( $X_4$ ), EEB will increase by 1.447. This is independent of *Economic, Occupation (White Collar Workers), Number of Household Occupant, Type of Dwelling (Bungalow or Semi-detached House)*, and Age which might be correlated with *Work Involvement with the Environment*. Thus, if New Zealand Muslim males have the same score of economic influence, are white collar workers, have the same number of household occupant, dwell in a bungalow or semi-detached house, and are at the same age the person with higher level of work involvement with the environment will, on average, perform more often EEB at the rate predicted (i.e., 1.447).
- v. EEB ( $X_7$ ) with *Type of Dwelling (Bungalow or Semi-detached House)* ( $X_5$ ) controlling for Economic ( $X_1$ ), Occupation (White Collar Workers) ( $X_2$ ), Number of Household Occupant ( $X_3$ ), Work Involvement with the Environment ( $X_4$ ) and Age ( $X_6$ ) = 3.023, i.e.,  $b_{75.12346} = 3.023$ . To say  $b_5 = 3.023$  means that for each unit increase (type) in Type of Dwelling (Bungalow or Semi-detached House) ( $X_5$ ), EEB will increase by 3.023.

This is independent of *Economic, Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the Environment, and Age* which might be correlated with *Type of Dwelling (Bungalow or Semi-detached House)*. Thus, if New Zealand Muslim males have the same score of economic influence, are white collar workers, have the same number of household occupant, have the same level of work involvement with the environment, and are at the same age the person who dwell in a bungalow or semi-detached house will, on average, perform more often EEB at the rate predicted (i.e., 3.023).

- vi. EEB ( $X_7$ ) with *Age* ( $X_6$ ) controlling for *Economic* ( $X_1$ ), *Occupation (White Collar Workers)* ( $X_2$ ), *Number of Household Occupant* ( $X_3$ ), *Work Involvement with the Environment* ( $X_4$ ) and *Type of Dwelling (Bungalow or Semi-detached House)* ( $X_5$ ) =  $-.123$ , i.e.,  $b_{76.12345} = -.123$ . To say  $b_6 = -.123$  means that for each unit increase (year) in *Age* ( $X_6$ ), EEB will increase by  $-.123$  (or rather EEB will decrease by  $.123$ ). This is independent of *Economic, Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the Environment, and Type of Dwelling (Bungalow or Semi-detached House)* which might be correlated with *Age*. Thus, if New Zealand Muslim males have the same score of economic influence, are white collar workers, have the same number of household occupant, have the same level of work involvement with the environment, and dwell in a bungalow or semi-detached house the person who are older will, on average, perform less often EEB at the rate predicted (i.e.,  $.123$ ).

Standardised partial regression coefficients:

The information provided by unstandardised partial regression coefficients above cannot be compared with one another because each of the independent variables was measured on a different scale (De Vaus, 2002). For example, while one unit increase on *Economic* leads to an independent increase of  $.265$  and one unit increase on *Occupation (White Collar Workers)* leads to an independent increase of  $5.473$  on EEB, these units are not equivalent in size. *Economic* as a variable has a range of score 0 to 84 while *Occupation (White Collar Workers)* is scored on a scale 0 to 3. One unit of *Economic* was not the same 'size' as a unit of *Occupational status*. To see which factor had the greatest independent impact the standardised partial regression coefficients were used.

The beta coefficients for independent variables in Table 9.1 are listed in column 4. The interpretation of these standardised partial regression coefficients (betas) are as follows.

- i. The  $b$  for *Economic* was  $.265$ . Standardised this is  $.460$  and means that for each increase of the size of one standard deviation of *Economic* (standard deviation of *Economic* =  $17.849$ ) the frequency of EEB will increase by  $.460$  of a standard deviation of EEB (standard deviation of EEB =  $10.274$ ). Since  $.460$  of the standard deviation of EEB is  $4.726$

- ( $10.274 \times .460$ ) then a beta of .460 means that for each standard deviation increase of Economic influence (i.e., 17.849) EEB will increase by 4.726.
- ii. The b for Occupation (White Collar Workers) was 5.473. Standardised this is .237 and means that for each increase of the size of one standard deviation of Occupation (standard deviation of Occupation = .445) the frequency of EEB will increase by .237 of a standard deviation of EEB (standard deviation of EEB = 10.274). Since .237 of the standard deviation of EEB is 2.435 ( $10.274 \times .237$ ) then a beta of .237 means that for each standard deviation increase of Occupational status (i.e., .445) EEB will increase by 2.435.
  - iii. The b for Number of Household Occupant was .791. Standardised this is .159 and means that for each increase of the size of one standard deviation of Number of Household Occupant (standard deviation of Number of Household Occupant = 2.069) the frequency of EEB will increase by .159 of a standard deviation of EEB (standard deviation of EEB = 10.274). Since .460 of the standard deviation of EEB is 1.634 ( $10.274 \times .159$ ) then a beta of .159 means that for each standard deviation increase of Number of Household Occupant (i.e., 2.069) EEB will increase by 1.634.
  - iv. The b for Work Involvement with the Environment was 1.447. Standardised this is .167 and means that for each increase of the size of one standard deviation of Work Involvement with the Environment (standard deviation of Work Involvement with the Environment = 1.185) the frequency of EEB will increase by .167 of a standard deviation of EEB (standard deviation of EEB = 10.274). Since .167 of the standard deviation of EEB is 1.716 ( $10.274 \times .167$ ) then a beta of .167 means that for each standard deviation increase of Work Involvement with the Environment (i.e., 1.185) EEB will increase by 1.716.
  - v. The b for Type of Dwelling (Bungalow or Semi-detached House) was 3.023. Standardised this is .147 and means that for each increase of the size of one standard deviation of Type of Dwelling (standard deviation of Type of Dwelling = .501) the frequency of EEB will increase by .147 of a standard deviation of EEB (standard deviation of EEB = 10.274). Since .147 of the standard deviation of EEB is 1.510 ( $10.274 \times .147$ ) then a beta of .147 means that for each standard deviation increase of Type of Dwelling (i.e., .501) EEB will increase by 1.510.
  - vi. The b for Age was -.123. Standardised this is -.142 and means that for each increase of the size of one standard deviation of Age (standard deviation of Age = 11.821) the frequency of EEB will increase by -.142 (or rather decrease by .142) of a standard deviation of EEB (standard deviation of EEB = 10.274). Since -.142 of the standard deviation of EEB is -1.459 ( $10.274 \times -.142$ ) then a beta of -.142 means that for each standard deviation increase of Age (i.e., 11.821) EEB will increase by -1.459 (or rather decrease by 1.459).

The standardised values of betas were then compared to see which variables have the greatest effect and to assess the relative impact of different variables. Thus, Economic with a beta of .460 had more effect than Occupation (White Collar

Workers), Work Involvement with the environment, Number of Household Occupant, Type of Dwelling (Bungalow or Semi-detached House), and Age that had lesser beta values (i.e., .237, .167, .159, .147, -.142, respectively). Occupation (White Collar Workers) had the highest b but only the second higher beta. Economic had a much lower b than Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the Environment, and Type of Dwelling (Bungalow or Semi-detached House) but in terms of relative impact (beta) Economic had the highest impact. Type of Dwelling (Bungalow or Semi-detached House) had a higher b than Economic, Number of Household Occupant and Work Involvement with the Environment but in terms of relative impact (beta) Type of Dwelling (Bungalow or Semi-detached House) had a lower impact.

***Significance:***

The discussion of regression coefficients has focused on the regression figures as descriptive statistics: they describe the patterns in the sample (De Vaus, 2002). Significance levels were calculated to estimate how likely these patterns are to hold in the New Zealand Muslim male population. Thus, significance levels were calculated for both the b and beta coefficients (column 6, Table 9.1) to test the null hypothesis that the coefficient is zero (i.e., the variable has no impact).

As far as the relation between EEB and contextual aspects (i.e., social, religious, economic, and political) is concerned Table 9.1 shows that EEB had a significant relationship only with the economic aspect ( $p < .001$ ). Thus, the null hypothesis of no impact of Economic influence on EEB was rejected. The economic influence had a significance level below .001 which means that in the New Zealand Muslim male population the economic influence was likely to have at least this level of impact. However, the social, religious, and political influences were not significantly related to EEB ( $p > .05$ ). Social, Political, and Religious influences had a significance of .066, .254, and .118, respectively, which means that there are 6.6, 25.4, and 11.8 per cents, respectively, probability that their b or beta coefficients were greater than zero simply because of sampling error. Thus, the variables probably had no impact on the frequency of EEB, and the null hypothesis of no impact was accepted.

Relation between EEB and demographic characteristics (Table 9.1) shows that EEB had a significant relationship only with Occupation (White Collar Workers) ( $p < .001$ ), Number of Household Occupant ( $p < .05$ ), Level of Work

Involvement with the Environment ( $p < .01$ ), Type of Dwelling (Bungalow or Semi-detached House) ( $p < .05$ ), and age ( $p < .05$ ). Their significance levels mean that in the New Zealand Muslim male population these demographic and household variables were likely to have at least these levels of impacts. On the other hand, House Ownership Status (Own Outright), Household Total Income, Number of Children, Marital Status (Married), Level of Education (Tertiary), Occupation (Blue Collar Workers) and Personal Income were not significant towards explaining EEB ( $p > .05$ ). They had a significance of .494, .254, .439, .438, .147, .831, and .268, respectively, which means that there are 49.4, 25.4, 43.9, 43.8, 14.7, and 26.8 per cents, respectively, probability that their  $b$  or beta coefficients were greater than zero simply because of sampling error. Hence, the impacts of these demographic and household variables are treated as being zero – of no consequences in effecting EEB frequency.

***Model:***

To examine the overall impact of the set of independent variables and consider their joint impact on the dependent variable EEB (i.e., evaluating the impact of a model rather than a variable) multiple correlation and multiple regression are used to analyse and evaluate the model.

**Multiple Correlation:**

Multiple correlation was used to evaluate the explanatory power of a model by assessing the joint effect of the set of independent variables, and to assess how accurate regression predictions from the model will be (De Vaus, 2002).

The correlation coefficient in Model 1 to 6 (i.e.,  $R = .440, .488, .521, .545, .560, .575$ , respectively), indicating a moderate positive relationship between the different set of predictor(s)/the different set of independent variables and EEB (Table 9.2).

Table 9.2 shows that the difference Economic influence (i.e., Model 1) explained only 19.3 percent of the variation in EEB (i.e.,  $R^2 = .193$ ).

Table 9.2 indicates  $R^2$  in Model 2 is .238 which means that 23.8 per cent of the variation in EEB in the sample was due to differences in Economic influence and Occupation (White Collar Workers). Therefore, the difference in Occupation (White Collar Workers) explained only 4.5 per cent (i.e., 23.8 per cent - 19.3 per cent) of the variation in EEB (i.e.,  $R^2 = .045$ ).

**Table 9.2: R<sup>2</sup> for Models**

Model Summary <sup>a</sup>			
Model	R	R Square	Adjusted R Square
1	.440 <sup>a</sup>	.193	.189
2	.488 <sup>b</sup>	.238	.230
3	.521 <sup>c</sup>	.271	.261
4	.545 <sup>d</sup>	.297	.283
5	.560 <sup>e</sup>	.314	.296
6	.575 <sup>f</sup>	.330	.310

a. Predictors: (Constant), Economic  
b. Predictors: (Constant), Economic, Occupation (White Collar Workers)  
c. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant  
d. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the Environment  
e. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant, Work involvement with the environment, Type of Dwelling (Bungalow or Semi-detached House)  
f. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant Work involvement with the environment, Type of Dwelling (Bungalow or Semi-detached House), Age  
g. Dependent Variable: EEB

Source: Analysis of Survey Data

The set of independent variables in Model 3 indicate  $R^2 = .271$ , meaning that 27.1 per cent of the variation in EEB in the sample was due to differences in Economic influence, Occupation (White Collar Workers), and Number of Household Occupant. Hence, the difference in Number of Household Occupant explained only 3.3 per cent (i.e., 27.1 per cent - 23.8 per cent) of the variation in EEB (Table 9.2).

The difference in Economic, Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the Environment (Model 4) explained 29.7 per cent of the variation in EEB (i.e.,  $R^2 = .297$ ). Thus, only 2.6 per cent (i.e., 29.7 per cent - 27.1 per cent) of the variation in EEB in the sample was due to the difference in Work Involvement with the Environment (Table 9.2).

Model 5 with  $R^2 = .314$ , means that 31.4 per cent of the variation in EEB was explained by differences in Economic, Occupation (White Collar Workers), Number of Household Occupant, Work involvement with the environment, and Type of Dwelling (Bungalow or Semi-detached House). Therefore, Type of Dwelling (Bungalow or Semi-detached House) explained only 1.7 per cent (i.e., 31.4 per cent - 29.7 per cent) of the variation in EEB (Table 9.2).

The set of independent variables in Model 6 indicate  $R^2 = .330$ , meaning that 33.0 per cent of the variation in EEB in the sample was due to differences in Economic influence, Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the environment, Type of Dwelling (Bungalow

or Semi-detached House), and Age. Hence, the difference in Age explained only 1.6 per cent (i.e., 33.0 per cent - 31.4 per cent) of the variation in EEB (Table 9.2).

To work out whether  $R^2$  values of the models in the sample were due to sampling error or not F-test and its significance level was used. In Table 9.3 the significance value of each of the models is very low meaning that the  $R^2$  that high (19.3 per cent, 23.8 per cent, 27.1 per cent, 29.7 per cent, 31.4 per cent, and 33.0 per cent, respectively) in each of the models was not simply an aberration due to sampling error.

**Table 9.3: Analysis of Variance of Models Indicating Significance of  $R^2$**

		ANOVA <sup>a</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4141.929	1	4141.929	48.408	.000 <sup>a</sup>
	Residual	17283.659	202	85.563		
	Total	21425.588	203			
2	Regression	5100.330	2	2550.165	31.398	.000 <sup>b</sup>
	Residual	16325.258	201	81.220		
	Total	21425.588	203			
3	Regression	5815.957	3	1938.652	24.839	.000 <sup>c</sup>
	Residual	15609.631	200	78.048		
	Total	21425.588	203			
4	Regression	6363.675	4	1590.919	21.019	.000 <sup>d</sup>
	Residual	15061.913	199	75.688		
	Total	21425.588	203			
5	Regression	6721.508	5	1344.302	18.102	.000 <sup>e</sup>
	Residual	14704.080	198	74.263		
	Total	21425.588	203			
6	Regression	7074.863	6	1179.144	16.187	.000 <sup>f</sup>
	Residual	14350.725	197	72.846		
	Total	21425.588	203			

a. Predictors: (Constant), Economic  
b. Predictors: (Constant), Economic, Occupation (White Collar Workers)  
c. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant  
d. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the Environment  
e. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant, Work involvement with the environment, Type of Dwelling (Bungalow or Semi-detached House)  
f. Predictors: (Constant), Economic, Occupation (White Collar Workers), Number of Household Occupant Work involvement with the environment, Type of Dwelling (Bungalow or Semi-detached House), Age  
g. Dependent Variable: EEB

Source: Analysis of Survey Data

### Multiple Regression:

Multiple regression is used in the present study to examine the joint impact of the whole set of variables. According to De Vaus (2002), “Multiple regression works on the principle that the more we know about a person the more accurately we can guess other attributes of that person. It makes use of the information provided by partial regression” (p. 324-325).

To estimate the frequency of EEB of New Zealand Muslim males the information about Economic influence could be used, but Occupation (White Collar Workers), Number of Household Occupant, Work Involvement with the Environment, Type of Dwelling (Bungalow or Semi-detached House), and Age had unique effects additional to Economic influence. The use of this additional information obtained a better estimate than that provided by Economic influence alone. Thus, the impact of the whole set of independent variables on EEB can be calculated by simply extending the bivariate regression formula of  $Y = a + bX$  into  $X_7 = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6$  where each X represents a particular variable and each b represents the partial regression coefficient of the variable, and the 'a' symbol in this equation is the *constant* figure in Table 9.1 represents the EEB of a person who obtained a zero score on each of the six predictor variables. Since the unstandardised equation (i.e., unstandardised b coefficients) is normally used when making predictions (De Vaus, 2002) the present study used the unstandardised equation:

$$\begin{aligned} \text{Predicted EEB} &= a + b_1(\text{Economic}) + b_2(\text{Occupation}) + b_3(\text{Number of Household Occupant}) + b_4(\text{Work Involvement with the Environment}) + b_5(\text{Type of Dwelling}) + b_6(\text{Age}) \\ &= 29.209 + .265 (\text{Economic}) + 5.473 (\text{Occupation}) + .791(\text{Number of Household Occupant}) + 1.447(\text{Work Involvement with the Environment}) + 3.023(\text{Type of Dwelling}) + -.123(\text{Age}) \end{aligned}$$

To predict the EEB of New Zealand Muslim males as a group rather than individuals means to estimate the mean score of EEB for New Zealand Muslim males as a group. Thus, the group mean for each variable was inserted into regression equation given that the group means for New Zealand Muslim males were  $X_{\text{Economic}} = 42.240$ ,  $X_{\text{Occupation}} = .270$ ,  $X_{\text{Number of Household Occupant}} = 3.544$ ,  $X_{\text{Work Involvement with the Environment}} = 1.814$ ,  $X_{\text{Type of Dwelling}} = .525$ , and  $X_{\text{Age}} = 38.539$ :

$$\begin{aligned} \text{Predicted EEB} &= 29.209 + .265 (42.240) + 5.473 (.270) + .791(3.544) + 1.447(1.814) + 3.023(.525) + -.123(38.539) \\ &= 29.209 + 11.194 + 1.478 + 2.803 + 2.625 + 1.587 + -4.625 \\ &= 44.271 \end{aligned}$$

### 9.2.2 Independent Variables and Contextual Aspects

This section presents the analysis of the relationships between independent variables and the dependent variables (i.e., each of the contextual aspects) for hypothesis 3 (see section 1.3.3). The independent variables considered in these

analyses were the demographic characteristics, the contextual aspects themselves, and EEB.

To determine relationships between the independent variables and the contextual aspects, separate partial correlation and regression coefficients analyses were conducted for each contextual aspect. The used of stepwise method in the analyses exclude insignificant independent variables that do not help to explain the variability in each of the contextual aspects.

### **Independent Variables and Social Aspect**

Table 9.4 presents partial correlation and regression coefficients from SPSS for the dependent variable Social aspect, and the excluded insignificant independent variables.

#### ***Partial correlation:***

Partial correlation coefficient for:

- i. Social ( $X_6$ ) with *Political* ( $X_1$ ) controlling for Religious ( $X_2$ ), Economic ( $X_3$ ), Marital Status (Married) ( $X_4$ ), and Household Total Income ( $X_5$ ) = .323, i.e.,  $r_{61.2345} = .323$
- ii. Social ( $X_6$ ) with *Religious* ( $X_2$ ), controlling for Political ( $X_1$ ), Economic ( $X_3$ ), Marital Status (Married) ( $X_4$ ), and Household Total Income ( $X_5$ ) = .387, i.e.,  $r_{62.1345} = .387$
- iii. Social ( $X_6$ ) with *Economic* ( $X_3$ ), controlling for Political ( $X_1$ ), Religious ( $X_2$ ), Marital Status (Married) ( $X_4$ ), and Household Total Income ( $X_5$ ) = .225, i.e.,  $r_{63.1245} = .225$
- iv. Social ( $X_6$ ) with *Marital Status (Married)* ( $X_4$ ), controlling for Political ( $X_1$ ), Religious ( $X_2$ ), Economic ( $X_3$ ), and Household Total Income ( $X_5$ ) = -.195, i.e.,  $r_{64.1235} = -.195$
- v. Social ( $X_6$ ) with *Household Total Income* ( $X_5$ ), controlling for Political ( $X_1$ ), Religious ( $X_2$ ), Economic ( $X_3$ ), and Marital Status (Married) ( $X_4$ ) = .156, i.e.,  $r_{65.1234} = .156$

Since Religious has the strongest partial  $r$  (.387), it is the best predictor of Social influence followed by Political (.323), Economic (.225), Household Total Income (.156), and Marital Status (Married) (-.195).

#### ***Partial regression coefficient:***

Unstandardised partial regression coefficients indicate regression of:

**Table 9.4: Partial Correlation and Regression Coefficients from SPSS**

	Coefficients <sup>a</sup>										
	Unstandardised Coefficients		Standardised coefficients		t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta	In			Lower bound	Upper bound	Zero-order	Partial	VIF
(Constant)	10.691	2.679			3.990	.000	5.407	15.974			
Political (X <sub>1</sub> )	.350	.073	.351		4.808	.000	.206	.494	.706	.323	2.654
Religious (X <sub>2</sub> )	.340	.058	.352		5.912	.000	.227	.454	.660	.387	1.772
Economic (X <sub>3</sub> )	.211	.065	.207		3.253	.001	.083	.338	.595	.225	2.022
Marital Status (Married) (X <sub>4</sub> )	-5.249	1.879	-.137		-2.793	.006	-8.955	-1.543	-.081	-.195	1.202
Household Total Income (X <sub>5</sub> )	4.810E-05	.000	.112		2.215	.028	.000	.000	-.096	.156	1.275
	Excluded Variables <sup>a</sup>										
	Unstandardised Coefficients		Standardised coefficients		t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta	In			Lower bound	Upper bound	Zero-order	Partial	VIF
Number of Children	-	-	.010		.191	.848	-	-	-	.014	1.308
Number of Household Occupant	-	-	.061		1.155	.249	-	-	-	.082	1.375
Level of Education (Tertiary)	-	-	.008		.162	.871	-	-	-	.012	1.230
Occupation (Blue Collar Workers)	-	-	.054		1.146	.253	-	-	-	.081	1.128
Occupation (White Collar Workers)	-	-	-.039		-.713	.477	-	-	-	-.051	1.453
House Ownership Status (Own Outright)	-	-	-.066		-1.340	.182	-	-	-	-.095	1.217
Type of Dwelling (Bungalow or Semi-detached House)	-	-	-.065		-1.314	.190	-	-	-	-.093	1.209
Age	-	-	-.053		-1.059	.291	-	-	-	-.075	1.254
Personal Income	-	-	.060		.913	.362	-	-	-	.065	2.150
Work Involvement with the Environment	-	-	.070		1.484	.139	-	-	-	.105	1.110
EEB	-	-	.077		1.504	.134	-	-	-	.107	1.300

<sup>a</sup>Dependent Variable: Social(X<sub>6</sub>)

Source: Analysis of Survey Data

- i. Social ( $X_6$ ) with *Political* ( $X_1$ ) controlling for Religious ( $X_2$ ), Economic ( $X_3$ ), Marital Status (Married) ( $X_4$ ), and Household Total Income ( $X_5$ ) = .350, i.e.,  $b_{61.2345} = .350$ . To say  $b_1 = .350$  means that for each unit increase (numbers) in Political ( $X_1$ ), Social will increase by .350. This is independent of *Religious*, *Economic*, *Marital Status (Married)*, and *Household Total Income* which might be correlated with *Political*. Thus, if New Zealand Muslim males have the same score of religious influence, the same score of economic influence, are married, and have the same household total income the person with the higher Political influence will, on average, influenced more by Social aspect at the rate predicted (i.e., .350).
- ii. Social ( $X_6$ ) with *Religious* ( $X_2$ ) controlling for Political ( $X_1$ ), Economic ( $X_3$ ), Marital Status (Married) ( $X_4$ ), and Household Total Income ( $X_5$ ) = .340, i.e.,  $b_{62.1345} = .340$ . To say  $b_2 = .340$  means that for each unit increase (numbers) in Religious ( $X_2$ ), Social will increase by .340. This is independent of *Political*, *Economic*, *Marital Status*, and *Household Total Income* which might be correlated with *Religious*. Thus, if New Zealand Muslim males have the same score of political influence, the same score of economic influence, are married, and have the same household total income the person with the higher Religious influence will, on average, influenced more by Social aspect at the rate predicted (i.e., .340).
- iii. Social ( $X_6$ ) with *Economic* ( $X_3$ ) controlling for Political ( $X_1$ ), Religious ( $X_2$ ) Marital Status (Married) ( $X_4$ ), and Household Total Income ( $X_5$ ) = .211, i.e.,  $b_{63.1245} = .211$ . To say  $b_3 = .211$  means that for each unit increase (numbers) in Economic ( $X_3$ ), Social will increase by .211. This is independent of *Political*, *Religious*, *Marital Status (Married)*, and *Household Total Income* which might be correlated with *Economic*. Thus, if New Zealand Muslim males have the same score of political influence, the same score of religious influence, are married, and have the same household total income the person with the higher Economic influence will, on average, influenced more by Social aspect at the rate predicted (i.e., .211).
- iv. Social ( $X_6$ ) with *Marital Status (Married)* ( $X_4$ ) controlling for Political ( $X_1$ ), Religious ( $X_2$ ), Economic ( $X_3$ ), and Household Total Income ( $X_5$ ) = -5.249, i.e.,  $b_{64.1235} = -5.249$ . To say  $b_4 = -5.249$  means that for each unit increase (status) in Marital Status (Married) ( $X_4$ ), Social will increase by -5.249 (or rather decrease by 5.249). This is independent of *Political*, *Religious*, *Economic*, and *Household Total Income* which might be correlated with *Marital Status (Married)*. Thus, if New Zealand Muslim males have the same score of political influence, the same score of religious influence, the same score of economic influence, and the same household total income the person who are married will, on average, influenced less by Social aspect at the rate predicted (i.e., 5.249).
- v. Social ( $X_6$ ) with *Household Total Income* ( $X_5$ ), controlling for Political ( $X_1$ ), Religious ( $X_2$ ), Economic ( $X_3$ ), and Marital Status (Married) ( $X_4$ ) = 4.810E-05, i.e.,  $b_{65.1234} = 4.810E-05$ . To say  $b_5 = 4.810E-05$  means that for each unit increase (numbers) in Household Total Income ( $X_5$ ), Social will increase by 4.810E-05. This is independent of *Political*, *Religious*, *Economic*, and *Marital Status (Married)* which might be correlated with *Household Total Income*. Thus, if New Zealand Muslim males have the same score of political influence, the same score of religious influence, the

same score of economic influence, and are married the person who have a higher household total income will, on average, influenced more by Social aspect at the rate predicted (i.e.,  $4.810E-05$ ).

Standardised partial regression coefficients were used to see which factor had the greatest independent impact. The beta coefficients for independent variables in Table 9.4 are listed in column 4. The interpretation of these standardised partial regression coefficients (betas) are as follows.

- i. The b for Political was .350. Standardised this is .351 and means that for each increase of the size of one standard deviation of Political (standard deviation of Political = 18.197) the influence of Social will increase by .351 of a standard deviation of Social (standard deviation of Social = 18.168). Since .351 of the standard deviation of Social is 6.377 ( $18.168 \times .351$ ) then a beta of .351 means that for each standard deviation increase of Political influence (i.e., 18.197) Social will increase by 6.377.
- ii. The b for Religious was .340. Standardised this is .352 and means that for each increase of the size of one standard deviation of Religious (standard deviation of Religious = 18.797) the influence of Social will increase by .352 of a standard deviation of Social (standard deviation of Social = 18.168). Since .352 of the standard deviation of Social is 6.395 ( $18.168 \times .352$ ) then a beta of .352 means that for each standard deviation increase of Religious influence (i.e., 18.797) Social will increase by 6.395.
- iii. The b for Economic was .211. Standardised this is .207 and means that for each increase of the size of one standard deviation of Economic (standard deviation of Economic = 17.849) the influence of Social will increase by .207 of a standard deviation of Social (standard deviation of Social = 18.168). Since .207 of the standard deviation of Social is 3.761 ( $18.168 \times .207$ ) then a beta of .207 means that for each standard deviation increase of Economic influence (i.e., 17.849) Social will increase by 3.761.
- iv. The b for Marital Status (Married) was -5.249. Standardised this is -.137 and means that for each increase of the size of one standard deviation of Marital Status (Married) (standard deviation of Marital Status = .474) the influence of Social will increase by -.137 of a standard deviation of Social (standard deviation of Social = 18.168). Since -.137 of the standard deviation of Social is 2.489 ( $18.168 \times -.137$ ) then a beta of -.137 means that for each standard deviation increase of Marital Status (Married) (i.e., .474) Social will increase by 2.489.
- v. The b for Household Total Income was  $4.810E-05$ . Standardised this is .112 and means that for each increase of the size of one standard deviation of Household Total Income (standard deviation of Household Total Income = NZD42279.164) the influence of Social will increase by .112 of a standard deviation of Social (standard deviation of Social = 18.168). Since .112 of the standard deviation of Social is 2.035 ( $18.168 \times .112$ ) then a beta of .112 means that for each standard deviation increase of Household Total Income (i.e., NZD42279.164) Social will increase by 2.035.

Thus, in comparison, Religious with a beta of .352 had more effect than Political, Economic, Marital Status (Married) and Household Total Income that had lesser beta values (i.e., .351, .207, -.137, and .112, respectively). Political had the highest b but only the second higher beta. Religious had a lower b than Political but in terms of relative impact (beta) Religious had the highest impact.

***Significance:***

Significance levels were calculated for both the b and beta coefficients (column 6, Table 9.4) to test the null hypothesis that the coefficient is zero (i.e., the variable has no impact).

As far as the relation between Social aspect and the other contextual aspects (i.e., religious, economic, and political) and EEB is concerned Table 9.4 shows that Social had a significant relationship with all the three contextual aspects: political and religious aspects (i.e.,  $p < .001$ ), and economic ( $p < .01$ ). Thus, the null hypothesis of no impact of Religious, Economic, and Political aspects on Social aspect was rejected. The political and religious aspects had a significance level below .001 while the economic aspect had a significance level below .01 which means that in the New Zealand Muslim male population the political and religious, and economic influence was likely to have at least these levels of impact, respectively. However, EEB was not significant in relation to Social aspect ( $p > .05$ ). It had a significance of .134 which means that there is 13.4 per cent probability that its b or beta coefficient was greater than zero simply because of sampling error. Hence, the null hypothesis of no impact of EEB on Social aspect was accepted.

Relation between Social aspect and demographic characteristics (Table 9.4) shows that Social aspect had a significant relationship only with Marital Status (Married) ( $p < .01$ ) and Household Total Income ( $p < .05$ ). Their significance levels mean that in the New Zealand Muslim male population these demographic and household variables were likely to have at least these levels of impacts. However, Number of Children, Number of Household Occupant, Level of Education (Tertiary), Occupation (Blue Collar Workers), Occupation (White Collar Workers), House Ownership Status (Own Outright), Type of Dwelling (Bungalow or Semi-detached House), Age, Personal Income, and Work Involvement with the Environment were not significant in relation to Social aspect ( $p > .05$ ). They had a significance of .848, .249, .871, .253, .477, .182, .190, .291,

.362, and .139, respectively. This means that there are 84.8, 24.9, 87.1, 25.3, 47.7, 18.2, 19.0, 29.1, 36.2, 13.9, and 13.4 per cents, respectively, probability that their b or beta coefficients were greater than zero simply because of sampling error. Hence, the impacts of these demographic and household variables are treated as being zero – of no consequences in effecting the influence of Social aspect.

**Model:**

Multiple correlation was used to evaluate the explanatory power of the models, and to assess the accuracy regression predictions from the models.

The correlation coefficient in Model 1 to 5 (i.e.,  $R = .706, .752, .765, .770, .777$ , respectively), indicating a moderately strong positive relationship between the different set of predictor(s)/the different set of independent variables and Social aspect (Table 9.5).

**Table 9.5:  $R^2$  for Models**

Model Summary <sup>f</sup>			
Model	R	R Square	Adjusted R Square
1	.706 <sup>a</sup>	.499	.496
2	.752 <sup>b</sup>	.566	.562
3	.765 <sup>c</sup>	.585	.579
4	.770 <sup>d</sup>	.594	.585
5	.777 <sup>e</sup>	.603	.593
a.	Predictors: (Constant), Political		
b.	Predictors: (Constant), Political, Religious		
c.	Predictors: (Constant), Political, Religious, Economic		
d.	Predictors: (Constant), Political, Religious, Economic, Marital Status		
e.	Predictors: (Constant), Political, Religious, Economic, Marital Status, Household Total Income		
f.	Dependent Variable: Social		

Source: Analysis of Survey Data

Table 9.5 shows that the difference in Political influence (i.e., Model 1) explained 49.9 percent of the variation in Social aspect (i.e.,  $R^2 = .499$ ). Meanwhile,  $R^2$  in Model 2 is .566 which means that 56.6 per cent of the variation in Social aspect in the sample was due to differences in Political and Religious influences. Therefore, the difference in Religious aspect explained only 6.7 per cent (i.e., 56.6 per cent - 49.9 per cent) of the variation in Social aspect (i.e.,  $R^2 = .067$ ).

The set of independent variables in Model 3 indicate  $R^2 = .585$ , meaning that 58.5 per cent of the variation in Social aspect in the sample was due to differences in Political, Religious and Economic influences. Hence, the difference

in Economic influence explained only 1.9 per cent (i.e., 58.5 per cent - 56.6 per cent) of the variation in Social aspect (i.e.,  $R^2 = .019$ ) (Table 9.5).

The difference in Political, Religious, Economic influences and Marital Status (Married) (Model 4) explained 59.4 per cent of the variation in Social aspect (i.e.,  $R^2 = .594$ ). Thus, only 0.9 per cent (i.e., 59.4 per cent - 58.5 per cent) of the variation in Social aspect in the sample was due to the difference in Marital Status (Married) (i.e.,  $R^2 = .009$ ) (Table 9.5).

Model 5 with  $R^2 = .603$ , means that 60.3 per cent of the variation in Social aspect was explained by differences in Political, Religious, Economic, Marital Status (Married), and Household Total Income. Therefore, Household Total Income explained only 0.9 per cent (i.e., 60.3 per cent - 59.4 per cent) of the variation in Social aspect (i.e.,  $R^2 = .009$ ) (Table 9.5).

F-test (i.e., its significance level) was used to work out whether or not  $R^2$  values of the models in the sample were due to sampling error. In Table 9.6 the significance value of each of the models is very low meaning that the  $R^2$  that high (49.9 per cent, 56.6 per cent, 58.5 per cent, 59.4 per cent, and 60.3 per cent, respectively) in each of the models was not simply an aberration due to sampling error.

**Table 9.6: Analysis of Variance of Models Indicating Significance of  $R^2$**

		ANOVA <sup>f</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33404.163	1	33404.163	200.825	.000 <sup>a</sup>
	Residual	33599.582	202	166.335		
	Total	67003.745	203			
2	Regression	37915.877	2	18957.938	131.001	.000 <sup>b</sup>
	Residual	29087.868	201	144.716		
	Total	67003.745	203			
3	Regression	39194.786	3	13064.929	93.962	.000 <sup>c</sup>
	Residual	27808.959	200	139.045		
	Total	67003.745	203			
4	Regression	39777.255	4	9944.314	72.684	.000 <sup>d</sup>
	Residual	27226.490	199	136.817		
	Total	67003.745	203			
5	Regression	40435.864	5	8087.173	60.271	.000 <sup>e</sup>
	Residual	26567.881	198	134.181		
	Total	67003.745	203			

a. Predictors: (Constant), Political  
b. Predictors: (Constant), Political, Religious  
c. Predictors: (Constant), Political, Religious, Economic  
d. Predictors: (Constant), Political, Religious, Economic, Marital Status  
e. Predictors: (Constant), Political, Religious, Economic, Marital Status, Household Total Income  
f. Dependent Variable: Social

Source: Analysis of Survey Data

Multiple regression (Table 9.4) was used to examine the joint impact of the whole set of variables. To estimate the Social influence on New Zealand Muslim males the additional information from Religious influence, Economic influence, Marital Status (Married), and Household Total Income obtained a better estimate than that provided by Political influence alone:

$$\begin{aligned} \text{Predicted Social} &= a + b_1(\text{Political}) + b_2(\text{Religious}) + b_3(\text{Economic}) + b_4(\text{Marital Status}) + b_5(\text{Household Total Income}) \\ &= 10.691 + .350 (\text{Political}) + .340 (\text{Religious}) + .211(\text{Economic}) \\ &\quad + -5.249(\text{Marital Status}) + 4.810\text{E-}05(\text{Household Total Income}) \end{aligned}$$

The group means for New Zealand Muslim males were  $X_{\text{Political}} = 29.402$ ,  $X_{\text{Religious}} = 21.7108$ ,  $X_{\text{Economic}} = 42.240$ ,  $X_{\text{Marital Status (Married)}} = .662$ ,  $X_{\text{Household Total Income}} = 50848.598$ :

$$\begin{aligned} \text{Predicted Social} &= 10.691 + .350(29.402) + .340(21.711) + .211(42.240) + \\ &\quad -5.249(.662) + .00004810(50848.598) \\ &= 10.691 + 10.291 + 7.382 + 8.913 + -3.475 + 2.446 \\ &= 36.248 \end{aligned}$$

### **Independent Variables and Religious Aspect**

Table 9.7 presents partial correlation and regression coefficients and the excluded insignificant independent variables from SPSS.

#### ***Partial correlation:***

A partial  $r$  was computed between each independent variable and the dependent variable (i.e., Religious aspect):

- i. Religious ( $X_4$ ) with *Social* ( $X_1$ ) controlling for Political ( $X_2$ ), and Number of Children ( $X_3$ ) = .370, i.e.,  $r_{41.23} = .370$
- ii. Religious ( $X_4$ ) with *Political* ( $X_2$ ) controlling for Social ( $X_1$ ), and Number of Children ( $X_3$ ) = .364, i.e.,  $r_{42.13} = .364$
- iii. Religious ( $X_4$ ) with *Number of Children* ( $X_3$ ) controlling for Social ( $X_1$ ), and Political ( $X_2$ ) = .141, i.e.,  $r_{43.12} = .141$

In Table 9.7, since Social has the strongest partial  $r$  (.370), it is the best predictor of Religious influence followed by Political (.364), and Number of Children (.141).

#### ***Partial regression coefficient:***

Unstandardised partial regression coefficients with regression of:

**Table 9.7: Partial Correlation and Regression Coefficients from SPSS**

	Coefficients <sup>a</sup>									
	Unstandardised Coefficients		Standardised coefficients	t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta			Lower bound	Upper bound	Zero-order	Partial	VIF
(Constant)	-5.979	2.198		-2.720	.007	-10.314	-1.645			
Social (X <sub>1</sub> )	.403	.072	.390	5.626	.000	.262	.545	.660	.370	1.994
Political (X <sub>2</sub> )	.396	.072	.384	5.534	.000	.255	.537	.658	.364	1.994
Number of Children (X <sub>3</sub> )	1.552	.770	.099	2.016	.045	.034	3.069	.091	.141	1.000
	Excluded Variables <sup>a</sup>									
	Unstandardised Coefficients		Standardised coefficients	t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta In			Lower bound	Upper bound	Zero-order	Partial	VIF
Economic	-	-	-.064	-.914	.362	-	-	-	-.065	2.036
Household Total Income	-	-	-.029	-.586	.559	-	-	-	-.041	1.031
Number of Household Occupant	-	-	.005	.066	.948	-	-	-	.005	1.997
Marital Status (Married)	-	-	.043	.774	.440	-	-	-	.055	1.272
Level of Education (Tertiary)	-	-	-.041	-.828	.409	-	-	-	-.059	1.035
Occupation (Blue Collar Workers)	-	-	-.005	-.105	.916	-	-	-	-.007	1.100
Occupation (White Collar Workers)	-	-	-.026	-.516	.607	-	-	-	-.037	1.027
House Ownership Status (Own Outright)	-	-	-.015	-.299	.765	-	-	-	-.021	1.009
Type of Dwelling (Bungalow or Semi-detached House)	-	-	-.043	-.819	.413	-	-	-	-.058	1.119
Age	-	-	.020	.407	.685	-	-	-	.029	1.032
Personal Income	-	-	-.022	-.433	.665	-	-	-	-.031	1.024
Work Involvement with the Environment	-	-	.055	1.059	.291	-	-	-	.075	1.113
EEB	-	-	.005	.098	.922	-	-	-	.007	1.246

<sup>a</sup>Dependent Variable: Religious (X<sub>4</sub>)

Source: Analysis of Survey Data

- i. Religious ( $X_4$ ) with *Social* ( $X_1$ ) controlling for Political ( $X_2$ ), and Number of Children ( $X_3$ ) = .403, i.e.,  $b_{41.23} = .403$ . To say  $b_1 = .403$  means that for each unit increase (numbers) in Social ( $X_1$ ), Religious will increase by .403. This is independent of *Political*, and *Number of Children* which might be correlated with *Social*. Thus, if New Zealand Muslim males have the same score of political influence, and have the same number of children the person with the higher social influence will, on average, influenced more by Religious aspect at the rate predicted (i.e., .403).
- ii. Religious ( $X_4$ ) with *Political* ( $X_2$ ) controlling for Social ( $X_1$ ), and Number of Children ( $X_3$ ) = .396, i.e.,  $b_{42.13} = .396$ . To say  $b_2 = .396$  means that for each unit increase (numbers) in Political ( $X_2$ ), Religious will increase by .396. This is independent of *Social*, and *Number of Children* which might be correlated with *Political*. Thus, if New Zealand Muslim males have the same score of social influence, and have the same number of children the person with the higher political influence will, on average, influenced more by Religious aspect at the rate predicted (i.e., .396).
- iii. Religious ( $X_4$ ) with *Number of Children* ( $X_3$ ) controlling for Social ( $X_1$ ), and Political ( $X_2$ ) = .396, i.e.,  $b_{43.12} = 1.552$ . To say  $b_3 = 1.552$  means that for each unit increase (numbers) in Number of Children ( $X_3$ ), Religious will increase by 1.552. This is independent of *Social*, and *Political* which might be correlated with *Number of Children*. Thus, if New Zealand Muslim males have the same score of social influence, and have the same score of political influence the person with the higher number of children will, on average, influenced more by Religious aspect at the rate predicted (i.e., .396).

Standardised partial regression coefficients:

The beta coefficients for independent variables in Table 9.7 are listed in column 4.

The interpretation of these standardised partial regression coefficients (betas) are as follows.

- i. The  $b$  for Social was .403. Standardised this is .390 and means that for each increase of the size of one standard deviation of Social (standard deviation of Social = 18.168) the influence of Religious will increase by .390 of a standard deviation of Religious (standard deviation of Religious = 18.797). Since .390 of the standard deviation of Religious is 7.331 ( $18.797 \times .390$ ) then a beta of .390 means that for each standard deviation increase of Social influence (i.e., 18.168) Religious influence will increase by 7.331.
- ii. The  $b$  for Political was .396. Standardised this is .384 and means that for each increase of the size of one standard deviation of Political (standard deviation of Political = 18.197) the influence of Religious will increase by .384 of a standard deviation of Religious (standard deviation of Religious = 18.797). Since .384 of the standard deviation of Religious is 7.218 ( $18.797 \times .384$ ) then a beta of .384 means that for each standard deviation increase of Political influence (i.e., 18.197) Religious influence will increase by 7.218.
- iii. The  $b$  for Number of Children was 1.552. Standardised this is .099 and means that for each increase of the size of one standard deviation of Number of Children (standard deviation of Number of Children = 1.198)

the influence of Religious will increase by .099 of a standard deviation of Religious (standard deviation of Religious = 18.797). Since .099 of the standard deviation of Religious is 1.861 ( $18.797 \times .099$ ) then a beta of .099 means that for each standard deviation increase of Number of Children (i.e., 1.198) Religious influence will increase by 1.861.

The standardised values of betas were compared, and found that Social with a beta of .390 had more effect than Political, and Number of Children that had lesser beta values (i.e., .384, and .099, respectively). Number of Children had the highest b but the lowest beta. Political had the lowest b but in terms of relative impact (beta) Political had the second higher impact after Social.

### ***Significance:***

The regression figures described the patterns in the sample (De Vaus, 2002). Significance levels were calculated to estimate how likely these patterns are to hold in the New Zealand Muslim male population. Thus, significance levels were calculated for both the b and beta coefficients (column 6, Table 9.7) to test the null hypothesis that the coefficient is zero (i.e., the variable has no impact).

In Table 9.7, the relation between Religious aspect and the other contextual aspects (i.e., social, economic, and political) and EEB shows that Religious had a significant relationship with only two contextual aspects: social and political aspects (i.e.,  $p < .001$ ). Thus, the null hypothesis of no impact of Social and Political aspects was rejected. The Social and Political aspects had a significance level below .001 which means that in the New Zealand Muslim male population the social and political influences were likely to have at least this level of impact on Religious influence. On the other hand, Economic and EEB were not significant in relation to Religious. They had a significance of .362 and .922, respectively. This means that there are 36.2 per cent and 92.2 per cent, respectively, probability that their b or beta coefficients were greater than zero simply because of sampling error. Hence, their impacts are treated as being zero – of no consequences in effecting the influence of Religious aspect.

Relation between Religious aspect and demographic characteristics (Table 9.7) shows that Religious aspect had a significant relationship only with Number of Children ( $p < .05$ ). The significance level means that in the New Zealand Muslim male population the household characteristic (i.e., Number of Children) was likely to have at least this level of impact. However, Household Total Income, Number of Household Occupant, Marital Status (Married), Level of Education

(Tertiary), Occupation (Blue Collar Workers), Occupation (White Collar Workers), House Ownership Status (Own Outright), Type of Dwelling (Bungalow or Semi-detached House), Age, Personal Income, and Work Involvement with the Environment were not significant in relation to Religious aspect ( $p > .05$ ). They had a significance of .559, .948, .440, .409, .916, .607, .765, .413, .685, .665, and .291, respectively. This means that there are 55.9, 94.8, 44.0, 40.9, 91.6, 60.7, 76.5, 41.3, 68.5, 66.5, and 29.1 per cents, respectively, probability that their b or beta coefficients were greater than zero simply because of sampling error. Hence, the impacts of these demographic and household variables are treated as being zero – of no consequences in effecting the influence of Religious aspect.

**Model:**

Multiple correlation was used, and Table 9.8 shows the correlation coefficient in Model 1 to 3 (i.e.,  $R = .660$ ,  $.713$ ,  $.720$ , respectively), indicating a moderately strong positive relationship between the different set of predictor(s)/the different set of independent variables and Religious aspect.

**Table 9.8:  $R^2$  for Models**

Model Summary <sup>d</sup>			
Model	R	R Square	Adjusted R Square
1	.660 <sup>a</sup>	.435	.433
2	.713 <sup>b</sup>	.509	.504
3	.720 <sup>c</sup>	.518	.511

a. Predictors: (Constant), Social  
 b. Predictors: (Constant), Social, Political  
 c. Predictors: (Constant), Social, Political, Number of Children  
 d. Dependent Variable: Religious

Source: Analysis of Survey Data

The difference in Social influence (i.e., Model 1) explained 43.5 per cent of the variation in Religious aspect (i.e.,  $R^2 = .435$ ) (Table 9.8).

Table 9.8 indicates  $R^2$  in Model 2 is .509 which means that 50.9 per cent of the variation in Religious aspect in the sample was due to differences in Social and Political influences. Therefore, the difference in Political aspect explained only 07.4 per cent (i.e., 50.9 per cent - 43.5 per cent) of the variation in Religious aspect (i.e.,  $R^2 = .074$ ).

The set of independent variables in Model 3 indicate  $R^2 = .518$ , meaning that 51.8 per cent of the variation in Religious aspect in the sample was due to differences in Social, Political, and Number of Children. Hence, the difference in

Number of Children explained only 00.9 per cent (i.e., 51.8 per cent - 50.9 per cent) of the variation in Religious aspect (i.e.,  $R^2 = .009$ ) (Table 9.8).

To work out whether or not  $R^2$  values of the models in the sample were due to sampling error F-test and its significance level was used. In Table 9.9 the significance value of each of the models is very low meaning that the  $R^2$  that high (43.5 per cent, 50.9 per cent, and 51.8 per cent, respectively) in each of the models was not simply an aberration due to sampling error.

