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AN EVALUATION OF ENVIRONMENTAL EDUCATION IN SELECTED PRIMARY SCHOOLS IN PAHANG, MALAYSIA

TEOH ENG SEAH

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THESIS SUBMITTED IN FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

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ABSTRACT

The purpose of this study is to evaluate the current status of Environmental Education (EE) in four selected primary schools in Pahang, Malaysia based on international standards by UNESCO. It also aims to propose some best practices in EE for the primary school and to make recommendations for curriculum development in EE for the primary school. The study employed the case study design involving four selected national government primary schools. This study used qualitative research methods comprising in-depth interviews, observations and document analysis to collect data for analysis. Findings revealed uneven emphasis given to the implementation of EE at the four schools. It was found that projects involving environmental awareness were more prominent in one school whereas the other three schools did not emphasize on such projects. In curriculum instruction of subjects, there was minimum integration of EE in the lessons. The findings also revealed that *EE across the curriculum* was not fully implemented due to the lack of understanding in integrating EE in the classroom. Findings provide useful feedback to educational policy makers and curriculum developers. Among the best practices of EE proposed were that schools should embark on a holistic approach in EE where everyone has to be well informed and trained to maintain a sustainable environment. This implies that greater attention need to be paid to EE in schools and more importantly the practical implementation of EE in curriculum instruction that fulfils UNESCO standards. Finally, the study provided recommendations for effective teaching and learning approaches, activities and resources in EE.

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PENILAIAN PENDIDIKAN ALAM SEKITAR DI BEBERAPA SEKOLAH RENDAH DI PAHANG, MALAYSIA

ABSTRAK

Tujuan kajian ini ialah untuk menilai status semasa pelaksanaan Pendidikan Alam Sekitar (PAS) di empat buah sekolah rendah terpilih di Pahang, Malaysia berdasarkan piawaian antarabangsa oleh *UNESCO*. Ia juga bertujuan untuk mencadangkan amalan terbaik tentang PAS di sekolah rendah. Kajian ini juga mengemukakan beberapa cadangan dalam pembangunan kurikulum PAS di sekolah rendah. Rekabentuk kajian ini merupakan kajian kes yang melibatkan empat buah sekolah kebangsaan kerajaan. Kajian ini merupakan kajian kualitatif yang melibatkan temu bual, pemerhatian dan analisis dokumen sebagai kaedah pengumpulan data untuk dianalisis. Dapatan kajian menunjukkan terdapat ketidakseragaman dalam pelaksanaan PAS di empat buah sekolah tersebut. Didapati projek-projek yang memupuk kesedaran terhadap alam sekitar lebih menonjol di salah sebuah sekolah manakala di tiga buah sekolah yang lain kurang penekanan diberi terhadap projek-projek tersebut. Dalam proses pengajaran dan pembelajaran mata pelajaran, terdapat pengintegrasian yang minima terhadap PAS. Dapatan kajian juga menunjukkan *PAS merentas kurikulum* tidak dilaksanakan sepenuhnya berpunca daripada kurangnya pemahaman dalam mengintegrasi PAS di bilik darjah. Dapatan kajian ini memberi maklum balas yang berfaedah kepada penggubal dasar pendidikan dan pihak yang terlibat dalam pembangunan kurikulum. Antara amalan terbaik PAS yang dicadangkan ialah sekolah harus mengambil pendekatan menyeluruh dalam PAS di mana semua orang mengambil maklum dan dilatih dalam penjagaan alam sekitar yang mapan. Ini memberi implikasi bahawa PAS di sekolah perlu diberi lebih perhatian dalam pengajaran dan pembelajaran dan lebih penting lagi pelaksanaannya hendaklah memenuhi piawaian *UNESCO*. Kajian ini telah mencadangkan pendekatan dalam pengajaran dan pembelajaran yang berkesan, aktiviti-aktiviti serta sumber PAS.

