ENVIRONMENTAL CITIZENSHIP: A REPORT ON EMERGING PERSPECTIVES IN MALAYSIA

A STUDY CONDUCTED BY WWF-MALAYSIA AND PARTNERS

ENVIRONMENTAL CITIZENSHIP: A REPORT ON EMERGING PERSPECTIVES IN MALAYSIA

A study conducted by:

WWF

In collaboration with:

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Again, thank you and let us reiterate that our hope for the future
is, to leave the future generations a living planet.

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PREFACE

Education is the bridge to sustainability and its role has been lauded as one of the prescribed solutions to environmental conservation since the United Nation Conference on the Human Environment in 1972 in Stockholm. For over 30 years, the call for education has become stronger until it culminated in Agenda 21. Agenda 21 recognizes the importance of education (encompassing formal education, public awareness and training) in changing the society's mindset towards the environment and its issues. Thus, education, or in this case Environmental Education (EE), is an instrument that contributes to behavioural changes within the society, which is ultimately translated into environmental citizenship. The concept of Environmental Citizenship (EC) redefines our relationship and nature, which reiterates that environmental conservation is our sole responsibility and how we should, at all time, base our life choices in minimizing our ecological impact on earth. In light of this, this study is designed around the concept of EC that gravitates around the society's knowledge, attitude, skills and participation in their daily activities and lifestyles that may bring a positive or negative impact on the environment.

WWF-Malaysia's Conservation Education Programme, through its Formal Environmental Education arm, aspires to contribute to the behavioural shift in the society to embrace Environmental Citizenship through the process of learning and sharing. We apply the multi-partnership and collaborative approach with the belief that the conservation impacts are not to be achieved alone but require an extensive networking and comprehensive coordination with all relevant national level stakeholders. The project, "**Developing an Environmental Education Policy"**, is designed to ensure more emphasis is given to Environmental Education inside as well as outside the classroom. In addition, the ultimate aim of an inclusion of Environmental Education Policy in the National Education Policy is a translation of the collective agreement and commitment by all the relevant quarters to embrace the dynamics of the pedagogical world.

The ***Environmental Citizenship: Emerging Perspectives in Malaysia (EC)*** nationwide study conducted under the "Developing an Environmental Education Policy" project hopes to shed some light on the society's sense of ownership towards the environment in the aspect of knowledge, attitude, participation as well as skills. The study also hopes to gather the opinions of the masses, from the man on the street to the politicians on the current environmental issues in Malaysia. In addition, WWF-Malaysia and its partners hope that the study will pave the way for future researches and studies that are inclined to the improvement and development of EE, EC and Education for Sustainable Development (EfSD), be it at the national or international platform.

For all the successes we have achieved thus far, WWF-Malaysia would like to thank all its individual donors who have made it possible for the project as well as the study to be where it is today.

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Finally, our hope for the future is towards an improved sustainable environment for our children. Such a future can only be realised through various initiatives and efforts taken by all layers of the society.

Dato' Dr Dionysius S.K. Sharma, D.P.M.P
Executive Director/ CEO
WWF-Malaysia

EXECUTIVE SUMMARY

> *"I have asked a child to colour a river before and he coloured it black. I asked why did you colour it black. The child answered – because it is black!"*
> (Participant, 25 Oct 07)

As the saying goes, "out of the mouth of babes", the above excerpt from the findings of the study, is taken as a starting point in this summary, to rouse the reader's curiosity to read further. This report will present the quantitative and qualitative findings of a national study that set out to determine the present level of Environmental Citizenship among Malaysians. The study had 6090 respondents from different groups (various adults and student groups) of the population, namely teachers, university lecturers, teacher trainers, the media and industry, politicians, government officers, NGOs', primary school students, secondary school students, tertiary students, teacher trainees, parents and members of the public.

Three other objectives of the study were to determine the factors to move the present level of Environmental Citizenship to higher anticipated level; to put forward a model for the implementation for an Environmental Education policy for environmental citizenship, and to determine the anticipated level of Environmental Citizenship among Malaysians. Environmental citizenship in this report envelops environmental knowledge, attitudes, skills and participation.

The Status of Environmental Citizenship

How is environmental citizenship among Malaysians? The quantitative part of the study revealed that only less than 45% of the various adult group respondents know about the causes of annual environmental problems such as the haze and flashfloods. The same low levels were found among the student group respondents. Knowledge about Malaysian flora and fauna was found to be at a moderate level with only 50% to 64.5% of the different adult group respondents being able to choose the correct answers in the survey. Among the student respondents a similar low to moderate levels were found. Across the various groups of the adult respondents, only 52.7% to about 65.3% say they spend their personal time in environmental related efforts. However, well over 90% of the respondents from all the adult and student groups do not agree with the way the authorities had handled the haze problem. More than 60% of the respondents of the various adult and student groups also did not agree with the way the deforestation problem is tackled by the authorities.

The qualitative findings revealed several important intangible aspects related to environmental citizenship, including the need for role models in Malaysian society, the need for a sense of ownership among Malaysians towards our environment and the lack of commitment to make more efforts in everyday conservation that goes beyond convenience.

The Case for Environmental Education

At the heart of environmental citizenship is environmental education. How do Malaysians feel about environmental education? In the 1995 study by the Economic Planning Unit, 96% of the sample of 3,564 respondents who were 15 years and above of age, were of the opinion that Environmental Education is important and an almost similar proportion felt that it should be introduced in schools. In the present national study, an overwhelming 96% of the

educators (teachers, university lecturers and teacher trainers) indicated the need for EE. Also more than 98.5% of the politicians, government officers and NGOs' respondents indicated a positive attitude towards EE. Among the student respondents, 89.3% of the teacher trainees feel that there is a need for EE. The qualitative findings also point to the fact that all the adult groups participating in the study realize the need to educate young children on environmental issues. Mutual responsibility is needed and the public and all other groups need to start to participate directly and simultaneously in the education of the environment to our children. The difficult part would be to orchestrate all the parties that should be involved to make environmental education a natural part of life, so as to achieve environmental citizenship to the utmost. This orchestration and coordination will be no easy task to undertake and will involve much commitment and discipline of one and all and perhaps, one which requires more 'heart' than 'mind'.

The need for an EE policy

Based on the findings, the study recommends the need to develop a national policy on environmental education as defined in this report, in collaboration with government ministries and non-governmental organisations and industries, whose mandates are related to environmental issues, to signal the importance of environmental education and guide its implementation in Malaysian institutions of learning (formal education) as well as via non-formal education, through leadership and accountability measures, and curriculum development. In order to support the above recommendation the study also deliberates an environmental education policy implementation model for environmental citizenship.

An Anticipated Level of Environmental Citizenship

This report advocates that the EE policy implementation model discussed in this report is a path with which the anticipated level of citizenship can be achieved. Transformations in environmental behaviour can be expected among Malaysian citizens who should be able to demonstrate in some observable way what they have learned, that is, they must reflect the knowledge of key environmental concepts and skills acquired in their daily lives.

The goal of environmental citizenship in Malaysian society in the coming years is crucial and should be one where individuals and groups have the knowledge and understanding that will lead to responsible environmental action. Quality of life for future generations on this planet will be determined by our actions today. Each of us has an effect on the environment every day - the key is to make this impact a positive one. We must all take responsibility for our own actions, whether as individuals, or as members of a community or an organization.

INTRODUCTION

1.1 Introduction

According to World Wide Fund for Nature's *2006 Living Planet's Report*, we are living way beyond the planet's means by relentlessly reaping the planet's resources that, by the year 2050, we will need an equivalent of two planets worth of natural resources in order for the population to survive (New Straits Times, 2006, WL30). The report added that the world's population, from mammals to fish had decreased by about a third from 1970 to 2003, due to pollution, forest clearing and over fishing.

To further aggravate the situation, another report has shown that the Earth is already warming and the impact on the population would be on environmentally related issues such as drought, flooding and violent storms, famine and disease (The Star, 2007, WL30). In addition, the rising temperatures will leave millions hungry by 2008, cause critical water shortages in China, Australia, parts of Europe and the US. It also reported that around 200 to 600 million people across the world will face food shortages in 70 years, while seven million homes will be hit with coastal flooding (New Straits Times, 2007, WL33). Such, were the gory images painted by a mere rise of temperature between 2 to 4.5 degrees Celsius by 2100.

In the home front, Malaysia is not without her own complex environmental issues that had also resulted in environmental degradation. One case is the 16 "critically polluted rivers" in Malaysia, where most of them are in the developing states of Penang, Selangor and Johor (New Straits Times, 2007, PN2). According to the report, 91 percent of river pollution is due to "sewage seeping into the natural water system". On the issues of loss of biodiversity, despite the efforts and awareness programmes by the government and private sectors since the late 1960's, the leatherback turtles are reported to be on the brink of extinction in Terengganu (New Straits Times, 2006, NT17), while the orang-utan in

Sabah are facing the threat of habitat destruction due to unsuitable logging practices as well as poor land use (Daily Express, 2006, 5).

On hindsight, there is a prescribed solution to these environmental threats. In fact, the solution was initially advocated in 1972 in Stockholm during the United Nations Conference on the Human Environment that proclaimed,

> "…EE should be international, interdisciplinary and encompassing all levels of Education and directed towards the general public, in particular, the ordinary citizen - with view of educating him [or her] as to the simple steps he [or she] might take to manage and control his [or her] environment". (Hawthorne & Alabaster, 1999)

The sentiments were echoed several times in the *Belgrade Charter* (1975), *Tbilisi Declaration* (1977), *Brundtland Report* also known as *One Common Future* (1987) and further in *World Conservation Strategy* (IUCN et. al, 1991). The call became more blatant during the *1992 United Nations Conference On Environment and Development* (UNCED) in Rio Janeiro, which culminated in *Agenda 21* that recognized the importance of education, including formal education, public awareness and training (UNCED, 1992). Two of the most important aspects in *Agenda 21* are "education" and sustainability". *Agenda 21* that repeated similar sentiments to that of 30 years ago, in all the international gatherings, called for the provision of education to all citizens which will contribute to their behavioural change. It believed that behavioural change will result in them taking on the responsibility as the planet's custodian and at the same time providing them with a more sustainable lifestyle (Hawthorne & Alabaster, 1999).

Hence, Environmental Citizenship (EC) can be viewed as "the ultimate outcome of education for sustainability, a process which is all about changing people's attitudes, providing access to knowledge and developing skills, which combine to influence behaviour" (Hawthorne & Alabaster, 1999).

1.2 Background of the Study

As mentioned earlier, the subscription of Environmental Education (EE) as one of the solutions to improve the world's environment is not the end - all nor is it a one - off event. One must acknowledge that education is a process, which in the long run will turn the citizens of the world or, in the case of this study, the citizens of Malaysia into environmentally responsible citizens, who at their own volition make environmentally sound decisions on a daily basis whenever they have to make decisions related to the environment.

Thus, this study aims to measure the level of environmental citizenship (EC) among Malaysians within the realm of four pre-determined components, i.e. knowledge, skills, attitude and participation (Hawthorne & Alabaster, 1999; UNESCO-UNEP, 1978).

The current scenario for EE in Malaysia is, it is infused and integrated throughout the New Primary School Curriculum and Integrated Curriculum for Secondary School since 1991. According to Nadeson and Nor Shidawati (2005), the emphasis of EE within the National Education Policy (NEP) needs to be reassessed and "a comprehensive EE Policy for Malaysians should be drawn up". Nadeson and Nor Shidawati (2005) went on with the following recommendation:

> "It is recommended that EE will be completely integrated and infused into the National Education System (NES). EE must be an integral part of NES so that the National Education Objectives and its Philosophy can be achieved in totality." (p.41)

Ultimately, this study seeks for an EE policy statement to be added to the current existing 23 statements in the NEP (National Education Policy, 2004). It is hoped that an inclusion of an EE policy will further strengthen the EE practices in, as well as outside the classroom throughout all levels of society, in turn contributing to an improved EC level among Malaysians. At the same time, it is hoped that the study will be the pathway for various structured and coordinated strategies from institutional framework development, human resource training to materials development. In addition, this study hopes to be a

catalyst to a collection of EE and EC related studies, which will translate into further improvement on the EE practices at the international and national platform.

1.3 Research Objectives

The objectives of the study are as follows:

1. To determine the present level of EC among Malaysians;
2. To determine the factors to move the present level of EC to an anticipated level;
3. To put forward a model of implementation for an EE policy, and
4. To determine the anticipated level of EC among Malaysians based on the emerging implementation model.

1.4 Research Questions

Based on the objectives mentioned, the research questions generated are as below:

1. What is the present level of the EC among Malaysians?
2. What are the factors that could move the present level of EC to an anticipated level?
3. What is the emerging implementation model for an EE policy?
4. How can the emerging implementation model impact the anticipated level of EC among Malaysians?

1.5 Rationale of the Research

The research in this magnitude which calls for emphasis of EE by the Ministry of Education (MOE) will need a snapshot view of the current EC level among Malaysians. Most importantly, the information of the current and anticipated level of EC of Malaysians will enable the stakeholders such as Ministry of Education to make evidence-based decisions on the contributory factors that can improve the current EC, be it budget allocations, EE materials or even an EE policy statement in the NEP in the future.

1.6 Significance of the Research

In a wider perspective, the findings of this study hopes to act as leverage towards more emphasis of EE by Ministry of Education (MOE) in the curriculum. It is hoped that improved attention given to EE will call for more budget allocations for EE materials development as well as training for pre-service and in-service educators in schools as well as teacher training institutes. Ultimately, it is hoped that the findings will bring about change in the NEP, where an inclusion of an EE policy statement in the NEP will be one of them.

1.7 Definition of Important Terms

Before the discussion continues, the report will introduce some of the definitions of terms and terminologies used all through out the report.

1.7.1 Sustainable Development

The most commonly quoted definition of sustainable development is from Gro Harlem Brundtland, former Prime Minister of Norway. Brundtland (1987) describes sustainable development as the "*development which meets the needs of the present without compromising the ability of future generations to meet their needs*". In addition, sustainable development as described in the *Brundtland Report* or *Our Common Future*, developed by the World Commission on Environment, is a concept that "*does imply limits- not absolute limits but limitation imposed by the present state of technology and social organisation on environmental resources and by the ability of the biosphere to absorb the effects of human activities.*" (Our Common Future, 1987)

1.7.2 Environmental Citizenship (EC)

The phrase Environmental Citizenship (EC) is "*about the active participation of citizens in moving towards sustainability. It challenges conventional notions of citizenship to reflect the nature of environmental problems. It is an important part of the shift towards*

governance (rather than just government) in environmental policy and politics." (Public Space, 2005)

While, the United Nations Environment Programme (UNEP) defines EC basically as '*a simple reiteration of a known fact - that the preservation of the environment is an obligation entrusted upon everyone and all governments by virtue of the inherent relationship between people and nature and between citizens and their governments*'. (UNEP, 2005)

1.7.3 Environmental Education (EE)

McCrea (2006), in his article on the roots of Environmental Education (EE), traces its origin back during the years of Jean-Jacques Rousseau (1712-1778) "*who felt that education should maintain focus on the environment*" or to educators such as Louis Agassiz (1807-1873) who encouraged students to "*study nature and not books*".

In order to set the stage for the discussion, this report will present various definitions on EE chronologically. *Principle 19,* in The United Nations Conference on the Human Environment (UNCHE) held in Stockholm, Sweden in 1972 proclaimed EE as education which enables "*enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension*" and should transcend race, creed and socio-economic background.
(UNCHE, 1972)

The discussion of EE in 1972 has sparked interests from all quarters. Thus, an outcome from the International Workshop on Environmental Education held in Belgrade, Serbia gave birth to the Belgrade Charter in 1975. The Belgrade Charter has equated EE to "*nothing short of a new global ethic- an ethic which espouses attitudes and behaviour for individuals and societies which are constant with humanity's place within the biosphere; which recognizes and sensitively responds to the complex and ever-changing relationships between humanity and nature and between people.*"
(Belgrade Charter, 1972)

In 1977, The Declaration of the Tbilisi Inter-governmental Conference of Environmental Education held in Tbilisi, Georgia (USSR), improved on the definition of EE which extends to the inclusion of "*a comprehensive lifelong education, one responsive to changes in a rapidly changing world*." In addition, EE is also looked upon as a process that "*should prepare the individual for life through an understanding of the major problems of the contemporary world, and the provision of skills and attributes needed to play a productive role towards improving life and protecting the environment with due regard given to ethical values.*" (Tbilisi Declaration, 1977)

Closer to home, parallel to the ASEAN Vision 2020 which aims for a "*clean and green environment for the entire Southeast Asia*", the Environment Ministers of ASEAN has adopted the ASEAN Environmental Education Action Plan (AEEAP) 2000-2005. In the plan EE is defined as "*the process of helping people, through formal and non-formal education, to acquire understanding, skills and values that will enable them to participate as active and informed citizens in the development of an ecologically sustainable manner for the benefit of present and future generations*" (AEEAP 1999)

1.7.4 Education for Sustainable Development (EfSD)

Education for Sustainable Development or EfSD is education that "*enables people to develop the knowledge, values and skills to participate in decisions about the way we do things, individually and collectively, locally and globally, that will improve the quality of life now without damaging the planet of the future.*" (UK Panel for Education for Sustainable Development, 1998)

Schaeffer (2005), Director of UNESCO Asia and Pacific Regional Bureau for Education sees EfSD as a "*life wide and lifelong endeavor which challenges individuals, institutions and societies to view tomorrow as a day that belongs to all of us, or it will not belong to anyone.*" (UNESCO, 2005)

1.7.5 Environmental Knowledge

In the context of the present research, environmental knowledge refers to the expression of a variety of experience and knowledge in issues related to the environment, and a basic understanding of what is required to create and maintain a sustainable environment among individuals, groups or organisations. (adapted from UNESCO, 1978)

1.7.6 Environmental Attitudes

In the context of the present research, environmental attitudes refer to expressions of a set of values and feelings of concern for the environment, and motivation for actively participating in environmental improvement and protection, among individuals, groups or organisations (adapted from UNESCO 1978)

1.7.7 Environmental Skills

In the context of the present research environmental skills refer to an explanation of abilities or the skills acquired for identifying, anticipating, preventing and solving environmental problems, among individuals, groups or organizations, (adapted from UNESCO, 1978)

1.7.8 Environmental Participation

In the context of the present research environmental participation refers to illustrations of embedded motivation and actions to be actively involved at all levels in working towards creating a sustainable environment, among individuals, groups or organisations (adapted from UNESCO 1978)

1.8 Scope of Study

The scope of study is not limited to those involved in the field of education. The study has tried to include a representation of each level of society as well socio-economic background; from the man- in- the- street to the decisions makers, as much as time and finances allowed. The spectrum of the participants involved in the study is reflected in Table 1.1.

Table 1.1: The number of targeted respondents vs. the number of valid cases

TARGET GROUP	NO. OF TARGETED RESPONDENTS	NO. OF VALID CASES	VALID CASES VS. TARGETED RESPONDENTS (%)
Primary School Students	2500	1314	52.6
Secondary School Students	2500	1529	61.2
Teachers	1250	433	34.6
Parents	370	172	46.5
Public	760	275	36.2
Tertiary Students	500	416	83.2
Lecturers	400	182	45.5
Teacher Trainees	893	588	65.8
Teacher Training Institute Lecturers	860	419	48.7
Business, Industry & Media	400	183	45.5
Government, NGO & Politicians	1491	579	38.8
TOTAL	11924	6090	51.1

1.9 Limitations of study

1.9.1 Population Sample

A study of this magnitude needs a good representation of Malaysians from all walks of life as the population sample. However, to address even ten percent of the Malaysian population, which is approximately 2.5 million, is beyond the study's resources. Thus, the study committee has gone through the strata of the society and made a unanimous decision that the number of respondents from each group will suffice. (refer to Table 1.1)

1.9.2 Qualitative Data Collection

Given the time and financial constraints, and the data gathered during the survey administration, the qualitative data collection exercise cannot begin to address even ten percent of each targeted group. In addition, this part of the data collection entailed the researchers to conduct one-on-one or focus-group interviews with the participants. Therefore, having the foresight on the enormous task of data management faced should the data collection be followed through with the ten percent from the quantitative data; the research committee has decided to address only a handful of participants for this leg of data collection. The qualitative data were gathered to gain insight into the Malaysian citizen's mind when it comes to the environment. The number of respondents for the data collection is reflected in Table 1.2.

Table 1.2 Number of participants and sites involved in the quantitative data collection

TARGET GROUP	NO. OF SITES	NO. OF PARTICIPANTS
Schools (i.e. teachers and students)	2 (Sabah and Sarawak)	8
Tertiary (Teacher training institute lecturers, teacher trainees and university students)	4 (Kuala Lumpur, Melaka)	8
Media	1 (Sarawak)	1
Business & Industry	2 (Pahang and Sarawak)	2
Public	2 (Melaka and Pahang)	2
Government	2 (Pahang, Selangor, Melaka, Sarawak, Negeri Sembilan)	5
NGO	1 Sarawak	1
TOTAL		27

The next chapter will be on the review of related literature on the research.

LITERATURE REVIEW

2.1 Introduction

There is a plethora of research on Environmental Education (EE) and Environmental Citizenship (EC) from all over the world including Malaysia. Thus, this chapter will review these documents and studies in order to shed some light over the previous findings and commitments made for EE or EC related initiatives and programmes.

2.2 Studies Related to Environmental Education in Malaysia

In 1985, Hajira Bee Abdul Rahman conducted a study on the introduction of Environmental Education in the Malaysian secondary school. However, the study, which took on the approach of a school-based experiment, was only confined to science education. The study stemmed from the identification of two types of problems; the first problem was related to the then national development and the changing lifestyles and the second was related to the education system. The researcher revealed that Malaysia's development goals has led to the heavy demand of natural resources, which consequently led to the over-exploitation of the environment. Hajira (1985) stressed that one of her concerns was one of the characteristics of modernisation, which she described as,

> *"…. the lifestyle of the people which is materialistic, acquisitive and waste oriented. This gives rise to what is commonly referred to as a 'consumer culture' with its penchant for ownership and collection of greater numbers of non-essential and fashionable objects usually in the form of imported luxuries. There is a need to foster in its place a 'caring culture', of people concerned with the maintenance of the ecological system, encouraging human relationships and community solidarity and a less materialistic outlook on life" (p. 18)*

Therefore, she recommended education as part of the solution to environmental degradation through the provision of knowledge, attitudes and skills, which "enable a society to move from a given (less developed) socio-economic condition to another more

desirable (developed) socio-economic condition in harmony with cultural, ecological and economic factors" (p.1).

In her study, Hajira (1985) also recommended that the integration process of environmental aspects in the subjects in schools should be considered and "would have merit of reflecting the multi-disciplinary nature of environmental education" (p.5). In order for environmental education to be carried out effectively at the school level, it should be implemented in a holistic manner and should be made "the main thrusts of the general school aim" (p.5).

A more recent study on students' perception on environmental awareness camps organised by Department of Environment was carried out was by Fazida Osman in 2004. She reported a significant difference between the teachers' and students' perceptions on the camps. However, the study revealed that a good facilitator determined the success of the camps. Thus, one of the recommendations made was to select well-trained and experienced facilitators during the camps.

Findings from Nur Akhmal Ismail's (2004) research on students' awareness on Environmental Education in the Geography curriculum reflected a high degree of awareness among the respondents in the aspect of Environmental Education and its importance in the Geography curriculum as well as in the recent environmental issues and problems. However, Tan (2002), Nur Akhmal (2004), Fazida (2004) revealed that the respondents' gender does not affect their environmental awareness and attitude level as well as their perception towards Environmental Education and/or environmental awareness activities.

The study on Form Four students' environmental awareness and attitudes by Tan (2002) revealed that there is "a strong relationship between the environmental attitudes and awareness in school with the teaching and learning process". Tan's (2002) study also recorded "statistically significant correlation between the influence of mass media with teaching and learning activities, understanding towards the environment as well as the environmental attitudes and awareness among Form Four students". The research, which involved 250 students in four secondary schools in Negeri Sembilan and Selangor, has revealed the following findings in Table 2.1:

Table 2.1: Part of the findings from Tan (2002) study on "Attitude and Awareness Towards Environment among Form Four Students"

NO.	DESCRIPTION	FINDINGS (%)
1.	Education is the most suitable method to inculcate positive attitude and love towards the environment as well as motivated to be actively involved in conservation.	➢ 53.2(Strongly agree) ➢ 35.2 (Agree)
2.	EE should not be a stand alone subject but to be infused across subjects depending on its suitability	➢ 30 (Strongly agree) ➢ 45.6 (Agree)
3.	The infusion of EE aspect across subjects enables them to acquire the experience as well as basic comprehension on the environment and its issues	➢ 30.4 (Strongly agree) ➢ 51.2 (Agree)
4.	EE Programme is a part of the school's planned activities	➢ 38.0 (Not sure)
5.	The principle stresses the importance of EE in the school	➢ 34.8 (Not sure)
6.	The principle monitors the implementation of EE Programme consistently	➢ 38.0 (Not sure)
7.	The school has sufficient resources to implement EE Programme	➢ 30.8 (Not sure)
8.	Teachers should be role models to students in practising good environmental values daily	➢ 36.4 (Strongly agree) ➢ 36.8 (Agree)
9.	Teachers encouraged students to participate in EE related activities or competitions organized by external parties.	➢ 32.8 (Strongly agree) ➢ 38.0 (Agree)
10.	The teaching approach applied by the teachers is fun and interesting for the students.	➢ 30.4 (Agree)

Hanunah (2004) carried out a study on the identification of the integration of EE in co-curricular activities among the teacher trainees in a teacher training college. The findings revealed that "the level of knowledge of EE among the teacher trainees was relatively high" and she has also cited that the integration of EE did take place. The study also

showed that there was no significance difference in the level of knowledge on EE among the teacher trainees based on their gender. However, the findings recorded a "significant difference in the integration of Environmental Education in co-curriculum among the teacher trainees based on their majors" (i.e. English and Moral Education, Mathematics and Regional Studies, Mathematics and Malay Studies, and Living Skills Studies). In addition, the study which involved a total of 173 teacher trainees, also found that the EE knowledge level among the teacher trainees was significantly high.

Furthermore, Pauziah (2004), have also embarked on a study on EE, which targeted the primary school students as her sample population. Pauziah, in her bid to investigate the implementation of EE across the curriculum, reported the following findings as shown in Table 2.2.

Table 2.2 Part of the findings on the research by Pauziah (2004) on "The Integration of EE across the Curriculum in Primary School

NO.	DESCRIPTION	FINDINGS
1.	Direct exposure to EE through courses conducted by State Education Department	63 out of 117 respondents
2.	Attended EE courses through in-service training	69.8 % (out of 63 respondents)
3.	One day exposure on EE	51% (out of 63 respondents)
4.	The objective of EE across the curriculum has been clearly stated	73.5% (Agree)
5.	Sufficient exposure on integration of EE	56.6% (Agree)
6.	Insufficient demonstration on the integration of EE	56.6% (Agree)
7.	No opportunity to put skills of integration into practice during the course	62.7% (Agree)
8.	The teachers will not be capable of executing EE in the class in the future	55% (Agree)
9.	The course facilitators have sufficient knowledge and skills (in the integration of EE)	57.8% (Agree)
10.	Awareness on the Ministry of Education's (MOE) call on the integration of EE across the curriculum	97.4% (Agree)
11.	The information on the integration was acquired from EE resource persons in school	60.4% (Agree)

12.	The teachers tried to integrate EE elements during lessons	84.2% (Agree)
13.	EE will be successfully integrated across the curriculum devoid of any issues	90.4% (Do not agree)
14.	The teachers believe that the integration of EE across the curriculum in the hope of improving knowledge and awareness among students will be ineffective	92.1 % (Agree)
15.	The teachers do not see that the exposure on EE among the primary school students as too early	83.2 % (Agree)

As shown, the studies conducted have highlighted the relationships between EE or awareness confined to a specific subject such as science (Hajira, 1985) or extra-curricular activities; or to only a fraction of the components, such as attitudes and awareness (Tan, 2002). The study of EE or Environmental Citizenship has never gravitated in addressing the inter-relationships of components such as knowledge, attitude, skills and participation, which are pre-requisites of EC (Hawthorne & Alabaster, 1999). Hence, this study is conducted in the hope of identifying these gaps and holistically addressing these components.

2.3 Studies Related to Environmental Education, Environmental Citizenship and Environmental Literacy in Other Countries

Similarly, there are various studies on EE or EC carried out internationally. One such study is by Hawthorne and Alabaster (1999), who developed a model of environmental citizenship and tested them *via* a public questionnaire-based survey. The survey which involved 252 respondents from Wearside in the City of Sunderland, north east of England, reported that "participation in EE and training is the most important predictor of environmental behaviour followed by emotionality". However, the research also stressed that "the complexity of interactions which determine behaviour illustrates that environmental citizens are not produced merely by programmes of education, but by a whole range of factors with which education may interact".

The study also introduced the concept "locus of control" (LOC), which the researchers identified as an important prerequisite of environmental citizenship. The LOC is a

general concept which, “can be applied in any context to any individual’s perception of their ability to bring about change through their own behaviour.” According to Hawthorne and Alabaster (1999), an individual who believes that an incident or an outcome of a situation is the direct result of his or her actions, then he or she is believed to have an internal LOC. Comparatively, Hines *et. al* (1987) in Alabaster and Hawthorne believed that people with external LOC do not try to bring about change because they attributed change to “chance or to powerful others such as god or government”.

Grodzinska-Jurczak *et. al* (2006) examined the effects of educational campaigns on municipal solid waste management in Jaslo City, in Poland. Due to the low quality of recycled materials, the City Councils decided in 1999 to adopt the British approach to public education, based on home advisors (selected from the local schools and trained on sustainable household waste management principles). The home advisors were tasked with informing the residents about local waste segregation system, conducting a brief survey about residential attitudes and behaviours and providing people with appropriate educational materials.

Between 2003 to 2004, home advisors visited 687 households and their effectiveness and the tonnage of recyclables segregated were monitored across the city. The educational campaign was lauded a success, resulting in “an increase in recycled wastes collected and the number of inhabitants participating, with the home advisors having positively influenced the way residents think and act towards the wastes the produce”. In addition, findings also showed that the education also impacted positively upon the students’ (home advisors) knowledge about waste issues, and provided opportunities for students’ relatives and the whole local community to become “more environmentally conscious, through the process of inter-generational communications and influence.”

Loubser and Swanepoel (2005) highlighted that one of the solutions to environmental problems is through EE programmes which is aimed at changing individuals’ attitudes and behaviour. The researchers identified one of the affective processes of ensuring such change to necessitate the cultivation of a particular environmental identity, which will

contribute to permanent attitudinal and behavioural changes in individuals. Loubser and Swanepoel also stressed on the importance of a subject such as biology to leverage on skills and knowledge, which has relevance to students present and future needs, so that "they may form an environmental sympathiser's identity, which will eventually contribute to an increase in the quality of life for everyone" (p.6).

According Loubser and Swanepoel (2005), the emphasis on the importance of environmental education actions outside the formal education sector should also gravitate towards knowledge and skills which will be relevant to the individuals' life, so that "the individual may at least form an environmental sympathiser's identity, equipping him/ her to act responsibly towards the environment." Therefore, the researchers described "environmental education as a process aimed at forming identities and the lifelong maintenance of identities that would enable individuals to the treat the environment in such a way that they will be able to utilise in life.

Beeld (1991) in Loubser and Swanepoel (2005) advocated that environmental identity formation is a prerequisite for effective environmental education. However, Leekgetho (1990) in Loubser and Swanepoel (2005) argued that it is simplistic to assume that "once the basic needs of people are addressed, the people will look after the environment".

The Environmental, Awareness, Attitudes and Actions Survey Report (2006), is a research conducted by Environment Waikato in New Zealand. The council has the onus of managing the resources in a sustainable manner in the Waikato region as well as providing key input into the development, implementation and evaluation of council-related resource management.

The survey was administered through the method of Computer Assisted Telephone Interview (CATI) and it managed to gather data from 1,003 residents. The survey, which was initially conducted in June 1998 and then repeated in 2000 and 2003, makes comparisons between the present and previous findings. The findings of the survey are reflected as below:

1.	***Water pollution*** continues to be the most frequently mentioned current environmental concern for the region's residents ***(43%).*** In total ***61%*** of people said ***water pollution*** was the most and next most important environmental issue facing the region.
2.	Residents' concerns about ***rubbish and recycling (13%)*** has increased significantly since 2003, as has ***concern about air pollution (9%).***
3.	In the five years time, ***water pollution issues*** continue to be considered the most important environmental issues likely to affect the region **(24%).** ***Rubbish disposal and recycling issues (15%)*** now ranks third after ***air pollution***, which has increase significantly since 2003 ***(16% up from 8% in 2003).***
4.	The residents were reported to be slightly concerned/very concerned about the issue of the ***loss of natural character of the region's beaches through development (79 %).***
5.	The residents' level of concern are greatest for ***water pollution from industry (89%,*** either slightly or very concerned) and ***water pollution from towns and cities (87%)***. Approximately three-quarters of residents ***(78%) express concern*** with **water pollution from farms**, with **46% being very concerned**.
6.	The residents identified two top activities as damaging to air quality in the region, ***vehicle emissions (52%)*** and ***industrial emissions (37%).***

Tan Geok-Chin Ivy *et al*. (1998) embarked on a study on environmental knowledge, attitudes and behaviours of students in Singapore. The results are reported below:

1.	The students' level of knowledge on air pollution and related issues was high. The respondents had correct responses to more than ***70%*** on the items related to ***air pollution***.
2.	***74%*** of the student respondents identify ***"oil tanker operation"*** as the ***major source of pollution in the oceans***. The respondents ***(59%)*** also ***understand the effect of decaying waste on marine lives.***
3.	The student respondents showed a strong awareness on ***the effect of waste disposal on the oceans and the intricacy of the ecological interdependence in the oceans (83%).***
4.	***57.5%*** of the student respondents agree that ***strong controls by the government*** are ***the most effective way to reduce pollution problems***.
5.	On the matter of ***green consumerism, 36.3%*** of the students had ***never bought aerosol products without first checking whether they contained CFCs.***
6.	***Less than 20%*** of the student respondents admittedly ***reused items such as glass bottle***, while about half ***(50.3%)*** stated that they had sometimes ***reused products and had been conscious of selecting products with Green Labels (53.4%)***
7.	It is reported about ***61%*** of the student respondents surveyed had always ***turned off the lights when they were not needed,*** while on the matter of saving paper,

	about ***44%*** of the students had ***always kept papers which were printed on one side so as to write on the other side.***
8.	The findings showed activities such as ***"reading of newspapers, magazines and books"*** accounted for the highest responses ***(37.5%)*** followed by ***"general education at school" (30.7%)*** and ***"radio and television" (16.2%).***
9.	***90%*** of the student respondents perceived that ***everybody should be responsible for the protection of the environment.***

The Minnesota Report Card on Environment Literacy reports on the findings of the first statewide survey on environmental literacy of adults in Minnesota. During July through September 2001, a random sample of 1,000 Minnesota adults was surveyed for its knowledge about, attitudes towards and behaviours related to the environment. Some of the findings are reflected below:

1.	*55%* **of Minnesota adults** *have at least an average or basic knowledge about the environment.*
2.	***36%*** of Minnesota adults reported to using the ***Internet to access environmental information***, while ***68%*** rely on their ***own training or education for information.***
3.	The majority of Minnesotans ***(90%) want schools to provide environmental education.*** Over ***52%*** of Minnesota adults ***believe that environmental education should be financed through special state funds created specifically for this educational activity.***
4.	A majority of Minnesotans was reported to ***frequently conserve energy (89%); recycle glass, paper and cans (80%); conserve water (58%)*** and ***cut down on creating garbage (55%).*** Significantly fewer adults **(58 %)** indicated that they ***conserve water by turning off water when brushing their teeth***.

The discussion in this chapter continues with the review of various international and national declarations and policies, which has set the precedents for EE practices and environmental awareness programmes.

2.4 Review on international and national declaration and policies

2.4.1 International declarations

One of the landmark documents that gave rise to the role of education was ratified in the *United Nations Conference on the Human Environment* held in Stockholm in 1972, which made reference to education in environmental matters, "to younger generation as well as adults given due consideration to the underprivileged, is essential in order to broaden the basis for an enlightened opinion and responsible conduct by individuals, enterprises and communities in protecting and improving the environment in its full human dimension."(p.5). Essentially, the document also made reference to the role of the mass media as one that should "avoid contributing to the deterioration of the environment, but on the contrary disseminate information of an education nature on the need to the project and improve the environment in order to enable mal to develop in every respect."

Recommendation 96, which was carved out based on *Principle 19,* called for "the establishment of an international environmental program through an interdisciplinary approach, in or outside school, for all levels of education and directed towards the public to educate them on, within their means, managing and controlling the environment". The programme design recommended, among others:

a) an inventory of existing system of education, including environmental education;
b) the exchange of information on such system specifying on results of experiments in teaching, the training and retraining of professional workers in various disciplines at various levels, including teacher training, the formation of groups of experts in environmental disciplines and activities;
c) the development and testing of new materials and methods for all types and levels of environmental education;
d) the collaboration with other government aid agencies, UNESCO and UNDP, which encouraged the institution, at the regional and the international level to develop courses and trainings, all devoted to the environment;

The *Belgrade Charter* dubbed as a statement of framework and guiding principles for global EE, was the outcome of the International Workshop on EE held in Belgrade, Yugoslavia on 13-22 October, 1975. The charter also marked an important stage of UNESCO-UNEP International EE Programme (IEEP). The charter acknowledged the unprecedented economic growth and technological progress, which on one hand had benefited many but on the other, caused serious social and environmental consequences. Thus, the charter called for citizens to insist on measures such as sustainable development, which supported economic growth but at the same time "will not have harmful repercussions on people" and "will not in any way diminish their environment and their living conditions."

The *Belgrade Charter* also made reference to the call for the development of EE in *Recommendation 96* in Stockholm, which was seen necessary to combat the world's environmental crisis. It also reflected on the importance of "world-wide" EE programmes, which is believed to make way for the development of new knowledge and skills, values and attitudes, in the bid to improve the environment and quality of life for the present and future generations living within that environment.

Thus, with these guiding principles the charter had envisaged the following EE goal,

> *"… to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivation and commitment to work individually and collectively towards solutions of current problems and the prevention of new ones"*
> (Belgrade Charter, 1975)

The Declaration of the Tbilisi Inter-governmental Conference of Environmental Education in held in Georgian SSR, USSR in 1977 also called for the provision of environmental education that transcends ages and levels of society in both formal and non-formal education. Similarly, the *Tblisi Declaration* echoed *Principle 19* in the declaration made in Stockholm, in 1972, for mass media to have a great responsibility to make their immense resources available for this educational mission. It also stressed on the roles environmental specialists as well as those whose actions and decisions can have significant effect on the environment to be provided, in the course of their training, with

"the necessary knowledge and skills and be given full sense of their responsibilities in this respect."

The *Tbilisi Declaration* (1977) also outlined that EE should encompass "comprehensive lifelong education, one responsive to changes in a rapidly changing world", and prepare individuals with the understanding of the problems of the modern world as well as make provisions for skills and characteristics that enable them to be pro-active toward environmental protection without sacrificing their values.

Based on the issues above, several roles, objectives and guiding principles of EE were carved out. *Recommendation 7* aptly envisioned the aim of EE as well as sustainable development,

> *"…EE should aim at creating awareness, behavioural attitudes and values directed towards preserving the biosphere, improving the quality of life everywhere as well as safeguarding ethical values and the cultural and natural heritage, including holy places, historical landmarks, work of arts, monuments and sites, human and natural environment, including flora and fauna and human settlements."* (Tbilisi Declaration, 1977)

Another monumental document made by the World Commission on Environment and Development in 1987 was the *Brundtland Report* or better known as *Our Common Future*. Dubbed as the "seminal environmental documents of the 20th Century" (Brundtland, 1987), it acknowledged the rise of global awareness of the environmental issues facing earth and of the shift towards global environmental actions. Most importantly, the report addressed the dire need to scrutinise the serious environment and development issues. The report called for a collected call to take action in finding solutions to what was labeled as the "tragedy of the commons". Thus, one of the goals as described by Brundtland was,

> *"…to help define shared perceptions of long-term environmental issue and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long term agenda for action during the coming decades and inspirational goals of the world community."* (Brundtland, 1987)

The report advocated approaching the environmental and development issues in a "collective multilateral action" as opposed to through the pursuit of the national self-

interest. It proposed looking into issues holistically and illustrated the inter-connectedness of issues on poverty and population. Notably, *One Common Future* called for "increased cooperation with the industry", one aspect which was absent from the other environmental documents that came before it.

Though the efforts on EE in the ASEAN region were not alien, each country tended to pursue fragmented EE programmes of action since the development of The *Belgrade Charter* in 1975. However, through the *ASEAN Environmental Education Action Plan (AEEAP) 2000-2005*, member countries hoped to develop a comprehensive plan of action specific for the region.

Historically, before the commitment made by member countries on EE in the AEEP, the *Manila Declaration on the ASEAN Environment of 1981* as well as *Bangkok Declaration on ASEAN Environment of 1984* enumerated a number of guidelines on the environment, accordingly with the former urging all member countries to "develop a common awareness of the environment and foster the development of environmental education programmes". The latter, had given emphasis that included continuous effort on public awareness, provision of training for stakeholders, introduction of stronger environmental themes in schools and universities syllabi and technical training for staff who were directly involved in environmental protection work.

2.4.2 International Environmental Education Policy

Environmental Education (EE) Policy in Indonesia

The development of EE started in 1975, when the Teacher's College in Jakarta established a syllabus of the instruction programme of EE to be tried out in 15 elementary schools in Jakarta within the period of a year from 1977 to 1978 (EE Policy 2005). From then on, Indonesia continued with its pursuit in establishing several EE initiatives such as the development of Environment Study Centers in 1979 and the integration of subject such as demography and environment into almost all subjects in 1984. Ultimately, the formation of a network called Network of Environmental Education

between the year 1996 and 1997 marked the collaboration of several NGOs in their effort to establish EE in Indonesia.

According to the EE Policy (2005) document the establishment of EE efforts in Indonesia was not without its own issue and challenges. Hence, the following gaps were identified and were made the basis in the establishment of an EE policy in Indonesia. The policy document identified these constraints as ones that curtail the development of EE;

a) the weaknesses in the national education policy;
b) the weaknesses in the regional education policy;
c) the weaknesses in the education units (schools) to adopt and implement the change of education system that leads to EE;
d) the lack of understanding and support from the civil society, non-governmental organisations and house of representatives to understand in the realisation of EE initiatives;
e) the weakness in communication processes and lack of intensive discussions that enable the transfer values and knowledge to improve the existing EE policy.

(Source: EE Policy, 2005)

The EE Policy (2005) in Indonesia has stated this as the vision:

> *"Creation of Indonesian citizens that have the knowledge, awareness and skills to actively participate in preserving and increasing the quality of environment."*

In order to realise the vision above, the mission has been determined as follows:

a) To develop a national education policy with the paradigm of environment;
b) To develop an institutional capacity of EE in the central and local government;
c) To increase the access of information of EE more evenly;
d) To improve the synergy among the executors of EE. (EE Policy, 2005)

In addition, the policy document has observed this statement as its EE goal:

> *"Motivating and providing opportunities to the people to obtain knowledge, skills and attitudes that in the end can grow awareness, commitment to protect, improve*

and utilise environment wisely, help create a new pattern of attitudes that is environmentally friendly, develop environment ethics and improve quality of life." (EE Policy, 2005)

Environmental Education Policy in Australia

The EE policy in Australia replaces the Environmental Education Curriculum Statement K-12, released in 1989. It is based on the principles of ecologically sustainable development endorsed by the New South Wales Government and reflects the findings of the New South Wales Council on EE. The adoption of the policy is mandatory for all government schools from Kindergarten to Year 12. (Education Policy for Schools, 2001)

The comprehensive approach to EE outlined in this policy will enable students to participate actively in improving the school environment, address local environmental issues, participate in decision making process on global environment issues, play an active role and participate actively as global citizens in protecting the environment.

The policy outlined the following definitions on EE, which is made the basis of the development of the documents. According to the policy document (Environmental Education Policy for Schools, 2001), EE is:

a) a lifelong multi-disciplinary approach to learning that assist people to understand and appreciate the environment and their connection to and impact on it;
b) a process which develops awareness, knowledge and understanding of the environment, positive and balanced attitudes towards it and skills which will enable students to participate in assessing the state of the environment;
c) an aid that prepares us for an ecologically sustainable future;
d) the process of respecting and valuing the achievements of the past and supporting the preservation of those aspects of the built environment which remind us of those achievements;
e) an aid in spiritual focus, inspiring an emotional and sensitised response from people, not only in their appreciation of their wonders of the natural world, but making them feel at one with the environment.

The policy aims,

> *"… to guide schools in developing and enhancing EE programmes that equip students with understanding and skills required for active and informed participation in managing the environment. The policy also aims to produce students who understand the importance of caring for the environment and minimising society impact on the environment, in order to secure a better quality of life for the present and future generations"*
> (Environmental Education Policy for Schools, 2001)

According to the EE Policy for Schools (2001), EE seeks to "achieve the level of competence and citizenship in all students that will enable them to contribute the achievement of sustainable societies." It hoped that through EE, students acquire knowledge, skills and attitudes to enable them to form judgements about sustainable lifestyles and to participate in environmental decision-making.

The policy document observed the statement below as the aim of EE,

> *"…to foster students' understanding of the environment as an integrated system and to develop attitude and skills which are conducive to the achievement of ecologically sustainable development"*
> (Environmental Education Policy for Schools 2001)

2.4.3 National Documents

The Ninth Malaysia Plan 2006-2010 made reference not to EE in item 22.18 under the sub-heading *Environmental Awareness and Promotion*. It mentioned that during the Plan period, "efforts to enhance environmental awareness were further intensified at school, community and national levels." (Ninth Malaysia Plan, 2006-2010). The Plan also stated that in line with the ninth principle of Islam Hadari, "environmental stewardship will continue to be promoted to ensure that the balance between development needs and the environment is maintained."

According to Nadeson and Nor Shidawati (2005), an analysis made on the National Education Policy (NEP) revealed that the 23 policy statements made no reference to the environment. The absence of focus on the environment signifies the absence of

mechanism and “institutional infra-structures to ensure the emphasis to instill and inculcate” environmental appreciation in the country’s present and future generations (Nadeson & Nor Shidawati, 2005). In keeping up with Malaysia’s rapid development and urbanisation of certain areas (with reference to the government’s present development of the Southern, Northern and East corridors), an inclusion of a policy statement in the NEP which makes reference to environment and its conservation is timely.

The National Conservation Strategy (1993), in Nadeson and Nor Shidawati (2005), also mentioned the importance of the inclusion of EE in the NEP. The document stated, “The existing NEP should specifically include EE, which should be incorporated into all schools subjects, as well as co-curricular activities, in accordance with Chapter 36 of Agenda 21, in the UNCED document.” The statement reflected the document appreciation towards the role of education, especially the formal education system, which is seen as a vehicle that could inculcate behavioural change and increased environmental appreciation among the present and future generations (Nadeson & Nor Shidawati, 2005).

2.5 Study on the Levels of Environmental Citizenship Locally and Internationally

In the year 1995, the Economic Planning Unit in the Prime Minister’s Department commissioned a survey to collect data on the awareness of Malaysians and to formulate strategies to promote awareness. The survey conducted by Frank Small and Associates (S.E Asia) Sdn. Bhd, involved 3, 564 persons in both urban and rural areas in Malaysia and covered the population aged 15 years and above.