**Table 9.9: Analysis of Variance of Models Indicating Significance of  $R^2$**

		ANOVA <sup>d</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31220.872	1	31220.872	155.715	.000 <sup>a</sup>
	Residual	40501.065	202	200.500		
	Total	71721.936	203			
2	Regression	36476.143	2	18238.072	104.008	.000 <sup>b</sup>
	Residual	35245.793	201	175.352		
	Total	71721.936	203			
3	Regression	37177.947	3	12392.649	71.750	.000 <sup>c</sup>
	Residual	34543.990	200	172.720		
	Total	71721.936	203			

a. Predictors: (Constant), Social  
 b. Predictors: (Constant), Social, Political  
 c. Predictors: (Constant), Social, Political, Number of Children  
 d. Dependent Variable: Religious

Source: Analysis of Survey Data

Multiple regression is used to examine the joint impact of the whole set of variables. Religious influence on New Zealand Muslim males is estimated by taking the information from all the independent variables involved:

$$\begin{aligned} \text{Predicted Religious} &= a + b_1(\text{Social}) + b_2(\text{Political}) + b_3(\text{Number of Children}) \\ &= -5.979 + .403 (\text{Social}) + .396 (\text{Political}) + 1.552(\text{Number} \\ &\quad \text{of Children}) \end{aligned}$$

The group means for New Zealand Muslim males were  $X_{\text{Social}} = 36.245$ ,  $X_{\text{Political}} = 29.402$ ,  $X_{\text{Number of Children}} = .917$

$$\begin{aligned} \text{Predicted Religious} &= -5.979 + .403 (36.245) + .396 (29.402) + 1.552(.917) \\ &= -5.979 + 14.607 + 11.643 + 1.423 \\ &= 21.694 \end{aligned}$$

### Independent Variables and Economic Aspect

In Table 9.10, partial correlation and regression coefficients and the excluded insignificant independent variables are presented.

**Table 9.10: Partial Correlation and Regression Coefficients from SPSS**

	Coefficients <sup>a</sup>									
	Unstandardised Coefficients		Standardised coefficients	t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta			Lower bound	Upper bound	Zero-order	Partial	VIF
(Constant)	7.893	3.717		2.124	.035	.564	15.222			
Political (X <sub>1</sub> )	.475	.066	.484	7.188	.000	.344	.605	.695	.454	2.068
EEB (X <sub>2</sub> )	.386	.090	.222	4.276	.000	.208	.564	.440	.290	1.233
Occupation (White Collar Workers) (X <sub>3</sub> )	-7.038	1.929	-.175	-3.649	.000	-10.842	-3.234	-.241	-.250	1.055
Social (X <sub>4</sub> )	.145	.066	.147	2.191	.030	.262	.275	.595	.153	2.066
	Excluded Variables <sup>a</sup>									
	Unstandardised Coefficients		Standardised coefficients	t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta In			Lower bound	Upper bound	Zero-order	Partial	VIF
Household Total Income	-	-	-.105	-1.879	.062	-	-	-	-.132	1.431
Number of Children	-	-	.009	.182	.856	-	-	-	.013	1.054
Number of Household Occupant	-	-	-.064	-1.351	.178	-	-	-	-.096	1.037
Marital Status	-	-	-.052	-1.085	.279	-	-	-	-.077	1.050
Level of Education	-	-	.036	.746	.457	-	-	-	.053	1.069
Occupation (Blue Collar Workers)	-	-	-.043	-.695	.488	-	-	-	-.049	1.750
House Ownership Status	-	-	.034	.677	.499	-	-	-	.048	1.176
Type of House/ Dwelling	-	-	.035	.706	.481	-	-	-	.050	1.122
Age	-	-	.006	.117	.907	-	-	-	.008	1.113
Personal Income	-	-	-.103	-1.596	.112	-	-	-	-.113	1.904
Work Involvement with the Environment	-	-	-.077	-1.548	.123	-	-	-	-.109	1.139
Religious	-	-	-.073	-1.099	.273	-	-	-	-.078	2.043

<sup>a</sup>Dependent Variable: Economic (X<sub>5</sub>)

Source: Analysis of Survey Data

***Partial correlation:***

A partial r was computed between each independent variable and the dependent variable (i.e., Economic aspect):

- i. Economic ( $X_5$ ) with *Political* ( $X_1$ ) controlling for EEB ( $X_2$ ), Occupation (White Collar Workers) ( $X_3$ ), and Social ( $X_4$ ) = .454, i.e.,  $r_{51.234} = .454$
- ii. Economic ( $X_5$ ) with *EEB* ( $X_2$ ) controlling for Political ( $X_1$ ), Occupation (White Collar Workers) ( $X_3$ ), and Social ( $X_4$ ) = .290, i.e.,  $r_{52.134} = .290$
- iii. Economic ( $X_5$ ) with *Occupation (White Collar Workers)* ( $X_3$ ) controlling for Political ( $X_1$ ), EEB ( $X_2$ ), and Social ( $X_4$ ) = -.250, i.e.,  $r_{53.124} = -.250$
- iv. Economic ( $X_5$ ) with *Social* ( $X_4$ ) controlling for Political ( $X_1$ ), EEB ( $X_2$ ), and Occupation (White Collar Workers) ( $X_3$ ) = .153, i.e.,  $r_{54.123} = .153$

Political has the strongest partial  $r$  (.454), thus it is the best predictor of Economic influence followed by EEB (.290), Occupation (White Collar Workers) (-.250), and Social (.153).

***Partial regression coefficient:***

Unstandardised partial regression coefficients was computed to indicate the effect of one independent variable on the dependent variable (i.e., Economic):

- i. Economic ( $X_5$ ) with *Political* ( $X_1$ ) controlling for EEB ( $X_2$ ), Occupation (White Collar Workers) ( $X_3$ ), and Social ( $X_4$ ) = .475, i.e.,  $b_{51.234} = .475$ . To say  $b_1 = .475$  means that for each unit increase (numbers) in Political ( $X_1$ ), Economic will increase by .475. This is independent of *EEB*, *Occupation (White Collar Workers)*, and *Social* which might be correlated with *Political*. Thus, if New Zealand Muslim males have the same score of EEB, are white collar workers, and have the same score of social influence the person with the higher political influence will, on average, influenced more by Economic aspect at the rate predicted (i.e., .475).
- ii. Economic ( $X_5$ ) with *EEB* ( $X_2$ ) controlling for Political ( $X_1$ ), Occupation (White Collar Workers) ( $X_3$ ), and Social ( $X_4$ ) = .386, i.e.,  $b_{52.134} = .386$ . To say  $b_2 = .386$  means that for each unit increase (numbers) in EEB ( $X_2$ ), Economic will increase by .386. This is independent of *Political*, *Occupation (White Collar Workers)*, and *Social* which might be correlated with *EEB*. Thus, if New Zealand Muslim males have the same score of political influence, are white collar workers, and have the same score of social influence the person with the higher EEB will, on average, influenced more by Economic aspect at the rate predicted (i.e., .386).
- iii. Economic ( $X_5$ ) with *Occupation (White Collar Workers)* ( $X_3$ ) controlling for Political ( $X_1$ ), *EEB* ( $X_2$ ), and Social ( $X_4$ ) = -7.038, i.e.,  $b_{53.124} = -7.038$ . To say  $b_3 = -7.038$  means that for each unit increase (numbers) in Occupation (White Collar Workers) ( $X_3$ ), Economic will increase by -7.038 (or decrease by 7.038). This is independent of *Political*, *EEB*, and *Social* which might be correlated with *Occupation (White Collar Workers)*. Thus, if New Zealand Muslim males have the same score of political influence, have the same score of EEB, and have the same score of social influence the person with the higher EEB will, on average, influenced more by Economic aspect at the rate predicted (i.e., -7.038).
- iv. Economic ( $X_5$ ) with *Social* ( $X_4$ ) controlling for Political ( $X_1$ ), *EEB* ( $X_2$ ), and Occupation (White Collar Workers) ( $X_3$ ) = .145, i.e.,  $b_{54.123} = .145$ . To say  $b_4 = .145$  means that for each unit increase (numbers) in Social ( $X_4$ ), Economic will increase by .145. This is independent of *Political*, *EEB*, and

*Occupation (White Collar Workers)* which might be correlated with *Social*. Thus, if New Zealand Muslim males have the same score of political influence, have the same score of EEB, and are white collar workers the person with the higher Social influence will, on average, be influenced more by Economic aspect at the rate predicted (i.e., .145).

Standardised partial regression coefficients (beta) for independent variables in Table 9.10 are listed in column 4. The interpretation of these standardised partial regression coefficients (betas) are as follows.

- i. The b for Political was .475. Standardised this is .484 and means that for each increase of the size of one standard deviation of Political (standard deviation of Political = 18.197) the influence of Economic will increase by .484 of a standard deviation of Economic (standard deviation of Economic = 17.849). Since .484 of the standard deviation of Economic is 8.639 ( $17.849 \times .484$ ) then a beta of .484 means that for each standard deviation increase of Political influence (i.e., 18.197) Economic influence will increase by 8.639.
- ii. The b for EEB was .386. Standardised this is .222 and means that for each increase of the size of one standard deviation of EEB (standard deviation of EEB = 10.274) the influence of Economic will increase by .222 of a standard deviation of Economic (standard deviation of Economic = 17.849). Since .222 of the standard deviation of Economic is 3.962 ( $17.849 \times .222$ ) then a beta of .222 means that for each standard deviation increase of EEB (i.e., 10.274) Economic influence will increase by 3.962.
- iii. The b for Occupation (White Collar Workers) was -7.038. Standardised this is -.175 and means that for each increase of the size of one standard deviation of Occupation (standard deviation of Occupation = .445) the influence of Economic will increase by -.175 (or rather decrease by .175) of a standard deviation of Economic (standard deviation of Economic = 17.849). Since -.175 of the standard deviation of Economic is -3.124 ( $17.849 \times -.175$ ) then a beta of -.175 means that for each standard deviation increase of Occupation (i.e., .445) Economic influence will increase by -3.124 (or rather decrease by 3.124).
- iv. The b for Social was .145. Standardised this is .147 and means that for each increase of the size of one standard deviation of Social (standard deviation of Social = 18.168) the influence of Economic will increase by .147 of a standard deviation of Economic (standard deviation of Economic = 17.849). Since .147 of the standard deviation of Economic is 2.624 ( $17.849 \times .147$ ) then a beta of .147 means that for each standard deviation increase of Social (i.e., 18.168) Economic influence will increase by 2.624.

Variable that have the greatest effect was Political with a beta of .484 compared to EEB, Occupation (White Collar Workers), and Social that had lesser beta values (i.e., .222, -.175, and .147, respectively). Occupation, although a negative value, had the highest b but the second lowest beta. Political had the second higher b but in terms of relative impact (beta) Political had the highest impact.

***Significance:***

To test the null hypothesis that the coefficient is zero (i.e., the variable has no impact) significance levels were calculated for both the b and beta coefficients (column 6, Table 9.10)

As far as the relation between Economic aspect and the other contextual aspects (i.e., social, religious, and political) is considered Table 9.10 shows that Economic had a significant relationship with only political aspect and EEB (i.e.,  $p < .001$ ), and social aspect (i.e.,  $p < .05$ ). Thus, the null hypothesis of no impact of Political aspect, EEB and Social aspect was rejected. The Political aspect and EEB had a significance level below .001 and Social aspect had a significance level below .05 which means that in the New Zealand Muslim male population the political aspect, EEB and social aspect were likely to have at least this level of impact on Economic influence. On the other hand, Religious was not significant in relation to Economic. It had a significance of .273 means that there is 27.3 per cent probability that its b or beta coefficient was greater than zero simply because of sampling error. Hence, its impact is treated as being zero – of no consequences in effecting the influence of Economic aspect.

Relation between Economic aspect and demographic characteristics (Table 9.10) shows that Economic aspect had a significant relationship with Occupation (White Collar Workers) ( $p < .001$ ) alone. The significance level means that in the New Zealand Muslim male population Occupation (White Collar Workers) was likely to have at least this level of impact. However, Household Total Income, Number of Children, Number of Household Occupant, Marital Status (Married), Level of Education (Tertiary), Occupation (Blue Collar Workers), House Ownership Status (Own Outright), Type of Dwelling (Bungalow or Semi-detached House), Age, Personal Income, and Work Involvement with the Environment were not significant in relation to Economic aspect ( $p > .05$ ). They had a significance of .062, .856, .178, .279, .457, .488, .499, .481, .907, .112, and .123, respectively. This means that there are 06.2, 85.6, 17.8, 27.9, 45.7, 48.8, 49.9, 48.1, 90.7, 11.2, and 12.3 per cents, respectively, probability that their b or beta coefficients were greater than zero simply because of sampling error. Hence, the impacts of these demographic and household variables are treated as being zero – of no consequences in effecting the influence of Economic aspect.

**Model:**

Multiple correlation was used to evaluate the explanatory power of the models by assessing the joint effect of the set of independent variables. Table 9.11 shows the correlation coefficient in Model 1 to 4 (i.e.,  $R = .695, .722, .744,$  and  $.751,$  respectively), indicating a moderately strong positive relationship between the different set of predictor(s)/the different set of independent variables and Economic aspect.

**Table 9.11:  $R^2$  for Models**

Model Summary <sup>a</sup>			
Model	R	R Square	Adjusted R Square
1	.695 <sup>a</sup>	.483	.481
2	.722 <sup>b</sup>	.522	.517
3	.744 <sup>c</sup>	.554	.547
4	.751 <sup>d</sup>	.564	.555

a. Predictors: (Constant), Political  
b. Predictors: (Constant), Political, EEB  
c. Predictors: (Constant), Political, EEB, Occupation (White Collar Workers)  
d. Predictors: (Constant), Political, EEB, Occupation (White Collar Workers), Social  
e. Dependent Variable: Economic

Source: Analysis of Survey Data

Table 9.11 shows that the difference in Political influence (i.e., Model 1) explained 48.3 per cent of the variation in Economic aspect (i.e.,  $R^2 = .483$ ) while  $R^2$  in Model 2 is .522 which means that 52.2 per cent of the variation in Economic aspect in the sample was due to differences in Political and EEB influences. Therefore, the difference in EEB explained only 3.9 per cent (i.e., 52.2 per cent - 48.3 per cent) of the variation in Economic aspect (i.e.,  $R^2 = .039$ ).

The set of independent variables in Model 3 indicate  $R^2 = .554$ , meaning that 55.4 per cent of the variation in Economic aspect in the sample was due to differences in Political, EEB, and Occupation (White Collar Workers). Hence, the difference in Occupation (White Collar Workers) explained only 03.2 per cent (i.e., 55.4 per cent - 52.2 per cent) of the variation in Economic aspect (i.e.,  $R^2 = .032$ ) (Table 9.11).

The difference in Political, EEB, Occupation (White Collar Workers), and Social (Model 4) explained 56.4 per cent of the variation in Economic (i.e.,  $R^2 = .564$ ). Thus, only 1.0 per cent (i.e., 56.4 per cent - 55.4 per cent) of the variation in Economic influence in the sample was due to the difference in Social influence (Table 9.11).

To work out whether  $R^2$  values of the models in the sample were due to sampling error or not F-test and its significance level was used. In Table 9.12 the significance value of each of the models is very low meaning that the  $R^2$  that high (48.3 per cent, 52.2 per cent, 55.4 per cent, and 56.4 per cent, respectively) in each of the models was not simply an aberration due to sampling error.

**Table 9.12: Analysis of Variance of Models Indicating Significance of  $R^2$**

		ANOVA <sup>e</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31260.553	1	31260.553	188.989	.000 <sup>a</sup>
	Residual	33412.678	202	165.409		
	Total	64673.230	203			
2	Regression	33733.424	2	16866.712	109.574	.000 <sup>b</sup>
	Residual	30939.806	201	153.929		
	Total	64673.230	203			
3	Regression	35806.554	3	11935.518	82.694	.000 <sup>c</sup>
	Residual	28866.676	200	144.333		
	Total	64673.230	203			
4	Regression	36486.503	4	9121.626	64.399	.000 <sup>d</sup>
	Residual	28186.728	199	141.642		
	Total	64673.230	203			

a. Predictors: (Constant), Political  
b. Predictors: (Constant), Political, EEB  
c. Predictors: (Constant), Political, EEB, Occupation (White Collar Workers)  
d. Predictors: (Constant), Political, EEB, Occupation (White Collar Workers), Social  
e. Dependent Variable: Economic

Source: Analysis of Survey Data

Multiple regression was used to examine the joint impact of the whole set of variables:

$$\begin{aligned} \text{Predicted Economic} &= a + b_1(\text{Political}) + b_2(\text{EEB}) + b_3(\text{Occupation}) + b_4(\text{Social}) \\ &= 7.893 + .475 (\text{Political}) + .386 (\text{EEB}) + \\ &\quad -7.038(\text{Occupation}) + .145(\text{Social}) \end{aligned}$$

To predict the Economic influence on New Zealand Muslim males as a group rather than individuals means to estimate the mean score of Economic influence for New Zealand Muslim males as a group. Thus, the group mean for each variable was inserted into regression equation given that the group means for New Zealand Muslim males were  $X_{\text{Political}} = 29.402$ ,  $X_{\text{EEB}} = 44.147$ ,  $X_{\text{Occupation}} = .270$ ,  $X_{\text{Social}} = 36.245$

$$\begin{aligned} \text{Predicted Economic} &= 7.893 + .475 (29.402) + .386 (44.147) + -7.038(.270) + \\ &\quad .145(36.245) \\ &= 7.893 + 13.966 + 17.041 + -1.900 + 5.256 \\ &= 42.256 \end{aligned}$$

## Independent Variables and Political Aspect

Table 9.13 presents partial correlation and regression coefficients including for the excluded insignificant independent variables.

**Table 9.13: Partial Correlation and Regression Coefficients from SPSS**

	Coefficients <sup>a</sup>										
	Unstandardised Coefficients		Standardised coefficients		t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta				Lower bound	Upper bound	Zero-order	Partial	VIF
(Constant)	-3.776	2.025		-1.865	.064	-7.770	.217				
Social (X <sub>1</sub> )	.286	.061	.286	4.710	.000	.166	.406	.706	.316	2.169	
Economic (X <sub>2</sub> )	.398	.053	.391	7.552	.000	.294	.502	.695	.471	1.577	
Religious (X <sub>3</sub> )	.275	.054	.284	5.141	.000	.170	.381	.658	.342	1.802	
	Excluded Variables <sup>a</sup>										
	Unstandardised Coefficients		Standardised coefficients		t	Sig.	95% confidence intervals for b		Correlations		Collinearity statistics
	b	Std error	Beta	In			Lower bound	Upper bound	Zero-order	Partial	VIF
Household Total Income	-	-	.001		.027	.979	-	-	-	.002	1.080
Number of Children	-	-	-.057		-1.374	.171	-	-	-	-.097	1.020
Number of Household Occupant	-	-	-.022		-.527	.599	-	-	-	-.037	1.012
Marital Status	-	-	.044		1.047	.297	-	-	-	.074	1.027
Level of Education	-	-	.011		.265	.791	-	-	-	.019	1.005
Occupation (Blue Collar Workers)	-	-	.037		.866	.387	-	-	-	.061	1.076
Occupation (White Collar Workers)	-	-	.031		.727	.468	-	-	-	.051	1.064
House Ownership Status	-	-	.019		.470	.639	-	-	-	.033	1.005
Type of House/ Dwelling	-	-	-.017		-.407	.685	-	-	-	-.029	1.021
Age	-	-	.048		1.156	.249	-	-	-	.082	1.018
Personal Income	-	-	.009		.216	.830	-	-	-	.015	1.078
Work Involvement with the Environment	-	-	.060		1.383	.168	-	-	-	.098	1.111
EEB	-	-	.005		.109	.913	-	-	-	.008	1.275

<sup>a</sup>Dependent Variable: Political (X<sub>4</sub>)

Source: Analysis of Survey Data

**Partial correlation:**

Partial correlation coefficient for:

- i. Political ( $X_4$ ) with *Social* ( $X_1$ ) controlling for Economic ( $X_2$ ), and Religious ( $X_3$ ) = .316, i.e.,  $r_{41.23} = .316$
- ii. Political ( $X_4$ ) with *Economic* ( $X_2$ ) controlling for Social ( $X_1$ ), and Religious ( $X_3$ ) = .471, i.e.,  $r_{42.13} = .471$
- iii. Political ( $X_4$ ) with *Religious* ( $X_3$ ) controlling for Social ( $X_1$ ), and Economic ( $X_2$ ) = .342, i.e.,  $r_{43.12} = .342$

Since Economic has the strongest partial  $r$  (.471), it is the best predictor of Political influence followed by Religious influence (.342), and Social (.316).

**Partial regression coefficient:**

Unstandardised partial regression coefficients:

- i. Political ( $X_4$ ) with *Social* ( $X_1$ ) controlling for Economic ( $X_2$ ), and Religious ( $X_3$ ) = .286, i.e.,  $b_{41.23} = .286$ . To say  $b_1 = .286$  means that for each unit increase (numbers) in Social ( $X_1$ ), Political will increase by .286. This is independent of *Economic*, and *Religious* which might be correlated with *Social*. Thus, if New Zealand Muslim males have the same score of Economic, and have the same score of religious influence the person with the higher social influence will, on average, influenced more by Political aspect at the rate predicted (i.e., .286).
- ii. Political ( $X_4$ ) with *Economic* ( $X_2$ ), controlling for Social ( $X_1$ ), and Religious ( $X_3$ ) = .398, i.e.,  $b_{42.13} = .398$ . To say  $b_2 = .398$  means that for each unit increase (numbers) in Economic ( $X_2$ ), Political will increase by .398. This is independent of *Social*, and *Religious* which might be correlated with *Economic*. Thus, if New Zealand Muslim males have the same score of Social, and have the same score of religious influence the person with the higher economic influence will, on average, influenced more by Political aspect at the rate predicted (i.e., .398).
- iii. Political ( $X_4$ ) with *Religious* ( $X_3$ ) controlling for Social ( $X_1$ ), and Economic ( $X_2$ ) = .275, i.e.,  $b_{43.12} = .275$ . To say  $b_3 = .275$  means that for each unit increase (numbers) in Religious ( $X_3$ ), Political will increase by .275. This is independent of *Social*, and *Economic* which might be correlated with *Religious*. Thus, if New Zealand Muslim males have the same score of Social influence, and have the same score of economic influence the person with the higher religious influence will, on average, influenced more by Political aspect at the rate predicted (i.e., .275).

Standardised partial regression coefficients in Table 9.13 are listed in column 4.

Follows are the interpretation of these standardised partial regression coefficients (betas):

- i. The  $b$  for Social was .286. Standardised this is .286 and means that for each increase of the size of one standard deviation of Social (standard deviation of Social = 18.168) the influence of Political will increase by .286 of a standard deviation of Political (standard deviation of Political = 18.197). Since .286 of the standard deviation of Political is 5.204 (18.197

- x .286) then a beta of .286 means that for each standard deviation increase of Social influence (i.e., 18.168) Political influence will increase by 5.204.
- ii. The b for Economic was .398. Standardised this is .391 and means that for each increase of the size of one standard deviation of Economic (standard deviation of Economic = 17.849) the influence of Political will increase by .391 of a standard deviation of Political (standard deviation of Political = 18.197). Since .391 of the standard deviation of Political is 7.115 (18.197 x .391) then a beta of .391 means that for each standard deviation increase of Economic influence (i.e., 17.849) Political influence will increase by 7.115.
- iii. The b for Religious was .275. Standardised this is .284 and means that for each increase of the size of one standard deviation of Religious (standard deviation of Religious = 18.797) the influence of Political will increase by .284 of a standard deviation of Political (standard deviation of Political = 18.197). Since .284 of the standard deviation of Political is 5.168 (18.197 x .284) then a beta of .284 means that for each standard deviation increase of Religious influence (i.e., 18.797) Political influence will increase by 5.168.

The standardised values of betas were then compared. Economic with a beta of .391 had more effect than Social, and Religious that had lesser beta values (i.e., .286, and .284, respectively).

***Significance:***

The relation between Political aspect and the other contextual aspects (i.e., social, religious, and economic) and EEB shows (Table 9.13) that Political had a significant relationship with all social, economic and religious aspects (i.e.,  $p < .001$ ). Thus, the null hypothesis of no impact of Social, Economic, and Religious aspects was rejected. All the three independent variables had a significance level below .001 which means that in the New Zealand Muslim male population these variables were likely to have at least this level of impact on Political influence. On the other hand, EEB was not significant in relation to Political. It had a significance of .913 means that there is 91.3 per cent probability that its b or beta coefficient was greater than zero simply because of sampling error. Hence, its impact is treated as being zero – of no consequences in effecting the influence of Political aspect.

As for the relation between Political aspect and demographic characteristics Table 9.13 shows that Political aspect had a significant relationship with none of the demographic characteristics ( $p > .05$ ). Household Total Income, Number of Children, Number of Household Occupant, Marital Status (Married), Level of Education (Tertiary), Occupation (Blue Collar Workers), Occupation

(White Collar Workers), House Ownership Status (Own Outright), Type of Dwelling (Bungalow or Semi-detached House), Age, Personal Income, and Work Involvement with the Environment had a significance of .979, .171, .599, .297, .791, .387, .468, .639, .685, .249, .830, and .168, respectively. This means that there are 97.9, 17.1, 59.9, 29.7, 79.1, 38.7, 46.8, 63.9, 68.5, 24.9, 83.0, and 16.8 per cents, respectively, probability that their b or beta coefficients were greater than zero simply because of sampling error. Hence, the impacts of these demographic and household variables are treated as being zero – of no consequences in effecting the influence of Political aspect.

**Model:**

Multiple correlation was used, and the correlation coefficient in Model 1 to 3 (i.e.,  $R = .706$ ,  $.785$ , and  $.813$ , respectively), indicating a moderately strong (i.e.,  $R = .706$ , and  $.785$ ) to a strong (i.e.,  $.813$ ) positive relationship between the different set of predictor(s)/the different set of independent variables and Political aspect (Table 9.14).

Table 9.14 shows that the difference in Social influence (i.e., Model 1) explained 49.9 per cent of the variation in Political aspect (i.e.,  $R^2 = .499$ ).

Table 9.14 indicates  $R^2$  in Model 2 is .616 which means that 61.6 per cent of the variation in Political aspect in the sample was due to differences in Social and Economic influences. Therefore, the difference in Economic explained only 11.7 per cent (i.e., 61.6 per cent - 49.9 per cent) of the variation in Political aspect (i.e.,  $R^2 = .117$ ).

**Table 9.14:  $R^2$  for Models**

Model Summary <sup>d</sup>			
Model	R	R Square	Adjusted R Square
1	.706 <sup>a</sup>	.499	.496
2	.785 <sup>b</sup>	.616	.612
3	.813 <sup>c</sup>	.660	.655

a. Predictors: (Constant), Social

b. Predictors: (Constant), Social, Economic

c. Predictors: (Constant), Social, Economic, Religious

d. Dependent Variable: Political

Source: Analysis of Survey Data

The set of independent variables in Model 3 indicate  $R^2 = .660$ , meaning that 66.0 per cent of the variation in Political aspect in the sample was due to differences in Social, Economic, and Religious. Hence, the difference in Religious

explained only 4.4 per cent (i.e., 66.0 per cent - 61.6 per cent) of the variation in Political aspect (i.e.,  $R^2 = .044$ ) (Table 9.14).

To work out whether  $R^2$  values of the models in the sample were due to sampling error or not F-test and its significance level was used. In Table 9.15 the significance value of each of the models is very low meaning that the  $R^2$  that high (49.9 per cent, 61.6 per cent, and 66.0 per cent, respectively) in each of the models was not simply an aberration due to sampling error.

**Table 9.15: Analysis of Variance of Models Indicating Significance of  $R^2$**

		ANOVA <sup>d</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	33510.499	1	33510.499	200.825	.000 <sup>a</sup>
	Residual	33706.540	202	166.864		
	Total	67217.039	203			
2	Regression	41376.255	2	20688.127	160.921	.000 <sup>b</sup>
	Residual	25840.784	201	128.561		
	Total	67217.039	203			
3	Regression	44392.871	3	14797.624	129.666	.000 <sup>c</sup>
	Residual	22824.168	200	114.121		
	Total	67217.039	203			

a. Predictors: (Constant), Social  
b. Predictors: (Constant), Social, Economic  
c. Predictors: (Constant), Social, Economic, Religious  
d. Dependent Variable: Political

Source: Analysis of Survey Data

Multiple Regression was also used:

$$\begin{aligned} \text{Predicted Political} &= a + b_1(\text{Social}) + b_2(\text{Economic}) + b_3(\text{Religious}) \\ &= -3.776 + .286 (\text{Social}) + .398 (\text{Economic}) + .275(\text{Religious}) \end{aligned}$$

The group means for New Zealand Muslim males were  $X_{\text{Social}} = 36.245$ ,  $X_{\text{Economic}} = 42.240$ ,  $X_{\text{Religious}} = 21.711$

$$\begin{aligned} \text{Predicted Political} &= -3.776 + .286 (36.245) + .398 (42.240) + .275 (21.711) \\ &= -3.776 + 10.366 + 16.812 + 5.971 \\ &= 29.373 \end{aligned}$$

### 9.3 Patterns of Qualitative Interview Data for Each Hypothesis

The qualitative interview data analyses for each hypothesis are presented in this section.

#### 9.3.1 Independent Variables and Environmentally Ethical Behaviour

This section presents the analysis of qualitative interview data to further explain the questionnaire survey results of the relationships between independent

variables (i.e., contextual aspects and demographic characteristics) and dependent variable environmentally ethical behaviour (EEB) for hypotheses 1 and 2 (see section 1.3.3).

To further explain the questionnaire survey results of the relationships between independent variables (i.e., contextual aspects and demographic characteristics) and dependent variable (i.e., EEB) a framework/thematic analysis was conducted. What follows is the results of the qualitative analysis of the interview data presented according to themes.

## **Social Influence on EEB**

### **Distilled Summaries of Participants' Social Influence (Views and Experiences) on Their EEB:**

#### **Participant 1 reported that:**

1. Utilising every bit of food in preparing for meals has become a norm in his family.
2. It has become a habit for him and his family to use a handkerchief instead of a tissue.
3. He and his family have been influenced substantially by the news on television about global warming, and also from the newspapers and magazines.
4. He has also been influenced by his friends – when they are together they often talked about the environment.
5. Another source of influence has been his children from what they have learned in schools – as a result, whenever he purchases any products he looks for a recycling sign on it.
6. Having children in the house has made him realise that he needs to practice EEB for the sake of his children's future – making the earth a liveable place for future generations.
7. The many natural disasters that have occurred all over the world have made him more aware about the importance of taking care of the environment – especially.
8. He started EEB when he came to New Zealand – the social factor (i.e., everybody is doing it) influenced him a great deal.
9. His wife, being a former school teacher who was always teaching her students to make use of recyclables in their school's projects, has also influenced his EEB.
10. His family upbringing is also plays a role in his current EEB – his parents and grandparents were very particular about salvaging items/products for reuse. As a result he would not feel comfortable if he was to waste anything.

#### **Participant 2 reported that:**

1. One of the reasons for him to recycle is to help others to benefit from the items/products.
2. He believes that the value system in the New Zealand community helps inculcate in him behaviour patterns such as EEB.
3. As a head of a family, having a wife and children, he is compelled to share these values with them and to get them to accept the value system which will help them later on.
4. Neighbours and co-workers have not influenced him very much, but he is aware that everybody expects everybody to practise EEB in the community.
5. The media influence people in quite the opposite way – promoting new items to boost business. According to him, "...the media advertising new trends in spending."
6. The value system that he holds has influenced him the most compared to other influences.

#### **Participant 3 reported that:**

1. His wife, his children, neighbours, friends, and co-workers have influenced him – everybody recycles and so does he, so as not to be the odd person out.
2. To him, people who do not perform EEB have no respect for themselves or other people, and he would certainly not want to join such a group.
3. He has not been influenced by television programs, radio, and newspapers.

#### **Participant 4 reported that:**

1. He has been influenced substantially by the Season when deciding whether to buy vegetables loose or packaged – in winter he prefers packaged vegetables because they are cleaner and thus take less time to wash, and because the quality is preserved when they are packaged.
2. Neighbours have not influenced him into performing EEB.
3. News on TV and newspapers constantly asking people to collect all recyclables and to reduce the use of plastic bags – this has influenced him to recycle a little bit.
4. He, once, saw some people in the park collecting recyclables to sell. They make their living from it – he began recycling partly to help the country and such people.

#### **Participant 5 reported that:**

1. One of the reasons for him to perform EEB (keeping the rubbish output to a minimum) is to keep rodents away especially during summer.
2. Another reason is to make sure that the weekly rubbish bag does not fill up so quickly.

3. His wife has influenced him in doing EEB substantially – his wife gets all the cardboard, papers, and boxes to be put in the recycle bin.
4. He has also been influenced by the media – news and programmes about the environment make him feel concerned and a bit guilty using disposable nappies because they take about 50 years or so to break down.

**Participant 6 reported that:**

1. He buys drinks in plastic not glass bottles for his kids for safety reasons.
2. EEB is New Zealand culture and he just joined the culture.
3. One of the reasons for him to recycle is to help others to benefit from the items/products – “if you just throw it [recyclable] away it will just go to waste... but if you recycle it, somebody you know will get the benefit out of it.”
4. He has been influenced by his friends only to some degree because most of his friends have expressed their concern towards the environment, but not to the extent of performing EEB.
5. Media showing human needs that are highly visible and urgent in other parts of the world have influenced him substantially in performing EEB.

**Participant 7 reported that:**

1. He came from a culture of not wasting food – he commented that some cultures throw food away, and play around with food.
2. One of the reasons for him to perform EEB is because everybody was doing it and it is convenient.
3. He thinks that people in New Zealand use a lot of papers for advertising; he receives a lot of junk mail every day.
4. Friends at work, and neighbours have influenced him substantially in performing EEB.
5. He performs EEB in the house to educate his children.

**Participant 8 reported that:**

1. In New Zealand everyone is doing EEB.
2. Television programmes, newspapers, and magazines have influenced him and his family substantially to perform EEB – for instance, a rock show on television where people were singing to save the earth, and reports on the extinction of wildlife, and the right of future generation to have a good environment.
3. He picks up empty glass bottles around the neighbourhood to avoid drunks from smashing them and injuring others.
4. The whole region was talking about the green bin – that made him want to join in.
5. He has been influenced substantially by his Kiwi wife who was very persistent in performing EEB.

**Participant 9 reported that:**

1. He has been influenced by his neighbours and friends substantially in performing EEB – when he saw his friends and neighbours carry their own green bags and do recycling that made him want to join in.
2. He has also been influenced by television programmes on recycling.
3. A statement in a newspaper that said “we borrow this planet from our grandchildren” reminded him that he has an obligation to the next generations to make sure that resources are there for them, and in order to do that he has to sustain the existing environmental resources we have today.
4. His upbringing also influenced him substantially – his mother reused and recycled glass bottles and newspapers throughout his childhood, and his father who was a clerk compiled used papers for him to do his mathematical calculations.
5. His wife who has “a strong recycling sense” has also influenced him substantially.
6. The New Zealand culture has also influenced him in performing EEB.

**Participant 10 reported that:**

1. He has been influenced substantially by his co-workers who were conducting a weekly environmental education programme.
2. He has also been influenced quite substantially by the media reports (i.e., newspapers) on world declarations on the environment such as Kyoto Protocol (1997) and Bali Declaration on Climate Change (2007) – he saw a close connection between what are talked about in those declarations and EEB.
3. Television has also influenced him – in the way that programmes emphasise the effects of EEB.
4. The strong culture of EEB in New Zealand has influenced him to perform EEB.

## Religious Influence on EEB

### Distilled Summaries of Participants’ Religious Influence (Views and Experiences) on Their EEB:

**Participant 1 reported that:**

1. Sometimes he hears religious figures like an Imam talk about the environment in the mosque implicitly not explicitly.
2. His own understanding of Islamic teachings about cleanliness extends to the cleanliness of the environment. Since Islam teaches that cleanliness is part of one’s *iman*, he sees it as his religious duty to clean the environment by performing EEB.
3. He and his wife think that Allah has given many signs like floods and fires for people to repent from their destructive behaviours on earth.

**Participant 2 reported that:**

1. It is his own understanding that it is within the Islamic value system that we should not waste resources, and he thinks that we should remind each other of it.
2. Sometimes he hears religious leaders stress the point that wasting resources is not a Muslim way rather it is the work of the devil.

**Participant 3 reported that:**

1. No religious figures or religious teachings (Qur’an and/or the Prophet Tradition) have influenced him in any way as far as his EEB is concerned.

**Participant 4 reported that:**

1. It is his own understanding of Islamic teachings that have influenced him in doing EEB, and he does not need an imam or a *sheikh* to tell him about it.

**Participant 5 reported that:**

1. No religious figures have influenced him in any way as far as his EEB is concerned.
2. It is his own understanding of Islamic teachings that have influenced him in doing EEB, and to him "if one follows the... teaching of [Islam and] the Prophet it [EEB] just come naturally... because if... you [are] a humble person and you got a lot of *hikmah* [blessings]... you going to have common sense not to... have your yard, or your kitchen, or your bathroom... piled up with rubbish..."

**Participant 6 reported that:**

1. For him, to be a good Muslim he should not waste.
2. He is not aware of any views of religious leaders in New Zealand about EEB.
3. His own understanding of Islamic teaching – that when one is good to the environment one is rewarded – encourages him to do more and more EEB.

**Participant 7 reported that:**

1. His own understanding of religious teaching – being clean, being thankful, not wasting – influenced his recycling activities.
2. He has never heard any imam talk about EEB as part of religious teachings.
3. He once heard an imam advising a group of immigrants in the mosque to be cautious and not to engage in wasteful behaviour in New Zealand – where in their home country they were living in hunger having not enough to eat but were wasting food here in New Zealand. However, no mention was made by the imam to EEB such as pre-cycling, recycling or reusing.
4. His own understanding of Islam (Qur'an and *Hadith*) – that one should be environmentally friendly, and environmentally green as much as possible – influenced him substantially, but he thinks that one should not harm other people in doing so.

**Participant 8 reported that:**

1. The religious leaders must know that EEB is 100% in agreement with Islam, but he has never heard religious leaders talking about EEB such as pre-cycling, recycling or reusing in such manner.

**Participant 9 reported that:**

1. His own understanding of Islamic teaching – not to waste food – has influenced him to reuse in that he tries to make a full use of food to minimize the rubbish.
2. He sees his EEB such as recycling as his duty and obligation to God (to keep the earth safe, and EEB is the best way to achieve this goal). To him, it is also a way to show his thankfulness and gratefulness to God's blessing – for granting such a good planet to live on.

**Participant 10 reported that:**

1. He has never been exposed to any activities of EEB that related to religion, and he has not received messages about EEB from any religious bodies/figures.
2. His own understanding of his religion – the need to preserve and sustain the environment for this generation and for the next generations – influenced his EEB.
4. Environmental education is related to his religious teachings of preserving and sustaining the environment.

**Religious Figure 1 (email questionnaire) reported that:**

1. Sometimes there are Friday sermons on the environment. The sermons often focus on how:
  - a. To keep one self and the environment clean.
  - b. To avoid wasteful and excessive expenditure.
  - c. To inculcate Islamic values to save cost and to curb excessive expenditure.
  - d. To conserve resources.
  - e. To avoid polluting the environment.
2. Languages used in giving the sermons were Arabic and English, and languages used in conducting other events in the mosque and/or Muslim community were English and local language.
3. Mosques often filled to their capacity during Friday's congregation prayer.
4. There were talks about the environment in general terms through Islamic values held in mosques, community social/cultural gatherings and at homes involving imams, community leaders and Muslim parents.
5. The 'cleaning environment' events organised by the mosque saw quite good turnouts.
6. Occasionally, during his casual engagement with community members, conversations on the environment place have taken – the only one concerning EEB was about used clothes recycling for the community.
7. Jobs, social security, and opportunity to raise children as good practising Muslims were the prior concerns of the Muslim community in New Zealand.
8. In his opinion, economic reasons – to save cost and reduce waste – influence the Muslim community members the most when they make decision whether or not to perform EEB.
9. He thinks that strong Islamic and cultural values inculcated since childhood and through traditional family values also influences the EEB of the Muslims.
10. As a community leader and as a head of family he has always felt it necessary to educate and train family members to follow a healthy way of life that is spiritually, morally and physically clean internally and externally including the environment and to avoid wastage.

**Religious Figure 2 (email questionnaire) reported that:**

1. There has been no Friday sermon specifically on the environment. However, teaching on treating all resources as gifts from Allah and not wasting has been given in different, sermons, and one on the environment is in the offing.
2. Arabic and English are the languages used in sermons and in conducting other events in the mosque and/or Muslim community.
3. Mosques are always full on Fridays.
4. Attendees (religious figures and other Muslims) at the mosque "do broach on the issue [environmental issue] and sometime even conduct a discourse on the issue but not collectively."
5. Any talk on the environment was not an organised event, but was often triggered by reactions to events on the news.

6. During his casual engagement with community members conversations on the environment that took place were often about green house gases and reusing.
7. Job opportunity, cost of housing and cost of living were the prior concerns of the Muslim community in New Zealand.
8. In his opinion, awareness, trying to avoid wastage for religious reasons, and savings influence the Muslim community members the most when they make decisions whether or not to perform EEB.
9. "Islam has provided the basis for ethical treatment of the environment by making man the caretaker of the resources and prohibiting wasteful use of these resources. More awareness of the issue need to be raised among the Muslims particularly during *khutbahs* [sermons]. I intend to do just that."
10. As a community leader he feels that it is his responsibility to raise awareness about environmental issues.

## **Economic influence on EEB**

### **Distilled Summaries of Participants' Economic Influence (Views and Experiences) on Their EEB:**

#### **Participant 1 reported that:**

1. Cost of products makes him buy in bulk.
2. To save money he reuses papers etc.
3. Life is difficult financially, thus, he does not waste anything, and made full utilization of everything.
4. He performs EEB for cost-effectiveness – the more EEB performed the more cost-effective.
5. Supermarket's policy (Pak N Save) – pay 10 cents for a plastic bag versus free paper boxes – has influenced him to perform EEB.
6. Supermarkets that provide free plastic bags have a sticker next to their counter say "please say no to a plastic bag" – so he feels embarrassed to ask for one.

#### **Participant 2 reported that:**

1. Cost of products has made him buy at flea markets.
2. He conducts recycling activities to save resources and to help develop secondary industry (i.e., recycle industry).
3. Life is difficult financially, thus, he does not waste anything, but makes full utilization of everything.

#### **Participant 3 reported that:**

1. He performs pre-cycling activities, e.g., shop at second hand shops etc, and makes compost because there is less land to dump waste.
2. Life is difficult financially, thus, he reuses and repairs old furniture.
3. He reuses empty milk containers for painting jobs to save money.
4. He recycles and kept dump receipts to get tax cuts.

#### **Participant 4 reported that:**

1. Cost of products has made him a pre-cycler – although vegetables loose are less expensive than packaged ones he has found that the later are better quality when they are in season, so he buys them. But he does not buy them in packages all the time, only in season. But for tomatoes he likes to buy them loose so that he can select the better ones.

#### **Participant 5 reported that:**

1. He reuses to save money.
2. He reuses to save materials.

#### **Participant 6 reported that:**

1. Cost-effectiveness influences his pre-cycling activities, e.g., buy refillable cartridge for printer.
2. Cost of products influences his pre-cycling activities, e.g., cheaper to buy vegetable loose, and buy at second hand shops.
3. Supermarket's policy (Pak N Save) – pay 10 cents for a plastic bag versus free paper boxes – influences his EEB.
4. Availability of vendor (i.e., second hand shops) which offers cheaper price for products makes him performed reusing activities.

#### **Participant 7 reported that:**

1. Cost of products makes him buy at second hand shops.
2. Availability of vendor (i.e., second hand shops) which offers cheaper price for products makes him performed reusing activities.
3. He buys from second hand shops and from friends because he cannot afford to buy new stuff.
4. He second hand clothes for children, reuses household items like ice cream containers etc to save money.

#### **Participant 8 reported that:**

1. Cost of products makes him performed EEB – buy vegetables loose, and buy products in containers that can be reused.
2. He only buys products in packages when they are labelled 'reduced to clear'.

#### **Participant 9 reported that:**

1. Supermarket's policy – carry one's own shopping bags inside a shopping mall, and recycling boxes placed in front of the supermarket – have made him a pre-cycler.
2. Costs of products has influenced him to recycle papers rather than buy an expensive note book for the kids.
3. Availability of vendor (i.e., second hand shops) which offers cheaper price for products influences his reuse activities.

#### **Participant 10 reported that:**

1. Costs of products make him buy a bulk pack rather than a small pack for products that his family consumes in quantity.
2. He reuses available household materials to save money.
3. Availability of vendor (i.e., second hand shops) which offers cheaper price for products influences his reuse activities.

## Political influence on EEB

### Distilled Summaries of Participants' Political Influence (Views and Experiences) on Their EEB:

#### Participant 1 reported that:

1. Government recycling policy – provide recycling facilities like recycling boxes, and systematic collection – has influenced him to recycle.
2. Availability of good recycling service has influenced his EEB.
3. Greenpeace has influenced his EEB – he feels that if the members of Greenpeace are willing to sacrifice even their lives in saving the environment, then why not him in his own home.
4. He feels that there is still room for improvement in recycling service provided, for example, he feels that one green bin per household is just not enough. Thus, the collector should collect recyclables even if they are put in a non-recycle bin rather than asking household residents to buy another green bin. He feels that he wants to do something good but is not supported by the collection system. He thinks that the system prioritises business rather than the environment. He feels that New Zealand should review its recycling policy and the management of the system.
5. He thinks that the politicians and the laws do not influence him in performing EEB because he never relates his EEB with them.

#### Participant 2 reported that:

1. Government recycling policy – provide the facilities to recycle usable items – has influenced his EEB.
2. Conservation policy – encourages him to conserve resources and not to waste.
3. He feels that politicians do not do much to influence him in performing EEB, and he is not aware of such efforts, if any, from organizations such as FIANZ, Greenpeace, and community movements.

#### Participant 3 reported that:

1. Availability of good recycling service – has made him aware of it more so now than before, thus has influenced his EEB.
2. Minimising waste has become regulated – everybody must do it, thus, so does he.
3. Government policies, and organizations like green movements or community movements have had no influence on his EEB.
4. He feels that he has always done EEB and the government and organizations are just restating the importance of performing EEB.

#### Participant 4 reported that:

1. Availability of recycling service has been very helpful in his EEB activities.
2. Green bin had influenced his EEB – he recycled when he had the green bin, but since it was stolen (6 months before this interview took place) he stopped recycling and now puts everything in a rubbish bag.
3. City Council has also influenced his EEB – letters about hygiene and waste from the City Council have influenced him in following standards of hygiene and waste disposal.

#### Participant 5 reported that:

1. Green bin had influenced his EEB – he started recycling when he received a green bin.
2. Good recycling service – weekly round of collection – influenced his recycling activities.
3. Government policies and organizations such as Greenpeace and FIANZ have had no influence on his EEB.
4. His sense of patriotism influenced his EEB – being a Kiwi he is proud of this image and likes to do his bit to maintain it because with a small country like New Zealand "that's all they really got", plus the nuclear free policy. If New Zealand had smog blanket over her cities like some cities in other countries it would have a bad impact on the New Zealand economy.

#### Participant 6 reported that:

1. Good and structured recycling system has encouraged him to recycle.
2. The whole system is in place, and the provision of the green bin has encouraged him to recycle.
3. Politicians and green movements have had no influence on his EEB.

#### Participant 7 reported that:

1. He had no green bin but he puts recyclables in his neighbour's bin.
2. Good recycling system makes it easy for him to recycle.
3. He has received some mails from the City Council about water supply/cut, green bins, and compost bins.
4. No environmental NGOs have influenced him into performing EEB.