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LIST OF ABBREVIATIONS

BM	*Bahasa Melayu*
CETREE	Centre for Education, Training and Research in Renewable Energy and Energy Efficiency
COMBI	Communication for Behavioural Impact
DOE	Department of Environment
EE	Environmental Education
EEP	Environmental Education Personnel
ESD	Education for Sustainable Development
GPK 1	*Guru Penolong Kanan Pentadbiran dan Kurikulum* (Senior Assistant for Administration and Curriculum)
GPKKokur	*Guru Penolong Kanan Ko-Kurikulum* (Senior Assistant for Co-Curriculum)
KBSR	*Kurikulum Bersepadu Sekolah Rendah* (Integrated Primary School Curriculum, IPSC)
KT	*Kajian Tempatan*
KSSR	*Kurikulum Standard Sekolah Rendah* (Standard Primary School Curriculum)
MNS	Malaysian Nature Society
MOE	Ministry of Education
NGO	Non-Governmental Organization

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PEKA	*Penilaian Kemahiran Amali Sains*
SC	Science
SD	Sustainable Development
UNCED	United Nations Conference on the Environment and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNDESD	United Nations Decade on Education for Sustainable Development
WWF	World Wide Fund for Nature

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CHAPTER 1

INTRODUCTION

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1.1 Introduction

Today, around the world, human beings face an unprecedented environmental crisis with environmental problems such as biodiversity loss, records of climate change, degradation and destruction of the natural environment, as well as many forms of pollution. Regrettably, the unfortunate reality about this environmental crisis is that most of it, if not all, are due to anthropogenic causes. Many of the problems mentioned result from socio-economic situations and inappropriate human behavior patterns (for example, poverty, uncontrolled economic growth and squandering of natural resources). Despite the evidence of environmental problems, humans still pursue activities which perpetuate the problems. Furthermore, as the world's population increases, and the per capita consumption of natural resources increases, it

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will have an even greater effect on these environmental problems, exacerbating them further (Harris, 2004). Human activities or human apathy are causing appalling stress and damage to the environment. It is therefore by acting upon systems of knowledge and values that we may hope to find and employ adequate solutions to environmental problems.

The importance of Environmental Education (EE) and environmental awareness in societies is recognized globally. Essentially EE plays an important role in developing a sense of environmental awareness, concern and responsibility. The major role of EE comprises developing awareness and concern about the ecological, economic, political and social interactions as well as interdependence in the environment and their related problems . Such efforts also include providing opportunities for the people to be aware and also to acquire the knowledge and skills of problem solving as well as to develop appropriate values and attitudes towards the environment.

The Tbilisi Declaration (UNESCO, 1977) defined EE as a learning process that increases people's knowledge as well as awareness about the environment and its associated challenges. In addition to that, it develops the necessary skills and expertise to address the challenges, as well as fosters attitudes, motivation, and commitment to make informed decisions which lead to responsible action. In EE, the environment is considered in its totality, both natural and man-made. Ideally, EE should enhance critical thinking, problem solving, and effective decision making skills as well as educate individuals to weigh various sides of an environmental issue to make informed and responsible decisions (Tbilisi Declaration, 1977). Bearing this

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in mind, the schools should take cognizance of these demands of EE to ensure the effective implementation of EE in the school curriculum.

This study sought to evaluate the current status of EE in four selected primary schools in Pahang, Malaysia based on international standards by UNESCO. This study also studied some of the best practices in EE implementation and aimed to propose some of these best practices in the primary school. Additionally, recommendations in the formal curriculum were also included for future curriculum development.

1.2 Background of the Study

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In Malaysia, in terms of formal education, EE was introduced into the school curriculum in 1983 with the introduction of the subject *Alam dan Manusia* (Man and the Environment) at the primary school level. This followed the Cabinet Committee Report (*Laporan Jawatankuasa Kabinet Mengkaji Pelaksanaan Dasar Pelajaran*, 1979) which recommended that a New Primary School Curriculum (*Kurikulum Baru Sekolah Rendah*, known in brief as *KBSR*) emphasizing basic skills, overall personal development, and awareness of the physical and social environment be introduced.

In line with this emphasis, *Alam dan Manusia* (Man and the Environment), an interdisciplinary subject replacing five traditional subjects in the old curriculum, (namely Geography, History, Science, Civics and Health Education) had been introduced and was taught from the fourth year to the sixth year of primary school

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(pupils at the ages of 10 to 12 years). The overall aim of *Alam dan Manusia* as a school subject was "to impart knowledge and to instill awareness, understanding and appreciation of man and his environment. These aspects would assist pupils to acquire knowledge and to make sound decisions" (The New Primary School Curriculum, Ministry of Education, 1982, p. 16).

In 1994, following curriculum revision, the revised Integrated Primary School Curriculum (*Kurikulum Bersepadu Sekolah Rendah*, also known in brief as *KBSR*) was introduced starting with the then new academic session in December 1994, introducing two new subjects, namely Science and *Kajian Tempatan* (Local Studies), replacing *Alam dan Manusia.* The environmental studies component is mostly represented in the Science and *Kajian Tempatan* subjects.