Though the study only addressed one of the components of Environmental Citizenship (awareness), it did give the researchers insights into the daily environmental practices of Malaysians during that period. The findings showed that:

1.	Less than four out of ten Malaysians (37%) have an adequate understanding of the layman's view of the word "environment", one third (34%) have some idea, while 29% declare ignorance of the meaning of the word.
2.	87% of the sample population claimed awareness of environmental pollution. Nine out of ten of those aware (90%) feel that environmental pollution was more serious during that period than ten years ago.
3.	43% of the adult Malaysians were of the opinion that the current steps/ policies of government to protect the environment are adequate.
4.	63 % (less than two thirds) believe that environmental pollution will affect the economy.
5.	78% of adult Malaysians displayed knowledge on haze and almost all of them are able to provide reasons for its cause. Out of that, 46% identified smoke as the sole cause, with burning of forest/grass being the main contributor. 24% identified smoke from mobile and 23% identified stationery sources.
6.	67% of adult Malaysians were aware of water pollution; general sewage disposal was identified as the prime cause (70%) and 25% singled out sewage disposal by industry.
7.	69% of Malaysians have heard of recycling but only 48% ever practiced recycling.
8.	40% of adult Malaysians admitted having committed the act of open burning. 83% of adult Malaysians realized that open burning pollutes the environment because of the dispersal of smoke, ashes and dust in the air.
9.	70% of adult Malaysians reported awareness of TV/radio programmes on the environment and almost all of them are positive about the effectiveness of the programmes.
10.	Adult Malaysians placed the main responsibility for controlling environmental pollution on the general public (71%); the government (66%), the private sector (36%) and politicians (25%).
11.	21% of Malaysians were able to name some laws/ regulations relating to the environment.
12.	96% were of the opinion that environmental education is important and an almost similar proportion felt that it should be introduced in schools.

Aini *et.al* (2003) embarked on a study to determine "the level of knowledge, environmental concern and ecologically conscious consumer behaviour and identify the extent of involvement in nature related activities of school teachers". Similarly, this study may not have addressed the pre-determined component of the Environmental Citizenship (EC) study (knowledge, attitude, skills and participation) and it did not even begin to cover the whole strata of the study's (EC) sample population. However, it is again pertinent for us to have an overview of the findings for the purpose of having a more holistic view of the previous sample population activities and commitments towards the

environment and its conservation. The study, which involved 285 school teachers who randomly selected from 10 regular government schools in the state of Selangor revealed:

1.	95% of the teachers stated that they were not members or clubs outside the school;
2.	Source of information: The teachers ranked television, newspaper and magazines first, second and third accordingly, as their source of information. Books, radio, internet and videos were identified as secondary sources;
3.	The average score for environmental knowledge was 25 out 30. Pollution, waste, deforestation and flash flood were the four most frequently mentioned issues when asked to name two environmental problems in Malaysia;
4.	50% of the respondents were unable to correctly answer the underlying causes of waste problem, water and air pollution;
5.	Almost all agree that the responsibility to maintain and protect the environment is the responsibility of all including the government, private sectors and individuals.

Daniel and Nadeson (2007) conducted a baseline survey on Environmental Citizenship in Fraser's Hill. The survey questionnaire, which was formulated based on the National Survey instrument that was used in this EC study, was administered to 104 respondents. One of the highlighted objectives of the study was "to determine the existing level of environmental citizenship among the Fraser's Hill community". The findings reported:

1.	The residents' awareness level on environmental issues was found to be at 39.4%;
2.	The residents' interest level to invest their time in conservation was 74%;
3.	The green lifestyle initiatives by F.R.E.S.H (Fraser's Hill Environmentally Sustainable Heritage) in the form of garbage separation, recycling, water and energy conservation as appeared to influence the residents as F.R.E.S.H has become part of their daily routine;
4.	The residents (63.5%) believed that their personal actions would help in conservation.

2.6 Summary of Literature Review

The above review indicates that locally and internationally, the environment, education about the environment and laws and policies related to the environment are important and

has been given prominence. The world has realised the significance of taking steps to safeguard the environment, and a high level of environmental citizenship is essential. Research related to environmental education shows that efforts have been made at regular intervals to investigate the infusion of environmental education and the effectiveness of environmental education.

The present study intends to determine the current environmental citizenship level of Malaysians and its related factors. It is hoped that with insight into how and why environmental citizenship is as it is in Malaysia, a model to establish the desired level of environmental citizenship can be put forward. The report will continue with the methodology of the study in the next chapter.

CONCEPTUALISATION OF THE STUDY

3.1 Introduction

The "*Environmental Citizenship: Emerging Perspectives in Malaysia*" nationwide study is the first of its kind in Malaysia as well as in WWF-Malaysia. The last time such a study was conducted was back in 1995, commissioned by the Economic Planning Unit (EPU), Prime Minister's Department and conducted by Frank Small and Associates (S.E Asia) Sdn. Bhd. The study involved 3564 respondents aimed at collecting data on "the awareness of Malaysian regarding environmental issues, to identify factors influencing this awareness and to formulate strategies to promote awareness" (Projek Nyaman [Malaysia], 1995). The study, dubbed as "*Projek Nyaman Malaysia*" or its English equivalent, "*National Survey of Environmental Issues, Malaysia 1995/96*", utilised the survey method and had the sample population confined to those aged 15 years and above.

Hence, the present EC study, which addresses levels of knowledge, skills, attitude of Malaysians and participation with regards to environmental conservation and issues relevant to it, can be considered as one that addresses a multitude of components of the EC concept. It can also be deemed as a launch pad to a whole range of studies on EC, EE or even EfSD.

3.2 Conceptual Framework

During the process of planning and designing the study, WWF-Malaysia believed that a study such as this will be more meaningful with the engagement of a research committee represented by individuals who will be able to lend their expertise in the design as well as the implementation of the research.

Hence, a research committee was formed with the belief that this study will have more impact, with the involvement, mobilisation and support of various stakeholders. In April

2005, adopting the name “Survey Task Force (STF) Committee”, the research group convened for the first time bringing together experts from agencies of the Ministry of Education (MOE); Curriculum Development Centre (CDC), Teacher Education Division (TED), Education Policy Planning Research Development Division (EPRD); Department of Environment (DOE), Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Putra Malaysia (UPM), Global Environment Center (GEC) as well as WWF- Malaysia. The formation of the STF committee has set the formal platform and the momentum for a series of discussion, brainstorming and deliberation sessions for the development of the survey design, the survey instruments and the deployment of the study. The following discussion will revolve around details of the research design.

3.2.1 The Subjects

The study was targeted at several major groups of the population from all walks of life, from primary school students in Year 5 at one end to politicians at the other. The different levels of society must be represented. This is important because for the study to have impact, a rich representation of opinions from the Malaysian society is most crucial. The target groups and their groupings in the survey are illustrated in Table 3.1. The final number of respondents from each group is also given.

The next section will discuss the final samples that were involved in the study for the quantitative survey.

Table 3.1: The target group, their groupings and final number of respondents.

NO.	TARGET GROUP	GROUPING	NO. OF RESPONDENTS
1.	School students	*Primary and secondary school students*	1314 1529
2.	Teachers	*Teachers and teacher training institute lecturers*	433
3.	Teacher training institute lecturers		419
4.	Lecturers	*Lecturers and instructors*	183
5.	University students	*Tertiary level students*	416
6.	Teacher trainees		588
7.	Parents	*Parents and public*	172
8.	Public		275
9.	Business and industry	*Business & industry and media*	182
10.	Media		
11.	Politician	*Politicians, non-governmental agencies and government agencies*	579
12.	Non-governmental agencies		
13.	Government agencies		
		Total	**6090**

3.2.2 Demographic Data of Adult Respondents

Teachers

A total number of 433 teachers were respondents in this research. Of the 433 teachers who responded, 121 (27.9%) were males and 312 (72.1%). were females. The majority of respondents were within 30-39 years (39.3%), followed by those between 20-29 years old (34.9%), 40-49 years old (23.6%) and those 50-59 years (2.3%). The Malays comprised the largest pool of respondents totalling 356 (82.2%), followed by the Chinese 50 (11.5%), Indians 4 (0.9%), while the other races totalled 23 (5.3%). The state of Sarawak had the most number of participants, that is 90 (20.8%), followed by the state of Melaka with 60 (13.9%), Pahang with 55 (12.7%), Johor with 47 (10.9%), Perak with 46 (10.6%), Perlis with 44 (10.2%) , Selangor with 42 (9.7%), Pulau Pinang with 33 (7.6%), Terengganu 13 (3.0%), and Sabah having the least number that is only 3 (0.7%). The Urban Sample consisted of 276 respondents (63.7%), and the suburban

sample had a representation of 157 or (36.3%).

University Lecturers

The sample consisted of 183 respondents, approximately a quarter of whom were men (n=81) while the rest were women (n=102). Approximately 82 % of the respondents were Malays, and the remaining respondents were Indians (7.1%), Chinese (10.4%) and others (6.7%). The most frequently occurring age category was the group between 20-29 years old, and the least common age category was the group between 50-59 years old. The urban respondents represented 80.1 % of the sample whereas the suburban represented 35 %.

Teacher Training Institute Lecturers

The sample consisted of 419 respondents. Approximately half of them were male (n=226) while the rest were female respondents (n=193). Approximately 59.2 % of the respondents were Malays, and the remaining respondents were Indians (9.5%), Chinese (25.5%) and others (5.5%). The most frequently occurring age category was the group between 40 - 49 years old, and the least common age category was the group below 19 years old. The urban sample represented 86.4 % of the respondents whereas the suburban respondents represented 12.6 %.

Public and Parents

The public and parent profiles are discussed below.

Public

There were 275 valid cases obtained from the general public in this research. 46.7 % of them were males and 53.3 % were females. Most of them were Malay (85.5 %) respondents, the remaining being Chinese, 3.3%; Indians, 4.0 %; and other races, 7.3 %. The urban respondents represented 60.7 % of the sample whereas the suburban respondents represented 39.3 %. This research involved respondents from 11 states: Pulau Pinang (37 respondents, 13.5 %), Pahang (21 respondents 7.6 %), Perak (8 respondents, 10.2 %), Sabah (16 respondents , 5.8 %), Terengganu (25 respondents , 9.1%), Melaka (32 respondents ,11.6 %), Selangor (39 respondents , 14.2 %), Sarawak

(22 respondents , 8 %), Johor (28 respondents , 10.2 %) and Perlis (27 respondents , 9.8 %).

Parents

A total number of 172 parents were respondents in this research. 83 (48.3%) of the parent respondents were males and 89 (51.7%) were females. The majority of respondents were within 40-49 years old (54.7%), followed by those between 30-39 years old (25.6%), 50-59 years (12.2%) and subsequently those aged 20-29 (7.6%). The Malays comprised the largest pool of respondents totalling 129 (75.0%), followed by the Chinese 23 (13.4%), 6 respondents from the Indian Community (3.5%), while other races accounted for 14 (8.1%) of the respondents. The state of Penang led with the highest number of respondents of 31 (18.0%), followed by the state of Selangor with 22 (12.8%), Perak 19 (11.0%), Terengganu 18 (10.5%), Pahang and Melaka 16 (9.3%), Sarawak 15 (8.7%), Perlis 14 (8.1%), and Johor having the least number totalling only 8 (4.7%). The urban sample represented a total number of 87 respondents (50.6%). The suburban had a sample of 85 (49.4%).

Media and Industry

The sample consisted of 183 respondents. Approximately half of them were male (n=89) while the rest were female respondents (n=92). Approximately 43.7 % of the respondents were Malays, 44.8% were Chinese, and the remaining participants were Indians (8.7%), and others (1.6%). The most frequently occurring age category was the group between 30 - 39 years old, and the least common age category was between 50 to 59 years old. The urban respondents represented 83.6% of the sample whereas the suburban sample represented 15.3 %.

Politicians, Governmental Officers and NGO Respondents

The sample consisted of 579 respondents, approximately half of them were male (n=290) while the rest were female (n=289). Approximately 78 % of the respondents were Malays, and the remaining respondents were Indians (5.4%), Chinese (12.3%) and others (3.8%). The most frequently occurring age category was the group between 20 - 29 years

old, and the least common age category was between 50 - 59 years old. The urban respondents represented 85.7 % of the sample whereas the suburban sample was 14.3 %.

3.2.3 Demographic Data of Student Respondents

Primary

There were 1314 valid cases obtained from the primary school pupil respondents in this research. 46.7 % of them were boys and 53.3 % were girls. Most of them are aged 11 years old (99.4%); while the 10 years old and 12 years old were 0.2 % and 0.6 % respectively. Most of them were Malays (82.8%), with Chinese, 9.1 %; Indian, 2.6 %; and other races, 5.5 %. The urban respondents represented 52.4 % of the sample whereas the suburban respondents represented 47.6 %. This research involved respondents from the states of Pulau Pinang (10.8 %), Pahang (7.8 %), Perak (10.0 %), Sabah (9.6 %), Terengganu (11.8 %), Melaka (10.6 %), Selangor (12.1 %), Sarawak (11.5 %), Johor (8.7 %) and Perlis (7.2 %).

Secondary

There were 1529 valid cases obtained from the secondary school pupil respondents in this research. 45 % of them are males and 55 % are females. Most of them are aged 14 and 16 years old (50.7 % and 47.5 % respectively); the remaining 1.8 % are 15 and 17 years old pupils. Most of them are Malays (62.3 %) followed by Chinese (20.7 %), Indians (8.8 %) and other races (8.2 %). Both the urban and suburban respondents represented 50 % of the sample respectively This research involved respondents from the states of Pulau Pinang (10.7 %), Pahang (12.0 %), Perak (9.4 %), Sabah (10.4 %), Terengganu (12.4 %), Melaka (10.3 %), Selangor (7.8 %), Sarawak (11.3 %), Johor (8.0 %) and Perlis (7.8 %).

University Students

The sample consisted of 416 respondents. Approximately a quarter of them were men (n=145) while the rest were women (n=271). Approximately 69.7% of the respondents were Malays, and the remaining respondents were Indians (2.4%), Chinese (21.2%) and others (6.7%). The most frequently occurring age category was the group below 19 years old, and the least common age category was aged between 50 - 59 years old. The urban

respondents represented 70.2 % of the sample whereas the suburban sample represented 29.8 %.

Teacher Trainees

The sample consisted of 588 respondents, approximately half of them were males (n=252) while the rest were females (n=336). Approximately 63.1 % of the respondents were Malays, and the remaining respondents were Indians (6.1%), Chinese (17.7%) and others (13.1%). The most frequently occurring age category was the group between 20 - 29 years old, and the least common age category was the group aged between 50 - 59 years old. The urban respondents represented 60.4 % of the sample whereas the suburban respondents represented 39.6 %.

3.2.4 Methodology

Through the brainstorming session with the STF Committee, it was decided that the data gathering will use both quantitative and qualitative techniques of data collection.

The Survey Instrument

The quantitative technique took on the form of a survey administration, which was administered in two phases (Table 3.2). The survey was administered using three approaches - face-to-face, where researchers or representatives administered the survey to the subjects at the premise; online, where the respondents could get access from *www.eesurvey.org.my*; and direct mail, where subjects received the survey forms via post, answered and returned them using the self-addressed envelopes provided. In addition, the method of random sampling was implemented to select the sites for schools, except for some sites in Phase One, which were selected by the State Education Department at their own discretion.

Table 3.2: The phases of survey administration together with the administration approaches in relation to the target groups

PHASE	DURATION	APPROACH	VENUE & NUMBER OF SITES	TARGET GROUP(S)
Phase One	August– November 2006	Face-to-face & online	***Venue***: Johor, Melaka, Selangor, Perak, Penang, Perlis, Terengganu, Pahang, Sabah & Sarawak. ***Number of sites:*** Four primary and four secondary schools in each state. Collectively, 80 schools.	School students, teachers, parents and public (represented by the non-teaching staff of each school)
Phase Two	January- July 2007	Face-to-face & direct mail	***Venue***: Matriculation centres, university colleges and universities in Melaka, Pahang, Perak, Perlis, Pulau Pinang, Selangor & Kuala Lumpur ***Number. of sites***: Collectively, 28 universities, matriculation centres and university colleges.	Pre-university students, university students and lecturers
		Face-to-face	***Venue:*** Johor, Melaka, Negeri Sembilan, Kuala Lumpur, Selangor, Perak, Pulau Pinang, Kedah, Perlis, Kelantan, Terengganu, Pahang, Sabah Sarawak. ***Number. of sites:*** 27 teacher training institutes	Teacher training institute lecturers and teacher trainees
		Direct mail	***Venue:*** Selangor, Kuala Lumpur and Putrajaya. ***Number. of sites:*** 50 government agencies & department in four	Government agencies

		Direct mail	***Venue:*** Selangor, Kuala Lumpur and Putrajaya. ***Number. of sites:*** 50 government agencies & department in four ministries	Government agencies
		Direct mail & online	***Venue:*** Kuala Lumpur, Selangor, Pulau Pinang, Sabah & Sarawak ***Number of sites:*** 10 for each environmental and non-environmental NGO	Non-governmental agencies
		Direct mail	***Venue:*** Johor, Melaka, Negeri Sembilan, Kuala Lumpur, Selangor, Perak, Pulau Pinang, Kedah, Perlis, Kelantan, Terengganu, Pahang, Sabah & Sarawak. ***No. of individuals:*** 291	Politicians
		Direct mail	***Venue:*** Kuala Lumpur, Selangor, Sabah & Sarawak ***Number. of sites:*** 20	Media

3.2.5 Preparation of the Survey Instrument

The research instrument was developed through a series of brainstorming sessions in workshops and meetings together with the STF committee, a collaborative effort between WWF-Malaysia together with representatives from departments of the Ministry of Education; Curriculum Development Centre (CDC), Teacher Training Division (TED) and Education Planning and Research Department (EPRD) ; Department of Environment (DOE) in the Ministry of Natural Resources & Environment; Universiti Malaya (UM), Universiti Kebangsaan Malaysia (UKM), Universiti Putra Malaysia (UPM) and Global Environment Centre (GEC), a local environmental NGO.

The final survey instrument comprised of four sections: Demographic Information; Section A, included general questions for all target groups, whereas Sections B and C, constituted questions that were specific to the target groups. The types of questions featured throughout Section A and B were multiple choice items that came with a Likert Scale answer, as well as questions which required respondents to check on specific answers or tick YES or NO. Whereas, Section C housed the two open-ended questions(Reference: **www.wwf.org.my** ***>What we do> Education>Conservation Education Programme> Formal Environmental Education> EE Policy> Progress & Updates> Environmental Citizenship Survey Completed*** **).** The type of questions are similar to other international studies such as the Roper NEETF Survey in America. However, WWF and all the collaborating parties ensured that all questions were thoroughly of the local context.

The items of the survey were identified into the following categories:

(i) items that are related to the respondents' environmental knowledge (knowledge);

(ii) items that are related to the respondents' environmental attitudes (attitude);

(iii) items that are related to the respondents' environmental skills (skills);

(iv) items that are related to the respondents' environmental participation (participation).

Several of the items were modified from existing items from other surveys. However, the majority of the items were constructed by the researchers and verified through a series of peer review discussions prior to the finalisation of the instrument. The panel for peer review was made of WWF members and experts from the collaborating parties. This ensured the content validity and the construct validity of the items. The categorisation of the items is shown in Table 3.3.

Table 3.3: The categorization of the questionnaire items

SECTION	TARGET GROUPS AND GROUPING	ITEMS	CATEGORY
SECTION A	In all target groups	1, 3, 8, 9, 10, 11, 12, 13	Knowledge
		2, 16a, 16b, 16c, 16d, 16e, 23a, 23b, 23c, 23d	Attitude
		17a, 17b, 17c, 17d, 21a, 21b, 21c, 21d, 22a, 22b, 22c, 22d	Skills
		4, 5, 6, 7, 14, 15a, 15b, 15c, 15d, 15e, 15f, 15g, 15h, 18, 19, 20	Participation
SECTION B	Primary and secondary school students	30a, 30b, 30c, 30d, 30e, 30f, 30g, 30h	Knowledge
		25	Attitude
		26, 27, 28	Skills
		24, 29a, 29b, 29c	Participation
SECTION C		31, 32	Open - ended questions
SECTION B	Parents and Public	24, 27	Knowledge
		25, 28	Attitude
		26, 29	Skills
		30a, 30b, 30c, 30d	Participation
SECTION C		31, 32	Open - ended questions
SECTION B	Teachers and teacher training institute lecturers	28, 29	Knowledge
		26a, 26b, 26c, 26d, 26e, 26f	Attitude
		25a, 25b, 25c, 27, 30a, 30b, 30c, 31a, 31b	Skills
		32a, 32b,32c, 32d, 33a, 33b, 33c, 33d	Participation

SECTION C		34, 35	Open - ended questions
SECTION B	Business & Industry and Media	26a, 26b, 26c, 26d	Knowledge
		28a, 28b	Attitude
		24a, 24b, 25a, 25b	Skills
		27a, 27b, 27c, 27d, 27e	Participation
SECTION C		29, 30a, 30b, 30c	Open - ended questions
SECTION B	Politicians, Non-Governmental Agencies and NGO	24, 25	Knowledge
		29, 33	Attitude
		27, 32	Skills
		26, 28, 30, 31	Participation
SECTION C		34, 35	Open - ended questions
SECTION B	University Lecturer	24, 28, 29	Knowledge
		26a, 26b, 26c, 26d, 26e, 26f	Attitude
		25a, 25b, 25c, 27, 30a, 30b, 30c, 31a, 31b	Skills
		32a, 32b, 32c, 32d	Participation
SECTION C		33, 34	Open - ended questions
SECTION B	Tertiary level students	27	Knowledge
		26, 29, 30	Attitude
		24, 25, 31	Skills
		28a, 28b, 28c, 28d	Participation
SECTION C		32, 33	Open - ended questions
SECTION B	Teacher trainees	26, 30	Knowledge
		25, 27, 31	Attitude
		24, 28	Skills
		29a, 29b, 29c, 29d	Participation
SECTION C		32, 33	Open - ended questions

3.2.6 Survey Administration

The survey was conducted among the target groups (Table 3.1) and according to the various approaches (Table 3.2). The face-to-face survey was administered by the STF

committee members and some of the direct mail was also administered face-to-face by the representatives from the relevant organisations.

The respondents were also given the alternative to access the survey online through www.eesurvey.org.my. The website address was communicated through an electronic newsletter as well as e-mails to the respondents'. The respondents completed forms were monitored and downloaded weekly for the purpose of data collection.

3.2.7 Interview and Observational Protocols

Apart from the survey, the data collection had also been extended to the use of qualitative techniques, namely through interviews and site observations. This leg of the data collection was necessary for the study to gain more insight into the quantitative data. Given the understanding that the collection of qualitative data entails transcribing, summarizing and reporting, the number of participants was kept to two or three per target group.

3.2.8 Interview and Observational Administration

In preparation for the collection of qualitative data, the interview and observation protocols were prepared. As more than five researchers were involved in the collection of qualitative data, two training sessions were carried out.

The administration of the interview and observation protocol required the consent of the participants and their organizations before they could be carried out. Therefore, the citations of the findings could only be made when the researchers had obtained the information from the participants on a voluntary basis.

The qualitative part of the study took the researchers to various parts of Malaysia such as Fraser's Hill in Pahang, Padang Kemunting and Durian Daun in Melaka, Kuala Lumpur, Kuching in Sarawak and Kota Kinabalu in Sabah for the data collection process.

The administrations took place at the participants' work place, whenever it was possible. For those who did not have a physical workplace, they were interviewed at a place of their choice. The interviews took place in groups or individually, depending on the participants' comfort level with others involved.

Before the interview started, the participants were cautioned on their session being recorded and were assured that all the information will not be mishandled or revealed to anyone and will only be used for the study. They were given a brief introduction about the study and a few ice-breaking questions were asked, followed by questions that ranged from their daily environmentally friendly practices to their opinions on EC. For a more detailed description on the Interview Protocol, refer to ***Appendix 1***.

After the interviews, the researchers went around the participants' premises to observe the surrounding, making notes on the environmental friendly practices that would lead to EC. Please refer to ***Appendix 2*** for the Observation Protocol.

3.3 Pilot Study

A pilot study was conducted on the survey items for the purpose of checking whether the respondents would be able to understand the questions, especially the terminology used. In terms of the validity of the content, the survey has gone through a rigorous process of improvements through the series of meetings held together with the panel of experts in the STF committee. The number of respondents involved in the pilot study is shown in Table 3.4.

Table 3.4: The total of sample population for the pilot test

NO.	TARGET GROUP	TOTAL
1.	Primary school students	9
2.	Secondary school students	38
3.	Teachers and teacher training institutes lecturers	17
4.	Teacher trainees	16
5.	Parents and public	16
6.	University lecturers and instructors	17
7.	University students	18
8.	Non-governmental Agencies	12
9.	Business and Industry	4
TOTAL		147

After the pilot study, some minor changes, such as simplifying the sentences for better understanding, were made to the survey items. Most of the items from the pilot study were retained. The actual study was then conducted and the final number of respondents was 6090.

3.4 Analysis of Data

The quantitative data were analysed using simple descriptive statistics (through the SPSS software Version 11).

The qualitative data was analysed through focus groups meetings, in which peer review and discussions on the data took place. The constant – comparative approach was used. The researchers were also exposed to analysis during data collection via two workshops. The process of the data analysis is best described in the Figure 3.1.

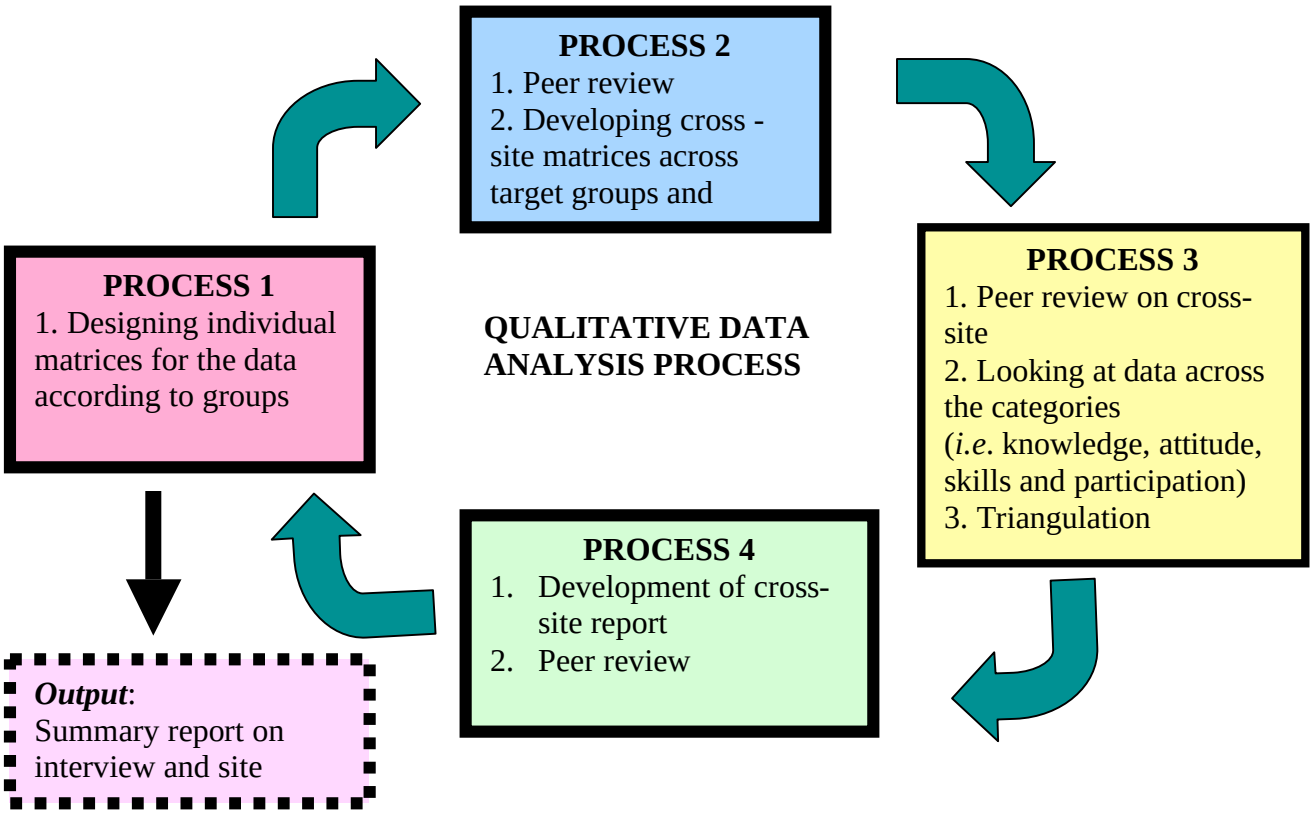


Figure 3.1: The Processes of the Qualitative Data Analysis

3.5 Anticipated Answers for Environmental Citizenship

The anticipated answers or correct answers expected for the survey items, if selected by the respondents, can be calculated as an indication of environmental citizenship. The anticipated answers are as given in ***Appendix 3***.

3.6 Comparison with Other Studies

The results of the present study were compared with other selected reports of environmental literacy and citizenship to contrast the local level of environmental knowledge, attitudes, skills and participation to that of other nations. The studies which

were selected were (i) The Minnesota Report Card on Environmental Literacy (2002); (ii) Environmental Awareness, Attitudes and Actions (Waikato, New Zealand, 2006); (iii) A Survey of Environmental Knowledge, Attitudes and Behaviour of Students in Singapore (1998); (iv) Environmental Literacy in America (2005); and (v) The Survey of Kentuckians Environmental Knowledge, Attitudes and Behaviors (2004). How The Method of calculations is given in ***Appendix 4***.

The next chapter will continue with the discussion on the findings of the study.

ENVIRONMENTAL CITIZENSHIP: KNOWLEDGE DOMAIN

4.1 Introduction

In the *Tbilisi Declaration* (1977), knowledge has been defined as "…a variety of experience in, and acquire a basic understanding of, the environment and its associated problems". The discussion will highlight the main findings related to knowledge in environmental citizenship. There were 10 groups of respondents. The knowledge level of environmental citizenship of each group is discussed in this chapter. From sections 4.2 to 4.7 the adult and working groups involved in the study are discussed. In section 4.8, the student groups involved are discussed.

4.2 Knowledge level among teachers

This section will be discussed from the following aspects, (i) knowledge about why certain environmental problems occur, (ii) knowledge about fauna, flora and biodiversity, (iii) knowledge about EIA, (iv) knowledge about international treaties and (v) knowledge about environmental issues.

Table 4.1: Knowledge of environmental issues, biodiversity and purpose of EIA among teachers (N=433)

Question	Anticipated Best Answer	%
1 Cause of haze	Exhaust fumes; Factories	10.6
3 Biodiversity means…	All living things…	74.6
8 Why flashfloods?	Blocked monsoon drains	79.0
9 Does not lead to beach pollution	Oil spills	6.0
10 Habits that do not impact aquatic life	Increasing seafood in our diet	83.8
11 Which is an /are endangered species?	Leatherback turtle	85.7
	Malayan Tiger	60.7
	Orangutan	54.3
	Proboscis Monkey	36.0
	Gharial	28.6
	Wild Boar	92.1
12 Purpose of Environmental Impact Assessment (EIA)	Plan ways to reduce negative effect	66.3

From Table 4.1, the teacher respondents are not quite sure of the cause of haze (only 10.6 % chose the anticipated answer).This is strange because haze occurs every year in Malaysia and is given much media coverage, and therefore people in general should be informed. In addition, only 6% of the teacher respondents chose the anticipated answer for the cause of beach pollution and 66.3% of the teacher respondents have chosen the anticipated answer related to the purpose of EIA assessment reports.

Items 3 and 11 are related to fauna, flora and biodiversity knowledge. From Table 4.1, the other slight lack of knowledge is about the proboscis monkey being an endangered

species, as only 36% chose the correct answer, and the anticipated correct answer that the gharial was not an endangered species was chosen by only 28.6%. However, 92.1 % of the respondents know that the wild boar is not an endangered species. 74.6% of the teacher respondents also managed to chose the correct answer about biodiversity.

Table 4.2 below indicates the results of teacher respondents' knowledge about international treaties.

Table 4.2: Knowledge about International Treaties among teachers

Question	Anticipated Best Answer	%
13 International treaties ratified by Malaysia	CITES	77.8
	Kyoto	28.6
	Basel	12.0
	Ramsar	8.3

CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an agreement made in 1973 between governments to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Compared to Basel (1999), the Kyoto Protocol (1997) and Ramsar, 77.8% the teacher respondents appear to know CITES best.

Table 4.3 shows several environmental issues and how knowledgeable the teacher respondents about these issues.

Table 4.3: Teachers' level of knowledge on environmental issues

Question	Anticipated Best Answer	%
29 Environmental Issues	International environmental treaties	17.1
	Global warming	59.6
	Ozone depletion	63.0
	Biodiversity	27.7
	Green house effect	66.5
	Destruction of wildlife habitats	76.9
	Managing forest areas	75.1
	Depletion of flora and fauna	86.8

In Table 4.1, 74.6% of the teacher respondents had chosen the correct meaning of biodiversity. However, in Table 4.3, only 27.7 % of the teacher respondents claimed to know about biodiversity. In contrast 76.9% of the teacher respondents indicated that they are knowledgeable about the destruction of wildlife habitats and 86.8% of the teacher respondents indicated that they know about the depletion of flora and fauna. This contradiction at this point cannot be explained, except to say that it indicates some confusion among the teacher respondents.

4.3 Knowledge Levels Among University Lecturers

The following aspects will be discussed, (i) knowledge about why certain environmental problems occur, (ii) knowledge about fauna, flora and biodiversity, (iii) knowledge about EIA, (iv) knowledge about international treaties and (v) knowledge about environmental issues.

From Table 4.4 and just as the teacher respondents, the university lecturer respondents are not quite sure of the cause of haze (only 10.4 % chose the anticipated answer). Only 8.7% of the university lecturer respondents chose the anticipated answer for the cause of beach pollution. 82% of the university lecturer respondents have chosen the anticipated correct answer related to the purpose of EIA assessment reports.

Table 4.4: Knowledge of environmental issues, biodiversity and purpose of EIA among University Lecturers (N= 183)

Question	Anticipated Best Answer	%
1 Cause of haze	Exhaust Fumes; Factories	10.4
3 Biodiversity means…	All living things…	80.3
8 Why flashfloods?	Monsoon drains blocked	68.3
9 Does not lead to beach pollution	Oil spills	8.7
10 Habits that do not impact aquatic life	Increasing seafood in our diet	82.5
11 Which is an /are endangered species?	Leatherback turtle	89.6
	Malayan Tiger	68.3
	Orangutan	54.1
	Proboscis Monkey	41.5
	Gharial	30.1
	Wild Boar	5.5
12 Purpose of Environmental Impact Assessment (EIA)	Plans ways to reduce negative effect	82.0

Items 3 and 11 are related to fauna, flora and biodiversity knowledge. From Table 4.5, the lack of knowledge is about the wild boar not being an endangered species (only 5.5% said it was not an endangered species). Just as the teachers, the university lecturer respondents (89.6%) best know about the leatherback turtles being an endangered species.

Table 4.5 indicates the results of what university lecturer respondents know about international treaties.

Table 4.5: Knowledge about international treaties among university lecturers

Question	**Anticipated Best Answer**	**%**
13 International treaties ratified by Malaysia	CITES	63.9
	Kyoto	45.4
	Basel	17.5
	Ramsar	15.8

Once again as the teacher respondents, compared to Basel (1999), the Kyoto Protocol (1997) and Ramsar, 63.9% the university lecturer respondents are most knowledgeable about CITES.

In Table 4.6, 80.3% of the university lecturer respondents have chosen the correct meaning of biodiversity. However, in Table 4.7, only 54.1 % of the university lecturer respondents claimed to know about biodiversity. In contrast 73.8% of the university lecturer respondents indicated that they are knowledgeable about the destruction of wild life habitats and 80.3% of the university lecturer respondents indicated that they know about the depletion of flora and fauna. This pattern is the same as among the teacher respondents and may indicate some confusion among the university lecturer respondents.

Table 4.6: University lecturer respondents' level of knowledge in environmental issues

Question	Anticipated Best Answer	%
29 Environmental Issues	International environmental treaties	25.7
	Global warming	87.4
	Ozone depletion	79.2
	Biodiversity	54.1
	Greenhouse effect	79.8
	Destruction of Wildlife habitats	73.8
	Managing forest areas	77.0
	Depletion of flora and fauna	80.3

4.4 Knowledge Level Among Teacher Training Institute Lecturers

The five sections discussed are, (i) knowledge about why certain environmental problems occur, (ii) knowledge about fauna, flora and biodiversity, (iii) knowledge about EIA, (iv) knowledge about international treaties and (v) knowledge about environmental issues.

From Table 4.7, the teacher training institute lecturer respondents, just as the teacher respondents and the university lecturers are not quite sure of the cause of haze (only 8.4 % chose the anticipated answer). Similar to the teacher and the university lecturer respondents, only 9.5% of the teacher training institute lecturer respondents chose the anticipated answer for the cause of beach pollution. 72.3 % of the teacher training institute lecturer respondents have chosen the anticipated correct answer related to the purpose of EIA assessment reports.

Table 4.7: Knowledge of environmental issues, biodiversity and purpose of EIA among teacher trainers (N= 433)

Question	Anticipated Best Answer	%
1 Cause of haze	Exhaust Fumes; Factories	8.4
3 Biodiversity means…	All living things…	74.2
8 Why flashfloods?	Monsoon drains blocked	68.5
9 Does not lead to beach pollution	Oil spills	9.5
10 Habits that do not impact aquatic life	Increasing seafood in our diet	82.1
11 Which is an /are endangered species?	Leatherback turtle	80.7
	Malayan Tiger	63.0
	Orangutan	54.4
	Proboscis Monkey	45.3
	Gharial	34.1
	Wild Boar	12.2
12 Purpose of Environmental Impact Assessment (EIA)	Plans ways to reduce negative effect	72.3

Items 3 and 11 are related to fauna, flora and biodiversity knowledge. From Table 4.9, the lack of knowledge is about the wild boar not being an endangered species (only 12.2 % said it was not an endangered species). Just as the teachers and the university lecturer respondents, the majority (80.7%) of the teacher training institute lecturers know about the leatherback turtles as an endangered species.

Table 4.8 indicates the results of what teacher training institute lecturer respondents know about International treaties.

Table 4.8: Knowledge about international treaties among teacher training institute lecturers

Question	Anticipated Best Answer	%
13 International treaties ratified by Malaysia	CITES	58.7
	Kyoto	42.5
	Basel	11.9
	Ramsar	15.5

Yet again as the teacher and university lecturer respondents, compared to Basel (1999), the Kyoto Protocol (1997) and Ramsar, the majority (58.7 %) of the teacher training institute lecturer respondents are most knowledgeable about CITES.

In Table 4.7, 74.2% of the teacher training institute lecturer respondents have chosen the correct meaning of biodiversity. However, in Table 4.11, only 53.5 % of the teacher training institute lecturer respondents claimed to know about biodiversity. In contrast 74.9% of the teacher training institute lecturer respondents indicated that they are knowledgeable about the destruction of wild life habitats and 79 % of the university lecturer respondents indicated that they know about the depletion of flora and fauna. Once again, just as in the teacher and university lecturer respondents, this contradiction indicates some lack of clarity among the teacher training institute lecturer respondents.

Table 4.9: Teacher training institute respondents' level of knowledge in environmental issues

Question	Anticipated Best Answer	%
29 Environmental Issues	International Environmental Treaties	28.9
	Global warming	22.9
	Ozone depletion	26.5
	Biodiversity	53.5
	Greenhouse effect	74.8
	Destruction of wildlife habitats	74.9
	Managing forest areas	76.4
	Depletion of flora and fauna	79.0

4.5 Knowledge level among members of the public and parents

The five aspects discussed will be, (i) knowledge about why certain environmental problems occur, (ii) knowledge about fauna, flora and biodiversity, (iii) knowledge about EIA, (iv)knowledge about international treaties and (v) knowledge about the development of environmental laws and policies.

From Table 4.10, only 12.4 % of the members of the public respondents and 14% of the parent respondents are sure of the cause of haze. Similar to the teacher, the university lecturer respondents, and the teacher training institute lecturers, only a small percentage (5.1%) of the members of the public respondents and 7% of the parent respondents chose the anticipated answer for the cause of beach pollution. Only 49.8% of the members of the public respondents have chosen the anticipated correct answer related to the purpose of EIA assessment reports. Compared to this the percentage of parent respondents was a little higher at 58.7%.

Table 4.10: Knowledge of environmental issues, biodiversity and purpose of EIA among members of the public and parent respondents

Question	Anticipated Best Answer	Public %	Parents%
1 Cause of haze	Exhaust fumes; Factories	12.4	14.0
3 Biodiversity means…	All living things…	58.9	59.3
8 Why flashfloods?	Monsoon drains blocked	72.7	68.6
9 Does not lead to beach pollution	Oil spills	5.1	7.0
10 Habits that do not impact aquatic life	Increasing seafood in our diet	76.4	78.5
11 Which is an /are endangered species?	Leatherback turtle	80.4	82.0
	Malayan Tiger	36.2	54.7
	Orangutan	43.6	51.2
	Proboscis Monkey	27.6	31.4
	Gharial	20.7	28.5
	Wild Boar	10.2	13.4
12 Purpose of Environmental Impact Assessment (EIA)	Plans ways to reduce negative effect	49.8	58.7

Items 3 and 11 are related to fauna, flora and biodiversity knowledge. From Table 4.13, the lack of knowledge among the members of the public (10.2%) and parents (13.4%) is about the wild boar not being an endangered species. Just as the teachers and the university lecturer respondents, 80.4% of the members of the public and 82% of the parents know the most about the leatherback turtles as an endangered species.

Table 4.11 indicates the results of what members of the public and parent respondents know about international treaties.

Table 4.11: Knowledge about International Treaties among public and parent respondents

Question	Anticipated Best Answer	Public %	Parent %
13 International treaties ratified by Malaysia	CITES	76.0	74.4
	Kyoto	14.2	24.4
	Basel	9.8	12.2
	Ramsar	6.9	14.5

Once again, similar to the teacher respondents, university lecturer respondents, and teacher training institute respondents, compared to Basel (1999), the Kyoto Protocol (1997) and Ramsar, 76 % the members of the public and 74.4% of the parent respondents are most knowledgeable about CITES.

Table 4.12: Members of the Public and Parents' Level of knowledge about the Development of Environmental Policies and Act

Question	Anticipated Best Answer	Public %	Parent %
27 Knowledge about the development of Environmental Acts and Policies	Environmental Quality Act (EQA)	64.0	33.1
	National Environmental Policy	62.9	39.5
	Malaysia Plan	29.8	33.1
	Local Plan	29.5	40.7
	Structural Plan	26.9	39.5

In Table 4.12, 62% - 64% of the members of the public respondents are knowledgeable about the development of Environmental Policies and Acts such as the EQA and the National Environmental Policy. Less than 30% of the public know about the Malaysia plans, local plans and structural plans. As for the parents, overall, less than 41% are knowledgeable about any of the policies and acts.

4.6 Knowledge Level Among the Media and Industry

This section will be discussed from the following aspects, (i) knowledge about why certain environmental problems occur, (ii) knowledge about fauna, flora and biodiversity, (iii) knowledge about EIA, (iv) knowledge about international treaties and (v) knowledge about their organisations' environmental practices.

From Table 4.13, only 3.8 % of the members of the media and industry respondents are sure of the cause of haze. Similar to the teacher, the university lecturer respondents, the teacher training institute lecturers, the public and the parents, only a small percentage (4.4%) of the members of the media and industry respondents chose the anticipated answer for the cause of beach pollution. However, 81.4% of the media and industry respondents chose the correct answer for the purpose of the EIA report, compared to only 49.8% of the members of the public respondents and 58.7% of the parent respondents.

Items 3 and 11 are related to fauna, flora and biodiversity knowledge. From Table 4.17, what stands out is that 90.2% of the media and industry respondents chose the correct answer for wild boar. This finding is similar to the teacher sample but when compared with the other groups, it is far higher.

Table 4.13: Knowledge of environmental issues, biodiversity and purpose of EIA among media and industry respondents (N= 182)

Question	Anticipated Best Answer	%
1 Cause of haze	Exhaust fumes; Factories	3.8
3 Biodiversity means…	All living things…	70.5
8 Why flashfloods?	Monsoon drains blocked	68.9
9 Does not lead to beach pollution	Oil spills	4.4
10 Habits that do not impact aquatic life	Increasing seafood in our diet	80.3
11 Which is an /are endangered species?	Leatherback turtle	86.9
	Malayan Tiger	68.9
	Orangutan	56.8
	Proboscis Monkey	37.2
	Gharial	26.8
	Wild Boar	90.2
12 Purpose of Environmental Impact Assessment (EIA)	Plans ways to reduce negative effect	81.4

Table 4.14 indicates the results of what members of the media and industry respondents know about international treaties.

Table 4.14: Knowledge about international treaties among media and industry respondents

Question	Anticipated Best Answer	%
13 International treaties ratified by Malaysia	CITES	67.8
	Kyoto	36.6
	Basel	20.2
	Ramsar	19.7

Once again, similar to all the other groups, compared to Basel (1999), the Kyoto Protocol (1997) and Ramsar, 67.8% the members of the media and industry respondents are most knowledgeable about CITES.

Table 4.15: Members of the media and industry knowledge about their organisations environmental related practices

Question	Anticipated Best Answer	%
26 Knowledge about their organization's Environmental Practices	Green Purchasing Policies	23.0
	Reducing solid wastes	32.8
	Monitoring of environmental practices	51.8
	Preventing pollution	55.7

In terms of practicing *Green Purchasing Policy*, only 23% of the respondents said that their organisation practiced this policy, 32.8 % of the respondents claimed that they know about *solid waste reduction* practices in their organisations. When posed with the statement whether their organisation *monitors and evaluates activities that have an impact on the environment*, just over half of the total number of respondents (51.8%) said that their organisation did put this into practice. More that half of the respondents (55.7%) claimed that their organisation *practiced activities that help to prevent pollution* (Table 4.15).

4.7 Knowledge Level Among Politicians, Governmental Officers and NGO Respondents

This section will be discussed from the following aspects, (i) knowledge about why certain environmental problems occur, (ii) knowledge about fauna, flora and biodiversity, (iii) knowledge about EIA, (iv) knowledge about international treaties and (v) knowledge about environmental laws and policies.

Table 4.16: Knowledge of environmental issues, biodiversity and purpose of EIA among politicians, government officers and NGO respondents (N=579)

Question	Anticipated Best Answer	%
1 Cause of haze	Exhaust fumes; Factories	11.4
3 Biodiversity means…	All living things…	77.9
8 Why flashfloods?	Monsoon drains blocked	66.1
9 Does not lead to beach pollution	Oil spills	4.8
10 Habits that do not impact aquatic life	Increasing seafood in our diet	84.6
11 Which is an /are endangered species?	Leatherback turtle	83.9
	Malayan Tiger	63.2
	Orangutan	59.9
	Proboscis Monkey	41.3
	Gharial	28.5
	Wild Boar	92.4
12 Purpose of Environmental Impact Assessment (EIA)	Plans ways to reduce negative effect	78.6

From Table 4.16, only 11.4 % of the politicians, governmental officers and NGO respondents are sure of the cause of haze. Similar to all the previous groups, only a small percentage (4.8%) of the politicians, governmental officers and NGO respondents chose the anticipated answer for the cause of beach pollution. However, 78.6 % of the politicians, governmental officers and NGO respondents chose the correct answer for the

purpose of the EIA report, which was closer to the media and industry respondents (81.4%), but higher when compared to of the members of the public respondents (49.8%) and the parent respondents (58.7%).