#### Participant 8 reported that:

1. He started recycling when he became aware about the green bin – issued by the City Council about 4 years ago (before this interview took place in 2007).
2. The enforcement of waste disposal/collection procedure has influenced his EEB – he once mistakenly put non-recyclables in the green bin, and it was not collected. Since then he has carried out recycling properly.
3. He and his wife feel that it is just a matter of time before the government will fine people who do not recycle, so it is better for them to start doing it now.
4. He does not like to disobey the law, so whatever the City Council says about waste disposal he will do it.
5. Availability of the service has influenced his EEB – he feels that it is very easy to recycle because he can just put them in front of his house for someone to come and collect them.
6. Politicians and government officers have had no influence on his EEB. He thinks that they care about EEB but he has not seen them coming around to inspect the neighbourhood, unless maybe someone has makes a complaint.
7. No environmental NGOs influenced him into performing EEB.

#### Participant 9 reported that:

1. Good recycling system has made him enthusiastic about recycling.
2. Green bin had encouraged him to sort his household waste according to whether it is recyclable.
3. The system does not adequately protect the environment because at one time he was allowed only one box of recyclables and

2 big rubbish bags. He wished for more or bigger green bin per house so that more waste could be recycled.

**Participant 10 reported that:**

1. Green bin has encouraged him to do recycling.
2. Good recycling service has motivated him to recycle.
3. Political views, environmental laws/regulations, and environmental NGOs have had no influence on him, in any way, to perform EEB.

## **Demographic influence on EEB**

### **Distilled Summaries of Participants' Demographic Influence (Views and Experiences) on Their EEB:**

**Participant 1 reported that:**

1. He has been living in New Zealand for 13 years – he is used to New Zealand culture, language, feels accepted.
2. He came to New Zealand to study at first, but stays for the sake of his children's future.
3. Life was tougher in New Zealand compared to his home country, for example, because of cultural and language barriers and different rules. Also, he has to do everything for himself whereas in his home country many people will help out.
4. He is self-employed – he owns a small business.
5. He owns his own house, and this influences him a little bit to perform EEB.
6. He lives in a bungalow type of house.
7. He is married.
8. He has a master degree, and his wife has a bachelor degree.
9. He has three household members.
10. He has one child in the household.
11. He is in his 50s.
12. His income often fluctuates, thus, he refused to state his income.

**Participant 2 reported that:**

1. He has been living in New Zealand for 8 years.
2. He came to New Zealand to provide a good education for his children, and to gain exposure to other people's culture.
3. He is self-employed – owns a small business.
4. He sees his work as relating strongly to the environment. Since he deals with visitors from abroad the beauty of the well protected New Zealand natural environment is important. He thinks this is due to a good conservation policy that benefits the community at large.
5. He owns the house that he lives in, and this has influenced him a little bit in performing EEB.
6. He lives in a bungalow type of house.
7. He is married.
8. He has a masters degree.
9. He has five household members.
10. There are no children in the household.
11. He is in his 60s.
12. He owns a small business and there is no guarantee or fixed income. He is just surviving, managing to meet his basic needs. But he is happy to be able to survive on his own without any support from others. He refused to state his income.

**Participant 3 reported that:**

1. He has lived all his life in New Zealand but he has travelled abroad and has seen some appalling environmental conditions in some of the countries he visited.
2. He use to cut down trees for a living, and he thinks that as far as the environment goes it was not good at all.
3. He does installation works where he uses recyclables such as cardboard, newspapers and bubble wrap. When he first started he used to buy cardboard and plastic wrappings but then he switched to recyclable material.
4. He rents the house that he lives in.
5. He lives in a bungalow type of house.
6. He has school certificate.
7. He is married.
8. He is in his 50s.
9. He has two household members.
10. No children in the household.
11. His personal income \$50,000 a year, and he is careful with his expenditure – this has influenced him substantially in performing EEB.
12. His household total income is \$75,000 a year.

**Participant 4 reported that:**

1. He has been living in New Zealand for 18 years.
2. At first, he came to New Zealand to visit his relatives, but the different lifestyle and culture of the people made him decide to stay for a while. After, a few years he was in his 30s and he had spent all his money. He had to start working, but to go back to his home country and start from the beginning at that age is quite difficult.
3. He is self-employed – owns a small business.
4. He rents the house that he lives in.
5. He has high school education.
6. He is married.
7. He has one household member.
8. He is in his 40s.

9. His income often fluctuates, thus he refused to state his income.

**Participant 5 reported that:**

1. He has lived all his life in New Zealand.
2. He is a Correction Officer, and does not see his job as impacting much on the environment as he "confines bad people rather than bad rubbish".
3. He rents the house that he lives in.
4. He lives in a bungalow type of house.
5. His education level is "average".
6. He is in his 30s.
7. He is married and this has not affected his EEB.
8. His personal income is \$40,000 to \$45,000 a year.
9. His household total income is \$50,000 to \$55,000 a year.
10. He has four household members.
11. He has two children in the household – this has influenced him a little bit in performing EEB.

**Participant 6 reported that:**

1. He has been in New Zealand about 4 months.
2. He came to New Zealand to further his study.
3. He plans to stay until he finishes his study, which is about 3 to 4 years.
4. He does not plan to live in New Zealand. However, he would come for holidays because the country is beautiful.
5. He was a government officer in his home country and he was given a scholarship to further his study in New Zealand. He sees no direct relation between his job and the environment.
6. He rents the house he lives in.
7. He lives in an apartment (second floor).
8. He has a master degree.
9. He is married.
10. He has five household members.
11. He has three children in the household – this has influenced him a little bit in performing EEB.
12. He is in his 40s.
13. His income is \$60,000 a year.

**Participant 7 reported that:**

1. He has been in New Zealand for about 3 years.
2. He came to New Zealand to further his study.
3. He was a teacher in his home country.
4. He sees his job as relating to the environment in that it involves educating others about being environmentally conscious.
5. As a student in a New Zealand university, he is trying to be greener in operating printing and copying handouts. Whenever possible he tries to use electronic documents, or to do everything online.
6. He rents the house that he lives in.
7. He lives in a semi-detached unit house (ground floor).
8. He has a masters degree and his wife has a bachelor degree.
9. He is married.
10. He has five household members.
11. He has three children in the household.
12. He is in his 30s.
13. His income is \$20,000 to \$30,000 a year.

**Participant 8 reported that:**

1. He has been living in New Zealand for 21 years.
2. He came to visit the country but then decided to stay because there are no traffic jams, no hassle, clean and beautiful environment, and nice people.
3. He is a retiree, and his wife delivers circulars. She finds that her job relates strongly to the environment since recycling is part of the job.
4. He rents the house that he lives in.
5. He lives in a government housing (a single unit house) type of house.
6. He has three household members.
7. He has one child in the household.
8. He has secondary school certificate.
9. He is in his late 50s.
10. His household income is around \$20,000 to \$30,000 a year. He feels that the amount is enough for everything; to support him and his family, and he even invites friends for dinner. In fact he feels that the amount is quite a lot because he is not a smoker, a gambler, or a drinker.

**Participant 9 reported that:**

1. He lived in his own house in his home country, and being married and having a family to take care of made him a more responsible man including towards the environment so he started to do recycling activities.
2. Since he is a chemical engineer by training and has experience with a manufacturing industry he is aware of the shortage of natural resources such as petroleum and raw materials. He feels that if we do not start recycling today we might lose the resources one day.
3. He has been living in New Zealand for almost a year.
4. He came to New Zealand to accompany his wife who is furthering her study in New Zealand.
5. He teaches in a university in his home country, but in New Zealand he works as a cleaner – he feels that his job relates strongly to the environment.
6. He rents the place that he lives in.
7. He lives in a flat.
8. He has two children in the household – this has influenced him substantially in performing EEB.
9. He has a master degree.

10. He is in his late 20s.
11. His personal income is \$12,000 – 15,000 a year.
12. His household total income is \$50,000 to 55,000 a year.

**Participant 10 reported that:**

1. He has been living in New Zealand for nearly 3 years.
2. He came to further his study in New Zealand.
3. He was a teacher for 15 years, and at the time of the interview was teaching in one of the universities in his home country. He was greatly involved in environmental education during his teaching time in school.
4. He does not see that his profession relates greatly to the environment.
5. He rents the house that he live in.
6. He lives in a flat.
7. He has a masters degree.
8. He is married.
9. He is in his 40s.
10. His personal income is \$25,000 to 35,000 a year.
11. His household total income is \$55,000 to 65,000 a year.

Of the many contextual and demographic influences on EEB studied, the economic influence dominates. Not only do the questionnaire survey results show that economic influence was the best predictor of EEB, had the greatest effect on EEB, had a significance level of  $< .001$  in its relation to EEB, and explained 19.3 per cent of variation in EEB but the qualitative interview results lead to the same conclusion. The participants reported a strong concern of economic aspect as far as their EEB is concerned. When they were asked about their reasons for performing EEB (i.e., pre-cycling, recycling and reusing activities) such as shopping at a flea market, recycling drink cans, and reusing milk containers) the first things that came to mind were the need to save money, the fact that new products in the market were too expensive, that they were having financial difficulties etc.

### **9.3.2 Independent Variables and Contextual Aspects**

This section presents the analysis of the relationships between independent variables and the dependent variables (i.e., the contextual aspects) for hypothesis 3 (see section 1.3.3). The independent variables considered in these analyses were the demographic characteristics, the contextual aspects themselves, and EEB.

To further explain the questionnaire survey results of the relationships between these variables a framework/thematic analysis was conducted. What follows is the results of the qualitative analysis of the interview data presented according to themes.

#### **Distilled Summaries of Influences on Contextual Aspects:**

##### **Influence of Contextual Aspects on Contextual Aspects**

Interview respondents reported substantial religious influence on the other contextual aspects as follows:

### *Religious Influence on Social Aspect*

The results from the analysis of survey data show that religious aspect was the best predictor of social influence, and it also provides the highest impact on social influence, and it was also related the most statistically significantly (section 9.2.2). This result was supported by interview participant 8 who reported that his social reason for performing EEB stems from the religious aspect:

Participant 8 reported that:

1. One of the reasons for him to perform EEB was to teach social responsibilities to the young. But such reason is also embedded in his religious teaching – a head of a family is required to teach the young about their responsibilities to God, oneself, and others.

### *Religious Influence on Economic Aspect*

The political aspect was the best predictor of economic influence, it gave the highest impact on economic influence, and was statistically significantly related to economic aspect (result of survey data analysis in section 9.2.2). However, none of the interviewees clearly reported that their economic reasons for performing EEB stemmed from the political aspect. On the contrary, most of the interviewees strongly reported that their economic reasons for performing EEB actually stemmed from the religious aspect:

Participant 1 reported that:

1. Although he performs EEB mostly for economic reasons such as to minimise his expenses he reported that it is also a religious obligation to minimise his expenses, and to spend only on things that he needs. In addition, he believes that minimising expenses is part of his *iman* (faith).

Participant 2 reported that:

1. He is influenced by economic reasons to conserve resources so that consumer products won't be too expensive but he feels that the economic reason itself stems from his responsibility as a Muslim to conserve resources.

Participant 4 reported that:

1. Whatever he does including the economic justifications for performing EEB are what Islam teaches its followers to do. He said that "...so many things in Islam so it doesn't need the *imam* or *syekh*... talk to us about it..."

Participant 5 reported that:

1. He is influenced by cost effectiveness in performing EEB but this stems from his religious belief that teaches him to avoid wasteful behaviour and greed.

Participant 6 reported that:

1. He performs EEB because he wants to save money but this reason stems from what his religion wants him to do anyway. It is like killing two birds with one stone. He saves money and he complies with his religious belief at the same time.

Participant 7 reported that:

1. He performs EEB because he wants to save money but this reason stems from what his religion wants him to do anyway.

Participant 9 reported that:

1. He performs EEB because he wants to reduce his expenses but he will also be rewarded by God for doing so. Thus, as far as he is concerned he is rewarded twice – he saves money, and receives rewards from Allah.

Participant 10 reported that:

1. He performs EEB because he wants to cut his expenses but it is also his religious duty to spend only for what he needs and not to waste available resources such as recyclable items.

However, interview participant 3 firmly reported that his economic reason for performing EEB was solely economic when asked whether or not his economic

concern such as of not spending extra money for household containers related to his religious teaching:

Participant 3 reported that:

1. "No... it just comes from not having much in the way of finance to begin with... learning to do without and making use of what already available."

### *Religious Influence on Political Aspect*

Quantitative survey data showed that the economic aspect was the best predictor of political influence, and was the aspect that showed the highest impact on the political influence (section 9.2.2). None of the interviewees clearly reported that their political reasons for performing EEB stemmed from the economic aspect. On the other hand, participant 5 reported that his political reasons for performing EEB were rooted in the religious aspect:

Participant 5 reported that:

1. He performs EEB because he wants to make sure that New Zealand maintains its green and clean image but this patriotic reason is also what he believe Islam asks of him because he believes that God created this whole world, and just like his own body it is not to be abused.

In addition, none of the interviewees clearly reported that:

1. Their religious, economic, and political reasons for performing EEB stemmed from the social aspect.
2. Their social, and religious reasons for performing EEB stemmed from the economic aspect.
3. Their social, and religious reasons for performing EEB stemmed from the political aspect.

### **Demographic Influence on Contextual Aspects**

A statistically significant influence on the contextual aspects by a few demographic characteristics (i.e., marital status, number of children, and occupation) was reported by the survey respondents (section 9.2.2). For instance, some of the interviewees clearly reported that their contextual reasons for performing EEB stemmed from some elements of the demographic aspect. Some of the interviewees reported that their social reasons for performing EEB were actually stem from:

1. The length of their stay in New Zealand which enable their adaptation to the culture and custom of New Zealand people including EEB (Participants 1, 2, and 4).
2. Their strong work involvement with the environment (participants 2, 3, 7, 9, and 10).
3. Being married that made him a more responsible person including in performing EEB (Participant 9).
4. They own the house they live in (Participants 1, and 2).
5. The number of children in their household (Participants 2, 5, 6, and 9).

6. Their level of personal income and household total income (interview Participants 2, 3, and 4).

To Participants 2, 7, 8 and 9, being married and having children in the house caused them to perform their religious obligation which is to exemplify, among other things, EEB to their wives and children.

Almost all of the interviewees reported that their personal and household total income level influenced their economic reason to perform EEB.

In addition, the level of economic influence of Participant 8 stemmed from the number of household occupants.

However, none of the interviewees reported any influence of the demographic characteristics on the political aspect.

### **Influence of EEB on Contextual Aspects**

The survey results in section 9.2.2 illustrate a statistically significant influence of EEB on the economic aspect. However, none of the respondents in the interview reported that their contextual reasons (i.e., social, religious, economic, and political) for performing EEB stemmed from EEB.

In this section, it can be seen that the relationship reported the most – to be related to the contextual aspects – was the relationship among the contextual aspects themselves compared to the relationship between the demographic characteristics and the contextual aspects, or the relationship between EEB and the contextual aspects. This result supports the result of the quantitative data analysis in section 9.2.2 where the best predictor for social influence, religious influence, economic influence, and political influence were all from the contextual aspects (i.e., religious, social, political, and economic, respectively). This is also true for the results for the highest impact on the contextual aspects, and the results for the significance levels – all were dominated by the contextual aspects. Demographic characteristics play less important role in influencing the contextual aspects. And EEB plays almost no role in influencing the contextual aspects except for the economic aspect.

In addition, the results of the qualitative data analysis show what quantitative data analysis was unable to show, that is, among the contextual aspects, the religious aspect was actually governing or dictating the other contextual aspects in influencing EEB. Thus, although those influences on their

EEB – as reported by the respondents – are apparently social, economic, political, or demographic influences, all ultimately stem from the religious reason. Thus, we see the respondents reported the influence of the religious aspect in all of the other contextual aspects that influence EEB.

#### **9.4 Conclusion**

In conclusion, this chapter presents the analysis of data collected from both quantitative survey method and qualitative interview method. The results via analysis of both survey data and interview data show the domination of economic aspect as far as the influence on EEB is concerned, and the domination of contextual aspects as far as influences on contextual aspects (that then influence EEB) is concerned. The next chapter discusses further the major themes emerging from the survey and interview data – the survey results are discussed in relation to the hypotheses outlined in Chapter 1: Introduction and literature reviewed in Chapter 2: Literature Review while the qualitative interview results are discussed in relation to the findings of the quantitative survey.

## **CHAPTER 10**

### **DISCUSSION OF RESULTS**

#### **10.1 Introduction**

This chapter presents and discusses the major findings emerging from the data presented in Chapter 9: Analysis of Data. The study aimed at achieving the three objectives outlined in Chapter 1: Introduction. This chapter first discusses the results of the study from the survey data and qualitative interview data in terms of each of the objectives, and relates them to the literature reviewed in Chapter 2: Literature Review. The chapter then provides an overall conclusion.

#### **10.2 Results of the Study**

This section discusses the extent to which the results of the survey and the qualitative interview met each of the study's objectives; unexpected findings; the evidence supporting these conclusions; and the extent to which the study's findings agree with, contradict, or differ from those of the literature reviewed in Chapter 2: Literature Review.

##### **10.2.1 Contextual Aspects and Environmentally Ethical Behaviour**

The first objective of the study was to investigate the relationships between contextual aspects and environmentally ethical behaviour (EEB). Under this objective, the question asked was: Which contextual aspects were significantly related to EEB? Based on the literature reviewed the study hypothesised that the social aspect, the economic aspect, and the political aspect would all be significantly related to EEB while the religious aspect would not.

The results of the survey partly confirm the hypothesis, in that the economic aspect was found to be a significant influence and the religious aspect was not shown to be a significant influence on New Zealand Muslim males' EEB. However, the results did not support the rest of the hypothesis in that the social aspect and the political aspect were not found to be significant influences on New Zealand Muslim males' EEB.

### a) Economic Influence

The study (based on the survey data) found that, among the contextual aspects, elements of the economic aspect such as price of consumer products, subsidies, taxes etc, were the only ones that related statistically significantly to EEB. The relationship was positive, meaning that the more the participants were influenced by the economic aspect to behave in an environmentally ethical way, the more they were likely to perform EEB.

The results of the qualitative interview data support the findings of the survey in that the economic aspect strongly influenced the EEB of New Zealand Muslim males compared to the other contextual aspects. In other words, economic decision making dominates. This statement is based on two most striking patterns in the interview data (1) most of the participants' first<sup>1</sup> answers to the question of what made them decide to pre-cycle, recycle and reuse and (2) their answers to the question of what is the most<sup>2</sup> important factor or influence on their decisions in performing EEB were all pointed to the economic influence such as that the cost of consumer products was too high, and the need to save money.

For instance, Participant 1's first answer to the question was that he bought consumer products in bulk "because... our stockist says per case is more cheaper..." When asked further about the influence of the economic aspect he answered, "...the first time may be we are not... concern about the cost but later once we think more deeply so we can understand, oh! Actually how much money we can save from doing that." Participant 1 also reported that he chose to put items they purchased in free boxes rather than paid plastic bags from Pak N Save, and even when supermarkets provide free plastic bags he cannot bring himself to take them because of the sign "please say no to plastic bags" at the counters.

This view is also shared by Participant 2: his first answer to the question of why he decides to shop at the flea market was:

... the reason is it's cheaper... economic reason... cheaper, healthier and environmental friendly and also for recycling purpose... It is because it is environmental friendly because it also saves... resources you know. And also... you... can save foreign exchange it also benefits... develops... secondary industry, also helps the country... basically... for economic reason...

Participant 3's first answer also pointed to economic influence in that New Zealand is running out of land to dump waste. He said "Because it's... less land

for waste...” When asked about how that relate to his EEB he answered “I mean... a big area just North of Hamilton where they take out of the sand... of the earth which used to be a Waikato river bed... they pile the rubbish into that area... Then they cover it up with dirt....” When asked further he explained what he did to avoid more areas being used as waste dumps:

Hmm... part of what I do in my spare time, I have another business and that is repairing people’s furniture... because most people don’t have a lot of money spare for buying new furniture, they rather repair the old ones. There are some things that may go to the dump... there are people there who sort the things out... you drop at a few recycling centres rather than going to the crusher...

Participant 3 also stressed that cost of products influenced him substantially and “I rather do that [reuse household items] than have to buy something. Spending money for no reason... Just economical... means that I don’t have to go get in the car and travel somewhere to buy something...” He later added “...I keep the dump receipt for... when I go... get things up there for the overuse during my job... I keep the dump receipt and I can get that back of my tax.”

At first Participant 5 emphasised that the social aspect (i.e. to be a responsible person) influenced his EEB (i.e. recycling behaviour) but he did mention that he reuses some of his household items to save money and materials, and answered “the economic aspect” when asked which aspect influenced his EEB the most.

While explaining to the interviewer about his activity of recycling ink cartridges, without even being asked, Participant 6 went straight to the economic influence as for the reason for his recycling activity:

...because I think refill... or recycle... ink cartridge is one thing is cheaper but... in turn it doesn’t compromise on the quality ya, you still get the same quality. So why not, you know, in terms of economic point of view if you can spend... less with the same quality then you should go for it.

Participants 6 and 7 also reported that the availability of second hand shops enabled them to buy used items. Although Participant 8 reported that he was strongly influenced by the social aspect in performing EEB he preferred to buy vegetables and fruits when the price is reduced to clear. In addition, Participant 9 who was strongly influenced by the social aspect (and ranked the economic influence in second place) reported that he was influenced by costs “...to minimize

the... cost of buying... goods... Rather than buying an expensive note book for the kids... I think better... recycling papers... so that we save the resources that will cost more..." He also reported to be influenced by vendors:

...in the shopping complex we can find the recycling boxes placed in front of the supermarket. It tends to increase people's awareness. So, I think by placing the recycling bins in front of the mall... can inculcate more the awareness.

Participant 10 also, without being asked, said "we buy a bulky pack... just because of the price... the more we buy... the price cheaper..." although in the latter part of the interview he said the social aspect was the strongest influence on his EEB. In addition, Participant 7's first answer to the question of what make him decide to pre-cycle, recycle and reuse also pointed to economic influence, "And when we came here everything we start from zero and it was a little bit expensive buy from shops and we got from second hand shops."

The question of what is the most important factor or influence on their decisions in performing EEB was asked after all influences (i.e., social, religious, economic, and political) were discussed between the interviewer and the interviewees, but most of the participants' answers to the question pointed to economic influence still. For example, even after all influences had been discussed Participant 3 still reported that economic influence was the most important one for his EEB, "... most important one would be not wanting to spend extra money... when it's not needed." In addition, despite the political and the patriotic tone in the beginning of his answer Participant 5 at the end pointed to economic influence for his decision to perform EEB:

... actually I'm a Kiwi and we have been at a long time at this clean green image... which is... almost turn into a mask now. And I like to do my bit to maintain the clean green image because with a small country like New Zealand that's all we really got... the nuclear free policy and... some cities have smog over blanket over their city and if that happened to New Zealand... it will give big impact on our economy and all.

Furthermore, Participant 6 also stressed that the most important influence on his EEB was economic, "... may be the first is economy second is because... the religion wants you to do that..." Participant 7 also emphasized the importance of the economic aspect in performing his EEB:

Because... we need sometimes to save our money also and... if you buying things but then you throwing in the rubbish... you keep... them, do something maybe you can... use second time, a third time, ya. It's for, like... economically ya.

Although Participant 8's first answer to the question of what influences him to pre-cycle, recycle and reuse was the social aspect his answer to the direct question on economic influence if any on his EEB pointed to economics: "...we are not too much fuss on buying... we just bought only the cheapest at the flea market.... if it's cheaper at the supermarket and can refill a lot of stuff then we buy it."

The results of both the survey and the qualitative interviews not only support the hypothesis that the economic aspect would be a significant influence on the New Zealand Muslim males' EEB, but also agree with the findings of previous studies. Many authors (Ebreo et al., 1999; Hess, 1998; Mainieri et al., 1997; Moncrief, 1973; Oskamp et al., 1991; Schwepker & Cornwell, 1991; Shrum et al., 1994; Shrum et al., 1995; Thogersen, 2000; Wilber, 1998) have agreed that the economic aspect is a strong influence on environmental behaviour. The most likely reason for the economic aspect being a positive influence on EEB, according to Mainieri et al. (1997), is that an increase in the prices of products encouraged consumers to reduce wasteful practices.

The qualitative interview results of this study, discussed above, so leads this explanation, in that the higher the price of consumer products in the market the more EEB is performed by the New Zealand Muslim males. In addition, as explained in Chapters 5, the New Zealand Muslim males were mostly economic migrants who came to New Zealand to start a new life. Hence, they did not have much, financially, to start with. For this reason, more often than other reasons, they had to perform EEB to simply economically survive in this country. The two religious figures, responding to an email questionnaire, were also of the opinion that economic reasons caused the New Zealand Muslim males to adopt EEB since cost of living was among their prior concerns. In addition, their belief that wasteful behaviour is sinful, along with the vendors green policy, have also pushed them to adopt EEB.

#### **b) Religious Influence**

The results of the quantitative survey also support the hypothesis that the religious aspect would not relate significantly with EEB, supporting some parts of the

arguments by Kalland (2002) and White (1973). In addition, many studies have found that general environmental concerns do not correlate highly with specific environmental behaviour (Huebner & Lipsey, 1981; Mainieri et al., 1997; Oom Do Valle et al., 2005; Shrum et al., 1994; Thøgersen, 2000; Wall, 1995). Therefore, since religions are seen as providing general reasons for being concerned about the environment, rather than specific motives for EEB, the insignificance of the relationship between religious influence on environmental behaviour and the frequency of that behaviour, probably reflects the fact that a general attitude cannot usually be used to predict a specific behaviour (Ajzen & Fishbein, 1980).

Another possible explanation of the quantitative survey results, in that the participants reported that the religious aspect was not a significant influence, is that the questionnaire asked only about the influence of religious figures – imam, *ustaz* and their religious teachings. The results of the qualitative interviews indicate that the participants did not find such religious figures explicitly teaching the relation between their religion and the environment let alone the relation between their religion and EEB such as pre-cycling, recycling and reusing. One of the religious figures, asked via email questionnaire, also admitted that although “Islam has provided the basis for ethical treatment of the environment by making man the caretaker of the resources and prohibiting wasteful use of these resources”, the efforts by religious figures in raising awareness on the issue among the Muslims was lacking. Thus, the participants reported lack of significant religious influence. On the other hand, in the qualitative interviews the interviewees expressed their personal understandings of Islamic teachings of the Qur’an and *Sunnah* that cover the protection of the environment and showed their ability to relate the teachings to their EEB. Hence, had the Qur’an and *Sunnah* been put in the questionnaire as additional elaboration in the category of religious aspect the quantitative survey results might have been different.

The results of the qualitative data analysis partly support the findings of the quantitative survey in that the religious aspect was not a significant influence on the participants’ EEB. The patterns in the qualitative interview data show that most of the interviewees did not give religious influence as their first response to the question of what made them decide to pre-cycle, recycle and reuse. For instance, Participants 1, 2, 3, 6, 7, and 10 all gave the economic influence as their

first response to the question while Participant 4 answered political influence, and Participants 5, 8 and 9 all answered social influence. In addition, participants 3, 5, 6, and 7 also answered economic influence as the most influential aspect on their EEB while Participants 4, 8, 9 and 10 answered social influence – only Participants 1 and 2 answered religious influence as the most influential aspect on their EEB. In fact, when Participant 3 was asked whether or not religious influence such as imam, *ustaz*, religious teachings, the Qur'an, and the Prophet tradition play any role in his EEB his answer was simply “No”. Meanwhile, Participants 1 and 2 only answered that religious influence was important on their EEB after they were asked directly whether or not religion plays any role in influencing their EEB. Participant 1 commented that the imam was talking about the environment in the *khutbah* (sermon) implicitly not explicitly. He further said:

Actually in our religion... the basic like the cleanliness for example cleanliness is part of our *iman*. You see. If we think about cleanliness and *iman*, we relate with all what we talking. Also the same. We try to make clean environment by doing this... It means we also follow with our *iman*.

Meanwhile, Participant 2 reported:

It is... within the Islamic value system that we should not waste resources... and I think you just need to remind each other... sometimes... religious leaders also stress the point... because wasting resources is... not becoming of a Muslim and... is the work of the... devil... Yes it is... so basically... Islamic value system as we understand it is... most practical thing to do.

Hence, it can be said that participants 1 and 2 only gave religious influence as the most influential aspect on their EEB after all the influences, including religious ones, were discussed and then they were asked which one was the most influential. Participant 1 answered “If we relate to our religion, I think the last thing. Cleanliness is part of our *iman*” while Participant 2 said:

It is... already built in... I have internalized these values and it becomes a very compelling thing... to the point of being obsessed... has established a strong value system... that is already developed... over the years.

Religious influence was also not the most influential aspect on the EEB of participants 4, 5, 6, 7, 8 and 10. Participants 4, 5, 6, 7, 8 and 10 only explained the importance of religious influence in their EEB when they were directly asked

whether or not religion plays any role in their EEB. For instance, Participant 4 reported:

Well... this question if you asked me... for a... Muslim person it's... our religion which is Islam... we have a big bulk or actually all of it its... very... good signs for the environment... as you know as you Muslim you know how to... keep... yourself clean so the other people would be clean... how to put the dirt from the way... the people who... walk on the road... Too many things... which hand you use for... eating and which hand you use... for example toilet, showering or whatever... so many things in Islam so it doesn't need the imam or *syekh*... talk to us about it because if the Muslim person wants to pray or go to the mosque or all the things he has to be 100% pure clean before he gets in so if he clean himself five times a day for the five times prayers... that's more than enough... Ya and if he knows rightly I didn't talk about all Muslims I didn't say all Muslim good and all Muslim bad I cared about if some Muslim he knows the law of the Islam and he never lets any kind of dirt from the way of any one walking on the street Muslim or not Muslim doesn't matter... so I talk about the Muslim he tried to take the dirt out of the way... from... the Muslim person way or from the other Muslim man so he doesn't make any bad things to anyone so that it just our Islamic environment... that's what the Islam teaching us to do... teaching us to do... ya.

Participant 5 reported no influence from religious leaders or figures like imam, *ustaz* etc. He reported that during the *khutbah* (i.e. sermon) the imam was only talking about spiritual and political matters and nothing about the environment. However, he reported influence from the Prophet teachings, and the Qur'an:

No not from the Muslim leaders... No because if you... if one follows the... the teaching of... the Prophet it just comes naturally. Yes... because if you... a humble person and you got a lot of *hikmah* [blessing] and all that... you going to have common sense not to... have your yard, or your kitchen, or your bathroom... piled up with rubbish...

Participant 6 reported religion as the second influence to his EEB. But when he was asked directly whether or not religion has any influence on his EEB, he confirmed that religion influenced him this way: "Because... in Islam if you do a good thing you will be rewarded... ya... so it's confirmed... Yes... it's encourages you to do more and more ya." In addition, he also said that "as a Muslim we have to finish our food, to minimize the waste as much as possible." Participant 7 reported that unlike in his home country he did not often hear the imam or *ustaz* in New Zealand talk about the environment. He reported only one occasion that an imam pointed out that some immigrants came to New Zealand:

...and they start wasting everything and imam was saying that back home... they didn't have any food to eat, they were hungry and [for] most of them... the only food they have is flour. They use to... cook flour like... may be fry in... oil a little bit, put some water and eat the soup and now they have come here and they... ya then they... become wasteful here. The imam was suggesting them to be more conscious about... some stuff.

To Participant 7, the imam and *ustaz* talked “more about religion... not about recycling of things...” thus they were not a big influence. However, his understanding about Islamic teaching influenced his EEB:

Yes, I... clean, being clean is a part of religion. Islam is about being clean and... being like... I think it's... like having a balance between... using some stuff and having things so ya, they mentioned ya... they encourage not to waste the things. Yes, so everything link with recycling you know. That's actually was part of the religion but I never heard... imams... never talking in the mosque about this. Maybe sometimes they could mention... Ya... I think... ya, Islam is about... like being environmentally friendly, you should be as much environmental green as possible but not to... harm the people. I mean it shouldn't... go over the limit like sometimes the Greenpeace or... activities in the organization... they want to offence some people but for... Islam the main thing is the relationship among human beings not... the material stuff... yes you have to save... Islam is against wasting some materials, things but still it shouldn't be up to that point when you start harming others. It's the kind of... I mean I'm doing some research on... environmentally friendly products and... my conclusion was that it should.. I mean being... like sustainable being green is not about attacking others... or hurting... someone... others' feeling. It's more about yourself, you should control yourself and you should be cautious about your relationship with other people. It's more about social conscious... social contact... rather than like saving little stuff here and there... because... the material things they... like Islam tells this is not important, the most important is... human around you... Yes. Yes. Don't waste too much yes. Like you can eat drink but... don't waste... Yes, and so there should be some limit... for example, bad things I see in the Western culture is that they are playing with food... Yes. They... like I always saw children playing with food, throwing them to each other or putting cake on their face you know. This stuff... they think it's funny but in... Islam it's very bad... I mean in our culture or Islam, playing with food is not accepted. You can't play with food. That's... against moderation I think... Yes there are many *hadith* [the Prophet tradition]... like don't be wasteful and whatever you are doing don't waste. This is *hadith*. And in Qur'an in many places, it says... we should not be arrogant and we should not waste... I can't remember the *ayat* [verse]...

Participant 8 also reported that religious leaders like imam and *ustaz*, did not influence him in doing EEB “No... Nobody encourages you, nobody talk about it, nobody talk about this, no... and they know 100 percent its religion but they don’t talk about environment whatsoever, no.” Participant 10 also answered about the influence of religious aspect after being directly asked on the influence of such aspect on his EEB:

In my experience I... never exposed to this type of... experience from the religious activities... I haven’t got this type of message from religious body but of course in our religion we have to be... concern about the need to have sustainable in our environment... I think... it is related to our religion... the need to... preserve or to maintain the environment... so that... we can live harmoniously... forever... for the next generations. That’s the importance of having this type of... environmental education. So, it is really related to religion of course... it is not a specifically mentioned that we need to look at the environment but it is... part of our religion to make sure that we preserve or to make sure that we maintain the environment.

However, for Participant 9 religion plays a stronger role in influencing his EEB than in other participants’ EEB. As mentioned earlier, social influence was his first answer to the question of what made him pre-cycle, recycle and reuse, and to the question of what is the most influential aspect to his EEB. However, Participant 9 stated earlier on that “Anyway... this is what our religion taught us, not to waste our food. So we try to make a full use of our food to minimize the rubbish.” And throughout the middle part of the interview he also talked about the religious influence on his EEB without being probed by the researcher:

I would say that the main reason of doing these because it is one of our obligation to the God because it... just to be thankful to or grateful to God who give us such a good... planet to live in, and one of the our duties to God... we think is to pay back by keeping our environment safe and... the recycling activities are the best way to achieve this goal...in a way can directly teach us to use numbers of rubbish as well as to reduce the environmental pollution in our lives.

The discussions above found that the religious aspect was not the participants’ first answer to the question of what made them perform EEB, but they answered “yes” when asked directly whether their religion plays any role in their EEB. Moreover, some of the participants changed their first answer to the religious

aspect when later asked about what is the most influential aspect on their EEB. The findings need some explanations as to:

- i. Why the religious aspect was not given by the participants as their first answer to the question of what made them perform EEB,
- ii. Why when asked directly whether or not their religion plays any role in their EEB, they answered “yes” and
- iii. Why when asked what is the most influential aspect on their EEB, some of them changed their first answer to the religious aspect.

The explanation is probably that Muslims are taking for granted their religion as central to their way of life, as discussed in Chapter 3. They are constantly reminded by the Qur'an (words of Allah) regarding (1) the concept of *tawheed* that every aspect in life is integrated, and (2) the basic ethical values like justice, honesty, helping the weak etc to be applied in their daily routine. Thus, religious influence, to them, is almost in no need of mention as far as their EEB and their daily actions to and interactions with the other environmental elements around them are concerned (e.g., Participants 4 and 5). This probably explained why religious influence was not their first response to the question of what made them perform EEB, but that they answered “yes” when asked directly whether or not their religion plays any role in their EEB, and some of them then changed their first answer to the religious aspect as the most influential aspect. To them, their economic reasons for performing EEB, for instance, are part and parcel of their religious duties – economic issues are a concern not in contrast to but as part of their religious worldview. The two religious figures affirmed via email that religious sermons in the mosques were often presented in relation to cleanliness of oneself and the environment, avoidance of wasteful and excessive expenditure, resource conservation, and Islamic values in savings etc. In other words, to them, social, economic and political influences are not separate from their religious influence; rather, their religion governs the influences on their EEB, except probably for Participant 3 who answered “No” to any influence of the religious aspect. Being a new convert, his answer was probably due to his inability to make a link between Islamic teaching and the environment.

### c) Political Influence

The results of the survey data showed that the political aspect was not significant in its influence on EEB. This was probably because the economic aspect was so much more important than the other contextual aspects. In the absence of the economic aspect, or if the contextual aspects were tested separately, the political aspect may be a significant influence (Thogersen, 2000). Future research could test this. Furthermore, political aspects such as funding and regulations were probably not being implemented consistently enough and politicians and political parties were not strongly influencing EEB (Dunlap, 1991; Van Liere & Dunlap, 1980).

The results of qualitative interview data analysis provide some support for the survey findings on the influence of the political aspect in that the political aspect was not a significant influence on New Zealand Muslims' EEB.

Only Participant 4 answered the political aspect as his first response to the question of what influences him to do EEB. He strongly reported that he performed EEB (i.e. recycling) because the government has put in place the green bin. Since his green bin was stolen he quit recycling and will recycle again only if the government replaces his stolen green bin:

I just care about if I have bin I put things in it, I don't have bin I don't even look behind or anywhere... we help as much as we can... if they help us too like they give us the bin so... I think the person who collect these things just collect it but if for example he done his job and the he finds one or two or three house on the street hasn't got bin it doesn't cost him any cent to take the number of the house and send them... later... somebody visit the area... and they see who had bins who hasn't got or what a problem... ya something like that...

However, he changed his answer to the social influence when he was asked which one of the contextual aspects influenced him the most:

Ya... we watch that many times on the TV they ask the people to collect all these things and... reduce... the plastic bags for example... you don't need it at all... we see all these things on the air and we know that from long time ago.. for me, when I do it ya since I came to New Zealand long time ago I saw some people on the park they collect all these things and they sell it. They make their living from it and then they start make ad[vertisement] on the TV to collect all these things and some company will come and take it from you by the city council. So we... I did it... to helping the country... I mean if they ask us to do something and they put

us a bin to put all these stuff in it... so why not? Why I being ignorance? So I... help yes.

Participant 1 commented that although the government policy on EEB is good there is always room for improvement, and he reported no influence from the political aspect:

...to be honest I don't know exactly... how much their influence because we never relate [to] this matter.... The politicians, or the law, and government, so difficult for us to answer. Even may be in fact there is some relation but how far how much how deep?

He thinks that environmental policy and management should be more centralised. He thinks that to encourage recycling activities people should be allowed to put recyclables in cardboard boxes when a green bin is filled rather than the authority putting on sticker saying "please buy another bin." He also thinks that it is contradictory for the government on the one hand to promote EEB and on the other to allow the production and sale of plastics. He thinks that the government should abolish the production and sale of plastic bags and encourage alternatives to plastic bags. However, he was slightly influenced by the actions of Greenpeace who to him are very brave in fighting for the betterment of the environment and for him to do EEB is a small contribution from him compared to the members of Greenpeace who are putting their lives on the line for the environment.

Participant 2, when asked directly about political influence on his EEB, reported that the system put in place by the government to encourage EEB was quite good:

...the government as a whole is... encouraging you and they are also provide you with the facilities... to recycle, you know, usable item... I think the government has got a very good conservation policy... and I think that helps a lot to encourage people to conserve... resources and not waste...

However, Participant 2 commented that "You don't get very much from the politicians... I suppose politicians... indirectly support that, you know..." Meanwhile, Participant 3 reported no political influence except for the government policy of a tax return for his dump receipt. Participant 5, although he reported that he was influenced first by his sense of responsibility and cleanliness and most influenced by the economic aspect (among others "So, weekly rubbish bag doesn't fill up so quickly..."), reported that he has continuously recycled since

he received the recycling bin, and the collection service has been good. This is also true for Participants 8, 9 and 10 who were encouraged by the provision of recycling bins and the good recycling system in place by local government, although they reported that they were most influenced by the social aspect. Despite reporting that they were strongly influenced by the economic aspect Participant 6 and 7 were also slightly influenced by the good recycling system in place in New Zealand, Participant 6 said:

...I think the system in New Zealand is... good enough... I can say it is a structured system whereby they have this service of... recycling... you put away your green bin they come and collect them... Encourages... yes.... the system encourages. I think the whole system is in place.

The political aspect was not reported to be very influential probably due to the fact that, in New Zealand, EEB such as recycling and composting are encouraged but not required due to the location and type of refuse disposal facility not always being practical (Southland Regional Council, 1996). In addition, the lack of political influence probably due to the lack of enforcement as according to Ministry for the Environment (1997), many regional/district councils do not implement them satisfactorily.

However, some political influence reported by interviewees centred on the role of New Zealand local governments in managing household solid waste – the implementation of green bins seem to bring environmental awareness into the household around New Zealand. In addition, some interviewees also reported influence from Greenpeace which is not a local NGO probably because publicity in the media was much better about such an international NGO compared to the local environmental NGOs.

Policies, laws and regulations were not an influence probably because they were too complicated for the respondents to relate to their EEB. In addition, the state of involvement of Muslims in New Zealand politics was minimal and they also had the tendency to avoid political issues including those that related to environmental issues. The respondents also reported that they had little influence from political parties and politicians, although the Green Party devoted its policy on environmental conservation, probably because the Green Party was a small party, thus the impact was fairly small.

#### **d. Social Influence**

The survey found that the social aspect was not significant in its relation to EEB. The probable cause could be that the social aspect was tested along with the economic aspect which respondents regarded as much more important. In addition, despite the claim by Oskamp et al. (1991) that contextual aspects are the most useful predictors of environmental behaviour, social extrinsic influences (i.e. as used in this study) were probably not as strong as social intrinsic influences on environmental behaviour (Ebreo et al., 1999; Mainieri et al., 1997; Shrum et al., 1994).

The results of the survey were not strongly supported by the findings of the qualitative interview data in that interviewees had quite a strong sense of social influence in their EEB – by looking at their first response to the question of what influences them to do EEB and to the question of what is the most influential aspect on their EEB.

Although first responding that the economic aspect was influencing his EEB and later reporting he was most influenced by the religious aspect, Participant 1 reported that he was quite influenced by the social aspect when he was asked directly about the social aspect influencing his EEB in any way. In particular, he was influenced by his children and neighbours and the news on television about global warming that affects animals, plants, and people:

News... when we talk with our friends, sometimes we discuss about the...environment and also reading from... papers or magazines and... the other source... when we talk to our children... when they come back... from school and talking about the environment... I learnt from my daughter... our daughter may be more... aware... the awareness level higher than us may be... Like now... when we go to the supermarket she always asks me to buy product that has... the sign of recycling.

Participant 3, although he was not influenced as much as by the economic aspect, reported a slight influence by the media: “...we have been made aware of... ozone level and... advertisements that go out all over the radio, TV... making it easier for people to recycle.” He was also influenced by the recycling activities and expectation of his neighbours.

Meanwhile, Participants 2 and 7 were influenced by their family members to perform EEB in quite a different way. They felt that it was their responsibility, as a head of a household, to share EEB values with their wife and children and get

them to accept the values which will help them later on when they have their own family to be able to continue the habit of not wasting resources. This view was also shared by Participants 5 whose first response to the question of what made him perform EEB was the social aspect (i.e. responsibility and cleanliness):

...having been responsible for minimizing weekly rubbish output and being conscious of the environment. Just to keep the rubbish output to a minimum hmm... especially during summer... flies and rodents... don't want to attract rodents I try to keep rubbish to a minimum.

He also reported that his wife and what he saw in the media play a role in influencing his EEB:

My wife, she actually get all the cardboards, papers, boxes... she fold up bottles that you can put in the recycle and that won't take that much room... what you see on the media that make you seem to be concerned, feel a bit guilty using disposable nappies because it takes about 50 years or so to break down... Not so much advertisements but... just the way... that the environment go on the news... environmental disasters and all...

And as far as the community is concerned, Participants 2 and 3 performed EEB because every community member is expected to do it and everybody is doing it, and it is the right thing to do. Unlike Participant 1, Participant 2 reported no influence from the media:

...not very much support you get from the media... because they are projecting just the... opposite area of... using the new items... In fact the media... advertising new trends in spending...

Family upbringing also plays an important role in Participants 1 and 9's EEB. For example, Participant 1 reported that he has performed reuse activity since he was a child "We learn from... our grandparents... to save everything." Meanwhile, Participants 2 and 6 reported that they performed reuse activities partly to help others to make a better use of the recyclables like used clothes and shoes. Participant 6 said "if you just throw it away it will just go to waste... but if you recycle it, somebody... will get the benefit out of it." Participant 6 was also concerned about the association of material goods with social status and the "power distance" in today's society "The gap is so much. So I think by recycling at least you know we will try to... close the gap of that power distance." What he saw on television about poverty and starving children in some parts of the world further strengthened his EEB. Meanwhile, Participant 7 said that wasting food is

just simply not his culture. The scarcity of food once experienced by his home country creates a kind of respect for food and it certainly plays a role in his EEB despites neighbours, and co-workers. However, he was certainly not happy with what he saw as the use of too much paper in New Zealand “One example is they use a lot of papers here. Always advertising... junk mail... We never read them like newspapers. You just look... and you throw... it out...”

Participants 8 and 9 were strongly influenced by the social aspect. Their first answer to the question of what made them perform EEB and their answer to the question of what is the most influential aspect on their EEB both pointing to the social aspect (among others is the media). Participant 8 was substantially influenced by the media (i.e. a program on television, articles in newspapers and magazines):

...there had been a rock show on the TV, they had a big... concert and people were singing to save... the earth... about the future of our generation... we were thinking too, what is going to happen in the future, our generation... So we have to start doing these stuff... now... hmmm... that's really influence us... it was also a very good program... and... we always read in the newspaper, magazine regarding with these stuff... save the world, we can't do it alone... But all of us... all of us around the world...

Participant 9 was substantially influenced by what he read in the newspaper about the saying “we borrow this planet from our grandchildren” and he explained:

...you understand actually because we are living here we have to think of our next generations... so we are... having a shortage of resources but I'm not saying that we have to... go back to the stone age not using the advance materials but... we have to remember that we have obligation to our next generations so that to make sure that resources are there for them... so in order to do that we have to sustain whatever conditions we have... and because will impact not only to the rich but I think it really impact the... poor... you can see that our earth is heating up in fact... a country with shortage of resources and they are looking resources in other countries so they go to the extent that it can affect a lot of things... I think most of... the things that happened in the world today... rooted from the limited of resources so that... causes what we face today. So why don't we just think about it... and start doing even though a little thing but it can give a big impact to our world...

Participants 8 and 9 were also influenced by their wives' recycling activity. For instance, Participant 8 reported that his wife collects cans and empty bottles around his neighbourhood, rinsed them and put them in the recycling bin .

Participant 9 was also influenced by his friends who according to him mostly “are not from Asian friends, they are New Zealanders, our... New Zealand neighbours.” He added that:

So, when they are going shopping I saw them bring their own bags and every Monday... this is in my neighbourhood. Every Monday we have to put rubbish in front, besides the road and we saw them putting recyclable items inside their green box. So, that... makes ourselves... to join them to recycle.

Participant 10 reported to be influenced the most by the social aspect although his first response to the question of what made him perform EEB was the economic aspect. He was influenced substantially by environmental education provided by his colleagues:

...my colleague introduced me on environmental education and we had this... environmental education for student... programme every week... we have this programme in our school... and from there I started realize the importance of environmental education and you know back in 2004 we conducted... seminar on environmental education... from there I started to get some ideas of... the... importance of... environmental education.

He was also influenced by the media such as news on television about the effect of human economic activities on the environment and future generations “if we do not do the recycling in our daily life of course it can affect our daily life in the future for our generations.”

Compared to the results of the quantitative data, the results of the qualitative interview data showed that the social aspect had a considerable influence on the EEB of the New Zealand Muslim males. This was the case probably because unlike the survey method, the interview method gives them more chance and freedom to elaborate and integrate various reasons for their EEB. The interviewees were equally influenced by various elements of the social aspect – family members like their children and their wives, wider community members like their neighbours and friends, and mass media like television and newspapers.