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The *Kajian Tempatan* (*KT*) subject functions as the main channel for students to acquire knowledge, basic understanding as well as life's experiences in a harmonious and balanced relationship between man and man, as well as between man and his environment. As for the Science subject at the primary school level, it enables students to learn about themselves and their surroundings through experiences and investigations. The Science curriculum provides students the opportunity to investigate the environment around them through five areas of study, namely, to investigate: the living environment; the physical environment; the resource/material environment; the earth and the universe; and the world of technology.

Subsequently, in 1998, *EE across the Curriculum* was introduced in both the primary and secondary school curriculum. This means that EE was not taught as a

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single subject but was taught across the curriculum and integrated in each subject. At all levels of school education, the integration approach is adopted. The integration approach is basically one of infusing elements of EE into subjects currently taught in schools. As it is, the implication of such an approach is that all teachers teaching these subjects will have to be involved in the teaching of EE, regardless of their subject specialization.

Since EE is subsumed under various topics in the Malaysian school subjects curriculum, very much is left to the initiative and ingenuity of the individual teacher to interpret and understand the environmental components or implications. Furthermore, it is expected of them to improvise the relevant materials and to discover the appropriate transmission of environmental knowledge and values to the pupils. Essentially, the teachers are the key to the successful incorporation of EE in the subjects curriculum. In the light of this, it was the intention of this study to investigate and evaluate the implementation of EE in the Malaysian primary school.

1.3 Environmental Education and its Theoretical and Philosophical Underpinnings

We are reminded of Mahatma Gandhi's remarks that there is enough in this world for man's need but not for man's greed. This raises the question of how does one draw the line between *man's need* and *man's greed*? Maslow's hierarchy of needs inform us that the largest and most fundamental level of needs which constitute mainly man's physiological needs (air, water and food amongst others) are basic requirements for

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human survival. It follows that the most basic level of needs have to be met and humans strive to attain it by whatever means possible. However, the bone of contention here is that interpretation of one's *basic needs* is a very subjective matter. Different people may have different interpretations of their basic needs. Furthermore, on a national level, some would argue that whatever the amount of consumption, it constitutes a nation's basic needs. In the eyes of the rich and developed nations, the present level of consumption or utilization of resources may constitute their citizens' basic needs. These basic needs of developed nations may be enormous by comparison to the basic needs of the developing nations. Perhaps this helps explain why there is this disparity in thinking and the different interpretations of who and how much one has to contribute towards sustainable development and in particular the level of commitment towards EE for sustainable development. As a matter of fact, these differences reflect the different values and priorities of the holders.

The argument above is on the comparison of the levels of consumption of the world's resources to fulfill the basic needs of the developed and developing nations. It is also a question of referring to whose standard of reference for these basic needs. Essentially the developing nations may place greater emphasis on immediate needs for economic growth to raise standards of living whereas, development in the West has been based on the enlightenment myth of endless growth. Hence, they engage in profligate consumption! Incidentally, O'Riordan's (1981) division of environmentalists into two broad groups, namely *technocentrics* and *ecocentrics*, further explains the current predicament. Accordingly, technocentrics have more faith in science and technology and this leads to the belief in man's dominance over nature. Therefore, this group is more optimistic that future scientific and technological

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developments will enable us to overcome environmental problems and constraints. On the other hand, ecocentrics believe in a greater degree of equality between humans and nature to the extent of the subordination of man to nature. Therefore, the group believes that we are just one part of a global ecosystem which must be respected. Consequently, factors determining the extent to which someone is technocentric or ecocentric depend on one's faith in the ability of science and technology to resolve environmental problems and the cultural values on the environment in the society at large.

From the discussion above, obviously the needs and agendas of the developed nations are fundamentally different from the developing countries making it difficult to reach consensus on international policies that benefit all parties. Meanwhile, the gap between the rich and poor nations of the world is enormous and continues to widen. Consequently, this difference among nations at various stages and levels of development has profound implications for the global environment. Albeit the differences in interpretations of the nation's basic needs and the explanations for the disparity in consumptions levels, the prevailing question to ponder here is the ethics of eco-justice. As Rolston in Nicholas Bunnin and E. P. Tsui-James, (eds.), 2003, also pointed out that "sustainable" also means "fair" or "just".