Items 3 and 11 are related to fauna, flora and biodiversity knowledge. From Table 4.21, what stands out is that 92.4% of the politicians, governmental officers and NGO respondents (similar to the teacher sample as well as the media and industry respondents) chose the correct answer for wild boar.

Table 4.17 indicates the results of what politicians, governmental officers and NGO respondents knowledge about international treaties.

Table 4.17: Knowledge about international treaties among politicians, government officers and NGO respondents

Question	Anticipated Best Answer	%
13 International treaties ratified by Malaysia	CITES	57.2
	Kyoto	45.9
	Basel	15.5
	Ramsar	23.8

Yet again, similar to all the other groups, compared to Basel (1999), the Kyoto Protocol (1997) and Ramsar, 57.2% the politicians, governmental officers and NGO respondents are most knowledgeable about CITES. However, when compared to all the other groups, this percentage is the least.

Table 4.18 shows how aware the politicians, government officers and NGO respondents are of legislations related to the environment. Most of the respondents are aware of (g) Environmental Quality Act 1974 (82.6%), and (b) Protection of Wildlife Act 1972 (83.4%). However, almost half of the respondents state that they are not aware of (e) Land Conservation Act 1960 (50.8%) and (c) Fisheries Act 1985(52.3%)

Table 4.18 also shows the respondents knowledge about existing environmental policies. In general, most of the respondents claim to know of the National Environmental Policy (69.3%), followed by the National Agricultural Policy (67%), the National Forest Policy (60%) and the National Biodiversity Policy (49.1%). Only a minority (36.4%) claim to know of the National Physical Plan.

Table 4.18: Politicians, governmental officers and NGO knowledge about existing environmental laws and policies

Question	Anticipated Best Answer	%
24 Knowledge about existing environmental laws	Town and Country Planning Act 1976	65.6
	Protection of Wildlife Act 1972	83.4
	Fisheries Act 1985	52.3
	National Parks Act 1980	63.4
	Land Conservation Act 1960	50.8
	Local Government Act 1976	63.2
	Environmental Quality Act 1974	82.6
25 Knowledge about existing environmental policies	National Biodiversity Policy	49.1
	National Physical Plan	36.4
	National Environmental Policy	69.3
	National Forest Policy	60.0
	National Agricultural Policy	67.0

4.8 Summary

After discussing the knowledge level of all the respondents concerning specific environmental examples given in the questionnaire, in summary, the overall knowledge levels are shown in Table 4.19.

Table 4.19: Mean percentage of common knowledge levels among respondents of all the adult respondents

Mean (%) Percentage For	Knowledge About Why Certain Environmental Problems Occur (Items 1,8,9,10)				Knowledge About Fauna & Biodiversity (Items 3,11)		Knowledge About Eia (Item 12)	Knowledge About International Treaties (Item 13)			
	1.Cause of Haze	8.Cause of flashfloods	9. Cause of Beach Pollution	10. What impacts aquatic life	3. Meaning of Biodiversity	11. Endangered Species		a. CITES	b. Kyoto	c. Basel	d. Ramsar
Teachers	10.6	79	6.0	83.8	74.6	59.6	**66.3**	77.8	28.6	12	8.3
Mean %	**44.8**				**61.7**			**31.2**			
University Lecturers	10.4	68.3	8.7	82.5	80.3	48.2	**82.0**	63.9	45.4	17.5	15.8
Mean %	**42.5**				**50.0**			**35.6**			
Teacher Training Institute Lecturers	8.4	68.5	9.5	82.1	74.2	48.3	**72.3**	58.7	42.5	11.9	15.5
Mean %	**42.1**				**52.0**			**32.2**			
Public	12.4	72.7	5.1	76.4	59.9	36.5	**49.8**	76.0	14.2	9.8	6.9
Mean %	**42.0**				**45.8**			**31.4**			
Parents	14.0	68.6	7.0	78.5	59.3	43.5	**58.7**	74.4	24.4	12.2	14.5
Mean %	**42.0**				**51.4**			**31.4**			
Media & Industry	3.8	68.9	4.4	80.3	70.5	61.1	**81.4**	23.0	32.8	51.8	55.7
Mean %	**39.3**				**64.5**			**36.1**			

Table 4.20 compares the obtained knowledge levels for the adult and working groups.

Table 4.20:Mean percentage of group specific knowledge levels among respondents of all the adult respondents.

Mean (%) Percentage For	**Knowledge About Environmental Issues (Item 29)**	
Teachers	59.1	
University Lecturers	69.7	
Teacher Training Institute Lecturers	54.6	
Public & Parents	**Knowledge about the development of Environmental Acts and Policies (Item 27)**	
	37.2	
Media & Industry	**Knowledge about their organisation's Environmental Practices (Item 26)**	
	40.1	
Politicians, government officers and NGO	**Knowledge about existing environmental laws (Item 24)**	**Knowledge about existing environmental policies (Item 25)**
	65.9	56.4

Table 4.20 shows knowledge levels specific to each group of the adult respondents. The knowledge about environmental issues (such as global warming, ozone depletion, green house effect, destruction of wildlife habitats, managing forest areas and depletion of flora and fauna among the educators (Teachers, University Lecturers and Teacher Trainers) can be considered moderate with the university lecturers showing the highest mean level (69.7%).

The members of the public and the parents who took part in the survey have shown a low level of knowledge related to the development of environmental acts and policies (mean% = 37.2%). The media and industry members who took part in the study only showed a mean percentage of 40.1 % level of knowledge about their organisation's environmental practices. The mean percentage for the politicians, government officers and members of NGOs' who participated in the survey also achieved a moderate level of knowledge about existing environmental laws (65.9%) and environmental policies

(56.4%). A summary of the knowledge levels of all the respondents are given in Table 4.21.

Table 4.21: Summary of Knowledge levels among the adult and working groups

Types Of Knowledge	Discussion
Knowledge about why certain environmental problems occur	All the groups showed almost the same level of knowledge concerning about the reasons why certain environmental problems such as the haze occur. All showed < 45% of this knowledge. It can be inferred that the level is low.
Knowledge about fauna & biodiversity	Teachers, the media and industry respondents, the politicians, government officers and NGO respondents show higher levels compared to the rest. The level ranged from 45% - 65% with public and parent respondents recording the lowest at 45.8%. It can be inferred that the level is from low to average only.
Knowledge about EIA	The level ranges between 58% - 82% with once again the public and parent respondents at 58.7%. The university lecturers, media and industry have indicated a high level of over 80%.
Knowledge about International Treaties	All groups showed a mean of < 37% and can be said that all have a low level of knowledge.
Knowledge about Environmental Issues	This aspect was **only** obtained from the teacher, university lecturer and teacher trainer groups. The level ranged between 54% - 70% with the university lecturers scoring the highest at 69.7%
Knowledge about the development of Environmental Acts and Policies	This aspect obtained **only** from public and parent respondents showed a low of only 37.2%.
Knowledge about their organization's Environmental Practices	This aspect obtained **only** from the media and industry respondents showed a low of only 40.1 %.
Knowledge about existing environmental laws	This aspect obtained **only** from politicians, government officers and NGO respondents showed an average of 65.9%
Knowledge about existing environmental policies	This aspect obtained **only** from politicians, government officers and NGO respondents showed a lower end average of 56.4%.

4.9 Knowledge Level Among Students

The groups discussed till 4.7 (teachers, university lecturers, teacher trainers, members of the public, parents, media, business, politicians, government officers and NGOs') represent the adult population. In this section the results of the student population will be discussed.

Knowledge levels related to environmental issues, biodiversity and EIA is shown in Table 4.22. Overall, the tertiary students and the teacher trainees are more knowledgeable about the given issues. The primary school pupils scored the lowest and this is expected because of their age and their experience.

Table 4.22: Knowledge of environmental issues, biodiversity and purpose of EIA among primary, secondary, tertiary students and teacher trainee respondents

Question	Anticipated Best Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
1 Cause of haze	Exhaust Fumes; Factories	**38.2**	**39.8**	25.0	24.7
3 Biodiversity means…	All living things…	37.6	46.8	**69.0**	**64.5**
8 Why flashfloods?	Monsoon drains blocked	31.0	**52.3**	**59.1**	**58.2**
9 Does not lead to beach pollution	Oil spills	16.1	6.0	4.8	8.3
10 Habits that do not impact aquatic life	Increasing seafood in our diet	31.1	65.3	**78.8**	**83.2**
11 Which is an /are endangered species?	Leatherback turtle	24.8	26.3	**88.0**	**79.6**
	Malayan Tiger	17.5	20.1	**64.2**	**57.1**
	Orangutan	13.9	21.6	**72.8**	54.6
	Proboscis Monkey	14.9	15.0	**59.9**	36.4
	Gharial	16.8	13.2	**32.9**	29.6
	Wild Boar	12.0	3.8	**6.5**	**9.2**
12 Purpose of Environmental Impact Assessment (EIA)	Plans ways to reduce negative effect	58.9	68.5	67.1	61.2

In Table 4.23, it is clear that, as in the adult respondents, CITES is still the best known as all the student groups scored the highest.

Table 4.23: Knowledge about international treaties among primary, secondary, tertiary students and teacher trainee respondents

Question	Anticipated Best Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
13 International treaties ratified by Malaysia	CITES	47.6	63.1	78.1	75.2
	Kyoto	14.2	13.7	29.6	26.0
	Basel	20.0	13.2	15.1	12.2
	Ramsar	18.2	10.0	11.8	8.5

Table 4.24, shows that the secondary students have a higher level of knowledge compared to primary pupils. Less than 60% of the university students have agreed that they acquire knowledge through their university activities and only 40% of the teacher trainees say that formal school education provides enough information about the environment.

Table 4.24: Primary and secondary students respondents level of knowledge about environmental issues

Question	Anticipated Best Answer	Primary%	Secondary%
30 Environmental Issues	Air pollution	83.3	89.0
	Global warming	70.1	79.4
	River pollution	82.8	90.8
	Polluted drinking water	80.2	73.8
	Illegal logging	81.6	88.2
	Wildlife extinction	77.1	89.5
	Acid rain	76.9	71.4
	Badly managed garbage collection	70.8	86.1

The tertiary level students have indicated that creating an environmental responsible culture at the university is what increases their awareness towards environmental matters (Table 4.25)

Table 4.25: Tertiary respondents' level of knowledge on increased awareness

Question	Anticipated Best Answer	Tertiary%
27 In my opinion, awareness towards environmental matters in my university is increased through:	seminars or forums on environmental issues	54.3
	relevant field site visits to gain experience	49
	activities which tackle local environmental issues	64.4
	creating an environmentally responsible culture	58.9

In Table 4.26, it can be seen that the teacher trainees respondents have indicated the newspaper (79.6%) as the main source of information about the environment for them, with television (71.1%) coming in second.

Table 4.26: Teacher trainee respondents' level of knowledge about how to obtain information

Question	Anticipated Best Answer	Teacher Trainees %
26 Where do you get most of your information on the environment?	Newspaper	79.6
	School	40.0
	Informal education (e.g. through family and friends)	43.2
	Environmental organisations (e.g. WWF, GEC and MNS)	29.8
	Internet	53.6
	Television	71.9

4.10 Summary

Tables 4.27 and 4.28 show the overall knowledge levels about the different aspects among the student groups.

Table 4.27: Mean percentage of knowledge levels among the student respondents.

Mean Percentage for	**Knowledge about why certain environmental problems occur (Items 1,8,9,10)**				**Knowledge about fauna & biodiversity (Items 3,11)**		**Knowledge about EIA (Item 12)**	**Knowledge about International Treaties (Item 13)**			
	1	8	9	10	3	11		a	b	c	d
Primary	38.2	31.0	16.1	31.1	37.6	16.6		47.6	14.2	20.0	18.2
Mean %	**29.1**				**19.6**		**58.9**	**25.0**			
Secondary	39.8	52.3	6.0	65.3	46.8	16.6		63.1	13.7	13.2	10.0
Mean %	**40.9**				**21.0**		**68.5**	**25.0**			
Tertiary	25	59.1	4.8	78.8	69.0	54.1		78.1	29.6	15.1	11.8
Mean %	**41.9**				**56.2**		**67.1**	**33.7**			
Teacher Trainees	24.7	58.2	8.3	83.2	64.5	44.4		75.2	26.0	12.2	8.5
Mean %	**43.6**				**47.3**		**61.2**	**30.5**			

Among the student in the adult groups, knowledge about beach pollution was low (Item 9). The overall knowledge levels for the reasons for environmental problems can also be considered low (mean percentages ranging from 29.1% - 43.6%) for all the groups. Knowledge levels for biodiversity are also low to moderate as is the knowledge levels about international treaties.

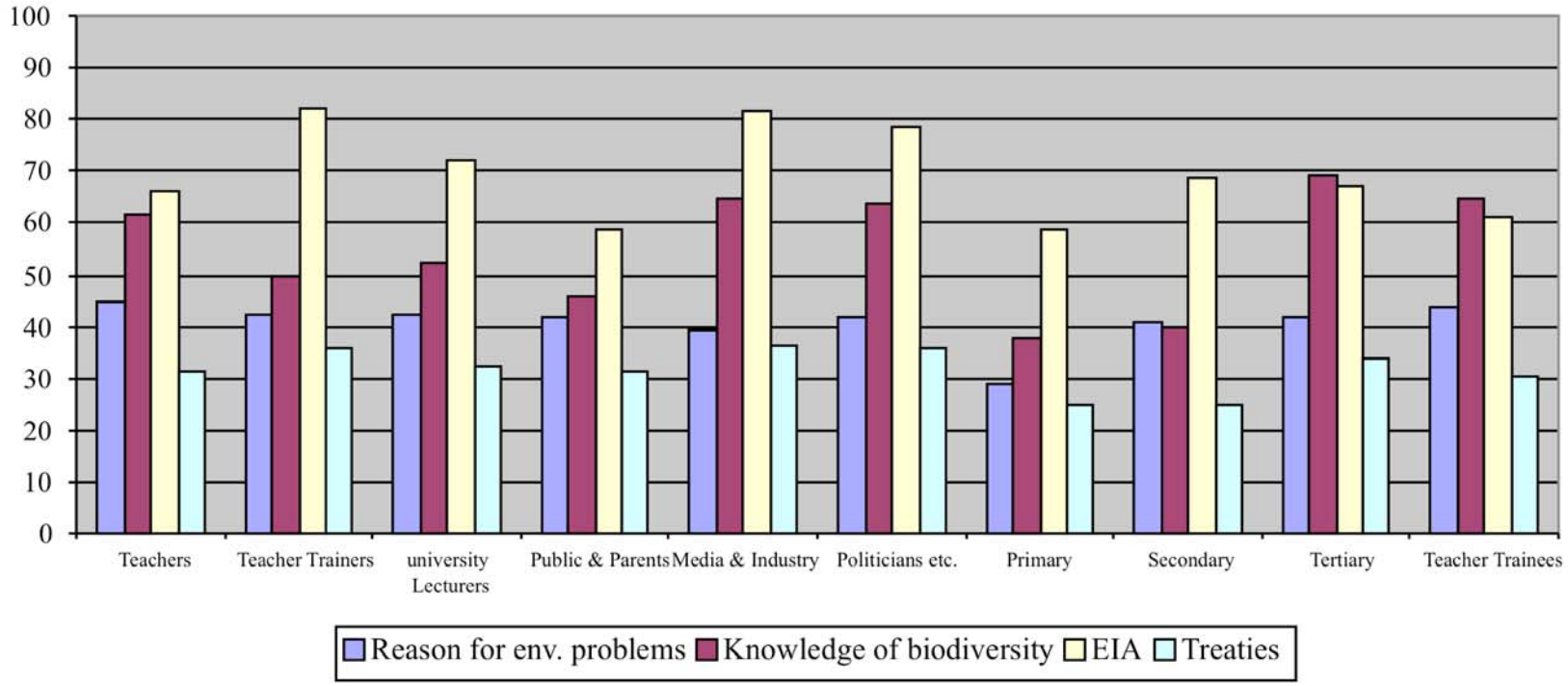
Table 4.28 gives a short discussion of the knowledge levels among the student respondents.

Table 4.28: Summary of general knowledge levels among the student respondents

Types of Knowledge	Discussion
Knowledge about why certain environmental problems occur	The primary students group showed the lowest level (29.1%). The secondary, tertiary and the teacher trainees ranged from 40% to 44%. Overall, all 4 groups showed < 45% of this knowledge. It can be inferred that the level is low.
Knowledge about fauna & biodiversity	The tertiary students showed the highest level at 56.2%. The primary and secondary students were the lowest at 19.6% and 21% respectively. The teacher trainees seemed to know a little less than the tertiary students at 47.3%. It can be inferred that the level is low.
Knowledge about EIA	The level ranges between 58% - 68% with the tertiary students indicating the highest level of knowledge once again.
Knowledge about International Treaties	All respondents showed a mean of < 37% and can be said that all have a low level of knowledge.

4.9 Knowledge Levels for Four Common Aspects for All Respondents.

Graph 4.1 indicates the knowledge levels for the aspects of (i) knowledge about the reason for selected environmental problems, (ii) knowledge about biodiversity, (iii) knowledge about EIA, and (iv) knowledge about environmental treaties.



Graph 4.1: Existing knowledge levels among respondents as compared to the anticipated levels.

4.11 Comparison of Malaysian Results on Environmental Knowledge with Other Nations

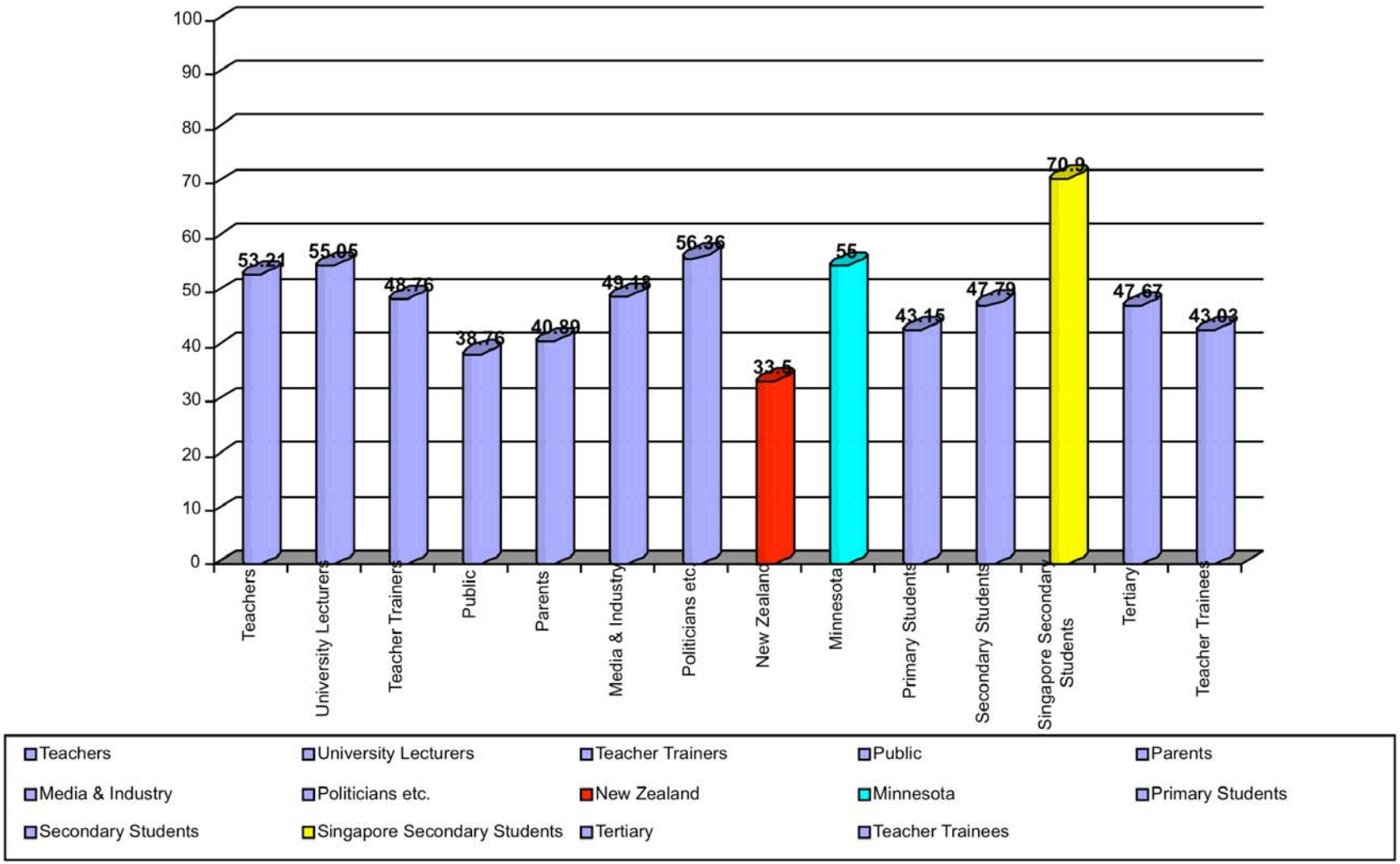
In this section, the knowledge levels of the Malaysian respondents investigated will be compared with results from other nations. In order to compare, similar items were first identified in the survey utilised in Malaysia and in other nations and the mean percentage calculated.

Table 4.29: Knowledge Levels of Malaysians Compared With Other Nations* (N= 6090)

Country	**Group**	**Level of Knowledge**
Malaysia (2006 – 2007)	Teachers	53.21
Malaysia	University Lecturers	55.05
Malaysia	Teacher Trainees	48.76
Malaysia	Public	38.76
Malaysia	Parents	40.89
Malaysia	Media & Industry	49.18
Malaysia	Politicians, Gov. Officers *etc*	56.36
Malaysia	Primary Students	43.15
Malaysia	Secondary Students	47.79
Singapore (1998)	**Secondary & Junior College Students**	**70.9% (N=1256)**
Malaysia	Tertiary	47.67
Malaysia	Teacher Trainees	43.03
NZ (2006)	**Adults**	**33.5 (N=1003)**
Minnesota (2002)	**Adults**	**55.0 (N=1000)**

*Refer to ***Appendix 4*** for more details about the foreign studies

The above results are also shown in Graph 4.2.



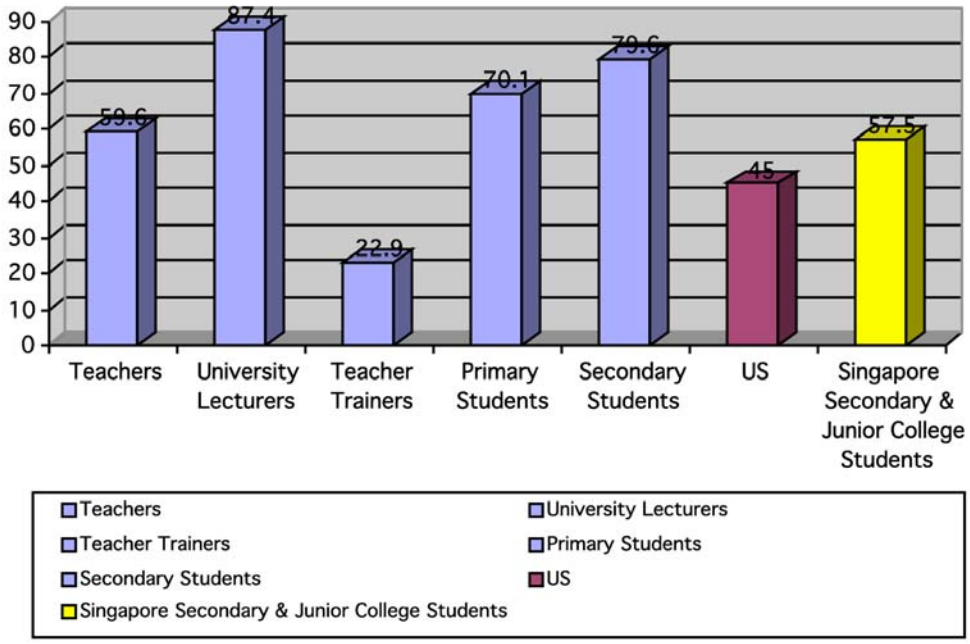
Graph 4.2: Knowledge levels compared

Graph 4.2 indicates that Malaysian respondents who participated in the survey were comparable with their American counterparts and showed higher levels of knowledge when compared to their New Zealand counterparts. However, Singapore secondary and junior college students indicated the highest knowledge levels.

4.11.1 Comparison of Selected Issues on Knowledge

In order to highlight the levels of knowledge among Malaysians and citizens of other nations, certain selected issues related to knowledge are compared below.

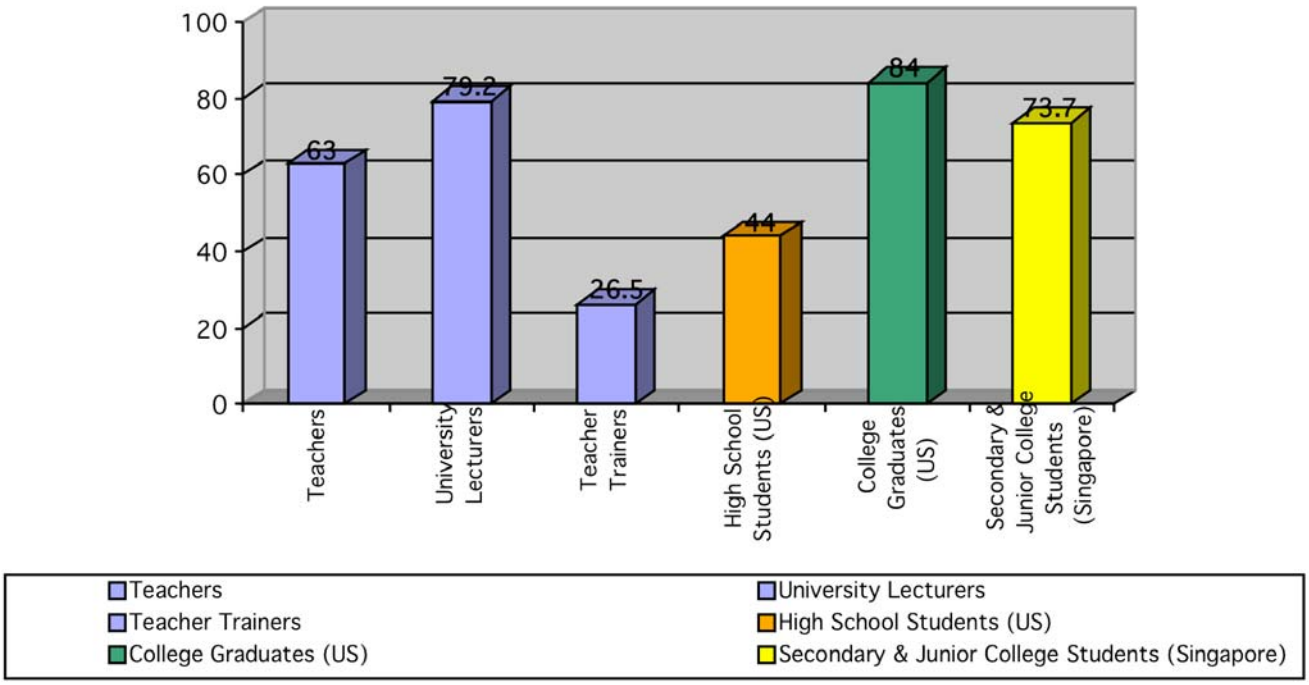
Knowledge about Global Warming



Graph 4. 3: Knowledge of different groups about Global Warming

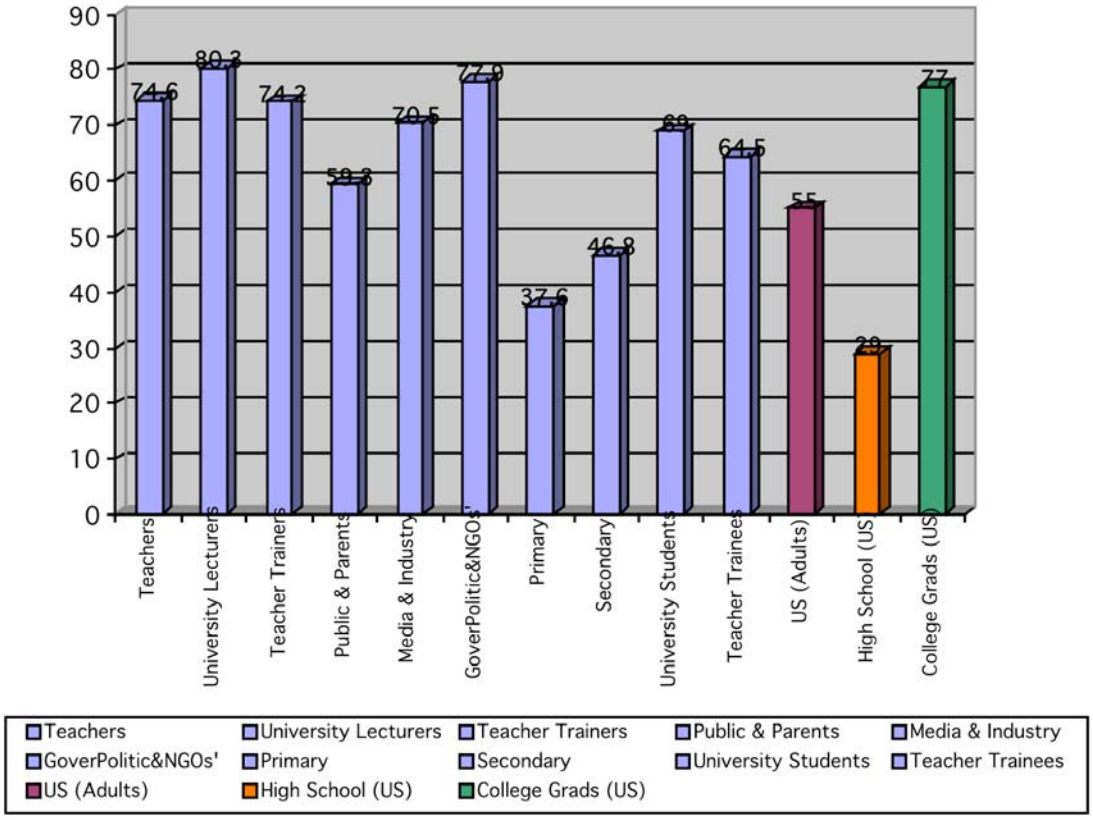
Generally, the Malaysian educators have indicated a high level of knowledge about global warming when compared to adult Americans and students in Singapore, except for the Malaysian teacher trainers (Graph 4.3). Graphs 4.4 and 4.5 show knowledge levels about ozone depletion and biodiversity. Malaysian secondary school teachers and university lecturers can be considered as almost on par with the American college graduates, except for the Malaysian teacher trainers. As for knowledge about biodiversity, almost all the Malaysian groups (except for the primary and secondary teachers) have indicated high levels comparable to the American college graduates. For both (knowledge about ozone depletion and biodiversity), the American high school students showed lower levels compared to the college graduates.

Knowledge about Ozone Depletion



Graph 4. 4: Knowledge about Ozone Depletion among different groups

Knowledge about Biodiversity



Graph 4. 5: Knowledge about Biodiversity among different groups

Table 4.30: Sources of Knowledge for Malaysians Compared

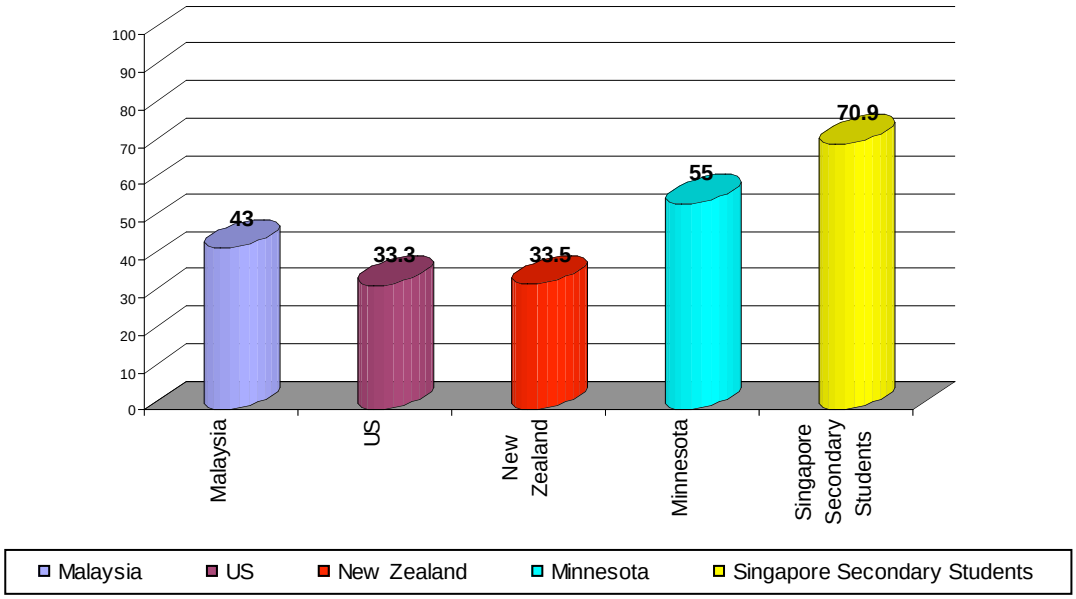
Group	Television (%)	Newspapers (%)	Environmental Groups (%)	Internet (%)
Americans (Adults)	**63**	**59**	**31**	**23**
Minnesota (Adults)	**91**	**91**	**67**	**36**
Singapore (Secondary & Junior College)	**16.2**	**37.5**	**5.7**	**NA**
Public	71.6	60.0	28.2	28.0
Parents	68.0	75.6	35.5	34.9
Tertiary	NA*		37.3	87.7
Primary school students	16.7		NA*	
Secondary School Students	23.6			

***NA- not applicable / not available**

Except for the Malaysian tertiary students, the members of the public, parents, primary and secondary school students turn to the newspapers and television to obtain information about the environment. The same pattern seems to be true for Americans as a whole and Minnesotans, in particular. Therefore, the television and the newspapers can be powerful tools in disseminating vital information about the environment.

4.12 Overall Knowledge Level of Malaysians Compared

Graph 4.6 shows the overall average obtained for all the survey respondents for knowledge is 43% (Refer to ***Appendix 5*** for details of the calculation) when compared to New Zealand (Adults), Minnesota, (US adults) and Singapore (Students)



Graph 4.6: Overall Knowledge Level of Malaysians compared

4.13 Summary

It can be said that generally, Malaysian respondents have knowledge about the environment related to various issues. However, most of the knowledge levels about the various issues range from low to moderate. Yet, when compared to other nations, Malaysians are not far behind. For example it is encouraging to note that specific knowledge such as about biodiversity (Graph 4.5) among Malaysians is comparable to our American counterparts. Nevertheless, the knowledge levels among Malaysians can be enhanced further and we should aim for a higher level of environmental citizenship.

ENVIRONMENTAL CITIZENSHIP: ATTITUDE DOMAIN

5.1 Introduction

In the *Tbilisi Declaration* (1977), attitude means a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection. There were 10 groups of respondents. The attitude level of environmental citizenship of each group towards various concerns is discussed in this chapter. From sections 5.2 to 5.7 the adult and working groups involved in the study are discussed. In section 5.8, the student groups involved are discussed.

5.2 Attitude Levels among Teacher Respondents

The attitude levels among the teacher respondents of the study will be discussed from the following perspectives, namely (i) the level of concern related to developments near home and the other areas such as the coastal environment, (ii) the level of concern about polluted water, (iii) the importance attributed to environmental initiatives and (iv) various opinions related environmental education. Table 5.1 shows the level of concern among teachers concerning development activities in their surroundings.

87.5% indicated that they were worried when new land is cleared for industry near their home, and 92.4% are worried when logging activities are carried out in a forest near their home. However less than 61% are concerned about new developments near their home and if a new golf course is built near their home. When it comes to coastal areas being developed for recreation, only 37.2% are concerned. As Table 5.1 shows, there are teachers who are not worried at all concerning the five issues.

Table 5.1: Level of concern for various development activities in the surroundings among teachers

Question	Anticipated Best Answer	%	Other Selected Answer(s)	%
16a New land cleared for industry	Very worried	31.4	Less worried	9.7
	Worried	56.1	Not worried	2.8
	Total	**87.5**		
16b Logging activities in forest near home	Very worried	65.4	Less worried	5.8
	Worried	27.0	Not worried	1.8
	Total	**92.4**		
16c New developments near home	Very worried	22.4	Less worried	31.9
	Worried	37.4	Not worried	8.3
	Total	**59.8**		
16d New golf course near home	Very worried	25.2	Less worried	24.7
	Worried	35.6	Not worried	14.5
	Total	**60.8**		
16e Coastal areas developed for recreation	Very worried	12.5	Less worried	30.0
	Worried	24.7	Not worried	32.8
	Total	**37.2**		

Table 5.2 shows the level of concern among the teacher respondents regarding water pollution. Overall, more than 88 % of the respondents show a high level of concern towards the state of water and its effects.

Table 5.2: Level of concern about water among teacher respondents

Question	Anticipated Best Answer	%	Other Selected Answer(s)	%
22a Polluted water affects my health	Strongly Agree	84.3	Disagree	1.4
	Agree	12.2	Strongly Disagree	2.1
	Total	**96.5**		
22b Will not have enough supply of clean water	Strongly Agree	79.7	Disagree	3.5
	Agree	14.3	Strongly Disagree	2.5
	Total	**94.0**		
22c Polluted water does not affect me	**Strongly Disagree**	**83.4**	**Agree**	3.2
	Disagree	**8.8**	**Strongly Agree**	4.6
	Total	**92.2**		
22d Demand for clean water will increase and affect my household expenses	Strongly Agree	59.6	Disagree	6.5
	Agree	29.1	Strongly Disagree	4.8
	Total	**88.7**		

From Tables 5.1 and 5.2, it can be said that teacher respondents of the survey possess a concerned attitude towards certain aspects of their surrounding environment and a very concerned attitude towards having clean water supply.

Table 5.3 shows the importance attached to the various initiatives to save the environment by teacher respondents. Between 96 % – 99% of the respondents have indicated attaching high importance for all the initiatives mentioned.

Table 5.3: Importance attached to various environmental initiatives by teacher respondents.

Question	Anticipated Best Answer	%	Other Selected Answer(s)	%
23a Importance of Save our forests initiatives	Very Important	84.3	Less important	1.6
	Important	13.9	Not important	0.2
	Total	**98.2**		
23b Importance of water recycling initiatives	Very Important	74.6	Less important	3.5
	Important	21.5	Not important	0.5
	Total	**96.1**		
23c Importance of save our rivers initiatives	Very Important	86.4	Less important	0
	Important	12.7	Not important	0.9
	Total	**99.1**		
23d Importance of water saving initiatives	Very Important	80.6	Less important	0.9
	Important	15.7	Not important	2.8
	Total	**96.3**		

Once again (from Table 5.3), it can be stated that teacher respondents of the survey attributed great importance to a variety of environmental initiatives. This, in turn, can indicate a very concerned attitude towards all environment initiatives.

When asked to indicate whether environmental education is important, 97.7 % agreed that EE is important (Table 5.4). However, when asked to chose reasons why is it that they do not infuse EE, 83.4% said they had no training.

Table 5.4: Teacher respondents and their opinions about EE

Question	Anticipated Best Answer	%	
24 Is there a need to infuse EE	Yes	97.7	
	No	2.3	
		Yes	**No**
26 Why I do not try and infuse EE	No formal training	83.4	16.6
	Do not know how to implement activities	58.4	41.6
	No support from administrators	29.8	70.2
	EE not required in examinations	56.4	43.6
	Students too busy with academic activities	68.4	31.6
	Schools lack funds	23.6	76.4

From Table 5.4, the exam-oriented school life is seen clearly, as 56.4% of the teachers admit that they do not infuse EE as it is not required in the exams and 68.4 % of the teachers feel that the students are busy with academic life.

5.3 Attitude levels among University Lecturers Respondents

The attitude levels among the university lecturer respondents of the study will also be discussed similar to the teacher respondents, that is (i) the level of concern related to developments near home and the other areas such as the coastal environment, (ii) the level of concern about polluted water, (iii) the importance attributed to environmental initiatives and (iv) various opinions related environmental education.

Item 16 required the respondents to identify activities from a given list that are of serious concern to them. Table 5.5 summarises the findings. Most respondents (89.3%) seem to be very worried if there were logging activities carried out near their housing area. This is followed by (a) new land cleared for industry (82.1%), (c) new development carried out near housing area (71.8%) and (d) new golf course opened in housing area (63.4%). It should be noted that (e)

coastal areas developed for recreational purpose is not a major concern to these respondents (45.4%).

Table 5.5: Level of concern for various development activities in the surroundings among university lecturers

Question	Anticipated Best Answer	%
16a New land cleared for industry	Very worried & Worried	82.1
16b Logging activities in forest near home	Very worried & Worried	89.3
16c New developments near home	Very worried & Worried	71.8
16d New golf course near home	Very worried & Worried	63.4
16e Coastal areas developed for recreation	Very worried & Worried	45.4

What the university lecturer respondents think about water related environmental problems is given in Table 5.6. Respondents were given a situation and asked to state how living near a polluted river would affect their life. The majority supported the listed reasons as shown. Almost all respondents felt that (a) the polluted water will affect their health as the effect of living near a polluted river (97.8%). A majority also agree that (b)there won't be enough supply of clean water (97%) and (d) the demand for clean water will increase and will affect my household expenses (93.5%). Only a minority of the respondents (33.3%) stated that the polluted water will not affect them.

Table 5.6: Level of concern about water among university lecturer respondents

Question	Anticipated Best Answer	%
22a **Polluted water affects my health**	Strongly Agree & Agree	97.8
22b **Will not be enough supply of clean water**	Strongly Agree & Agree	97.0
22c **Polluted water does not affect me**	Strongly Disagree & Disagree	33.3
22d **Demand for clean water will increase and affect my household expenses**	Strongly Agree & Agree	93.5

In item 23, the university lecturer respondents were requested to indicate the importance of the initiatives as listed in the questionnaire. Almost every respondent agreed that all the four listed initiatives are all important. The analysis in Table 5.7 shows the order of importance indicated by the university lecturers that is *(a) Save our forests initiatives* (96.2%), *(c) Saving our rivers initiatives,* (96.2%) *(d) Water saving initiatives,* (96.2%) and *(b) Waste recycling initiatives* (95%) respectively.

Table 5.7: Importance attached to various environmental initiatives by university lecturer respondents

Question	Anticipated Best Answer	%
23a **Importance of save our forests initiatives**	Very Important & Important	96.2
23b **Importance of water recycling initiatives**	Very Important & Important	95.0
23c **Importance of save our rivers initiatives**	Very Important & Important	96.2
23d **Importance of water saving initiatives**	Very Important & Important	96.2

A large majority of the university lecturer respondents (96.7 %), when asked to indicate whether environmental education is important, agreed (Table 5.8). When the respondents were asked to identify the reasons for them not being able to infuse environmental education in their teaching, even if they are interested, they stated as follows, (i) the lack of support from the management of their respective universities/institutions in carrying out environmental education activities (38.8%); (ii) the fact that they themselves do not know how to go about carrying out these EE activities (53.6%); (iii) the lack of funds from their universities or institutions to carry out EE activities (34.4%), (iv) it is not required in examinations (65%), and (v) my students are too busy with their academic activities (73.8%). Just as the teacher respondents, the examination culture emerges here as the majority does not infuse EE because it is not required for examinations and they seem to prefer to leave their students alone to pursue academic matters.

Table 5.8: University lecturer respondents and their opinions about EE

Question	Anticipated Best Answer	%	
24 Is there a need to infuse EE?	Yes	96.7	
	No	3.3	
		Yes	**No**
26 Why I do not try and infuse EE	No formal training	76.0	23.0
	Do not know how to implement activities	53.6	45.4
	No support from administrators	38.8	57.9
	EE not required in examinations	65.0	33.9
	Students too busy with academic activities	73.8	24.6
	Schools lack funds	34.4	20.2

5.4 Attitude levels among Teacher Training Institute Lecturer Respondents

As with the teachers and university lecturers, the attitude levels among the teacher training institute lecturer respondents of the study will be discussed from the same perspectives, namely (i) the level of concern related to developments near home and the other areas such as the coastal environment, (ii) the level of concern about polluted water, (iii) the importance attributed to environmental initiatives and (iv) various opinions related to environmental education.

Table 5.9 shows the level of concern among teacher training institute lecturer respondents concerning development activities in their surroundings.

Table 5.9: Level of concern for various development activities in the surroundings among teacher training lecturer respondents

Question	Anticipated Best Answer	%
16a **New land cleared for industry**	Very worried & Worried	82.1
16b **Logging activities in forest near home**	Very worried & Worried	89.3
16c **New developments near home**	Very worried & Worried	71.8
16d **New golf course near home**	Very worried & Worried	59.9
16e **Coastal areas developed for recreation**	Very worried & Worried	53.0

From the answers to item 16, most respondents (89.3%) seem to be very worried if there were logging activities carried out near their housing area. This is followed by (a) new land cleared for industry (82.1%), (c) new development carried out near housing area (71.8%) and (d) new golf course opened in housing area (59.9%). The teacher training institute lecturer respondents' concern for the coastal areas are similar to the teacher and the university lecturer respondents (only 53%) and appears not to be a major concern to these respondents.

Table 5.10 shows the level of concern among the teacher training institute lecturer respondents regarding water pollution. Almost all respondents felt that (a) the polluted water will affect their health as the effect of living near a polluted river (95.5%). A majority also agree that (b)there will not be enough supply of clean water (93.9%) and (d) the demand for clean water will increase and will affect their household expenses (86.1%). Only a small percentage of the respondents (12.7%) stated that the polluted water will not affect them.

Table 5.10: Level of concern about water among teacher training institute lecturer respondents

Question	Anticipated Best Answer	%
22a **Polluted water affects my health**	Strongly Agree & Agree	95.5
22b **Will not have enough supply of clean water**	Strongly Agree & Agree	93.9
22c **Polluted water does not affect me**	Strongly Disagree & Disagree	12.7
22d **Demand for clean water will increase and affect my household expenses**	Strongly Agree & Agree	86.1

Table 5.11 shows how much importance the teacher training institute lecturer respondents have attached to the various initiatives to save the environment. The respondents have indicated the importance they attach to the initiatives as follows, (c) saving our rivers initiatives (87.8%), followed by (a) save our forests initiatives (92.4%), (d) water saving initiatives (94.8%), and (b) waste recycling initiatives (95%) respectively.

Table 5.11: Importance attached to various environmental initiatives by teacher training institute lecturer respondents

Question	Anticipated Best Answer	%
23a Importance of save our forests initiatives	Very Important & Important	92.4
23b Importance of water recycling initiatives	Very Important & Important	95.0
23c Importance of save our rivers initiatives	Very Important & Important	87.8
23d Importance of water saving initiatives	Very Important & Important	94.8

When asked to indicate whether Environmental Education is important, 96.4 % agreed that EE is important (Table 5.12). However, when asked to chose (Table 5.12) reasons why is it that they do not infuse EE, 67.5% said they had no training. Once again the examination factor emerged as 56.8% chose EE was not an examination requirement and 65.2% chose the answer that students were busy with academic matters.