The probable reason for the interviewees to be influenced by their children and their wife could be because Islam teaches that every member of a family has a role towards each other, and they must consult each other for a better decision in their daily routines including in performing EEB. The two religious figures, asked

via email questionnaire, emphasized that raising children as good practicing Muslims was among the priorities of the Muslim community members. Muslims believe that strong Islamic and cultural values inculcated since childhood and through traditional family values are important to assure them to be good Muslims including towards the environment. A head of family felt necessary to educate and train family members to follow a healthy way of life – spiritually, morally and physically.

Those who were influenced by their neighbours and friends could be because they shared the EEB values of the wider New Zealand communities. They found that EEB was parallel to Islamic values, and al-Qur'an encourages them to learn what is good from other people including from those who are not in the same faith as theirs. The probable reason for the participants to be influenced by the media could be because New Zealand mass media paid a lot of attention to environmental journalism by constantly airing environmental programmes on their television channels and publishing comment on various environmental issues in their newspapers (see also Chapter 4). Even the two religious figures, asked via email questionnaire, reported that the talk on the environment in the Muslim community was often triggered by reactions to events on the news concerning such issues as green house gases and reusing.

This study joined others (Ebreo et al., 1999; Hess, 1998; Mainieri et al., 1997; Oskamp et al., 1991; Schwepker & Conwell, 1991; Shrum et al., 1995; Thogersen, 2000; Wilber, 1998) in providing empirical information that economic solutions to the economic causes of environmental degradation lie with consumers. In addition, unlike the previous studies that tested the influence of the social aspect, the religious aspect, the economic aspect, and the political aspect separately this study tested the contextual aspects together. Thus, this study was able to answer the question on which of those contextual aspects was the most significant when they were compared with each other.

### **10.2.2 Demographic Characteristics and Environmentally Ethical Behaviour**

The second objective was to investigate relationships between demographic characteristics and environmentally ethical behaviour (EEB). Under this objective, the question asked was: Which demographic characteristics were significantly

related to EEB? From the literature, it was hypothesised that house ownership status and type of dwelling would relate significantly to EEB while age, marital status, education level, occupation, personal income, household total income, the presence of children, number of household members, and the level of work involvement with the environment would not.

The hypothesis was partly supported by the findings of the survey, in that type of dwelling was found to be significantly related to EEB and marital status, education level, personal income, household total income, and the presence of children were not shown to be significantly related to EEB. However, the results did not support the rest of the hypothesis in that house ownership status was not found to be significantly related to EEB, and occupation, number of household members, the level of work involvement with the environment, and age, were found to be significantly related to EEB.

The relationships were positive, meaning that the better the consumers' occupation (i.e., white collar workers), the more household members they had (i.e., 4 and above), the higher their level of work involvement with the environment, and the better their dwelling (i.e., bungalow or semi-detached houses), the more they were likely to perform EEB. However, the relationship between age and EEB was negative, meaning that the younger the consumers the more they were likely to perform EEB.

The results of qualitative interview data partly support the findings of the quantitative survey data in that type of dwelling slightly influenced the EEB of the interviewees. For instance, Participants 3 and 8 who were bungalow dwellers reported that they make compost in their backyard whereas if they lived in a flat or an apartment it would be impossible for them to make compost even if they wanted to like Participants 4, 6, 9 and 10 who were living in flats. However, a bungalow type of dwelling was not strongly related to EEB like composting activity – bungalow dwellers like Participants 1, 2, 5 and 7 did not make compost. This indicates that type of dwelling although statistically significant in explaining EEB is not always reliable as a predictor of EEB.

Partly contrary to the findings of the survey, the qualitative interviews found that marital status and house ownership status did play some role in the interviewees EEB. For instance, Participant 9 reported that he performed more EEB after he was married and after he bought his house:

May be because after I finished my school, after... finished my university I don't really living in a house of my own. I lived with my friends together I don't really take control of my house while we were living together. Sometimes I throw away all the rubbish without my... concern. I don't really care what we doing. But when I got married, live in my own house... start settling down.

However, to some, like Participant 5 having been married did not change anything about his EEB – he continued to do it just as he did when he was on his own. In addition, Participants 1, and 2 also own the houses they lived in but did not compost, but participants 3 and 8 who were renting their dwelling did compost. This implies that marital status has a very limited power in explaining EEB.

In terms of education level, the findings of the qualitative interview support the quantitative survey data obtained in that education level did not make any difference in the EEB of the interviewees. For instance, the EEB of Participants 1, 2, 6, 7, 9 and 10 who had a master degree was not better than Participants 3, 4, 5 and 8 who reported to have merely school certificate, high school, average education, and secondary school, respectively. This suggests that education level is not a good predictor of EEB.

The survey data showed that personal income and household total income were not significantly related to EEB. The result of the qualitative interviews supports the survey data in that the variance in the level of both types of incomes did not make any difference to the interviewees' EEB. The interviewees, regardless of their levels of income, reported quite a concern about their income and expenditure and performing EEB was one way to ease their financial difficulties. For example, Participant 3 reported that he performed EEB because his income was not much to start with. However, Participant 8 stressed that his low income was not a major influence on his EEB. In addition Participant 2, despite owning a small business was quite worried about the fluctuation in his income level, and often he could only just manage to meet his basic needs, thus, performing EEB helped. This indicates that level of income is not always a good predictor of EEB. The difference in the level of income made no difference in the level of EEB probably because of the participants' strong *iman* or faith to the teachings of the Qur'an and *Sunnah* in that they should not compromise their ethical values such as their level of EEB with contextual aspects such as their level of income. Thus, their level of EEB does not fluctuate according to their

level of income – for instance, whether one is rich or poor the behaviour of not wasting food is maintained. The participants probably considered EEB (pre-cycling, recycling and reusing) as the act of faith (Chapter 3). In addition, they viewed wasteful behaviour as sinful. Thus, whether or not one had higher or lower level of income EEB is adopted to avoid waste and transgression.

Unlike the finding of the survey the qualitative interview data showed that some participants were influenced quite substantially by the presence of children in their households. For example, having children in the house made Participant 1 realised that he needs to practise EEB for the sake of his children's future "...because... we cannot think only for ourselves, we have to think our... future generation." This sentiment was also shared by Participant 8 who stressed that "...what is going to happen in the future, our generation... So we have to start doing this stuff..." Participants 5, 6, 7, 9 and 10 also emphasised the same reason for their EEB. For instance Participant 9 stressed that:

“...we borrow this planet from our grandchildren... we have to remember that we have obligation to our next generations so that to make sure that resources are there for them... so in order to do that we have to sustain whatever conditions we have... So why don't we just... start doing even though a little thing...”

Households with no or very few children did not bother much with pre-cycling activities like purchasing items in bulk. For instance, despite his low income, Participant 8 did not purchase his household items in bulk because he had just one child in the house and only 3 household members altogether. This finding also supports the survey data in that the number of household occupants plays a role in EEB of the interviewees. The different outcomes, showed by the quantitative result and the qualitative interview result, indicate that the presence of more children in a household is not always a factor in influencing New Zealand Muslim males' EEB.

Contrary to the survey data on occupation, qualitative interview data showed that whether an interviewee was self-employed, owner of a small business, a carpenter, a correction officer, a student, a retiree, a university lecturer turned cleaner, or a teacher did not make him perform less or more EEB. Also contrary to the findings of survey data the variance in the level of work involvement with the environment and age made no difference to interviewees

EEB. This suggests that although occupation was statistically significant in explaining EEB it is not a reliable predictor of EEB.

The findings of previous researchers were mixed, in terms of whether or not certain demographic characteristics related significantly to environmental behaviour, and in terms of whether or not certain demographic characteristics related positively or negatively with environmental behaviour. Some researchers found certain demographic characteristics to be significantly related to environmental behaviour but some researchers did not find such demographic characteristics to be significantly related to EEB. Some researchers found that certain demographic characteristics related positively to EEB but some researchers found such demographic characteristics related negatively to EEB.

The results of the survey in the present study support Schwartz and Miller (1991) and contradict Buttel (1987), Ebreo et al. (1999), Schwepker and Cornwell (1991), Shrum et al. (1994), and Van Liere and Dunlap (1980) in that occupation was found to be significantly related to EEB. However, qualitative data showed that occupation did not make any difference in the EEB of the interviewees, thus contradict Schwartz and Miller (1991) and support Buttel (1987), Ebreo et al. (1999), Schwepker and Cornwell (1991), Shrum et al. (1994), and Van Liere and Dunlap (1980).

Both the survey data and the qualitative interview data support Ebreo et al. (1999) in that type of house was shown to be significantly and positively related to EEB, meaning that bungalow and semi-detached house dwellers were likely to perform more EEB than apartment block or flat dwellers. The likely explanation for this result is that bungalow or semi-detached house dwellers probably had more space (i.e., front-yard and backyard) to perform EEB activities such as composting and recycling.

In the survey data age was shown to be significantly and negatively related to EEB, meaning that the younger the consumers the more likely they were to perform EEB, thus supporting Van Liere and Dunlap (1980). However, although the results support Ebreo et al. (1999) and Vining and Ebreo (1990) in that age was found to be significantly related to EEB the results contradict these researchers in that age was negatively related to EEB. In addition, the results contradict Mainieri et al. (1997) in that age was found to be significantly related to EEB. The qualitative interview data showed no difference in interviewees' EEB

with the difference in age, thus contradicting the previous literature except Mainieri et al. (1997).

The results of the survey and qualitative interview support the findings by Mainieri et al. (1997), Morrison and Dunlap (1986), and Van Liere and Dunlap (1980) and contradict the findings by Schwartz and Miller (1991), and Vining and Ebreo (1990) in that income (i.e., personal income, or household total income) was not shown to be significantly related to EEB.

Survey and qualitative interview results showed support for the findings by Buttel (1987), Mainieri et al. (1997), Oskamp et al. (1991), Schwepker and Cornwell (1991), Shrum et al. (1994), and Vining and Ebreo (1990) and contradict Ebreo et al. (1999), Morrison and Dunlap (1986), Schwartz and Miller (1991), Van Liere and Dunlap (1980), and Wall (1995) in that education was not shown to be significantly related to EEB.

The survey results contradict Oskamp et al. (1991) in that house ownership status was not shown to be significantly related to EEB while qualitative interview data partly support the studies by Oskamp et al. (1991) and Wall (1995) in that the variable made a difference in the interviewees' EEB. In addition, the survey results also contradict Wall (1995) in that the presence of children was not shown to be significantly related to EEB while the finding of qualitative interview supports Wall (1995) in that the presence of children in a household affects EEB of the interviewees.

Hence, this study joined others (e.g. Buttel, 1987; Schwepker & Cornwell, 1991; Shrum et al., 1994; Vining & Ebreo, 1990) in providing empirical information that demographic characteristics explain only a small part of motivation to practise environmental behaviour.

### **10.2.3 Independent Variables and the Contextual Aspects**

The third objective was to investigate the relationships between independent variables (i.e. demographic characteristics, the different contextual aspects themselves, and EEB) and the contextual aspects that influenced EEB. Under this objective, the question asked was: Which independent variables were significantly related to the social aspect, the religious aspect, the economic aspect, and the political aspect?

None of the previous studies reviewed in Chapter 2: Literature Review study the relationship between demographic characteristics and contextual aspects that influenced EEB. Meanwhile, the relationship among the contextual aspects, and the influence of EEB on the contextual aspects was also analysed although the researcher was not able to hypothesise for no findings of the previous studies dealt with such relationships. Consequently, the hypothesis used in this section was only for the relationship of demographic characteristics to the contextual aspects. This hypothesis is based on the findings of the quantitative survey in section 10.2.2: Demographic Characteristics and Environmentally Ethical Behaviour. Since occupation (i.e. white collar workers), number of household occupants, work involvement with the environment, type of dwelling, and age had been found to be significantly related to EEB in section 10.2.2 it was decided to see whether or not the same demographic characteristics would be significantly related to the contextual aspects also.

Thus, this study hypothesised that occupation (i.e., white collar workers), number of household occupant, work involvement with the environment, type of dwelling, and age would be significantly related to the social aspect, the religious aspect, the economic aspect, and the political aspect while marital status, education level, personal income, household total income, the presence of children in a household, and house ownership status would not.

The results of the survey partly support the hypothesis, in that occupation (i.e., blue collar workers or not employed) was related significantly to the economic aspect but contradict the hypothesis in that number of household occupants, work involvement with the environment, type of dwelling, and age were not found to be related significantly to any of the contextual aspects. Contrary to the findings of the survey qualitative interview data showed that none of the interviewees reported that occupation had any influence on their economic aspect, meaning that whether or not they were a white collar worker, a blue collar worker or not employed did not make any difference in their level of economic influence on EEB. This indicates that occupation is not a reliable predictor of the economic aspect.

In addition, unlike the result of the survey the finding of the interviews showed that the number of household occupant made some difference to the level of economic influence among the interviewees. For instance, compared to the

other participants Participant 8 was less concerned about the price difference between consumer products sold in bulk and ones that are sold singly because there were only three people in his family. This suggests that the number of household occupant is not a good predictor of the economic aspect.

Furthermore, unlike the survey data the difference in the strength of work involvement with the environment made a difference to the level of the social influence. For, instance, compared to the other interviewees who reported no or less work involvement with the environment, Participant 2 who operates a home stay, Participant 3 who cuts life trees, Participant 7 who is a student, Participant 9 who is a cleaner, and Participant 10 who is a teacher reported that their social influence was more due to their strong work involvement with the environment. For instance, despite reporting that he was influenced first by the economic aspect and the most by the religious aspect Participant 2 also reported that because his work strongly related to the environment (i.e. the number of his customers [i.e. tourists] depends on the condition of the environment) he had to consider seriously what his relatives, friends, and community members said about or do toward New Zealand environment, which then led him to perform EEB. The difference in quantitative and qualitative results suggests that work involvement with the environment is not always a good predictor of the social aspect.

However, the qualitative interview results support the findings of the survey in that the difference in the type of dwelling and age made no difference to the level of influence of the contextual aspects. This shows that type of dwelling and age are not predictors of any of the contextual aspects.

In addition, while the survey results support the hypothesis, in that education level, personal income, and house ownership status were not found to be significantly related to any of the contextual aspects the results contradict the hypothesis in that marital status and household total income were found to be related significantly to the social aspect, and the presence of children in a household was found to be related significantly to the religious aspect.

The qualitative interview data support the finding of the survey in that the difference in education level made no difference to the influence level of the contextual aspects. This suggests that education level is not a predictor of any of the contextual aspects.

However, difference in personal income and household total income made a difference to the influence level of the social and economic aspects. For example, compared to the other participants, Participants 2, 3 and 4 reported that their social influence was more due to their personal and household total income level. Participants 2, 3 and 4 reported that their income level caused them to consider what have been said and done by relatives, neighbours and people shown in the media who were in the same situation as they were. Thus, they follow the activities to minimise expenditure (i.e. EEB) demonstrated by the social factors around them because their personal income and household total income was unstable.

In addition, almost all of the interview participants reported that the level of their personal and household total income influenced their economic aspect to perform EEB. For instance, Participant 3 stressed that his income was not much to start with which, made him strongly concerned about his daily expenditure and the price of consumer products. This concern had then led him to the performance of EEB.

However, Participant 8, although he was on a very minimal income, felt that the level of his social influence was not due to his level of income, meaning he was not influenced by the pre-cycle, recycle and reuse behaviour of his social surrounding like neighbours or friends due to his low level of income. He also neither reported that his low income caused him to be more influenced by the economic aspect like costs of consumer products, because to him “The government give us around 27 thousand... Enough for everything. Enough. To us, I feel like that’s quite a lot...”

Based on the qualitative interview result, personal income and household total income may be predictors of the social and economic aspects but they are not reliable predictors given the contrary result of the quantitative survey.

In contrast to the survey result, compared to the other interviewees, Participants 1 and 2 reported that owning the house they lived in made them more receptive to social influence. For instance, Participant 1 reported that as a house owner in the neighbourhood he felt obliged to conform to the expectation of his community members including regarding EEB “...these people... New Zealanders accept us, we accept also everything that is provided or given to us yes...” In addition, Participant 2 stressed that as a house owner in the community he felt

compelled “to know how other community [members]... live and also to be able to understand other cultures and live with other communit[y] members...” including the culture of EEB and to conform to the expectation of the rest of the community members in doing EEB. This indicates that house ownership status may be a predictor of the social aspect but it is not always the case given the contrary result of the quantitative survey.

On the other hand, the results of the interviews support the survey data in that marital status made a difference to the social and religious aspects. For instance, Participant 9 reported that his social influence was due more to the fact that he was married compared to when he was single, meaning that he was influenced more by family members, neighbours and friends in performing EEB once he was married. In addition, Participants 2, 7, 8 and 9 reported that having been married caused them to be influenced more by the religious aspect (e.g. religious obligation to exemplify, among other things, EEB to their wives) compared to when they were single. This suggests that marital status is a predictor of the social and religious aspects and capable of explaining the influence of such aspects.

Similarly, the finding of the qualitative interview also supports the survey results in that the presence of children in the house made a difference to the religious aspect. Interview Participants 2, 7, 8 and 9 reported that they complied with their religious obligation (i.e. exemplifying EEB) more so because they had children in the house compared to those who did not. In addition, Participants 2, 5, 6, and 9 reported that their level of social influence was due more to having children in the house, meaning that they were more influenced by their community members, the media depicting starving children, and concerns about health, and security because they had children in the house. This implies that the presence of children is a predictor of the religious and social aspects.

None of the interview participants reported any influence of the demographic characteristics on the political aspect thus supporting the findings of the survey results. This suggests that none of the demographic characteristics are predictors of the political aspect.

According to the survey data, occupation related significantly and negatively to the economic aspect, in that the blue collar workers and people who were not employed were more likely to report being influenced by the economic

aspect. Marital status related significantly and negatively to the social aspect, meaning that single people were more likely to report being influenced by the social aspect. Household total income related significantly and positively to the social aspect, in that the higher the participants' household total income the more likely they were to report being influenced by the social aspect. The number of children related significantly and positively to the religious aspect, in that the more children there were in a household the more the respondent was likely to report being influenced by the religious aspect.

As mentioned earlier, in this section, the relationship among the contextual aspects, and the influence of EEB on the contextual aspects was also analysed but the researcher was not able to hypothesise for no findings of the previous studies dealt with such relationships. Hence, the findings of the quantitative survey are discussed in relation only to the qualitative interview results.

The quantitative survey data showed that the religious aspect was only statistically significantly related to the social aspect. The analysis of the survey results illustrated that the religious aspect was the best predictor of social influence. It also provides the highest impact on the social aspect (section 9.2.2). The interview data support the survey results. For instance, Participant 8 reported that his social reason which was to teach social responsibilities (i.e. EEB) to the young stems from the religious aspect. Such reason is part of the religious teaching in that a head of a family is required to teach the young about responsibilities to God, oneself, and others.

In contrast to the results of the survey according to the qualitative interview data the role of religion was substantial in influencing not only the social aspect but also other contextual aspects. Participants 1, 2, 4, 5, 6, 7, 9 and 10 reported strongly that their economic reasons for performing EEB were actually stem from the religious aspect. For example, Participant 1 reported that "...if we relate to the cost... Islam already teaches us that... also part of *iman* and also cost effective." In addition Participant 2 emphasised that what seems to be his economic reason, which is to conserve resources so that consumer products won't be too expensive, was actually rooted from his economic responsibility as a Muslim "...it is the responsibility of every Muslim and every human to try and conserve resources..." Participant 4 also reported that his economic justifications for performing EEB are what Islam teaches him to do. Participant 5's major

concern was cost effectiveness but he reported that such concern stems from the teaching of Islam to avoid wasteful behaviour and greed. Participants 6, 7, 9 and 10 reported that their intention to save money complies with their religious teaching in that to spend only for what they need and to not waste resources like recyclables. Furthermore, the religious aspect also influenced political reasons for performing EEB. For instance, Participant 5 reported that his effort (i.e. EEB) in contributing to New Zealand's green and clean image is also what he believes Islam asks him to do because he believes that God created this whole world, and no part of it should be abused.

However, interview participants 3 firmly reported that his economic reason for performing EEB was solely economic. His answer to the question of whether or not his economic concern such as not spending extra money for household containers related to his religious teaching was "No... it just come from not having much in the way of finance to begin with... learning to do without and making use of what already available."

The survey results showed that the political aspect was the best predictor of the economic aspect. It also had the highest impact on the economic aspect, and was statistically significantly related. The findings of the qualitative interview did not support the survey results. None of the interviewees clearly reported that their economic reasons for performing EEB stem from the political aspect.

Quantitative survey data showed that the economic aspect was the best predictor of political influence, and the aspect that had the highest impact on the political influence. However, results of the qualitative interviews showed no clear reports from any of the interviewees that their political reasons for performing EEB were rooted in the economic aspect.

Similar to the findings of the quantitative survey, none of the interviewees clearly reported that their religious, economic, and political reasons for performing EEB were connected to the social aspect. There was also no report that their social and religious reasons for performing EEB were rooted in the economic aspect, nor that their social and religious reasons for performing EEB stem from the political aspect.

Although the survey results illustrated a statistically significant influence of EEB on the economic aspect none of the interviewees reported that their

contextual reasons (i.e., social, religious, economic, and political) for performing EEB stem from EEB.

Unlike the previous studies reviewed in Chapter 2 this study investigated the relationship between demographic characteristics and contextual aspects that influenced EEB. Consequently, it was able to answer questions about which of the demographic characteristics were significantly related to each one of the contextual aspects. In addition, the present study was also able to find the nature of the relationships among the contextual aspects themselves, and the relationship between EEB and the contextual aspects.

### **10.3 Conclusion**

In conclusion, this chapter discussed the results of the study in terms of each of the objectives, and where possible relate them to the hypotheses outlined in Chapter 1: Introduction, and the literature reviewed in Chapter 2: Literature Review. The findings of qualitative interviews were also discussed in relation to the findings of the quantitative survey.

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<sup>1</sup> 'first' means first in time chronologically.

<sup>2</sup> 'most' means most important.

## **CHAPTER 11**

### **CONCLUSIONS AND IMPLICATIONS**

#### **11.1 Introduction**

This chapter starts by providing an overview of the thesis so far. It then goes on to outline the research problem, discuss the theoretical implications involved and their significance, point up the social or policy implications, present and discuss the limitations of the study, suggest future research, and provide an overall conclusion.

#### **11.2 Overview**

Chapter 1: Introduction describes the research problem: How have the contextual aspects, experienced by New Zealand Muslim males, influenced their environmentally ethical behaviour (EEB) regarding household solid waste? The research area of interest was environmental ethics (i.e., pre-cycling, re-use and recycling); the domestic consumers' experiences were the contextual aspects (i.e., social, religious, economic, and political); the target group was New Zealand Muslim males, the environmental problem was solid waste, the geographic limit was the North Island of New Zealand, and the time range was between 2002 and 2007.

Continuing from the description of the research problem in Chapter 1, Chapter 2: Literature Review discusses the literature on the issues of theory, methodology and results (i.e., on the relationships between EEB and the contextual aspects). Chapter 2 tries to put pieces of previous studies together to uncover a whole picture of the relationships, but shows that some pieces of such relationships are missing and so the complete picture cannot be known.

Thus, with the information from the literature reviewed in Chapter 2 in hand, a list of objectives, research questions and hypotheses were developed for this study (outlined in Chapter 1: Introduction). The researcher found that Islamic environmental ethics was one of the missing pieces in the previous studies reviewed in Chapter 2: Literature Review. Thus, Chapter 3 describes Islamic environmental ethics as a theoretical foundation to be used in the present study.

Then, Chapters 4, 5, and 6 describe the hunt for unique information on the contextual aspects (i.e., social, religious, economic and political) experienced by the New Zealand Muslim males should such information be useful to construct a survey questionnaire and an interview guide, and to explain the relationships between EEB and the contextual aspects.

Equipped with the information from Chapter 2: Literature Review; Chapter 3: Islamic Environmental Ethics; and Chapters 4, 5 and 6 on the New Zealand Muslim males' contextual experiences, a research approach for this study was developed. Chapter 7: Methodology justifies the methodology used in this study while Chapter 8: Method describes the research design, the survey questionnaire and the interview guide developed for use in conducting the study.

Then, Chapter 9: Analysis of Data describes the hunt for the missing pieces in terms of the empirical explanation of the relationships between EEB and the contextual aspects, and the relationships between demographic characteristics and EEB. In addition, this chapter also analyses the relationships between independent variables (i.e., demographic characteristics, the contextual aspects themselves, and EEB) and the contextual aspects.

Lastly, Chapter 10 discusses the major findings emerging from the data analysed in Chapter 9, and relates them to the literature reviewed in Chapter 2. Chapter 11: Conclusions and Implications, then, briefly summarises the whole picture, explains how the findings fit in to make the whole picture clear (Perry, 1998), and discusses the implications of the study.

### **11.3 Conclusions of the Research Problem**

With the help of a hypothesised model (Figure 11.1), a proposed model (Figure 11.2) resultant from the survey and qualitative data analysed by the present study, findings from Chapter 10 and insights discovered from the literature reviewed (Chapter 2) during the research, this section explores implications of the research for understanding the research problem. The next section then proceeds to detail the contributions of the present study to the body of knowledge.

The present study set out to solve the research problem: How have the contextual aspects, experienced by New Zealand Muslim males, influenced their environmentally ethical behaviour (EEB) regarding household solid waste? The hypothesised structural model of EEB shown in Figure 11.1 provided a starting point for an investigation of some of the constructs involved. Those constructs

included Hypotheses 1 and 2, which previous research, based on attitude-behaviour models, suggested are important predictors of environmental behaviour. The three hypotheses arising from the present study's contextual aspects-behaviour model were therefore:

- Hypothesis 1: The social aspect, the economic aspect, and the political aspect would all be significantly related to EEB while the religious aspect would not.
- Hypothesis 2: House ownership status and type of dwelling would be related significantly to EEB while age, marital status, education level, occupation, personal income, household total income, the presence of children, number of household member, and the level of work involvement with the environment would not.
- Hypothesis 3: Occupation (i.e., white collar workers), number of household occupant, work involvement with the environment, type of dwelling, and age would be significantly related to the social aspect, the religious aspect, the economic aspect, and the political aspect while marital status, education level, personal income, household total income, the presence of children, and house ownership status would not. On the other hand, the relationship among the contextual aspects, and the influence of EEB on the contextual aspects were not able to be hypothesised due to no findings on such relationships reported by the previous studies found by the researcher.

The structural model of EEB resulting from the estimated standardized path coefficients obtained in the present research is presented in Figure 11.2. The findings show that none of the paths specified by hypothesis 1, except for that linking the constructs economic aspect and EEB, were statistically significant. The economic aspect was very important in understanding New Zealand Muslim males' EEB compared to the other contextual aspects. As hypothesised, the economic aspect had a direct positive and significant influence. The magnitude of the economic influence on EEB was relatively high (.460).

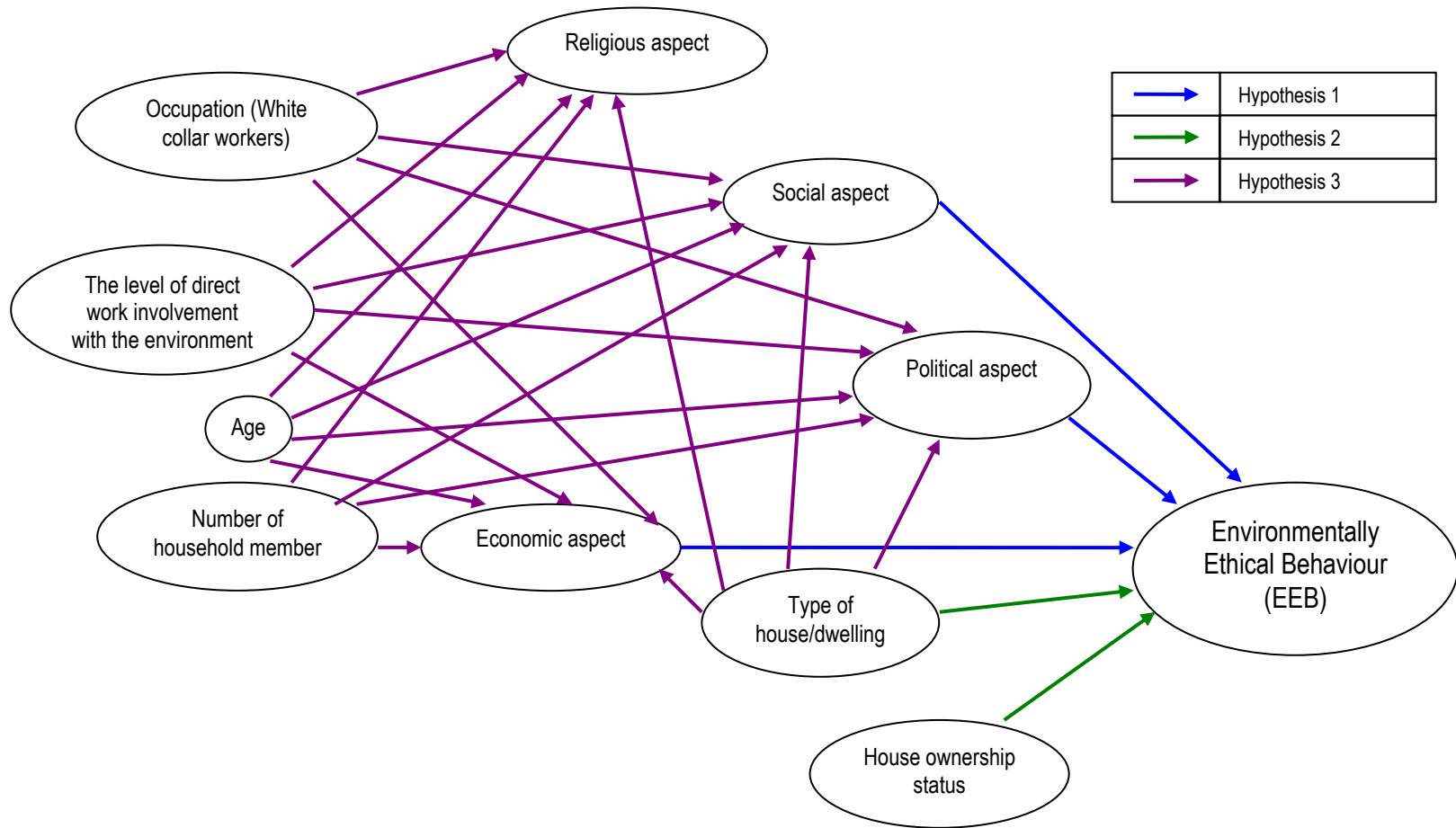


Figure 11.1: A Hypothesised Structural Model of EEB in the Context of Contextual Aspects-Behaviour Model

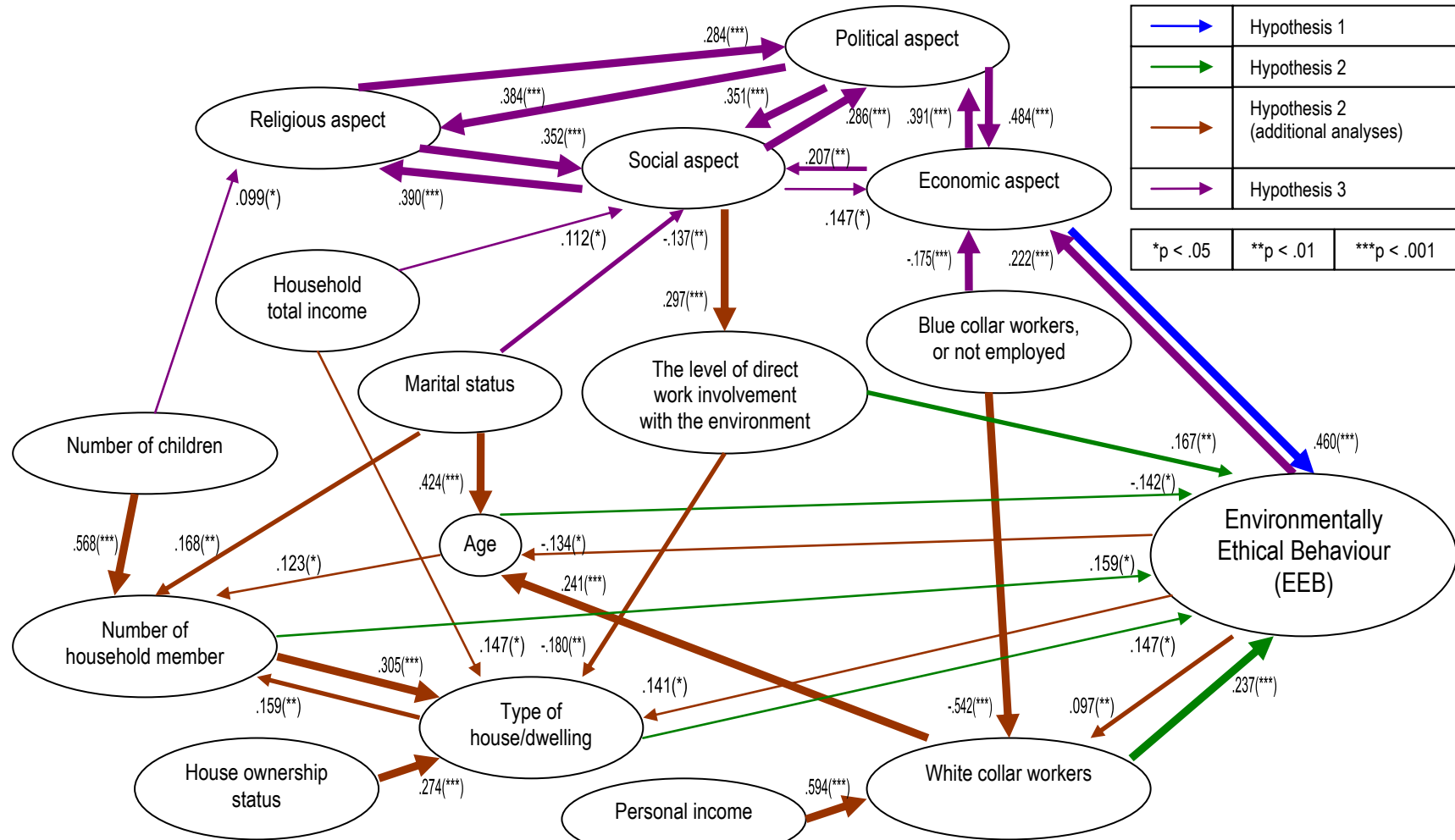


Figure 11.2: A Structural Model of EEB in the Context of Contextual Aspects-Behaviour Model (based on obtained standardized coefficients)

However, none of the other contextual aspects shown in the model influenced New Zealand Muslim males' EEB significantly. Moreover, although these contextual aspects appeared to have indirect effects on EEB via the economic aspect (hypothesis 3), of the thirty indirect effects reflected in thirty combinations of paths, only one was statistically significant:

1. Political aspect – Economic aspect – EEB (.484 x .460 = .222)

In addition, as far as hypothesis 3 was concerned, the only predicted path which proved significant was the one linking occupation (i.e., blue collar workers or not employed) and the economic aspect. Three other relationships found although not predicted, were that both marital status and household total income were related significantly to the social aspect, and that the presence of children in a household related significantly to the religious aspect.

Hypothesis 2 predicted that two variables would relate significantly with EEB: type of dwelling and house ownership status. The first was supported, but the second did not relate significantly. Moreover, being a white collar worker, having a larger number of household members, a greater degree of work involvement with the environment, and younger age all significantly predicted EEB.

The results indicate that demographic characteristics were not as important as the contextual aspects in understanding New Zealand Muslim males' EEB. This is consistent with a growing number of studies indicating a 'demographic shift' in the nature of the environmentally concerned public; "recent events and media attention have expanded the number of environmentally aware consumers to include a wider range of demographic backgrounds" (Mainieri et al., 1997, p. 202). The effects of white collar workers, the level of direct work involvement with the environment, number of household member, type of house/dwelling, and age were of relatively low magnitude (.237, .167, .159, .147 and -.142 respectively). The red arrows in Figure 11.2 identify indirect paths obtained from additional analyses performed on the results pertinent to hypothesis 2. Of 31 indirect effects calculated from 31 combinations of paths, only three were statistically significant:

1. Blue collar workers or not employed – White collar workers – Age – EEB ( $-.542 \times .241 \times -.142 = -.273$ )
2. Personal income – White collar workers – EEB ( $.594 \times .237 = .141$ )
3. Blue collar workers or not employed – White collar workers – EEB ( $-.542 \times .237 = -.128$ )

The resultant model improves understanding of the complex relationships between contextual aspects, household variables, and demographic variables as influences on EEB. In addition, it shows which of the possible indirect effects was found actually to be significant.

#### **11.4 Contributions to Knowledge about EEB**

The present study contributes to existing knowledge in three ways: theory, methodology, and results/findings.

##### **11.4.1 Islamic Environmental Ethics as a Theory of EEB**

This study primarily used Islamic environmental ethics, as expressed by Islamic religious scholars, as its theoretical foundation (see Chapter 3). To the writer's knowledge, this approach has not previously been used. In fact, a search of the literature found very few empirical studies that used religions, religious institutions or religious figures as their theoretical foundations to explain specific environmentally ethical behaviour (EEB). Moreover no other environmentally ethical or philosophical theories appear to have been used as a theoretical foundation in any empirical studies of environmentally ethical attitudes and/or behaviour. Only a few studies have used a religious approach in the past, such as a study by Hand and Van Liere (1984) who used a combination of White's (1973) model, a denominational diversity model, and a 'no difference' model. While Wiegel (1977) studied the influence of religion on EEB, he used attitude-behaviour theory to do so.

In fact, most previous researchers (e.g., Ebreo, 1999; Larsen, 1995; Moncrief, 1973; Shrum et al., 1995; Thogersen, 2000; Wall, 1995; White, 1973; Wilber, 1998) have used social theories to explain environmental behaviour.

#### **11.4.2 An Empirical Study of the Influence of Religion on EEB**

This research empirically examined the relationship between religion, as reflected by Muslim religious figures and their teachings, and EEB. The literature contained very few empirical studies of the relation between religion and environmental behaviour, let alone an empirical study on the relation between Islam and environmental behaviour. The only ones found were those by Fowler (2003) and Letcher (2003), who used qualitative methods to study the followers of indigenous religions in Indonesia and Eco-pagan in Britain respectively; and studies by Hand and Van Liere (1984), and Wiegel (1977) who used quantitative methods in their approach of studying the followers of Christianity in the United States and the United Kingdom, respectively.

Moreover, most of the previous studies of religions, religious institutions and religious figures with relation to the environment were conducted largely at the theoretical level. Hence the empirical finding of the present study, that different elements of the religious aspect provided different level of influence on the respondents' environmental behaviour (i.e. religious leaders influenced respondents' EEB the least compared to personal understandings of the religious teachings on the concepts of lawful, prohibition, moderation, and the role as vicegerent on earth), can be considered a unique contribution to our knowledge about EEB.

#### **11.4.3 Collective Influences of Contextual Aspects on EEB**

Unlike most of the previous studies that tested the influence of each of the social, religious, economic, and political aspects separately (but with attitudinal variables) this study tested the contextual aspects together; in response to Hess's (1998) request for the economic aspect to be addressed by policy-makers together with other contextual aspects. Thus, this study contributes to the body of knowledge by answering the question of which of those contextual aspects was the most significant when they were compared with each other as well as suggesting what combinations of these contextual aspects should be taken seriously by policy-makers in addressing environmental behavioural problems. In this sense, the present study concluded that the economic aspect should be taken seriously by policy-makers in addressing environmental behavioural problems.

#### **11.4.4 A Direct Relation between Contextual Aspects and EEB**

There are at least three popular models used by the previous researchers: the model of altruistic behaviour (Schwartz, 1977; Oom Do Valle et al., 2005), the model of environmental behaviour (Grob, 1995; Oom Do Valle et al., 2005), and the model of environmental concern (Stern et al., 1995; Oom Do Valle et al., 2005). Except for Black et al. (1985), who considered both an attitude-behaviour model and a contextual aspects-behaviour model (see section 1.2.3), most of the previous studies studied environmental behaviour in the context of an attitude-behaviour relation/model (meaning that they focussed on the relationship between attitude and environmental behaviour while the relationship between contextual aspects and environmental behaviour was seen as operating indirectly via attitude). The present study provides a new way of looking at the phenomenon of environmental behaviour, in that it aimed to study environmentally ethical behaviour (EEB) in the framework of a contextual aspect-behaviour relation/model. In other words, the present study examined the relationship between contextual aspects and EEB directly. Consequently, this study provided a new way of understanding the phenomenon by explaining EEB in terms of the direct influence of contextual aspects. By doing so, this study fills a gap left in the literature by studies that explain environmental behaviour only from the perspective of an indirect influence of contextual aspects via attitude.

The present study did not suggest that EEB is never based on attitudinal variables such as internal locus of control, alienation and personal norms. Rather, this study proposed that in the absence of attitudinal variables, certain contextual aspects appear to dominate. Realising this facilitates developing effective environmental policies. The study found that when such attitudinal variables are absent, EEB is influenced by the contextual aspects, particularly the economic aspect, supplemented by the impact of a small number of household/demographic variables.

#### **11.4.5 New Information on EEB**

The present study also obtained some new information concerning EEB in that it was not only influenced by contextual aspects but that EEB in turn influenced the contextual aspects. Another new finding was that many of the contextual aspects

were influencing each other, with one (the economic aspect) consequently indirectly affecting EEB significantly.

#### **11.4.6 Demographic Characteristics and the Contextual Aspects**

Unlike the previous studies reviewed in Chapter 2 (except for Ellen et al., [1991] who investigated the relationship between demographic characteristics and the political aspect that influenced EEB), this study investigated relationships between demographic characteristics and those contextual aspects that influenced EEB. Consequently, the present study was able to answer questions on which of the demographic characteristics were significantly related to each of the contextual aspects – the demographic characteristics were not good predictors of the contextual aspects and provide only little explanation of the contextual aspects' influence on EEB.

#### **11.4.7 Islam and EEB, and the Role of Religious Figures and EEB**

A question is posed by the findings of empirical studies by Hand and Van Liere (1984), and Wiegel (1977) that support White's (1973) thesis that religions (in particular, Christianity in the West) have been a bad influence on the relationship between humans and the environment: Do these results suggest that it is the religion or the interpretation of the religion that is at fault? (See sections 1.2.3 & 1.3.2). The present study was able to clarify these ambiguous findings.

Although this study found that the religious aspect was not statistically significantly related to EEB, the result of the qualitative interview suggests that religion (in this case, Islam) is not at fault (see section 10.2.1 [b]). In fact, as discussed in Chapter 3, Islam put huge emphasis on ethical relations between human and the environment. The statistically insignificant relationship between Islam and EEB was due more to Islam is seen by the Muslims as providing general reasons for being concerned about the environment, rather than specific motives for EEB. In addition, Muslims are taking for granted their religion as central to their way of life. Religious influence, to them, is almost in no need of mention as far as their EEB and their daily actions to and interactions with the other environmental elements around them are concerned (e.g., Participants 4 and 5) (see section 10.2.1 [b]).

The negative response of the participants on the role of religious figures on EEB also contributed to the statistically insignificant relationship between Islam and EEB. The present study found that people of religious influence lack in efforts to incorporate the teachings of Islam about environmental matters in their sermons to the public. The two religious figures, asked via email questionnaire, admitted that very few times that the sermons touched on environmental issues, and agreed that “more awareness of the issue need to be raised among the Muslims particularly during *khutbahs* [sermons].”

In a Muslim community, it is a common practise for the members of the community to set their religious ideas via religious authorities. The reason is religious authorities are regarded as people who understand the Qur’an and the *Sunnah* well. Although each Muslim reads the Qur’an and the *Sunnah* for himself/herself and discussing it with family members and friends their understanding and interpretation of both the Qur’an and the *Sunnah* are always being referred to the religious authorities’ understanding and interpretation.

Thus, when religious authorities lack in efforts to incorporate the teachings of Islam about environmental matters in their sermons to the public it impacts the community members’ EEB in that the responsibility of performing EEB is lightly taken.

#### **11.4.8 Relationships of Education Levels to EEB and to Contextual Aspects**

Morrison and Dunlap (1986) claimed that “Education is the only indicator of socio-economic status consistently and strongly related to environmental concern among the general public” (p. 587). However, the present study did not find education to be a strong indicator of EEB either directly or indirectly. In fact, in the model (Figure 11.2), of 17 variables tested, education was the only one that was not statistically significantly related to any of the dependent variables to be included anywhere in the model.

One reason for this is probably that there was little variance in the education variable (i.e., only two levels of education; secondary and tertiary). However, not all of the previous researchers found education to be statistically significantly related to environmental behaviour. For instance, although Mainieri et al. (1997) used an attitude-behaviour model he found that education did not have a significant relationship with any of the dependent EEB behaviour (i.e., pre-

cycling) variables tested. Moreover, Wall (1995) found that education has statistically significant effects on environmental attitudes: the higher the level of education the greater the environmental concern. However, she also found education not to have a great effect on any recycling behaviour. In addition, Ebreo et al. (1999) found that education level had little relation to environmentally responsible behaviour. So it seems that although education may be a strong influence on environmental concern, its influence on behaviour appears to be outweighed by the strength of contextual aspects, particularly that of economics.

### **11.5 Theoretical Implications/Significance**

Although this study aimed more at providing a basis for policy than providing a theory of environmentally ethical behaviour (EEB), a number of theoretical implications are worth emphasising.

#### **11.5.1 The Social Aspect, EEB, and the EEB Theories/Models**

The present study shows that the social aspect was not statistically significantly related to environmentally ethical behaviour (EEB), either directly or indirectly. This finding seems to support the central idea of the theory of planned behaviour, Schwartz's (1977) model, and the model of environmental concern (see section 1.3.2) in that subjective norms or extrinsic social motives do not directly influence behaviour, but rather have an indirect effect through personal norms. However, unlike previous studies, this study tested the effects of contextual aspects (i.e., social, religious, economic, and political) together, rather than separately. Under this condition, it found that the strong presence of the economic aspect overwhelmed the influence of the other contextual aspects.

Thus, the results neither support nor rule out the central idea of the theories/models mentioned above. Furthermore, findings by Oom Do Valle et al. (2005), although in some ways supportive of Schwartz's (1977) model of altruistic behaviour, in that extrinsic social norms (so-called 'subjective' norms) are mediated by personal norms, also showed that extrinsic social motives do have a direct positive impact on EEB as well. However, Thøgersen (2000) found a negative direct relationship between extrinsic social or 'subjective' norms and EEB (i.e. pre-cycling).

### **11.5.2 The Religious Aspect, EEB, and Islamic Environmental Ethics**

The source of Islamic environmental ethics is the Qur'an. As interpreted by many scholars, it indicates that every human is a *khalifah* (i.e., a caliph, a vicegerent or a trustee) responsible for carrying out ethical behaviour towards the environment. Given the clear indications of human responsibility towards the environment by the Qur'an, it could be expected that the more that adherents understand about Islam the more verbal and/or behavioural actions toward environmental concern should be evident. However, this study found that religious figures such as the *imam*, *ustaz* etc were reported by the respondents to be among the least influential contextual aspects on the respondents' environmentally ethical behaviour (EEB). This finding, on the other hand, supports the arguments by some scholars (e.g., Mawdudi cited by Kuran 1997; Nasr, 1990) that neither Muslim leaders nor their followers link their daily behaviour with the teachings of the Qur'an as far as EEB is concerned (see section 10.2.1 [b] for explanations of the finding).

### **11.5.3 The Religious Aspect, EEB, and White's (1973) Thesis**

This study does not support White's (1973) thesis that the root cause of environmental destruction by humans is their religion. The present study, based on the survey result, found no significant (positive or negative) relationship between the religious aspect and environmentally ethical behaviour (EEB). However, the comprehensive analysis of Islamic perspectives of the environment presented in Chapter 3 and the analyses or interpretations of many religious scholars of major religions covered in Chapter 2 indicate that most major religions are in support of EEB. In addition, based on the qualitative interview, the present study found several comments made by the respondents revealed a lack of input from the religious figures to the New Zealand Muslim males regarding EEB. The present study also found that Muslims are taking for granted their religion as central to their way of life – they felt that religious influence is almost in no need of mention as far as their EEB and their daily actions to and interactions with the other environmental elements around them are concerned (e.g., Participants 4 and 5).