> On Earth, the developed nations hold about one-fifth of the world's 5 billion persons, and they produce and consume about four-fifths of all goods and services. The underdeveloped nations, with four-fifths of the world's people, produce and consume one-fifth. Of the 90 million new people on Earth each year, 85 million appear in the Third World, the countries least able to support them, and the result is poverty and environmental degradation in a feedback loop. Meanwhile, the 5 million new people in the industrial countries will put as much strain on the environment as the 85 million new poor.
>
> (Holmes Rolston III, 2003, p. 258)

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Rolston went on to argue that the over-consumption problem in the developed nations is linked with the under-consumption problem in the developing nations, and this results in increasing environmental degradation in both sets of nations. Therefore, sustainable development must close the gap between the rich and the poor, between and also within nations.

The environmental crisis is a moral crisis. The international community has become increasingly aware that we also have to act on the values, attitudes and behaviors of individuals and groups with regard to their environment. As such environmental ethics is an important vehicle to transmit values, to change attitudes and to motivate commitment. As the Director-General of UNESCO strongly emphasized, "... any education needs a reorientation on the basis of an environmental ethic" (Rissom 1980, p. 8). The job of environmental ethics is to outline our moral obligations in the face of environmental concerns. Perhaps in terms of making decisions and considerations about the environment, attention has to be drawn to Jeremy Bentham's Ethical Theory on Utilitarianism on achieving "the greatest good for the greatest number" (without imposing sacrifices or penalties on the small minority). Furthermore, on the same note, it also has to surpass and achieve Kohlberg's universal ethical principles of moral reasoning based upon universal ethical principles of justice. Kohlberg defined moral reasoning as judgments about right and wrong. In essence, moral judgment entails reasoning rooted in the ethical fairness principles based upon the understanding that elements of morality such as regard for life and human welfare transcend particular cultures and societies and are to be upheld irrespective of other conventions or normative obligations. Basically,

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these are universal principles of justice, the reciprocity and equality of the human rights, and respect for the dignity of human beings as individual persons.

Incidentally, the need for EE has increased in volume and intensity over the past few decades with the emergence of this moral consciousness and conscientiousness about the quality of present and future life. It needs to be pointed out that ongoing development processes at the expense of others resulting in inequity and environmental degradation is mere exploitation! In essence, the ethical principles of sustainability should be deeply rooted in the present generation's moral responsibility to posterity. Our moral responsibility to nature and to the future is of unprecedented significance and urgency, and it is a responsibility that we cannot escape**.** The Brundtland Report, (also known as *Our Common Future*), 1987 argues that sustainable development encompasses two key concepts, namely, the concept of *needs*, in particular the essential needs of the world's poor, as well as the idea of limitations. As such, it emphasizes the development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The ethical principles endorsed in the notion of sustainability clearly indicate that this concept is people-centered, future-oriented and conservation-based. Environmental education for sustainability concentrates on improving the human condition and maintaining the variety and productivity of nature for the benefit of both the present and future generations.

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The point to drive home here is that there is this universal recognition that we owe something to other people within our society and that we are bound by a concept of right and wrong in our behavior towards them. Therefore, whatever levels of

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consumption, (and by whose standards), all countries of the world have to be reminded that the world's resources are limited and many of these resources are not renewable. Thus consumption and usage of these resources has to be controlled to ensure that future generations have enough supplies. The Philosophy of Conservation aptly emphasizes sustainability as its main principle to ensure that current use of any resource or heritage does not destroy the chances of handing it down to future generations. Conservation has a rightful place in education. It is seen as an activity conducive to civilized living, through its ability to give an abiding sense of purpose, and harmony of relationships, both with the environment and other people. In essence, concern over the world-wide ills and blunders of human society can help to promote a way of life in which there is greater understanding and control over the irrational and selfish aspects of our existence. For many people it gives the foundation a much-needed ethic. This brings us back to the question of ethics towards Mother Earth which seems lacking amongst many of us. Ethics and morals have their deep roots in the cultural and religious beliefs of each society. In essence, stewardship of the environment is also central in all the major religions of the world. A fundamental issue is humanity's relationship with nature. For example, religion teaches us to re-examine how we live and to reevaluate our relationship with nature. The recent disasters in many countries is a reminder for us to rejoin in the age-old truth of moderation. This is especially true in these days and times when over-development have caused great ecological imbalance.