Table 5.12: Teacher training institute lecturer respondents and their opinions about EE

Question	Anticipated Best Answer	%	
24 Is there a need to infuse EE	Yes	96.4	
	No	3.6	
		Yes	**No**
26 Why I do not try and infuse EE	No formal training	67.5	28.2
	Do not know how to implement activities	39.9	55.6
	No support from administrators	33.7	59.9
	EE not required in examinations	56.8	37.9
	Students too busy with academic activities	65.2	29.4
	Schools lack funds	31.7	13.4

5.5 Attitude levels among Public and Parents Respondents

The attitude levels among the public and parent respondents of the study will discussed from the following aspects, (i) the level of concern related to developments near home and the other areas such as the coastal environment, (ii) the level of concern about polluted water, (iii) the importance attributed to environmental initiatives, (iv) the use of non-biodegradable materials, and (v) responsibility in instilling environmental appreciation.

Table 5.13 shows the level of concern among public and parent respondents concerning development activities in their surroundings. Most public respondents (65.8%) seem to be very worried if there were logging activities carried out near their housing area. This is followed by (c) new land cleared for industry (30.2%), (d) new golf course opened in housing area (17.8%), and (e) New development carried out near housing area (14.5%). It should be noted that (e) Coastal areas developed for recreational purpose is of little concern to these respondents (8%). Compared to the public respondents, the parents seem to show a very high level of concern for all issues of their surroundings, related to the environment (Table 5.13).

Table 5.13: Level of concern for various development activities in the surroundings among teacher training lecturer respondents

Question	Anticipated Best Answer	Public %	Parent %
16a New land cleared for industry	Very worried & Worried	30.2	79.6
16b Logging activities in forest near home	Very worried & Worried	65.8	94.2
16c New developments near home	Very worried & Worried	14.5	54.1
16d New golf course near home	Very worried & Worried	17.8	48.8
16e Coastal areas developed for recreation	Very worried & Worried	8.0	34.3

Table 5.14 shows the level of concern among the public and parent respondents regarding water pollution. The public respondents felt that (a) the polluted water will affect their health as the effect of living near a polluted river (96%). A majority also agree that (b) there will not be enough supply of clean water (87.2%) and (d) the demand for clean water will increase and affect their household expenses (86.9%). Only a small percentage of respondents (6.2%) stated that the polluted water will not affect them. The pattern of answers for the parent respondents is similar.

Table 5.14: Level of concern about water among public and parent respondents

Question	Anticipated Best Answer	Public %	Parent %
22a Polluted water affects my health	Strongly Agree & Agree	96	97.7
22b Will not be enough supply of clean water	Strongly Agree & Agree	87.2	88.4
22c Polluted water does not affect me	Strongly Disagree & Disagree	6.2	8.2
22d Demand for clean water will increase and affect my household expenses	Strongly Agree & Agree	86.9	84.3

Table 5.15 shows how much importance the public and parent respondents have attached to the various initiatives to save the environment. The public respondents attached importance to initiatives to save the environment as follows, saving our rivers initiatives (91.8%), Save our forests initiatives (93.1) water saving initiatives (93.5), and water recycling initiatives respectively (94.2). The parents also share the views of the public, especially the initiatives of saving our forest (99.5%) and rivers (98.8%).

Table 5.15: Importance attached to various environmental initiatives by public and parent respondents

Question	Anticipated Best Answer	Public %	Parent %
23a Importance of Save our forests initiatives	Very Important & Important	93.1	99.5
23b Importance of water recycling initiatives	Very Important & Important	94.2	98.2
23c Importance of save our rivers initiatives	Very Important & Important	91.8	98.8
23d Importance of water saving initiatives	Very Important & Important	93.5	96.5

Table 5.16 gives an idea about the stand of the public and parent respondents on the use of the styrofoam containers by hawkers. The public respondents (48%) indicated that they do not object to the usage of polystyrene food and drink containers. The parents who had no objections were slightly less (37.80%). 27.3% of the parents and 27.6% of the public respondents have indicated that they will ask the hawkers to stop using them. Only 19.80% of the parents and 11.3 % of the public respondents practise bringing their own food containers while purchasing food. 15.10% of the parents and 13.1% of the public respondents said that they will purchase food from another food stall.

Table 5.16: Public and parent respondents and their stand on styrofoam (non-biodegradable) containers

Question	Anticipated Best Answer	Public %	Parent %
25 Stand on Styrofoam Containers	I do not mind if the hawker uses a polystyrene food containers	48	37.8
	I would bring my own containers	11.3	19.8
	I would tell the hawker to stop using polystyrene food containers	27.6	27.30
	I would buy food at another stall	13.1	15.10

Table 5.17 shows the public and parent respondents' views about who is responsible in instilling environmental appreciation among Malaysians. The public respondents have indicated that the major player in instilling environmental appreciation among Malaysian is the Malaysian society itself (74.9%). However, they also feel that (c) the media (38.2%), (d) the National Education System (29.3), and (b) the schools (33.5%) also play important role in the effort to inculcate environmental appreciation in our society. The parent respondents also indicated a similar pattern of answers. 79.7% said that the Malaysian society are more likely to play an important role in instilling responsible behaviour toward the environment, as compared to the national education system, schools and finally the media.

Table 5.17: Public and parent respondents and their views about responsibility

Question	Anticipated Best Answer	Public %	Parent %
28 Who plays and important role in instilling environmental appreciation	The Malaysian society as a whole	74.9	79.7
	Schools	33.5	43.6
	The media	38.2	41.9
	The National Education system	29.3	44.8

5.6 Attitude levels among Media and Industry Respondents

The attitude levels among the media and industry respondents of the study will discussed from the following aspects, (i) the level of concern related to developments near home and the other areas such as the coastal environment, (ii) the level of concern about polluted water, (iii) the importance attributed to environmental initiatives, (iv) the interest in pursuing further studies in environmental studies.

Table 5.18 shows the level of concern among the media and industry respondents concerning development activities in their surroundings. Most respondents (94.5%) seem to be worried if there were logging activities carried out near their housing area. This is followed by (c) new land cleared for industry (77.1%), (d) new golf course opened in housing area (68.1%), and (e) new development carried out near housing are (56.3%). It should be noted that (e) coastal areas developed for recreational (51.3%) purpose is of least concern among these respondents.

Table 5.18: Level of concern for various development activities in the surroundings among the media and industry respondents

Question	Anticipated Best Answer	%
16a New land cleared for industry	Very worried & Worried	77.1
16b Logging activities in forest near home	Very worried & Worried	94.5
16c New developments near home	Very worried & Worried	56.3
16d New golf course near home	Very worried & Worried	61.8
16e Coastal areas developed for recreation	Very worried & Worried	51.3

Table 5.19 shows the level of concern among the media and industry respondents regarding water pollution. The majority of respondents felt that (a) the polluted water will affect their health as the effect of living near a polluted river (96.1%). A majority also agree that (b)there will not be enough supply of clean water (91.2%) and (d) The demand for clean water will increase and will affect their household expenses (89.1%). Only a small percentage of respondents (5.4%) stated that the polluted water will not affect them.

Table 5.19: Level of concern about water among media and industry respondents

Question	Anticipated Best Answer	%
22a Polluted water affects my health	Strongly Agree & Agree	96.1
22b Will not be enough supply of clean water	Strongly Agree & Agree	91.2
22c Polluted water does not affect me	Strongly Disagree & Disagree	5.4
22d Demand for clean water will increase and affect my household expenses	Strongly Agree & Agree	89.1

Table 5.20 shows how much importance the media and industry respondents have attached to the various initiatives to save the environment. Almost every respondent agrees that the four listed initiatives were all important. From the analysis, the respondents felt that the most important initiative to save the environment is (c) saving our rivers initiatives (92.9%). This is followed by (a) save our forests initiatives (96.2%), (b) waste recycling initiatives (95.1%) and (d) water saving initiatives respectively (91.8%).

Table 5.20: Importance attached to various environmental initiatives by the media and industry respondents

Table 5.20: Importance attached to various environmental initiatives by the media and industry respondents

Question	Anticipated Best Answer	%
23a Importance of Save our forests initiatives	Very Important & Important	96.2
23b Importance of water recycling initiatives	Very Important & Important	95.1
23c Importance of save our rivers initiatives	Very Important & Important	92.9
23d Importance of water saving initiatives	Very Important & Important	91.8

Table 5.21 gives an idea about the attitude of the media and industry respondents' towards what they would like to pursue if given a chance to further their studies. More than 80% of the respondents indicated that they would be interested in pursuing short courses related to the environment. However, the sample seems unsure of this choice, as some of the same individuals (70.5%) have indicated that they would also pursue more formal academic courses as well.

Table 5.21: Media and industry respondents and their choice for further students

Question	Anticipated Best Answer	%
28 Interest in scholarship or loans for environment related studies	Short courses (Example: one month, three months or six months)	80.4
	Formal academic courses (Example: diploma, graduate or post graduate)	70.5*

*some have chosen both answers

5.7 Attitude levels among Politicians, Government Officers and NGO Respondents

The attitude levels among the politicians, government officers and NGO respondents of the study will be discussed from the following aspects, (i) the level of concern related to developments near home and the other areas such as the coastal environment, (ii) the level of concern about polluted water, (iii) the importance attributed to environmental initiatives, (iv) the evaluation of their own pro-active ness and awareness.

Table 5.22 shows the level of concern among politicians, government officers and NGOs' concerning development activities in their surroundings. Most respondents (93.1%) seem to be very worried if there were logging activities carried out near their housing area. This is followed by (c) new land cleared for industry (79.4%), (d) new golf course opened in housing area (64.9%), and (e) new development carried out near housing area (60.1%). Coastal areas developed for recreational purpose (as in the other groups) does not appear to be a major concern to these respondents (45.7%).

Table 5.22: Level of concern for various development activities in the surroundings among politicians, government officers and NGOs'

Question	Anticipated Best Answer	%
16a New land cleared for industry	Very worried & Worried	79.4
16b Logging activities in forest near home	Very worried & Worried	93.1
16c New developments near home	Very worried & Worried	60.1
16d New golf course near home	Very worried & Worried	64.1
16e Coastal areas developed for recreation	Very worried & Worried	45.7

Table 5.23 shows the level of concern among politicians, government officers and NGO respondents regarding water pollution. The concern for the issues in descending order are (a) the polluted water will affect their health as the effect of living near a polluted river (96.2%). A majority also agree that (b) there will not be enough supply of clean water (93.8%) and (d) the demand for clean water will increase and will affect their household expenses (89.5%). Only a small percentage of the respondents (3%) stated that the polluted water will not affect them.

Table 5.23: Level of concern about water among politicians, government officers and NGO respondents

Question	Anticipated Best Answer	%
22a Polluted water affects my health	Strongly Agree & Agree	96.2
22b Will not be enough supply of clean water	Strongly Agree & Agree	93.8
22c Polluted water does not affect me	Strongly Disagree & Disagree	3.0
22d Demand for clean water will increase and affect my household expenses	Strongly Agree & Agree	89.5

Table 5.24 shows how much importance the politicians, government officers and NGO respondents have attached to the various initiatives to save the environment. The majority of the respondents agree that the four listed initiatives are all important. From the analysis, it seems that the respondents felt that the most important initiative to save the environment is *saving our rivers initiatives* (99.6%). This is followed by w*aste recycling initiatives* (96.9%), Save our forests initiatives (95.8), and *water saving initiatives* (95.7) respectively.

Table 5.24: Importance attached to various environmental initiatives by politicians, government officers and NGO respondents

Question	Anticipated Best Answer	%
23a Importance of Save our forests initiatives	Very Important & Important	95.8
23b Importance of water recycling initiatives	Very Important & Important	96.9
23c Importance of save our rivers initiatives	Very Important & Important	95.7
23d Importance of water saving initiatives	Very Important & Important	95.7

Table 5.25 gives an idea about the politicians, government officers and NGO respondents' evaluation of their own attitude towards environmental conservation and issues.

Table 5.25: Politicians, government officers and NGO respondents and their opinions about their attitudes towards environmental issues and environmental education

Question	Anticipated Best Answer	%
29 I am alert and proactive when it comes to environmental and conservation issues	Yes	91.2
33 I think environmental awareness and education is important to manage the environmental issues in Malaysia	Yes	98.5

5.8 Summary for Adult groups

In summary, after discussing the attitude level of all the respondents concerning specific environmental examples given in the questionnaire, in summary, the overall attitude levels are shown in Table 5.26 and 5.27.

Table 5.26: Mean percentage of attitude levels among all groups

Mean Percentage	Attitude towards Environment Close to Home (Items 16a,b,c,d)		Attitude towards coastal environment (Item 16e)		Attitude towards water pollution (Items 22a,b,c,d)		Attitude towards Environmental Initiatives (Items 23a,b,c,d)	
Teachers	75.2		37.2		97.4		97.7	
University Lecturers	76.7		45.4		88.8		95.9	
Teacher Training Institute Lecturers	75.8		53.0		90.7		92.5	
Parents & Public	**Public**	**Parent**	**Public**	**Parent**	**Public**	**Parent**	**Public**	**Parent**
	32.1	69.2	8.0	34.3	90.8	90.6	93.2	98.3
Media & Industry	72.4		51.3		92.8		92.9	
Politicians, etc.	74.2		45.7		94.1		96.0	

From table 5.26, it can be seen that the level of concern for all the groups is high when it is related to water pollution and environmental initiatives such as saving rivers. The level of concern was between 88.8% (among the university lecturers) to 97.7% (among the teachers). Tables 5.2, indicates level of concerns about specific perspectives such as attitudes towards environmental education and the use of biodegradable materials in daily life. Among members of the public and parents, only 52% and 62.2 % respectively avoid using non-biodegradable materials. More than 96% of the educators (teachers, university lecturers and teacher trainers) indicate the need for environmental education. Nevertheless, more than 61% of the educators are very exam-oriented and find preparing students for examination a hindrance to the infusion of environmental education.

Table 5.27:Mean percentage of specific attitude levels among respondents of all the adult and working groups

Mean Percentage	Feels there is a need for Environmental Education (Item 24)*	Exam – oriented attitude (Items 26d&e)*	Lack of confidence cause by lack of training (Items 26a&b)*
Teachers	97.7	62.5	70.9
University Lecturers	96.7	69.4	64.8
Teacher Training Institute Lecturers	96.4	61.0	53

Public & parents	**Use of non-biodegradable products (Item 25)**				**Malaysian society is responsible (Item 28)**	
	Not concerned		**Makes effort to avoid**			
	Public	**Parent**	**Public**	**Parent**	**Public**	**Parent**
	48.0	37.8	52	62.2	74.9	79.7
Media & Industry	**Interest in short, environmental courses (Item28)**				**Interest in academic courses (Item 28)**	
	80.4				70.5	
	Proactive attitude (Item 29)				**Positive towards EE (Item 33)**	
Politicians, etc.	91.2				98.5	

In Table 5.28 below, the existing attitude levels is briefly discussed.

Table 5.28: Summary of attitude levels among all respondents

Aspect of attitude	Discussion
Attitude towards environment close to home (Items 16a,b,c,d)	The attitude level is average for all groups range from 69% - 77%, except for the Public (<40%), which is low.
Attitude towards coastal environment (Item 16e)	The range of the attitude level is between low to average (34% - 53%). Once again the public attitude level is very low at 8%.
Attitude towards water pollution (Items 22a,b,c,d)	The range is between 88% - 97% for all groups and can be considered high.
Attitude towards environmental initiatives (Items 23a,b,c,d)	The range is between 88% - 99% and is considered high.
Feels there is a need for environmental education (Item 24)	This aspect is only for the teachers, university lecturers and teacher training institute lecturers and the attitude level is high between – 96% - 98%.
Exam – oriented attitude (Items 26d&e)	This aspect is **only** for the teachers, university lecturers and teacher training institute lecturers 61% -70% of the respondents have this attitude (moderate to high).
Lack of confidence because of lack of training (Items 26a&b)	This aspect is **only** for the teachers, university lecturers and teacher training institute lecturers and ranges from 53%-71%. The teacher trainers have the lowest level of confidence
Use of non-biodegradable products (Item 25)	This aspect is **only** for the public and parent respondents group. Only 52% of the public and 62.2% of the parent respondents are willing to make the effort to avoid the use of non-biodegradable containers. This can be considered as only an average attitude.
Malaysian society is responsible (Item 28)	Between 74% - 80% (high) of the public and parent respondents feel that the Malaysian society is responsible for instilling environmental appreciation.
Interest in short environmental courses (Item 28)	This aspect is **only** for the media and industry respondents group. 80.4% have the attitude to study environmental courses
Interest in academic courses (Item 28)	This aspect is **only** for the media and industry respondents group. 70.5% want to pursue other studies.
Pro –active attitude (Item 29)	This aspect is **only** for the politicians, government officers and NGO respondents group. 91.2% claim a proactive attitude.
Positive towards EE (Item 33)	This aspect is **only** for the politicians, government officers and NGOs' respondents group. 98.5 claim a positive attitude towards EE.

5.9 Attitude levels among Student Respondents

The groups discussed up to 5.7 (teachers, university lecturers, teacher trainers, members of the public, parents, media, business, politicians, government officers and NGOs') represent the adult population. In this section the results of the student population will be discussed.

Table 5.29 shows that all the student groups are highly concerned about logging activities as compared to new developments including the development of a new golf course.

Table 5.29: Level of concern for various development activities in the surroundings among primary, secondary, tertiary students and teacher trainee respondents

Question	Anticipated Best Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
16a New land cleared for industry	Very worried & Worried	46.0	61.9	70.6	77.1
16b Logging activities in forest near home	Very worried & Worried	79.4	88.5	93.1	92.7
16c New developments near home	Very worried & Worried	43.0	39.5	46.1	54.2
16d New golf course near home	Very worried & Worried	48.4	42.5	49.3	56.7
16e Coastal areas developed for recreation	Very worried & Worried	31.1	21	24.3	30.6

Table 5.30 shows that the secondary school students, university students and the teacher trainees are highly concerned about water issues. The primary pupils showed a slightly lower level of concern.

Table 5.30: Level of concern about water among primary, secondary, tertiary students and teacher trainee respondents

Question	Anticipated Best Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
22a Polluted water affects my health	Strongly Agree & Agree	68.0	93.5	94.9	95.7
22b Will not be enough supply of clean water	Strongly Agree & Agree	53.9	89.3	92.4	93.8
22c Polluted water does not affect me	Strongly Disagree & Disagree	72.9	93.6	92.8	87.2
22d Demand for clean water will increase and affect my household expenses	Strongly Agree & Agree	67.2	79.5	82.9	80.7

Table 5.31 shows the importance attached to environmental initiatives. The majority of all the groups indicate a very high level of concern (>90%).

Table 5.31: Importance attached to Various Environmental Initiatives by primary, secondary, tertiary students and teacher trainee respondents

Question	Anticipated Best Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
23a Importance of Save our forests initiatives	Very Important & Important	91.2	97.5	95.9	94.2
23b Importance of water recycling initiatives	Very Important & Important	87.5	96	91.9	95.6
23c Importance of save our rivers initiatives	Very Important & Important	93.2	97.3	95.5	94.8
23d Importance of water saving initiatives	Very Important & Important	91.8	96	89.7	93.4

Table 5.32 shows that primary and secondary students show a low level of concern about non-biodegradable containers. Only 69.7 % of the university students said they will consider a career related to the environment although 92.1 % of them felt that being environmentally responsible is important. A very high percentage (89.3%) of the teacher trainees felt that their belief in educating the young about the environment is their motivation. This indicates a high positive attitude.

Table 5.32: Primary, secondary , tertiary students and teacher trainees respondents and their opinions about matters related to the environment

Question	Anticipated Best Answer	Primary %	Secondary %
25 **Polystyrene (Styrofoam) food containers are made from non-biodegradable materials. What would you do if your favourite hawker uses polystyrene food and drink containers?**	I would tell the hawker to stop using polystyrene food containers	36.4	34.4
Question	**Anticipated Best Answer**	**University %**	
29 **I would consider a career in conservation or environmental management**		69.7	
30 **I feel it is important to be environmentally responsible**		92.1	
Question	**Anticipated Best Answer**	**University %**	
25 **As a future teacher, what would motivate you to teach your students about environmental matters?**	I believe educating students about environmental issues is important	89.3	

5.10 Summary of Attitude Levels Among Students Respondents

In this section, the summary of the results of the student population related to the same perspectives as for the adults groups will be discussed as shown in Table 5.33. Table 5.34 shows attitude levels for group specific perspectives.

Table 5.33: Mean percentage of attitude levels (level of concern) among the student respondents.

Mean Percentage	Attitude towards Environment Close to Home (Items 16a,b,c,d)	Attitude towards coastal environment (Item 16e)	Attitude towards water pollution (Items 22a,b,c,d)	Attitude towards Environmental Initiatives (Items 23a,b,c,d)
Primary	54.2	31.1	65.5	90.9
Secondary	58.1	21.0	89.0	96.7
Tertiary	64.8	24.3	90.8	93.3
Teacher Trainees	70.2	30.6	89.3	94.5

Summary

Table 5.34: Mean percentage of attitude levels among all student groups

Mean Percentage	Use of non-biodegradable products (Item 25) Concerned	I feel it is important to be environmentally responsible	I believe in educating students about environmental matters
Primary	36.4	NA	NA
Secondary	34.4	NA	NA
Tertiary	NA	92.1	NA
Teacher Trainees	NA	NA	89.3

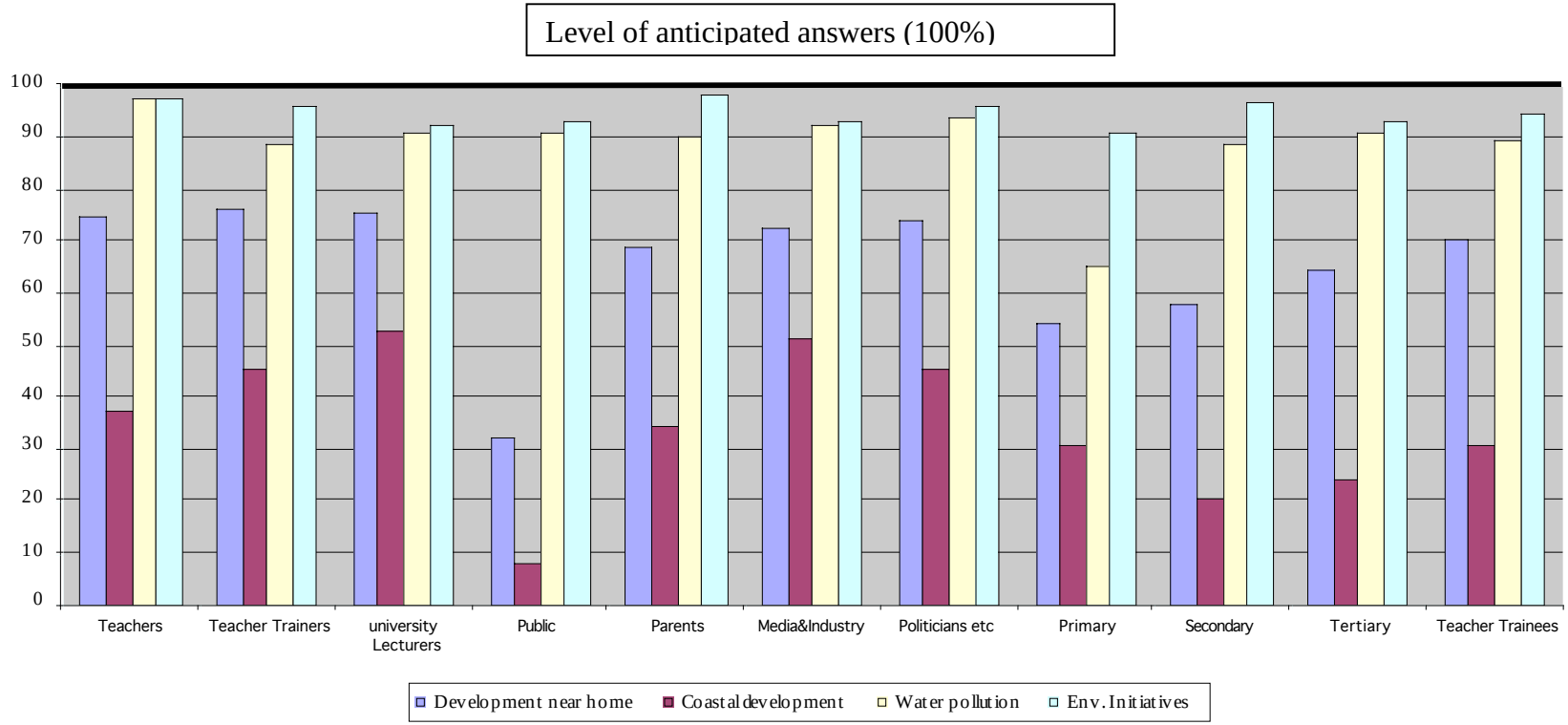
In Table 5.33 the existing attitude levels are discussed.

Table 5.35: Summary of attitude levels among all student group respondents

Aspect of attitude	Discussion
Attitude towards Environment Close to Home (Items 16a,b,c,d)	The attitude level is average for all student groups range from 54% - 71%, except for the Public (<40%), which is low
Attitude towards coastal environment (Item 16e)	The range of the attitude level is between low to average (21% - 31%). Once again the public attitude level is very low at 8%
Attitude towards water pollution (Items 22a,b,c,d)	The range is between 65% - 91% for all groups and can be considered as moderate to high.
Attitude towards Environmental Initiatives (Items 23a,b,c,d)	The range is between 90% - 97% and is considered high.
Use of non-biodegradable products (Item 25)	This aspect is only for the primary and secondary respondents group. Only 36.4% of the primary and 34.4% of the secondary respondents are willing to make the effort to avoid the use of non-biodegradable containers. This can be considered as a very low attitude.
Malaysian society is responsible (Item 28)	92.1% of the tertiary respondents feel that the whole Malaysian society is responsible for instilling environmental appreciation.
Need for Environmental Education (Item 24)	89.3% of the teacher trainees feel that there is a need for EE.

Attitude Levels for 4 common aspects for all groups.

Graf 5.1 indicates the attitude levels for the aspects of (i) attitude towards environmental problems close to home, (ii) attitude towards the coastal environment, (iii) attitude towards water pollution, and (iv) attitude towards environmental initiatives.



Graph 5.1: Existing Attitude levels among respondents as compared to the anticipated levels.

From Graph 5.1, it can be seen that attitude levels towards coastal development were the lowest. When compared with the anticipated level of 75%, all groups showed only <55% levels. It can be assumed that perhaps the coastal environment is not familiar to most Malaysians except for those living in such environments, thus the low attitude levels.

All groups only seem to have moderate levels of attitude towards development close to home (<80% for all groups when compared to the anticipated level of 100%). This finding is rather surprising as environmental problems close to home should be something that is of high priority to everyone.

In stark contrast, the results how that water pollution and environmental initiatives seem to command a very high level of the respondents' attention.

ENVIRONMENTAL CITIZENSHIP: SKILLS AND PARTICIPATION DOMAIN

6.1 Introduction

In the Tbilisi Declaration (1977), skills acquired to enhance environmental citizenship refer to the skills for identifying and solving environmental problems. The attitude level of environmental citizenship of each group towards various concerns is discussed in this chapter. From sections 6.2 to 6.5, the adult and working groups involved in the study are discussed. In section 6.6, the student groups involved are discussed. The discussion will highlight the main findings related to skills in environmental citizenship among the different groups.

6.2 Skills levels Among Teacher, University Lecturer and Teacher Training Institute Lecturer Respondents

Table 6.1 shows the results of how the teacher respondents gauged several aspects of the handling of the haze in the country. Most teachers strongly agree that all necessary action should have been initiated when the Air Pollution Index (API) reached 300. In addition, the teachers felt that a wider media coverage should have been given to the haze situation (97.7%) and 97.0% are of the opinion that a state of emergency should have been declared at the earliest possible time.

As for the university lecturers, the majority (94.9%) of them also believe that the relevant authorities should have made the API readings available sooner to the public. Most university lecturer respondents (97.3%) also indicate that the media is responsible in disseminating information regarding the haze. They also agree that relevant NGOs (96.2%) should have been more proactive in disseminating information about the haze to the public. 94% of the university lecturer respondents seem to support the idea of closing down schools when API readings reach 300. The results for the teacher training institute lecturers respondents follow the same trend (Table 6.1).

Table 6.1: Teacher, University Lecturer & Teacher Training Institute Respondents' Evaluation of How the Haze Was Handled

Question	Anticipated Answer	Teacher %	University Lecturers %	Teacher Training Institute Lecturers %
17a Schools should close at 300	Strongly Agree & Agree	93.6	94	91.2
17b Should make API available earlier	Strongly Agree & Agree	97.0	94.9	94.9
17c NGOs' should be more proactive	Strongly Agree & Agree	96.6	96.2	89.9
17d More local media coverage	Strongly Agree & Agree	97.7	97.3	94.7

Table 6.2 shows the perceptions of the teacher, university lecturer and teacher training institute lecturer respondents towards the issue of the clearing of forest reserves. Most teachers strongly agree that one of their main concerns is the enforcement and monitoring by authorities to ensure developers follow the laws (90.1%). The same can be said for the university (91.3%) and teacher training institute lecturers (87.4%). The results could be taken as an indication of the teacher, university lecturer and teacher training institute lecturer respondents perceptions about decision making skills and actions related to the protection of the environment.

Table 6.2: Perceptions of Teacher, University Lecturer and Teacher Training Institute Lecturer Respondents' Related to Clearing of Forest Reserves

Question	Anticipated Best Answer	Teachers%	University Lecturers%	Teacher Training Institute Lecturers%
21a Relevant authorities have approved	Strongly Agree & Agree	60.3	53.0	63.0
21b The public lacks concern	Strongly Agree & Agree	69.3	63.7	63.7
21c Lack of enforcement and monitoring	Strongly Agree & Agree	**90.1**	**91.3**	**87.4**
21d High demand for housing land	Strongly Agree & Agree	86.9	81.3	81.3

The teacher, university lecturer and teacher training institute lecturer respondents perceptions about their own perceived skills related to the infusion of environmental education is given in Table 6.3. The majority of the three groups (between 73% - 94%) say that they try interactive means to make the infusion of environmental education interesting. Between 70% to about 83% of the respondents from the three groups say that they the contextual approach to teaching environmental education is the most effective.

Table 6.3: How the Teacher, University Lecturer and Teacher Training Institute Lecturer Respondents' Rate Their Own Skills Related to the Environment

Question	Anticipated Answer (Yes)	Teacher %	University Lecturer %	Teacher Training Institute Lecturers %
25 **I make the infusion of Environmental Education interesting for my students by…**	Taking my students on field study to various ecological sites	84.3	74.3	82.8
	Assigning my students environment-related projects	93.8	81.4	90.9
	Inviting environmental experts for interactive dialogues and forums with my students	78.3	73.2	76.4
27 **Which method is the most effective to teach about environmental matters?**	Contextual learning	69.7	72.7	82.3
	Lecture	18.5	22.4	15.8
	Problem-solving method	46.0	44.3	39.9
	Question and answer method	31.6	74.3	17.7
30 **Students can be instilled with environmental values by…**	Having Environmental Education as a compulsory subject	81.3	84.2	86.2
	Doing volunteer work with environmental organisation as part of their course	91.5	94.5	91.9
	Participating in environmental related workshops and camps	94.6	91.8	90.9

6.3 Skills levels among Public and Parent Respondents

Table 6.4 shows the results of what the public and parent respondents thought about several aspects of the handling of the haze in the country. Most members of the public (88.8) and parents (93.6%) strongly agree that all necessary action should have been initiated when the Air Pollution Index (API) reached 300. In addition, the members of the public (94.8%) and the parents (97.7%) felt that wider media coverage should have been given to the haze situation.

Table 6.4: Public and Parent Respondents' Evaluation How the Haze Was Handled

Question	Anticipated Answer	Public%	Parents%
17a Schools should close at 300	Strongly Agree & Agree	88.8	93.6
17b Should make API available earlier	Strongly Agree & Agree	94.4	98.3
17c NGOs' should be more proactive	Strongly Agree & Agree	89.5	95.9
17d More local media coverage	Strongly Agree & Agree	94.8	97.7

Table 6.5 shows the perceptions of the public and parent respondents towards the issue of the clearing of forest reserves. Most members of the public (92.7%) and parents (82%) agree that one of their main concerns is the enforcement and monitoring by authorities to ensure developers follow the laws.

Table 6.5: Perceptions of Public and Parent Respondents' Related to Clearing of Forest Reserves

Question	Anticipated Best Answer	Public%	Parents%
21a Relevant authorities have approved	Strongly Agree & Agree	60.6	51.7
21b The public lacks concern	Strongly Agree & Agree	66.4	61.1
21c Lack of enforcement and monitoring	Strongly Agree & Agree	92.7	82.0
21d High demand for housing land	Strongly Agree & Agree	61.3	71.3

Table 6.6: Public and Parent Respondents' Analysis of the Importance of EE, Laws and Enforcement

Question	Anticipated Answer (Yes)	Public%	Parents%
26 In order to conserve our environment…	Environmental Education and environmental laws and enforcement are equally important	85.5	76.7

When asked to choose between the importances of Environmental Education (EE), environmental laws and enforcement, 85.5 % of the public respondent and 76.7% of the parent respondents said that all three were equally important. This indicates that more than 75% of the respondents of both groups are able to analyse the interplay between all three factors (Table 6.6).

Table 6.7: Public and parent respondents source of information about the environment

Question	Anticipated Answer (Yes)	Public%	Parents%
29 Where do you get most of your information on the environment?	Newspaper	60	75.6
	Television	71.6	68.0
	Total	**65.8**	**71.8**
	School	20	27.9
	Informal education (*e.g.* through family and friends)	20	31.4
	Environmental Organisations (*e.g.* WWF, GEC and MNS)	28.2	35.5
	Internet	28	34.9

Table 6.7 shows that 65.8% of the public respondents and 71.8 % of the parent respondents obtain information about the environment through the media (TV and newspapers). However, information from other media such as the internet is low (28% - public; 34.9% - parents).

6.4 Skills levels among Media and Industry Respondents

Table 6.8 shows the results of how the media and industry respondents perceived the handling of the haze situation in the country. Most media and industry respondents (95.6%) strongly agree that all necessary action should have been initiated when the Air Pollution Index (API) reached 300. The media and industry respondents (96.2%) also felt that wider media coverage should have been given to the haze situation.

Table 6.8: Media and Industry respondents' evaluation of how the haze was handled

Question	Anticipated Answer	%
17a Schools should close at 300	Strongly Agree & Agree	95.6
17b Should make API available earlier	Strongly Agree & Agree	97.8
17c NGOs' should be more proactive	Strongly Agree & Agree	91.3
17d More local media coverage	Strongly Agree & Agree	96.2

Table 6.9 shows the perceptions of the media and industry respondents towards the issue of the clearing of Forest Reserves. The clear result is that the majority of the media and industry respondents feel that there is a lack of enforcement and monitoring (93.4%)

Table 6.9: Perceptions of Media and Industry Respondents Related to Clearing of Forest Reserves

Question	Anticipated Best Answer	%
21a Relevant authorities have approved	Strongly Agree & Agree	70.6
21b The public lacks concern	Strongly Agree & Agree	67.7
21c Lack of enforcement and monitoring	Strongly Agree & Agree	93.4
21d High demand for housing land	Strongly Agree & Agree	67.8

Table 6.10 shows the training that the media and industry respondents have received as well as the training that they have carried out for others.

Table 6.10: Training of Media and Industry Respondents Related to the Environment

Question	Anticipated Best Answer	%
24 Training received	Before start of career	24
	In-service	33
25 Training others	Before start of career	7.8
	In-service	21.9

The respondents were asked about their training in environmental journalism or environmental issues related to the industry that they are involved in. Only 24% of the respondents claim that they had some form of training in environmental journalism or environmental issues before they embarked on their career while the rest did not (76%). In addition, the result also shows that only 33% of the respondents say that they had some form of training while in service.

The respondents were also asked whether they had ever given training on environmental journalism or environmental issues to any target groups. Only 7.8 % stated that they had given some form of training to others before they embarked on their current career. Besides that, 21.9% of the respondents claim to have given some form of training in environmental journalism or environmental issues while in service.

6.5 Skills levels among Politicians, Government Officers and NGO Respondents

Table 6.11 shows the results of the politicians, government officers and NGO respondents perspectives about the handling of the haze in the country. Most of the politicians, government officers and NGO respondents strongly agree (93%) that all necessary action should have been initiated when the Air Pollution Index (API) reached 300. In addition, the respondents felt that wider media coverage should have been given to the haze situation (96.7%).

Table 6.11: Politicians, Government Officers and NGO Respondents' Evaluation How the Haze Was Handled

Question	Anticipated Answer	%
17a Schools should close at 300	Strongly Agree & Agree	93.0
17b Should make API available earlier	Strongly Agree & Agree	97.1
17c NGOs' should be more proactive	Strongly Agree & Agree	91.4
17d More local media coverage	Strongly Agree & Agree	96.7

Table 6.12 shows the perceptions of the politicians, government officers and NGO respondents towards the issue of the clearing of Forest Reserves. The results could be taken as an indication of the media and industry respondents perceptions about decision making skills and actions related to the protection of the environment.

Table 6.12: Perceptions of Politicians, Government Officers and NGO Respondents Related to Clearing of Forest Reserves

Question	Anticipated Best Answer	%
21a Relevant authorities have approved	Strongly Agree & Agree	57.8
21b The public lacks concern	Strongly Agree & Agree	65.7
21c Lack of enforcement and monitoring	Strongly Agree & Agree	90.0
21d High demand for housing land	Strongly Agree & Agree	78.5

Table 6.13 shows the perceptions that the politicians, government officers and NGO respondents have regarding their own decision making and efforts carried out. The findings show that they rate themselves highly (>85%).

Table 6.13: Perceptions of Politicians, Government Officers and NGO Respondents Related to the Efforts and Decisions They Make Related to the Environment

Question	Anticipated Best Answer	%
27 **I integrate knowledge, skills and awareness related to the environment in my decisions**	Strongly Agree & Agree	93.1
32 **I work towards improving and preserving the environmental quality for my constituents**	Strongly Agree & Agree	86.0

Table 6.14 and 6.15 show the summary of the level of skills among the various target adult groups.

Table 6.14: Summary of the General Skills Levels among Respondent Adult Groups

Mean Percentage	Negative Perceptions of Haze Handling Skills by Authorities (17a, b & d)		Negative Perceptions of Skills of Relevant Authorities in the Clearing of Reserved Forest Land for Development (21a & c)	
Teachers	96.1		75.2	
University Lecturers	95.4		72.2	
Teacher Trainers	93.6		75.2	
Public & Parents	**Public**	**Parents**	**Public**	**Parents**
	92.7	96.5	76.7	66.9
Media & Industry	96.5		82.0	
Politicians, G. off & NGOs'	95.6		73	

6.6 Summary for Adult Groups

Table 6.14 shows that all adult groups have a negative view (all indicate >90% including the politicians and government officers) of how the authorities handle environmental issues especially in the yearly occurrence of the haze. As to how the authorities handle the clearing of protected land, the respondents also hold a moderate to high negative view (teachers – 75.2%; university lecturers – 72.2%; teacher trainers – 75.2%; public – 76.7%; parents – 66.9%; media & industry – 82%; politicians, government officers & NGOS' – 73.9%). Therefore, if the respondents were given a chance to enforce environmental laws, presumably they would perform better.

Table 6.15 indicates the skills that are perceived by the respondents of themselves, related to their vocation. For example, the educators have indicated their self-perceived skills of imparting knowledge about the environment to their students. Other skills indicated are how they obtain information about the environment, how much training they have received in order to cope with environmental education and how they integrate environmental citizenship in their daily decision making.

In Table 6.15, it is clear that the educators have used various teaching techniques to infuse environmental education with a focus on outdoor activities (field trips: teachers – 84.3%; university lecturers – 74.3%; teacher trainers – 82.8%).

Table 6.15: Summary of the Specific Skills Levels among Respondent Adult Groups

Mean Percentage of	Most interesting way I infuse EE (Item 25)			Most effective way to infuse EE (Item 27)			Way to instill environmental values (Item 30)		
	Field Trips	EE assignments	Invite Guest	Contextual	Problem Solving	Q & A	EE compulsory	Volunteer	EE Camps
Teachers	84.3	93.8	78.3	69.7	46	31.6	81.3	91.5	94.6
	Mean 67.2						Mean 89.1		
University Lecturers	74.3	81.4	73.2	72.7	44.3	74.3	84.2	94.5	91.8
	Mean 70.0						Mean 90.2		
Teacher Trainers	82.8	90.0	76.4	82.3	39.9	17.7	86.2	91.9	90.9
	Mean 64.9						Mean 89.7		

Public & Parents	Analysis of the importance of EE, Laws Enforcement (Item 26)		Most common skills to obtain information (Media-TV & Papers) (Item 29)		Other skills in obtaining information (Item 29)					
					Internet		Env. Org		Informal	
	Public	Parent	Public	Parent	Pub	Par	Pub	Par	Pub	Par
	85.5	76.7	65.8	71.8	28	34.9	28.2	35.5	20	31.4

Media & Industry	Training received (Item 24)	Training others (item 25)
	28.5	14.8
Politicians, G. off & NGOs'	**Integrate knowledge & skills in making decisions (Item 27)**	**Work towards conservation in respective constituents (Item 32)**
	93.1	86

A high percentage of educators also feel that environmental camps (teachers -94.6 %; university lecturers – 91.8%; teacher trainers – 90.9%) can instil environmental values among their students. The same educators feel that by making environmental education compulsory they would be more effective in instilling environmental values (teachers – 81.3%; university lecturers – 84.2%; teacher trainers – 86.2%). It can be inferred here that these educators have the skills to conduct such camps and also instil environmental values effectively if environmental education was compulsory, since they highly support these two ideas. The results also show that perhaps the media and industry may need training to assist them in the integration of environmental citizenship in their work places and daily life as only 28.5% of them have received training. The general public and parents may also need assistance in elevating their skills (other than newspapers and the television) in retrieving information. The politicians, government officers and NGOs' have also indicated that they integrate environmental citizenship

at a high level (93.1%). Table 6.3 gives a summary of all the skills level among Malaysian adult respondents.

Table 6.16: Aspects of Skills and Discussion for all respondents

Aspect of skills	Discussion
Negative Perceptions of Haze Handling Skills by authorities (17a, b & d)	All the groups (>90%) have indicated that they have negative perceptions about how the authorities handled the haze situation in the country. Therefore, it can be inferred that the respondents assume they have the skills to make better decisions
Negative Perceptions of skills of relevant authorities in the protection of reserved forest land (21a & c)	Between 66 % to 82 % (for all the groups) have indicated a negative perception towards the skills of relevant authorities - once again indirectly assuming their own skills
NOTE	The above two negative perceptions of the authorities found in all the groups can be taken to actually reflect upon the respondents perceptions about their own skills – of which they have a moderate to a high level of perception
Most interesting way I infuse EE (25)	Between 64% and 70% of the educators have indicated that they use interesting and interactive means of infusing EE, as well as instilling values. Therefore, the respondents' skills level can be considered to be moderately high.
Most effective way to infuse EE (27)	
Way to instill Environmental values (30)	Between 89% to 91% of the educators have indicated innovative ways to instil environmental values, which can be considered as a very high level of pedagogical skills.
Analysis of the importance of EE, Laws Enforcement (26)	About 60% - 62% of the public and parent respondents after, weighing the pros and cons have concluded that both EE and Enforcement of Laws are equally important. This reflects a moderate level of analytical skills
Most Common Skills to obtain information (Media-TV & Papers) (29)	65% - 72% of the public and parent respondents have the skills to retrieve information from conventional means - that is through TV and newspapers.
Other skills in obtaining information (29)	Only 20 % to 36% of the public and parent respondents say they possess the skills of using more modern means of retrieving information.
Training received (24)	<30% of the media and industry respondents have received any kind of training related to environmental issues. This may have an effect on their environment skills levels.
Training others (25)	< 15% of the media and industry respondents have actually been involved in training others related to environmental issues.

Integrate knowledge & skills in making decisions (27)	93.1% of the politicians, government officers and NGOs claim that they proactively integrate knowledge and skills – a very high level
Work towards conservation in respective constituents (32)	86% of the politicians, government officers and NGOs claim that they work towards conservation – a very high level

6.7 Skills levels Among Student Respondents

The groups discussed up to 6.5 (teachers, university lecturers, teacher trainers, members of the public, parents, media, business, politicians, government officers and NGOs') represent the adult population. In this section the results of the student population will be discussed.

6.7.1 Skills levels among the Student Groups

Table 6.16 shows that all the groups felt that the API readings during the haze problem should have been made available earlier. Also, all agreed that the media should have given more coverage. These results give an indication as to how the respondents would have handled the haze situation.

Table 6.17: Primary, Secondary, Tertiary Students and Teacher Trainee Respondents Evaluation of How the Haze Was Handled

Question	Anticipated Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
17a Schools should close at 300	Strongly Agree & Agree	67.6	81.8	88.3	87.9
17b Should make API available earlier	Strongly Agree & Agree	85.7	94.7	97.4	97.5
17c NGOs' should be more proactive	Strongly Agree & Agree	68.0	85.5	93.7	93.7
17d More local media coverage	Strongly Agree & Agree	85.3	95.4	95.7	97.3

Table 6.18 shows that the university students and the teacher trainees (69% -71%) have negative perception about clearing of forest land. This indicates that they may rate their own skills as being higher and be able to make decisions about environmental issues.

Table 6.18: Perceptions of Primary, Secondary, Tertiary Students and Teacher Trainee Respondents Related to Clearing of Forest Reserves

Question	Anticipated Best Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
21a Relevant authorities have approved	Strongly Agree & Agree	37.8	27.4	50.5	54.0
21b The public lacks concern	Strongly Agree & Agree	25.9	54.4	71.2	72.6
21c Lack of enforcement and monitoring	Strongly Agree & Agree	52.4	68.9	85.8	84.5
Mean		38.7	50.2	69.2	70.4
21d High demand for housing land	Strongly Agree & Agree	48.7	63.5	79.3	79.3

Table 6.19 shows how the primary, secondary, tertiary students and teacher trainee respondents rate how they acquire their own skills related to the environment. The low percentage (11% - 27%) indicates that the rate of acquiring skills is low through school and extracurricular activities for primary and secondary students. The university students and the teacher trainees rate the acquiring of skills higher (30% - 93%).