Therefore, as far as White's (1973) thesis is concerned, the present study concludes that inadequate focus, both verbal and behavioural, by religious leaders on the Islamic perspectives of EEB, and the taken for granted attitude about the link between Islam and EEB by the participants that contribute to the lack of

reported positive religious influence on New Zealand Muslim males' EEB not the religion itself (i.e. the Qur'an and the Prophet Tradition), nor their personal understanding of the religious teachings (i.e. on the concepts of lawful, prohibition, moderation, and the role as vicegerent on earth) (see also section 10.2.1 [b]). This problem is worth further research, by studying the relationship between the religious aspect and EEB independently of other contextual aspects such as the economic aspect.

#### **11.5.4 The Religious Aspect, the Economic Aspect, and EEB**

It is clear that Islam prescribes appropriate behaviour, not merely for religious rituals but also for other aspects of life including the economic aspect (see Chapters 3, 4, 5, 6). However, based on the survey data, the present study found that, as perceived by its participants, the religious aspect (i.e., the behaviour of the *imam*, *ustaz*, and other religious figures) was not directly related to the economic aspect, although the religious aspect was directly related to both the social and the political aspects). Compared to the social aspect and the political aspect, it seems like whenever the economic aspect was taken into account in the respondents' decision on whether or not to perform EEB the religious aspect was not considered. This finding supports the arguments by some Islamic scholars such as Nasr (1990) and Mawdudi (cited by Kuran, 1997) that Muslim consumers are distancing their daily economic transactions from the teachings of their religion (see Chapter 5).

However, the results of the qualitative interview clarified that the role of their religious teachings was not just vanished in their economic decision makings on whether or not to perform EEB. Their answers to the direct question on the influence of religion on their EEB and their answers to the question on the most important influence on their EEB reflect this fact (see Chapter 10). In fact, the interviewees, towards the end of the interview, reported that Islam governs their every action including of the economic ones. The role of religion in their economic decisions on performing EEB was there always at the back of their minds – so much so one does not need to mention it (e.g., Participants 4 and 5).

### **11.5.5 Is EEB Morally Based, or Economically Based?**

Heberlein (1972) claimed that environmental attitudes and behaviour in the industrialized countries in the West had shifted from an economic to a moral base. The claim has continued to be supported by others (Black et al., 1985; Guagnano et al., 1995; Stern et al., 1985; Thøgersen, 2000). For instance, Thøgersen (2000) noted that “individuals in our present societies – as opposed to earlier times – typically feel an intrinsic motivation to behave in a way that at least does not harm the environment” (p. 439).

However, the claim was not supported by the present study in that the economic aspect was found to be a much stronger direct influence on EEB than were the other variables. In addition, the religious aspect (i.e., the behaviour of the *imam*, *ustaz*, and other religious figures), which could be considered the equivalent of moral influence in the present study, was not statistically significantly related to EEB, either directly or indirectly. Although the interviewees were then said that other religious elements such as personal understanding of Islamic concepts and teachings influenced them to perform EEB they were not as strong as the economic elements (see Chapter 10).

Furthermore, even Thøgersen (2000) concluded that unless other highly salient characteristics such as elements of the economic aspect (e.g., price) are absent and environmental concern is high, moral reasoning is not likely to be a stronger predictor of EEB than would the economic aspect. Moreover, Thøgersen (2000) found that even when moral norms (i.e., concern for the environment) were high and the economic stakes (i.e., price) small, economic considerations still influenced pre-cycling decisions by some consumers. The present study agrees with Thøgersen (2000) that “people’s moral reasoning does not stop when they enter a supermarket” (p. 440), but nonetheless has to ask whether moral reasoning is stronger than economic reasoning. The present study indicates that that is not the case. Thus, the issue raised by Heberlein (1972) and Thøgersen (2000) deserves further investigation to delineate clearly the role of moral reasoning on EEB.

### **11.6 Policy and Social Implications**

The knowledge gained in the present study was intended to aid the public sector analysts and managers, members of the community, and the private sector

managers in developing strategies to increase environmentally ethical behaviour (EEB).

### **11.6.1 Implications for Public Sector Analysts and Managers**

Several Regional/District Councils did not include in their Regional/District Solid Waste Management Plans optimal economic incentives to encourage the environmentally ethical behaviour (EEB), nor the minimising of waste during the Councils' term (e.g., Southland Regional Council, 1996; Manawatu-Wanganui Regional Council, 2006).

The strong relationship found between the economic aspect and EEB suggests that the economic aspect is particularly important in supporting EEB and must be utilised widely to achieve EEB. Thus, the current practice by the councils of charging for the disposal of various categories of waste at the councils' owned, operated or provided waste disposal facilities should not be imposed on items designated by the householder as recyclable. Rather, reducing the costs of EEB (i.e., pre-cycling, re-use and recycling) by financial incentives, subsidies and tax reductions should be more effective in increasing EEB. A positive example is that of Taranaki Regional Council, which provides free drop-off of dry recyclables (e.g., glass, plastic, newsprint, cardboard, aluminium and steel) at all council-sponsored recycling facilities in the region (Taranaki Regional Council, 2004). Another way to encourage EEB would be to offer those who turn in recyclables a reward like a coupon or a ticket which entitles the holder to tax cuts or serves as a voucher for the cost of environmentally friendly products. Although some researchers see this as a short term strategy, with the EEB stopping when the incentives stop (De Young, 1986; Shrum et al., 1994), if used periodically (assuming continual use could mean that the costs outweigh the gains), such a strategy should have a long term impact in terms of increased awareness, improved attitude and participation in EEB.

At present, in New Zealand, EEB such as recycling and composting are encouraged but not required due to the location and type of refuse disposal facility not always being practical (Southland Regional Council, 1996). Typically, household waste administration and collection procedures are centred around how households should put out their household waste for collection (e.g., the maintenance of receptacles, approved receptacles to be used, types of recyclables

items accepted, timing to put the waste out for collection etc.). A breach of these procedures results in the waste not being collected. A breach may also be treated by the council as a deposit of litter under the Litter Act 1979. Although Muslims in New Zealand are not highly involved in political matters (see Chapter 6) the present study shows that the political aspect was statistically significantly related to EEB via the economic aspect. Thus, it shows that they have a high respect for environmental laws already in place, especially when such laws involve their economic (e.g., their financial) aspect also. Therefore, while more requirements in the form of laws for consumers may be needed, policy makers would benefit more from enforcing the existing environmental laws.

The statistically significant relationship between the political aspect and the economic aspect in influencing EEB suggests that the political aspect should be particularly important in supporting EEB via the economic aspect that is so important in achieving EEB. Environmentally friendly legal strategies incorporating elements of the economic aspect ought to be devised to encourage consumers to “consume less, consume better, or both” (Salzman, 1997, p. 1244). Markets and economic measures alone cannot solve environmental problems because environmental costs are not included in the costs of products. If consumers are not made to pay appropriate municipal taxes, environmental costs are typically borne by the environment, rather than by either producers or consumers. Consequently, Government intervention is needed, especially as a gatekeeper. Thus, products that do not meet environmental requirements should not be allowed to enter the market. Although environmental policies such as Extended Producer Responsibility (EPR), cleaner production (CP), etc., are currently cited in the solid waste management plans of most regional/district councils in New Zealand, many do not implement them satisfactorily. Central government therefore needs to intervene, by eliminating economic policies that cause consumers to consume more than they need to, imposing more regulations and tariffs on environmentally unfriendly goods, and subsidising environmentally friendly necessity goods so that durable goods are less expensive than disposable products. Doing so would promote more EEB (i.e., pre-cycling, re-use and recycling). Such measures would lessen over-consumption and wasteful behaviour, and strengthen the “do-it-yourself repair and maintenance culture”

espoused by so many New Zealanders (Ministry for the Environment, 1997, Chapter 3, p. 10).

At the community level, a local authority can provide a curb-side pickup service to areas where such a service is not available, to lessen the effort and time required of consumers by their having to do no more than separate recyclables from garbage. Minimising consumers' effort should maximise the amount of recyclables recovered. However, the authority should limit the type of economic incentives recycling to the coupons or vouchers suggested above. The incentives should not be in monetary terms. This would deter consumers from purposely purchasing more items that use recyclable materials, where a choice of such items unpackaged is also available, and which in turn would cause more production of such products, consequently not reducing solid waste. In addition, while recyclables may be collected with no charge, or better still encouraged through rewards such as vouchers or coupons, trash produced over a certain weight may be charged for. This strategy could encourage households to produce less waste and recycle more as they can see clearly the costs that they have to pay for trash they have produced, rather than having the costs hidden in municipal taxes.

The quantitative survey data showed that the social aspect was not statistically significantly related to EEB. However, the social aspect was reported by the interviewees to be quite an influence on their EEB, second only to the economic aspect. The social influences range from family members to environmental issues presented in the media. Thus, since making a policy on family members and neighbours may be difficult, policy-makers may want to utilise the New Zealand media fully and effectively in promoting EEB.

### **11.6.2 Implications for Members of the Community**

Comments made by the respondents of the present study revealed that many were concerned that the *imam*, *ustaz* and other religious figures were providing them with little direction on environmentally ethical behaviour (EEB). The basic Islamic environmental ethic as interpreted by many scholars (see Chapter 3: Islamic Environmental Ethics) states that each human is a *khalifah* (caliph or vicegerent) responsible for taking care of the environment. The finding of the present study that the religious aspect was reported as had no statistically significant influence on EEB was not being due to the religion itself, but rather to

the roles taken by religious figures and their teachings with regard to EEB, and to the taken for granted attitude of the Muslims about the link between Islam and EEB (see Chapter 10).

Thus, it is suggested that Islamic religious leaders might increase the help they give Muslim consumers in making the connection between EEB and waste reduction, perhaps by capitalizing on the teachings of religious scriptures such as the Qur'an and examples by the Prophet Muhammad (s.a.w) in the mosques and/or Islamic centres. Since *imam*, *ustaz*, and other religious figures are seen as people who are closer to religion, they should portray the Islamic concern for the environment in their teachings, both verbal and behavioural. Community EEB could well be increased by the efforts of *imam*, *ustaz* etc in informing the Muslim community of the solid waste disposal problem and how Islam supports EEB. Moreover, active community education by religious figures could well generalise to unsolicited voluntary EEB. Having a population which values and aims at increasing EEB can only be good for the environment.

Members of the Muslim community through the Federation of Islamic Associations of New Zealand (FIANZ) and other non-profit community and voluntary organisations would do well to learn from the values toward the environment shared by many other cultural groups in New Zealand (e.g., Maori, Pakeha, Pacific Islanders and Asians (see Chapter 4). Although culturally diverse, almost all New Zealand people have a high level of participation in outdoor activities. This identification with the natural environment could be encouraged in the Muslim community by having an annual event such as 'a cultural appreciation of the environment week' where people from different cultures came together to demonstrate what the environment means to their culture. In this way, cultural practices, beliefs, traditions, etc involving EEB such as pre-cycling, re-use and recycling could be shared.

In addition, FIANZ and other Muslim associations in the country could also work together with other community and voluntary groups involved in providing recycling services, resource recovery parks and education programmes for waste reduction and recycling. Such groups include employment trusts, environmental groups and groups with specific interests such as worm composting. Examples are the Zero Waste New Zealand Trust (a funding and advocacy, support and information group fostering community development

projects for minimising waste) and the Environmental Business Network (provides suggestions for greener, more sustainable business) (Taranaki Regional Council, 2004).

### **11.6.3 Implications for Private Sector Managers**

The findings suggest that the economic aspect influenced New Zealand Muslim males' environmentally ethical behaviour (EEB) the most. This suggests that private sector managers should work together with local body government in encouraging consumers in their recycling efforts (e.g., coupons could be issued to consumers as a result of their recycling efforts to be redeemed by local businesses).

Specific economic mechanisms such as the Extended Producer Responsibility (EPR) and Cleaner Production (CP) mentioned earlier, as well as marketing techniques could be used to help the public make the connection between EEB and waste reduction. One strategy would be to emphasise personal economic gain for the individual who performs EEB. For instance, producers can encourage consumers to return products able to be recycled, such as cans, paper, glass, and some plastics, by paying them to do so. This would encourage recycling behaviour while benefiting producers by providing new recycling business.

Scrap metal and scrap paper businesses can be profitable and should be considered by New Zealand entrepreneurs, given a robust Asian market for such materials (Taylor, 2006; *Recycling Today*, 2006) and New Zealand's strategic geographic location near Asian markets such as India and China. Therefore, consumers could also become suppliers for such industries, which would boost recycling among consumers. However, since access to overseas end markets for recyclables is one of the waste minimisation problems faced by recycling businesses in New Zealand (Taranaki Regional Council, 2004), co-operation has to occur between recycling businesses themselves, and between recycling businesses and relevant local and national governmental bodies who can assist in negotiating trade opening with overseas governments and officials. Such co-operation is vital to reach important recycling markets such as India and China, where market entry depends on government approval. A strategy to achieve this goal is by recycling businesses creating or putting in place a co-ordinated network which then works closely with local bodies such as District Councils and national

governmental authorities such as the Ministry of the Environment and the Ministry of Trade.

### **11.7 Limitations of Study**

In the present study, all variables were measured by means of the same instrument, a survey questionnaire. This could have introduced response error if respondents modified their responses to fit the structure of the questionnaire (framing effects) or because they wanted to appear consistent (Sudman et al., 1996). Such alignment effects could have created false covariance between variables. However, the risk was reduced by using a long questionnaire (i.e., 15 pages), which should have made more difficult artificial consistency between responses to the different questions related to the variables of the model. In addition, the qualitative face-to-face interview and email questionnaire were also used to compensate the survey questionnaire.

With self-reported EEB, especially when it is measured with the same instrument, a risk of social desirable response exists. Such responding could inflate the correlation between the influence of contextual aspects and EEB. The questionnaire attempted to reduce this possibility by assuring respondents of complete confidentiality, by not requiring their name on the questionnaire, by stressing that their opinion, and only their opinion, was wanted, and by affirming that they could choose not to answer any question if they wished. Moreover the means by which the questionnaire was returned assured anonymity. Moreover, with the proportion of EEB variance explained not being higher than it was, it seems unlikely that tendencies to align reported EEB with ideal behaviour were widespread and systematic (Tourangeau, 1992).

A larger, randomly selected national sample would have provided more generalisable information than the regional sample employed. However, scale reliabilities were high (see section 8.3.4) and a number of significant relationships were found. This suggests that correlation between measures was satisfactory. Moreover scale response standard deviations of over 20% (see Table 8.2) suggests that a wide-ranging sample of respondent behaviour was obtained, with a high likelihood that most possible segments of the population were included in the sample. Hence findings can be considered generalisable.

The model (Figure 11.2) reflects proposed relationships only among cross-sectional data. Time series or experimental data are necessary to establish causal relationships firmly, especially where contextual aspects-behaviour links are concerned.

The range of education of respondents was limited (see section 11.4.8, and Appendix N). Compared with the New Zealand Muslim male population (39%), a disproportionate number of respondents (71%) had tertiary education. Other studies (e.g., Ebreo et al., 1999; Morrison & Dunlap, 1986; Schwartz & Miller, 1991; Van Liere & Dunlap, 1980; Wall, 1995) have found education to be a strong predictor of EEB, whereas the present study found no relationship between education and EEB (see Figure 11.2). Future study could aim to resolve this incongruity by ensuring a more representative sample with regard to education level. Asking respondents to state the number of years of education they have would also increase the sensitivity of the question.

The gender of the respondents (of the survey) was limited to New Zealand Muslim males. This is due to the present study studied 'one voice' representing a household, and it was decided that a household should be represented by a head of a household. In a Muslim family, a man is commonly the head of a household. Since the heads of household who made up the survey respondents of this study were all males, thus, no claim for significance of the findings of the study beyond this delimitation was made. The generalization of the findings applied only to Muslim households with males as their heads of household and not to Muslim households with women as their representatives. However, in the qualitative interview five of the 10 heads of household were accompanied by their wives and represented 'one voice' for their household.

Age was also a limit (see Appendix N). Compared with the New Zealand Muslim male population (32.8% aged 30-39, and 22.4% aged 40-49), respondents aged 30-39 was only 25.5%, and respondents aged 40-49 was 31.4%. However, age was found by the present study to be a significant influence on New Zealand Muslim males' EEB although it was not found to be a significant influence to the contextual aspects. In addition, the qualitative interview results showed age caused no difference in the interviewees' responses. As mentioned earlier, demographic variables such as age were not found by the previous studies to be

good predictors of EEB, thus, the inconsistency of the results between the survey and the qualitative interview was not a big concern of the present study.

### **11.8 Future Research**

The present study found that while a contextual aspects-behaviour model was plausible, a behaviour-contextual aspects model was equally plausible. This study obtained some data on the possibility of the latter model (Figure 11.2) where environmentally ethical behaviour (EEB) has a statistically significant impact on the economic aspect. Hence, the probability of consumers with a strong EEB (i.e., pre-cycling) who choose to buy environmentally friendly products forcing vendors/manufacturers to provide/produce more environmentally friendly products cannot be ruled out. From Figure 11.2, we can see a two way relationship: (i) the impact of the contextual aspects such as the economic aspect (i.e., the vendors/manufacturers) on EEB, and (ii) the impact of EEB on the economic aspect (i.e., the vendors/manufacturers). However, the present study addressed only the influence of the contextual aspects (among others the economic aspect – e.g., the vendors/manufacturers) on EEB not the other way around (i.e., the influence of EEB on the vendors/manufacturers). Future researchers might want to embark on comprehensively testing the latter model.

The religious aspect, the social aspect and the political aspect were not statistically significant in their direct influence on EEB (contrary to predictions by some previous studies). This was probably because the economic aspect was so much more important to the respondents than the other contextual aspects. In the absence of the economic aspect, or if the contextual aspects were tested separately the social aspect and the political aspect may have significant influences (Thogersen, 2000) on EEB. Future research could test this.

As far as the religious aspect was concerned, the quantitative survey of the present study focused only on the influence of religious figures and their teachings on the EEB of New Zealand Muslim males. Regardless of whether or not the religions, religious institutions, or religious figures are seen as posing a positive influence on human relations to their environment, most authors agree that religions, religious institutions or religious figures have a certain degree of influence on human environmental behaviours. The degree of such influence would be worth exploring by more empirical studies. In addition, future

researchers may want to widen the scope of the question on religious influence, in the quantitative survey questionnaire, to include personal understanding of Islamic teaching, the Qur'an, the Prophet Tradition, role as *khalifah*, the concepts of lawful, prohibition and moderation etc.

The research to date on environmental behaviour has been limited almost exclusively to surveys. The present study, besides quantitative surveys, included qualitative interviews, nonetheless, observation may be a better method for uncovering the true nature of contextual aspect constructs such as the social aspect and the religious aspect and determining appropriate public policy strategies. For instance, the effects of various social aspects such as family members, co-workers etc on EEB and subsequent behaviour could be studied using observation methods.

Most of the previous empirical studies are limited almost exclusively to attitude-behaviour theories as their theoretical framework/foundation. More environmental philosophical theories such as eco-feminism, utilitarianism, and elements of the religious aspect would provide a wider range of ways of looking at and explaining EEB.

In addition, except for a very few studies (e.g., Mainieri et al., 1997; Wall, 1995) others did not use more than one type of EEB (i.e., recycling, re-use or, for a few, pre-cycling). Although the present study used both types of EEB, the pre-cycling scale appeared to be unreliable (see section 8.3.1). Thus, future research should enhance the pre-cycling scale and use it together with the re-use and recycling scales, so that their different impacts on each type of EEB can be compared. Future studies might also want to study re-use and recycling as two different scales rather than as one scale as used in the present study. This way, the impacts of the same contextual aspects on pre-cycling, re-use, and recycling can be compared to see whether or not the same contextual aspects would give a different impact to the different types of EEB.

The present study covers only one case; the EEB (i.e., pre-cycling, re-use and recycling) of New Zealand Muslim males with regards to domestic or household solid waste. In order to strengthen confidence in the results of the study, replications are needed. Replications that focus on other consumption areas or on consumers in other countries will be particularly useful.

## **11.9 Overall Conclusion**

The literature, using an attitude-behaviour model, suggests that the contextual aspects experienced by consumers influence their environmentally ethical behaviours (EEB), such as pre-cycling, re-use and recycling indirectly through attitudinal variables. The present study, being a policy-relevant project which used a contextual aspects-behaviour model, showed that in the absence of the attitudinal variables contextual aspects (including some demographic characteristics) can be direct influences on EEB. Thus, the present study set a foundation for further policy-relevant research about the influences of contextual aspects on EEB using a contextual aspects-behaviour model.

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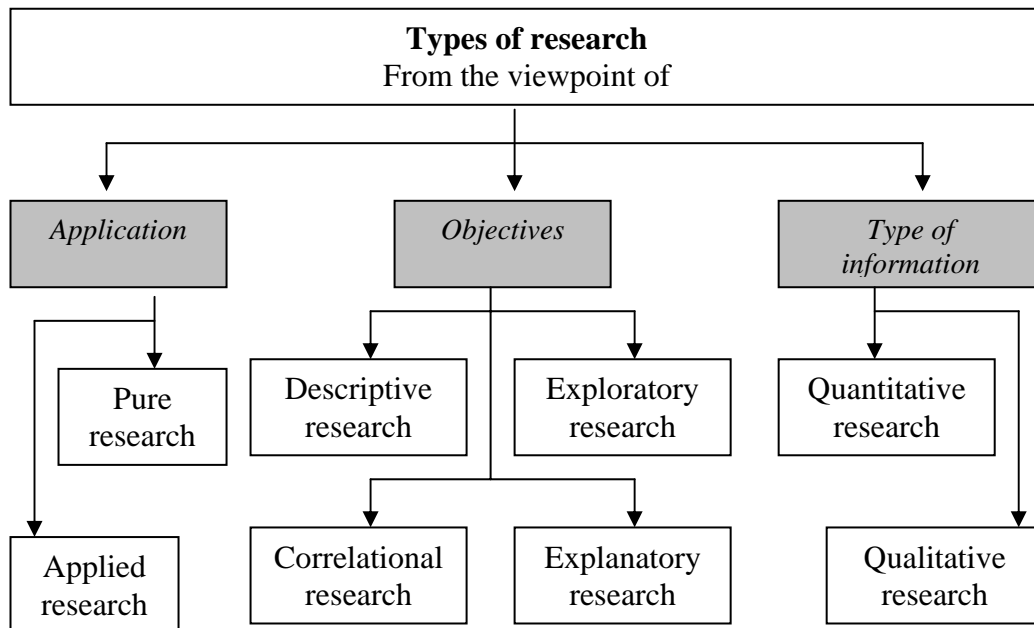
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## APPENDIX A

## Types of Research



Source: Kumar (1996)

## APPENDIX B

### Other Purposes of Pilot Study

#### Evaluating Individual Questions:

1. Variation – while low variance may reflect real homogeneity within the sample (e.g., income level etc) but it can also cause by poor question design. Thus, for this research, the questions were designed to have enough response alternatives to pick up actual variation in the sample. In fact, the questions in demographic section (in the questionnaire) were designed open-ended, and the questions in other sections (close-ended questions) were designed with the inclusion of a response alternative “Others (please specify): \_\_\_\_\_.”
2. Meaning – whether respondents understand the intended meaning of the question, and I understand the respondents’ answers.
3. Redundancy – when two questions measured virtually the same thing (or the same concept), only one question was selected in the final questionnaire.
4. Scalability – whether a set of questions is designed to form a scale or index, questions that do not belong to the scale for which they were designed were not included in the final questionnaire.
5. Non-response – questions that resulted in a high non-response was looked into. Such questions were either excluded or improved.

#### Evaluating the whole questionnaire:

1. Flow – whether questions fit together, whether transitions from one section to another smooth, whether the questionnaire jump from topic to topic too quickly to allow respondents to gather their thoughts.
2. Timing – whether the questionnaire need to be cut short to ensure it doesn’t take too much time for the respondents to complete it.
3. Respondent interest and attention – whether respondents bored with the questionnaire. The questionnaire may need to be cut short (restructured, or removed), or given more variety of types of questions.

## APPENDIX C

## Characteristics of Muslims in New Zealand

Characteristic	Percent	Frequency
<b>Age for Census Usually Resident Population Count Aged 15 Years and Over:</b>		
0-9	19.0	4,482
10-19	20.1	4,767
20-29	18.0	4,245
30-39	19.5	4,605
40-49	13.5	3,192
50-59	6.2	1,458
60-over	3.7	882
No Response	0.0	0
<b>Total</b>	<b>100.0</b>	<b>23,628</b>
<b>Social Marital Status for Census Usually Resident Population Count Aged 15 Years and Over:</b>		
Single	40.9	6,858
Married	56.3	9,453
No Response	2.8	465
<b>Total</b>	<b>100.0</b>	<b>16,776</b>
<b>Highest Education Level for Census Usually Resident Population Count Aged 15 Years and Over:</b>		
No qualification	14.1	2,355
School or Secondary	42.6	7,149
Tertiary	31.7	5,322
No Response	11.6	1,953
<b>Total</b>	<b>100.0</b>	<b>16,779</b>
<b>Occupation (NZSCO99V1.0) for Census Usually Resident Population Count Aged 15 Years and Over:</b>		
Unemployed	0.0	0
Blue Collar	25.7	4,314
White Collar	16.3	2,733
Unidentifiable, and No Response	58.0	9,729
<b>Total</b>	<b>100.0</b>	<b>16,776</b>
<b>Total Personal Income (NZ\$) for Census Usually Resident Population Count Aged 15 Years and Over:</b>		
Head of Household Income (NZ\$):		
Loss and No Income (0)	12.2	2,040
Low Income (1-30,000)	58.5	9,810
Middle Income (30,001-50,000)	10.2	1,710
High Income (50,001-over)	5.8	981
No Response	13.3	2,238
<b>Total</b>	<b>100.0</b>	<b>16,779</b>

Characteristic	Percent	Frequency
<b>Household Composition:</b>		
Number of Occupants (Household Members) for Households in Private Occupied Dwellings where the Reference Person is of Islam/Muslim Religious Affiliation:		
Note: The reference person is the individual who completes the dwelling form on census day. Any person in the household can take that responsibility and may not necessarily reflect the make-up of that household.		
1 Occupant	11.1	681
2 Occupants	19.3	1,191
3 Occupants	19.9	1,218
4 Occupants	21.6	1,332
5 Occupants	14.0	864
6 Occupants or more	14.1	867
<b>Total</b>	<b>100.0</b>	<b>6,159</b>
<b>House Ownership Status or Tenure Holder for Census Usually Resident Population Count Aged 15 Years and Over:</b>		
Own or Partly Own Outright	24.2	4,056
Renting	69.8	11,718
Unidentifiable and No Response	6.0	1,002
<b>Total</b>	<b>100.0</b>	<b>16,776</b>
<b>Type of House/Dwelling for Households in Private Occupied Dwellings where the Reference Person is of Islam/Muslim Religious Affiliation:</b>		
Note: The reference person is the individual who completes the dwelling form on census day. Any person in the household can take that responsibility and may not necessarily reflect the make-up of that household.		
Bungalow/Separate House	52.7	3,243
Semi-detached House	18.4	1,134
Terrace House, Apartment Block, or Flat	13.7	843
Bach, Crib, or other Holiday Home	0.3	24
Others	14.9	918
<b>Total</b>	<b>100.0</b>	<b>6,159</b>

Source: Statistics New Zealand (2001)  
(Census of Population and Dwellings, MB 2001)

## APPENDIX D

## Characteristics of the Sample

Characteristic	Percent	Frequency
<b>Age:</b>		
20-29	26.5	54
30-39	25.5	52
40-49	31.4	64
50-59	12.7	26
60-69	3.4	7
70-over	.5	1
<b>Total</b>	<b>100.0</b>	<b>204</b>
<b>Marital Status:</b>		
Unmarried	33.8	69
Married	66.2	135
<b>Total</b>	<b>100.0</b>	<b>204</b>
<b>Highest Education Level:</b>		
Secondary	29.4	60
Tertiary	70.6	144
<b>Total</b>	<b>100.0</b>	<b>204</b>
<b>Occupation:</b>		
Not Employed	21.0	43
Blue Collar	52.0	106
White Collar	27.0	55
<b>Total</b>	<b>100.0</b>	<b>204</b>
<b>Income (NZ\$):</b>		
Head of Household Income (NZ\$):		
No Income (0)	21.1	43
Low Income (1-30,000)	32.8	67
Middle Income (30,001-50,000)	29.9	61
High Income (50,001-over)	16.2	33
<b>Total</b>	<b>100.0</b>	<b>204</b>
Total Household Income (NZ\$):		
No Income (0)	8.3	17
Low Income (1-30,000)	24.0	49
Middle Income (30,001-50,000)	31.4	64
High Income (50,001-over)	36.3	74
<b>Total</b>	<b>100.0</b>	<b>204</b>
<b>Household Composition:</b>		
Household Without Children Below 15	53.9	110
Household With Children Below 15	46.1	94
<b>Total</b>	<b>100.0</b>	<b>204</b>

Characteristic	Percent	Frequency
Number of Household Member:		
1	22.1	45
2	14.2	29
3	12.3	25
4	19.6	40
5	18.1	37
6	6.9	14
7	2.0	4
8	2.0	4
9	2.0	4
10	1.0	2
<b>Total</b>	<b>100.0</b>	<b>204</b>
House Ownership Status:		
Own Outright	21.6	44
Own, Paying Off Mortgage	15.7	32
Rent From Private Landlord	47.1	96
Rent From Public Housing Authority	15.7	32
<b>Total</b>	<b>100.0</b>	<b>204</b>
Type of House/Dwelling:		
Bungalow	41.7	85
Semi-detached House	10.8	22
Terrace House	20.1	41
Apartment Block	10.3	21
Flat	17.2	35
<b>Total</b>	<b>100.0</b>	<b>204</b>

Source: Analysis of Survey Data

## APPENDIX E



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

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Assalamualaikum

**RESEARCH ON DOMESTIC CONSUMERS OF NEW ZEALAND**

**Research Information**

- PhD Researcher:** Mashitoh binti Yaacob, Department of Philosophy, FASS, The University of Waikato, Private Bag 3105, Hamilton, New Zealand, Phone: +64 (7) 838-4466, xt 4047 Facsimile: +64 (7) 838-4018, Email: [mayamash@waikato.ac.nz](mailto:mayamash@waikato.ac.nz)
- Thesis Title:** Environmental Ethics: The Influence of Socio-Religious, Economic and Political Experience on Domestic Consumers' Behaviour.
- Purpose:** To develop a model describing the relationship between domestic consumers' experiences, and environmental ethical behaviour regarding domestic solid waste.
- Sponsors:** The Universiti Kebangsaan Malaysia, & the Public Service Department of Malaysia.
- Supervisor I:** Assoc. Prof. Dr. Alastair Gunn (Philosophy), Email: [alastair@waikato.ac.nz](mailto:alastair@waikato.ac.nz)
- Supervisor II:** Dr. Michael D. Hills (Psychology), Email: [mhills@waikato.ac.nz](mailto:mhills@waikato.ac.nz)

**Participation Information**

- Confidentiality:** Your answers are fully confidential. The number on the first page is only to indicate the number of the questionnaire. Your name is not needed on the questionnaire.
- Survey Result:** It will be made available in statistical form. If you want the results for yourself, simply complete and send me the form "Copy of Results" separately from the completed questionnaire, or you can log on the internet at: <http://pkukmweb.ukm.my/~ppu/>.
- Questionnaire:** It is crucial that you (as head of a household, age 20 and above) and no-one else completes the questionnaire. It should be returned to the researcher using the post-paid envelope attached.
- Your Right:** Your participation will be greatly valued, but it is not a must. You can stop at any point, or choose not to answer any particular question, for any reason, without penalty or loss of benefit.
- Why you?:** I am interested in New Zealanders' opinions on domestic solid waste. Muslims are selected, and non-Muslims are excluded because this research uses Islamic environmental ethics as its theoretical foundation.
- Contact:** My supervisors and I would be very happy to answer any questions you might have. Please write to the address, email or ring the above telephone number.

Thank you very much for your assistance.

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### HOW TO FILL OUT THIS QUESTIONNAIRE:

To answer most of the questions you only need to **circle a number**.

Please circle the number which is **closest** to your view; there are no right or wrong answers.

Here is an example:

A.0. Do you ever buy organic food?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong Influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, or financial subsidies.	4	3	2	1	0
4. Consumer associations' opinions/views, or politician opinions/views.	4	3	2	1	0
5. Others (please specify): <u>Conferences</u>	4	3	2	1	0

Sometimes you are asked to tick, and **write in** an answer; in that case, simply follow the special instruction given for the questions. Please read each question carefully. Remember, there are no right or wrong answers; I just want to know **your own** personal opinions.

If you want the results for yourself, please complete the "Copy of Results" form and cut it off at the line below, then send it to me separately from the completed questionnaire.

#### "Copy of Results" Form

I would like a summary of the Research Results to be \*posted/mailed/faxed to me at:

NAME:

POSTAL ADDRESS:

EMAIL ADDRESS:

FAX NUMBER:

THANK YOU.

\*CANCEL ONES THAT NOT APPLY TO YOU

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### SECTION A: PRE-CYCLING

A.1. Do you ever shop at a flea market, or a second hand shop for your household?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Consumer associations' opinions/views or politician opinions/views.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

A.2. Do you ever buy refillable items for your household such as ink pens, perfume, or dishwasher liquid?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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A.3. Do you ever buy fruit and vegetables loose, not packaged, or with as little packaging as possible?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

A.4. Do you ever use your own bag when going shopping, rather than one provided by the shop?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, supermarkets, or shops.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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A.5. Do you ever buy products because either the products or their packaging can be used again rather than those that can only be used once?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

A.6. Do you ever buy products with the phrase "environmentally friendly" on the label?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers.	4	3	2	1	0
4. Environmental NGOs' opinions/views, environmental laws, or government instruction/policy/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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A.7. Do you ever buy canned drinks or glass bottled drinks, rather than plastic bottled drinks?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

A.8. Do you ever buy a bulky pack rather than a small pack for products that your household consumes in quantity?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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A.9. Do you ever minimise waste by using every bit of the food that you prepare for your family and throwing away as little as possible?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. Religious teaching, or committed religious people.	4	3	2	1	0
3. Price, or cost effectiveness.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician opinions/views/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

A.10. Do you ever buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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### SECTION B: RE-USE AND RECYCLING

B.1. Do you ever try to get something repaired rather than buying a new one?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

B.2. Do you ever take old recyclable items to a recycling centre?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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B.3. Do you ever sort out your household waste according to whether or not it is recyclable?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Financial subsidies, or taxes.	4	3	2	1	0
4. Environmental NGOs' opinions/views, environmental laws, or government instruction/policy.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

B.4. Do you ever re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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B.5. Do you ever feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

B.6. Do you ever compost your household organic waste?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Environmental NGOs' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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B.7. Do you ever freeze food leftovers for another meal, or unexpected guests?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Time, family, friends, neighbours, co-workers, television programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Consumer associations' opinions/views, or government/politician instruction/appeal.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

B.8. Do you ever re-use plastic items such as bottles, bags, containers and so forth?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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B.9. Do you ever recycle food cans, drinks cans, or foil?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

B.10. Do you ever re-use textiles such as old baby clothes for a new baby?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam, ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

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B.11. Do you ever recycle or re-use glass bottles and jars?

(Please circle ONE number)

Always	Most of the time	Sometimes	Rarely	Never
4	3	2	1	0

(Please circle ONE number on each line)

When deciding whether or not to do that, how influential are:	Very strong influence	Strong influence	Some influence	A little influence	No influence
1. Family, friends, neighbours, co-workers, TV programmes, or advertisements.	4	3	2	1	0
2. <i>Imam</i> , <i>ustaz</i> , or other religious figures.	4	3	2	1	0
3. Price, cost effectiveness, financial subsidies, or taxes.	4	3	2	1	0
4. Environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres.	4	3	2	1	0
5. Others (please specify): _____	4	3	2	1	0

Do Not  
Write in  
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Space

**SECTION C: HOUSEHOLD INFORMATION**

This final section includes questions about yourself and your family background. These characteristics are very important to my research to show how people in different circumstances feel about the issues covered earlier. **The information you provide is totally confidential and will be used only for this research.**

C.1. Please give the following information about everyone including yourself, who lives in your household on a regular basis. (Please use separate sheet if you need more space).

	Age	Marital status	Highest education level	Occupation	Income (a year)
1. Yourself					
2. Spouse					
3. Child					
4. Child					
5. Child					
6. Child					
7. Child					
8. Child					
9. Child					
10. Child					
11. Child					
12. Child					
13. Other (specify):					
14. Other (specify):					
15. Other (specify):					
16. Other (specify):					
17. Other (specify):					

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Write in  
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Space

C.2. How directly would you say that your work is involved with the environment?  
(Please circle ONE number)

Very strong direct involvement	Strong direct involvement	Some direct involvement	A little direct involvement	No direct involvement
4	3	2	1	0

C.3. Do you own outright, or are you buying or renting the house in which you now live? (Please tick ONE choice)

- 1.  Own outright
- 2.  Own, paying off mortgage
- 3.  Rent from private landlord
- 4.  Rent from public housing authority
- 5.  Others (please specify): \_\_\_\_\_

C.4. In which type of house do you live now? (Please tick ONE choice)

- 1.  Bungalow
- 2.  Semi detached house
- 3.  Terrace house
- 4.  Apartment block
- 5.  Flat
- 6.  Others (please specify): \_\_\_\_\_

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thank you for your time and help.  
 Please put the questionnaire in the enclosed pre-paid envelope and post it back to me.

## APPENDIX F

## SUPPLIES OF POST-PAID ENVELOPES, AND QUESTIONNAIRES FOR EACH MOSQUE/ISLAMIC CENTRE

Supplies to Auckland			
Mosques/Islamic Centres	Items		Date Sent
	Post-paid Envelope	Questionnaire	
Ponsonby Mosque	83	83 (No. 743-825)	07/03/05
South Auckland Mosque	53	53 (No. 94-146)	28/01/05
Masjid-e-Umar	83	83 (No. 826-908)	09/03/05
Islamic Education & Dawah Trust (Zayed College)	83	83 (No. 620-702)	22/02/05
Auckland University Islamic Society	40	40 (No. 703-742)	28/02/05
Blockhouse Bay Mosque	83	83 (No. 487-569)	11/02/05
Onehunga Mosque	65	65 (No. 230-294)	05/02/05
Masjid Abu-Bakr Al-Siddiq	83	83 (No. 147-229)	04/02/05
Auckland Arab Muslim Community	10	10(No. 988-997)	19/03/05
<b>Total</b>	<b>583</b>	<b>583</b>	

Supplies to Hamilton, Wellington, and Palmerston North			
Mosques/Islamic Centres	Items		Date Sent
	Post-paid Envelope	Questionnaire	
Hamilton Jamii Mosque	93	93 (No. 1-93)	27/01/05
Hamilton Indonesia Muslim Community	19	19 (No. 909-927)	09/03/05
Morrinsville Muslim Community	10	10 (No. 998-1007)	24/03/05
International Muslim Association of NZ	53	53 (No. 295-347)	07/02/05
Porirua Islamic Centre	28	28 (No. 348-375)	07/02/05
Wellington Mosque	48	48 (No. 376-423)	07/02/05
Lower Hutt Islamic Centre	43	43 (No. 424-466)	07/02/05
Northern-Suburbs Islamic Community	20	20 (No. 467-486)	07/02/05
Johnsonville Muslim Community	50	50 (No. 570-619)	17/02/05
Victoria University Islamic Society	50	50(No. 1008-1057)	30/03/05
Manawatu Muslim Association	60	60 (No. 928-987)	17/03/05
<b>Total</b>	<b>474</b>	<b>474</b>	

Source: New Zealand Census (2001)

## APPENDIX G

### Reliability Analysis of Scales: EEB and Contextual Aspects

#### Environmentally Ethical Behaviour (EEB) Scale

For the environmentally ethical behaviour scale, although the Alpha for scale was 0.808 but (of the total 21 items) the item-total correlations indicate that items A.1, A.3, A.7 and A.10 (see Appendix E) did not form part of a unidimensional scale since the item-total correlations were below 0.30. However, these items were not deleted as their values were not negative. In addition, Cronbach's Alpha If Item Deleted shows no significant increase.

#### Reliability Analysis of EEB (QA.1-QB.11)

##### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.808	.802	21

##### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.1 Do you ever shop at a flea market, or a second hand shop for your household?	42.4314	100.690	.196	.195	.808
a.2 Do you ever buy refillable items for your household such as ink pens, perfume, or dishwasher liquid?	42.0784	97.107	.327	.276	.802
a.3 Do you ever buy fruit and vegetables loose, not packaged, or with as little packaging as possible?	41.2402	103.425	.109	.149	.810
a.4 Do you ever use your own bag when going shopping, rather than one provided by the shop?	43.1225	97.300	.344	.187	.801
a.5 Do you ever buy products because either the products or their packaging can be used again rather than those that can only be used once?	42.2794	97.444	.378	.323	.799

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.6 Do you ever buy products with the phrase "environmentally friendly" on the label?	42.1618	97.604	.356	.257	.800
a.7 Do you ever buy canned drinks or glass bottled drinks, rather than plastic bottled drinks?	42.3627	104.883	.002	.095	.814
a.8 Do you ever buy a bulky pack rather than a small pack for products that your household consumes in quantity?	41.6127	98.130	.357	.221	.801
a.9 Do you ever minimise waste by using every bit of the food that you prepare for your family and throwing away as little as possible?	40.8873	99.440	.337	.318	.802
a.10 Do you ever buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies?	43.0490	101.062	.155	.188	.811
b.1 Do you ever try to get something repaired rather than buying a new one?	41.6176	98.553	.371	.325	.800
b.2 Do you ever take old recyclable items to a recycling centre?	42.4902	91.818	.507	.356	.791
b.3 Do you ever sort out your household waste according to whether or not it is recyclable?	41.4559	93.540	.448	.338	.795
b.4 Do you ever re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire?	41.9461	93.509	.513	.378	.792
b.5 Do you ever feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste?	42.4608	94.368	.344	.255	.802
b.6 Do you ever compost your household organic waste?	42.9951	93.493	.411	.291	.797

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.7 Do you ever freeze food leftovers for another meal, or unexpected guests?	41.6765	94.230	.479	.362	.794
b.8 Do you ever re-use plastic items such as bottles, bags, containers and so forth?	41.4167	95.959	.484	.359	.795
b.9 Do you ever recycle food cans, drinks cans, or foil?	42.0490	92.057	.462	.337	.794
b.10 Do you ever re-use textiles such as old baby clothes for a new baby?	42.1275	92.358	.436	.308	.796
b.11 Do you ever recycle or re-use glass bottles and jars?	41.4804	92.743	.570	.455	.789

### Reliability Analysis of EEB (without QA.1,A.3,A.7,A.10)

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.822	.824	17

#### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.2 Do you ever buy refillable items for your household such as ink pens, perfume, or dishwasher liquid?	34.5735	85.763	.308	.220	.820
a.4 Do you ever use your own bag when going shopping, rather than one provided by the shop?	35.6176	85.626	.341	.180	.818
a.5 Do you ever buy products because either the products or their packaging can be used again rather than those that can only be used once?	34.7745	86.028	.360	.275	.816

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.6 Do you ever buy products with the phrase "environmentally friendly" on the label?	34.6569	85.951	.351	.222	.817
a.8 Do you ever buy a bulky pack rather than a small pack for products that your household consumes in quantity?	34.1078	86.323	.359	.216	.817
a.9 Do you ever minimise waste by using every bit of the food that you prepare for your family and throwing away as little as possible?	33.3824	87.824	.322	.281	.818
b.1 Do you ever try to get something repaired rather than buying a new one?	34.1127	87.184	.344	.290	.817
b.2 Do you ever take old recyclable items to a recycling centre?	34.9853	80.379	.509	.342	.807
b.3 Do you ever sort out your household waste according to whether or not it is recyclable?	33.9510	81.919	.454	.335	.811
b.4 Do you ever re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire?	34.4412	81.992	.514	.377	.808
b.5 Do you ever feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste?	34.9559	81.924	.380	.210	.817
b.6 Do you ever compost your household organic waste?	35.4902	81.749	.422	.249	.813
b.7 Do you ever freeze food leftovers for another meal, or unexpected guests?	34.1716	82.655	.481	.324	.810
b.8 Do you ever re-use plastic items such as bottles, bags, containers and so forth?	33.9118	84.219	.491	.333	.810

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.9 Do you ever recycle food cans, drinks cans, or foil?	34.5441	80.338	.475	.331	.810
b.10 Do you ever re-use textiles such as old baby clothes for a new baby?	34.6225	80.748	.444	.299	.812
b.11 Do you ever recycle or re-use glass bottles and jars?	33.9755	81.088	.583	.434	.804

### Social Aspect Scale

For the social aspect scale, the Alpha for scale was 0.925 and the item-total correlations indicate that all the 21 items were above 0.30. Hence, all the 21 items in the scale were retained.

### Reliability Analysis of Social Aspects (21 items)

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.925	.925	21

#### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.1.1 When deciding whether or not to shop at a flea market, or a second hand shop for your household, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.1961	312.168	.367	.316	.926

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.2.1 When deciding whether or not to buy refillable items for your household such as ink pens, perfume, or dishwasher liquid, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.6667	308.401	.443	.361	.925
a.3.1 When deciding whether or not to buy fruit and vegetables loose, not packaged, or with as little packaging as possible, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.4020	300.980	.602	.485	.922
a.4.1 When deciding whether or not to use your own bag when going shopping, rather than one provided by the shop, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	35.2745	308.466	.463	.332	.924
a.5.1 When deciding whether or not to buy products because either the products or their packaging can be used again rather than those that can only be used once, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.7451	301.117	.619	.501	.921
a.6.1 When deciding whether or not to buy products with the phrase "environmentally friendly" on the label, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.6667	303.869	.533	.398	.923

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.7.1 When deciding whether or not to buy canned drinks or glass bottled drinks, rather than plastic bottled drinks, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.6225	304.689	.500	.352	.924
a.8.1 When deciding whether or not to buy a bulky pack rather than a small pack for products that your household consumes in quantity, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.1716	294.921	.698	.613	.920
a.9.1 When deciding whether or not to minimise waste by using every bit of the food that you prepare for your family and throwing away as little as possible, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.0245	293.650	.683	.647	.920
a.10.1 When deciding whether or not to buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.6961	303.878	.452	.315	.925
b.1.1 When deciding whether or not to try to get something repaired rather than buying a new one, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.1863	299.088	.662	.617	.921

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.2.1 When deciding whether or not to take old recyclable items to a recycling centre, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.7745	303.781	.524	.404	.923
b.3.1 When deciding whether or not to sort out your household waste according to whether or not it is recyclable, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.4412	296.455	.647	.568	.921
b.4.1 When deciding whether or not to re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.4853	293.443	.734	.637	.919
b.5.1 When deciding whether or not to feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	34.7206	299.838	.553	.400	.923
b.6.1 When deciding whether or not to compost your household organic waste, how influential are family, friends, neighbours, co-workers, television programmes, or advertisements?	35.0980	303.714	.528	.401	.923

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.7.1 When deciding whether or not to freeze food leftovers for another meal, or unexpected guests, how influential are time, family, friends, neighbours, co-workers, television programmes, or advertisements?	34.0441	298.476	.600	.493	.922
b.8.1 When deciding whether or not to re-use plastic items such as bottles, bags, containers and so forth, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.2696	294.277	.726	.670	.919
b.9.1 When deciding whether or not to recycle food cans, drinks cans, or foil, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.5343	299.166	.603	.488	.922
b.10.1 When deciding whether or not to re-use textiles such as old baby clothes for a new baby, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.5637	295.252	.659	.526	.921
b.11.1 When deciding whether or not to recycle or re-use glass bottles and jars, how influential are family, friends, neighbours, co-workers, TV programmes, or advertisements?	34.3186	294.799	.701	.615	.920

### Religious Aspect Scale

For the religious aspect scale, although the Alpha for scale was 0.954 but (of all the total 21 items) the item-total correlations indicate that item A.9.2 (see Appendix E) did not form part of unidimensional scale since the item-total correlation was below 0.30. However, the item was not deleted as its value was not negative. In addition, Cronbach's Alpha If Item Deleted shows no significant increase.