Finally and ultimately, attention and reminders have to be drawn to all nations of the world that in our globalised nature, whatever environmental problems (for example, environmental pollution or air pollution in particular) which arise in one part

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of the continent will be experienced by all the neighboring countries as such problems are trans-boundary. The sky or the atmosphere is but one single roof. This draws us to the important point of promoting EE which brings awareness to the people of the world on the consequences one has to face if constant abuse of the earth is not curtailed.

1.4 Statement of the Problem

Globally, there is a great awareness of environmental issues and the concern to do something about it now. Environmental problems such as biodiversity loss, records of climate change, degradation and destruction of the natural environment, and many forms of pollution are widespread around the world. A major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production. Earlier in the discussion, we had noted Mahatma Gandhi's reminder to us that there is enough in the world for everyone's need, but not for everyone's greed. Efforts have to be made through education to prevent greed from getting the better of humankind.

Malaysia does have a National Policy on the Environment since the 1970s. The plan also mentioned the value of EE as an aspect of government policy. Malaysia places great importance on UNESCO's goal on Education for Sustainable Development (2005 – 2014, UNDESD) by encouraging transformation in education that will create a more sustainable future in terms of environmental integrity, economic viability and a just society for present and future generations. Although this

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reflects the increasing official concern and commitment to the environment, there is still a great need for Malaysians to adopt more environment conscious habits. As a case in point, the findings of the Domestic Water Consumption Study, a collaboration between the Federation of Malaysian Consumers Association (Fomca) and the Energy, Green Technology and Water Ministry, started in 2007 involving 1792 households in the country and ended in 2010 revealed that Malaysians wasted the most water compared with other consumers in the region. "What is shocking is that 70% of those surveyed said they were not likely or not very likely to reduce water usage in their homes in the next three years." (New Sunday Times, October 3, 2010, Headlines). It seems like there is not much emphasis on conservation amongst our people at the moment.

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At this point, it was felt that there is an urgent need to audit the EE process. One rightful place to start is to examine what the schools are actually doing to prepare our future generations to face this great onslaught in the years to come. The schools constitute a sizeable proportion of young people who will grow up to be adults in the years to come. Besides, attitudinal changes towards nature and natural resources are psychologically easiest with young people. The knowledge that is being taught in schools today will shape the thinking and behavior of the world tomorrow. Education for sustainable development is an important tool to nurture children as responsible future leaders and good citizens, and to shape the future for a better world. Thus, instilling EE at an early learning age is the best way, in due course, to protect the environment. It is evident that attitudes toward the environment are generally acquired very early in life, meaning educational programs must start early and transcend both formal and non-formal education (Stapp, 1978; Eagles & Demare,

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1999). Hence, as most of the past research focused on EE in formal settings, consideration was also given to the non-formal aspect of EE encompassing the total curriculum in the present study.

An initial effort to review UNESCO's perspectives of EE (goals, objectives and guiding principles) is necessary as UNESCO takes a leading role in EE. This serves as the point of reference for EE (in Appendix A, *Schedule A*). An investigation of Malaysia's responses to the international EE goals and objectives follows. This includes a review and update on the country's policy on the environment and also EE in the school curriculum. If today's curricula are not to fall behind UNESCO's recommendations, then they have to include concern for the natural environment, consideration of all aspects of the social environment as well as the man-made environment and the interaction between man and the environment in its totality.

Next, another critical point to ponder over is that the successful implementation of EE in schools depends greatly on the commitment, efforts and the level of enthusiasm of the headmasters, their principles and the teachers. This requires an understanding of the broad and complex concepts in EE that cover not only the extracurricular activities but also every aspect within the education system. A specific policy on EE has to be in place to set a clear direction for the headmasters and the teachers which in turn determines the successful implementation of EE in schools. Hence, this would also be an area of importance in the investigation.

Another important focus of the investigation would be on the teaching aspect of EE. Essentially, the development of a future-oriented sense of environmental

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responsibility depends largely on school teaching as comprehension of ecological interdependences requires more systematic insight. Currently, EE is not taught as a single subject, but integrated in several subjects across the curriculum. Since 1998 *EE across the Curriculum* had been introduced in both primary and secondary schools. This would require that the teachers be adequately trained with the necessary knowledge and skills of the concepts in EE. There loomed the question and concern in the teachers' readiness to integrate EE in the subjects they teach. An early study by Gan (1987), disclosed that secondary school science teachers were not adequately prepared to integrate EE in schools. The present study sought to determine the situation in four selected primary schools. A more recent study by Pauziah (2004) on the implementation of EE across the curriculum at the primary school level reported that the course attended by the teachers was not sufficient in helping them to implement EE effectively in schools. This necessitates an investigation to find out whether teachers in this study attended in-service courses related to EE.