Table 6.19: How the Primary, Secondary, Tertiary Students and Teacher Trainee Respondents Acquire Their Own Skills Related to the Environment

Question	Anticipated Answer (Yes)	Primary %	Secondary %
26 I would learn about the environment most if:	it is infused in all subjects	16.0	14.0
	I study it through projects and activities outside the Classroom	17.4	18.9
	it is included in co-curricular activities	16.6	17.1
27 In your opinion, how would you increase your awareness towards environmental matters?	By discussing on environmental matters	13.3	11.6
	By visiting field sites (e.g. visits to parks, forests, beaches etc.)	11.3	10.7
	By participating in activities that are related to environmental matters	13.1	15.3
	By reading more about programmes on environmental matters	12.3	12.4
28 My awareness on environmental matters is influenced most by:	parents and family	26.9	26.6
	school teachers	22.4	21.2
	friends	17.1	15.6
	religion	16.9	17.0
	television, radio and other mass media	16.7	23.6

Table 6.20: How the Tertiary Students Prefer to Learn About EE and How Teacher Trainees Respondents Prefer to Teach About the Environment

Question	Anticipated Answer (Yes)	Tertiary %	Teacher Trainees%
24 **As a university student, how would you prefer to study about environmental matters?/When you become a teacher, how would you prefer to teach about the environmental matters?**	Through infusion of Environmental Education in all subjects (activities in and outside the classrooms)	5.0	56.6

Table 6.20 clearly shows that only 5% of the tertiary students prefer infusion of EE via all subjects. In contrast, 56.6% of teacher trainees say that they prefer to teach about EE by infusing EE in all subjects.

Table 6.21 below shows how tertiary students obtain information related to the environment

Table 6.21: Means of Obtaining Information About the Environment Among Tertiary Students

Question	Anticipated Answer (Yes)	Tertiary%
25 **I can get additional information or resource materials on the environmental from:**	Internet	87.7
	Friends	42.5
	Reference books/Journals	82.9
	Government	51.7
	Non-governmental Organisations	37.3
31 **I feel field trips or environment- related activities are important to enhance environmental knowledge**	Yes	92.8

The internet (87.7%), reference books and journal (82.9%) and field trips (92.8%) seem to be the common means of acquiring knowledge among tertiary level students.

Table 6.22: Exposure to EE in the Teacher Training College Courses

Question	Anticipated Answer (Yes)	Teacher Trainees%
28 The exposure I have received in my course is sufficient for me to infuse Environmental Education in my future teaching	Yes	57.5

Only 57.5% of the teacher trainees feel that what they are exposed to in their college is sufficient to enable them to infuse EE when they enter the schools after their training.

6.8 Summary for Students Groups

Table 6.23 shows that the majority of the student respondents (primary students – 79.5%; secondary students – 90.6%; tertiary students – 93.8%; teacher trainees – 94.2%) have negative perceptions about how the haze problem was handled. Related to the clearing of protected land the older students (tertiary – 68.2%; teacher trainees – 69.3%) indicated a moderate negative level as to how the authorities handle such matters. The younger students (primary – 45.1%; secondary – 48.2%) indicated a lower negative view towards the authorities. These results give an indication as to how the respondents would have handled the haze situation themselves, if given a chance.

Table 6.23: Summary of the Skills Levels Among the Student Respondents

Mean Percentage	Negative perceptions of haze handling skills by authorities (17a, b & d)	Negative perceptions of skills of relevant authorities in the clearing of reserved forest land for development (21a & c)
Primary	79.5	45.1
Secondary	90.6	48.2
Tertiary	93.8	68.2
Teacher Trainees	94.2	69.3

Table 6.24: Summary of the specific skills levels among the student respondents

Mean Percentage	Educational activities in acquiring of skills (Items 26 & 27)
Primary	14.3
Secondary	14.3
	Activity in increasing awareness (Item 31)
Tertiary	92.8
	Acquiring teaching skills (Item 28)
Teacher Trainees	57.5

Table 6.24 shows that primary (14.3%) and secondary students (14.3%) feel that the skills acquired during educational activities are very low. Slightly more than half of the teacher trainees (57.5%) felt they do acquire skills during their training to integrate the environment in their classes. The tertiary students have indicated a very positive outlook (92.8%) about the activities in the universities to increase environmental awareness. Table 6.6 gives a summary of the skills indicated by all the student respondents.

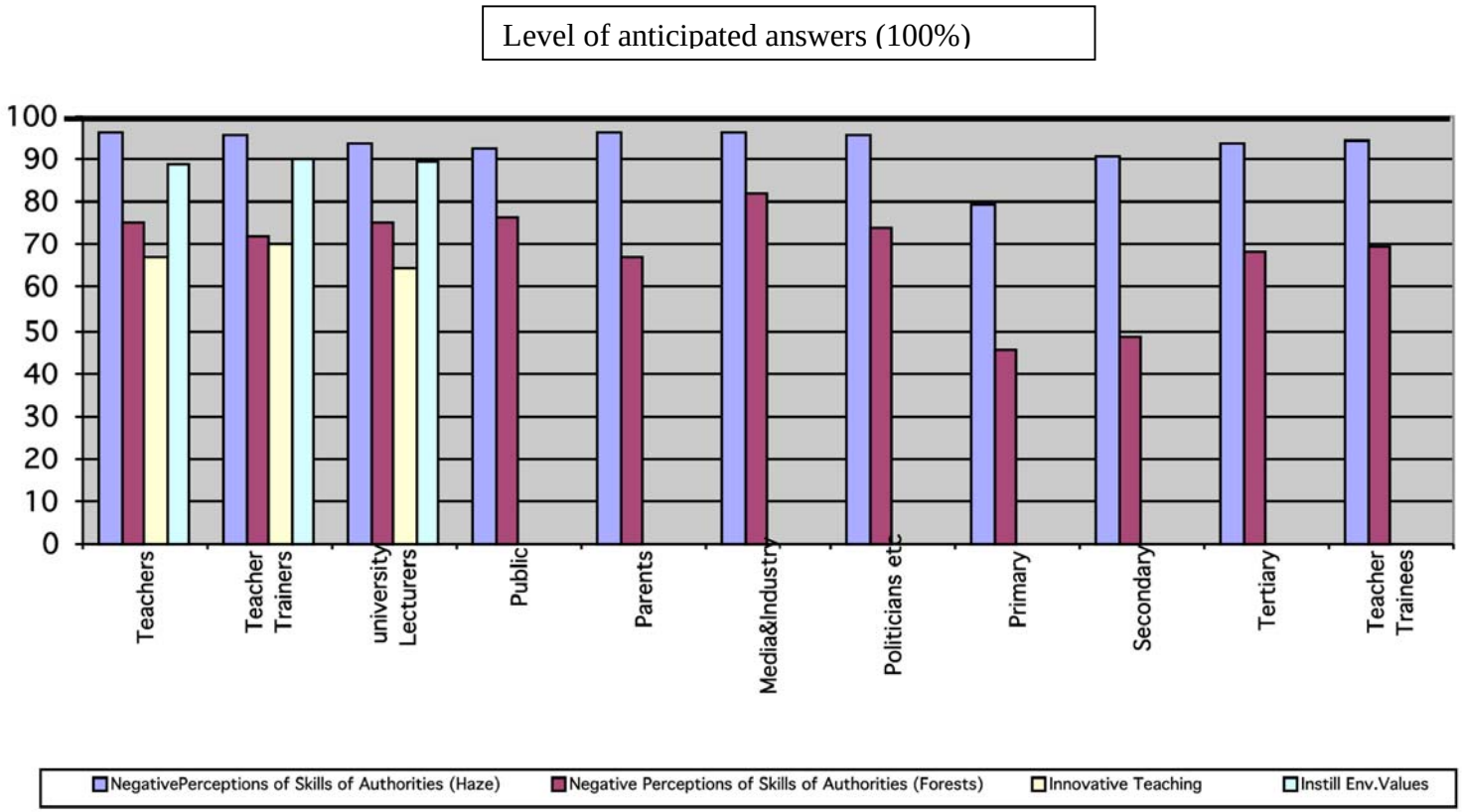
Table 6.25: Aspects of Skills and Discussion for student respondents

Aspect of skills	Discussion
Negative Perceptions of Haze Handling Skills by authorities (17a, b & d)	All the groups (>90%), except the primary school students (79.5%) have indicated that they have negative perceptions about how the authorities handled the haze situation in the country. Therefore, it can be inferred that the respondents assume they have the skills to make better decisions
Negative Perceptions of skills of relevant authorities in the protection of reserved forest land (21a & c)	Between 45% - 48% of the primary and secondary school students and between 68% - 69% of the tertiary and teacher trainees have indicated a negative perception towards the skills of relevant authorities, once again indirectly assuming their own skills
NOTE	The above two negative perceptions of the authorities found in all the groups can be taken to actually reflect upon the respondents perceptions about their own skills – of which they have a moderate to a high level of perception
Educational activities in acquiring skills(26&27)	Only 14% of the primary and secondary school student respondents feel that they can acquire skills through educational activities
Field trips in acquiring awareness (31)	92.8% of the tertiary student respondents say they can acquire the skills related to the environment
Training received (28)	About 59% of the teacher trainee respondents feel they acquire skills to teach EE in their courses

6.8 Skills levels Among All Respondents

Graph 6.1 below indicates the attitude levels for the aspects of (i) Negative Perceptions of Haze Handling Skills by authorities, and (ii) Negative Perceptions of Skills of relevant authorities in the protection of reserved forest land. As can be inferred, the majority the respondents from all the groups do not think very much of the decisions made by authorities related to several environment issues. Therefore, it can be assumed that if they are in a position to make decisions, they should do better.

Graph 6.1 indicates the attitude levels for the aspects of (i) **Negative Perceptions of Haze Handling Skills by authorities**, and (ii) **Negative Perceptions of skills of relevant authorities in the protection of reserved forest land.**



Graph 6.1: Respondents Perception About the Skills Levels of Relevant Authorities in Handling Environmental Problems (Considered as a reflection of their own skills if given a chance to handle the same problem)

6.9 Participation

In the *Tbilisi Declaration* (1977), participation means to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems. There were 10 groups of respondents. The participation level of environmental citizenship of each group towards various concerns is discussed in this section.

6.10 Participation levels Among Teacher, University Lecturer and Teacher Training Institute Lecturer Respondents

Table 6.26 shows the level of participation that the teacher, university lecturer and teacher training institute lecturer respondents' state they will commit to in relation to environmental issues. An overwhelming 94.2 % of the teacher respondents, 92.9% of the university lecturers and 95.2% of the teacher trainers want to lead an environmental organization for the sake of self, family and future generations.

Table 6.26 also shows that in the face of certain parties flaunting environmental laws, the teacher, university lecturer and teacher training institute lecturer respondents indicate a preference to report to the local relevant authorities. If an endangered species is found being sold in a pet shop, 80% - 87% stated they would inform relevant authorities. In the case of witnessing open burning, 60% - 66% of the educator respondents will report it to the relevant authorities, 41% - 46% feel it is their responsibility to report it and 37% - 43% feel that the right action is to report such open burning activities.

Table 6.26: Perceived Participation Level of the Teacher, University Lecturer and Teacher training institute lecturer respondents in Environmental Issues

Question	Anticipated Answer	Teacher %	University Lecturer %	Teacher Training Institute Lecturer %
4 Why join a neighbourhood environmental community organisation	Would like to influence others…	25.9	26.6	28.2
5 Why would I lead an environmental organisation	Environmental issues affect me, family, future generations	94.2	92.9	95.2
6 Found pet shop selling an endangered animal	Inform relevant authorities	87.3	80.3	86.9
7 After a river pollution talk	Organise a campaign	18.0	15.3	18.4
14 Witness open burning…	Report to relevant authorities	66.1	63.4	60.1
	Responsibility as a citizen to report	45.5	45.9	41.1
	The right thing to do is to report	43.0	37.7	38.2

Table 6.27 below shows the details of everyday actions which indicates the level commitment of the educator respondents.

Table 6.27: Actual Participation Level in Everyday Activities of Teacher, University Lecturer and Teacher Training Institute Lecturer Respondents

Question	Anticipated Answer	Teacher %	University Lecturer %	Teacher Training Institute Lecturer%
15 a) Own grocery bag	Very often & Often	19.6	15.8	27.9
15b) Reduce lights	Very often & Often	85.2	86.4	89.2
15c) Turn off tap while brushing	Very often & Often	87.8	87.4	86.9
15d) Using environmental friendly sprays	Very often & Often	59.6	60.1	60.1
15e) Using recycled paper	Very often & Often	50.9	57.4	62.2
15f) Using homemade fertilisers	Very often & Often	38.1	31.1	36.0
15g) Turning of lights etc when not using	Very often & Often	93.3	91.8	89.0
15h) Not using chemical fertilizers	Very often & Often	57.5	50.8	60.6

The actions that need less effort such as turning off the tap while brushing our teeth (teachers 87.8%, university lecturers 87.4%, & teacher trainers 86.9%) and reducing the number of lights used (teachers 85.2 %, university lecturers 86.4 %, & teacher trainers 89.2%) are practiced. 93.3% of the teachers, 91.8% of the university lecturers and 89% teacher trainers stated that they turn off lights when not using them. 59.6% of the teachers, 60.1% of the university lecturers and 60.1 % teacher trainers also indicated that they use environmental - friendly sprays. Everyday actions requiring more effort such as taking along own grocery bags and using home made fertilisers indicated a poorer response. 19.6 % of the teachers, 15.8 % of the university lecturers and 27.9% teacher trainers indicated that they seldom or never take along their own grocery bags and 38.1% of the teachers, 31.1% of the university lecturers and 36.0 % teacher trainers said they seldom or never make their own fertilizers.

From Table 6.28 below shows 56.6% - 64.4% of teachers say they spend time for the environment but only 37.8% of these respondents say they do voluntary work related to environmental issues. The same pattern is seen for the university lecturers and teacher trainers, that is, a lesser percentage of the group respondents actually do what they say they do.

Table 6.28: Teacher, University Lecturer and Teacher Trainer respondents' participation level in personal time

Question	**Anticipated Answer**	**Teacher %**	**University Lecturers %**	**Teacher Training Institute Lecturers %**
18 I spend time for the environment even if it eats my personal time	Very often & Often	56.6	60.7	67.7
19 Discuss environmental Issues with others	Very often & Often	64.4	68.4	79.5
20 Voluntary work related to environmental issues	Very often & Often	37.8	28.4	47.3

Table 6.29, provides some insight into the kind of efforts that the educators are interested enough to get involved in. The majority of the teachers are interested in all the activities (3R- 84.3%, Greening the school – 85.7%, energy and water campaigns – 72.1 % and the celebration of environment-related days – 76.4%). Except for the greening of the campus, the percentage is less for the university lecturers and teacher trainers.

Table 6.29: Types of Efforts Carried Out by the Teacher, University Lecturer and Teacher Trainer respondents

Question	Anticipated Answer	Teacher %	University Lecturers %	Teacher Training Institute Lecturers %
32) My school /teaching institution carries out many environmentally friendly activities. The activity that interests me most is	3R - Reduce, Recycle, Reuse	84.3	72.2	65.4
	Greening of the campus	85.7	89.1	82.8
	Energy and water campaigns	72.1	65	59.9
	Celebrating important environment-related days (*e.g.* World Environment Day)	76.4	57.3	53.5
33) My school /teaching institution carries out many environmentally friendly activities. The activity that interests my students most is	3R - Reduce, Recycle, Reuse	80.8	NA*	64.0
	Greening of the campus	82.7	NA	74.2
	Energy and water campaigns	65.1	NA	57.1
	Celebrating important environment-related days (*e.g.* World Environment Day)	74.4	NA	54.4

NA* this question was not put to the University Lecturers

6.11 Participation among Public and Parents Respondents

Table 6.30 shows the level of participation that the public and parent respondents are willing to commit in the face of environmental issues. The majority (93.6 parents -94 % members of the public) of the respondents want to lead an environmental organisation for the sake of self, family and future generations.

Table 6.30 also shows that if an endangered species is found being sold in a pet shop, 87.2 % of the parents and 88% the public stated they would inform relevant authorities. In the case of witnessing open burning, 69.5% of the public and 73.3% of the parents have indicated that they will report it to the relevant authorities, 38.5% of the public and 48.3% of the parents feel it is their responsibility to report it and 30.5% of the public and 37.2 % of the parents feel that the right action is to report such open burning activities. Only 19.3% of the public and 19.8% of the parents have indicated that they would organize a campaign if they come across a pollute river. Hence, the level of participation mainly revolves around reporting environmental issues to the relevant authorities.

Table 6.30: Perceived Participation Level of the Public and Parent Respondents in Environmental Issues

Question	Anticipated Answer	Public%	Parent%
4 Why join a neighbourhood environmental community organisation	Would like to influence others…	28	30.2
5 Why would I lead an environmental organisation	Environmental issues affect me, family, future generations	94	93.6
6 Found Pet shop selling an endangered animal	Inform relevant authorities	88	87.2
7 After a River pollution talk	Organize a campaign	19.3	19.8
14 Witness open burning…	Report to relevant authorities	69.5	73.3
	Responsibility as a citizen to report	38.5	48.3
	The right thing to do is to report	30.5	37.2

Table 6.31 shows the details of everyday actions which indicates the level commitment of the public and parent respondents.

Table 6.31: Actual Participation Level in Everyday Activities of the Public and Parent Respondents

Question	Anticipated Answer	Public %	Parent %
15 a) Own grocery bag	Very often & Often	21.1	23.8
15b) Reduce lights	Very often & Often	79.4	78.5
15c) Turn off tap while brushing	Very often & Often	74.3	88.0
15d) Using environmentally friendly sprays	Very often & Often	42.9	45.3
15e) Using recycled paper	Very often & Often	37.4	43.6
15f) Using homemade fertilisers	Very often & Often	29.1	39.0
15g) Turning off lights etc when not using	Very often & Often	94.1	93.6
15h) Not using chemical fertilisers	Very often & Often	43.6	49.4

Table 6.31 (figures in bold) clearly shows that the actions that need less effort such as turning off the tap while brushing our teeth (74.3% public, 88% parents) and reducing the number of lights used (79.4 public, 78.5% parents) are practiced. A majority of the public (94.1%) and 93.6% of the parents indicate that they turn off lights when they do not use them. However, as seen in the Fraser's Hill Study (Daniel & Nadeson, 2007), everyday actions requiring more effort such as taking along own grocery bags (21.1% of the public and 23.8% of the parents) and using home made fertilisers (29.1% of the public & 39% of the parents) indicated a poorer response.

Table 6.32 shows how the public and parent respondents participate in environmental related issues in their own time. It appears that slightly more of the parent respondents (58.1%) spend time discussing environmental issues compared to only 38.5% of the public respondents. When it comes to sacrificing personal time, only 39.3% of the public and 59.9% of the parents say they are willing to spend time for the environment even if it eats into their personal time.

Table 6.32: The Public and Parent Respondents' Participation Level in Personal Time

Question	Anticipated Answer	Public %	Parent %
18 I spend time for the environment even if it eats into my personal time	Very often & Often	39.3	59.9
19 Discuss environmental issues with others	Very often & Often	38.5	58.1
20 Voluntary work related to environmental issues	Very often & Often	26.5	37.0

In Table 6.33, it can be seen that the percentage of members of the public (27 - 48%) and the percentage of the parent respondents (29 – 55%) are similar when it comes to carrying out environmentally friendly activities such as recycling, water and energy saving initiatives as well as river saving activities.

Table 6.33: Types of Efforts Carried Out by the Public and Parent Respondents

Question	Anticipated Answer	Public %	Parent %
30) Environmentally friendly activities conducted at your home, workplace or residential area are:	Recycling	48.4	54.6
	Water saving initiatives	82.3	70.3
	Energy saving initiatives	75.6	75.0
	River saving initiatives	26.9	29.0

6.12 Participation levels Among Media and Industry Respondents

Table 6.34 shows the level of participation that the media and industry respondents state they will commit to in the face of environmental issues close to home. An overwhelming 94 % of the respondents want to lead an environmental organisation for the sake of self, family and future generations. However, only 9.3% will chose to organise a campaign to save a river.

Table 6.34 also shows that if an endangered species is found being sold in a pet shop, 78.7 % stated they would inform relevant authorities. In the case of witnessing open burning, 55.2 % of the respondents will report it to the relevant authorities, 33.1 % feel it is their responsibility to report it and 42.6 % feel that the right action is to report such open burning activities.

Table 6.34: Perceived Participation Level of the Public and Parent Respondents in Environmental Issues

Question	Anticipated Answer	Media & Industry %
4 Why join a neighbourhood environmental community organisation	Would like to influence others…	32.8
5 Why would I lead an environmental organisation	Environmental issues affect me, family, future generations	94.0
6 Found pet shop selling an endangered animal	Inform relevant authorities	78.7
7 After a river pollution talk	Organise a campaign	9.3
14 Witness open burning…	Report to relevant authorities	55.2
	Responsibility as a citizen to report	33.1
	The right thing to do is to report	42.6

Table 6.35 below shows the details of everyday actions which indicate the level commitment of the media and industry respondents.

Table 6.35 Actual Participation Level in Everyday Activities of the Media and Industry Respondents

Question	Anticipated Answer	Media & Industry %
15 a) Own grocery bag	Very often & Often	19.7
15b) Reduce lights	Very often & Often	**91.8**
15c) Turn off tap while brushing	Very often & Often	**92.9**
15d) Using environmentally friendly sprays	Very often & Often	59.0
15e) Using recycled paper	Very often & Often	71.0
15f) Using homemade fertilisers	Very often & Often	32.0
15g) Turning of lights etc when not using	Very often & Often	**96.2**
15h) Not using chemical fertilisers	Very often & Often	59.6

Just as the previous two groups, the actions that need less effort such as turning off the tap while brushing our teeth (92.9%) and reducing the number of lights used (91.8%) are practiced. 96.2 % also indicated that they turn off lights when not using them. Actions requiring more effort such as taking along own grocery bags (only 19.7%) and using home made fertilizers (32%) indicated a poorer response.

From Table 6.36, it can be seen that only a moderate percentage of media and industry respondents take time to discuss environmental issues (61.7%) and only 24.6% actually take on the responsibility of volunteer work related to environmental issues and 53.5% are willing to sacrifice personal time.

Table 6.36: The Media and Industry Respondents' Participation Level in Personal Time

Question	Anticipated Answer	Media & Industry%
18 I spend time for the environment even if it eats my personal time	Very often & Often	53.5
19 Discuss environmental issues with others	Very often & Often	61.7
20 Voluntary work related to environmental issues	Very often & Often	24.6

Table 6.37, provides some idea about the level of participation and the kinds of environmental activities the respondents are involved in. Activities such as river monitoring (only 8.2%) and beach clean-ups (6.5%) do not seem to be popular among the members of the media and industry. The respondents have indicated a preference for recycling (47.5%) and water saving initiatives (44.3%)

Table 6.37: Types of Efforts Carried Out by the Media and Industry Respondents

Question	Anticipated Answer	Public%
27) Which of the following environmental related activities in your organisation have you been involved in?	Recycling	47.5
	Water saving initiatives	44.3
	Tree planting	23.0
	River monitoring	8.2
	Beach Clean-ups	6.5

6. 13 Participation levels Among Politician, Government Officer and NGO Respondents

Table 6.38 shows the level of participation that the politicians, government officers and NGO respondents have indicated that they will commit in the face of environmental issues close to home. A high percentage (94 %) of the respondents wants to lead an environmental organization for the sake of self, family and future generations.

Table 6.38 also shows that if an endangered species is found being sold in a pet shop, 88 % stated they would inform relevant authorities. In the case of witnessing open burning, 59.4% of the respondents will report it to the relevant authorities, 43.5% feel it is their responsibility to report it and 35.6% feel that the right action is to report such open burning activities.

Table 6.38: Self-perceived Participation Level of the Politicians, Government officers and NGO Respondents in Environmental Issues

Question	Anticipated Answer	Politicians, government officers and NGO %
4 Why join a neighbourhood environmental community organisation	Would like to influence others…	31.4
5 Why would I lead an environmental organisation	Environmental issues affect me, family, future generations	**94.0**
6 Found pet shop selling an endangered animal	Inform relevant authorities	88.0
7 After a river pollution talk	Organise a campaign	15.0
14 Witness open burning…	Report to relevant authorities	59.4
	Responsibility as a citizen to report	43.5
	The right thing to do is to report	35.6

Table 6.39 shows the details of everyday actions which indicates the level commitment of the politicians, government officers and NGO respondents.

Table 6.39: Actual Participation Level in Everyday Activities of the Politicians, Government Officers and NGO Respondents

Question	Anticipated Answer	Politicians, government officers and NGO %
15 a) Own grocery bag	Very often & Often	19.5
15b) Reduce lights	Very often & Often	**87.2**
15c) Turn off tap while brushing	Very often & Often	**87.6**
15d) Using environmentally friendly sprays	Very often & Often	62.4
15e) Using recycled paper	Very often & Often	56.3
15f) Using homemade fertilisers	Very often & Often	28.0
15g) Turning off lights etc when not using	Very often & Often	**94.4**
15h) Not using chemical fertilisers	Very often & Often	54.6

Once again it is clear that simple environmentally friendly activities such as reducing lights (87.2%), turning off taps (87.6%) and turning off lights (94.4%) are carried out by more respondents. However, actions such as carrying own grocery bags (19.5%) and using homemade fertilisers (28%) are carried out by fewer individuals.

In Table 6.40, 57.3% of the politicians, government officers and NGO respondents indicate that they spend time for the environment even if it eats into their personal time. However, only 37.3% of the respondents say they are engaged in voluntary work related to the environment.

Table 6.40: The Politicians, Government Officers and NGO Respondents' Participation Level in Personal time

Question	Anticipated Answer	Politicians, government officers and NGO %
18 I spend time for the environment even if it eats into my personal time	Very often & Often	57.3
19 Discuss environmental issues with others	Very often & Often	64.6
20 Voluntary work related to environmental issues	Very often & Often	37.3

Table 6.41 shows the level of participation among the politicians, government officers and NGO respondents in efforts to highlight, monitor and fund environmental activities. 91.5% claim they highlight environmental education in campaigns and 77.8% say they highlight environmental issues to the relevant authorities. Other efforts include sourcing for funds (56.8%) and monitoring (62.9%)

Table 6.41: Types of efforts carried out by the Politicians, Government Officers and NGO

Question	Anticipated Answer	Politicians, government officers and NGO %
26) I highlight the importance of Environmental Education through campaigns/ dialogues/ seminars or exhibitions	Strongly Agree & Agree	91.5
28) I am involved in sourcing for funds for programmes to reduce environmental issues (e.g. open burning and water pollution)	Strongly Agree & Agree	56.8
30) I conduct monitoring and evaluation on the environmental quality in my local areas	Strongly Agree & Agree	62.9
31) I highlight issues related to the environment to the relevant authorities	Strongly Agree & Agree	77.8

6.14 Summary for Adult Groups

The participation level among the teacher respondents, university lecturers, teacher trainers in the teacher training institutes, public and parents, media and industry and the government officers, politicians and the NGOs' who were involved in the study can be summarized following the perspectives, namely (i) Respondents self-perceived participation level, (ii) Actual participation level in everyday environmentally friendly activities, and (iii) Level of personal time spend on environmental related participation and efforts. The overall level of the all the participants is expressed as a mean percentage in Table 6.42 below.

Table 6.42: Levels of participation from various aspects of all adult group respondents

Mean Percentage	Respondents Self Perceived Participation Level (Items 4-7 & 14)	Actual participation level in everyday environmental friendly activities (Items 15a – h)	Level of personal time spent on environmental related participation and efforts (Items 18, 19,20)	Efforts in carrying out activities in school/institutions (Items 32)
Teachers	44.9	61.5	52.9	79.6
University Lecturers	51.7	60.1	52.5	70.5
Teacher Training Institute Lecturers	52.6	64.0	64.8	65.4
				Efforts at environmentally friendly initiatives (Item 30)
Public	52.5	52.7	34.8	58.3
Parents	55.7	57.7	51.2	57.2
Media & Industry	49.0	65.3	46.6	25.9 (Item 27)
				Involvement in environmental issues and programmes (Items 26, 28, 30 & 31)
Politicians. Government Officers & NGOs'	52.5	61.3	53.1	72.2

Although in the previous section on skills, it was shown that the majority of the respondents indicated a negative attitude towards the authorities handling of environmental issues, when it comes to their own self-evaluation, the respondents have not given themselves a high grade as well (Table 6.42). Table 6.43 gives an idea about the specific participation levels of the adult groups. When the respondents were asked to respond to imaginary, situations where they would have to take action to solve the environment problem, the answers indicated a low to moderate

level of self-perceived participation (teachers – 44.9%; university lecturers – 51.7%; teacher trainers – 52.6%; public – 52.5%; parents – 55.7%; media & industry – 49%; politicians, government officers & NGO – 52.5%)

The adult respondents response to everyday participation in environmentally friendly activities such as turning off the tap while brushing their teeth or to bring along own grocery bags, was also moderate (teachers – 61.5%; university lecturers – 60.1%; teacher trainers – 64.0 %; public – 52.7%; parents – 57.7%; media & industry – 65.3 %; politicians, government officers & NGOs' – 61.3%)

The amount of personal time that the adult respondents were willing to spare for environmental related matters was also only moderate (teachers – 52.9%; university lecturers – 52%; teacher trainers – 64.8%; public – 34.8 %; parents – 51.2 %; media & industry – 46.6 %; politicians, government officers & NGOs' – 53.1%)

Table 6.43: Mean percentage of specific participation levels among all adult groups

Mean Percentage	Efforts in carrying out activities in schools/institutions (Items 32)
Teachers	79.6
University Lecturers	70.5
Teacher Training Institute Lecturers	65.4
	Efforts at environmentally friendly initiatives at work or residential areas (Item 30)
Public	58.3
Parents	57.2
Media & Industry	25.9 **(Item 27)**
	Involvement in environmental issues and programmes at work (Items 26, 28, 30 & 31)
Politicians. Government Officers & NGOs'	72.2

It appears from Table 6.43 that perhaps when it comes to one's own working or residential environments, the respondents are participating more in activities related to environmental

citizenship. For example, a moderately high percentage of educators (65.4% to 79.6%) say they are involved in efforts related to the environment at their workplaces. The politicians, government officers and the NGOs' indicate that they are involved in environmental issues and programmes related to their work (72.2%). The parents, members of the public as well as the media and industry respondents have indicated that they are involved in environmental issues and programmes at work or in their residential areas (public – 58.3%; parents – 57.2%; media & industry – 25.9%). Table 6.45 gives a short discussion about the participation of the groups in environmental activities.

Table 6.44: Summary of the Participation Level Among All the Groups

Aspect of participation	**Discussion**
Respondents Self-Perceived Participation Level (Items 4-7 & 14)	The range of self perceived participation level for all the respondents is 49% - 56%. This can be categorised as low to a moderate level of participation.
Actual participation level in everyday environmentally friendly activities (Items 15a – h)	The actual participation level is about the same as the self-perceived level and is between 53% - 65%. This is also from low to a moderate level of participation.
Level of personal time spent on environmental related participation and efforts (Items 18, 19,20)	The time spent on environmental activities ranges from 34% - 65% which is also low to a moderate level of participation
Efforts in carrying out activities in school/institutions (Items 32 & 33)	65% - 80% of the educators are involved in environmental efforts in their institutions, which is from a moderate to a high level of participation.
Efforts at environmentally friendly initiatives (Item 30)	Only 25% – 58% of the public, parents, media and the industry are involved in environmentally friendly activities at their workplace, which is a low to a moderate level.
Involvement in environmental issues and programmes (Items 26, 28, 30 & 31)	This aspect for the politicians, government officers and NGOs' show a relatively high participation level of 72.2%.

6.15 Participation levels Among Student Respondents

The groups discussed up till now (teachers, university lecturers, teacher trainers, members of the public, parents, media, business, politicians, government officers and NGOs') represent the adult population. In this section the results of the student population will be discussed.

Table 6.45 shows that the university students (89.4%) and student teachers (94.4%) perceive a high level participation because of future generations. The primary (29.6%) and the secondary (42.2%) students do not appear to reflect this. Other than this, 78.6% of these university students and 79.6% of the student teachers say that they will inform the authorities if they come across a pet shop selling endangered species of animals. Only 19.6% of the primary students and 30.1% of the secondary students say that they will inform the authorities in the same situation.

Table 6.45: Perceived Participation Level of the Student Group Respondents in Environmental Issues

Question	Anticipated Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
4 Why join a neighbourhood environmental community organisation	Would like to influence others…	23.4	21.5	37.3	26.5
5 Why would I lead an environmental organisation	Environmental issues affect me, family, future generations	29.6	42.2	89.4	94.4
6 Found pet shop selling an endangered animal	Inform relevant authorities	19.6	30.1	78.6	79.6
7 After a river pollution talk	Organise a campaign	18.7	11.1	13.2	19.2
14 Witness open burning…	Report to relevant authorities	78.9		65.1	60.0
	Responsibility as a citizen to report	67.1		46.4	42.7
	The right thing to do is to report	60.5		46.9	42.3

Table 6.46 below shows that just as the adult respondents, a high participation is obtained in the activities that take less effort such as turning of the tap while brushing teeth (primary – 73.3% -; secondary – 75.1%; tertiary – 75.8%; teacher trainees – 82.7%) and turning of the lights when we leave a room (primary – 84.8%; secondary – 94%, tertiary – 91.8 %; teacher trainees - 91%).

Table 6.46: Actual Participation Level in Everyday Activities of Student Respondents

Question	Anticipated Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
15 a) Own grocery bag	Very often & Often	40.7	27.7	19.0	21.6
15b) Reduce lights	Very often & Often	47.4	56.3	63.5	73.8
15c) Turn off tap while brushing	Very often & Often	**73.3**	**75.1**	**75.8**	**82.7**
15d) Using environmental friendly sprays	Very often & Often	27.4	35.6	48.1	52.9
15e) Using recycled paper	Very often & Often	47.7	44.6	40.3	51.0
15f) Using homemade fertilizers	Very often & Often	24.6	29.0	33.1	36.1
15g) Turning of lights etc when not using	Very often & Often	**84.8**	**94.0**	**91.8**	**91**
15h) Not using chemical fertilizers	Very often & Often	43.7	46.5	45.7	57.3

Table 6.47 shows that only 45.1% of the primary students, 35.8% of the secondary students, 41% of the tertiary students and 51.9% of the teacher trainees are prepared to sacrifice their personal time to participate in environmental related activities.

Table 6.47: Primary, Secondary, Tertiary Students and Teacher Trainee Respondents Participation Level in Personal Time

Question	Anticipated Answer	Primary %	Secondary %	Tertiary %	Teacher Trainees %
18 I spend time for the environment even if it eats into my personal time	Very often & Often	45.1	35.8	41.1	**51.9**
19 Discuss environmental issues with others	Very often & Often	39.6	37.6	43.8	**60.3**
20 Voluntary work related to environmental issues	Very often & Often	**45.6**	35.0	31.0	38.8

However the results in Table 6.47 seem to contradict with Table 6.48. The types of efforts that the respondents say they are involved in is high in direct contradiction to the personal time they allocate for environmental issues. In Table 6.48, 90.4% of the primary students, 95.2% of the secondary students and 89.9% of the tertiary students say they are actively involved in environmental activities.

Table 6.48: Types of Efforts Carried Out by Student Respondents

Question	Anticipated Answer	Primary%	Secondary%
29) As a student, how can you help to improve the environment?	Participating in environmental related activities	90.4	95.2
	Working with nature clubs in other schools	80.9	89.3
	Getting in touch with other environmental programmes in schools around the world to learn from and share their experiences and initiatives	80.3	90.0
Question	**Anticipated Answer**	**Tertiary**	
28) I increase my knowledge of environmental matters by:	having discussions with my coursemates	75.2	
	going for field trips	83.7	
	getting involved in activities related to local environmental issues	89.9	
	being a member of an environmental related organisation	77.4	

6.16 Summary for Students Groups

The overall level of participation of the all the student group respondents is expressed as a mean percentage in Table 6.49 below.

Table 6.49: Levels of participation from various aspects of all student respondents

Mean Percentage	Respondents Self Perceived Participation Level (Items 4-7 & 14)	Actual participation level in everyday environmental friendly activities (Items 15a – h)	Level of personal time spent on environmental related participation and efforts (Items 18, 19,20)	Efforts in carrying out activities in school/institutions (Items 28/29)
Primary	59.6	48.7	43.4	83.9
Secondary	59.6	51.1	36.1	91.5
Tertiary	53.8	52.2	38.6	81.6
Teacher Trainees	52.1	58.3	50.3	88.1

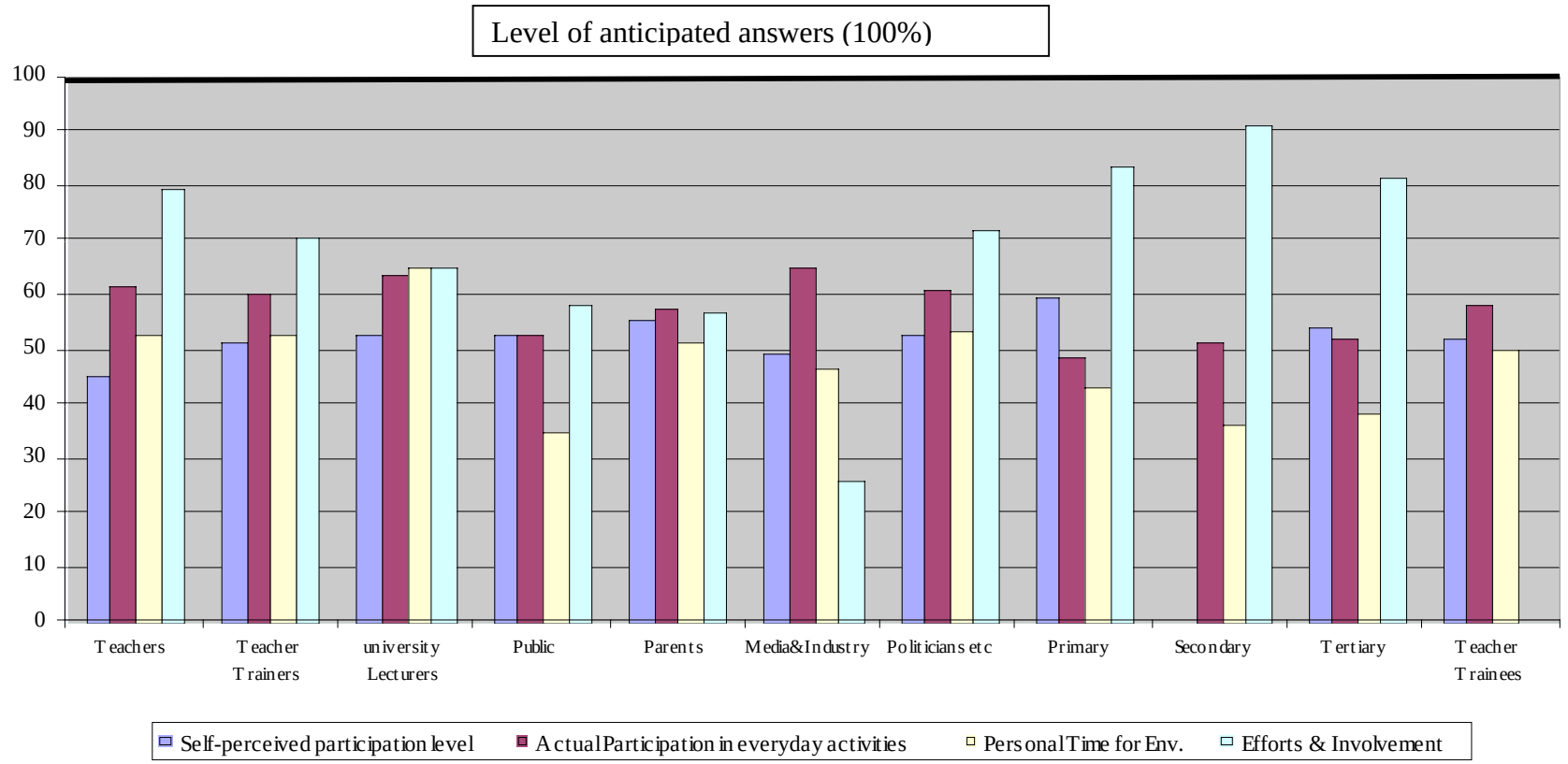
Table 6.50 gives a short discussion about the participation of the groups in environmental activities.

Table 6.50: Summary of the participation level among all the student groups

Aspect of participation	Discussion
Respondents self - perceived participation level (Items 4-7 & 14)	The range of self perceived participation level for all the respondents is 52% - 60%. This can be categorised as low to a moderate level of participation.
Actual participation level in everyday environmental friendly activities (Items 15a – h)	The actual participation level is about the same as the self-perceived level and is between 48% - 59%. This is also from low to a moderate level of participation.
Level of personal time spent on environmental related participation and efforts (Items 18, 19,20)	The time spent on environmental activities ranges from 36% - 50% which is also low to a moderate level of participation
Efforts in carrying out activities in school/institutions (Items 28 & 29)	Between 81% - 92% of the students are involved in environmental efforts in their institutions which is from a moderate to a high level of participation.

6.17 Participation Levels for All Respondents

Graph 6.2 indicates the attitude levels for the aspects of (i) self-perceived participation level, (ii) actual participation level, (iii) personal time for the environment, and (iv)efforts and involvement. The graph seems to indicate that the respondents as a whole are not consistent with their views. Although most admit that little personal time is allocated for environmental activities, yet a large percentage say they are involved in environmental related activities. The politicians and government officers feel that they are involved in environmental issues and programmes and the educators and students say they are involved in environmental activities in their respective institutions.

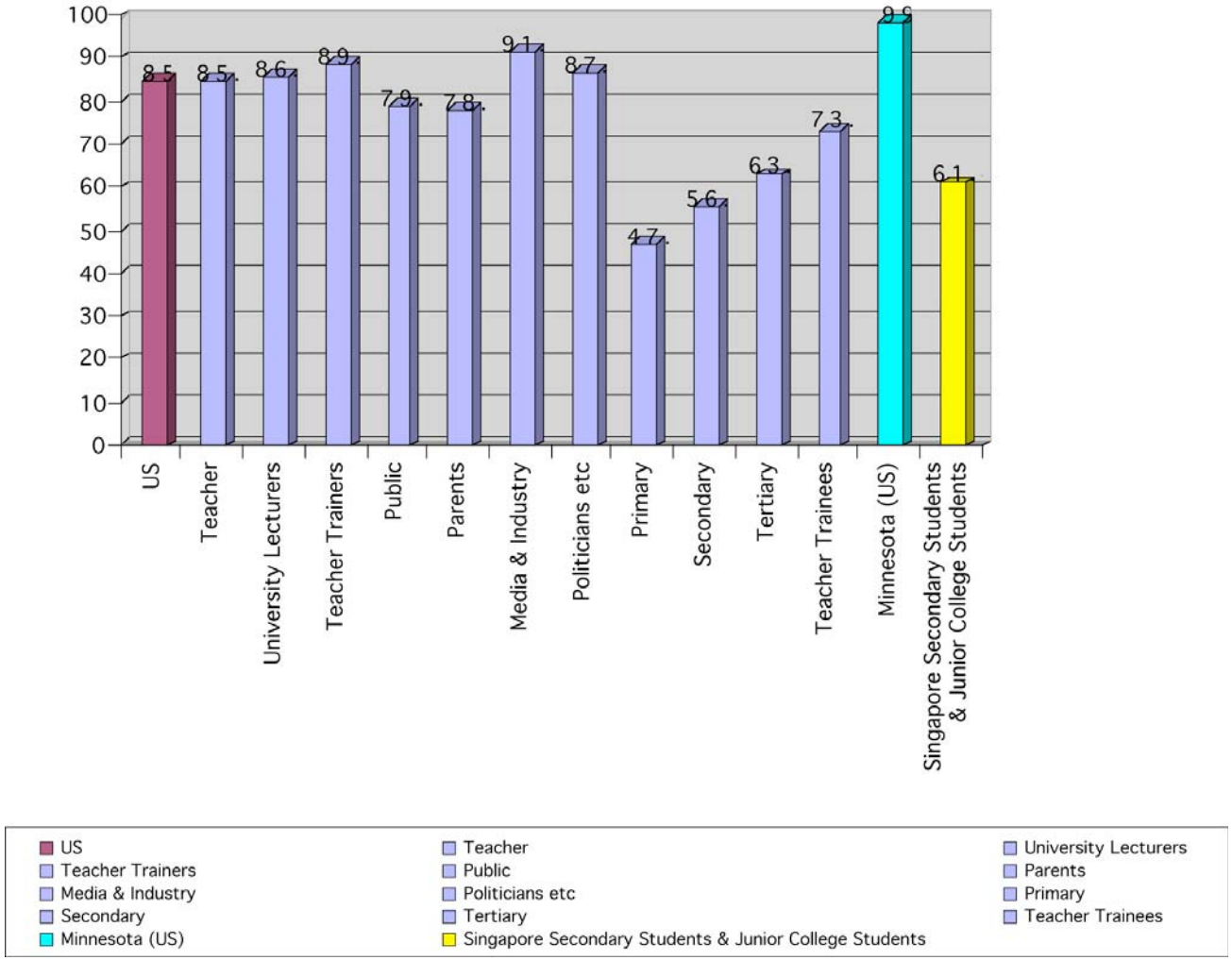


Graph 6.2 : Participation levels among all respondents

6.18 Comparison of Malaysian Environmental Behaviour Results with Other Nations

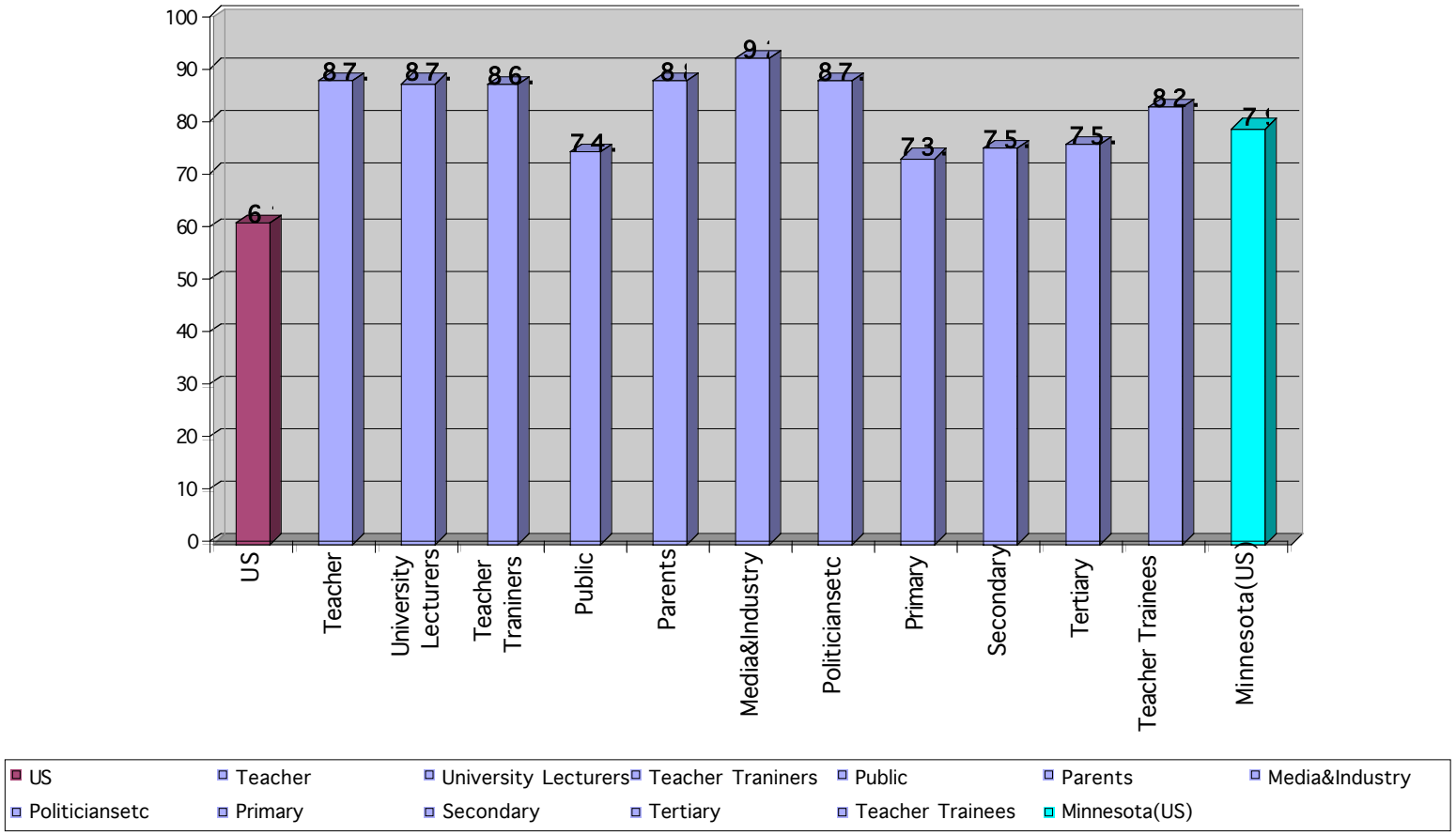
When compared to other nations, skills and participation are usually combined and the term 'Environmental Behaviour' has been coined. Hence, in this section, certain selected skills and participation levels will be compared with other studies. As can be seen in Graphs 6.3, 6.4 and 6.5, Malaysians have indicated a high level of positive environmental behaviour when it comes to conserving energy and water, when compared to their American counterparts.