## Reliability Analysis of Religious Aspects (21 items)

### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.954	.956	21

### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.1.2 When deciding whether or not to shop at a flea market, or a second hand shop for your household, how influential are Imam, Ustaz, or other religious figures?	20.5833	321.683	.611	.586	.953
a.2.2 When deciding whether or not to buy refillable items for your household such as ink pens, perfume, or dishwasher liquid, how influential are Imam, Ustaz, or other religious figures?	20.8137	322.044	.672	.676	.952
a.3.2 When deciding whether or not to buy fruit and vegetables loose, not packaged, or with as little packaging as possible, how influential are Imam, Ustaz, or other religious figures?	20.8137	321.246	.693	.709	.951
a.4.2 When deciding whether or not to use your own bag when going shopping, rather than one provided by the shop, how influential are Imam, Ustaz, or other religious figures?	21.2549	329.984	.679	.677	.952
a.5.2 When deciding whether or not to buy products because either the products or their packaging can be used again rather than those that can only be used once, how influential are Imam, Ustaz, or other religious figures?	20.9804	322.374	.769	.750	.951

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.6.2 When deciding whether or not to buy products with the phrase "environmentally friendly" on the label, how influential are Imam, Ustaz, or other religious figures?	20.7990	319.255	.726	.670	.951
a.7.2 When deciding whether or not to buy canned drinks or glass bottled drinks, rather than plastic bottled drinks, how influential are Imam, Ustaz, or other religious figures?	21.0098	321.527	.757	.705	.951
a.8.2 When deciding whether or not to buy a bulky pack rather than a small pack for products that your household consumes in quantity, how influential are Imam, Ustaz, or other religious figures?	20.9363	323.016	.729	.659	.951
a.9.2 When deciding whether or not to minimise waste by using every bit of the food that you prepare for your family and throwing away as little as possible, how influential are religious teaching, or committed religious people?	18.7157	338.204	.286	.186	.957
a.10.2 When deciding whether or not to buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies, how influential are Imam, Ustaz, or other religious figures?	21.1422	328.369	.705	.625	.952
b.1.2 When deciding whether or not to try to get something repaired rather than buying a new one, how influential are Imam, Ustaz, or other religious figures?	20.6225	318.837	.716	.674	.951

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.2.2 When deciding whether or not to take old recyclable items to a recycling centre, how influential are Imam, Ustaz, or other religious figures?	20.7451	318.910	.736	.622	.951
b.3.2 When deciding whether or not to sort out your household waste according to whether or not it is recyclable, how influential are Imam, Ustaz, or other religious figures?	20.6569	316.217	.748	.632	.951
b.4.2 When deciding whether or not to re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire, how influential are Imam, Ustaz, or other religious figures?	20.8039	316.878	.830	.718	.950
b.5.2 When deciding whether or not to feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste, how influential are Imam, Ustaz, or other religious figures?	20.3039	320.942	.529	.454	.954
b.6.2 When deciding whether or not to compost your household organic waste, how influential are Imam, Ustaz, or other religious figures?	21.0392	325.506	.643	.534	.952
b.7.2 When deciding whether or not to freeze food leftovers for another meal, or unexpected guests, how influential are Imam, Ustaz, or other religious figures?	20.2549	317.482	.649	.557	.952

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.8.2 When deciding whether or not to re-use plastic items such as bottles, bags, containers and so forth, how influential are Imam, Ustaz, or other religious figures?	20.5980	313.976	.815	.770	.950
b.9.2 When deciding whether or not to recycle food cans, drinks cans, or foil, how influential are Imam, Ustaz, or other religious figures?	20.7304	315.646	.785	.766	.950
b.10.2 When deciding whether or not to re-use textiles such as old baby clothes for a new baby, how influential are Imam, Ustaz, or other religious figures?	20.6569	317.192	.733	.706	.951
b.11.2 When deciding whether or not to recycle or re-use glass bottles and jars, how influential are Imam, Ustaz, or other religious figures?	20.7549	316.028	.802	.762	.950

### Reliability Analysis of Religious Aspects (20 items - A.9.2 is eliminated)

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.957	.959	20

#### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.1.2 When deciding whether or not to shop at a flea market, or a second hand shop for your household, how influential are Imam, Ustaz, or other religious figures?	17.5882	307.071	.615	.586	.956

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.2.2 When deciding whether or not to buy refillable items for your household such as ink pens, perfume, or dishwasher liquid, how influential are Imam, Ustaz, or other religious figures?	17.8186	307.430	.676	.676	.955
a.3.2 When deciding whether or not to buy fruit and vegetables loose, not packaged, or with as little packaging as possible, how influential are Imam, Ustaz, or other religious figures?	17.8186	306.504	.701	.709	.955
a.4.2 When deciding whether or not to use your own bag when going shopping, rather than one provided by the shop, how influential are Imam, Ustaz, or other religious figures?	18.2598	315.119	.688	.677	.955
a.5.2 When deciding whether or not to buy products because either the products or their packaging can be used again rather than those that can only be used once, how influential are Imam, Ustaz, or other religious figures?	17.9853	307.719	.775	.749	.954
a.6.2 When deciding whether or not to buy products with the phrase "environmentally friendly" on the label, how influential are Imam, Ustaz, or other religious figures?	17.8039	304.582	.733	.670	.954
a.7.2 When deciding whether or not to buy canned drinks or glass bottled drinks, rather than plastic bottled drinks, how influential are Imam, Ustaz, or other religious figures?	18.0147	306.744	.767	.702	.954

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.8.2 When deciding whether or not to buy a bulky pack rather than a small pack for products that your household consumes in quantity, how influential are Imam, Ustaz, or other religious figures?	17.9412	308.331	.736	.659	.954
a.10.2 When deciding whether or not to buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies, how influential are Imam, Ustaz, or other religious figures?	18.1471	313.732	.707	.625	.955
b.1.2 When deciding whether or not to try to get something repaired rather than buying a new one, how influential are Imam, Ustaz, or other religious figures?	17.6275	304.412	.718	.674	.955
b.2.2 When deciding whether or not to take old recyclable items to a recycling centre, how influential are Imam, Ustaz, or other religious figures?	17.7500	304.671	.733	.620	.954
b.3.2 When deciding whether or not to sort out your household waste according to whether or not it is recyclable, how influential are Imam, Ustaz, or other religious figures?	17.6618	302.087	.744	.626	.954
b.4.2 When deciding whether or not to re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire, how influential are Imam, Ustaz, or other religious figures?	17.8088	302.490	.832	.718	.953

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.5.2 When deciding whether or not to feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste, how influential are Imam, Ustaz, or other religious figures?	17.3088	307.121	.517	.443	.958
b.6.2 When deciding whether or not to compost your household organic waste, how influential are Imam, Ustaz, or other religious figures?	18.0441	311.008	.642	.534	.956
b.7.2 When deciding whether or not to freeze food leftovers for another meal, or unexpected guests, how influential are Imam, Ustaz, or other religious figures?	17.2598	303.602	.640	.549	.956
b.8.2 When deciding whether or not to re-use plastic items such as bottles, bags, containers and so forth, how influential are Imam, Ustaz, or other religious figures?	17.6029	299.659	.817	.770	.953
b.9.2 When deciding whether or not to recycle food cans, drinks cans, or foil, how influential are Imam, Ustaz, or other religious figures?	17.7353	301.378	.785	.766	.954
b.10.2 When deciding whether or not to re-use textiles such as old baby clothes for a new baby, how influential are Imam, Ustaz, or other religious figures?	17.6618	303.112	.727	.705	.954
b.11.2 When deciding whether or not to recycle or re-use glass bottles and jars, how influential are Imam, Ustaz, or other religious figures?	17.7598	301.691	.803	.762	.953

## Economic Aspect Scale and Political Aspect Scale

For the economic aspect scale and the political aspect scale the Alpha for scale was 0.922 and 0.940 each and none of the 21 items in each scale was having their item-total correlations below than 0.30. Thus, all the 21 items in each scale were retained.

### Reliability Analysis of Economic Aspects (21 items)

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.922	.922	21

#### Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.1.3 When deciding whether or not to shop at a flea market, or a second hand shop for your household, how influential are price, cost effectiveness, financial subsidies, or taxes?	39.6029	296.191	.455	.338	.921
a.2.3 When deciding whether or not to buy refillable items for your household such as ink pens, perfume, or dishwasher liquid, how influential are price, cost effectiveness, financial subsidies, or taxes?	39.6373	293.070	.532	.436	.919
a.3.3 When deciding whether or not to buy fruit and vegetables loose, not packaged, or with as little packaging as possible, how influential are price, cost effectiveness, financial subsidies, or taxes?	39.3382	292.865	.568	.471	.918
a.4.3 When deciding whether or not to use your own bag when going shopping, rather than one provided by the shop, how influential are price, cost effectiveness, supermarkets/shops?	40.7990	289.698	.530	.415	.919

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.5.3 When deciding whether or not to buy products because either the products or their packaging can be used again rather than those that can only be used once, how influential are price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or m	40.0343	287.698	.603	.505	.918
a.6.3 When deciding whether or not to buy products with the phrase "environmentally friendly" on the label, how influential are price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers?	40.4461	288.229	.600	.465	.918
a.7.3 When deciding whether or not to buy canned drinks or glass bottled drinks, rather than plastic bottled drinks, how influential are price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers?	40.0343	288.821	.602	.503	.918
a.8.3 When deciding whether or not to buy a bulky pack rather than a small pack for products that your household consumes in quantity, how influential are price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers?	39.2206	291.414	.619	.555	.917
a.9.3 When deciding whether or not to minimise waste by using every bit of the food that you prepare for your family and throwing away as little as possible, how influential are price, or cost effectiveness?	39.7304	284.769	.675	.589	.916

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.10.3 When deciding whether or not to buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies, how influential are price, cost effectiveness, financial subsidies, taxes, supermarkets, shops or manufacturers?	40.6716	289.729	.530	.364	.919
b.1.3 When deciding whether or not to try to get something repaired rather than buying a new one, how influential are price, cost effectiveness, financial subsidies, or taxes?	39.2549	297.422	.539	.460	.919
b.2.3 When deciding whether or not to take old recyclable items to a recycling centre, how influential are price, cost effectiveness, financial subsidies, or taxes?	41.1225	295.389	.476	.445	.920
b.3.3 When deciding whether or not to sort out your household waste according to whether or not it is recyclable, how influential are financial subsidies, or taxes?	41.2206	296.173	.510	.499	.919
b.4.3 When deciding whether or not to re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire, how influential are price, cost effectiveness, financial subsidies, or taxes?	40.3971	284.369	.692	.594	.916
b.5.3 When deciding whether or not to feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste, how influential are price, cost effectiveness, financial subsidies, or taxes?	41.2108	292.571	.514	.447	.919

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.6.3 When deciding whether or not to compost your household organic waste, how influential are price, cost effectiveness, financial subsidies, or taxes?	41.3382	299.043	.408	.385	.921
b.7.3 When deciding whether or not to freeze food leftovers for another meal, or unexpected guests, how influential are price, cost effectiveness, financial subsidies, or taxes?	40.0490	285.879	.625	.503	.917
b.8.3 When deciding whether or not to re-use plastic items such as bottles, bags, containers and so forth, how influential are price, cost effectiveness, financial subsidies, or taxes?	39.7892	282.315	.721	.654	.915
b.9.3 When deciding whether or not to recycle food cans, drinks cans, or foil, how influential are price, cost effectiveness, financial subsidies, or taxes?	40.7990	286.831	.635	.543	.917
b.10.3 When deciding whether or not to re-use textiles such as old baby clothes for a new baby, how influential are price, cost effectiveness, financial subsidies, or taxes?	40.0490	289.140	.523	.387	.919
b.11.3 When deciding whether or not to recycle or re-use glass bottles and jars, how influential are price, cost effectiveness, financial subsidies, or taxes?	40.0588	280.460	.715	.588	.915

### Reliability Analysis of Political Aspects (21 items)

#### Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.940	.941	21

## Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.1.4 When deciding whether or not to shop at a flea market, or a second hand shop for your household, how influential are consumer associations' opinions/views or politician opinions/views?	28.3775	312.246	.475	.434	.940
a.2.4 When deciding whether or not to buy refillable items for your household such as ink pens, perfume, or dishwasher liquid, how influential are consumer associations' opinions/views, or government/politician instruction/appeal?	28.0637	303.548	.619	.530	.938
a.3.4 When deciding whether or not to buy fruit and vegetables loose, not packaged, or with as little packaging as possible, how influential are consumer associations' opinions/views, or government/politician instruction/ appeal?	28.1471	301.318	.683	.635	.937
a.4.4 When deciding whether or not to use your own bag when going shopping, rather than one provided by the shop, how influential are consumer associations' opinions/views, or government/politician instruction/ appeal?	28.5098	306.704	.565	.429	.939
a.5.4 When deciding whether or not to buy products because either the products or their packaging can be used again rather than those that can only be used once, how influential are consumer associations' opinions/views, or government/politician instruction/ appeal?	28.0980	299.980	.744	.629	.936

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.6.4 When deciding whether or not to buy products with the phrase "environmentally friendly" on the label, how influential are environmental NGOs' opinions/views, environmental laws, or government instruction/policy/appeal?	27.4951	301.788	.582	.442	.938
a.7.4 When deciding whether or not to buy canned drinks or glass bottled drinks, rather than plastic bottled drinks, how influential are consumer associations' opinions/views, or government/politician instruction/appeal?	28.0931	300.981	.706	.559	.936
a.8.4 When deciding whether or not to buy a bulky pack rather than a small pack for products that your household consumes in quantity, how influential are consumer associations' opinions/views, or government/politician instruction/appeal?	28.0392	295.782	.752	.749	.935
a.9.4 When deciding whether or not to minimise waste by using every bit of the food that you prepare for your family and throwing away as little as possible, how influential are consumer associations' opinions/views, or government/politician opinions/views/appeal?	27.9559	297.599	.693	.626	.936

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
a.10.4 When deciding whether or not to buy a handkerchief rather than tissues, or washable nappies rather than disposable nappies, how influential are Consumer associations' opinions/views, or government/politician instruction/appeal consumer associations' opinion?	28.5294	307.285	.577	.450	.938
b.1.4 When deciding whether or not to try to get something repaired rather than buying a new one, how influential are consumer associations' opinions/views, or government/politician instruction/appeal?	28.1422	300.783	.704	.684	.936
b.2.4 When deciding whether or not to take old recyclable items to a recycling centre, how influential are environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres?	27.6912	306.687	.469	.388	.940
b.3.4 When deciding whether or not to sort out your household waste according to whether or not it is recyclable, how influential are environmental NGOs' opinions/views, environmental laws, or government instruction/policy?	27.1127	303.736	.514	.498	.940

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.4.4 When deciding whether or not to re-use paper, cardboard, junk mail, magazines, or newspapers for other purposes such as wrappers, artwork, or to light the fire, how influential are consumer associations' opinions/views, or government/politician instruction/appeal?	27.9412	295.760	.730	.582	.936
b.5.4 When deciding whether or not to feed animals such as your pets, livestock, wild birds, stray cats and so forth with your household organic waste, how influential are consumer associations' opinions/views, or government/politician instruction/appeal?	28.5490	303.293	.627	.524	.938
b.6.4 When deciding whether or not to compost your household organic waste, how influential are environmental NGOs' opinions/views, or government/politician instruction/appeal?	28.2696	305.725	.492	.391	.940
b.7.4 When deciding whether or not to freeze food leftovers for another meal, or unexpected guests, how influential are consumer associations' opinions/views, or government/politician instruction/appeal?	28.2745	301.501	.638	.616	.937

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
b.8.4 When deciding whether or not to re-use plastic items such as bottles, bags, containers and so forth, how influential are environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres?	27.4755	290.999	.784	.734	.935
b.9.4 When deciding whether or not to recycle food cans, drinks cans, or foil, how influential are environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres?	27.4853	298.566	.594	.607	.938
b.10.4 When deciding whether or not to re-use textiles such as old baby clothes for a new baby, how influential are environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres?	28.2206	299.207	.666	.544	.937
b.11.4 When deciding whether or not to recycle or re-use glass bottles and jars, how influential are environmental NGOs' opinions/views, environmental laws, government instruction/policy, or recycling centres?	27.5686	292.365	.753	.707	.935

Source: Analysis of Survey Data

## APPENDIX H

### Factor Results for Environmentally Ethical Behaviour (EEB) Scale\*

The analysis of Environmentally Ethical scale extracted 6 factors (eigenvalues more than 1) with 21 items. All items loaded at 0.30 cut-off value established as the minimum acceptable loading (De Vaus, 2002, p. 184-185). The KMO value was 0.801 (more than 0.7) meaning that the set of variables in this scale was suitable for factor analysis, and the eigenvalue and % of variance for the first/main factor was 4.661 and 22.196. Since there were a large number of factors with eigenvalues greater than 1 and “a unidimensional scale should result in a factor solution with only one factor” (De Vaus, 2002, p. 184), the factor analysis was conducted again with the limitation of only one factor. The communality table indicates that variables A.1, A.3, A.7 and A.10 were the odd variables whose variance the main factor account for the least. However, variables A.1, A.3, A.7, and A.10 were not eliminated as they were not negative in value. The KMO and eigenvalue and % of variance were the same (i.e., 0.801 and 4.661 and 22.196).

Scale		Factor/Pattern		
		(KMO)**	% of Variance	Eigenvalue
<b>EEB Scale (17 items):</b>				
Section A (Pre-cycling) & Section				
B (Re-use & Recycling):		0.801	22.196	4.661
No.	Variable	Unrotated	Component	Communality
		Matrix		
1.	A.1	***		0.070
2.	A.2	0.400		0.160
3.	A.3	***		0.026
4.	A.4	0.413		0.171
5.	A.5	0.473		0.224
6.	A.6	0.422		0.178
7.	A.7	***		0.000
8.	A.8	0.453		0.205
9.	A.9	0.429		0.184
10.	A.10	***		0.037
11.	B.1	0.453		0.205
12.	B.2	0.578		0.334
13.	B.3	0.525		0.275
14.	B.4	0.624		0.389
15.	B.5	0.448		0.201
16.	B.6	0.498		0.248
17.	B.7	0.582		0.339
18.	B.8	0.600		0.360
19.	B.9	0.558		0.311
20.	B.10	0.535		0.286
21.	B.11	0.676		0.457

\*Exploratory Principal Components Analysis with Unrotated Component Matrix.

\*\*Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

\*\*\*Odd variables whose variance the main factor account for the least.

### Factor Results for Social Aspect Scale\*

The analysis of social aspect scale extracted 3 factors composed of 21 items in which all items loaded above 0.30. The KMO value was 0.923 and the eigenvalue and % of variance for the first/main factor was 8.615 and 41.024. Since a unidimensional scale should result in only one factor, the factor analysis was conducted again with the limitation of only one factor. The communality table indicates that the main factor accounts for all variables' variance. Thus, none of the variables were deleted.

Scale		Factor/Pattern		
		KMO**	% of Variance	Eigenvalue
<b>Social Scale (21 items):</b>				
Social Influence Section A & Social				
Influence Section B:		0.923	41.024	8.615
No.	Variable	Unrotated Component Matrix	Communality	
1.	A.1.1	0.402		0.162
2.	A.2.1	0.476		0.227
3.	A.3.1	0.642		0.413
4.	A.4.1	0.502		0.252
5.	A.5.1	0.665		0.443
6.	A.6.1	0.577		0.333
7.	A.7.1	0.543		0.295
8.	A.8.1	0.747		0.558
9.	A.9.1	0.740		0.547
10.	A.10.1	0.492		0.242
11.	B.1.1	0.718		0.515
12.	B.2.1	0.569		0.324
13.	B.3.1	0.698		0.487
14.	B.4.1	0.780		0.608
15.	B.5.1	0.598		0.358
16.	B.6.1	0.575		0.330
17.	B.7.1	0.659		0.435
18.	B.8.1	0.780		0.608
19.	B.9.1	0.653		0.427
20.	B.10.1	0.700		0.490
21.	B.11.1	0.752		0.565

\*Exploratory Principal Components Analysis with Unrotated Component Matrix.

\*\*Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

### Factor Results for Religious Aspect Scale\*

The analysis of religious aspect scale resulted in 3 factors composed of 21 items in which all items loaded above 0.30. The KMO value was 0.948 and the eigenvalue and % of variance for the first/main factor was 11.422 and 54.393. Since a unidimensional scale should result in only one factor, the factor analysis was conducted again with the limitation of only one factor. The communality table indicates that the variable A.9.2 was the odd variable whose variance the main factor account for the least. However, variable A.9.2 was not deleted as it was not negative in value. The KMO and the eigenvalue and the % of variance were the same (i.e., 0.948 and 11.422 and 54.393).

Scale		Factor/Pattern		
		KMO**	% of Variance	Eigenvalue
<b>Religious Scale (20 items):</b>				
Religious Influence Section A &				
Religious Influence Section B:		0.948	54.393	11.422
No.	Variable	Unrotated Component Matrix		Communality
1.	A.1.2	0.655		0.429
2.	A.2.2	0.710		0.504
3.	A.3.2	0.736		0.542
4.	A.4.2	0.730		0.532
5.	A.5.2	0.808		0.653
6.	A.6.2	0.769		0.591
7.	A.7.2	0.798		0.636
8.	A.8.2	0.770		0.593
9.	A.9.2	***		0.088
10.	A.10.2	0.745		0.555
11.	B.1.2	0.752		0.565
12.	B.2.2	0.764		0.584
13.	B.3.2	0.774		0.599
14.	B.4.2	0.855		0.731
15.	B.5.2	0.553		0.306
16.	B.6.2	0.680		0.463
17.	B.7.2	0.672		0.451
18.	B.8.2	0.839		0.704
19.	B.9.2	0.807		0.652
20.	B.10.2	0.751		0.563
21.	B.11.2	0.824		0.679

\*Exploratory Principal Components Analysis with Unrotated Component Matrix.

\*\*Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

\*\*\*An odd variable whose variance the main factor account for the least.

### Factor Results for Economic Aspect Scale\*

The analysis of economic aspect scale extracted 4 factors composed of 21 items in which all items loaded above 0.30. The KMO value was 0.913 and the eigenvalue and % of variance for the first/main factor was 8.318 and 39.609. Since a unidimensional scale should result in only one factor, the factor analysis was conducted again with the limitation of only one factor. The communality table indicates that the main factor accounts for all variables' variance. Thus, none of the variables were deleted.

Scale		Factor/Pattern		
		KMO**	% of Variance	Eigenvalue
<b>Economic Scale (21 items):</b>				
Economic Influence Section A &				
Economic Influence Section B:		0.913	39.609	8.318
No.	Variable	Unrotated Component Matrix	Communality	
1.	A.1.3	0.507		0.257
2.	A.2.3	0.581		0.337
3.	A.3.3	0.624		0.389
4.	A.4.3	0.574		0.330
5.	A.5.3	0.655		0.429
6.	A.6.3	0.646		0.418
7.	A.7.3	0.653		0.426
8.	A.8.3	0.678		0.460
9.	A.9.3	0.728		0.529
10.	A.10.3	0.576		0.332
11.	B.1.3	0.595		0.354
12.	B.2.3	0.514		0.265
13.	B.3.3	0.551		0.304
14.	B.4.3	0.742		0.550
15.	B.5.3	0.555		0.308
16.	B.6.3	0.445		0.198
17.	B.7.3	0.680		0.462
18.	B.8.3	0.773		0.598
19.	B.9.3	0.683		0.467
20.	B.10.3	0.568		0.323
21.	B.11.3	0.763		0.583

\*Exploratory Principal Components Analysis with Unrotated Component Matrix.

\*\*Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

### Factor Results for Political Aspect Scale\*

The analysis of political aspect scale resulted in 3 factors composed of 21 items in which all items loaded above 0.30. The KMO value was 0.938 and the eigenvalue and % of variance for the first/main factor was 9.809 and 46.709. Since a unidimensional scale should result in only one factor, the factor analysis was conducted again with the limitation of only one factor. The communality table indicates that the main factor accounts for all variables' variance. Thus, none of the variables were deleted.

Scale		Factor/Pattern		
		KMO**	% of Variance	Eigenvalue
<b>Political Scale (21 items):</b>				
Political Influence Section A & Political Influence Section B:		0.938	46.709	9.809
No.	Variable	Unrotated Component Matrix	Communality	
1.	A.1.4	0.535		0.287
2.	A.2.4	0.669		0.447
3.	A.3.4	0.735		0.540
4.	A.4.4	0.606		0.367
5.	A.5.4	0.782		0.611
6.	A.6.4	0.614		0.377
7.	A.7.4	0.748		0.559
8.	A.8.4	0.800		0.640
9.	A.9.4	0.747		0.558
10.	A.10.4	0.627		0.393
11.	B.1.4	0.759		0.576
12.	B.2.4	0.493		0.243
13.	B.3.4	0.534		0.285
14.	B.4.4	0.767		0.589
15.	B.5.4	0.670		0.449
16.	B.6.4	0.520		0.270
17.	B.7.4	0.696		0.485
18.	B.8.4	0.804		0.646
19.	B.9.4	0.620		0.384
20.	B.10.4	0.706		0.498
21.	B.11.4	0.778		0.605

\*Exploratory Principal Components Analysis with Unrotated Component Matrix.

\*\*Kaiser-Meyer-Olkin Measure of Sampling Adequacy.

Source: Analysis of Survey Data

## APPENDIX I

### INTERVIEW GUIDE (Face-to-face interviews)

I will explain to or clarify with interviewees what I hope to cover in an interview and the time needed, and at the same time presenting them with a consent form. All questions, about the research, from the interviewee will be addressed at this stage, and a signed consent form obtained. A recorder is plugged in and tested. Then I will proceed with a relevant start point and take it from there.

#### A) Pre-cycling, Recycling and Reusing

1. **This is a list of pre-cycling activities, that is, how you can purchase household items such as ink pens, perfume, dishwasher liquid, or vegetable, and care for the environment at the same time. [Show list]**

Do you use any of these ways in purchasing your household items?

- 1a) If YES, which ones? How long have you been using them?

Can you remember back to when you began to purchase that way?

If so, can you remember the main reasons why you decided to start pre-cycling?

Did you ever **stop** regular pre-cycling and start again?

If so, what made you start again?

What are the main reasons why you currently pre-cycle?

- 1b) If NO, did you use any of these ways of purchasing in the past?

If so, why did you start pre-cycling?

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#### **REMINDER**

*Prompts* – verbal or non-verbal “nudges” (non-directive indications that you are following..., and awaiting more, for e.g., a nod, a smile, “Hmm”, “Oh really”, “Go on”, “Yes”, “I see”, “And then...” etc.

*Probes* – directive questions aimed at clarification – “What do you mean...?”, amplification – “Tell me more about...”, explanation – “Why?”, exemplification – “Can you give me an example of...?”, and significance – “How did you feel about...?”

*Checks* – summaries by the interviewer to make sure that she has understood the interviewee, for e.g., “So, if I understand you correctly,...”, “What this means, then, is that...”, “You mean your daughter, don’t you?”, “You are referring to the 1990s, aren’t you?”

## 2. This is a list of recycling activities that you can do. *[Show list]*

Do you perform any of them?

2a) If YES, which ones? How long have you been performing them?

Can you remember back to when you first recycled?

If so, can you remember the main reasons why you decided to start recycling?

Did you ever **stop** regular recycling and start again?

If so, what made you start again?

What are the main reasons why you currently recycle?

2b) If NO, did you recycle in the past?

If so, why did you start recycling?

## 3. This is a list of reusing activities that you can do. *[Show list]*

Do you perform any of these activities?

3a) If YES, which ones? How long have you been performing them?

Can you remember back to when you first reusing your household items?

If so, can you remember the main reasons why you decided to start reusing?

Did you ever **stop** regular reusing and start again?

If so, what made you start again?

What are the main reasons why you currently reusing?

3b) If NO, did you perform any of the reusing activities in the past?

If so, why did you start reusing?

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### **REMINDER**

*Prompts* – verbal or non-verbal “nudges” (non-directive indications that you are following..., and awaiting more, for e.g., a nod, a smile, “**Hmm**”, “**Oh really**”, “**Go on**”, “**Yes**”, “**I see**”, “**And then...**” etc.

*Probes* – directive questions aimed at clarification – “**What do you mean...?**”, amplification – “**Tell me more about...**”, explanation – “**Why?**”, exemplification – “**Can you give me an example of...?**”, and significance – “**How did you feel about...?**”

*Checks* – summaries by the interviewer to make sure that she has understood the interviewee, for e.g., “**So, if I understand you correctly,...**”, “**What this means, then, is that...**”, “**You mean your daughter, don’t you?**”, “**You are referring to the 1990s, aren’t you?**”

## B) Other Possible Influences on Your Pre-cycling, Recycling and Reusing Decisions

I now want to look at a little more closely the range of things that may have influenced you to pre-cycle, recycle and reuse in case any of them might be important as well.

*[Choose one or more of the pre-cycling, recycling or reusing activities performed by the interviewee and go through the following categories, asking if any of these had a role at all in their decision to pre-cycle, recycle or reuse and their decision to keep on pre-cycling, recycling and reusing – focus on things not mentioned in the first part of the interview – also discuss their responses further, don't just accept yes, try to understand how these things work and relate to each other; in some cases, you might simply need to acknowledge that they have already clearly indicated that something was the key thing in the decision]*

*[Economic Considerations – try to ask specific things, not just about “economics” – I have suggested some things below, and for each of the following variables]*

The cost of doing it – monetary/time

Availability of a service

Provision of a subsidy

Price of the items

Cost effectiveness – e.g., cheaper to purchase in quantity

Consumer culture/society

*[Social Considerations]*

Influenced by family members

Influenced by friends

Influenced by someone else (like neighbours, co-workers)

What you've seen on TV or read in newspapers and so on

*[Political Considerations]*

The views of government or politicians

The views of any other organization or group, e.g., FIANZ

Environmental law/instruction/policy

Recycling centre

Green bins

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### REMINDER

*Prompts – verbal or non-verbal “nudges” (non-directive indications that you are following..., and awaiting more, for e.g., a nod, a smile, “Hmm”, “Oh really”, “Go on”, “Yes”, “I see”, “And then...” etc.*

*Probes – directive questions aimed at clarification – “What do you mean...?”, amplification – “Tell me more about...”, explanation – “Why?”, exemplification – “Can you give me an example of...?”, and significance – “How did you feel about...?”*

*Checks – summaries by the interviewer to make sure that she has understood the interviewee, for e.g., “So, if I understand you correctly,...”, “What this means, then, is that...”, “You mean your daughter, don't you?”, “You are referring to the 1990s, aren't you?”*

**[Religious Considerations]**

The views of religious leaders etc.

Your personal understanding of Islamic teaching

- Qur'an
- *Sunnah* (Prophet Tradition)
- Role as *khalifah* on earth
- *Halal*
- *Haram*
- Moderation

\*\*\*\*\*

**C) General Issues**

1. In general, what do you think is the most important factor we have discussed in your various decisions about pre-cycling, recycling and reusing?
2. How much do you think that some or all of these factors influence one another?  
*[use this as an opportunity to explore especially the role of religion]*

\*\*\*\*\*

**D) Your Background/Demographic Characteristics**

- how long have you been in NZ
- any reason for your migration
- how do you find living in NZ
- occupation/profession – *[see whether or not the work involved with the environment]*
- own outright/renting
- type of dwelling
- education level
- marital status
- age
- income a year (No Income); (1-30,000); (30,001-50,000); or (50,001-Over)

**REMINDER**

*Prompts* – verbal or non-verbal “nudges” (non-directive indications that you are following..., and awaiting more, for e.g., a nod, a smile, “Hmm”, “Oh really”, “Go on”, “Yes”, “I see”, “And then...” etc.

*Probes* – directive questions aimed at clarification – “What do you mean...?”, amplification – “Tell me more about...”, explanation – “Why?”, exemplification – “Can you give me an example of...?”, and significance – “How did you feel about...?”

*Checks* – summaries by the interviewer to make sure that she has understood the interviewee, for e.g., “So, if I understand you correctly,...”, “What this means, then, is that...”, “You mean your daughter, don’t you?”, “You are referring to the 1990s, aren’t you?”

## APPENDIX J

### LISTS OF PRE-CYCLING, RECYCLING, AND REUSING ACTIVITIES

#### A List of Pre-cycling Activities:

1. Shop at a flea market, or a second hand shop for your household.
2. Buy refillable items such as ink pens, perfume, or dishwasher liquid.
3. Buy fruit and vegetables loose, not packaged, or with as little packaging as possible.
4. Use your own bag when going shopping, rather than one provided by the shop.
5. Buy products that either the products or their packaging can be used again rather than those that can only be used once.
6. Buy products with the phrase “environmentally friendly” on the label.
7. Buy canned drinks or glass bottled drinks, rather than plastic bottled drinks.
8. Buy a bulky pack rather than a small pack for products that your household consumes in quantity.
9. Using every bit of the food that you prepare for your family and throwing away as little as possible.
10. Buy a handkerchief rather than tissues.
11. Buy washable nappies rather than disposable nappies.

#### A List of Recycling Activities:

1. Get something such as carpet, furniture etc. repaired rather than buying a new one.
2. Take old recyclable items to a recycling centre.
3. Use the green bin.
4. Sort out your household waste according to whether or not it is recyclable.
5. Recycle:
  - a. Food cans
  - b. Drinks cans
  - c. Foil
  - d. Glass bottles
  - e. Glass jars

#### A List of Reusing Activities:

1. Reuse:
  - a. Paper
  - b. Cardboard
  - c. Junk mail
  - d. Magazines
  - e. Newspapers

For other purposes such as:

  - a. Wrappers
  - b. Artwork
2. Use household organic waste (e.g., food leftovers) to feed animals such as:
  - a. Your pets
  - b. Livestock
  - c. Wild birds
  - d. Stray cats
3. Compost your household organic waste.
4. Freeze food leftovers for another meal, or unexpected guests.
5. Re-use:
  - a. Plastic bottles
  - b. Plastic bags
  - c. Plastic containers
  - d. Glass bottles
  - e. Glass jars
  - f. Textiles such as old baby clothes for a new baby.

## APPENDIX K

### The Influence of Contextual Aspects on New Zealand Muslim Males Environmentally Ethical Behaviour

Mashitoh binti Yaacob

#### CONSENT FORM (Face-to-face interviews)

1. I am a PhD Researcher, Department of Philosophy, FASS, The University of Waikato, Private Bag 3105, Hamilton, New Zealand, Phone: +64 (7) 838-4466, xt 4047 Facsimile: +64 (7) 838-4018, Email: [my41@waikato.ac.nz](mailto:my41@waikato.ac.nz) or [mashmaya@yahoo.com](mailto:mashmaya@yahoo.com)
2. I am undertaking a research project on pre-cycling, recycling and reusing household items. This project has been given ethical approval by the Human Research Ethics Committee of the University's Faculty of Arts and Social Sciences.
3. The purpose of my thesis is to develop a model describing the relationships between contextual aspects experienced by New Zealand Males Muslim, and their environmentally ethical behaviour regarding domestic solid waste.
4. The sponsors for this project are The National University of Malaysia, and the Public Service Department of Malaysia.
5. My first supervisor is Assoc. Prof. Dr. Alastair Gunn (Philosophy), Email: [alastair@waikato.ac.nz](mailto:alastair@waikato.ac.nz), and my second supervisor is Dr. John Paterson, Email: [johnp@waikato.ac.nz](mailto:johnp@waikato.ac.nz)
6. You are selected to be the representative of your household because you are the head of your household.
7. Muslims are selected, and non-Muslims are excluded because this research uses Islamic environmental ethics as its theoretical foundation.
8. I would like to interview you on the subject of your activities of pre-cycling, recycling and reusing household items. I'm also interested in your reasons for pre-cycling, recycling and reusing. The interview will take between 45 minutes to one hour.
9. I would like to tape-record the interview so that I can obtain an accurate record of your views.
10. When I am not using them, the data, including the tape recording and any transcript of it will be stored in a locked filing cabinet in my office – no one apart from me and my supervisors will have access to them. They will be safely kept by the researcher in a locked cabinet for 3 years from the collection date and will be used only for research purposes. They will then be destroyed.
11. You will be given the choice about being anonymous or not – this will be discussed at the start of the interview and again at the end of it. This means that no one else will know that you have been interviewed and you will not be able to be identified in any published report on the findings of the research. You will also be asked to sign this Consent Form which sets out what is promised to you should you agree to an interview.

12. The findings will be used for the completion of researcher's PhD thesis at the University of Waikato, Hamilton, New Zealand. The results may also be used at conferences, in academic journals, seminars, lecture presentations, and published at the website of Centre for General Studies, the National University of Malaysia: <http://pkukmweb.ukm.my/~ppu/> and can be viewed there by the participants.
13. If you agree to take part in this interview, you have the following rights:
- i. You can stop at any point, or choose not to answer any particular question, for any reason, and terminate the interview at any time.
  - ii. You can ask any further questions about the interview or research project that occurs to you, either during the interview or at any other time.
  - iii. To remain anonymous, should you choose – anything that might identify you will not be included in my PhD thesis, conference papers, academic articles or any other report about the findings of the research.
  - iv. You can withdraw your consent up until two weeks after your interview.
  - v. You can take complaints you have about the interview or the research project to the University's Faculty of Arts and Social Sciences' Human Research Ethics Committee (University of Waikato, Private Bag 3105, Hamilton 3240, or you can email its secretary, at [fass-ethics@waikato.ac.nz](mailto:fass-ethics@waikato.ac.nz)).
14. I will be emailing, telephoning or meet you in person sometime over the next couple of days to see if you will be willing to take part in an interview. If you are, I will make an appointment for this.
15. My supervisors and I would be very happy to answer any questions you might have. Please write to the address, email or ring the above telephone number.

"I wish to remain anonymous" (circle) YES NO - to be confirmed at the end of interview

"I consent to be interviewed for this research on the above conditions"

Signed: *Interviewee* \_\_\_\_\_ Date: \_\_\_\_\_

"I agree to abide by the above conditions"

Signed: *Interviewer* \_\_\_\_\_ Date: \_\_\_\_\_

**Thank you and best wishes.**

## APPENDIX L

### INTERVIEW GUIDE (Interviews via emails)

I will explain to or clarify with interviewees what I hope to cover in an email interview in my email to them inviting them to participate. A consent form will also be attached with the email. All questions, about the research, from the interviewee will be addressed via email. Once participants stated their agreement and consent to be interviewed in their replied email interview questions will be emailed to them.

#### Question 1

Below is a list of pre-cycling, recycling and reusing activities. Please tick [✓] any of these activities that you have done or still doing in the space beside each activity and give your reason in a column next to it.

No.	Activity	Tick [✓]	Reason(s) for adopting activity
A.	Pre-cycling		
1.	Shop at a flea market, or a second hand shop for your household.		
2.	Buy refillable items such as ink pens, perfume, or dishwasher liquid.		
3.	Buy fruit and vegetables loose, not packaged, or with as little packaging as possible.		
4.	Use your own bag when going shopping, rather than one provided by the shop.		
5.	Buy products that either the products or their packaging can be used again rather than those that can only be used once.		
6.	Buy products with the phrase “environmentally friendly” on the label.		
7.	Buy canned drinks or glass bottled drinks, rather than plastic bottled drinks.		
8.	Buy a bulky pack rather than a small pack for products that your household consumes in quantity.		
9.	Using every bit of the food that you prepare for your family and throwing away as little as possible.		
10.	Buy a handkerchief rather than tissues.		
11.	Buy washable nappies rather than disposable nappies.		

No.	Activity	Tick [✓]	Reason(s) for adopting activity
<b>B.</b>	<b>Recycling</b>		
1.	Get something such as carpet, furniture etc. repaired rather than buying a new one.		
2.	Take old recyclable items to a recycling centre.		
3.	Use the green bin.		
4.	Sort out your household waste according to whether or not it is recyclable.		
5.	Recycle food cans		
6.	Recycle drinks cans		
7.	Recycle foil		
8.	Recycle glass bottles		
9.	Recycle glass jars		
No.	Activity	Tick [✓]	Reason(s) for adopting activity
<b>C.</b>	<b>Reusing</b>		
1.	Reuse Paper		
2.	Reuse Cardboard		
3.	Reuse Junk mail		
4.	Reuse Magazines		
5.	Reuse Newspapers		
6.	Reuse Plastic bottles		
7.	Reuse Plastic bags		
8.	Reuse Plastic containers		
9.	Reuse Glass bottles		
10.	Reuse Glass jars		
11.	Reuse Textiles such as old baby clothes for a new baby.		
12.	Use household organic waste (e.g., food leftovers) to feed animals such as your pets, livestock, wild birds, or stray cats.		
13.	Compost your household organic waste.		
14.	Freeze food leftovers for another meal, or unexpected guests.		

## Question 2

Was there any *Khutbah* given on the environment?

If YES, what aspect(s) of the environment? Anything about pre-cycling, recycling and/or reusing?

**Question 3**

What language is normally used in giving *Khutbah*?

What language is used in conducting other events in the mosque and/or Muslim community?

**Question 4**

How about the turnout for Friday's congregation prayers?

**Question 5**

Was there any talk on the environment?

If YES, where? In the mosque? In any other events?

Who was involved? Religious figures? Imam?

How about the turnout for the talks/events on the environment?

**Question 6**

During your casual engagement with community members, was there any conversation about topics on the environment that took place?

If YES, what aspect of the environment? Anything on pre-cycling, recycling, or reusing?

**Question 7**

In your opinion, what is the prior concern of the current Muslim community in New Zealand? Social? Religion? Economy? Politic?

Please provide some examples, for instance, what aspect of the economy is their priority?

**Question 8**

In your opinion, what influence the Muslim community members the most when they made decision whether or not to perform environmentally ethical behaviour such as pre-cycling, recycling and/or reusing?

**Question 9**

Do you have any other opinions/views concerning the influences on environmentally ethical behaviour of Muslims in New Zealand?

**Question 10**

Do you have any opinions/views concerning your role (as an Imam, ustaz etc) on environmentally ethical behaviour of Muslims in New Zealand?

**Question 11**

This final question is about yourself. These characteristics are very important to my research to show how people in different circumstances feel about the issues covered earlier. **The information you provide is totally confidential and will be used only for this research.**

Please give the following information about yourself:

Age	Marital status	Highest education level	Occupation	Income (a year) (No Income); (1-30,000); (30,001-50,000); or (50,001-Over)

**Please email back your answers to me at [mashmaya@yahoo.com](mailto:mashmaya@yahoo.com)**

**With thanks and best wishes.**

## APPENDIX M

### The Influence of Contextual Aspects on New Zealand Muslim Males Environmentally Ethical Behaviour

Mashitoh binti Yaacob

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1. I am a PhD Researcher, Department of Philosophy, FASS, The University of Waikato, Private Bag 3105, Hamilton, New Zealand, Phone: +64 (7) 838-4466, xt 4047 Facsimile: +64 (7) 838-4018, Email: [my41@waikato.ac.nz](mailto:my41@waikato.ac.nz) or [mashmaya@yahoo.com](mailto:mashmaya@yahoo.com)
2. I am undertaking a research project on pre-cycling, recycling and reusing household items. This project has been given ethical approval by the Human Research Ethics Committee of the University's Faculty of Arts and Social Sciences.
3. The purpose of my thesis is to develop a model describing the relationships between contextual aspects experienced by New Zealand Males Muslim, and their environmentally ethical behaviour regarding domestic solid waste.
4. The sponsors for this project are The National University of Malaysia, and the Public Service Department of Malaysia.
5. My first supervisor is Assoc. Prof. Dr. Alastair Gunn (Philosophy), Email: [alastair@waikato.ac.nz](mailto:alastair@waikato.ac.nz), and my second supervisor is Dr. John Paterson, Email: [johnp@waikato.ac.nz](mailto:johnp@waikato.ac.nz)
6. You are selected because you are a religious figure (e.g., Imam, ustaz etc).
7. Muslims are selected, and non-Muslims are excluded because this research uses Islamic environmental ethics as its theoretical foundation.
8. I would like to interview you on the subject of your activities of pre-cycling, recycling and reusing household items. I am also interested in your views on the activities at the mosques/Islamic centres, your views of Muslim community members, and your roles as a religious figure.
9. The data, including your email response and any transcript of it will be stored in a locked filing cabinet in my office – no one apart from me and my supervisors will have access to them. They will be safely kept by the researcher in a locked cabinet for 3 years from the collection date and will be used only for research purposes. They will then be destroyed.
10. This is a Consent Form which sets out what is promised to you should you agree to an email interview – please state clearly in your replied email should you agree to an email interview. You will be given the choice about being anonymous or not – please state clearly in your replied email. This means that no one else will know that you have been interviewed and you will not be able to be identified in any published report on the findings of the research.
11. The findings will be used for the completion of researcher's PhD thesis at the University of Waikato, Hamilton, New Zealand. The results may also be used at conferences, in academic journals, seminars, lecture presentations, and published at the website of Centre for General Studies, the National University of Malaysia: <http://pkukmweb.ukm.my/~ppu/> and can be viewed there by the participants.

12. If you agree to take part in this interview, you have the following rights:
  - i. You can stop at any point, or choose not to answer any particular question, for any reason, and terminate the interview at any time.
  - ii. You can ask any further questions about the interview or research project that occurs to you, either during the interview or at any other time.
  - iii. To remain anonymous, should you choose – anything that might identify you will not be included in my PhD thesis, conference papers, academic articles or any other report about the findings of the research.
  - iv. You can withdraw your consent up until two weeks after your interview.
  - v. You can take complaints you have about the interview or the research project to the University's Faculty of Arts and Social Sciences' Human Research Ethics Committee (University of Waikato, Private Bag 3105, Hamilton 3240, or you can email its secretary, at [fass-ethics@waikato.ac.nz](mailto:fass-ethics@waikato.ac.nz)).
  
13. I will be emailing you sometime over the next couple of days to see if you will be willing to take part in an email interview. If you are, I will email the interview questions directly to you.
  
14. My supervisors and I would be very happy to answer any questions you might have. Please write to the address, email or ring the above telephone number.

Do you wish to remain anonymous?

- please state clearly your answer in your replied email.

Do you consent to be interviewed for this research on the above conditions?

- please state clearly your answer in your replied email.