The Ministry of Education (MOE) had provided a guidebook on EE to the schools to assist teachers (*Kementerian Pendidikan Malaysia*, 1998). The guidebook outlined examples of proposed activities for EE. Some teachers were exposed to EE across the curriculum. The feeling by the investigator was that its implementation might not be uniform as the guidebook might be rarely utilized by some principals and the teachers whilst some might not even know of its existence. Moreover, even though the guidebook outlined examples of proposed activities for EE, these may not be detailed enough for some teachers to conduct EE programs. Also, many teachers may not be able to develop EE programs themselves. Such shortfalls, coupled with

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the lack of teaching materials for teachers to integrate and infuse EE at schools may result in classroom teachings on EE that do not create the awareness that is required to be instilled in the students. As such teachers played an integral role in this study as their insights would help understand the reality of EE implementation in the school.

The investigator is of the opinion that it is necessary to investigate and evaluate the implementation part of EE in schools, (primary schools in particular), given the support system available and that EE had long been introduced in schools. The materials for EE had been published by the MOE to assist teachers in infusing EE in schools. These include, *Teachers' Guidebook on the Infusion of EE Across the Primary School Curriculum*, *Teachers' Guidebook on the Infusion of EE Across the Secondary School Curriculum*, including sample lesson plans. Schools were also encouraged to produce their own teaching and learning modules and to set up education resource centers in addition to those produced by other governmental organizations such as the Department of Wildlife and Nature Parks, the Forestry Department, the Department of Tourism and non-governmental organizations (NGOs) such as World Wide Fund for Nature (WWF), and the Malaysian Nature Society (MNS). Furthermore, various methods and approaches are adopted by various governmental and NGOs to create environmental awareness among school children. Among the programs and projects was the EE Program in Schools organized since the late 1980's like *Learning Stations on EE* which utilized the school compound and its surroundings for teaching basic environmental concepts through the environment or simulations; EE materials like mentioned earlier; and the training of teachers.

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Furthermore, from a review of literature, most of previous studies on EE done in Malaysia focused on knowledge, awareness, as well as attitudes of respondents from the secondary schools, teacher training institutes and the universities. Very few research on EE was conducted at the primary school level. As such, there is a dearth of studies related to EE conducted on teachers in primary schools, and on the implementation of EE in schools. Hence, this study aimed to provide the information on the status of EE implementation at the primary school level.

The many factors discussed above were among the many challenges that needed to be addressed and their practical implementation researched into. After years of trying to integrate EE in the schools, it was time for a thorough investigation on the implementation of EE in the schools. It was the aim of this study to investigate and evaluate the implementation of EE in the four selected primary schools.

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1.5 Purpose of the Study

This study attempted to investigate and evaluate the implementation of EE in four selected Malaysian primary schools. Specifically it focused on the total curriculum which involves the total program of an educational institution, the Malaysian primary school in particular. In the primary school curriculum, EE is reflected across the various subjects and school programs which aim to instill knowledge, awareness, values, attitude and skills relating to the environment. This study aimed to evaluate the status of EE in the four selected Malaysian primary schools by first, reviewing the curriculum and co-curriculum. Secondly, the study looked into the implementation of

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EE in the classroom and at the school as a whole. The study also included a clarification of how professionals in the field of EE envision and promote its implementation. Next, the study also looked into best practices of EE in schools and aimed to propose some best practices of EE in the primary school curriculum. The objectives of this study were:

(1) to evaluate the current status of EE in four selected primary schools in Pahang, Malaysia based on international standards by UNESCO; (2) to study the best practices in EE and propose some best practices in EE for the primary school and (3) to make recommendations for curriculum development in EE for the primary school.

1.6 Significance of the Study

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The study acquired insights into conceptualizations and practices of EE in the school curriculum. The study also revealed the motivations and barriers to EE implementation, thus providing insights and further suggestions to EE implementation in the primary school.

Additionally, this study revealed the environmental management and education programs in the selected schools. This would provide useful feedback and input to policy makers and stakeholders on the current state of EE implementation in the schools.

With this study, methodology in EE comprising best practices and resources available were explored. This study provides the investigator and teachers the

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opportunity to emulate models of effective methodology in EE comprising best practices using new technologies; teaching styles and resources in EE in schools.