Environmental Behaviour Related to Energy Conservation



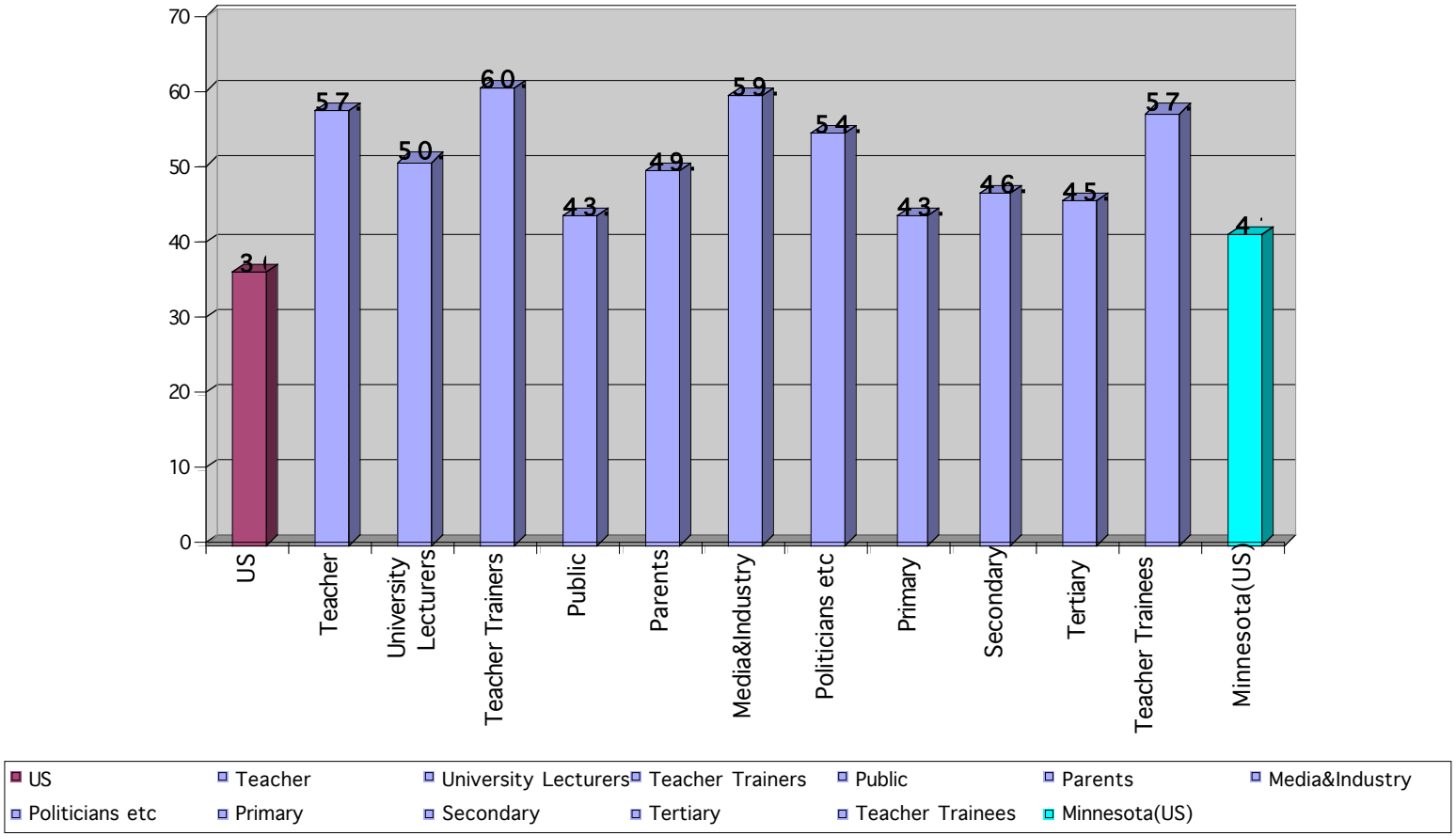
Graph 6.3: Comparison of skills and participation levels in conserving energy

Environmental Behaviour Related to Water Conservation



Graph 6.4: Comparison of Skills and Participation Levels in Conserving Water

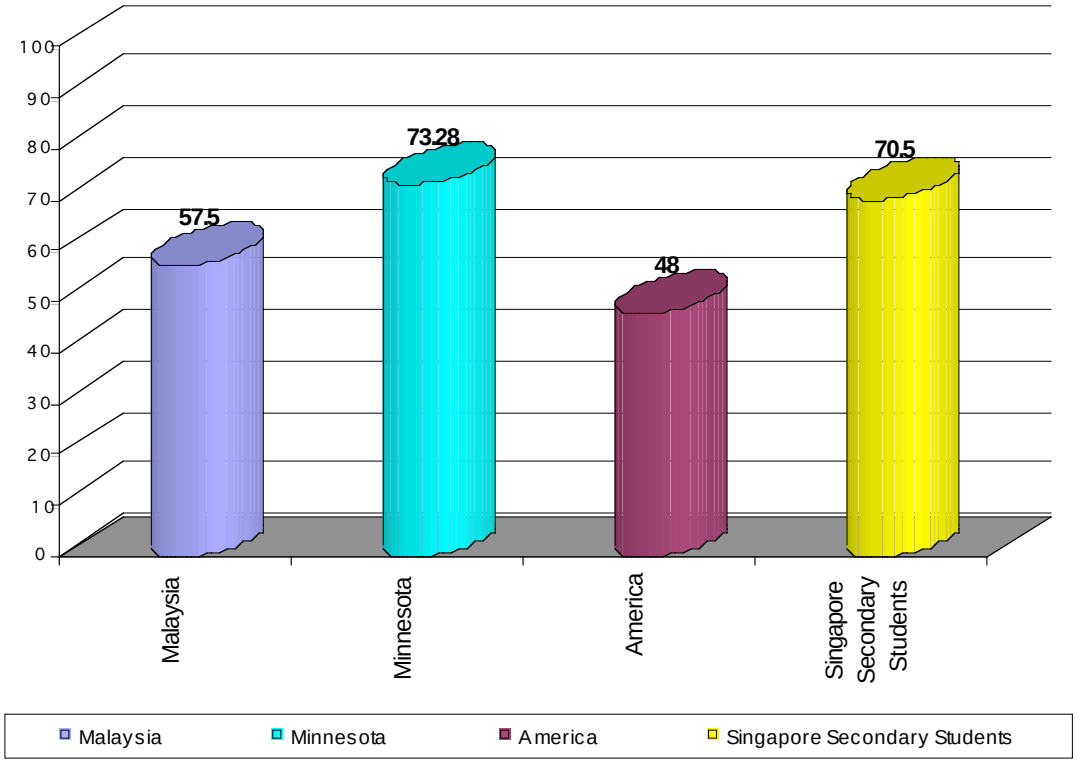
Environmental Behaviour in Not Using /Reducing Chemical Fertilizers



Graph 6.5: Comparison of Skills and Participation Levels in Reducing/Not Using Chemical Fertilizers

6.19 Overall Environmental Behaviour (Skills and Participation) Level of Malaysians Compared

Graph 6.6 shows the overall average (Refer to ***Appendix 4*** for details of the calculation) obtained for all the survey respondents for environmental behaviour is 57.5% when compared to Minnesota, (US adults), America and Singapore (Students)



Graph 6.6: Overall Average for Environmental Behaviour (Skills and Participation) Levels of Malaysians Compared

6.20 Summary

The Malaysian respondents seem to be skillful when they evaluate the actions of the authorities who enforce environmental policies and laws. However, the Malaysian respondents admit that they do not participate at a high level in environment related activities. The results indicate that this paradox could be due to time constraints. When compared with other international studies,

57.5% of Malaysians can be said to have positive environmental behaviour. Can Malaysia be satisfied with this level? Surely not.

ENVIRONMENTAL CITIZENSHIP: QUALITATIVE RESULTS

7.1 Introduction

The qualitative data lent more insight into the quantitative data gathered. Therefore, the exercise which took on the approach of face-to-face interviews and site observations were carried out in identified sites in Melaka, Pahang, Selangor, Kuala Lumpur, Sabah and Sarawak. The discussion in this chapter follows the main pre-determined categories of environmental citizenship namely, knowledge, attitude, skills and participation. Nevertheless, other emerging categories are also discussed.

7.2 Knowledge

The concept of knowledge as perceived from the realm of "Environmental Citizenship" is, "*to help individuals, groups and societies gain a variety of experience in, and acquire a basic understanding of what is required to create and maintain a sustainable environment*" (UNESCO-UNEP 1978).

7.2.1 Process of Knowledge Acquisition on Environmental Conservation

Acquisition of knowledge relevant to environmental citizenship was found to have mainly been acquired in two ways, namely influence of one's surroundings, explicitly or implicitly.

Knowledge by default (influence of one's surroundings)

Due to the distinctive background of the participants, one of the prevalent trends from the data gathered is the difference in the process of knowledge acquisition related to environmental conservation. As described by lecturer M from Teacher Training Institute A,

> *"…for me being a science student and now a science teacher, we learnt about symbiotic relationships"* (Interview, M, IP1, 25 Oct., 07)

For the media and non-governmental organisation (NGO) group, the researchers interviewed two participants, who are both based in Kuching, Sarawak. Both the media and the NGO participants seem quite exposed to environmental issues. Participant B revealed knowledge related to foreign environmental issues and was able to compare it with the Malaysian context. He says,

> *"Iceland and Scandinavian countries people reject the goods if it is heavily wrapped in plastic bag instead of paper bag…"* (Interview, B, MED, 13 Aug., 07)

> *"EC is still low but in the western country, is high as they could insert pressure on the authorities to control the negative aspect of the environment"* (Interview, B, MED, 13 Aug., 07)

B also has knowledge of negative activities in Malaysia and links it to education. He says,

> *"Factory throwing away chemical waste into the river and the local authorities never take action..."* (Interview, B, MED, 13 Aug., 07)

Perhaps, B being a reporter, has to confirm and verify the facts in his writings before publication, hence, his environmental knowledge overall may be broad.

Participant C's knowledge as an NGO employee seems centred around the environmental work that her organisation is involved in. She indicates this when she said,

> *"I would like to focus on the green aspect of the environment since our organisation focus our work in this area…"* (Interview, C, NGO, 13 Aug., 07)

Therefore, it can be said that the distinct professions and background of the participants has allowed them to construct knowledge related to environmental citizenship.

Explicit versus implicit knowledge

A clear emerging idea from the qualitative data was that there are Malaysians who want to be informed explicitly about environmental issues. One of the participants, M, an educator who teaches science and deals with a lot facts, had this to say when it comes to putting his knowledge related to environmentally friendly activities into practice,

> *"…tell us in explicit terms about what the common man can do to know that he is doing enough at work and at home. Spell it out. We can lose creative ideas as to what I can do –for me I only do the two things.*
> *F: you have to start reading… you have not been reading enough"*
> (Interview, IP1, M&F, 25 Oct., 07)

The statement of M's colleague's about him not reading enough could be true. As M teaches science in the institute, his knowledge about environmental conservation could be acquired by default (as shown in the previous section). However, when asked to go that extra mile for environmental conservation, he requested that knowledge be exposed to him explicitly rather than implicitly.

L2, a lecturer from Teacher Training Institute C admitted that the opportunities for acquiring knowledge on environmental issues are vast,

> *"The lecturer has many opportunities to be exposed to many environmental issues as in many subjects in school curriculum…"*
> (Interview, L2, IP2, 3 Oct., 07)

Another example is N, a participant who is a marketing manager at a hotel. Her post requires her to be equipped with the knowledge of Fraser's Hill (FH) as a nature-based tourist destination. Hence, she has acquired her knowledge on site from reading so as to improve the sales pitch made to her clients,

> ***"**..So, the only point that I can touch on the nature is preserve. In Fraser's there's no chemical use for all these kind of things and I would tell all my clients that."* (Interview, N, BUS, 18 Aug., 07)

7.2.2 Knowledge about Environmental Conservation

The types of knowledge and the extent of information that the participants have acquired are reflected in the following discussion.

The process of global warming

A student from Teacher Training Institute C has demonstrated his knowledge about the factors that cause global warming, which is one of the most current global issues:

> "*He said one of the main contributing factors to global warming is the transport system which involves a variety of vehicles such as lorries, vans, ships, trains, aeroplane and cars.* CO_2 *emissions from transport represent quite a high percentage of the total green gasses."*
> (Interview, S2, IP2, 1 Oct., 2007)

The participant S2, who is aware of the factors leading to global warming, and can afford another car for his working wife, chooses to maintain only one due to his concern on this important issue. It can be said that S2 has gone a step further in reflecting his concern about the ever increasing car sales, which will lead to the contribution of the overall increase of CO_2 emission in Malaysia.

Another participant, a secondary school principal in Sarawak has a fairly clear understanding on the environmental degradation that is happening. He identified the current issues like global warming, which is the result of an increase in greenhouse gas emissions that lead to other catastrophes such as rising sea levels as one of the most significant negative effects. He has also cited forest clearing due to over development, uncontrolled usage of chemicals in farming, which sometimes may contribute to river pollution, sedimentation and soil erosion, to name a few local environmental threats. He feels that everyone should embrace Environmental Citizenship (EC) in order to protect the environment continually.

Knowledge about other nations

As senior educators with longer years of experiences, both participants discussed above have indicated the ability to compare environmental consciousness of Malaysians with other countries. The two could differentiate EC knowledge among senior educators, young teachers and students at different levels. A statement made by one of them describes how children (school children) gain understanding of the environment.

> *"However, more open attitude and talks about what's happening to the environment has to be done. In TV, they are not showing the real picture. Our TV programmes need to feature more slots on environment. Discovery programmes are about other countries like Korea, China, and Australia and so on. Environmental Education should start from a very young age. I taught my children about wildlife but sad to say they don't know many animals such as Lutong, Hornbill and so on. They normally know about some animals only by watching TV or by seeing it in the books."* (Interview, M, SCH, 14 Aug., 07)

Media can be a powerful tool in opening the eyes of both children and adults to environmental conservation, both local and globally.

Knowledge through partnerships

To add to the above findings, teachers in a school in Sabah described the implementation of rules and laws by residents in residential areas of Sabah, especially in their villages and in schools as well. Their knowledge revolves around the relationship between their schools as the main organisation in partnership with the surrounding villages. The researcher's journal below has made clear the location of school in the observation report.

> *"Generally, since the school was located in a rural area, we can't expect that the school compound would be nice to look but still the school administrators are working hard with the villagers to keep maintaining the beauty of the school compound."*(Interview, F, SCH, 13 Aug., 2007)

It can be said that schools can work with the surrounding community to conserve the environment. This is because parents normally would support activities which inculcate positive values among their children.

Knowledge about product safety

S1, a student from a teaching institute, had this to say about society's lack of product knowledge, especially about products that can be harmful to the environment:

> '*Things like plastic bags, bottles and styrofoam used by food makers to sell their food items directly reach the consumers who do not know how to dispose them in the correct manner.'* (Interview, S1, IP2, 1 Oct., 07)

Similarly, a consultant in Kuching, Sarawak advocated on the importance of consumers' product knowledge,

> *'Try to invent technologies that enable the reduction in production of such products. Thus, it's cheaper for consumers. At the same time, educational programmes have to be in place for them to realise the benefit of the product on the environment.'* (Interview, B&I 1, 14 Aug., 07)

With knowledge about the products they consume, people would be able to make better choices of what they buy and use so as to help in environmental conservation.

Knowledge about the concept of Environmental Citizenship

The findings have shown that the participants' knowledge on environmental conservation is only limited to tree planting, recycling, illegal logging and air

pollution, *i.e.* smoke emanating from vehicles, open burning and smoking. The state of affairs as to the extent of knowledge about environmental conservation is proven further by the statements made by these participants (P2, P3 and P4) from a local university,

> *R: What can you tell me about environmentally friendly activities?*
> *P2: Keep our places clean like throw the rubbish into dustbin"*
> (Interview, P2, U1, 2 Oct., 07)

> *R: What can you tell me about environmentally friendly activities?*
> *P3: Replant, clean the area of the household – 'GOTONG'ROYONG'"*
> (Interview, P3, U1, 2 Oct., 07)

> *R: What can you tell me about environmentally friendly activities?*
> *P4: Emm… plant more, throw rubbish, and clean the house everyday. Wait… not smoking and the… don't cut down the tree, don't step on the grass and …..."*
> (Interview, P4, U1, 2 Oct., 07)

The knowledge revealed above is good. However, citizens should have more in-depth knowledge about environmental citizenship.

7.3 Attitude

The society's attitude in the realm of environmental citizenship is perceived as their ability 'to help individuals, groups and societies acquire a set of values and feelings of concern for the environment, and motivation for actively participating in environmental improvement and protection' as stated in the *Tbilisi Declaration 1978.*

The results and analysis from the interviews and observations has shed some light about the society's attitude towards finding the solutions to environmental issues, as well as providing some answers to the first objective of this study, which was to determine the existing level of environmental citizenship among Malaysians.

7.3.1 Society's Attitude Towards Conservation

Attitude towards environmental conservation were found to be varied and are discussed in the following section.

Public attitude in general

The two participants, B and C talked about the attitude of the public in general. B says that there is not enough awareness and enthusiasm, especially when compared with other nations, where people reject certain practices which might endanger the environment.

> *"As such, not enough awareness and enthusiasm level towards Malaysian environment."* (Interview, B, MED, 13 Aug., 07)

> "*Iceland and Scandinavian countries people reject the goods if it is heavily wrapped in plastic bag instead of paper bag. We should encourage the Malaysian public to do the same by educating them."*
> (Interview, B, MED, 13 Aug., 07)

C, on the other hand, is specific and says that messages through the media must be more hard-hitting.

> *"Step up on reaching out to the local children and their parents with hard-hitting and strong messages and it should be constant and consistent on issues like general environment, haze, climate change and endangered species."*
> (Interview, C, NGO, 13 Aug., 07)

Once again, the media is seen as a powerful tool that can be utilised to effectively change the attitude of the masses towards environmental conservation.

An attitude of ownership towards the environment

In environmental conservation, it is important that each individual adapts a positive attitude towards the environment. It is believed that those with positive attitudes will be motivated to be involved actively in any environmentally friendly activities and practices. Hence, the participants of this study seem to agree on the importance of awareness in the heart of each individual that can lead to demonstrating a sense of ownership and patriotism towards the environment in Malaysia. A government officer said,

> *"This is our place, our area where we are born and bred, we must love our country, just like we appreciate the independence of our country"*
> (Interview, M, GOV, 21 Aug., 07)

> *"We have to be aware of the government's campaign and follow them"*
> (Interview, L1, GOV, 2 Nov., 07)

> *"We have to be aware of all the do's and don'ts of the government about the environment and must not go against them"*
> (Interview, L1, GOV, 2 Nov., 07)

> *"Everyone has to have empathy...to safeguard the environment...need to be more aware and parents need to educate the children to love the environment"*
> (Interview, L2, GOV, 2 Nov., 07)

Sadly, it is not at all idyllic where environmental conservation is concerned, as there still exists individuals who refuse to cooperate, which is reflective on the society's awareness level and the state of environmental degradation in Malaysia. A distinct aspect is the society's attitude towards the public facilities found all over the country. One very common concern is the action of throwing rubbish indiscriminately, despite the existence of rubbish bins,

> *"There are still those who are not aware of the importance of cleanliness"*
> (Interview, P, GOV, 21 Aug., 07)

> *"The (rubbish) bin is there but no one wants to use it"*
> (Interview, P, GOV, 21 Aug., 07)

The participants also highlight the government's move to inculcate environmental awareness among the society, which in their opinion has not been entirely successful. D, who hails from Fraser's Hill has this to say about the issue of open burning and 'Cintakan Sungai Kita' campaign,

> *"Malaysians spending a lot of money…they are giving a lot of talks but still people do it."*
> (Interview, D, GOV, 18 Aug., 07)

> *"You see, 'Cintakan Sungai Kita'(Love Our Rivers. How many signboards in Malaysia you see while travelling? People go to school, you see them. But in the evening, when they go home they'll be doing the same thing.'*
> (Interview, GOV, 18 Aug., 07)

Sa, a lecturer from a teacher training institute, paints a vivid picture of what seems to illustrate the ineffectiveness of various campaigns and society's attitude, which has not evolved to a desired level despite the efforts made by the government. It is more ironic as the event she illustrated took place when Malaysia was celebrating her 50th Year of Independence,

> *"…there was garbage strewn everywhere during the eve of the National Day Celebration. Hence, it shows that Malaysians are insensitive towards the environment."*
> (Interview, Sa, IPT, 14 Sep., 07)

While M, a colleague of F, cites media as the contributory factor:

> *"I think it is reading. There is a lot of advertisement. A lot of exposure… Every now and then, you will read about an endangered species. A newspaper or a magazine, a lot I think it is the media. It is coming out. Dissemination of information is tremendous. And effective…"*
> (Interview, M, IP1, 25 Oct., 07)

Similarly, a student from a teacher training college in Kuala Lumpur believes that the media has to play their role in promoting good environmental values among the younger generation,

> *"Agree that teachers, parents, media and the government should join efforts in inculcating environmental values among the future generation"*
> (Summary, S2, IPT, 19 Sep., 07)

S2's admission that the *'Tak apa'* campaign by Ministry of Natural Resources and Environment (MONRE) is *'one of the best campaigns that the government ever launched'* reflects her consensus on the importance of the role of the mass media to advocate environmental citizenship (Summary, S2, IPT, 19 Sep., 07).

However, despite various campaigns shown by the media, J, a government officer, still feels they are insufficient,

> *"Citizenship and responsibility… Some people don't care about the environment due to lack of awareness and apathy."*
> (Interview, J, GOV, 13 Aug., 07)

In addition, a health organisation in this country was observed as demonstrating apathy towards the facilities within their premise. It reflects the lack of awareness on energy and resource efficiency in this government facility.

> *"As a health organisation, the hospital did give preference to health issues. However a lack in care for the environment matters arose. Faulty taps with heavy water flow and lights were kept switched on during day are some indication of ignorance on energy resources"*
> (Site report, HOS, GOV, 3 Sep., 07)

As Malaysians who have a sense of ownership towards the country, society should not have to depend on others or the government to conserve the environment. Malaysians should extend their ownership as well as empathy towards the environment through

improving their daily practices on their own volition. This sentiment is reflected by both D a government officer and a lecturer in one of the teacher training institute,

> *"As a citizen, we've got the right to take care of our forest. It doesn't matter if you are XXXX ke, XXXX ke, XXXX, we've got the right to take care of the forest. We cannot depend on the government."*
> (Interview, D, GOV, 18 Aug., 07)

> *"We are busy asking what other people have been doing, up to a point that we forgot that we, too, have a role to play. We ask the government to provide us with so many things but yet, we did nothing*."
> (Interview, LI, IPT, 14 Sep., 07)

Attitude of the industry

Interviews were conducted with B, a journalist and M, an officer working for an environmental NGO, both based in Kuching Sarawak. Both share the same sentiments when it comes the industry's attitude towards the environment. Apparently, B feels 'uncomfortable' when he is faced with the industry dumping waste into rivers. He admits that he is not deeply affected with environmental conservation, and this might explain the reason he only feels 'uncomfortable'.

> *"Factories throwing away chemical waste into the river and the locals didn't take action, so they need to be educated."*
> (Interview, B, MED, 13 Aug., 07)

> *I'm not deeply into environmental conservation. However, I feel not so comfortable when I see them throwing the organic matters into the river."*
> (Interview, M, B, MED, 13 Aug., 07)

C only says that the industry has to manage all types of their wastes well.

> *"On the brown issues, the industrial risk has to be managed well. The industry has risk on the air quality, ocean, greenhouse gas emissions, sewage release and solid waste."*
> (Interview, C, NGO, 13 Aug., 07)

The above also indirectly reveals that, while the industry lacks concern for the environment, the people should also be more proactive in battling industrial pollution and not be complacent.

7.3.2 Real Empathy? Financial Gain? Only Following Job Requirements?

The study also found participants who seemingly had empathy for the environment, or did they? The following discussion highlights this matter.

Seemingly real empathy

Ca, a stall owner in Fraser's Hill, seems to perceive that her more than 10 years practice of using plates for dine-in and packing her 'nasi lemak' with paper and banana leaf is part of her contribution to environmental conservation.

> *Ca :(Back when I was selling food in the school canteen)...I only used plates and never used plastic to pack the food."*
> *R: What if they would like to pack their food home?*
> *Ca: My 'nasi lemak' is packed with banana leaf.*
> (Interview, Ca, PUB, 18 Aug., 07)

While this is commendable, it can be said that it is a common sight to see hawkers using plates for dine-in, so is 'nasi lemak' packed in banana leaf. However, Ca seemed to go a little extra where she was observed as the only stall owner there that did not pack her fried food in Styrofoam containers. Thus, when asked the reason behind her practice she revealed a trade secret as written by the researcher,

> *'When asked, she said one of the reasons was to keep the fried food crisp, which was true when the researcher experimented on it.'*
> (Site Report, Ca, PUB, 18 Aug., 07)

Hence, was the action of not using styrofoam out of real empathy for the environment or was it just to ensure the crispiness of her food so that customers will buy her product? The extent of the participant's attitudinal change can be further questioned. This was because Ca's action towards her other customers while in the presence of the researcher cast an even wider doubt and contradicted her earlier statement, as seen in this excerpt,

> *'However, the researcher was quite appalled when she actually handed a packed fried food to a customer in a plastic and unwittingly said, "Oh, this is not WWF".'*
> (Site Report, Ca, PUB, 18 Aug., 07)

Another participant, Ha, a licensed turtle-egg collector, was at first observed as having empathy towards the plight of the turtles as he explained the scarcity of beach area for the turtles to lay their eggs.

> *"The beach area for the turtles to land and nest their eggs have become very limited."*
> (Interview, Ha, PUB, 20 Aug., 07)

During turtle nesting season, Ha, a full-time fisherman hangs his fishing net and patrols the beach in Padang Kemunting, Melaka, to collect turtle eggs which he then sells to the nearby turtle hatchery managed by the Fisheries Department. Ha continued to illustrate his empathy towards turtle conservation by illustrating his efforts in 'assisting' the turtles up the retaining wall to lay their eggs,

> *Ha: …We will help them (the turtles) up the retaining wall. Once they are done laying their eggs, we will help them down the wall.*
> *R: So, if the turtles go to the high retaining wall, you are going to lift them up the wall?*
> *Ha: Yes*
> (Interview, Ha, PUB, 20 Aug., 07)

However, Ha's 'assisting' the turtles seeded some questions in the researcher's mind as expressed here,

> *'However, the researcher grapples with idea of the participant helping the turtles up the retaining wall so that they could lay their eggs. The researcher questions the ethics behind the action and whether he is only doing so for monetary gain. The researcher also questions whether he should just leave it to nature.'*
> (Site report, Ha, PUB, 20 Aug., 07)

The question of ethics cropped up in the researcher's mind upon hearing the efforts made by Ha to assist the turtles up the retaining wall near the beach. The researcher wonders whether his assisting them is entirely due to his own volition as an environmental citizen, who feels that he has the responsibility to assist in turtle conservation or was it due to monetary gain. In addition, Ha expressed his apparent dissatisfaction about illegal poachers or the practice of poaching of turtle eggs, which he views as a threat to his livelihood,

> "*I can't tolerate the poachers (illegal turtle egg collectors) here..."*
> (Ha, PUB, 20 Aug., 07)

He continued to express his concern on the lack of enforcement on such illegal practice,

> "*We do inform the authority sometimes but these people (the illegal egg collectors) were never caught."*
> (Ha, PUB, 20 Aug., 07)

Of course, it must be admitted that the attitude demonstrated by Ha does in many ways contribute to the conservation of turtles in Melaka. Perhaps, there exists a thin

line between demonstrated conservation effort founded on monetary or personal gains and a sincere effort by an environmental citizen with no personal gain whatsoever.

Another case is Na, a marketing manager in one of the hotels in Fraser's Hill, who admits that her attitude towards the environment changed due to the job requirement as well as her move from Kuantan to Fraser's Hill,

> *'And also, I feel myself more exposed to the environment when I am here (in Fraser's Hill)'* (Interview, Na, BUS, 18 Aug., 07)

> *'Maybe because there (in Kuantan), it is the city centre and you are not exposed to the environment so much, especially to nature.'*
> (Interview, Na, BUS, 18 Aug., 07)

Most of Na's green initiatives only revolve around improving the practices in her workplace,

> "*We have recycle bins. Sometimes, we use the chemical or product containers that we have bought, wash them up and use them for internal dustbin but not for the rooms. We would use them for the back office, the kitchen or maybe for housekeeping. Sometimes we use them as pots in the nursery."*
> (Interview, Na, BUS, 18 Aug., 07)

To the researcher, Na came across as someone who lacks conviction when it comes to making a personal commitment towards improving her own daily environmental practices, which is made apparent in this except,

> *R: Apart from what you do in your job, as an individual what are the other environmentally friendly practices that you do in your house?*
> *Na: (Pause)*
> *R: (Jokingly says) Don't worry, anything you say will not be held against you.*
> *Na: Actually, I have to, have to, you mean in the house?'*
> (Interview, Na, BUS, 18 Aug., 07)

The concept of environmental citizenship to her only revolves around activities such as jungle trekking and nature walks,

> *"If you ask me if I want something which is environmentally friendly, which relates to nature, I would prefer the activities being conducted in the jungle or in the jungle trek."*
> (Nancy, Na, BUS, 18 Aug., 07)

7.3.3 Differences between Malaysians and Foreigners in Their Attitudes Towards Environmental Conservation

In her experience in the hotel industry, Na believes that foreigners show more appreciation towards the environment in general, and follow the environmentally friendly practices of the hotel. Her attitude towards Malaysians who frequent Fraser's Hill as a vacation spot is,

> *"...people (Malaysians) are not really prone to the environment. So, when they talk about all this, that's why I said, they just don't bother. It is nothing great."*
> (Interview, Na, BUS, 18 Aug., 07)

However, she has a different view when it comes to foreigners,

> *"For foreigners, they like more of these environmentally friendly practices. But Malaysians, no."*
> (Interview, Na, BUS, 18 Aug., 07)

A teacher trainee had the following to say about her experience overseas,

> *In New Zealand, when I was there for two years….my lecturers there took us to islands, where native animals like the koala, were fed, taken care of. Everything is sponsored by the New Zealand government. Our food, night stay, they gave gloves for us to clean the places near water falls…we really enjoyed because it was hands-on activity and……..no ending….every Sunday! So many….children, even very old people also help to clean…some ladies bring their babies tied at their back and they help to clean…WWF also joins them…Rotary Clubs…*(Student Interview, IP1, 25 Oct., 07)

Perhaps we can learn a thing or two and adopt good practices wherever possible.

7.3.4 Conveniences, Practicalities and Outright Care - less Attitudes

One interesting aspect to highlight is some of the participants are inclined towards good environmental values but without sacrifice or effort. They do not want to sacrifice the conveniences and practicalities while protecting the environment, as illustrated through the interviews and observations carried out in two separate teacher training institutes:

> *M: Yes, but the alternative of bringing containers is not viable.*
> *R: Why is it not viable?*
> *M: It is not convenient! A guy taking baskets to "pasar malam" (night market)!*
> *F: There!*
> *M: It is not in the culture lah. If someone can come up with biodegradable rubbish bag."*
> (Interview, M&F, IP1, 25 Oct., 07)

The discussion between convenience and good environmental values, continues on as below:

> *M: For example, most of the time we buy food when we are hungry. We do not plan to be hungry – then we stop and 'ta pow'lah. We cannot put tiffin carriers in the car…not a guy. For practical terms people will not do it. We are hoping that they will. But I tell you they won't. People need extra incentive or extra convenience. We have to be practical. People are people, unless they have reached a level of consciousness..*
> (Interview, M&F, IP1, 25 Oct., 07)

> *Okay, we have awareness .It is quite good .But whether it is translated into action…Me, I am not affected enough to go out and do anything. The most that I will do is to turn off the light, water, but then sometimes, I do not even do that.* (Interview, M, IP1, 25 Oct., 07)

M is a lecturer in teacher training institute A and is not willing to sacrifice his convenience by bringing a food container whenever he needs to pack food from a stall or restaurant. In addition, M has also expressed his reservation in bringing along a basket to the market for fear of looking culturally out of place, and M admits that for him, only the minimum effort will be considered.

In an observation carried out in teacher training college C, it is appalling to see that there is a place designated for open burning, when the practice should be avoided at all cost,

> *'There is an area allocated for burning cut-down trees and grass which is not conducive if the open burning takes place during lecture time.'*
> (Observation, IP2, 1 Oct., 07)

Thus, the practice and attitude towards good environmental values to these participants can only be translated if they do not have to sacrifice conveniences and practicalities that most of the time does not come together in a package.

Hence, the observation carried out in teacher training institute C does not echo the opinion of L2, a lecturer from the same institute. L2 has this to say about open burning and natural disaster;

> *"It is not 100% natural disaster as it can be seen in Malaysia. It is always contributed by open burning elsewhere."*
> (Interview, L2, IP2, 4 Nov., 07)

> *"All people, including the organisation, should step up the awareness on burning of other materials which are not really healthy to human."*
> (Interview, L2, IP2, Nov., 07)

Apparently this participant is not even aware of happenings in her institute where she works - happenings such as open burning which is executed after lecture hours most of the time. Why should this be happening in a government institution? Perhaps the comments from the teacher's training institute can provide a possible answer.

In terms of procedures on disposal of old items in teacher training institute C, L1, a lecturer has this to reflect on:

> *"A longer period to process the procedure can cause a severe damage to the items."* (Summary, L1, IP2, p2, 3 Oct., 07)

> *"When furniture are stored too long, they cannot be recycled again because the maximum damage has been done while in storage."*
> (Interview, L1, IP2, p5, 3 Oct., 07)

The unnecessary procedure and bureaucracy at the institutional level does not give way for the old, unnecessary or useless furniture to be transferred and reused somewhere else. Hence, the institute may have to resort to open burning or may have to engage a disposal company which again, may resort to open burning in order to be rid of these bulky items.

7.3.5 Attitudes Towards Enforcement

The senior assistant and principal participants strongly expressed their dissatisfaction on how Malaysia manages waste compared to neighbouring countries. Lack of enforcement on environmental issues in Malaysia has become a major disappointment to educators such as principals and teachers.

> *"Just compare how Singapore is managing its waste. Enforcement is in place, thus the waste management is good. So, likewise, Malaysia also must improve on the enforcement aspect. In schools, the environmental messages has to continuously sent and enforcement should be practiced."*
> (Interview, M, SCH, 14 Aug., 07)

These educators have developed a positive attitude towards EC and their roles in educating young children. Their efforts are constricted by inadequate law enforcement

by the authorities and are diminishing the EC spirit in the children they educate. They teach children not to litter everywhere, avoid open burning, keep our beaches clean and many other positive values in conserving and preserving our environment. However, these values taught in schools contradicts with what is being practised by the public outside the school surroundings,

> *"In Sarawak, there are a lot of forest reserves like in X but timber logging is still happening in the forest reserve. When I was still teaching in X a few years ago, this thing happened and resulted in wildlife like mousedeer, fish (semah) has going missing. So, the development has effected the wildlife population."*(Interview, M2, SCH2, 15 Aug., 07)

It is apparent that Malaysia has all the laws and regulations in place when it comes to environmental issues. However, as mentioned by one of the school principals, there has to be a follow-up. He highlights that Malaysia needs to improve on the enforcement aspect.

> *T2: The village committee (JKK) has to do monitoring.*
> *R: There has to be implementation.*
> *T2: There has to implementation, it is astonishing what they are showing on the television. Why do things have to happen, despite how powerful these people are...*
> *R: Because there is no enforcement.*
> *T2: Yes, no enforcement*
> (Interview, T2M, SCH1,14 Aug., 07)

Admittedly, the enforcement in the village near the school exists but he still feels that the "walking the talk" of enforcement must follow what is being advocated in the. media

7.3.6 The Process of Attitudinal Change

As we are aware, change is a process, not an event. Most of the participants in the study agree that there should be an attitudinal change or an evolution in society's attitude in order to improve their awareness level. Any media campaign on environmental awareness organised by the government, be it in at the national, state or district level, devoid of a monitoring and evaluation mechanism, would only result in the society turning a deaf ear. This monitoring has to start from home at an early phase.

It is apparent that children imitate behaviours of adults. The action of littering or indiscriminate garbage disposal or open burning are some of many negative behaviours adults demonstrate in the household.

The participants reflect on two aspects that can have negative and positive impact on the children's attitude towards environment and the issues surrounding it (Table 7.1).

Table 7.1: Factors that can influence children's attitude towards environment

No.	Factors	Description	Evidence
1.	*Role modelling*	Negative role modelling through the community	a.*'…there is a lot of rubbish thrown by the community"* (Interview, P2, SCH1, 14 Aug 07)
			b.*'I will throw rubbish under the sofa because I'm lazy to get up (and find a proper bin)'* (Interview, P3, SCH1, 14 Aug 07
			c. *'One of the students, a school prefect, admits to throwing rubbish indiscriminately because he is lazy…'* (Summary, SCH1, 14 Aug 07)
			d. *'The students are aware of the environmental destruction surrounding them. However, their attitudes are the images of the community, who demonstrate a lack of concern towards the (environmental) issue. The school lacks the initiative in inculcating awareness on the importance of the environment to man. The students are only subjected to regular activities such as 'gotong-royong' (cleanliness) and tree planting. They have not initiated any activities that involve any NGO or the local council. The students are aware of the environmental degradation but lack the awareness on environmental conservation and appreciation towards the environment'* (Summary, SCH1, 14 Aug 07)
2.	*Education*	This participant believes parents should be playing the role of an educator to inculcate positive attitude towards environmental awareness in the children.	a. *' If the individual is not aware, he or she cannot expect those around him or her to do otherwise...he or she needs to set an example...parents need to set an example (by a showing positive attitude towards environmental conservation) at home'* (Interview, P, GOV, 21 Aug., 07)
			b. *'He feels that the society's awareness on the issues of environmental conservation is not up to the anticipated level. He feels that it has got to with attitude. He is of the opinion that changing one's attitude is a life-long process and he stated that the action of throwing rubbish indiscriminately as an example'*. (Summary, P, GOV, 21 Aug.,07)

7.4 Skills and Participation

The knowledge and the attitude among various Malaysians have been discussed. Now, it is important to look at the skills and participation that can be found among Malaysians that can elevate environmental citizenship to a higher level. Skills and participation are entwined together as the answers and explanation given by the participants are intertwined and reflect both the aspects and it is difficult to separate the two. However, the reader must be cautious of the fact in that the participants of the qualitative part of the study were volunteers and may not be the representative of the population.

The quantitative results have revealed that between 66% - 90% respondents from all the groups have negative perceptions of the skills of relevant authorities. This level of negative perception towards the authorities can be taken as an opposite reflection about their own skills that is very positive. The educators have claimed innovative skills (89% - 90%) in instilling environmental values among their students. The public and the parent respondents (65% - 72%) have demonstrated a moderate level of analytical skills. With regards to training, < 30% of the media respondents said they have received training. 93.1% of the politicians, government officers and NGOs claim that they proactively integrate knowledge and skills, which is at a very high level. 86% of the politicians, government officers and NGOs claim that they work towards conservation, again of a very high level. The quantitative aspect of the study has revealed the existing level of environmental citizenship about various aspects.

In the quantitative aspect of the study, the range of self-perceived participation level for all the respondents is 49% - 56%. This can be categorised as a low to moderate level of participation. The actual participation level is about the same as the self-perceived level and is between 53% - 65%. This is also from a low to moderate level of participation. The time spent on environmental activities ranges from 34% - 65% which is also a low to moderate level of participation. Between 65% - 80% of the educators are involved in environmental efforts in their institutions, which from a moderate to high level of participation. Only 25% – 58% of the public, parents, media and the industry are involved in environmentally friendly activities at their workplace,

which is a low to a moderate level. This aspect for the politicians, government officers and NGOs' show a relatively high participation level of 72.2%.

The open-ended questions in the questionnaire also gave insight as to the skills found among the various sample groups (Table 7.2)

Table 7.2: Summary of written responses of members of the public, parents and teachers from the questionnaires

Sample group	Everyday practices	Setting an example
Public	Collect materials such as paper, plastics and glass that can be recycled; Plant flowering plants in the house; Make sure that rubbish is thrown away properly; Do not carry out open-burning; *Gotong royong* to clean neighbourhood regularly;	Use the rubbish bins; Create awareness among the younger generation by being an example; Explain carefully to the youngsters as to why they should be good environment conscious citizens; Carry out activities with the youngsters
Teachers	Impart knowledge to the students about being an environment conscious citizen; Environmental societies should be set up from kindergarten upwards; Infuse good environmental citizenship in lessons; Expose the young to information about conservation; Make students aware of the consequences of man's actions;	Teachers must be role models; Discuss current environmental issues with students; Organise conservation activities; Demonstrate the values that are preached;
Parents	Always recycle at home; Reuse of plastics; Cut down water and electricity usage; No burning of rubbish; No throwing of rubbish into rivers;	Discuss with my children about conservation; Instill responsibility in my children; Set a good example; Teach them to recycle etc. Teach them to love the earth; I inspire them to conserve

The qualitative data of the study collected through observations and interviews further revealed deeper insight about the existing environmental citizenship skills and participation found among Malaysians from different backgrounds and vocations. What emerged were several factors that may have influenced the acquiring of and the

practise of the skills and practices that Malaysians have acquired thus far, as found in the quantitative results.

7.4.1 One's Background and Culture

Some of the participants in the qualitative study revealed much insight about what they think about environmental issues, based upon the backgrounds that they come from.

Foundation for Environmental Citizenship

A female lecturer from a teacher training institute reflected that most of the skills that she has were acquired during her childhood. Her early childhood experiences have impacted her ability in finding solutions to environmental issues. As she reflected during the interview;

> *"My father came from China and there was always a well at home. My neighbour will use nice buckets but my dad will recycle the oil tins; as for other things such as rotten vegetables, he will make us cut it and feed the chickens – it has affected me"*
> (Interview, F, IP1, 25 Oct., 07)

Thus, the concept of reusing and recycling acquired from her childhood are even prevalent at present in her adult life. The early experiences have been the base for building a belief system of leading by example to her students. At present, she remains thoughtful of conservation. She says,

> *"…I am translating it into action. For example, the water I use for washing –I use it to flush the toilet etc.*
> (Interview, F, IP1, 25 Oct., 07)

Her male colleague on the other hand reflected that it was the school experiences that have influenced him. He said,

> *" As for me being a science student and now a science teacher, we learnt about symbiotic relationships- when I taught Form 6, we went to the mangrove swamp. When I set questions, I set questions like why do 'rapids' die. School has influenced our thoughts. We talk about the food chain, etc. The environment is important to us."*
> (Interview, M, IP1, 25 Oct., 07)

Hence, be it home or school, influence of parents and teachers go a long way in cultivating skills in problem-solving while facing environmental issues.

Influence of one's background: Teaching by example

L1 from another teacher training institute demonstrates her skills in organising various activities in order to expose her students to various environmental conservation activities. She engages the help of relevant organisations in her bid to impart knowledge to her students, as described below;

> *"I've gone over to Dewan Bandaraya (Kuala Lumpur) and FRIM to obtain seedlings."*
> (Interview, LI, IP3, 14 Sep., 07)

> *"I've brought the primary and secondary teachers for a short course on Environmental Education."*
> (Interview, L1, IP3, 14 Sep., 07)

> *"I've managed to consult an officer from FRIM to give exposure to the lecturers in these institutes on trees which are safe (to plant in the institute)."*
> (Interview, L1, IP3, 14 Sep., 07)

The lecturer F, from the teacher training institute also realises the importance of teaching by example and has this to say,

> *"It is over the years; the build up is over the years, what I am teaching, what I am reading and especially now what I am doing. I am teaching the subject."*
> (Interview, F, IP1, 25 Oct., 07)

> *"Ya, I really do it, I do not use plastic bags. I promote it among my students; You all collect, bring it to my car – I will bring it to the bins. This is what I have been doing to the centre of the toilet rolls – I will collect and put it into a bag, it is such a small thing and when it is full I will drop it into the bins. Bottles as well. When I go to places where they use plastic bags. I do not use it."*
> (Interview, F, IP1, 25 Oct., 07)

F also uses innovative pedagogy to hammer in the message about the environment. She says,

> *"Discussion, group work. Besides lectures we do a lot of things. Example- research – we will ask the students to go and look for information in the library and internet and then we have another session for discussion. Within the group they will have to present to the class. A lot of interaction; we have field trips to FRIM etc. …"*
> (Interview, F, IP1, 25 Oct., 07)

S1 from teacher training institute C has a similar opinion to that of F:

> *"… past educational background as a science graduate majoring in Biological Studies has influenced … views about environment."*
> (Interview, S1, IP2, 1 Oct., 07)

Influence of neighbourhood, culture and religious activities & SES

According to M and F from the teachers' training institute, other factors that can educate and infuse basic skills in conservation is the neighbourhood one lives in, culture and activities organised by religious bodies. They said,

> *"My place-there is a pick-up for the Kidney Foundation to collect things to recycle."*
> (Interview, M, IP1, 25 Oct., 07)

> *"Another agency which is helping is the places of worship-my church has just started – it actually has a recycle bin – just 3 or 4(since) weeks we started."*
> (Interview, M, IP1, 25 Oct., 07)

> *"NGO's – every Saturday and alternative Sundays, the Buddhist Society will collect for three hours – there will be lorries – so busy -they will come."*
> (Interview, F, IP1, 25 Oct., 07)

Another lecturer from another teacher training institute, who has been actively involved in environmental activities internally as well as externally, has reflected on her knowledge on the direct co-relation on socio-economic background and ones' environmental citizen (EC),

> *"I am staying in Taman XXXXX where the community's socio economic background is ok. Therefore, they are more aware of the environment."*
> (Interview, L1, IP3, 14 Sep., 07)

7.4.2 Importance of Schools and Environmental Educational Programmes

Citizens of a secondary school in Sabah were aware of Environmental Citizenship. Out of the three teachers interviewed, one was leading the school Environmental Club with broad knowledge in waste management. From the interview, it was clear that she practices recycling in her teaching.