"I agree to abide by the above conditions" - *Interviewer*

**Thank you and best wishes.**

## APPENDIX N

## Characteristics of the Sample against Muslim Male Population

Characteristic	Sample		Muslim Population	
	Percent	Frequency	Percent	Frequency
<b>Age</b>				
20-29	26.5	54	28.6	2,232
30-39	25.5	52	32.8	2,565
40-49	31.4	64	22.4	1,749
50-59	12.7	26	10.4	810
60-over	3.9	8	5.9	459
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>7,815</b>
<b>Marital Status</b>				
Unmarried	33.8	69	35.1	2,745
Married	66.2	135	62.2	4,863
No Response	0.0	0	2.8	216
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>7,824</b>
<b>Highest Education Level</b>				
No qualification	0.0	0	12.0	936
School or Secondary	29.4	60	39.0	3,042
Tertiary	70.6	144	38.6	3,012
No Response	0.0	0	10.5	816
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>7,806</b>
<b>Occupation</b>				
Not Employed	21.0	43	0.0	0
Blue Collar	52.0	106	32.0	2,499
White Collar	27.0	55	22.1	1,722
No Response	0.0	0	45.9	3,579
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>7,800</b>
<b>Personal Income</b>				
Loss & No Income	21.1	43	6.0	471
Low Income	32.8	67	60.2	4,695
Middle Income	29.9	61	14.9	1,164
High Income	16.2	33	9.8	768
No Response	0.0	0	9.1	708
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>7,806</b>
<b>Number of Household Occupants</b>				
1 Occupant	22.0	45	11.1	681
2 Occupants	14.2	29	19.3	1,191
3 Occupants	12.2	25	19.9	1,218
4 Occupants	19.6	40	21.6	1,332
5 Occupants	18.1	37	14.0	864
6 Occupants or more	13.9	28	14.1	867
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>6,159</b>

Characteristic	Sample		Muslim Population	
	Percent	Frequency	Percent	Frequency
<b>House Ownership Status</b>				
Own or Partly Own	37.3	76	26.8	2,091
Renting	62.8	128	67.8	5,295
No Response	0.0	0	5.4	423
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>7,809</b>
<b>Type of House/Dwelling</b>				
Bungalow or Semi-detached	52.5	107	71.1	4,377
Terrace, Apartment, Flat or Others	47.6	97	28.9	1,785
<b>Total</b>	<b>100.0</b>	<b>204</b>	<b>100.0</b>	<b>6,159</b>

Source: Analysis of Survey Data, and New Zealand Census (2001)

## APPENDIX O

### Independent Sample T-Test of Early Respondents versus Late Respondents – Self-Reported Frequency of Environmentally Ethical Behaviour and Contextual Influence

#### Group Statistics

	wave1n2	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00	102	43.1569	10.32515	1.02234
	2.00	102	45.1373	10.17572	1.00755
SocinfSectAB	1.00	102	36.2255	18.61220	1.84288
	2.00	102	36.2647	17.80417	1.76288
RelinfSectAB	1.00	102	21.9118	17.53757	1.73648
	2.00	102	21.5098	20.06166	1.98640
EconinfSectAB	1.00	102	41.5490	18.81206	1.86267
	2.00	102	42.9314	16.89587	1.67294
PolinfSectAB	1.00	102	30.4314	19.10394	1.89157
	2.00	102	28.3725	17.27467	1.71045

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.209	.648	-1.380	202	.169	-1.98039	1.43539	-4.81066	.84987

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
SocinfSectAB	Equal variances not assumed			-1.380	201.957	.169	-1.98039	1.43539	-4.81066	.84987
	Equal variances assumed	.020	.888	-.015	202	.988	-.03922	2.55028	-5.06781	4.98938
RelinfSectAB	Equal variances not assumed			-.015	201.603	.988	-.03922	2.55028	-5.06787	4.98944
	Equal variances assumed	1.015	.315	.152	202	.879	.40196	2.63840	-4.80037	5.60429
EconinfSectAB	Equal variances not assumed			.152	198.455	.879	.40196	2.63840	-4.80093	5.60485
	Equal variances assumed	1.455	.229	-.552	202	.581	-1.38235	2.50365	-6.31900	3.55429
PolinfSectAB	Equal variances not assumed			-.552	199.713	.581	-1.38235	2.50365	-6.31934	3.55463
	Equal variances assumed	.321	.572	.807	202	.420	2.05882	2.55023	-2.96966	7.08731
	Equal variances not assumed			.807	199.988	.420	2.05882	2.55023	-2.96997	7.08762

### Independent Sample T-Test of Early Respondents versus Late Respondents – Self-Reported Socio-demographic Characteristics on Interval Variables (Age, Income and Work Involvement with the Environment)

#### Group Statistics

	wave1n2	N	Mean	Std. Deviation	Std. Error Mean
c.1.1age Age of head of household	1.00	102	37.8235	11.29568	1.11844
	2.00	102	39.2549	12.33741	1.22159
c.1.1inc Income of head of household	1.00	102	33275.3137	27286.01140	2701.71771
	2.00	102	27436.0784	29626.52131	2933.46273
c.2 How directly would you say that your work is involved with the environment?	1.00	102	1.9510	1.10245	.10916
	2.00	102	1.6765	1.25202	.12397

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
c.1.1age Age of head of household	Equal variances assumed	.168	.682	-.864	202	.388	-1.43137	1.65625	-4.69714	1.83439
	Equal variances not assumed			-.864	200.448	.388	-1.43137	1.65625	-4.69729	1.83454
c.1.1inc Income of head of household	Equal variances assumed	.170	.681	1.464	202	.145	5839.23529	3988.04240	-2024.29652	13702.76711

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
c.2 How directly would you say that your work is involved with the environment?	Equal variances not assumed			1.464	200.647	.145	5839.23529	3988.04240	-2024.61605	13703.08663
	Equal variances assumed	7.224	.008	1.662	202	.098	.27451	.16518	-.05119	.60020
	Equal variances not assumed			1.662	198.816	.098	.27451	.16518	-.05122	.60024

Source: Analysis of Survey Data

## APPENDIX P

## Chi-Square Test of Early Respondents versus Late Respondents

Self-Reported Frequency of Environmentally Ethical Behaviour (EEB)  
(Pre-cycling)

Crosstab:

Group Variable	Score		wave1n2		Total
			1.00	2.00	
EEBSectA	0-10	Count	1	1	2
		Expected Count	1.0	1.0	2.0
		% within wave1n2	1.0%	1.0%	1.0%
	11-20	Count	50	51	101
		Expected Count	50.5	50.5	101.0
		% within wave1n2	49.0%	50.0%	49.5%
	21-30	Count	50	49	99
		Expected Count	49.5	49.5	99.0
		% within wave1n2	49.0%	48.0%	48.5%
	31-40	Count	1	1	2
		Expected Count	1.0	1.0	2.0
		% within wave1n2	1.0%	1.0%	1.0%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.020(a)	3	.999
Likelihood Ratio	.020	3	.999
Linear-by-Linear Association	.017	1	.897
N of Valid Cases	204		

a 4 cells (50.0%) have expected count less than 5. The minimum expected count is 1.00.

## Self Reported Frequency of EEB (Re-use &amp; Recycling)

Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
EEBSectB	0-14	Count	12	10	22
		Expected Count	11.0	11.0	22.0
		% within wave1n2	11.8%	9.8%	10.8%
	15-24	Count	49	35	84
		Expected Count	42.0	42.0	84.0
		% within wave1n2	48.0%	34.3%	41.2%

Group variable	Score		wave1n2		Total
			1.00	2.00	
EEBSectB	25-34	Count	34	48	82
		Expected Count	41.0	41.0	82.0
		% within wave1n2	33.3%	47.1%	40.2%
	35-44	Count	7	9	16
		Expected Count	8.0	8.0	16.0
		% within wave1n2	6.9%	8.8%	7.8%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

### Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.155(a)	3	.161
Likelihood Ratio	5.179	3	.159
Linear-by-Linear Association	3.146	1	.076
N of Valid Cases	204		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 8.00.

### Self-Reported Frequency of EEB (Pre-cycling, Re-use & Recycling)

#### Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
EEBSectAB	0-24	Count	5	3	8
		Expected Count	4.0	4.0	8.0
		% within wave1n2	4.9%	2.9%	3.9%
	25-44	Count	51	39	90
		Expected Count	45.0	45.0	90.0
		% within wave1n2	50.0%	38.2%	44.1%
	45-64	Count	44	58	102
		Expected Count	51.0	51.0	102.0
		% within wave1n2	43.1%	56.9%	50.0%
	65-84	Count	2	2	4
		Expected Count	2.0	2.0	4.0
		% within wave1n2	2.0%	2.0%	2.0%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

### Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.022(a)	3	.259
Likelihood Ratio	4.038	3	.257

	Value	df	Asymp. Sig. (2-sided)
Linear-by-Linear Association	3.397	1	.065
N of Valid Cases	204		

a 4 cells (50.0%) have expected count less than 5. The minimum expected count is 2.00.

### Self-Reported Contextual Influence (Social Influence on Pre-cycling),

Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
SocinfSectA	1-10	Count	23	27	50
		Expected Count	25.0	25.0	50.0
		% within wave1n2	22.5%	26.5%	24.5%
	11-20	Count	43	39	82
		Expected Count	41.0	41.0	82.0
		% within wave1n2	42.2%	38.2%	40.2%
	21-30	Count	30	30	60
		Expected Count	30.0	30.0	60.0
		% within wave1n2	29.4%	29.4%	29.4%
	31-40	Count	6	6	12
		Expected Count	6.0	6.0	12.0
		% within wave1n2	5.9%	5.9%	5.9%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.515(a)	3	.916
Likelihood Ratio	.516	3	.915
Linear-by-Linear Association	.105	1	.746
N of Valid Cases	204		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.00.

### Self-Reported Contextual Influence (Social Influence on Re-use & Recycling)

Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
SocinfSectB	0-14	Count	34	32	66
		Expected Count	33.0	33.0	66.0
		% within wave1n2	33.3%	31.4%	32.4%
SocinfSectB	15-24	Count	33	40	73
		Expected Count	36.5	36.5	73.0
		% within wave1n2	32.4%	39.2%	35.8%

Group variable	Score		wave1n2		Total
			1.00	2.00	
25-34		Count	25	25	50
		Expected Count	25.0	25.0	50.0
		% within wave1n2	24.5%	24.5%	24.5%
35-44		Count	10	5	15
		Expected Count	7.5	7.5	15.0
		% within wave1n2	9.8%	4.9%	7.4%
Total		Count	102	102	204
		Expected Count	102.0	102.0	204.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.399(a)	3	.494
Likelihood Ratio	2.432	3	.488
Linear-by-Linear Association	.364	1	.546
N of Valid Cases	204		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 7.50.

### Self-Reported Contextual Influence (Social Influence on Pre-cycling, and Re-use & Recycling)

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
SocinfSectAB	0-24	Count	28	29	57
		Expected Count	28.5	28.5	57.0
		% within wave1n2	27.5%	28.4%	27.9%
	25-44	Count	39	40	79
		Expected Count	39.5	39.5	79.0
		% within wave1n2	38.2%	39.2%	38.7%
	45-64	Count	28	28	56
		Expected Count	28.0	28.0	56.0
		% within wave1n2	27.5%	27.5%	27.5%
	65-84	Count	7	5	12
		Expected Count	6.0	6.0	12.0
		% within wave1n2	6.9%	4.9%	5.9%
Total		Count	102	102	102
		Expected Count	102.0	102.0	102.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	.364(a)	3	.948
Likelihood Ratio	.365	3	.947

	Value	df	Asymp. Sig. (2-sided)
Linear-by-Linear Association	.157	1	.692
N of Valid Cases	204		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.00.

### Self-Reported Contextual Influence (Religious Influence on Pre-cycling)

Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
RelinfSectA	0-10	Count	53	69	122
		Expected Count	61.0	61.0	122.0
		% within wave1n2	52.0%	67.6%	59.8%
	11-20	Count	33	18	51
		Expected Count	25.5	25.5	51.0
		% within wave1n2	32.4%	17.6%	25.0%
	21-30	Count	14	12	26
		Expected Count	13.0	13.0	26.0
		% within wave1n2	13.7%	11.8%	12.7%
	31-40	Count	2	3	5
		Expected Count	2.5	2.5	5.0
		% within wave1n2	2.0%	2.9%	2.5%
Total	Count	102	102	102	
	Expected Count	102.0	102.0	102.0	
	% within wave1n2	100.0%	100.0%	100.0%	

Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.864(a)	3	.076
Likelihood Ratio	6.937	3	.074
Linear-by-Linear Association	1.934	1	.164
N of Valid Cases	204		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.50.

### Self-Reported Contextual Influence (Religious Influence on Re-use & Recycling)

Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
RelinfSectB	0-14	Count	66	66	132
		Expected Count	66.0	66.0	132.0
		% within wave1n2	64.7%	64.7%	64.7%

Group variable	Score		wave1n2		Total
			1.00	2.00	
15-24		Count	18	19	37
		Expected Count	18.5	18.5	37.0
		% within wave1n2	17.6%	18.6%	18.1%
25-34		Count	18	11	29
		Expected Count	14.5	14.5	29.0
		% within wave1n2	17.6%	10.8%	14.2%
35-44		Count	0	6	6
		Expected Count	3.0	3.0	6.0
		% within wave1n2	.0%	5.9%	2.9%
Total		Count	102	102	102
		Expected Count	102.0	102.0	102.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.717(a)	3	.052
Likelihood Ratio	10.051	3	.018
Linear-by-Linear Association	.172	1	.678
N of Valid Cases	204		

a. 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

### Self-Reported Contextual Influence (Religious Influence on Pre-cycling, and Re-use & Recycling)

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
RelinfSectAB	0-24	Count	61	66	127
		Expected Count	63.5	63.5	127.0
		% within wave1n2	59.8%	64.7%	62.3%
	25-44	Count	29	21	50
		Expected Count	25.0	25.0	50.0
		% within wave1n2	28.4%	20.6%	24.5%
	45-64	Count	11	11	22
		Expected Count	11.0	11.0	22.0
		% within wave1n2	10.8%	10.8%	10.8%
	65-84	Count	1	4	5
		Expected Count	2.5	2.5	5.0
		% within wave1n2	1.0%	3.9%	2.5%
Total		Count	102	102	102
		Expected Count	102.0	102.0	102.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.277(a)	3	.351
Likelihood Ratio	3.410	3	.333
Linear-by-Linear Association	.008	1	.929
N of Valid Cases	204		

a 2 cells (25.0%) have expected count less than 5. The minimum expected count is 2.50.

**Self-Reported Contextual Influence (Economic Influence on Pre-cycling)**

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
EconinfSectA	0-10	Count	15	8	23
		Expected Count	11.5	11.5	23.0
		% within wave1n2	14.7%	7.8%	11.3%
	11-20	Count	25	33	58
		Expected Count	29.0	29.0	58.0
		% within wave1n2	24.5%	32.4%	28.4%
	21-30	Count	39	38	77
		Expected Count	38.5	38.5	77.0
		% within wave1n2	38.2%	37.3%	37.7%
	31-40	Count	23	23	46
		Expected Count	23.0	23.0	46.0
		% within wave1n2	22.5%	22.5%	22.5%
Total	Count	102	102	102	
	Expected Count	102.0	102.0	102.0	
	% within wave1n2	100.0%	100.0%	100.0%	

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.247(a)	3	.355
Likelihood Ratio	3.285	3	.350
Linear-by-Linear Association	.200	1	.655
N of Valid Cases	204		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.50.

**Self-Reported Contextual Influence (Economic Influence on Re-use & Recycling)**

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
EconinfSectB	0-14	Count	38	34	72
		Expected Count	36.0	36.0	72.0
		% within wave1n2	37.3%	33.3%	35.3%

Group variable	Score		wave1n2		Total
			1.00	2.00	
15-24		Count	31	34	65
		Expected Count	32.5	32.5	65.0
		% within wave1n2	30.4%	33.3%	31.9%
25-34		Count	28	26	54
		Expected Count	27.0	27.0	54.0
		% within wave1n2	27.5%	25.5%	26.5%
35-44		Count	5	8	13
		Expected Count	6.5	6.5	13.0
		% within wave1n2	4.9%	7.8%	6.4%
Total		Count	102	102	102
		Expected Count	102.0	102.0	102.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.127(a)	3	.771
Likelihood Ratio	1.134	3	.769
Linear-by-Linear Association	.358	1	.549
N of Valid Cases	204		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 6.50.

### Self-Reported Contextual Influence (Economic Influence on Pre-cycling, and Re-use & Recycling)

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
EconinfSectAB	0-24	Count	23	15	38
		Expected Count	19.0	19.0	38.0
		% within wave1n2	22.5%	14.7%	18.6%
	25-44	Count	32	35	67
		Expected Count	33.5	33.5	67.0
		% within wave1n2	31.4%	34.3%	32.8%
	45-64	Count	33	43	76
		Expected Count	38.0	38.0	76.0
		% within wave1n2	32.4%	42.2%	37.3%
	65-84	Count	14	9	23
		Expected Count	11.5	11.5	23.0
		% within wave1n2	13.7%	8.8%	11.3%
Total		Count	102	102	102
		Expected Count	102.0	102.0	102.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.221(a)	3	.239
Likelihood Ratio	4.247	3	.236
Linear-by-Linear Association	.372	1	.542
N of Valid Cases	204		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 11.50.

**Self-Reported Contextual Influence (Political Influence on pre-cycling)**

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
PolinfSectA	0-10	Count	44	46	90
		Expected Count	45.0	45.0	90.0
		% within wave1n2	43.1%	45.1%	44.1%
	11-20	Count	37	40	77
		Expected Count	38.5	38.5	77.0
		% within wave1n2	36.3%	39.2%	37.7%
	21-30	Count	15	13	28
		Expected Count	14.0	14.0	28.0
		% within wave1n2	14.7%	12.7%	13.7%
	31-40	Count	6	3	9
		Expected Count	4.5	4.5	9.0
		% within wave1n2	5.9%	2.9%	4.4%
Total	Count	102	102	102	
	Expected Count	102.0	102.0	102.0	
	% within wave1n2	100.0%	100.0%	100.0%	

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.304(a)	3	.728
Likelihood Ratio	1.324	3	.724
Linear-by-Linear Association	.689	1	.407
N of Valid Cases	204		

a 2 cells (25.0%) have expected count less than 5. The minimum expected count is 4.50.

**Self-Reported Contextual Influence (Political Influence on Re-use & Recycling)**

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
PolinfSectB	0-14	Count	43	44	87
		Expected Count	43.5	43.5	87.0
		% within wave1n2	42.2%	43.1%	42.6%

Group variable	Score		wave1n2		Total
			1.00	2.00	
15-24		Count	33	33	66
		Expected Count	33.0	33.0	66.0
		% within wave1n2	32.4%	32.4%	32.4%
25-34		Count	18	23	41
		Expected Count	20.5	20.5	41.0
		% within wave1n2	17.6%	22.5%	20.1%
35-44		Count	8	2	10
		Expected Count	5.0	5.0	10.0
		% within wave1n2	7.8%	2.0%	4.9%
Total		Count	102	102	102
		Expected Count	102.0	102.0	102.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.221(a)	3	.239
Likelihood Ratio	4.478	3	.214
Linear-by-Linear Association	.387	1	.534
N of Valid Cases	204		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.00.

### Self-Reported Contextual Influence (Political Influence on Pre-cycling, and Re-use & Recycling)

## Crosstab:

Group variable	Score		wave1n2		Total
			1.00	2.00	
PolinfSectAB	0-24	Count	41	43	84
		Expected Count	42.0	42.0	84.0
		% within wave1n2	40.2%	42.2%	41.2%
	25-44	Count	39	37	76
		Expected Count	38.0	38.0	76.0
		% within wave1n2	38.2%	36.3%	37.3%
	45-64	Count	17	21	38
		Expected Count	19.0	19.0	38.0
		% within wave1n2	16.7%	20.6%	18.6%
PolinfSectAB	65-84	Count	5	1	6
		Expected Count	3.0	3.0	6.0
		% within wave1n2	4.9%	1.0%	2.9%
Total		Count	102	102	102
		Expected Count	102.0	102.0	102.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.188(a)	3	.364
Likelihood Ratio	3.433	3	.330
Linear-by-Linear Association	.255	1	.613
N of Valid Cases	204		

a 2 cells (25.0%) have expected count less than 5. The minimum expected count is 3.00.

## Self-Reported Socio-demographic Characteristics (Age)

## Crosstab:

Variable	Age group		wave1n2		Total
			1.00	2.00	
c.1.1age	20-29	Count	29	25	54
		Expected Count	27.0	27.0	54.0
		% within wave1n2	28.4%	24.5%	26.5%
	30-39	Count	28	24	52
		Expected Count	26.0	26.0	52.0
		% within wave1n2	27.5%	23.5%	25.5%
	40-49	Count	28	36	64
		Expected Count	32.0	32.0	64.0
		% within wave1n2	27.5%	35.3%	31.4%
	50-59	Count	16	10	26
		Expected Count	13.0	13.0	26.0
		% within wave1n2	15.7%	9.8%	12.7%
	60-69	Count	1	6	7
		Expected Count	3.5	3.5	7.0
		% within wave1n2	1.0%	5.9%	3.4%
	70-above	Count	0	1	1
		Expected Count	.5	.5	1.0
		% within wave1n2	.0%	1.0%	.5%
	Total	Count	102	102	204
		Expected Count	102.0	102.0	204.0
		% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.560(a)	5	.182
Likelihood Ratio	8.353	5	.138
Linear-by-Linear Association	1.361	1	.243
N of Valid Cases	204		

a 4 cells (33.3%) have expected count less than 5. The minimum expected count is .50.

### Self-Reported Socio-demographic Characteristics (Marital Status)

Crosstab:

Variable	Marital status		wave1n2		Total
			1.00	2.00	
c.1.1ms	1.00 Single	Count	39	30	69
		Expected Count	34.5	34.5	69.0
		% within wave1n2	38.2%	29.4%	33.8%
	2.00 Married	Count	63	72	135
		Expected Count	67.5	67.5	135.0
		% within wave1n2	61.8%	70.6%	66.2%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.774(b)	1	.183		
Continuity Correction(a)	1.402	1	.236		
Likelihood Ratio	1.778	1	.182		
Fisher's Exact Test				.236	.118
Linear-by-Linear Association	1.765	1	.184		
N of Valid Cases	204				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 34.50.

### Self-Reported Socio-demographic Characteristics (Highest Education Level)

Crosstab:

Variable	Highest education level		wave1n2		Total
			1.00	2.00	
c.1.1hel	2.00 Secondary	Count	34	26	60
		Expected Count	30.0	30.0	60.0
		% within wave1n2	33.3%	25.5%	29.4%
	3.00 Tertiary	Count	68	76	144
		Expected Count	72.0	72.0	144.0
		% within wave1n2	66.7%	74.5%	70.6%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.511(b)	1	.219		
Continuity Correction(a)	1.157	1	.282		
Likelihood Ratio	1.515	1	.218		

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Fisher's Exact Test				.282	.141
Linear-by-Linear Association	1.504	1	.220		
N of Valid Cases	204				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 30.00.

### Self-Reported Socio-demographic Characteristics (Occupation)

Crosstab:

Variable	Occupation		wave1n2		Total
			1.00	2.00	
c.1.1occ	.00 Unemployed	Count	16	27	43
		Expected Count	21.5	21.5	43.0
		% within wave1n2	15.7%	26.5%	21.1%
	1.00 Blue collar	Count	53	53	106
		Expected Count	53.0	53.0	106.0
		% within wave1n2	52.0%	52.0%	52.0%
	2.00 White collar	Count	33	22	55
		Expected Count	27.5	27.5	55.0
		% within wave1n2	32.4%	21.6%	27.0%
Total		Count	102	102	204
		Expected Count	102.0	102.0	204.0
		% within wave1n2	100.0%	100.0%	100.0%

Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.014(a)	2	.082
Likelihood Ratio	5.060	2	.080
Linear-by-Linear Association	4.950	1	.026
N of Valid Cases	204		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 21.50.

### Self-Reported Socio-demographic Characteristics (Income)

Crosstab:

Variable	Income (NZ\$)		wave1n2		Total
			1.00	2.00	
c.1.1inc	.00	Count	16	27	43
		Expected Count	21.5	21.5	43.0
		% within wave1n2	15.7%	26.5%	21.1%
	1-30,000	Count	31	36	67
		Expected Count	33.5	33.5	67.0
		% within wave1n2	30.4%	35.3%	32.8%
	30,001-50,000	Count	37	24	61
		Expected Count	30.5	30.5	61.0
		% within wave1n2	36.3%	23.5%	29.9%

Variable	Income (NZ\$)	wave1n2		Total
		1.00	2.00	
50,001-above	Count	18	15	33
	Expected Count	16.5	16.5	33.0
	% within wave1n2	17.6%	14.7%	16.2%
Total	Count	102	102	102
	Expected Count	102.0	102.0	102.0
	% within wave1n2	100.0%	100.0%	100.0%

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.230(a)	3	.101
Likelihood Ratio	6.284	3	.099
Linear-by-Linear Association	4.447	1	.035
N of Valid Cases	204		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.50.

### Self-Reported Socio-demographic Characteristics (Work Involvement with the Environment)

## Crosstab:

Variable	Score		wave1n2		Total
			1.00	2.00	
c.2 How directly would you say that your work is involved with the environment?	.00 No direct involvement	Count	11	23	34
		Expected Count	17.0	17.0	34.0
		% within wave1n2	10.8%	22.5%	16.7%
	1.00 A little direct involvement	Count	20	23	43
		Expected Count	21.5	21.5	43.0
		% within wave1n2	19.6%	22.5%	21.1%
	2.00 Some direct involvement	Count	45	29	74
		Expected Count	37.0	37.0	74.0
		% within wave1n2	44.1%	28.4%	36.3%
3.00 Strong direct involvement	Count	15	18	33	
	Expected Count	16.5	16.5	33.0	
	% within wave1n2	14.7%	17.6%	16.2%	
c.2 How directly would you say that your work is involved with the environment?	4.00 Very strong direct involvement	Count	11	9	20
		Expected Count	10.0	10.0	20.0
		% within wave1n2	10.8%	8.8%	9.8%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.377(a)	4	.079
Likelihood Ratio	8.498	4	.075
Linear-by-Linear Association	2.738	1	.098
N of Valid Cases	204		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.00.

**Self-Reported Socio-demographic Characteristics (House Ownership Status)**

## Crosstab:

Variable	Score		wave1n2		Total
			1.00	2.00	
c.3 Do you own outright, or are you buying or renting the house in which you now live? (Please tick ONE choice)	1.00 Own outright	Count	22	22	44
		Expected Count	22.0	22.0	44.0
		% within wave1n2	21.6%	21.6%	21.6%
	2.00 Own, paying off mortgage	Count	15	17	32
		Expected Count	16.0	16.0	32.0
		% within wave1n2	14.7%	16.7%	15.7%
	3.00 Rent from private landlord	Count	52	44	96
		Expected Count	48.0	48.0	96.0
		% within wave1n2	51.0%	43.1%	47.1%
	4.00 Rent from public housing authority	Count	13	19	32
		Expected Count	16.0	16.0	32.0
		% within wave1n2	12.7%	18.6%	15.7%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0%	100.0%	

## Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.917(a)	3	.590
Likelihood Ratio	1.924	3	.588
Linear-by-Linear Association	.079	1	.779
N of Valid Cases	204		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 16.00.

### Self-Reported Socio-demographic Characteristics (Type of House/Dwelling)

Crosstab:

Variable	Score		wave1n2		Total
			1.00	2.00	
c.4 In which type of house do you live now? (Please tick ONE choice)	1.00 Bungalow	Count	39	46	85
		Expected Count	42.5	42.5	85.0
		% within wave1n2	38.2%	45.1%	41.7%
	2.00 Semi detached house	Count	9	13	22
		Expected Count	11.0	11.0	22.0
		% within wave1n2	8.8%	12.7%	10.8%
	3.00 Terrace house	Count	30	11	41
		Expected Count	20.5	20.5	41.0
		% within wave1n2	29.4%	10.8%	20.1%
	4.00 Apartment block	Count	9	12	21
		Expected Count	10.5	10.5	21.0
		% within wave1n2	8.8%	11.8%	10.3%
	5.00 Flat	Count	15	20	35
		Expected Count	17.5	17.5	35.0
		% within wave1n2	14.7%	19.6%	17.2%
Total	Count	102	102	204	
	Expected Count	102.0	102.0	204.0	
	% within wave1n2	100.0%	100.0	100.0	

Chi-Square Tests:

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.251(a)	4	.024
Likelihood Ratio	11.606	4	.021
Linear-by-Linear Association	.053	1	.819
N of Valid Cases	204		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 10.50.

Source: Analysis of Survey Data

## APPENDIX Q

## The Calculations of Sampling Errors

## Social Aspect

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(64.2)(35.8)}{204}} \\
 &= \sqrt{\frac{2298.36}{204}} \\
 &= \sqrt{11.26647} \\
 &= 3.36 \\
 &= 2S_B(3.36) \\
 &= 6.72\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who said social influence was less prevalence in their environmentally ethical behaviour.

$Q$  = Percent of people in the sample who said social influence was strong on their environmentally ethical behaviour.

$N$  = Number of cases in the sample.

Since the sample percentage indicates that 64.2% said that social aspect had less influence on their environmentally ethical behaviour, I can conclude that there is a 95% chance that the actual population percentage that would say social aspect has less influence on their environmentally ethical behaviour is  $64.2\% \pm 6.72\%$ , ie., between 57.5% to 70.9%.

$$\begin{aligned}
 S_m &= \sqrt{\frac{s}{N}} \\
 &= \sqrt{\frac{18.2}{204}} \\
 &= \frac{18.2}{14.3} \\
 &= 1.27 \\
 &= 2S_m(1.27) \\
 &= 2.5
 \end{aligned}$$

$S_m$  = Standard error of the mean

$S$  = Standard deviation

$N$  = Number of Cases in the sample

Since the sample mean score for social aspect is 36.2, I can conclude that there is a 95% chance that the actual population mean score for social aspect will be somewhere within the range of 33.7 to 38.7.

**Religious Aspect**

$$\begin{aligned}
S_B &= \sqrt{\frac{PQ}{N}} \\
&= \sqrt{\frac{(85.3)(14.7)}{204}} \\
&= \sqrt{\frac{1253.91}{204}} \\
&= \sqrt{6.1466176} \\
&= 2.48 \\
&= 2S_B(2.48) \\
&= 4.96\%
\end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who said religious influence was less prevalence in their environmentally ethical behaviour.

$Q$  = Percent of people in the sample who said religious influence was strong on their environmentally ethical behaviour.

$N$  = Number of cases in the sample.

The sample percentage of 85.3% said that religious aspect had less influence on their environmentally ethical behaviour. Thus, I can conclude that there is a 95% chance that the actual population percentage intending to say religious aspect has less influence on their environmentally ethical behaviour is 85.3%  $\pm$  4.96%, that is, somewhere between 80.3% and 90.3%.

$$\begin{aligned}
S_m &= \frac{s}{\sqrt{N}} \\
&= \frac{18.8}{\sqrt{204}} \\
&= \frac{18.8}{14.3} \\
&= 1.3 \\
&= 2S_m(1.3) \\
&= 2.6
\end{aligned}$$

$S_m$  = Standard error of the mean

$s$  = Standard deviation

$N$  = Number of Cases in the sample

Since the sample mean score for religious aspect is 21.7, I can conclude that there is a 95% chance that the actual population mean score for religious aspect will be somewhere within the range of 19.1 to 24.3.

**Economic Aspect**

$$\begin{aligned}
S_B &= \sqrt{\frac{PQ}{N}} \\
&= \sqrt{\frac{(48.5)(51.5)}{204}} \\
&= \sqrt{\frac{2497.75}{204}} \\
&= \sqrt{12.243872} \\
&= 3.5 \\
&= 2S_B(3.5) \\
&= 7.0\%
\end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who said economic influence was less prevalence in their environmentally ethical behaviour.

$Q$  = Percent of people in the sample who said economic influence was strong on their environmentally ethical behaviour.

$N$  = Number of cases in the sample.

The sample percentage who said that economic aspect had less influence on their environmentally ethical behaviour is 48.5%, Thus, I can conclude that at 95% chance, that the actual population percentage intending to say economic aspect has less influence on their environmentally ethical behaviour is 48.5%  $\pm$  7.0%, ie., between 41.5% to 55.5%.

$$\begin{aligned}
 S_m &= \frac{s}{\sqrt{N}} \\
 &= \frac{17.8}{\sqrt{204}} \\
 &= \frac{17.8}{14.3} \\
 &= 1.2 \\
 &= 2S_m(1.2) \\
 &= 2.4
 \end{aligned}$$

$S_m$  = Standard error of the mean  
 $s$  = Standard deviation  
 $N$  = Number of Cases in the sample

Since the sample mean score for economic aspect is 42.2, I can conclude that there is a 95% chance that the actual population mean score for economic aspect will be somewhere within the range of 39.8 to 44.6.

### Political Aspect

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(73.5)(26.5)}{204}} \\
 &= \sqrt{\frac{1947.75}{204}} \\
 &= \sqrt{9.5477941} \\
 &= 3.09\% \\
 &= 2S_B(3.09) \\
 &= 6.18\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.  
 $P$  = Percent of people in the sample who said political influence was less prevalence in their environmentally ethical behaviour.  
 $Q$  = Percent of people in the sample who said political influence was strong on their environmentally ethical behaviour.  
 $N$  = Number of cases in the sample.

The sample percentage indicates that 73.5% said that political aspect had less influence on their environmentally ethical behaviour. Thus, at 95% confidence level, the actual population percentage intending to say political aspect has less influence on their environmentally ethical behaviour is  $73.5\% \pm 6.18\%$ , ie., between 67.3% to 79.7%.

$$\begin{aligned}
 S_m &= \frac{s}{\sqrt{N}} \\
 &= \frac{18.2}{\sqrt{204}} \\
 &= \frac{18.2}{14.3} \\
 &= 1.27 \\
 &= 2S_m(1.27) \\
 &= 2.5
 \end{aligned}$$

$S_m$  = Standard error of the mean  
 $s$  = Standard deviation  
 $N$  = Number of Cases in the sample

Since the sample mean score for political aspect is 29.4, I can conclude that there is a 95% chance that the actual population mean score for political aspect will be somewhere within the range of 26.9 to 31.9.

### Environmentally Ethical Behaviour

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(44.1)(55.9)}{204}} \\
 &= \sqrt{\frac{2465.19}{204}} \\
 &= \sqrt{12.084264} \\
 &= 3.47 \\
 &= 2S_B(3.47) \\
 &= 6.94\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who said they engaged less in environmentally ethical behaviour.

$Q$  = Percent of people in the sample who said they engaged more in environmentally ethical behaviour.

$N$  = Number of cases in the sample.

Since the sample percentage indicates that 44.1% said that they engaged less in environmentally ethical behaviour, I can conclude that at 95% confidence level, the population percentage engaging in environmentally ethical behaviour is 44.1%  $\pm$  6.94%, that is 37.2% to 51.0%.

$$\begin{aligned}
 S_m &= \frac{s}{\sqrt{N}} \\
 &= \frac{10.3}{\sqrt{204}} \\
 &= \frac{10.3}{14.3} \\
 &= 0.7 \\
 &= 2S_m(0.7) \\
 &= 1.4
 \end{aligned}$$

$S_m$  = Standard error of the mean

$s$  = Standard deviation

$N$  = Number of Cases in the sample

Since the sample mean score for environmentally ethical behaviour is 44.1, I can conclude that there is a 95% chance that the actual population mean score for environmentally ethical behaviour will be somewhere within the range of 42.7 to 45.5.

### Age

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(52.0)(48.0)}{204}} \\
 &= \sqrt{\frac{2496.0}{204}} \\
 &= \sqrt{12.235294} \\
 &= 3.49 \\
 &= 2S_B(3.49) \\
 &= 6.98\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who were aged 20-39.

$Q$  = Percent of people in the sample who were aged 40-above.

$N$  = Number of cases in the sample.

Since the sample percentage indicates that 52.0% were aged 20-39, I can conclude that at 95% confidence level, the actual population percentage aged 20-39 is 52.0%  $\pm$  6.98%, that is, between 45.02% and 58.98%.

$$\begin{aligned}
 S_m &= \frac{s}{\sqrt{N}} \\
 &= \frac{11.8}{\sqrt{204}} \\
 &= \frac{11.8}{14.3} \\
 &= 0.8 \\
 &= 2S_m(0.8) \\
 &= 1.6
 \end{aligned}$$

$S_m$  = Standard error of the mean  
 $s$  = Standard deviation  
 $N$  = Number of Cases in the sample

Since the sample mean age is 38.5, I can conclude that there is a 95% chance that the actual population mean age will be somewhere within the range of 36.9 to 40.1.

### Marital status

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(33.8)(66.2)}{204}} \\
 &= \sqrt{\frac{2237.56}{204}} \\
 &= \sqrt{10.97} \\
 &= 3.31 \\
 &= 2S_B(3.31) \\
 &= 6.62\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.  
 $P$  = Percent of people in the sample who were single.  
 $Q$  = Percent of people in the sample who were married.  
 $N$  = Number of cases in the sample.

Since the sample percentage indicates that 33.8% was single, hence, there is a 95% chance the actual population percentage of single is  $33.8\% \pm 6.62\%$ , that is, the actual population percentage of single is likely to be somewhere between 27.18% and 40.42%.

### Highest education level

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(29.4)(70.6)}{204}} \\
 &= \sqrt{\frac{2075.64}{204}} \\
 &= \sqrt{10.174705} \\
 &= 3.19 \\
 &= 2S_B(3.19) \\
 &= 6.38\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.  
 $P$  = Percent of people in the sample who were with secondary education level.  
 $Q$  = Percent of people in the sample who were with tertiary education.  
 $N$  = Number of cases in the sample.

The sample percentage indicates that 29.4% was with secondary level education. Hence, there is a 95% percent chance that the population percentage of people with secondary level of education is  $29.4\% \pm 6.38\%$ . That is, the actual population percentage with secondary level education is likely to be somewhere between 23.0% and 35.8%.

### Occupation

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(52.0)(48.0)}{204}} \\
 &= \sqrt{\frac{2496.0}{204}} \\
 &= \sqrt{12.24} \\
 &= 3.5 \\
 &= 2S_B(3.5) \\
 &= 7.0\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who were blue collar workers.

$Q$  = Percent of people in the sample who were white collar workers + unemployed.

$N$  = Number of cases in the sample.

Since the sample percentage of blue collar workers was 52.0%, I can conclude that there is a 95% chance that the actual population percentage of blue collar workers is 52.0%  $\pm$  7.0%, that is, the actual population percentage of blue collar workers is likely to be between 45.0% and 59.0%.

### Income

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(32.8)(67.2)}{204}} \\
 &= \sqrt{\frac{2204.16}{204}} \\
 &= \sqrt{10.804705} \\
 &= 3.29 \\
 &= 2S_B(3.29) \\
 &= 6.58\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who had low income.

$Q$  = Percent of people in the sample who had no income + middle income + high income.

$N$  = Number of cases in the sample.

Since the sample percentage indicates that 32.8% had low income, I can conclude that at 95% level, the population percentage with low income level is 32.8%  $\pm$  6.58%, that is, between 26.22% and 39.38%.

$$\begin{aligned}
 S_m &= \frac{s}{\sqrt{N}} \\
 &= \frac{28560.45}{\sqrt{204}} \\
 &= \frac{28560.45}{14.3} \\
 &= 1,997.23 \text{ (NZ\$)} \\
 &= 2S_m(\text{NZ\$}1,997.23) \\
 &= \text{NZ\$}3,994.47
 \end{aligned}$$

$S_m$  = Standard error of the mean

$s$  = Standard deviation

$N$  = Number of Cases in the sample

Since the sample mean income is 30,355.70, I can conclude that there is a 95% chance that the actual population mean income will be somewhere within the range of NZ\$26,361.23 to NZ\$34,350.17.

### Work involvement with the environment

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(26.0)(74.0)}{204}} \\
 &= \sqrt{\frac{1924}{204}} \\
 &= \sqrt{9.4313725} \\
 &= 3.5 \\
 &= 2S_B(3.07) \\
 &= 6.14\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who said their work had strong direct involvement with the environment.

$Q$  = Percent of people in the sample who said their work had either no direct involvement or less direct involvement with the environment.

$N$  = Number of cases in the sample.

Since the sample percentage of people who said their work had strong direct involvement with the environment was 26.0%, thus there is a 95% chance that the actual population percentage of people intending to say their work had strong direct involvement with the environment is 26.0%  $\pm$  6.14%, i.e., between 19.7% and 32.1%.

### House ownership status

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(37.3)(62.7)}{204}} \\
 &= \sqrt{\frac{2338.71}{204}} \\
 &= \sqrt{11.464264} \\
 &= 3.38 \\
 &= 2S_B(3.38) \\
 &= 6.76\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who own outright of their house/dwelling.

$Q$  = Percent of people in the sample who renting the house/dwelling they live in.

$N$  = Number of cases in the sample.

Since the sample percentage of people who own outright of their house/dwelling was 37.3%, I can conclude that there is a 95% chance that the actual population percentage of people who own outright of their house/dwelling is 37.3%  $\pm$  6.76%, that is, between 30.54% and 44.06%.

**Type of house/dwelling**

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(72.5)(27.5)}{204}} \\
 &= \sqrt{\frac{1993.75}{204}} \\
 &= \sqrt{9.7732843} \\
 &= 3.12 \\
 &= 2S_B(3.12) \\
 &= 6.24\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who lived in bungalow + semi detached + terrace house.

$Q$  = Percent of people in the sample who lived in apartment block + flat.

$N$  = Number of cases in the sample.

Since the sample percentage of people who lived in bungalow, semi detached and terrace house was 72.5%, I can conclude that there is a 95% chance that the actual population percentage of people who lived in such houses is  $72.5\% \pm 6.24\%$ , that is, the actual population percentage of blue collar workers is likely to be between 66.26% and 78.74%.

**Household with Children below aged 15**

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(46.1)(53.9)}{204}} \\
 &= \sqrt{\frac{2484.79}{204}} \\
 &= \sqrt{12.180343} \\
 &= 3.49 \\
 &= 2S_B(3.49) \\
 &= 6.98\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who had children aged 15 and below.

$Q$  = Percent of people in the sample who did not have children aged 15 and below.

$N$  = Number of cases in the sample.

Since the sample percentage of people who had children aged 15 and below was 46.1%, I can conclude that there is a 95% chance that the actual population percentage of people who had children aged 15 and below is  $46.1\% \pm 6.98\%$ , i.e., between 39.12% and 53.08%.

### Number of household member

$$\begin{aligned}
 S_B &= \sqrt{\frac{PQ}{N}} \\
 &= \sqrt{\frac{(86.0)(14.0)}{204}} \\
 &= \sqrt{\frac{1204}{204}} \\
 &= \sqrt{5.9019607} \\
 &= 2.43 \\
 &= 2S_B(2.43) \\
 &= 4.86\%
 \end{aligned}$$

$S_B$  = Standard error for the binomial distribution.

$P$  = Percent of people in the sample who had 1-5 household member.

$Q$  = Percent of people in the sample who had 6-above household member.

$N$  = Number of cases in the sample.

Since the sample percentage indicates that 86.0% had 1-5 household member, I can conclude that at 95% confidence level, the population percentage who had 1-5 household member is 86.0%  $\pm$  4.86%, that is, between 81.14% and 90.86%.

$$\begin{aligned}
 S_m &= \frac{s}{\sqrt{N}} \\
 &= \frac{2.1}{\sqrt{204}} \\
 &= \frac{2.1}{14.3} \\
 &= 0.15 \\
 &= 2S_m(0.15) \\
 &= 0.3
 \end{aligned}$$

$S_m$  = Standard error of the mean

$s$  = Standard deviation

$N$  = Number of Cases in the sample

Since the sample mean number of household member is 3.5, I can conclude that at 95% confidence level the actual population mean number of household member will be within the range of 3.2 to 3.8 per household.