The findings of this study can contribute further to program and curriculum development of EE in the primary school. Data obtained from the study can provide feedback and input for capacity building for EE trainers in teaching strategy. It can also guide curriculum planners in curriculum improvement and development when the time for further curriculum revision arises.

1.7 Research Questions

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To achieve the objectives of the study, four main research questions (RQ) and eight sub-questions were adopted:

RQ 1: What are the characteristics of Environmental Education (EE) as have been determined by international standards?

RQ 1 Sub-question (a): How has the implementation of EE in four selected Malaysian primary schools fared in the context of international standards?

RQ 2: What are the issues and challenges in implementing EE in the selected primary schools?

RQ 2 Sub-question (a): What is the perception of the school authority towards inculcating environmental awareness through the school curriculum?

RQ 2 Sub-question (b): What measures have been / are being taken to promote environmental awareness through the school curriculum?

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RQ 3: What are the experiences and challenges of teachers incorporating EE in classrooms?

RQ 3 Sub-question (a): How prepared are the teachers at incorporating EE in their lessons?

RQ 3 Sub-question (b): How do teachers teach about (and for) the environment?

RQ 3 Sub-question (c): How do their EE practices compare to methods prescribed by professionals in the field?

RQ 3 Sub-question (d): How do teachers assess the pupils' knowledge, skills and attitude towards the environment?

RQ 4: What are the best practices of EE implementation in schools?

RQ 4 Sub-question (a): What are the recommendations for best practices of EE implementation in Malaysian primary schools?

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Research questions 1, 2 and 3 together with their sub-questions address the first objective of the study. Research question 4 and its sub-question provide answers to the second and third objectives of the study.

1.8 Operational Definition of Terms

The following terms were used and defined in this study:

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1.8.1 Environmental Education (EE)

This study adopted the definition of EE derived from the Tbilisi Declaration, 1977 as a learning process that increases people's knowledge and awareness about the environment and its associated challenges, develops the necessary skills and expertise to address the challenges, and fosters attitudes, motivations, and commitments to make informed decisions and take responsible action.

1.8.2 Malaysian Primary School

The Malaysian primary school is an elementary school that provides a six-year course of primary education for children between the ages of seven and twelve years. It is equivalent to the American elementary or grade school with education from Grades 1 to 6.

1.8.3 National (Government) Primary School (*Sekolah Kebangsaan, SK*)

National (Government) Primary School or *Sekolah Kebangsaan* (*SK*) is a fully-assisted school that provides a six-year course of primary education for children between the ages of seven and twelve years. The main medium of instruction is the Malay Language (*Bahasa Melayu*, *BM*). English Language (*Bahasa Inggeris*, *BI*) is also taught as a compulsory subject in this type of school.

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1.8.4 Curriculum

The curriculum of a subject refers to the complete program of learning which includes components like the identified desired results; a design for, and suggested sequence of activities; and also suggested methods of assessment for evaluation.

1.8.5 The Total Curriculum

This involves the total program of an educational institution. It comprises all the learning experiences which are planned and guided by the school.

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1.8.6 Curriculum Planners

These are officers with the Primary Science / Social Studies / Geography and Environmental Education Unit in the Curriculum Development Division, MOE.

They were primary or secondary school Science / Social Studies teachers who have had numerous years of teaching experience.

They are either:

a. Graduates from universities who are assigned to work on the upper primary or secondary school Science / Social Studies curriculum; or
b. College-trained teachers who are assigned to work on the Science / Social Studies curriculum for the primary and secondary school.

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(The Curriculum Development Division, established in 1973 as Curriculum Development Center, is a part of the MOE and is responsible for designing all types of primary and secondary school curricula in Malaysia. The MOE is a federal department which implements the educational policy and administers the entire educational system of Malaysia.)

1.8.7 Professional Environment Educator

The term refers to the individual who conducts research and provides professional development in EE. The individual is often involved in developing policy in EE and it also applies to someone who works at an institution of higher learning in the field of EE. The individual is also referred to as EE Professional or EE Personnel (EEP) in the study.

1.8.8 School Administrators

This group comprises the Headmaster (HM), and the Senior Assistant (*Guru Penolong Kanan* for Administration and Academic (*GPK*1); and for Co-curriculum (*GPKKokur*).

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1.8.9 Primary School Science (SC), *Kajian Tempatan* (*KT*) and *Bahasa Melayu* (*BM*) Teachers

These are teachers who have graduated from the teacher education programs in the various teacher education institutes (then colleges) and are currently teaching the respective school subjects like SC, *KT* and *BM* in primary schools in Malaysia.