> *"Saya amalkan pengasingan sampah untuk dihantar ke 'buy-back center'. Pada, saya pengurusan sampah yang baik dapat menghasilkan wang……..kita perlu melakukan untuk diri sendiri dan keluarga. Pendidikan tentang alam sekitar perlu berterusan. Guru perlu beri kesedaran kepada pelajar (I practise the separation of rubbish to be sent to the buy-back centre. To me, when we manage our rubbish well, it can bring in money...we have to do it for ourselves and our family. Education about the environment must be continuous. Teachers must make students aware).*
> (Interview, F, SCH3, 13 Aug., 07)

The teachers agreed that recycling would be a better alternative to disposing waste. They have suggested a few environmental projects and programmes in their school as below;

(i) Recycling- Buy-back Center Project (with three schools participating)

(ii) SERASI programme, between the Department of Environment and the Education Office.

(iii) Collaboration programmes with Shangri La-Resort.

One school in Sarawak has integrated Environmental Citizenship in their school. The teacher interviewed said,

> *"Through 3K, activities such as water and electricity conservation are carried out. Learning stations and mini projects that are environment related had been established. All the co-curriculum clubs and associations are instructed to carry out at least one activity that is related to the environment."*
> (Interview, M, SCH1, 14 Aug., 07)

The school clubs have organised environmental programmes, and this has assisted this school in creating opportunities for those who were directly or indirectly involved to play a positive part. The teacher explained,

> *"A book has been published this year for the Plant of St. Thomas to further increase the environmental awareness and to raise fund for the school activities. Teachers have also been instructed to use better methods to teach EE. Persatuan Alam Sekitar has been established to increase the level of participation of the students in environment related initiatives."*
> (Interview, M, SCH1, 14 Aug., 07)

Generally, students and teachers from the other schools that were interviewed, have talked about basic skills on conserving and preserving the environment which include recycling, throwing rubbish into dustbins and obeying all rules displayed in school compounds, to name a few. Several of the participants stated that education is important in helping to mould skills among the youth, and that the lack of education related to the environment can lead to a non-caring attitude towards the environment.

The teacher trainers do utilise their skills to try and infuse Environmental Education.

> *R: Your curriculum –how do you integrate environmental issues?*
> *M: Not really, I teach numerical literacy – primary school mathematics – the usual, perhaps in geometrical progression – world population.*
> *R : This institute – do you have campaigns, etc.?*
> *M: No we have co-curriculum – we should have a ' persatuan'.*
> *F: We can have it in Kajian Tempatan. I tell my students to do something* (Interview, M&F, IP1, 25 Oct., 07)

The media participant feels that the younger generation also has probably learnt some skills through the existing education system. According to him, skills related to the environment probably need to be taught, especially to the kampung folk. The media is also involved in environmental programmes in schools. For example,

> *"We promote environmental issues and certain activities targeting students. And promote recycling, especially items such as papers in collaboration with the Sarawak Education Department."*
> (Interview, M, MED, 13 Aug., 07)

The NGO is also active in organising programmes for schools,

> *"Some programmes for the rural and school community. 'Nature and You' organized jointly the wildlife aspect with the Forestry Corporation. Organising Camps for 50 kids and educating them on 3R, brown issues, wildlife and its related habitat, environmental awareness and responsibilities. Public awareness on the wildlife laws in Sarawak, Tiger conservation in Pahang and some volunteers in Selangor."*
> (Interview, F, NGO, 13 Aug., 07)

7.4.3 Good Management Practice, Creativity and Influence of the Workplace

A management staff working with a local hotel when interviewed said that she has picked up some basic ideas on recycling through her work but her resort has not pushed for every staff to be involved in this.

> *"Here you can see a lot of things, such as the nature-like the plants and everything. And also, I feel myself more prone to the environment when I am here."*
> (Interview, S.BUS. 18 Aug., 07)

It has increased awareness of nature.

> *"So, the only point that I can touch on the nature is preserve. You see, in Fraser's, no chemical use for all these kind of things. Most of the time, I used to tell all my clients. So, automatically it came into me, and yes, actually the nature is beautiful. That's how, frankly, that's how, and that's my personal experience."*(Interview, S.BUS, 18 Aug., 07)

"Sometimes we use this container like pail and all, sometimes we buy chemicals or other products. We just wash them, we use it for internal dustbin but it's not for the room."
(Interview, S.BUS, 18 Aug., 07)

"Sometimes for us to plant plants in the pot, but for potted plants you have to use nice pots. Maybe for us to put in the nursery, we use that."
(Interview, S.BUS, 18 Aug., 07)

"Plastic, I am sure. But the can and bottle, they definitely separate them."
(Interview, S.BUS, 18 Aug., 07)

"Yes, because I told you we have our recycling bin. So, they need to separate them and then throw inside there."
(Interview, S.BUS, 18 Aug., 07)

'… recycle bins, the fence around the pond was made of wood rather than concrete structures, the garden seats were made of fallen tree trunks cut into small pieces."
(Observation, S.BUS, 18 Aug., 07)

At the hotel, certain positive practices are found. For example,

S: Yes, we do have that practice, whereby like street lights and all, we put timer. It is turned on according to the timer and we buy energy saving bulb and all. We are doing it batch by batch. Water also.
R: How long have you had this practice?
S: 3 years.
R: Did you notice a significant drop in the expenses on water and electricity?
S: Yes.
R: Would that mean it actually helps to use water and electricity efficiently?
S: Yes, it does. In fact, we do not have air-con in the rooms, meaning we do not use air-con except for the meeting room. In fact, for the meeting room also if the guest required, and they say it is stuffy, then we would switch on the air-con.
(Interview, S.BUS, 18 Aug., 07)

Another business participant does her bit for environment if there is an opportunity like recycling and spreading the environmental message to her friends and clients. She also spoke of her own skills at composting and using her own concoction of pesticides.

"Start small like recycling. When I have the opportunity I will talk to people."
(Interview, F, BUS, 14 Aug., 07)

"I will talk to people on greenhouse gases, recent environmental issue, the importance of recycling, waste; healthy food (may lead to cancer)."
(Interview, F, BUS, 14 Aug., 07)

> *"Through the environmental report I develop for my clients, I spell out the guidance on what to do and not and I will check on them on their compliance by doing a spot-check on the site."*
> (Interview, F, BUS, 14 Aug., 07)

S1, who used to work for a well-known car manufacturer before enrolling in the teacher training institute, named the company's policy and leadership as factors that move the staff towards Environmental Citizenship:

> *"The representatives are required to present their ideas on any environmentally friendly activities"*
> (Summary, S1, IPT, 19 Sep., 07)

Government officers interviewed stressed that good management practices at the workplace is important in order to transform a particular place into a recreational area where people can enjoy the environment around them. An officer from Melaka said,

> *"Kita buat program-program tanam bunga, tanam pokok di tempat-tempat rekreasi." (We carry out plant planting activities in recreational areas)*
> (Interview, M, GOV, 21 Aug., 07)

> *"...usaha-usaha kita tanam pokok-pokok..."(...we take the trouble to plant trees...)*
> (Interview, M, GOV, 21 Aug., 07)

> *"Kita buat alam sekitar tepi pantai, sebab pantai ini tempat orang pergi berekreasi..." (We take care of the beach environmen, because this is the place people go to relax...)*
> (Interview, M.GOV, 21 Aug., 07)

Another worker at a public hospital said,

> *"Every wall has plant pots."*
> (Interview, L15, HOS, GOV, 20 Aug., 07)

> *"More live plants along corridors."*
> (Interview, L24, HOS, GOV, 20 Aug., 07)

In addition, the government officer from Melaka stated that skillful management can lead to more concrete activities. He explained,

> *"Use of recycle papers. Composting activities are on a trail basis. Ecological sanitation activities are on-going and involve treatment of household waste water from residential and schools such as SMK Tebakang. Also integrated bio-gas plant activity. Waste from toilet is channeled to a digester and the methane by-product gases are converted*

into bio-gas. 3R activities are also being implemented in some schools and nearby kampung in Kuching."
(Interview, M, GOV, 13 Aug., 07)

"Certain issues such as that happening in Kampung Bako on solid waste management (3R), cleanliness that eliminate solid waste drifted into river. This effort will also contribute tourism at the kampung."
(Interview, M, GOV, 13 Aug., 07)

The NGO participant suggests,

"Use papers as much as possible to the extent of 80% unless its confidential matters, recycle the ink cartridge."
(Interview, F, NGO, 13 Aug., 07)

In one of the teachers' training institute, the lecturers had this to say about the institution's practices,

M: We switch off the lights and air con.
F: For long holidays we will switch off everything. But some will switch on all the five air cons even if there is only one or two persons. A waste.
M: Our students are not so..they sometimes do not switch off.
F: But me. if I use the lecture hall, I will switch off.
F: Very often in the hall – lights and air con are left on. I REPORT.
(Interview, F&M, IP1, 25 Oct., 07)

According to a lecturer in another teacher training institute, activities and good intentions are plentiful. One of the participants said,

"…kualiti memang bermula dari bilik air. Ini saya tampal di pintu-pintu bilik air "Kebersihan Bermula Dari Sini" dekat pintu bilik air kita. (…quality begins in the toilet. I have pasted this "Cleanliness Begins In The Toilet" on all toilet doors…)
(Interview, L1, IP3, 14 Sep., 07)

"Saya tidak pernah letih bercakap, berkempen, menegur dari segi amalan kita, sampah sarap, bilik air and classroom. (I have never let up on saying or campaigning about our practices related to rubbish, toilets and the classroom)
(Interview, L1, IP3, 14 Sep., 07)

"…Simposium Pendidikan Alam Sekitar Peringkat Kebangsaan bekerjasama dengan Kementerian Sains, Teknologi dan Alam Sekitar, kita melibatkan 100 buah sekolah di seluruh Malaysia." (…we have involved 100 schools nationwide in the National Symposium on Education in collaboration with the Ministry of Science, Technology and Environment)
(Interview, L1, IP3, 14 Sep., 07)

"Sekolah Lestari dulu saya termasuk salah seorang daripada Panel. Salah seorang daripada yang mencirikan, memberi garis panduan, ciri-ciri Sekolah

> *Lestari." (I was involved in the Sekolah Lestari Panel…one of those who helped with the guidelines…)*
> (Interview, L1, IP3, 14 Sep., 07)

> *"…awal tahun ini saya mengadakan kursus pendek "Ke Arah Sekolah Lestari", kepada pengetua-pengetua sekolah di daerah Gombak. (…early this year I conducted a course entitled "Towards being a Lestari School" for principals in the Gombak district)*
> (Interview, L1, IP3, 14 Sep., 07)

Observations conducted by the researchers in this teacher training institute revealed that the management and practices here were good. For example,

> *"Drains and floor are cleaned everyday."*
> (Observation, Cafeteria, IP2, 4 Oct., 07)

> *"Cycling between the lecture blocks seemed to be a very healthy practice among the students even though the number is about 1/10 of the population."*
> (Observation, SCH3, 1 Oct., 07)

> *"The "gotong-royong" activity seems to be an exercise often carried out among the college students and lecturers. This activity may instill environmental awareness among the students when they participate actively."*
> (Observation, SCH3, 1 Oct., 07)

> *"Separate dustbins are used to collect papers and left-over food. The food is not thrown in the drain, thus, foul smell is avoided."*
> (Observation, Cafeteria, IP2, 4 Oct., 07)

One of the principals interviewed has translated his love and awareness of the environment through the syllabus and activities by encouraging environmental friendly initiatives among the teachers and student. Whereas, at home, part of his translation of EC is through encouraging his children not to throw rubbish indiscriminately. He also took part in recycling campaigns and also keeps an aquarium which he says is ecologically balanced and of low maintenance. He also has stopped going fishing as he feels that we should fish only for food and not entertainment. On the hindsight, instead of stating a clear formulation of rules developed with regards to environmental consciousness, he stated the documents that have been developed and the awards that the school has won at the district, state and national level. In addition, the school has also initiated various environmentally friendly activities such as zone cleaning, composting, learning stations and

environmentally related mini projects. Where classroom instruction is concerned his teachers are instructed to implement better methods to teach EE.

Many schools have incorporated participation by PTA, Village Committee, NGOs and government agencies. Talks on environmental awareness, tree planting activities and *gotong-royong,* were among activities carried out by the schools.

> "*We have planted around the school trees which were donated by the Sarawak Forestry Department and parents. The environmental works normally will be assisted by the Parents and Teachers Association and Kampung committee; the activities are planting trees and gotong royong."*
> (Interview, M2, SCH2, 15 Aug., 07)

> *"Ada juga program dengan KK Wetland Centre (NGO) untuk tanam semula pokok bakau……Kempen Satu Pokok Satu Pelajar. Beri kesan pada udara, proses fotosintesis." (Also with KK Wetland Centre to replant mangrove trees... one tree one student, this will have an effect on the air and the photosynthetic process)*
> (Interview, F, SCH3, 13 Aug., 07)

7.5 Participant Suggestions

However said and done, environmental citizenship has to come from within. Only with the presence of this intrinsic motivation, can people begin to realise unspoken rules. The NGO participant has this to say,

> *"EC has to start with individual action. For instance on wildlife/tiger conservation, people should not be endorsing the purchase of tiger-based product by not buying it, persuade people of not buying it. Involve in various activities such as composting, water conservation, educate the young, adult and other people. The enforcement on illegal and open burning. However, schools are already taking steps towards this direction but parents also need to be roped in as well."*
> (Interview, F, NGO, 13 Aug., 07)

> *"There are these unspoken rules on recycling, ecological conservation and energy conservation."*
> (Interview, F, NGO, 13 Aug., 07)

The NGO participant also suggests a proper budget and to step up instilling environmental citizenship among citizens. She said,

"There should be proper budget allocation to carry out all the planned/to be planned environmental conservation activities."
(Interview, F, NGO, 13 Aug., 07)

"In terms of the natural environment conservation, Malaysia has to step up on its conservation effort mainly to deal with issues in wildlife, haze and weather."
(Interview, F, NGO, 13 Aug., 07)

"Step up on reaching out to the locals and their parents with hard-hitting and strong messages and it should be constant and consistent on issues like general environment, haze, climate change and endangered species."
(Interview, F, NGO, 13 Aug., 07)

One of the business participants said,

"Have competitions (with some incentives) within the suburban area to see which household produces less rubbish. Try to encourage people to be concerned such as toilet cleanliness, management of sewage water, household water, grey water (the water used to bathe, wash vegetables and so on)."
(Interview, F, BUS, 14 Aug., 07)

The media participant suggested,

"Encourage more serious recycling process of plastic. .. Easy and economical ways to process and recycle plastic has to be invented (so that the process is easier and cheaper) because at present it involves high cost and is difficult."
(Interview, M, MED, 13 Aug., 07)

Another business participant said,

"Adopt as a pilot project for instant household water to separate the grease and solid waste as treatment before releasing it to the river. Promote more usage of environmentally friendly household products such as fridges free of CFCs." (Interview, F, BUS, 14 Aug., 07)

S1, a student at one of the local teacher training institutes, also strongly believes that an intervention from an external organisation such as WWF-Malaysia is also an effective way to inculcate environmental citizenship among the citizens in the teacher training institute:

'However, should there be an outsider (for example WWF-Malaysia) intervention, he feels that the interest and support will be greater.'
(Summary, S1, IP3, 19 Sep., 07)

Various other proposals or suggestions were given by the participants to ensure everyone is attuned to the concept of environmental citizenship and make environmental conservation their daily agenda. These suggestions are summarised in Table 7.3 below.

Table 7.3: Suggestions on activities to promote EC

No.	Activities	Description	Evidence
1	Follow-up activities	Activities such as those related to the environment or environmental conservation should be attended by relevant officers. In addition, officers involved should be responsible in developing a report and a follow-up action (*i.e.* in-house training *etc*.) on the training they have received.	*'That's why for this kind of program you must have relevant officers (attending them). They can go back and teach their staff. All the staff cannot go together.'* (Interview, D, GOV, 18 Aug 07)
2	Specific project such as kampung or school adoption project	The relevant government and NGOs should extend their involvement in specific projects, which involves all levels of the community.	*'We should have kampung adoption programme where we should work with them on certain issues. It's because at present a lot of activities are on increasing awareness level. Need more specific projects. Same programme has to be extended to schools too.* (Interview, M, GOV, 13 Aug 07)
3	Improvement on recycling process	Due to the mass use of plastics in Malaysia, the recycling process should be improved.	*'Encourage more serious recycling process of plastic. .. Easy and economical ways to process the recycle plastic has to be invented (so that the process is easier and cheaper) because at present it involves high cost and is difficult.'* (Interview, B, MED, 13 Aug 07)
4	Improvement on the system	B has a more indirect approach and talks of changes in the education system in order to elevate the environmental citizenship among Malaysians as compared to other nations.	'*Changes in <u>the education system</u> for environmental matters should take place.'* (Interview, B, MED, 13 Aug 07)
		Development of wildlife management policy and educational programme on wildlife and its natural habitat	*"Develop policy on wildlife management, develop education programme on wildlife and natural habitat such as those that involve tiger and orangutan."*

			(Interview, C, NGO, 13 Aug., 07)
		Improvement conservation efforts	*"In terms of the natural environment conservation, Malaysia has to step up on its conservation effort mainly to deal with issues in wildlife, haze and weather."* (Interview, C, NGO, 13 Aug 07)
5	Education for the industries	Education should not only be looked upon in the formal context. The mass public, especially the industry players, should be at the receiving end where environmental education is concerned.	*"Factory throwing away chemical waste into the river and the locals do not take action, so they need to be <u>educated.</u>"* (Interview, B, MED, 13 Aug 07)
6	Budget allocation	C's suggestions are once again more specific as to how to elevate environmental citizenship. She relates to practical aspects such as budget, developing policies and hands-on conservation efforts.	*"There should be proper budget allocation to carry out all the planned/to be planned environmental conservation activities."* (Interview, C, NGO, 13 Aug 07)
7	Improvement on mass media campaigns		*"Step up on reaching out to the <u>locals and their parents with hard-hitting and strong messages</u> and it should be constant and consistent on issues like general environment, haze, climate change and endangered species."* (Interview, C, NGO, 3 Aug 07)

7.6 The Case for Environmental Education

Even with all the good practices and intentions discussed above, environmental citizenship is still lacking. This is clear as stated below,

> *"In terms of state and national level, the level of awareness of the people is quite low especially at the grassroots level, local community or kampung level."*
> (Interview, M, MED, 13 Aug., 07)

> *"EC still low but in the western country it is high as they could insert pressure on the authorities to control the negative aspect of the environment."*
> (Interview, M, MED, 13 Aug., 07)

> *"Iceland and Scandinavian countries people reject the goods if it is heavily wrapped in plastic bag instead of paper bag. We should encourage the Malaysian public to do the same by educating them."*
> (Interview, M, MED, 13 Aug., 07)

A teacher trainee from a teachers' training institute, who has been working with a car manufacturer, stresses that there is still room for improvement. As he reflects,

> *'The state of environment in Malaysia has improved to 30% but there are still people who do not care at all about the environment.'*
> (Summary, S1, IP3, 19 Sep., 07)

Alice, who has a consulting company based in Kuching, Sarawak that writes Environmental Impact Assessment (EIA) Reports for the government, seems to echo the statement made by the teacher trainee above,

> "*There is plenty of room for improvement. Serious lack of improvement from young people to adult."*
> (Interview, BUS, 14 Aug., 07)

She places the importance of understanding on the relationship between human and environment in order to improve the environmental values among the society,

> *"The understanding of relationship between human and environment is important."*
> (Interview, BUS, 14 Aug., 07)

Similar sentiments are being reflected by these participants from the government officers group, about the present state of the environment. In this excerpt, a government officer in Melaka has this to say,

> *"…this is area has not been polluted yet…We need to take care of the environment and at the same time make way for development."*
> (Interview, M, GOV, 21 Aug., 07)

In his capacity as a village head and also as one who was born and bred in the area, his knowledge on the rate of development in the surrounding area is extensive. He feels that there is a certain amount sacrifice that we have to make in the name of development. However, he feels that there must be a balance between development and environmental conservation. How can we achieve this balance as well as improve our management of the environment?

Many of the participants have stressed on education.

> *"Develop policy on wildlife management, develop education programme on wildlife and natural habitat such as those that involve tiger and orang utan."*
> (Interview, F, NGO, 13 Aug., 07)

> *"Changes in the education system for environmental matters should take place."*
> (Interview, M, MED, 13 Aug., 07)

> *"Factory throwing away chemical waste into the river and the local authorities never take action, so they need to be educated."*
> (Interview, M, MED, 13 Aug., 07)

The NGO participant also relates to the education system, but is more specific and says there is a need to plan for certain identified areas of conservation. She said,

> *"Develop policy on wildlife management, develop education programme on wildlife and natural habitat such as those that involve tiger and orangutan."*
> (Interview, F, NGO, 13 Aug., 07)

The business person who participated feels that there is a lack of education and maybe this has led to a lack of awareness.

> *"If you ask me, of course there is not enough awareness lah to the public. I understand that lah, everybody is talking about the environment. Preserve this, preserve that, you can't log this but I don't think so they have enough knowledge what exactly is environmental, like protect the environment or whatever lah. Maybe it is lack of education. Talking about Fraser's Hill, actually it is quite ok. Most of the people also they take care lah, the plants and they don't simply throw rubbish here and there, quite ok because it is a small community. But overall, I feel maybe it is lack of education".*
> (Interview, S, BUS., 18 Aug., 07)

A government officer from a Hill Resort also said,

> *"Kita perlu satu pendidikan untuk bakal pelajar."*
> (Interview, D, GOV, 18 Aug., 07)

> *"People have to adopt these issues. More education program has to be conducted to increase the awareness level. Nevertheless it is challenging and sad, especially when faced with failure."*
> (Interview, F, BUS, 14 Aug., 07)

Gaining knowledge, instilling good values and inculcating skills are primary indicators of EC in schools. However, in education, not only schools and teachers are responsible for teaching the young. It is everyone's responsibility. For example, the KK Wetland Centre (NGO) has played a significant role in helping the public to care for environment.

Therefore, concerns expressed by other parties outside school organisations also points to the need to educate young children on environmental issues. Mutual responsibility is needed and the public and all other groups need to start to participate directly, simultaneously educating school children by allowing them to take part in contributing to the betterment of environmental citizenship. Perhaps this point can be really nailed in as we read these words by one of the participants,

> *"Over the years I see the change in the environment. Especially deforestation, the speed with which it is happening.*
> *Those days the rivers that I saw were not black. Now it is black! When a child colours a river it is not blue, not green it is black! I have asked a child to colour a river before and he coloured it black. I asked, why did you colour it black? The child answered – because it is black."*
> (Interview, F, IP1, 25 Oct., 07)

The qualitative results have given added insight to the national survey conducted. In the next chapter, the factors that can be addressed to move the environmental citizenship level of Malaysians up to the anticipated level are discussed.

FACTORS TO ELEVATE ENVIRONMENTAL CITIZENSHIP: EMERGING PERSPECTIVES

8.1 Introduction

In the previous chapters, the central, pre-determined characteristics of environmental citizenship, namely knowledge, attitude, skills and participation have been discussed reflected in the various target groups throughout the country. This chapter will discuss issues that have risen from the findings of the present study. These issues are not explicitly detected, but rather these issues have been implicitly stated and have been interpreted based on both the quantitative and qualitative findings. These emerging factors can be the possible steps to elevate environmental citizenship levels of Malaysians.

8.2 Personal Commitment Among Malaysians – The Gap Between the Heart and Mind

The study revealed a paradox in the way Malaysians perceive their participation in environmental related activities. Overall, the quantitative findings indicated that **all groups** of respondents involved in the survey indicated that they perceived their own participation levels only at a low to moderate level in environment related activities in their daily lives. They also perceived their involvement in terms of personal time as low. In **direct contrast**, the politicians, government officers and NGO, educator and student respondents then indicated a high level of involvement in environmental efforts and programmes (Graph 6.2). While only a low to moderate percentage of the respondents of these groups indicate that they are involved in voluntary work related to the environment as well as spend personal time in these activities, a rather high percentage also indicate that they are involved in various environmental efforts. This contradiction could be perhaps due to the fact that the heart may want to do many things (therefore the high

percentage that indicated involvement in environmental efforts) but the circumstances of time and work may not allow for a greater commitment towards the environment. Or perhaps this paradox could be due to unclear perceptions of the respondents regarding what it actually means to participate in environment related issues. Therefore, the respondents may have answered with a mind to what efforts they would like to have been involved in and not what they are actually involved in.

The qualitative findings revealed that environmental efforts are at different levels of commitment among the various groups of participants and is very much an individual thing (Table 8.1).

Table: 8.1 Examples of commitment

Participant	Example of parts of quotes	Discussion
Educator	*R:Your curriculum –how do you integrate environmental issues?* *M:* ***Not really****, I teach numerical literacy – primary school mathematics* *R: This institute – do you have campaigns etc.?* *M:* ***No,*** *we have co-curriculum – we should have a persatuan.* (M&F, IP1, 25 Oct 07)	The quotes among the educators indicate a range of participation levels among the participants.
	F: For long holidays, we will switch off everything. But some will switch on all the five air-cons even if there are only one or two persons. ***A waste.*** *M:Our students are not so..they sometimes* ***do not switch off.*** *F:* ***Very often in the hall – lights and air-con are left on***. (Interview, F&M, IP1, 25 Oct 07)	The actions described in the quotes indicate to some extent the commitment levels of the individuals.
	"…I am ***translating it into action****. For example, the water I use for washing –I use it to flush the toilet etc.* (Interview, F, IP1, 25Oct 07) *"I* ***promote it among my students****; You all collect and bring it to my car. I will collect and put it into a bag, … it is full, I will drop it into the bins. Bottles as well. When I go to*	The quotes clearly indicate that actions are very much related to the individual and the organisation.

	places where they use plastic bags. I do not use it" (Interview, F, IP1, 25Oct 07) *"Through 3K, activities such as water and electricity conservation are carried out. Learning stations and min- projects that are environment related had been established.* ***All the co-curriculum clubs and associations are instructed to carry out at least one activity that related to environment."*** (Interview, M, SCH1, 14 Aug., 07)	
NGO &Government Officers	*"Saya amalkan pengasingan sampah untuk dihantar ke 'buyback center'. Pada saya pengurusan sampah yang baik dapat menghasilkan wang……..kita perlu melakukan untuk diri sendiri dan keluarga. Pendidikan tentang alam sekitar perlu berterusan. Guru perlu beri kesedaran kepada pelajar."* (Interview, F, SCH3, 13 Aug., 07) *"Memang kita, komuniti in,i kita gerakkan dia, sebagai orang key komuniti untuk menjaga kebersihan alam sekitar* (Interview, M, GOV, 21 Aug., 07) *"Kita buat program-program tanam bunga, tanam pokok di tempat-tempat rekreasi."* (Interview, M.GOV, 21 Aug 07) *"...usaha-usaha kita tanam pokok-pokok..."* (Interview, M.GOV, 21 Aug 07) Another worker at a public hospital said, *"Every wall has plant pots."* (Interview, L15, HOS, GOV, 20 Aug 07) *"More live plants along corridors"* (Interview, L24, HOS,GOV, 20 Aug 07) *Use papers as much as possible to the extent of 80% unless it's confidential matters, recycle the ink cartridge.* (Interview, F, NGO, 13 Aug., 07)	A lot of emphasis is placed upon plants by many of the civil servants. The NGOs' on the other hand emphasise recycling and environmental education.

Business	*"… recycle bins, the fence around the pond was made of wood rather than concrete structures, the garden seats were made of fallen tree trunks cut into small pieces"*(Observation, S.BUS, 18 Aug., 07) *"Start small like recycling. When I have the opportunity I will talk to people." (Interview, F,BUS, 14 Aug., 07)* *"I will talk to people on greenhouse gases, recent environmental issue, the importance of recycling, waste, healthy food (may lead to cancer)."* (Interview, F, BUS, 14 Aug., 07) *"Through the environmental report I develop for my clients, I spell out the guidance on what to do and not. I will check on them on their compliance by doing spot check on the site."* (Interview, F, BUS, 4 Aug., 07)	The business community also emphasises recycling and also very much up to the individual

Based upon the above discussion, it can be said that commitment to environmental programmes seems to be very much an individual affair. As was stated earlier the heart of the matter is the individual's personal commitment that either brings out the very best in participation or the very least. As one teacher trainee put it,

> *'The state of environment in Malaysia has improved to 30% but there are still people who do not care at all about the environment'*
> (Summary, S1, IP2, 19 Sept., 2007)

8.3 Perceptions on Enforcement and Self-Perceptions

Malaysians were found to have a rather negative perception as to how the authorities handle environmental problems (haze and deforestation). This is clear for all the groups (Graph 6.1). This quantitative finding is given insight by the qualitative data as shown in Table 8.2.

Table 8.2: Examples of negative perceptions of enforcement

Participant	Example of parts of quotes	Discussion
School Management	*"Just compare how Singapore is managing its waste. Enforcement is in place, thus, the waste management is good. So, likewise Malaysia also must improve on the enforcement aspect. In schools the environmental messages has to be continuously sent and enforcement should be practiced."* (Interview, M, SCH1, 14 Aug 07)	It is clear that people have global knowledge about what enforcement is and this knowledge helps them to compare Malaysia with other nations.
Teacher	*"In Sarawak, there are a lot of forest reserves like in X a timber logging is still happening in the forest reserve. When I was still teaching in X for few years ago, this thing happened and resulted in wildlife like mousedeer, fish (semah) going missing. So, the development has effected the wildlife population."*(Interview, M2, SCH2, 15 Aug., 07)	Once again people are aware of what illegal actions go on around them and have come to their conclusions about local enforcement.
Teacher	*T2: The village committee (JKK) has to do monitoring* *R: There has to be implementation.* *T2: There has to have implementation, it is astonishing what they are showing on the television. Why do things have to happen, despite how powerful these people are...* *R: Because there is no enforcement.* *T2: Yes, no enforcement.* (Interview, T2M, SCH3,14 Aug., 2007)	People seem disappointed that although there are seemingly 'powerful' persons around 'things' can happen because of the absence of effective enforcement.
Teacher Trainee	*R: In Singapore, if you spit or throw rubbish, fine 2000 dollars…but here 50 ringgit only…..Of course, people will keep throwing rubbish…Malaysia rich … Enforcements should…..(a friend interjects)* *A: When they dump chemicals, they get fined only for 10,000. So cheap! So, dump and ONLY if get caught they pay, if not free lah…* *I: Why do you think so many dumps irresponsibly?* *A: Because disposing legally is so expensive compared to dumping fine….Why take all the hassle to dispose with so long process….and very expensive…And then if*	It is clear that individuals have knowledge about the law and how it is being enforced.

	they catch any company dumping chemical…they see…oh this is a _____ company so keep quiet. Ignore it! They don't enforce the laws. (Interview, S, IP2, 4, Oct., 2007)	

The discussion above shows clearly that Malaysians are not satisfied about enforcement of laws and regulations related to the environment. This can be because, having elected people in authority, Malaysians expect the officers to implement policies the correct way. This negative perception of the authorities can indirectly be interpreted as that the respondents, if in authority, will make better decisions. However, when section 8.2 above is considered, the personal commitment of many leaves much to be desired.

8.4 In - depth Understanding of the Environment

The quantitative findings showed that understanding of why environmental problems occur and about flora and fauna (biodiversity) in general is only from a low to moderate level among all sample groups (Graph 4.1). The qualitative findings shown in Table 8.3 add insight to this.

Table 8.3: Examples of the depth of understanding of the environment

Participant	Example of parts of quotes	Discussion
Students	*'Things like plastic bags, bottles, styrofoam used by food makers to sell their food items directly reach the consumers who do not know how to dispose them in the correct manner.'* (Interview, S1, IP2, 1 Oct., 2007) *R:What can you tell me about environmentally friendly activities?* *P2: Keep our places clean like throw the rubbish into dustbin"* (Interview,P2, U1, ,2 Oct., 2007) *R:What can you tell me about environmentally friendly activities?*	The statements made by the students indicate that the knowledge about the environment among the general public is not high. There is doubt about the public having knowledge about how to dispose of non-biodegradable materials such as plastics and glass. When asked about what they know about environmentally friendly

	P:Replant, clean the area of the household – 'GOTONG'ROYONG'" (Interview, P3,U1, 2 Oct 2007) *R:What can you tell me about environmentally friendly activities?* *P: Emm… plant more, throw rubbish, clean the house everyday. Wait… not smoking and the… don't cut down the tree, don't step on the grass and …..."* (Interview, P4, U1, 2 Oct 2007)	activities, only answers such as using dustbins, *gotong-royong* and avoid stepping on the grass are seen.
	I:What can you tell me about environment? What is environment to you? *A:Environment is about air we breathe, non living things, living things, land, earth….* *D:Non living, living things…and how it effects us…our health, about air, dirty air we breathe in…* *I:Are you talking about air pollution?* *D:Yes..* *I:How bad is it?* *D:Where?..KL air pollution really bad…* *I:What made you think so?* *D:Sinus…flu….Cough….because of bad air quality* *I:What do you think so the causes are?* *D:Human, technology, vehicles, air-con, factories..* (Interview, S, IP2, Oct 2007)	There are individuals however, who are able to define the environment and relate the state of the environment with pollution and its causes as well as public health.
	I:How can we prevent our surrounding from pollution as D pin-pointed? *L:Don't throw rubbish…throw it in the dustbin…* *I:And if there are no dustbins?* *L:I'll keep it until I find a dustbin…* *I:Any other ways to prevent…?* *A:Car pool.* *M:Avoid open burning.* *A:Recycle…* *R:People talk much about global warming…I know about global warming…we need to save energy…..like turning off lights when not in use…use less electrical appliances…things that we can*	There are also individuals who are conscious and aware of what daily actions can benefit the environment.

	do daily…things around.. *I:What do you understand about global warming?* *A:Melting down ice…sea level rise…* (Interview, S, IP2, Oct 2007)	
School Administrator	*"However, more open attitude and talks about what's happening to the environment has to be done. In TV, they are not showing the real picture. Our TV programmes need to feature more slots on environment. Discovery programmes are about other countries like Korea, China, and Australia and so on. Environmental Education should start from a very young age. I taught my children about wildlife but sad to say, they don't know many animals such as Lutong, Hornbill and so on. They normally know about some animals only by watching TV or by seeing it in the books."* (Interview, M,SCH1, 14 August 07)	This excerpt indicates that a lot remains to be done in educating our young about local flora and fauna.
Lecturer	*"My father came from China and there was always a well at home. My neighbour will use nice buckets but my dad will recycle the oil tins; as for other things such as rotten vegetables – he will make us cut it and feed the chickens – it has affected me"* (Interview, F, IP1, 25 Oct 2007)	This participant has gained in-depth knowledge by 'walking the talk' early in life with guidance from a parent.
Government Officer	*'There are still those who are not aware of the importance of cleanliness'* (Interview, M, GOV, 21 August 2007) *'The (rubbish) bin is there but no one wants to use it'* (Interview, M, GOV, line 145)	The excerpts given here shows that knowledge is not transferred into practice.

Malaysians have knowledge about the environment. What should be aimed for is for Malaysians to possess in-depth knowledge. The important thing is that humans must understand the relationship between the environment and themselves. There are no short-cuts in inculcating environmental citizenship. As one of the participants in the business field stated,

"The understanding of the relationship between human and environment is important."
(Interview, BUS, 14 Aug., 07)

8.5 Convenience in Conservation

If Table 5.2 is scrutinised, only 52% of the public and 62.2% of the parent respondents are willing to make the effort to avoid the use of non-biodegradable containers. In addition, only 36.4% of the primary school students and 34.4% of the secondary school student respondents are willing to make the effort to avoid the use of non-biodegradable containers. This hints at convenience being a key factor when it comes to practicing conservation among Malaysians.

Table 8.4: Conservation and Convenience

Participant	Example of parts of quotes	Discussion
Educator	*My place-there is a pick up for the Kidney Foundation to collect things to recycle.* (Interview, M, IP1, 25 Oct 2007) *Another agency which is helping is the places of worship-my church has just started – it actually has a recycle bin – just 3 or 4 weeks since we started.* (Interview, M, IP1, 25 Oct 2007) *F: NGO's – every Saturday and alternative Sundays the Buddhist Society will collect for three hours – there will be lorries – so busy - they will come.* (Interview, F, IP1, 25 Oct 2007)	The qualitative data indicates that the situation must be made convenient for the everyday Malaysian. An organisation, be it charitable or religious, can motivate some citizens to do his or her needful, especially in recycling efforts.
	M:Yes, but the alternative of not bringing containers is not viable *R: Why is it not viable?* *M: It is not convenient!. A guy taking baskets to "pasar malam" (night market)!* *F: There!* *M: It is not in the culture lah. If some one can come up with biodegradable rubbish bag."* (Interview, M&F, IP1, 25 October 2007)	The data also hints that convenience can be related to gender culture. In this case, carrying along own bags to the night market or a container at all times to pack food.

	M: For example – most of the time we buy food when we are hungry. We do not plan to be hungry – then we stop and 'ta pow'lah. We cannot put tiffin carriers in the car…not a guy. For practical terms, people will not do it. We are hoping that they will. But I tell you, they won't. People need extra incentive or extra convenience. We have to be practical. People are people, unless they have reached a level of consciousness.. (Interview, M&F, IP1, 25 October 2007)	Convenience also seems to point to incentives being needed in order to be environmentally friendly.
	"…tell us in explicit terms about what the common man can do to know that he is doing enough at work and at home. Spell it out. We can lose creative ideas as to what I can do – for me I only do the two things." (Interview, M&F, IP1, 25 Oct 2007)	Another emerging aspect is that it appears people want to be told exactly what they need to do in terms of being environmentally friendly.

It appears that many Malaysians want to be environmentally friendly, provided the action that they need to take is practical and handy in their daily lives. Perhaps going that extra mile for the environment may be only true for a few.

When compared to counterparts in other nations, 43% of Malaysians have been found to be knowledgeable about the environment. When attitudes are compared, 73% of Malaysians have a high level of concern for the environment. For environmental behaviour (skills and participation), 57.5% of Malaysians can be considered as action – oriented for the environment. A higher level of environmental citizenship can be only achieved if the factors that have been discussed in this chapter are addressed. The next chapter will discuss a possible implementation EE policy model based upon the findings of this research, so as to assist in elevating the environmental citizenship level to an anticipated level that will be deliberated in the last chapter.

THE IMPLEMENTATION OF AN ENVIRONMENTAL EDUCATION POLICY: AN EMERGING MODEL FOR ENVIRONMENTAL CITIZENSHIP

9.1 Introduction

> *Environmental education seeks to promote an appreciation and understanding of, and concern for, the environment, and to foster informed, engaged, and responsible environmental citizenship. Effective environmental education incorporates problem-solving, hands-on learning, action projects, scientific inquiry, higher order thinking, and cooperative learning, and employs relevant subject matter and topics that actively engage students in the educational process* (Report of the Working Group on Environmental Education, Ontario Canada, 2007, p.6)

It cannot be denied that environmental education has been infused through the years although no formal national evaluation has been carried out. Within the existing curriculum, environmental education has been advocated by the Ministry of Education. The present initiatives must be lauded. However, there still seems to be a gap between what has been advocated and the actual practices in schools and other educational institutions. In Graph 5.3, 98.5% of the politicians, government officers and NGOs' say that there is a need for environmental education. Therefore, there appears to be a solid case for an environmental education policy in Malaysia, as has emerged from this environmental citizenship study. Several tangible aspects have surfaced as being important as champions for the cause, namely, educational institutions, the home, the work place, industry, the media, the authorities, the NGOs' and the community at large. In other words, both formal and non-formal environmental education is important and necessary. Thus, any model put forward would then need to include all these perspectives which would have to work as a whole.

Daniel Stufflebeam's latest update (2003) on his 1965 CIPP (Content, Input, Process, Product) evaluation model is a comprehensive framework for guiding formative and summative evaluations of programmes. Table 9.1 summarises the application of the CIPP model in both prospective application as well as in retrospective usage.

Table 9.1: The application of the CIPP model in both application and evaluative purposes

EVALUATION ROLES	*Context*	*Input*	*Process*	*Product*
Formative Evaluation: Prospective application of CIPP information to assist decision making and quality assurance	Guidance for identifying needed interventions and choosing and ranking goals (based on assessing needs, problems, assets, and opportunities).	Guidance for choosing a program or other strategy (based on assessing alternative strategies and resource allocation plans) followed by examination of the work plan.	Guidance for implementing the work plan (based on monitoring and judging activities and periodic evaluative feedback).	Guidance for continuing, modifying, adopting, or terminating the effort (based on assessing outcomes and side effects).
Summative Evaluation: Retrospective use of CIPP information to sum up the program's merit, worth, probity, and significance	Comparison of goals and priorities to assessed needs, problems, assets, and opportunities.	Comparison of the program's strategy, design, and budget to those of critical competitors and to the targeted needs of beneficiaries.	Full description of the actual process and record of costs. Comparison of the designed and actual processes and costs.	Comparison of outcomes and side effects to targeted needs and, as feasible, to results of competitive programs. Interpretation of results against the effort's assessed context, inputs, and processes.

Source: Stufflebeam, Michigan State University (2003).

Figure 9.1 indicates the basic elements of the CIPP model in three concentric circles with the innermost circle focusing on the core values as the foundation for the application and evaluation phases of the implementation of the model.

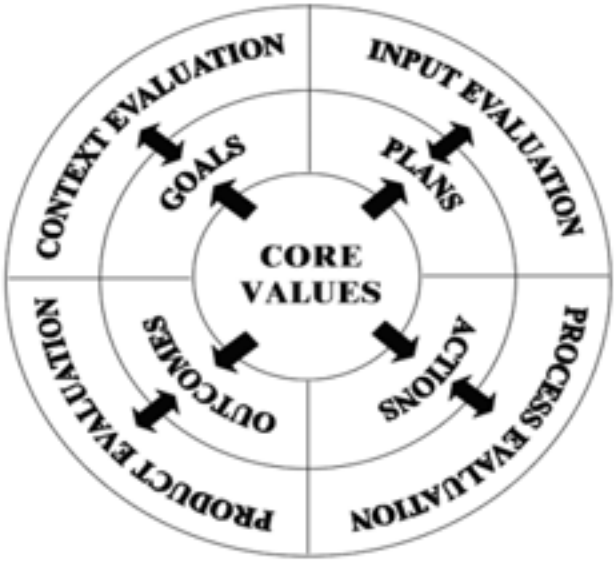


Figure 9.1: Key components of the CIPP Model
Source: Stufflebeam, Michigan State University (2003).

The circle surrounding the core values show four evaluation components (i.e, goals, plans, actions, outcomes) for each type of evaluation (i.e. context, input, process, and product) in the outermost circle.

The CIPP model has been adapted and applied as the base for the emerging model for the implementation of an environmental education policy advocated in this report. The rationale for this is that the proposed model is accentuating the formative stage of the proposed policy, where the evaluation can guide the process of implementation and interim reports are necessary to keep track of its progress and in continuous decision making.

9.2 The Emerging Model

The model shown in Figure 9.2 is one that has emerged out of the study. The non-tangible aspects that have come to light, related to environmental citizenship, and have to be addressed by all parties concerned, are instilling a sense of ownership of the environment; an attitude of wanting everything to be convenient; influence of role models; a seemingly lack of in-depth knowledge about the fragile relationship about

nature, as well as between nature and mankind, and influence of an individual's background in terms of home, culture, SES and religion. These factors represent the present existing situation and have been placed in the **context segment** of the model. These factors reflect the need for intervention in order to enhance environmental citizenship.

The **input segment** of the model would be the difficult part that would involve the orchestration of all parties to make environmental education a natural part of life so as to achieve environmental citizenship to the utmost. Hence, the use of the word 'synchronous' in the model. This orchestration and coordination will be no easy task to undertake and will involve much commitment and discipline of one and all and perhaps would be an effort which requires more 'heart' than 'mind'. This task will need all involved to go beyond just switching off lights and turning off taps to making 'inconvenience' a part of everyday life. In other words, being an environmental citizen should become second nature to one and all. The input segment of the model clearly indicates that both formal and non-formal education is necessary in the quest to enhance environmental citizenship. In other words, the main point about the model is that all parties concerned should relate to education and the young. As is indicated in Figure 9.2, this coordination between all is part of the National Agenda for sustainable development for the nation (Othman & Pereira, 2006).

Segment three, the **process component**, highlights the Environmental Education Policy advocated based on the findings of this study. This policy is expected to bring about behavioural change, but will need to be backed by financial support as well as continuous formative research.

The fourth segment, the **output component,** depicts the anticipated environmental citizenship levels of commitment and ownership among Malaysians. The model is portrayed in a circular form as the implementation of the environmental education policy would be a continuous affair with regular evaluations and reviews.