Source: Analysis of Survey Data

## APPENDIX R

### Subgroups ANOVA and Independent T-Test

#### One-Way ANOVA & Independent Samples T-Test for EEB and Contextual Aspects by Demographic and Household Characteristics

##### Oneway ANOVA of EEB & Contextual Aspects by Occupation Groups: Unemployed, Blue Collar & White Collar

###### ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
EEBSectAB	Between Groups	301.422	2	150.711	1.434	.241
	Within Groups	21124.167	201	105.095		
	Total	21425.588	203			
SocinfSectAB	Between Groups	3621.048	2	1810.524	5.742	.004
	Within Groups	63382.697	201	315.337		
	Total	67003.745	203			
RelinfSectAB	Between Groups	2762.622	2	1381.311	4.026	.019
	Within Groups	68959.314	201	343.081		
	Total	71721.936	203			
EconinfSectAB	Between Groups	4562.934	2	2281.467	7.629	.001
	Within Groups	60110.296	201	299.056		
	Total	64673.230	203			
PolinfSectAB	Between Groups	4208.261	2	2104.131	6.712	.002
	Within Groups	63008.778	201	313.477		
	Total	67217.039	203			

**Post Hoc Tests**  
**Homogeneous Subsets**  
**EEBSectAB**

Tukey B

subgheadocc	N	Subset for alpha = .05	
		1	
1.00	43	42.3023	
2.00	106	44.0283	
3.00	55	45.8182	

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 58.972.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**SocinfSectAB**

Tukey B

subgheadocc	N	Subset for alpha = .05	
		1	2
1.00	43	31.3256	
3.00	55	32.3091	
2.00	106		40.2830

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 58.972.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**RelinfSectAB**

Tukey B

		Subset for alpha = .05
subgheadocc	N	1
3.00	55	17.4909
1.00	43	18.4186
2.00	106	25.2358

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 58.972.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**EconinfSectAB**

Tukey B

		Subset for alpha = .05	
subgheadocc	N	1	2
3.00	55	35.1636	
1.00	43	41.2326	41.2326
2.00	106		46.3208

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 58.972.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**PolinfSectAB**

Tukey B

subgheadocc	N	Subset for alpha = .05	
		1	2
1.00	43	24.0930	
3.00	55	25.1636	
2.00	106		33.7547

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 58.972.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

### **Oneway Oneway ANOVA of EEB & Contextual Aspects by Income Groups: No Income, Low Income, Middle Income & High Income**

**ANOVA**

		Sum of Squares	df	Mean Square	F	Sig.
EEBSectAB	Between Groups	211.015	3	70.338	.663	.576
	Within Groups	21214.573	200	106.073		
	Total	21425.588	203			
SocinfSectAB	Between Groups	4560.290	3	1520.097	4.869	.003
	Within Groups	62443.455	200	312.217		
	Total	67003.745	203			
RelinfSectAB	Between Groups	3630.054	3	1210.018	3.554	.015
	Within Groups	68091.883	200	340.459		
	Total	71721.936	203			
EconinfSectAB	Between Groups	6655.984	3	2218.661	7.648	.000

	Within Groups	58017.247	200	290.086		
	Total	64673.230	203			
PolinfSectAB	Between Groups	5893.132	3	1964.377	6.407	.000
	Within Groups	61323.907	200	306.620		
	Total	67217.039	203			

### Post Hoc Tests

#### Homogeneous Subsets

##### EEBSectAB

##### Tukey B

		Subset for alpha = .05
subgheadinc	N	1
1.00	43	42.3023
4.00	33	43.9091
2.00	67	44.6716
3.00	61	45.0000

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 47.127.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

##### SocinfSectAB

##### Tukey B

		Subset for alpha = .05		
subgheadinc	N	1	2	3
4.00	33	28.8788		

1.00	43	31.3256	31.3256	
2.00	67		38.8955	38.8955
3.00	61			40.7869

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 47.127.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

#### RelinfSectAB

Tukey B

subgheadinc	N	Subset for alpha = .05	
		1	2
4.00	33	14.3030	
1.00	43	18.4186	18.4186
2.00	67	23.5672	23.5672
3.00	61		26.0000

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 47.127.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

#### EconinfSectAB

Tukey B

subgheadinc	N	Subset for alpha = .05	
		1	2
4.00	33	30.4242	
1.00	43		41.2326
3.00	61		43.4754
2.00	67		47.5821

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 47.127.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

#### PolinfSectAB

Tukey B

subgheadinc	N	Subset for alpha = .05	
		1	2
4.00	33	20.5758	
1.00	43	24.0930	
3.00	61		33.3443
2.00	67		33.5672

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 47.127.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

### **Oneway Oneway ANOVA of EEB & Contextual Aspects by Work Involvement with the Environment groups: No or Little Direct Involvement, Some Direct Involvement, Strong and Very Strong Direct Involvement**

#### ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
EEBSectAB	Between Groups	1080.787	2	540.394	5.339	.006
	Within Groups	20344.801	201	101.218		
	Total	21425.588	203			
SocinfSectAB	Between Groups	4956.137	2	2478.069	8.028	.000
	Within Groups	62047.608	201	308.695		
	Total	67003.745	203			

RelinfSectAB	Between Groups	4668.326	2	2334.163	6.997	.001
	Within Groups	67053.610	201	333.600		
	Total	71721.936	203			
EconinfSectAB	Between Groups	2502.242	2	1251.121	4.045	.019
	Within Groups	62170.989	201	309.308		
	Total	64673.230	203			
PolinfSectAB	Between Groups	4814.890	2	2407.445	7.754	.001
	Within Groups	62402.149	201	310.458		
	Total	67217.039	203			

**Post Hoc Tests**  
**Homogeneous Subsets**  
**EEBSectAB**

Tukey B

subgworkinvolve	N	Subset for alpha = .05	
		1	2
1.00	77	42.0519	
2.00	74	43.6757	
3.00	53		47.8491

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 66.125.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**SocinfSectAB**

Tukey B

subgworkinvolve	N	Subset for alpha = .05

		1	2
1.00	77	30.7662	
2.00	74	36.9189	36.9189
3.00	53		43.2642

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 66.125.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

#### RelinfSectAB

Tukey B

subgworkinvolve	N	Subset for alpha = .05	
		1	2
1.00	77	15.9091	
2.00	74		23.5405
3.00	53		27.5849

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 66.125.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

#### EconinfSectAB

Tukey B

subgworkinvolve	N	Subset for alpha = .05	
		1	2
2.00	74	39.2838	
1.00	77	41.1169	
3.00	53		48.0000

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 66.125.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**PolinfSectAB**

Tukey B

subgworkinvolve	N	Subset for alpha = .05	
		1	2
1.00	77	24.3896	
2.00	74	29.3378	
3.00	53		36.7736

Means for groups in homogeneous subsets are displayed.

a Uses Harmonic Mean Sample Size = 66.125.

b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**Independent Sample T-Test EEB & Contextual Factors by Work Involvement with the Environment (Groups NI (1) and SI (2))**

**Group Statistics**

	subgworkinvolve	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00 No or little direct involvement	77	42.0519	10.43387	1.18905
	2.00 Some direct involvement	74	43.6757	10.26646	1.19345
SocinfSectAB	1.00 No or little direct involvement	77	30.7662	16.67088	1.89982
	2.00 Some direct involvement	74	36.9189	19.97310	2.32183

RelinfSectAB	1.00 No or little direct involvement	77	15.9091	14.14789	1.61230
	2.00 Some direct involvement	74	23.5405	19.86129	2.30883
EconinfSectAB	1.00 No or little direct involvement	77	41.1169	17.52665	1.99735
	2.00 Some direct involvement	74	39.2838	19.11789	2.22241
PolinfSectAB	1.00 No or little direct involvement	77	24.3896	15.36499	1.75100
	2.00 Some direct involvement	74	29.3378	19.91989	2.31564

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.249	.619	-.964	149	.337	-1.62373	1.68523	-4.95377	1.70631
	Equal variances not assumed			-.964	148.915	.337	-1.62373	1.68469	-4.95271	1.70525
SocinfSectAB	Equal variances assumed	3.726	.055	-2.058	149	.041	-6.15269	2.98933	-12.05963	-.24574
	Equal variances not assumed			-2.051	142.233	.042	-6.15269	3.00003	-12.08310	-.22227

RelinfSectAB	Equal variances assumed	11.859	.001	-2.728	149	.007	-7.63145	2.79772	-13.15977	-2.10313
	Equal variances not assumed			-2.710	131.516	.008	-7.63145	2.81606	-13.20209	-2.06081
EconinfSectAB	Equal variances assumed	1.315	.253	.615	149	.540	1.83310	2.98288	-4.06112	7.72732
	Equal variances not assumed			.613	146.652	.541	1.83310	2.98806	-4.07212	7.73832
PolinfSectAB	Equal variances assumed	5.959	.016	-1.713	149	.089	-4.94823	2.88843	-10.65580	.75934
	Equal variances not assumed			-1.704	137.247	.091	-4.94823	2.90314	-10.68889	.79243

### Independent Sample T-Test EEB & Contextual Factors by Work Involvement with the Environment (Groups NI (1) and HI (3))

#### Group Statistics

	subgworkinvolve	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00 No or little direct involvement	77	42.0519	10.43387	1.18905
	3.00 Strong & very strong direct involvement	53	47.8491	9.17437	1.26020
SocinfSectAB	1.00 No or little direct involvement	77	30.7662	16.67088	1.89982
	3.00 Strong & very strong direct involvement	53	43.2642	15.06671	2.06957
RelinfSectAB	1.00 No or little direct involvement	77	15.9091	14.14789	1.61230

EconinfSectAB	3.00 Strong & very strong direct involvement	53	27.5849	21.05162	2.89166
	1.00 No or little direct involvement	77	41.1169	17.52665	1.99735
PolinfSectAB	3.00 Strong & very strong direct involvement	53	48.0000	15.28197	2.09914
	1.00 No or little direct involvement	77	24.3896	15.36499	1.75100
	3.00 Strong & very strong direct involvement	53	36.7736	17.26116	2.37100

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	1.658	.200	-3.267	128	.001	-5.79711	1.77435	-9.30796	-2.28626
	Equal variances not assumed			-3.346	120.472	.001	-5.79711	1.73261	-9.22742	-2.36680
SocinfSectAB	Equal variances assumed	1.011	.317	-4.366	128	.000	-12.49792	2.86255	-18.16197	-6.83387
	Equal variances not assumed			-4.449	118.830	.000	-12.49792	2.80935	-18.06080	-6.93504
RelinfSectAB	Equal variances assumed	15.508	.000	-3.784	128	.000	-11.67581	3.08560	-17.78121	-5.57042

EconinfSectAB	Equal variances not assumed			-3.527	83.815	.001	-11.67581	3.31077	-18.25986	-5.09177
	Equal variances assumed	1.907	.170	-2.316	128	.022	-6.88312	2.97191	-12.76355	-1.00268
PolinfSectAB	Equal variances not assumed			-2.375	120.949	.019	-6.88312	2.89755	-12.61960	-1.14663
	Equal variances assumed	1.058	.306	-4.293	128	.000	-12.38397	2.88462	-18.09168	-6.67627
	Equal variances not assumed			-4.202	103.188	.000	-12.38397	2.94749	-18.22949	-6.53846

### Independent Sample T-Test EEB & Contextual Factors by Work Involvement with the Environment (Groups SI (2) and HI (3))

#### Group Statistics

	subgworkinvolve	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	2.00 Some direct involvement	74	43.6757	10.26646	1.19345
	3.00 Strong & very strong direct involvement	53	47.8491	9.17437	1.26020
SocinfSectAB	2.00 Some direct involvement	74	36.9189	19.97310	2.32183
	3.00 Strong & very strong direct involvement	53	43.2642	15.06671	2.06957
RelinfSectAB	2.00 Some direct involvement	74	23.5405	19.86129	2.30883
	3.00 Strong & very strong direct involvement	53	27.5849	21.05162	2.89166

EconinfSectAB	2.00 Some direct involvement	74	39.2838	19.11789	2.22241
	3.00 Strong & very strong direct involvement	53	48.0000	15.28197	2.09914
PolinfSectAB	2.00 Some direct involvement	74	29.3378	19.91989	2.31564
	3.00 Strong & very strong direct involvement	53	36.7736	17.26116	2.37100

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.592	.443	-2.360	125	.020	-4.17338	1.76834	-7.67314	-.67362
	Equal variances not assumed			-2.405	118.948	.018	-4.17338	1.73563	-7.61012	-.73664
SocinfSectAB	Equal variances assumed	7.250	.008	-1.949	125	.054	-6.34523	3.25605	-12.78937	.09890
	Equal variances not assumed			-2.040	124.633	.043	-6.34523	3.11031	-12.50109	-.18937
RelinfSectAB	Equal variances assumed	.444	.506	-1.104	125	.272	-4.04437	3.66464	-11.29713	3.20840
	Equal variances not assumed			-1.093	108.131	.277	-4.04437	3.70032	-11.37895	3.29022

EconinfSectAB	Equal variances assumed	5.899	.017	-2.748	125	.007	-8.71622	3.17139	-14.99278	-2.43965
	Equal variances not assumed			-2.851	123.435	.005	-8.71622	3.05704	-14.76723	-2.66521
PolinfSectAB	Equal variances assumed	1.466	.228	-2.191	125	.030	-7.43575	3.39373	-14.15236	-.71914
	Equal variances not assumed			-2.244	120.449	.027	-7.43575	3.31419	-13.99736	-.87413

### Independent Sample T-Test EEB & Contextual Factors by Occupation (Groups UG (1) and BG (2))

#### Group Statistics

	subgheadocc	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00 Unemployed	43	42.3023	9.81140	1.49622
	2.00 Blue Collar	106	44.0283	10.13383	.98428
SocinfSectAB	1.00 Unemployed	43	31.3256	16.95614	2.58579
	2.00 Blue Collar	106	40.2830	16.88885	1.64039
RelinfSectAB	1.00 Unemployed	43	18.4186	16.59494	2.53070
	2.00 Blue Collar	106	25.2358	19.76941	1.92017
EconinfSectAB	1.00 Unemployed	43	41.2326	19.66122	2.99831
	2.00 Blue Collar	106	46.3208	16.52504	1.60505
PolinfSectAB	1.00 Unemployed	43	24.0930	16.07248	2.45103
	2.00 Blue Collar	106	33.7547	17.95964	1.74439

## Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.281	.597	-.951	147	.343	-1.72598	1.81576	-5.31435	1.86239
	Equal variances not assumed			-.964	80.209	.338	-1.72598	1.79095	-5.28994	1.83799
SocinfSectAB	Equal variances assumed	.000	.999	-2.930	147	.004	-8.95744	3.05704	-14.99886	-2.91602
	Equal variances not assumed			-2.925	77.582	.005	-8.95744	3.06222	-15.05436	-2.86051
RelinfSectAB	Equal variances assumed	2.400	.124	-1.993	147	.048	-6.81724	3.42023	-13.57641	-.05808
	Equal variances not assumed			-2.146	92.073	.035	-6.81724	3.17672	-13.12641	-.50807
EconinfSectAB	Equal variances assumed	2.007	.159	-1.610	147	.110	-5.08820	3.16019	-11.33346	1.15707
	Equal variances not assumed			-1.496	67.310	.139	-5.08820	3.40089	-11.87583	1.69943
PolinfSectAB	Equal variances assumed	1.289	.258	-3.064	147	.003	-9.66169	3.15344	-15.89363	-3.42976
	Equal variances not assumed			-3.212	86.451	.002	-9.66169	3.00840	-15.64175	-3.68164

### Independent Sample T-Test EEB & Contextual Factors by Occupation (Groups UG (1) and WG (3))

#### Group Statistics

	subgheadocc	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00 Unemployed	43	42.3023	9.81140	1.49622
	3.00 White collar	55	45.8182	10.79968	1.45623
SocinfSectAB	1.00 Unemployed	43	31.3256	16.95614	2.58579
	3.00 White collar	55	32.3091	19.88753	2.68163
RelinfSectAB	1.00 Unemployed	43	18.4186	16.59494	2.53070
	3.00 White collar	55	17.4909	17.40357	2.34670
EconinfSectAB	1.00 Unemployed	43	41.2326	19.66122	2.99831
	3.00 White collar	55	35.1636	16.77825	2.26238
PolinfSectAB	1.00 Unemployed	43	24.0930	16.07248	2.45103
	3.00 White collar	55	25.1636	18.40467	2.48169

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.489	.486	-1.664	96	.099	-3.51586	2.11275	-7.70963	.67792

SocinfSectAB	Equal variances not assumed			-1.684	93.796	.096	-3.51586	2.08789	-7.66153	.62982
	Equal variances assumed	.783	.379	-.259	96	.796	-.98351	3.79884	-8.52414	6.55712
RelinfSectAB	Equal variances not assumed			-.264	95.240	.792	-.98351	3.72525	-8.37882	6.41180
	Equal variances assumed	.587	.446	.267	96	.790	.92770	3.47166	-5.96349	7.81888
EconinfSectAB	Equal variances not assumed			.269	92.239	.789	.92770	3.45130	-5.92664	7.78203
	Equal variances assumed	1.426	.235	1.648	96	.103	6.06892	3.68370	-1.24316	13.38100
PolinfSectAB	Equal variances not assumed			1.616	82.612	.110	6.06892	3.75609	-1.40231	13.54015
	Equal variances assumed	1.450	.232	-.302	96	.763	-1.07061	3.54662	-8.11061	5.96938
	Equal variances not assumed			-.307	94.780	.760	-1.07061	3.48802	-7.99542	5.85420

### Independent Sample T-Test EEB & Contextual Factors by Occupation (Groups BG (2) and WG (3))

#### Group Statistics

	subgheadocc	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	2.00 Blue Collar	106	44.0283	10.13383	.98428
	3.00 White collar	55	45.8182	10.79968	1.45623
SocinfSectAB	2.00 Blue Collar	106	40.2830	16.88885	1.64039
	3.00 White collar	55	32.3091	19.88753	2.68163
RelinfSectAB	2.00 Blue Collar	106	25.2358	19.76941	1.92017

EconinfSectAB	3.00 White collar	55	17.4909	17.40357	2.34670
	2.00 Blue Collar	106	46.3208	16.52504	1.60505
PolinfSectAB	3.00 White collar	55	35.1636	16.77825	2.26238
	2.00 Blue Collar	106	33.7547	17.95964	1.74439
	3.00 White collar	55	25.1636	18.40467	2.48169

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.106	.745	-1.039	159	.300	-1.78988	1.72242	-5.19164	1.61188
	Equal variances not assumed			-1.018	103.502	.311	-1.78988	1.75767	-5.27561	1.69585
SocinfSectAB	Equal variances assumed	1.283	.259	2.671	159	.008	7.97393	2.98517	2.07822	13.86963
	Equal variances not assumed			2.537	95.124	.013	7.97393	3.14357	1.73325	14.21460
RelinfSectAB	Equal variances assumed	.783	.378	2.453	159	.015	7.74494	3.15725	1.50938	13.98050
	Equal variances not assumed			2.554	122.317	.012	7.74494	3.03217	1.74261	13.74727
EconinfSectAB	Equal variances assumed	.000	.988	4.042	159	.000	11.15712	2.76049	5.70515	16.60908
	Equal variances not assumed			4.022	107.972	.000	11.15712	2.77391	5.65874	16.65550

PolinfSectAB	Equal variances assumed	.055	.816	2.854	159	.005	8.59108	3.00985	2.64663	14.53553
	Equal variances not assumed			2.832	107.097	.006	8.59108	3.03343	2.57773	14.60443

**Independent Sample T-Test EEB & Contextual Factors by Income (Groups LIG (2) and HIG (4))**

**Group Statistics**

	subtheadinc	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	2.00 Low Income	67	44.6716	10.25639	1.25302
	4.00 High Income	33	43.9091	10.22975	1.78077
SocinfSectAB	2.00 Low Income	67	38.8955	18.33950	2.24053
	4.00 High Income	33	28.8788	17.20966	2.99582
RelinfSectAB	2.00 Low Income	67	23.5672	19.66324	2.40225
	4.00 High Income	33	14.3030	15.66342	2.72665
EconinfSectAB	2.00 Low Income	67	47.5821	17.28474	2.11167
	4.00 High Income	33	30.4242	14.13115	2.45992
PolinfSectAB	2.00 Low Income	67	33.5672	19.81446	2.42072
	4.00 High Income	33	20.5758	14.93534	2.59991

**Independent Samples Test**

		Levene's Test for Equality of Variances	t-test for Equality of Means
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		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.070	.792	.350	98	.727	.76255	2.17938	-3.56235	5.08745
	Equal variances not assumed			.350	63.933	.727	.76255	2.17743	-3.58745	5.11255
SocinfSectAB	Equal variances assumed	.261	.611	2.620	98	.010	10.01673	3.82346	2.42921	17.60426
	Equal variances not assumed			2.678	67.561	.009	10.01673	3.74097	2.55086	17.48261
RelinfSectAB	Equal variances assumed	2.895	.092	2.361	98	.020	9.26413	3.92434	1.47640	17.05186
	Equal variances not assumed			2.549	78.133	.013	9.26413	3.63393	2.02974	16.49853
EconinfSectAB	Equal variances assumed	2.110	.150	4.943	98	.000	17.15785	3.47122	10.26932	24.04637
	Equal variances not assumed			5.292	76.419	.000	17.15785	3.24196	10.70149	23.61421
PolinfSectAB	Equal variances assumed	4.429	.038	3.326	98	.001	12.99141	3.90555	5.24098	20.74183
	Equal variances not assumed			3.657	81.745	.000	12.99141	3.55238	5.92426	20.05856

### Independent Sample T-Test EEB & Contextual Factors by Income (Groups NIG (1) and MIG (3))

#### Group Statistics

	subgheadinc	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00 No Income	43	42.3023	9.81140	1.49622
	3.00 Middle Income	61	45.0000	10.70825	1.37105
SocinfSectAB	1.00 No Income	43	31.3256	16.95614	2.58579
	3.00 Middle Income	61	40.7869	17.65042	2.25990
RelinfSectAB	1.00 No Income	43	18.4186	16.59494	2.53070
	3.00 Middle Income	61	26.0000	19.64519	2.51531
EconinfSectAB	1.00 No Income	43	41.2326	19.66122	2.99831
	3.00 Middle Income	61	43.4754	16.16231	2.06937
PolinfSectAB	1.00 No Income	43	24.0930	16.07248	2.45103
	3.00 Middle Income	61	33.3443	17.04101	2.18188

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.579	.448	-1.309	102	.193	-2.69767	2.06058	-6.78483	1.38948

SocinfSectAB	Equal variances not assumed			-1.329	95.173	.187	-2.69767	2.02940	-6.72645	1.33110
	Equal variances assumed	.020	.889	-2.736	102	.007	-9.46130	3.45832	-16.32086	-2.60175
RelinfSectAB	Equal variances not assumed			-2.755	92.776	.007	-9.46130	3.43416	-16.28108	-2.64152
	Equal variances assumed	2.128	.148	-2.064	102	.042	-7.58140	3.67386	-14.86848	-.29431
EconinfSectAB	Equal variances not assumed			-2.125	98.607	.036	-7.58140	3.56809	-14.66160	-.50119
	Equal variances assumed	2.275	.135	-.637	102	.526	-2.24285	3.52187	-9.22846	4.74276
PolinfSectAB	Equal variances not assumed			-.616	78.996	.540	-2.24285	3.64310	-9.49426	5.00856
	Equal variances assumed	.090	.765	-2.791	102	.006	-9.25124	3.31517	-15.82687	-2.67561
	Equal variances not assumed			-2.819	93.736	.006	-9.25124	3.28148	-15.76694	-2.73554

### Independent Sample T-Test EEB & Contextual Factors by Income (Groups MIG (3) and HIG (4))

#### Group Statistics

	subgheadinc	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	3.00 Middle Income	61	45.0000	10.70825	1.37105
	4.00 High Income	33	43.9091	10.22975	1.78077
SocinfSectAB	3.00 Middle Income	61	40.7869	17.65042	2.25990
	4.00 High Income	33	28.8788	17.20966	2.99582

RelinfSectAB	3.00 Middle Income	61	26.0000	19.64519	2.51531
	4.00 High Income	33	14.3030	15.66342	2.72665
EconinfSectAB	3.00 Middle Income	61	43.4754	16.16231	2.06937
	4.00 High Income	33	30.4242	14.13115	2.45992
PolinfSectAB	3.00 Middle Income	61	33.3443	17.04101	2.18188
	4.00 High Income	33	20.5758	14.93534	2.59991

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
EEBSectAB	Equal variances assumed	.258	.613	.479	92	.633	1.09091	2.27855	-3.43449	5.61631
	Equal variances not assumed			.485	68.369	.629	1.09091	2.24743	-3.39332	5.57514
SocinfSectAB	Equal variances assumed	.003	.956	3.149	92	.002	11.90810	3.78129	4.39814	19.41806
	Equal variances not assumed			3.173	67.179	.002	11.90810	3.75261	4.41822	19.39797
RelinfSectAB	Equal variances assumed	2.864	.094	2.948	92	.004	11.69697	3.96714	3.81788	19.57606
	Equal variances not assumed			3.153	79.090	.002	11.69697	3.70964	4.31325	19.08069

EconinfSectAB	Equal variances assumed	.650	.422	3.900	92	.000	13.05117	3.34644	6.40485	19.69749
	Equal variances not assumed			4.060	73.646	.000	13.05117	3.21457	6.64548	19.45686
PolinfSectAB	Equal variances assumed	.045	.833	3.616	92	.000	12.76850	3.53084	5.75594	19.78107
	Equal variances not assumed			3.762	73.502	.000	12.76850	3.39413	6.00479	19.53222

### Independent Sample T-Test EEB & Contextual Factors by Income (Groups NIG (1) and HIG (4))

#### Group Statistics

	subgheadinc	N	Mean	Std. Deviation	Std. Error Mean
EESectAB	1.00 No Income	43	42.3023	9.81140	1.49622
	4.00 High Income	33	43.9091	10.22975	1.78077
SocinfSectAB	1.00 No Income	43	31.3256	16.95614	2.58579
	4.00 High Income	33	28.8788	17.20966	2.99582
RelinfSectAB	1.00 No Income	43	18.4186	16.59494	2.53070
	4.00 High Income	33	14.3030	15.66342	2.72665
EconinfSectAB	1.00 No Income	43	41.2326	19.66122	2.99831
	4.00 High Income	33	30.4242	14.13115	2.45992
PolinfSectAB	1.00 No Income	43	24.0930	16.07248	2.45103
	4.00 High Income	33	20.5758	14.93534	2.59991

## Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.029	.865	-.695	74	.489	-1.60677	2.31300	-6.21551	3.00198
	Equal variances not assumed			-.691	67.499	.492	-1.60677	2.32590	-6.24866	3.03513
SocinfSectAB	Equal variances assumed	.005	.944	.620	74	.537	2.44679	3.94960	-5.42296	10.31654
	Equal variances not assumed			.618	68.482	.538	2.44679	3.95742	-5.44912	10.34271
RelinfSectAB	Equal variances assumed	.110	.741	1.098	74	.276	4.11557	3.74883	-3.35413	11.58528
	Equal variances not assumed			1.106	70.831	.272	4.11557	3.72009	-3.30239	11.53354
EconinfSectAB	Equal variances assumed	4.067	.047	2.671	74	.009	10.80832	4.04670	2.74509	18.87154
	Equal variances not assumed			2.787	73.727	.007	10.80832	3.87828	3.08020	18.53643
PolinfSectAB	Equal variances assumed	.007	.932	.975	74	.333	3.51727	3.60817	-3.67218	10.70671
	Equal variances not assumed			.984	71.267	.328	3.51727	3.57310	-3.60684	10.64137

### Independent Sample T-Test EEB & Contextual Factors by Income (Groups NIG (1) and LIG (2))

#### Group Statistics

	subgheadinc	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00 No Income	43	42.3023	9.81140	1.49622
	2.00 Low Income	67	44.6716	10.25639	1.25302
SocinfSectAB	1.00 No Income	43	31.3256	16.95614	2.58579
	2.00 Low Income	67	38.8955	18.33950	2.24053
RelinfSectAB	1.00 No Income	43	18.4186	16.59494	2.53070
	2.00 Low Income	67	23.5672	19.66324	2.40225
EconinfSectAB	1.00 No Income	43	41.2326	19.66122	2.99831
	2.00 Low Income	67	47.5821	17.28474	2.11167
PolinfSectAB	1.00 No Income	43	24.0930	16.07248	2.45103
	2.00 Low Income	67	33.5672	19.81446	2.42072

#### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.251	.617	-1.202	108	.232	-2.36932	1.97074	-6.27567	1.53703
	Equal variances not assumed			-1.214	92.589	.228	-2.36932	1.95160	-6.24503	1.50640

SocinfSectAB	Equal variances assumed	.412	.522	-2.175	108	.032	-7.56994	3.48091	-14.46972	-.67016
	Equal variances not assumed			-2.213	94.752	.029	-7.56994	3.42144	-14.36259	-.77729
RelinfSectAB	Equal variances assumed	2.167	.144	-1.422	108	.158	-5.14856	3.62086	-12.32573	2.02861
	Equal variances not assumed			-1.476	100.081	.143	-5.14856	3.48931	-12.07118	1.77406
EconinfSectAB	Equal variances assumed	.810	.370	-1.781	108	.078	-6.34953	3.56522	-13.41642	.71735
	Equal variances not assumed			-1.731	81.274	.087	-6.34953	3.66729	-13.64591	.94684
PolinfSectAB	Equal variances assumed	4.929	.028	-2.628	108	.010	-9.47414	3.60506	-16.62000	-2.32828
	Equal variances not assumed			-2.750	102.086	.007	-9.47414	3.44491	-16.30704	-2.64124

### Independent Sample T-Test EEB & Contextual Aspects by Age

EEB and contextual aspects by Age; the significance levels for EEB and contextual aspects were more than 0.05 suggested that the differences between the 20-39 age group and 40 and above age group mean scores were likely to be due to sampling error.

#### Group Statistics

	subgheadage	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00	106	43.6226	9.42787	.91572
	2.00	98	44.7143	11.13738	1.12505
SocinfSectAB	1.00	106	38.0660	16.19951	1.57344
	2.00	98	34.2755	19.97874	2.01816

RelinfSectAB	1.00	106	21.5943	17.57096	1.70664
	2.00	98	21.8367	20.12881	2.03332
EconinfSectAB	1.00	106	43.2736	16.71528	1.62353
	2.00	98	41.1224	19.02265	1.92158
PolinfSectAB	1.00	106	29.8868	17.58805	1.70830
	2.00	98	28.8776	18.90959	1.91016

### Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
EEBSectAB	Equal variances assumed	1.410	.236	-.757	202	.450	-1.09164	1.44120	-3.93337	1.75008
	Equal variances not assumed			-.753	190.754	.453	-1.09164	1.45061	-3.95294	1.76965
SocinfSectAB	Equal variances assumed	6.950	.009	1.493	202	.137	3.79053	2.53828	-1.21439	8.79544
	Equal variances not assumed			1.481	186.950	.140	3.79053	2.55903	-1.25777	8.83882
RelinfSectAB	Equal variances assumed	4.303	.039	-.092	202	.927	-.24240	2.64053	-5.44892	4.96413
	Equal variances not assumed			-.091	193.222	.927	-.24240	2.65462	-5.47815	4.99336
EconinfSectAB	Equal variances assumed	4.325	.039	.859	202	.391	2.15114	2.50290	-2.78402	7.08629

PolinfSectAB	Equal variances not assumed			.855	193.721	.394	2.15114	2.51561	-2.81037	7.11265
	Equal variances assumed	1.221	.270	.395	202	.693	1.00924	2.55532	-4.02928	6.04777
	Equal variances not assumed			.394	197.500	.694	1.00924	2.56261	-4.04436	6.06284

### Independent Sample T-Test EEB & Contextual Aspects by Marital Status

EEB and Contextual Aspect by Marital Status; the significance levels for EEB and contextual aspects were more than 0.05 suggested that the differences between the single and married mean scores were likely to be due to sampling error.

#### Group Statistics

	subgheadms	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00	69	42.5217	8.15946	.98228
	2.00	135	44.9778	11.13785	.95859
SocinfSectAB	1.00	69	38.2899	15.76957	1.89843
	2.00	135	35.2000	19.25043	1.65681
RelinfSectAB	1.00	69	20.3623	18.13509	2.18321
	2.00	135	22.4000	19.15537	1.64863
EconinfSectAB	1.00	69	43.5507	15.99498	1.92557
	2.00	135	41.5704	18.74755	1.61353
PolinfSectAB	1.00	69	29.0580	17.01806	2.04873
	2.00	135	29.5778	18.82974	1.62061

## Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	5.655	.018	-1.622	202	.106	-2.45604	1.51427	-5.44185	.52977
	Equal variances not assumed			-1.789	177.499	.075	-2.45604	1.37251	-5.16457	.25250
SocinfSectAB	Equal variances assumed	6.277	.013	1.150	202	.251	3.08986	2.68646	-2.20724	8.38695
	Equal variances not assumed			1.226	163.037	.222	3.08986	2.51974	-1.88567	8.06538
RelinfSectAB	Equal variances assumed	3.976	.047	-.732	202	.465	-2.03768	2.78483	-7.52875	3.45339
	Equal variances not assumed			-.745	143.916	.458	-2.03768	2.73576	-7.44514	3.36978
EconinfSectAB	Equal variances assumed	3.400	.067	.749	202	.455	1.98035	2.64428	-3.23359	7.19429
	Equal variances not assumed			.788	157.592	.432	1.98035	2.51223	-2.98163	6.94234
PolinfSectAB	Equal variances assumed	1.813	.180	-.193	202	.847	-.51981	2.69928	-5.84218	4.80257
	Equal variances not assumed			-.199	149.933	.843	-.51981	2.61222	-5.68132	4.64170



EEBSectAB	Equal variances assumed	.712	.400	.450	202	.653	.71250	1.58172	-2.40631	3.83131
	Equal variances not assumed			.470	121.523	.639	.71250	1.51695	-2.29057	3.71557
SocinfSectAB	Equal variances assumed	2.095	.149	.950	202	.343	2.65139	2.79232	-2.85444	8.15722
	Equal variances not assumed			.998	123.951	.320	2.65139	2.65564	-2.60488	7.90766
RelinfSectAB	Equal variances assumed	3.133	.078	.951	202	.343	2.74722	2.88894	-2.94913	8.44357
	Equal variances not assumed			1.007	125.923	.316	2.74722	2.72941	-2.65424	8.14869
EconinfSectAB	Equal variances assumed	.379	.539	.693	202	.489	1.90278	2.74618	-3.51208	7.31764
	Equal variances not assumed			.700	113.043	.485	1.90278	2.71808	-3.48222	7.28777
PolinfSectAB	Equal variances assumed	3.617	.059	.657	202	.512	1.83889	2.80001	-3.68210	7.35988
	Equal variances not assumed			.689	123.235	.492	1.83889	2.66946	-3.44505	7.12283

### Independent Sample T-Test EEB & Contextual Aspects by Household with Children Below Aged 15 Not Present or Present

EEB and Contextual Aspect by household composition; the significance levels for EEB were less than 0.05 suggested that the differences between the household without children aged 15 and below and household with children aged 15 and below mean scores were unlikely to be due to sampling error. However, the significance levels for contextual aspects were more than 0.05 suggested that the differences between the household without children aged 15 and below and household with children aged 15 and below mean scores were likely to be due to sampling error.

**Group Statistics**

	subgHHwithbelow15c hildnNot	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00	110	42.5909	9.90070	.94399
	2.00	94	45.9681	10.45364	1.07821
SocinfSectAB	1.00	110	38.1091	17.01826	1.62263
	2.00	94	34.0638	19.28998	1.98961
RelinfSectAB	1.00	110	22.2909	18.94238	1.80608
	2.00	94	21.0319	18.70280	1.92905
EconinfSectAB	1.00	110	42.1727	17.28915	1.64846
	2.00	94	42.3191	18.57575	1.91594
PolinfSectAB	1.00	110	30.6909	18.20966	1.73622
	2.00	94	27.8936	18.16204	1.87327

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.130	.719	-2.367	202	.019	-3.37718	1.42694	-6.19079	-.56357
	Equal variances not assumed			-2.357	193.309	.019	-3.37718	1.43306	-6.20362	-.55073
SocinfSectAB	Equal variances assumed	2.699	.102	1.591	202	.113	4.04526	2.54228	-.96755	9.05808

	Equal variances not assumed			1.576	187.197	.117	4.04526	2.56738	-1.01946	9.10999
RelinfSectAB	Equal variances assumed	.073	.787	.476	202	.635	1.25899	2.64522	-3.95679	6.47478
	Equal variances not assumed			.476	197.816	.634	1.25899	2.64257	-3.95222	6.47021
EconinfSectAB	Equal variances assumed	.940	.333	-.058	202	.954	-.14642	2.51326	-5.10201	4.80917
	Equal variances not assumed			-.058	191.920	.954	-.14642	2.52750	-5.13166	4.83882
PolinfSectAB	Equal variances assumed	.294	.589	1.095	202	.275	2.79729	2.55466	-2.23994	7.83452
	Equal variances not assumed			1.095	197.229	.275	2.79729	2.55414	-2.23963	7.83422

### Independent Sample T-Test EEB & Contextual Aspects by Number of Household Member

EEB and Contextual Aspects by Number of Household Member; the significance levels for EEB were less than 0.05 suggested that the differences between the household with 1-3 household member and household with 4 and over household member mean scores were unlikely to be due to sampling error. However, the significance levels for contextual aspects were more than 0.05 suggested that the differences between the household with 1-3 household member and household with 4 and over mean scores were likely to be due to sampling error.

#### Group Statistics

	subgNumOfHHMe m	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00	99	42.5354	9.05574	.91014
	2.00	105	45.6667	11.13265	1.08644
SocinfSectAB	1.00	99	37.0202	17.16129	1.72477
	2.00	105	35.5143	19.12163	1.86608

RelinfSectAB	1.00	99	21.9899	18.23794	1.83298
	2.00	105	21.4476	19.39220	1.89248
EconinfSectAB	1.00	99	43.0202	17.30694	1.73941
	2.00	105	41.5048	18.39791	1.79545
PolinfSectAB	1.00	99	30.6263	18.73804	1.88324
	2.00	105	28.2476	17.68299	1.72568

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
EEBSectAB	Equal variances assumed	3.172	.076	-2.196	202	.029	-3.13131	1.42584	-5.94275	-.31988
	Equal variances not assumed			-2.209	197.807	.028	-3.13131	1.41728	-5.92624	-.33639
SocinfSectAB	Equal variances assumed	1.612	.206	.591	202	.555	1.50592	2.54919	-3.52051	6.53235
	Equal variances not assumed			.593	201.518	.554	1.50592	2.54108	-3.50461	6.51644
RelinfSectAB	Equal variances assumed	1.371	.243	.205	202	.837	.54228	2.63942	-4.66206	5.74662
	Equal variances not assumed			.206	201.999	.837	.54228	2.63464	-4.65264	5.73720
EconinfSectAB	Equal variances assumed	1.062	.304	.605	202	.546	1.51544	2.50436	-3.42259	6.45347

PolinfSectAB	Equal variances not assumed			.606	201.999	.545	1.51544	2.49984	-3.41369	6.44457
	Equal variances assumed	.309	.579	.933	202	.352	2.37864	2.54996	-2.64931	7.40660
	Equal variances not assumed			.931	199.277	.353	2.37864	2.55433	-2.65834	7.41562

### Independent Sample T-Test EEB & Contextual Aspects by House Ownership Status

EEB and Contextual Aspects by House Ownership Status; the significance levels for EEB were less than 0.05 suggested that the differences between the people who own the house they lived in and people who rent the house they lived in mean scores were unlikely to be due to sampling error. However, the significance levels for contextual aspects were more than 0.05 suggested that the differences between the house owners and renters mean scores were likely to be due to sampling error.

### Group Statistics

	subgHouseOwnStat us	N	Mean	Std. Deviation	Std. Error Mean
EEBSectAB	1.00	76	46.3553	9.99294	1.14627
	2.00	128	42.8359	10.25101	.90607
SocinfSectAB	1.00	76	34.8289	18.64431	2.13865
	2.00	128	37.0859	17.89956	1.58211
RelinfSectAB	1.00	76	20.8158	19.01768	2.18148
	2.00	128	22.2422	18.71870	1.65451
EconinfSectAB	1.00	76	41.9868	18.59283	2.13274
	2.00	128	42.3906	17.46503	1.54371
PolinfSectAB	1.00	76	29.1053	19.14616	2.19622
	2.00	128	29.5781	17.68340	1.56301

## Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
EEBSectAB	Equal variances assumed	.222	.638	2.393	202	.018	3.51933	1.47070	.61943	6.41922
	Equal variances not assumed			2.409	160.905	.017	3.51933	1.46113	.63387	6.40478
SocinfSectAB	Equal variances assumed	.050	.823	-.857	202	.392	-2.25699	2.63262	-7.44793	2.93395
	Equal variances not assumed			-.848	152.567	.398	-2.25699	2.66024	-7.51266	2.99868
RelinfSectAB	Equal variances assumed	.462	.497	-.523	202	.601	-1.42640	2.72684	-6.80312	3.95032
	Equal variances not assumed			-.521	155.680	.603	-1.42640	2.73793	-6.83469	3.98189
EconinfSectAB	Equal variances assumed	1.337	.249	-.156	202	.876	-.40378	2.59098	-5.51262	4.70505
	Equal variances not assumed			-.153	149.877	.878	-.40378	2.63280	-5.60598	4.79841
PolinfSectAB	Equal variances assumed	.355	.552	-.179	202	.858	-.47286	2.64139	-5.68110	4.73538
	Equal variances not assumed			-.175	147.820	.861	-.47286	2.69562	-5.79978	4.85406



EESectAB	Equal variances assumed	.979	.324	2.908	202	.004	4.11311	1.41457	1.32390	6.90233
	Equal variances not assumed			2.895	195.427	.004	4.11311	1.42052	1.31160	6.91463
SocinfSectAB	Equal variances assumed	.001	.974	-1.778	202	.077	-4.50544	2.53360	-9.50114	.49025
	Equal variances not assumed			-1.777	199.593	.077	-4.50544	2.53500	-9.50426	.49337
RelinfSectAB	Equal variances assumed	1.122	.291	-1.270	202	.205	-3.34242	2.63124	-8.53064	1.84579
	Equal variances not assumed			-1.274	201.758	.204	-3.34242	2.62297	-8.51438	1.82953
EconinfSectAB	Equal variances assumed	.559	.456	-.272	202	.786	-.68205	2.50810	-5.62746	4.26336
	Equal variances not assumed			-.273	201.403	.785	-.68205	2.50265	-5.61680	4.25270
PolinfSectAB	Equal variances assumed	.751	.387	-1.211	202	.227	-3.08604	2.54818	-8.11049	1.93841
	Equal variances not assumed			-1.205	194.169	.230	-3.08604	2.56112	-8.13723	1.96515

Source: Analysis of Survey Data

## APPENDIX S

Table of Subgroups

Subgroup		Frequency	Percent (%)
Age	1) 20-39	106	52.0
	2) 40-above	98	48.0
<b>Total</b>		<b>204</b>	<b>100.0</b>
Marital status	1) Single	69	33.8
	2) Married	135	66.2
<b>Total</b>		<b>204</b>	<b>100.0</b>
Highest education level	1) Secondary	60	29.4
	2) Tertiary	144	70.6
<b>Total</b>		<b>204</b>	<b>100.0</b>
Occupation	1) Unemployed	43	21.0
	2) Blue collar	106	52.0
	3) White collar	55	27.0
<b>Total</b>		<b>204</b>	<b>100.0</b>
Personal Income	1) No income	43	21.1
	2) Low income	67	32.8
	3) Middle income	61	29.9
	4) High income	33	16.2
<b>Total</b>		<b>204</b>	<b>100.0</b>
Household Total Income	1) No income	17	8.3
	2) Low income	49	24.0
	3) Middle income	64	31.4
	4) High income	74	36.3
<b>Total</b>		<b>204</b>	<b>100.00</b>
Household composition	1) Children below aged 15 not present	110	53.9
	2) Children below aged 15 present	94	46.1
<b>Total</b>		<b>204</b>	<b>100.0</b>
Number of household member	1) 1-3	99	48.5
	2) 4-over	105	51.5
<b>Total</b>		<b>204</b>	<b>100.0</b>
Work involvement with the environment	1) No or little direct involvement	77	37.7
	2) Some direct involvement	74	36.3
	3) Strong and very strong direct involvement	53	26.0
<b>Total</b>		<b>204</b>	<b>100.0</b>
House ownership status	1) Own outright	76	37.3
	2) Renting	128	62.7
<b>Total</b>		<b>204</b>	<b>100.0</b>
Type of house/dwelling	1) Bungalow or semi-detached house	107	52.5
	2) Terrace house, apartment block or flat	97	47.5
<b>Total</b>		<b>204</b>	<b>100.0</b>

Source: Analysis of Survey Data

## APPENDIX T

### Variables for Multiple Regression Analysis

No.	Variables	Abbreviation	Symbol	Scale
	<b>Independent variables:</b>			
1	Social	SocinfSectAB	X1	Range 0-81: high score = high influence of social aspect
2	Religion	RelinfSectAB	X2	Range 0-80: high score = high influence of religious aspect
3	Economy	EconinfSectAB	X3	Range 3-80: high score = high influence of economic aspect
4	Politic	PolinfSectAB	X4	Range 0-76: high score = high influence of political aspect
5	Respondent's age	c.1.1age	X5	Range 20-70 years
6	Respondent's marital status	subgheadmsDummy1	X6	Single = 0, and Married = 1
7	Respondent's highest level of education	subgheadhelDummy2	X7	Secondary = 0, and Tertiary = 1
8	Respondent's occupation	subgheadoccDummy3	X8	Blue collar = 1, White collar = 0, and Unemployed = 0
		subgheadoccDummy4	X9	White collar = 1, Blue collar = 0, and Unemployed = 0
9	Respondent's income	c.1.1inc	X10	Range NZ\$0-NZ\$200,000 dollars
10	Household total income	HHtotinc	X11	Range NZ\$0-270,000 dollars
11	Number of children below 15 of age	NumOfChildBelow15	X12	Range 0-5 children
12	Number of household member/occupant	NumOfHHMem	X13	Range 1-10 occupants
13	Work involvement with the environment	c.2	X14	Range 0-4: high score = high involvement
14	House ownership status	subgHouseOwnStatusDummy5	X15	Own outright = 1, and Renting = 0
15	Type of house/dwelling	subgTypeOfHouseDummy6	X16	Bungalow or semi-detached house = 1, and Terrace house, apartment block or flat = 0
	<b>Dependent variable:</b>			
1.	Environmentally ethical behaviour	EEBSectAB	X17	Range 11-63: high score = high frequency of environmentally ethical behaviour

Source: Analysis of Survey Data

## APPENDIX U

PSYCHOLOGY DEPARTMENT  
 Ethics Review for Human Research  
 APPLICATION

04.36  
~~2002~~

TITLE OF PROJECT: *Environmental Ethics: The Influence of Socio-Religious, Economic and Political Experience on Domestic Consumers' Behaviour.*

Name of applicant: *Mashitoh binti Yaacob*

Address: *4/228 Old Farm Road, Hillcrest, Hamilton, New Zealand*

Supervisor (where applicable): *Associate Professor Dr. Alastair Gunn*

Other people involved: *Dr. Michael D. Hills*

Project (tick where appropriate):

Staff  PhD  MPhil  MSocSc. Other, please specify \_\_\_\_\_

Course requirement (course number: \_\_\_\_\_)

Renewal of previously approved project

Proposed starting date: *30.09.2004*

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Please read first the Guidelines (attached) before you proceed.

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Psychology Research and Ethics Committee Decision:

Exempted  Approved  Reapproved  Rejected

Convenor signature: *R. Teles*

Date: *12/10/04*

**I request ethics approval** and have provided

- ✓ a detailed description of the procedure (i.e. the research plan – methodology section)
  - ✓ the questionnaire (attached), and
  - ✓ a copy of the consent form which will be used or *reason why a consent form is considered unnecessary (questionnaire)*.
- Other: \_\_\_\_\_
- ✓ I have read and complied with the attached **Guidelines**.
  - ✓ I will bring any changes in methods or procedures as well as any unanticipated consequences which pose potential risks to the participants immediately to the attention of the Research and Ethics Committee.

If first year Psychology students (102/103) are your participants, please provide a copy of the sign-up sheet which will be displayed on the departmental research sign-up board. Only 102/103 students can receive course credit for participation.

If children are your participants (16 years and below), please provide for school children - letter to be sent to the principal, board of trustees, and parents/caregivers explaining the research and asking for permission. If your study involves preschool children, please include the correspondence to the relevant preschool personnel asking for permission.  
Information sheet for the parents/caregivers.

If employees from an external organisation are your participants, please provide a copy of the letter and any information to be sent to the relevant manager(s)/supervisor(s) explaining the research and asking for permission.

Applicant's signature: \_\_\_\_\_ Date: 24.09.2004

I have read the ethics review application, and in my opinion, this research is ethically sound. I consider that this student and any other people involved have the necessary background and experience to carry out this research ethically and competently under my supervision.

Supervisor's signature (if applicable): \_\_\_\_\_ Date: 27/9/04

**IMPORTANT:** Staff members/supervisors carry full responsibility at all times for the ethical appropriateness of all graduate and undergraduate research under their supervision, even when such research has been approved by the Research and Ethics committee. They should work closely with the students to anticipate the ethical issues of any research.

Are you willing to have the content of this application used for a review of the Psychology Department's ethical review procedures (no names will be associated with the information)?

Yes ✓ No

## APPENDIX V

FASS HUMAN RESEARCH  
ETHICS COMMITTEE  
The University of Waikato  
Private Bag 3105  
Hamilton, New Zealand

Chair: Dr J Paterson  
Phone +64 7 856 2889 x8433  
[johnp@waikato.ac.nz](mailto:johnp@waikato.ac.nz)  
[www.waikato.ac.nz](http://www.waikato.ac.nz)



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

→ Mashintosh binti Yaacob  
Alistair Gunn  
Tracy Bowell

2 November 2007

Dear Mashintosh

Application for Ethical Approval: Additional Stage of PhD Project **The Influence of Contextual Aspects on NZ Muslim Males' Environmentally Ethical Behaviour**

Thank you for submitting an Application for Ethical Approval to the Faculty of Arts and Social Sciences Human Research Ethics Committee. It was received on 1 November and I arranged for a Committee member to assess it the same day due to the time constraints you are under to complete your interviews in NZ over the next two weeks.

I understand that the additional information collection is in response to suggestions made by your examining committee. Your initial questionnaire survey was given ethical approval by the Psychology Human Research Ethics Committee. This submission came to the FASS Committee because of your intended use of qualitative methods.

I also place on record that I have assisted you with the design of this methodology as well as given advice on your Ethics Application. I may be added to your Supervisory Committee.

I am pleased to provide formal ethical approval for your interviews and email questionnaires. I have also passed on to you informally some suggestions that were made to improve some minor aspects of the research instruments.

With best wishes for the successful conduct of this stage of your project,

John Paterson  
Chair  
FASS Human Research Ethics Committee

## APPENDIX W

**From:** Te Taka Keegan [mailto:tetaka@cs.waikato.ac.nz]  
**Sent:** Wed 10/6/2004 9:20 p.m.  
**To:** Yaacob, Mashitoh  
**Subject:** RE: A Consent on The Cultural Rights of Maori

Kia ora Mashitoh,

Let me start by saying that I am not really in a position to give consent for all Māori. We are a race with a lot of different background and different tribal identities, and while I may be able to speak for myself and my immediate family I am not in a position to give consent for my tribe or for Māori in general.

I am sure your school's ethic committee, or even the University's ethic committee could give you their assurance.

However, from a personal perspective, I have had a close read of the questionnaire and I did not see anything that looked like it would be offensive to Māori. As far as I can tell it would be all culturally safe to Māori who were given the questionnaire.

Hope this helps

Te Taka

-----

Te Taka Keegan  
 Pukenga |Lecturer  
 Tari Rorohiko |Computer Science Dept  
 Whare Wananga o Waikato |University of Waikato  
 Waea: (07) 838 4420 |Ph: (07) 838 4420  
<http://www.cs.waikato.ac.nz/~tetaka/home>

-----  
 > -----Original Message-----

> From: Yaacob, Mashitoh [<mailto:mayamash@waikato.ac.nz>]

> Sent: Wednesday, 6 October 2004 2:11 p.m.

> To: tetaka@cs.waikato.ac.nz

> Subject: A Consent on The Cultural Rights of Maori

>

> Dear Sir,

> I hope this email finds you in good health and the highest spirits by the

> Grace of God.

>

> I am a student of Dr. Alastair Gunn (Philosophy) and Dr. Michael D. Hills

> (Psychology). Currently I am doing a survey research (self administered

> questionnaire) on Muslims in New Zealand. Although all participants will

> be Muslims, and most are immigrants, some Muslims are Maori. Therefore, I

> was wondering if you could kindly have a look at my questionnaire, and

> give your assurance/consent on whether or not it is culturally safe as far

> as Maori are concerned.

>

> Attached is the questionnaire concerned. You could kindly give your

> assurance/consent via email. Alternatively, I would be very happy to meet

> you anytime you free for your assurance/consent on the matter.

>

> Your help will be very much appreciated.

>

> Best regards,

> Mashitoh Yaacob

> PhD Student

> The Departments of Philosophy, and Psychology