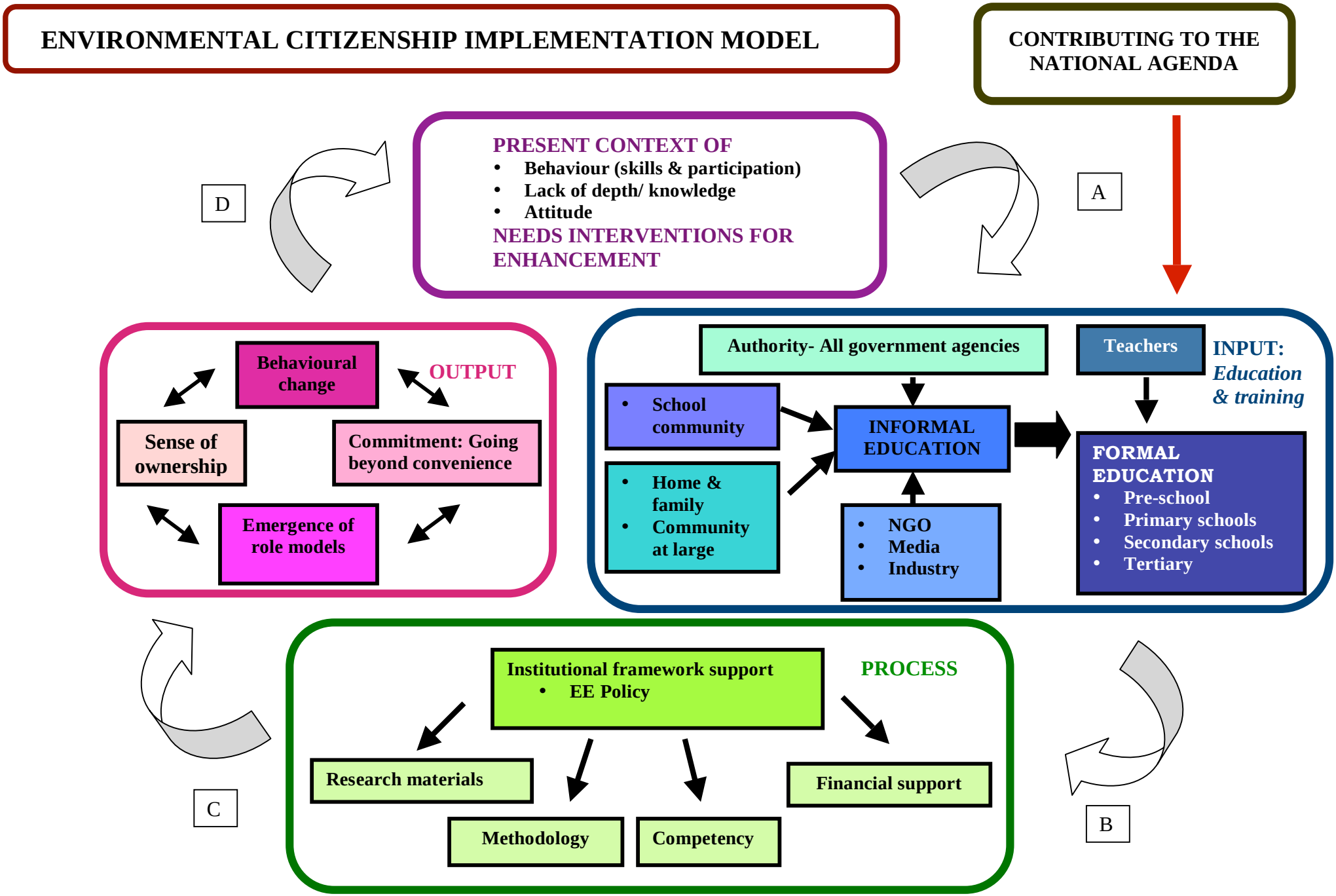


Figure 9.2: Emerging Synchronous Environmental Education Policy Implementation Model for Environmental Citizenship

Table 9.2: Description of the Implementation EE Policy Model

Components	Description
Context	Although the attitude levels found in the study is from an average to high level, the study revealed a serious lack of in-depth knowledge among all the sample groups. In addition, the environmental behaviour among Malaysians was only one that was practiced if convenient. Therefore, there is a need for intervention for ensuring enhancement of environmental citizenship among Malaysians.
Input	The study has indicated a need for more concerted effort at environmental education. While formal education can be tackled by the educational institutions in the country, there is a need for non-formal education. This non-formal education needs the contribution of everyone. The community at large needs to play a role in EE. The community at large has to be a role model for the young. The influence of good role models cannot be underestimated. For example, private industries need to take part in the educational process. It is suggested that each major industry should undertake adoption of educational institutions and include the students in their green activities at least once a year. Government agencies (including the authorities) and the NGOs' should also be requested to do the same. The authorities and NGO's, besides contributing to EE, should also have the task of monitoring to see that the adoption process is in place. The study has shown that one's background has a strong influence on the individual. Hence, the home and family activities (including religious activities) have a special role, in that they should build a strong foundation for EC for the children and for each other. The media can play an important role in the education of the masses (the community at large as well as the young in the educational institutions) related to the environment. The media, be it TV, newspapers *etc*. can further enhance and address this lack more aggressively.
Process	**An EE policy is recommended in this study**. This EE policy would be the institutional framework and support needed for Environmental Education as is described in the Input component. The policy would also determine the financial aspects and the methodology for the smooth infusion of EE. The implementation of the EE policy model should be able to create a sense of ownership and increase commitment not only among the young but among the community at large.
Output	This policy can be expected to support research to monitor tangible behavioural changes which can be observed and measured. Besides this, the intangible changes in commitment and ownership can be expected to be projected in environmental behaviour. Role models would emerge.
A, B, C, D	The arrows show the flow of the implementation of the EE policy. This flow would be **continuous with regular monitoring, evaluation and modification as necessary,** in line with the National Agenda in the coming years.

The emerging model suggests concurrent and synchronised efforts among all Malaysians in trying to achieve a level of Environmental Citizenship that goes beyond convenience.

This Report on the status of Environmental Citizenship in Malaysia at this point makes the following recommendation:

To develop a national policy on environmental education as defined in this report, in collaboration with government ministries and non-governmental organisations and industries, whose mandates are related to environmental issues, to signal the importance of environmental education and guide its implementation in Malaysian institutions of learning (formal education) as well as *via* non-formal education, through leadership and accountability measures, and curriculum development.

It is imperative also that the above model be compared with other existing models so as to be aware that the model is put forward within a context particular to Malaysia.

9.3 Comparisons with Other Models

The model suggested in Figure 9.2 can be compared with several existing models elsewhere. Figure 9.3 shows a model of a similar concept to Environmental Citizenship practiced in Nishinomiya City in Hyogo Prefecture, Japan (Young Leaders Programme: Community Building, 2008). The fundamental objective of the model is towards achieving sustainable city development based on environmental learning in participation and collaboration of citizens, businesses and the municipal government. To ensure the successfulness in achieving the aim by 2028, it felt that an establishment of community system which "brings about environmental learning at various scenes of our daily lives, such as home, work and the public places with the participation of people throughout the society level is pertinent. (Young Leaders Programme [YLP]: Community Building, 2008). Similar to the synchronous model that has emerged from the present study (Figure 9.2), Figure 9.3 indicates the cooperation of the community as large, government, business and industry.

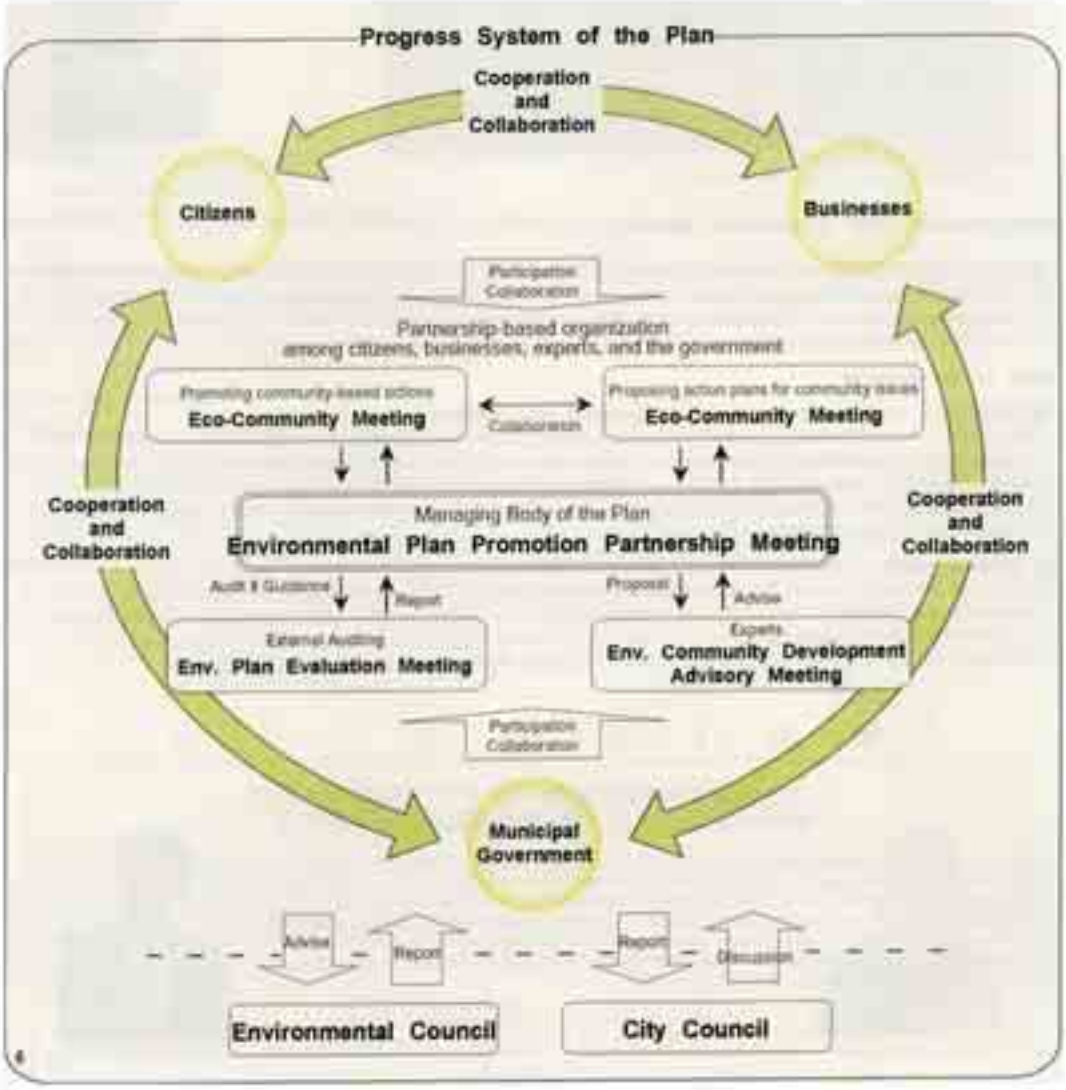


Figure 9.3: Model of Sustainable City Development (YLP: Community Development, Jan 2008)

Another environmental citizenship model in Japan (Figure 9.4) also shows how all parties can come together in the creation of an environmental citizen. The model explains in detail the activities and responsibilities of the different parties who should collaborate for a successful, sustainable community development.

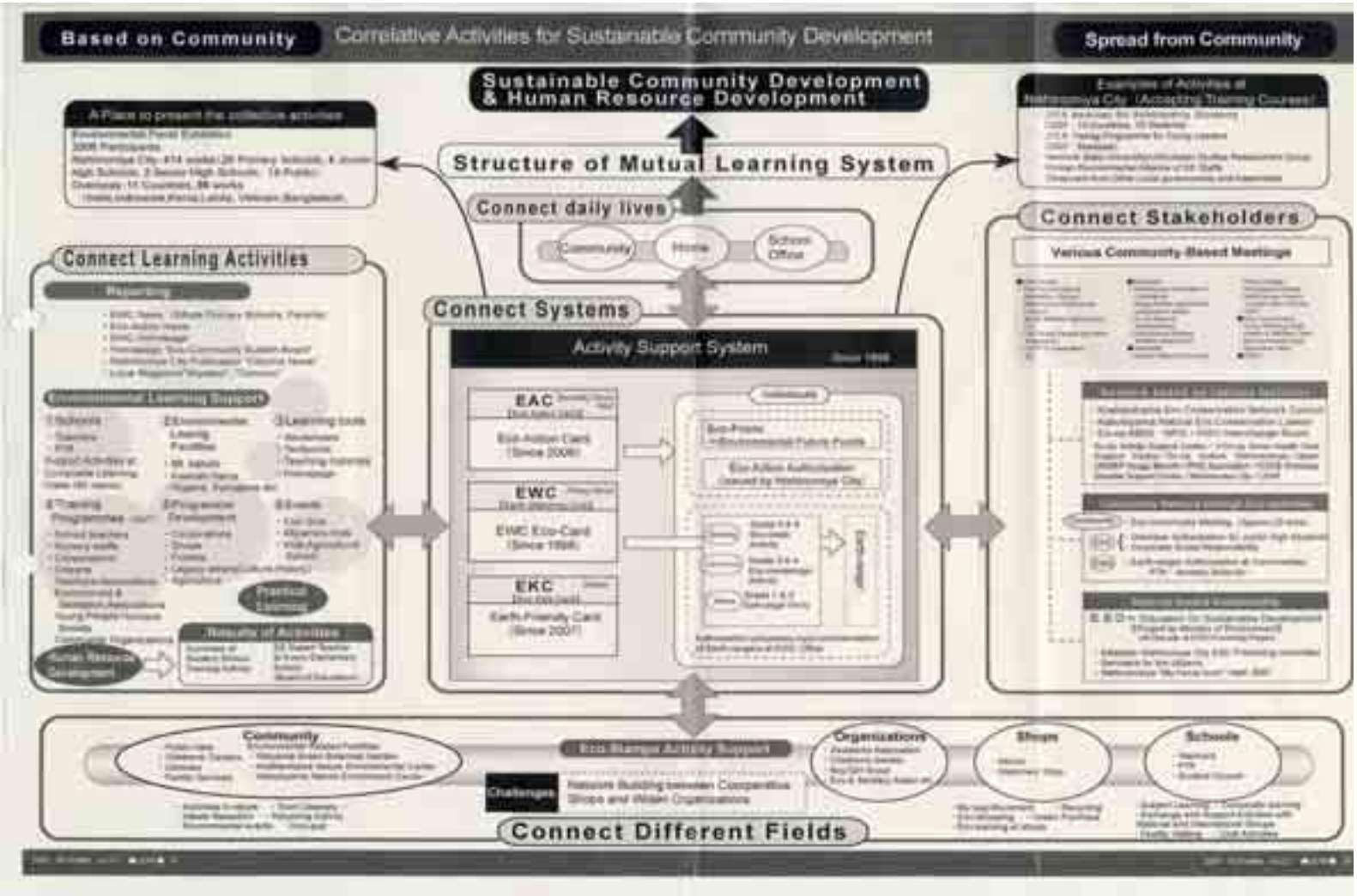


Figure 9.4: Environmental Citizenship Model for Sustainable Development (YLP: Community Building, 2008)

Figure 9.5 shows yet another model where schools, the people, government and other organisations come together to create sustainable developmental programmes for the community.

Figure 9.5: Model for Connecting People for the Creation of an Eco-Community

When these models are compared with the emerging synchronous model for EE policy implementation in this study, the obvious is that an environmental education policy or an environmental sustainable development policy will and should encompass the entire community and every stakeholder in it.

9.4 Conclusion

"Environmental education is a whole-system responsibility, and therefore system leaders will play a critical role in signalling the importance of environmental education and providing a framework, in which it is supported, valued, and considered as part of a good educational outcome for every student. (Report of the Working Group on Environmental Education, Ontario Canada, 2007, p11.)

The emerging synchronous model has adapted the CIPP Model, and based upon the findings, lays emphasis upon the collaboration of one and all, so as to be able to formulate a relevant and practical EE policy. The output desired is one of role models and that a sense of ownership and greater commitment can be embedded in everyone. In the next chapter, if the proposed environmental education model for environmental citizenship is implemented, the anticipated level of environmental citizenship that may be achieved will be discussed.

ENVIRONMENTAL CITIZENSHIP: AN ANTICIPATED LEVEL

10.1 Introduction

> *Sustainable development refers to the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Sustainable development implies economic growth together with the protection of environmental quality, each reinforcing the other. The essence of this form of development is a stable relationship between human activities and the natural world, which does not diminish the prospects for future generations to enjoy a quality of life at least as good as our own.* (EPU, 2008*)*

In sustainable development, humans have to cut down on the usage of natural resources and optimise productivity at the same time. Ecological footprint, the term put forward by Professor Rees, is a resource management tool that measures how much land and water area a human population requires to produce the resources it consumes and to absorb its wastes under prevailing technology. According to the NFA (National Footprint Accounting Approach, the per capita Ecological Footprint of Malaysia for the year 2001 amounts to 3.0 gha/cap and the per capita biocapacity amounts to 1.9 gha/cap. "There are only 1.9 global hectares (4.7 acres) of biologically productive space available per person on the Earth. The world average Ecological Footprint of 2.3 global hectares (5.6 acres) per person means humanity is currently exceeding the biosphere's ecological capacity by over 20%" (Redefining Progress, 2002, p.1).

The United Nations Department of Economics and Social Affairs (2008), says that countries across the world have recognised that a national sustainable development strategy (NSDS) is an effective tool to achieve their national sustainable development goals. Thus, nations are implementing their NSDSs as recommended in Agenda 21, adopted at the United Nations Conference on Environment and Development in Rio de Janeiro (1992). Malaysia made a commitment to maintain at least 50% of its forest cover and trees in perpetuity at the Rio Summit in 1992. Today, forest cover in Malaysia is estimated to be 19.52 million hectares or 59.5% of the total land area.

On 24 September, 2007, 80 Heads of State met together with the Secretary-General of the United Nations to debate climate change. Following this, more than 10,000 participants convened in Bali for the United Nations Climate Change Conference from 3-15 December, 2007. Climate change is being recognised as a sustainable development issue rather than just an environmental problem, as it poses a threat to the economic, social and environment facets of a nation.

To ensure sustainable development, the Malaysian government has put in place many policies, laws and guidelines in place, such as the Local Agenda 21, National Physical Plan, National Policy on Biological Diversity, National Environment Policy, the Environment Quality Act and many more. In all the recent 5-year Malaysia Plans, sustainable development has been given prominence. In the 9th Malaysian Plan, the identified goal by the Malaysian government is to improve the standard and sustainability of the quality of life. One of the main objectives of this goal is by planning sustainable energy development. One of the actions to be taken is to intensify development and utilisation of renewable energy. For example, one of the proposed projects is the renewable energy project using municipal waste.

However, as all other nations, translating these policies, laws and guidelines into achievable actions as well as the enforcement of laws is the challenge. The cooperation of every citizen, NGO, industry, private and government agency is sorely needed. Malaysian environmental NGOs' are actively pursuing sustainable development. The Environmental Protection Society of Malaysia, in June 2007, launched SLIM (Sustainable Living in Malaysia). Other organisations such as WWF-Malaysia is involved in sustainable development projects such as (i) Community Action for Sustainable Use and Conservation of Coral Reefs, Malaysia, (ii) Conservation of the Bornean Elephant, and (iii) Biodiversity and Ecosystem Functioning Building Research Capacity in SE Asia. It cannot be denied that awareness about the environment and using its natural resources wisely is utmost in sustainable development. In other words, a high level of environmental citizenship is essential.

10.2 The Situation Now and What is Being Projected?

The present study has established the current levels of environmental knowledge, attitude, skills and participation among Malaysians. To attain the present level, many policies and strategies are already in place. Several are discussed briefly below.

> *Malaysian Environmental stewardship – To improve environmental and natural resource management, the Ministry of Natural Resources and Environment was created in 2004. A National Physical Plan 2005-2010, was adopted to enhance integrated land use planning, and a National Biodiversity-Biotechnology Council was established in 2002 to coordinate conservation and sustainable utilisation of biological resources. Since the December 2004 tsunami, there has been increased focus on the conservation and rehabilitation of coastal natural resources. Malaysia promotes the utilisation of renewable energy resources, including the Small Renewable Energy Power Programme. Energy efficient technologies are being incorporated in the design and construction of government buildings.* (UNDP Country Report, 2008 – 2012, p 2)

In addition to the above quote, according to the World Factbook (2008), the current environmental issues facing Malaysia are air pollution from industrial and vehicular emissions; water pollution from raw sewage; deforestation; and smoke/haze from Indonesian forest fires. The UNDP has proposed the following for the Malaysia National Agenda between 2008 till 2012,

> *Towards improved quality of life through sustainable environmental management – The programme will continue to support initiatives that contribute towards improved environmental management. It will focus on three strategic areas: (a) enhancing environmental management of biodiversity and natural resources, including water resource management; (b) climate change mitigation and adaptive initiatives; and (c) incorporating environmental considerations into the planning and development of non-environmental agencies. It will also include participatory community level initiatives.* (UNDP Country Report, 2008 – 2012, p. 4)

The National Policy for Biodiversity (1998) document begins with the following Vision and Policy Statement,

Vision: To Transform Malaysia Into A World Centre Of Excellence In Conservation, Research And Utilisation Of Tropical Biological Diversity By The Year 2020.

Policy Statement: To Conserve Malaysia's Biological Diversity And To Ensure That Its Components Are Utilised In A Sustainable Manner For The Continued Progress And Socio-Economic Development Of The Nation.

One of the principles put forward in the document is:

> *Public awareness and education is essential for ensuring the conservation of biological diversity and the sustainable utilisation of its components,* (p.3)*;*

Related to this principle, one of the objectives of the National Policy for Biodiversity document is,

> *To enhance scientific and technological knowledge, and educational, social, cultural and aesthetic values of biological diversity,* (p.4)*;*

One of the strategies which are supposed to be in place is to enhance institutional and public awareness by the following methods:

(i) Increase awareness within the civil service at both federal, state and local government levels as well as in professional bodies and the private sector through courses and training programmes,

(ii) Enhance mass media coverage of biological diversity issues,

(iii) Incorporate the study of biological diversity and related fields into the curricula of schools and institutions of higher learning,

(iv) Promote and support the biological diversity activities of nature clubs and societies,

(v) Incorporate the notion of conservation of biological diversity and sustainable use of its components as an element of environmental awareness and training programmes, and

(vi) Recognise the role of non-governmental organisations (NGOs) in the conservation and sustainable utilisation of biological diversity.

All the above policies and strategies are now being applied. Nevertheless, the paramount aim is to lift further the environmental citizenship level in the coming years. What is the level of environmental citizenship that Malaysians need to attain? What is this anticipated level? This will now be discussed.

10.3 The Anticipated Level of Environmental Citizenship

The present study has unveiled the current status of environmental citizenship and the tangible and intangible factors which are hindering Malaysians in demonstrating a higher level of environmental citizenship. A model for the implementation of an Environmental Education

Policy is being proposed. It is hoped that through the implementation of this model, the environmental citizenship level among Malaysians will rise. How can this anticipated level be ascertained in the coming years? What can be possible indicators? To discuss these indicators the argument will include interim goals and long term goals related to positive environmental citizenship indicators.

10.3.1 Interim Goals – Five years After the Implementation of the EE Policy Model

(a) ***A national survey***

A survey such as the one in this study can be administered every two years after the implementation of the EE policy model. This is to obtain a simple statistical level of environmental citizenship.

(b) ***An increase in the number of Lestari Schools***

With the implementation of the EE policy model, the number of applications for being named a *Lestari* School will increase. The number of schools being awarded the *Lestari* status will also increase. Therefore, the status of the number of *Lestari* schools can be determined every year.

(c) ***A revision in curriculum for primary, secondary and tertiary education for EE infusion***

Controversy over environmental issues is the result of differing value systems among stakeholders. The curriculum for all subjects should provide a rational approach to environmental problem solving to train students from a young age. Educators need to make clear to students that the affective domain, which includes the attitude and belief systems of people, is important in determining how people respond to environmental issues. The curriculum should move students from awareness to action. According to Roth (1991), "People tend to progress along the continuum of proficiency in environmental literacy in stages that include: awareness; concern; understand and action (p.44). The revised curriculum content can be evaluated for EE elements including thinking and problem solving skills.

(d) ***An increase in EE training and resources for teacher educators and teachers***

The training for educators must increase. The resource materials made available for educators to infuse EE effectively must also increase. The training sessions must be evaluated for effective teaching methodologies. The resource materials created must also be evaluated for effectiveness.

(e) The setting up of an EE Association

This association would be an avenue for developing partnerships between the educators and industry to heighten EE in educational institutions. In addition, regular EE conferences can be organised by the association for educators to converge and share ideas and experiences. The association can also be responsible for initiating the Malaysian Journal of EE, as well as set off projects to enhance EE.

10.3.2 Long Term Goals 8 to 10 years After the Implementation of the EE Policy Model

(a) A national survey

Follow-up surveys (which can be modified from the present survey depending on the situation) can be continued to be administered simultaneously with evaluations related to the implementation of the EE policy model. This would also serve as an assessment of environmental citizenship at that point in time.

(b) Transformations in environmental behaviour

Malaysian citizens should be able to demonstrate in some observable way what they have learned and their knowledge of key concepts and skills acquired. Regular evaluative observations, interviews and open-ended questionnaires can be administered to determine the level of environmental behaviour such as,

Specific personal behaviour that can have global effects

(i) buying only certified products,
(ii) more use of public transport,
(iii) leave grass clippings on the lawn or compost them,
(iv) take short showers and use a low-flow showerhead,
(v) stop consuming turtle eggs,
(vi) stop eating illegal wild-life meat,
(vii) everyday actions to conserve water and energy,
(viii) buy chemical household products that are the least harmful to the environment, and buy them in quantities one will use up,
(ix) stay informed about the environment,
(x) let elected representatives know how one feels about environmental issues,
(xi) carry and use own grocery bags, and
(xii) use only biodegradable products.

Collective behaviour

(i) more partnerships in environmental issues between the private sector and educational institutions,

(ii) more role models in industry and government can be identified,

(c) Setting up of an EE Research Centre

This centre can be responsible for regular gap analysis between the implementation of the EE policy model and the level of environmental citizenship attained. The centre can also conduct regular EE trend analysis to inform the stakeholders.

(d) Documenting emerging milestones

Emerging scenarios in the long term must be documented. These may include success stories in all sectors be it private or government. For example, in the United States, The Great Lakes Wetlands Conservation Action Plan was a resounding sucess.

10.4 Conclusion

> *Environmental citizenship is a personal commitment to learning more about the environment and to taking responsible environmental action. Environmental citizenship encourages individuals, communities, and organizations to think about the environmental rights and responsibilities we all have as residents of planet Earth. Environmental citizenship means caring for the Earth.*
> (Source of Definition: http://www.ec.gc.ca/water/en/info/pubs/mountain/e_contnt.htm)

The quotation perhaps sounds ideal, but a necessary one if we as Malaysian are going to be global environmental citizens. The photograph below was taken at our recent 51st Merdeka Celebrations. The Malaysian flag which should be a symbol of pride and unity to reflect Malaysia's achievements lies forgotten and forlourn. Should this scene of disrespect be tolerated? Besides this, many reports of littering have shown that after the celebrationss the public had indiscriminately thrown mineral water bottles and plastic wrappings Why does this happen?

Our National Flag lies forlorn

Plastic bags, empty drink cans strewn everywhere

The study has shown that there remains a lot more to be achieved to enhance the Malaysian mentality towards a more positive and committed lifestyle. The EE policy Implementation model for Environmental Citizenship discussed in this report is a path with which the anticipated this level of citizenship can be achieved. This is because it will involve the participation of various stakeholders and will certainly assist in uniting all concerned parties and lead towards a concerted effort for environmental citizenshop at its best.

As a reader of this report you may find yourself saying, ..."but I'm just one person out of many... can I make a difference?" The answer is: a big Yes! Many may have heard the saying below,

> *A tap that drips once every second wastes about 10,000 litres of water per year.*
>
> *(Earthcare, p.1)*

What if a million taps around the world leak in a year? Or did you know that, we use 50 million tons of paper annually, consuming more than 850 million trees? What is done by one person or one nation can have global impact – in short the world is environmentally connected in bad or good.

The goal of environmental citizenship is a society where individuals and groups have the knowledge and understanding that will lead to responsible environmental action. Quality of life for future generations on this planet will be determined by our actions today. Each of us has an effect on the environment every day, the key is to make this impact a positive one. We must all take responsibility for our own actions, whether as individuals, as members of a community or an organisation, and most of all as global citizens. However, we must begin as an individual Malaysian who is willing to change atiitudes and lifestyles.

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Interview Protocol
(Individual and Focus Group Discussion (FGD)

APPENDIX 1

(For the researcher to take down notes during the interview)

Instructions:
All interviews must be audio recorded. Please bring along audio recording equipment such as audio tape recorder with at least two 60 minute tapes, or an MP3 player for each interview session. Please make sure that all equipment are in working order (and do take along enough batteries or charger).

1. The main aim of interviews / FGD is to obtain information that could not be obtained from the survey, especially information from the pariticipants' perspective and opinion.
2. The interview / FGD sessions should be carried out based upon the information obtained from the survey or observations made and should focus upon the participants' experience.
3. The questions given in this protocol are suggestions and are meant as a guide only. The researcher needs to give enough 'space' to the participants to express ideas and issues freely.
4. The researcher should focus on the participants' responses in order to 'lead' the interview in such a way as to obtain rich informative data.
5. The participants' responses to the suggested protocol's question must be probed in-depth by the researcher with appropriate follow-up questions untuil saturation point (where the participant is unable to give any new information) before proceeding to the next suggested protocol question. If the follow-up questions already covers the suggested protocol questions, the researcher need not repeat the questions again.
6. In the transcript of the interview please indicate [R] for the researcher and [P] for the participant. In FGDs the researcher may need to use [P1], [P2] etc.
7. A summary of the transcription should be written on the same day.

Name of Instituition :

Type of Instituition :

Name of participant :

Location of Interview

/ FGD :

Date :

Day :

Time and Length :

Interview Protocol
(Individual and Focus Group Discussion (FGD)

Guide to Interview / FGD	Researcher's Notes	Researcher's thoughts and intended additional questions
<u>Part A: Creating Rapport</u> • **Get to know the participant(s) by introducing yourself and have a simple conversation** • **Try and make the particpant(s) comfortable** • **Inform the particpant(s) about his /her rights and the confidentiality of the interview/FGD** • **Explain the study and objectives** **<u>Suggestions</u>** **(Thank the participant(s) for taking part in the interview or FGD)** **1. Hello, why don't we begin by my telling you about myself and why I am here....Now maybe you could introduce yourself briefly....** **2. Now let me tell you about the study and why I am here.....**		

Interview Protocol
(Individual and Focus Group Discussion (FGD)

<u>PART B: Probing the Participant's Personal Opinion and Experiences</u> **3. What is your opinion about the present state of the environment?** **(Please probe a little based on the participant's responses** **4. What do you think about environmental citizenship?** **(Please probe a little based on the participant's responses)** **5. Can you tell me a little about you own experiences or environmental consious things that you / your family do /does?** **(Please probe a little based on the participant's responses)**		

Interview Protocol
(Individual and Focus Group Discussion (FGD)

PART C: Probing about the participant's organisation **6. Could you tell me about any clear rules that your organisation has formulated related to environmental consiousness? (Please probe a little based on the participant's responses)** **7. Can you relate some daily activities in your organisation which contribute to environmental conservation? (Please probe a little based on the participant's responses)** **8. How about Environmental related programmes? Does your organisation organise such programmes? (Please probe a little based on the participant's responses)** **PART D: Closure**		

Interview Protocol
(Individual and Focus Group Discussion (FGD)

1. **If you are given a chance to propose added environment conservation activities iwhat would your suggestions be?** 2. **Token of appreciation.** **NOTE: Please try and transcribe the interview on the same day. Please use the transcription template. A summary of the interview needs to be written on the same day by the researcher.**		

APPENDIX 2

(For the researcher to take down notes during on-site visits)

Instructions:
This protocol has two purposes:-

(i) the first part is for the researcher to make rough notes during site visits,

(ii) at the end of the observation, the researcher has to:-

(a) read the rough notes made during the observation,
(b) write a detailed report based on the guidelines given
(c) reflect and insert interpretations and initial analysis
(d) the researcher is encouraged to wirte the report on the same day to avoid forgetting important information

Name of Instituition :

Type of Instituition :

Location of Observation :

Date :

Day :

Time and Length :

Observation Protocol

Guide to observations	Researcher's Report
<u>Part A: Noting down what is being observed</u> • Describe Physical environment – please make detailed comments • Decribe positive environmental related activities (if any) that you can see in various sections of the organisation • Describe negative environmental related activities (if any) that you can see in various sections of the organisation	**In this part the researcher can write rough notes**

Observation Protocol

PART B: Wrting the observation report	**In this section the researcher should write the report proper. Take as much space as needed.**
• The Physical environment • Positive environmental related activities (if any) • Negative environmental related activities (if any) • Conclusion – the researcher can put forward his/her reflections and interpretations.	

APPENDIX 3

Anticipated answers for the "Environmental Citizenship: Emerging Perspectives in Malaysia" National Survey.

ITEM Section A	QUESTION	ANSWER
1	Cause of haze…	a. Exhaust fumes and smoke from factories.
2	The best option in household garbage management…	b. Practising the 3R concept in your daily life.
3	Biodiversity means…	a. all living things in a particular place at a particular time.
4	Reason in joining an environmental community in your neighbourhood…	b. I would like to influence others to take action on environmental issues.
5	Reason to being a leader in environmental organisation…	a. I think environmental issues affect me, my family and the future generations.
6	The step you would take if a pet shop is selling an endangered animal…	d. I would inform the authorities.
7	The step you would take if you come across a polluted river…	a. I would organise a clean-up.
8	The reason for flashfloods in Malaysia…	b. Monsoon drains are blocked.
9	The factor that does not cause pollution of the beaches in Malaysia…	b. Oil spills in the Malaysian waters.
10	The activity on land that does not impact the aquatic life…	c. Increasing seafood in our diet.
11	The endangered species are…	Leatherback turtles, Malayan tiger, Orangutan, Gharial, Proboscis monkey.
12	Purpose Environmental Impact Assessment (EIA)…	b. is a procedure to identify the environmental effects of a proposed project. d. plans way to reduce the negative effects of a proposed project to the environment.
13	International environmental treaties that Malaysia has ratified are…	a. CITES b. Kyoto Protocol c. Basel Convention d. Ramsar Convention
14	Steps taken upon seeing open burning…	a. I would report it to the relevant authorities. b. I feel it is my responsibility a

		citizen to report. c. I feel that the right thing to do.
15	Environmentally friendly activities… a. Bring along grocery bag	Often/ very often
	b. Reducing number of lights in house	Often/ very often
	c. Turning off tap	Often/ very often
	d. Using free CFC aerosol spray	Often/ very often
	e.Using recycled paper	Often/ very often
	f. Using home made fertilizers	Often/ very often
	g.Turning off lights and electrical appliances	Often/ very often
	h. Not using chemical pesticides	Often/ very often
16	a. Clearing of new land.	Worried/ Very worried
	b. Logging area near housing area.	Worried/ Very worried
	c. New development near housing area.	Worried/ Very worried
	d. Newly opened golf course.	Worried/ Very worried
	e. Development of coastal areas.	Worried/ Very worried
17	Opinions on the declaration of API… a. schools should be close when API reached 300.	Agree/ Strongly agree
	b. authorities should make API available sooner.	Agree/ Strongly agree
	c. NGO should be more proactive in disseminating information about the haze.	Agree/ Strongly agree
	d. more coverage on the haze from the media.	Agree/ Strongly agree
18	Spending time taking care of the environment	Often/Very often
19	Discussing environmental issues	Often/Very often
20	Voluntary work on environmental issues	Often/Very often
21	Opinions on forest reserve cleared to make way for development… a. approval to clear land.	Agree/ Strongly agree
	b. public not concerned about forest being cleared.	Agree/ Strongly agree
	c. lack of enforcement and monitoring.	Agree/ Strongly agree
	d. high demand for land to develop houses.	Agree/ Strongly agree
22	Ways polluted river can affect life…	Agree/ Strongly agree

	a. polluted river will affect my health.	
	b. not enough supply of clean water.	Agree/ Strongly agree
	c. it does not affect.	Agree/ Strongly agree
	d. demand of clean water will increase and affect household expenses.	Agree/ Strongly agree
23	Importance of these initiatives… a. Save our forest initiatives	Important /Most important
	b. Waste recycling initiatives	Important /Most important
	c. Save our rivers initiatives	Important /Most important
	d. Water saving initiatives	Important /Most important
Section B		
Primary/ Secondary School students		
24	The thing you will do if you live near a polluted lake…	Encourage family and friends to help with cleaning activity.
25	The thing you will do if your favourite hawker stall uses polystyrene…	Buy food from another stall.
26	The best way to learn the environment…	Through infusion, projects and outside activities and co-curricular activities.
27	Ways to increase awareness towards the environment…	Discussion, field visits, environmental activities, reading
28	Awareness on the environment is influenced most by…	Parents, school teachers, friends, religion, television, radio and other mass media.
	Ways to improve the environment… a. environmental activities.	Agree/ Strongly agree
	b. working with nature clubs in other schools.	Agree/ Strongly agree
	c. sharing and learning experience from schools around the world	Agree/ Strongly agree
	Main environmental issues… a. Air pollution	Serious/ Most serious
	b. Global warming	Serious/ Most serious
	c. River pollution	Serious/ Most serious
	d. Polluted drinking water	Serious/ Most serious
	e. Illegal logging	Serious/ Most serious
	f. Wildlife extinction	Serious/ Most serious
	g. Acid rain	Serious/ Most serious
	h. Badly managed garbage collection	Serious/ Most serious
Section B		

Teachers/ Teacher Training Institute Lecturers		
24	Opinion on infusion of EE	Yes
25	Making EE infusion interesting through… a. field study	Yes
	b. environmental related projects	Yes
	c. interactive dialogues by environmental experts	Yes
26	Reason on inability to infuse EE… a. no formal training	Yes
	b. no knowledge on EE activities	Yes
	c. no support from the management	Yes
	d. not required by examination	Yes
	e.students are too busy with academic activities	Yes
	f. lacks fund for EE activities	Yes
27	Most effective way to teach EE…	Contextual learning, problem solving
28	Effectiveness of global environmental efforts is due to…	International environmental treaties, efforts of NGO, international environmental laws
29	Environmental knowledge…	Global warming, ozone depletion, biodiversity, greenhouse effect, loss of wildlife habitats, depletion of forest, extinction of flora and fauna
30	Ways to instill environmental values on students… a. EE as compulsory subject	Agree/ Strong agree
	b. volunteer work	Agree/ Strong agree
	c. participation in environmental workshops and camps	Agree/ Strong agree
31	Success on EE… a. increasing students awareness and knowledge	Successful/ Most successful
	b. change in students behaviour	Successful/ Most successful
32	Environmentally friendly activities… a. 3R	Interesting/ Very interesting
	b.Greening	Interesting/ Very interesting
	c.Energy and water saving campaign	Interesting/ Very interesting

	d. Celebrate environmental-related days	Interesting/ Very interesting
33	Environmentally friendly activities that interest students… a. 3R	Interesting/ Very interesting
	b.Greening	Interesting/ Very interesting
	c.Energy and water saving campaign	Interesting/ Very interesting
	d. Celebrate environmental-related days	Interesting/ Very interesting
Section B		
University Lecturer		
24	Opinion on infusion of EE	Yes
25	Making EE infusion interesting through… a. field study	Yes
	b. environmental related projects	Yes
	c. interactive dialogues by environmental experts	Yes
26	Reason on inability to infuse EE… a. no formal training	Yes
	b. no knowledge on EE activities	Yes
	c. no support from the management	Yes
	e. not required by examination	Yes
	f.students are too busy with academic activities	Yes
	e. lacks fund for EE activities	Yes
27	Most effective way to teach EE…	Contextual learning, problem solving
28	Effectiveness of global environmental efforts is due to…	International environmental treaties, efforts of NGO, international environmental laws
29	Environmental knowledge…	Global warming, ozone depletion, biodiversity, greenhouse effect, loss of wildlife habitats, depletion of forest, extinction of flora and fauna
30	Ways to instill environmental values on students… a. EE as compulsory subject	Agree/ Strong agree
	b. volunteer work	Agree/ Strong agree
	c. participation in environmental workshops and camps	Agree/ Strong agree
31	Success on EE…	Successful/ Most successful

	a. increasing students awareness and knowledge	
	b. change in students behaviour	Successful/ Most successful
32	Environmentally friendly activities… a. 3R	Interesting/ Very interesting
	b.Greening	Interesting/ Very interesting
	c.Energy and water saving campaign	Interesting/ Very interesting
	d. Celebrate environmental-related days	Interesting/ Very interesting
Section B		
Tertiary Level students		
24	The best way to learn about environmental matters…	Infused in all subjects.
25	Additional information and resource materials on environment…	Internet, friends, mass media, reference books and journals, government, NGO
26	Awareness on the environment is influenced most by…	Parents and family, school teachers, friends, religion, television, culture.
27	Awareness level in university increased due to…	Seminars or forums on environmental issues, field site visits, solving local environmental issues, creating an environmentally responsible culture.
28	Increase knowledge on environmental through… a. discussions	Agree/ strongly agree
	b. field trips	Agree/ strongly agree
	c. activities on local environmental activities	Agree/ strongly agree
	d.join an environmental organisation	Agree/ strongly agree
29	To have a career in conservation…	Agree/ strongly agree
30	To be environmentally responsible…	Agree/ strongly agree
31	To go on field trip to increase on environmental knowledge	Agree/ strongly agree
Section B		
Teacher Trainees		
24	Preferred method to teach EE…	Infusion on all subjects
25	Motivation to teach EE…	Educating students about environmental issues is important

26	Information on environment…	Newspaper, school, informal education, NGO, internet, TV
27	Awareness on the environment is influenced most by…	Parents and family, school teachers, friends, religion, television, culture.
28	Exposure on EE is sufficient	
29	Increase knowledge on environmental through… a. discussions	Agree/ strongly agree
	b. field trips	Agree/ strongly agree
	c. activities on local environmental activities	Agree/ strongly agree
	d.join an environmental organisation	Agree/ strongly agree
30	Learning more about environment in training	Agree/ strongly agree
31	The importance of being environmentally responsible	Agree/ strongly agree
SECTION B		
Parents/ Public		
24	Not an environmental issue in Malaysia…	Noise pollution
25	The thing you will do if your favourite hawker stall uses polystyrene…	Buy food from another stall.
26	To conserve the environment…	EE and environmental laws are equally important
27	Public participation is encouraged during the development of these documents…	Structural plan, local plan
28	Those who play the role in instilling environmental appreciation among Malaysians…	Malaysian society, schools, media and National Education system
29	Information on environment…	Newspaper, school, informal education, NGO, internet, TV
30	Environmentally friendly activities at home… a. Recycling	Often/ Very often
	b. Water saving initiatives	Often/ Very often
	c. River monitoring	Often/ Very often
	d. Energy saving initiatives	Often/ Very often
Section B		
Business & Industry and Media		

24	Training on environmental journalism/ environmental issues… a. before starting career	Yes
	b. in service	Yes
25	Trained people on environmental journalism/ environmental issues… a. before starting career	Yes
	b. in service	Yes
26	Knowledge on company policies a. Green Purchasing Policy	Yes
	b. Reducing solid waste	Yes
	c.Monitoring and evaluating company's activities that impact environment	Yes
	d. Preventing pollution	Yes
27	Level of involvement on organizations environmental activities… a. Recycling	Often/ Very often
	b. Water saving campaign	Often/ Very often
	c. Tree planting	Often/ Very often
	d. River monitoring	Often/ Very often
	e. Beach clean-ups	Often/ Very often
28	Level of interest on environmental related studies… a. short courses	Interested/ Strongly interested
	b. Formal academic courses	Interested/ Strongly interested
Section B		
Politicians/ NGOs/ GOs		
24	Knowledge on environmental related legislation…	Town and Country Planning Act 1976, Protection of Wildlife Act 1972, Fisheries Act 1985, National Parks Act 1980, Local Government Act 1976, Land Conservation Act 1976, Environmental Quality Act 1974
25	Knowledge on environmental policies…	National Biodiversity Policy, National Physical Plan, National Environmental Policy, National Forest Policy, National Agricultural Policy
26	Highlighting the importance of EE in various occasions…	Agree/ Strongly agree
27	Integrating knowledge, skills and	Agree/ Strongly agree

	awareness on environment in decisions…	
28	Involved in sourcing out funds on environmental conservation…	Agree/ Strongly agree
29	Proactive in environmental conservation…	Agree/ Strongly agree
30	Evaluate and monitor environmental quality in the area…	Agree/ Strongly agree
31	Inform relevant authorities on environmental issues…	Agree/ Strongly agree
32	Working towards improving the environment…	Agree/ Strongly agree

APPENDIX 4

This survey is not an evaluation of environmental knowledge, attitudes and behaviour. It is baseline information concerning the knowledge about, attitudes toward, and behaviours related to the environment in Malaysia. This baseline will be used to track trends and changes in environmental citizenship as Malaysians are surveyed again at various points in the future.

Sample:

The margin of error due to sampling is plus or minus 1.36 percentage points at the .95 confidence level, although it is larger for the results for smaller subgroups involved. For example, the sampling error is plus or minus 4 percentage points for results among the 588 teacher trainees in the sample.

Groupings:

In the study, all business, media and industry subjects have been collapsed into one group. The rationale for this is that the business, media and industry community are varied (for example media refers to newspapers, television, radio all types of digital media) but have one commonality, that is they are all income generating.

The subjects in the politicians, government officers and NGOs" groups have also been grouped together. The rationale for this is that these subjects have been classified as in public or civil service.

International Comparisons:

A word of caution: ***The instruments used for the various studies were different, except for certain similar items. Therefore, the comparison made between the results of the present Malaysian study with other nations must be interpreted within the framework of the survey item.***

The Singapore Study (1998)
The study intended to investigate the knowledge, attitudes and behaviour among secondary and junior college students in Singapore
There were 47 items in total. There were four sections A (knowledge), B (attitudes), C (behaviour), and D was a section for open-ended answers. Just as in the present Malaysian study, the items were 'primarily derived or modified from the pool of items used in the other nation-wide studies mentioned in other nations.
The overall values cited for knowledge, attitude and behaviour levels were taken straight from the study and compared with the results of the present Malaysian study.

Comparable Singapore Results: Knowledge – 70.9%; Attitudes – 66%; Environmental behaviour - 70.5%

Waikato, New Zealand Report (2006)
The results are from the fourth survey (the first of which were conducted in 1998, and then repeated in 2000 and 2003) to benchmark environmental perceptions in the Waikato region. One of the main aims was to track public views, attitudes and priorities related to environmental issues. The survey had 10 main sections which were divided into subsections dealing with issues such as 'satisfaction with the local environment', 'perceptions of changes regarding environmental issues', 'air quality', 'personal environmental action' and several more.
The overall values cited for knowledge and attitude levels were taken straight from the study and compared with the results of the present Malaysian study.

Comparable New Zealand Results: Knowledge – 33.5%; Attitudes – 75%;

The Minnesota Study (2002)
This report records the first state wide study in Minnesota. The questions used in this survey came either directly or were adapted from the several sources such as the National Environmental Education Training Foundation/Roper Starch Worldwide Surveys, and *the First Pennsylvania Environmental Readiness for the 21st Century Survey*. Questions measured respondents' knowledge, attitudes, and behaviors toward the environment. There were 31 questions in all, with several questions having sub-sections.
The overall values cited for knowledge and attitude levels were taken straight from the study and compared with the results of the present Malaysian study.

Comparable Minnesota Results: Knowledge – 55%; Attitudes – 66%; Environmental behaviour – 73.8%; Not Using of Chemical Fertilizers – 41%; Behaviour related to water conservation- 79%; Behaviour related to energy conservation - 99%

The Kentucky Study (2004)
The Kentucky Environmental Education Council (KEEC) with the University of Kentucky Survey Research Center, completed the first survey of environmental knowledge, attitudes and behaviors in 1999 and the second in 2004.

Comparable Kentucky Results: The need for environmental education – 97%; Attitude towards water pollution – 17%

The Pennsylvania Study (2005)
This is a survey of adult Pennsylvanian's knowledge about, attitudes toward and behaviors related to the environment. It addresses the environmental literacy recommendations in the *Report of the Pennsylvania 21st Century Environment Commission*.

Comparable Pennsylvania Results: The need for environmental education – 98%

The US Study (2005)

Ten Years of NEETF/Roper research and related studies are in this report. This report is about a widely-held belief followed by a persistent question. The overall values cited for knowledge, attitude and behaviour levels were taken straight from the study and compared with the results of the present Malaysian study.
Comparable US Results:

US Adults: Knowledge – 33.3%; Attitudes – 70%; Environmental behaviour – 48%; Biodiversity – 55%; Global warming – 45% ; Energy conservation – 85%
Need for environmental education – 95%; Non-biodegradable – 42%; Reducing chemical fertilizers – 36%;

US High School: Biodiversity – 29%; Ozone depletion – 44%

US College Graduates: Biodiversity – 77%; Ozone Depletion – 84%

Malaysia:
For the overall knowledge level, the percentages of correct answers obtained by all groups for items 1, 3, 8,9,10, 11, 12 & 13 were totalled and divided by the number of the items.

For the overall attitude level, the percentages of correct answers obtained by all groups for items 16, 22 and 23 were totalled and divided by the number of the items.

For the overall environmental behaviour level, the percentages of correct answers obtained by all groups for items 4, 5, 6, 7, 14, 15, 17. 18, 19, 20, 21 were totalled and divided by the number of the items.

Individual items which were similar to the other national surveys were then compared individually.