1.8.10 Science and Social Science Teacher Educators

These are faculty members in the faculties / schools of education at the various universities, who are teaching the Science and Social Science courses.

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1.8.11 Teachers Teaching EE

It refers to the teachers who are involved in the teaching of subjects like SC, *KT*, and *BM* who are involved in the study. They are teachers teaching the various subjects but are required to incorporate EE elements into the lessons.

1.8.12 International Standards

This refers to the EE recommendations by the United Nations Educational, Scientific, and Cultural Organization (UNESCO). This is contained in the Tbilisi Declaration

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1977 and it explains the goals, objectives, and guiding principles or characteristics of EE (in Appendix A, *Schedule A*).

1.9 Limitations of the Study

This study is confined to EE implementation in the four selected primary schools and attention on classroom teaching was focused on only three subjects, (*BM*, SC and *KT*) at the primary school level, Year Five. This was due to the fact that the present study used a qualitative case study research methodology which required a considerable amount of time and effort in the data collection process.

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Notably, Merriam (1988) had pointed out, case studies are limited to the level of integrity and sensitivity of the researcher. Because the researcher is the primary instrument of data collection and analysis, he or she must be keenly aware of potential biases that can affect the final product (Merriam, 1988; Yin, 1994). However, Glesne (1999) asserted that it is important to remember that subjectivity can never be eliminated, its effects can only be minimized. As such, the investigator employed triangulation of the data sources and data collection methods to help reduce the effect of the researcher's own perspectives on the reconstructions of the participants' perspectives.

Most of the best practices cited are based on information and curriculum data from foreign studies and are used as the main basis for suggested program

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organization. However, the guidelines provided and recommended are at best exemplary and can be readily employed and adapted in local situations.

1.10 Summary

Chapter 1 acknowledged the important role of EE in developing awareness, concern and responsibility towards the environment. Schools play an important role in inculcating environmental values to the students. As such, teachers in schools play a very important part in EE implementation in encouraging people to be proactive to preserve the environment.

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The background of the study informed that in terms of formal education, EE was introduced into the school curriculum in 1983. Subsequently *EE across the Curriculum* was introduced in both the primary and secondary school curriculum since 1998. From a review of literature, very few researches on EE were conducted at the primary school level. This prompted the investigator to conduct this study to investigate and evaluate the implementation of EE in the four selected Malaysian primary schools. The findings of this study will provide useful feedback and input to policy makers and stakeholders on the current state of EE implementation in the selected schools and also for further curriculum improvement and development. Additionally, the research findings will also provide useful input for capacity building for EE trainers in approaches for EE integration.

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The following chapter, Chapter 2, presents a review of literature related to EE. It discusses the broad concepts related to EE incorporating an overview of EE, UNESCO's perspectives on EE, Sustainable Development (SD), EE for SD, and Malaysia's response to the calls for SD. Malaysia's response includes the provision of EE in the formal and non formal curriculum at the various levels, namely, the primary, secondary, tertiary and also the Teacher Training Institutes. Special focus is given to the primary school level as it serves the purpose of this study. Chapter 2 also probes into researches related to EE in Malaysia and abroad done in the 1980s till 2008. Finally, a review of the best practices in EE is also included to add to the body of literature on the implementation of EE in schools.

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CHAPTER 2

REVIEW OF RELATED LITERATURE

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2.1 Introduction

Today's global environmental crisis calls for a greater awakening among citizens of the world in an all-out attack towards tackling global warming or climate change, greenhouse gas emissions, pollution, and the depletion and degradation of land and water resources. Environmental threats are international in scope, as nearly all forms of pollution, depleting resources, and the destabilization of natural eco-systems have implications for the sustainability of life the world over. Incidentally, countries may engage in activities that cause trans-boundary pollution, seriously depleting scarce resources or biodiversity, or threatening the atmosphere. Furthermore, the consumption of resources by one country or group of people ultimately affects the life chances of other segments of the human population and those of future generations.

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As it is, economic trends had benefited a privileged minority and had done little to meet the basic needs of the vast majority of people, while degrading the environment through pollution and deforestation. No doubt that the nations of the world have begun to deal with many of the most obvious environmental threats over the past century. However, over a thousand international environmental agreements later, the prospects for attaining the levels of international cooperation necessary to manage the impacts of humans on the natural life-support systems of the planet remain grim. Disagreements over the meaning of sustainable development, differences at interpretation of sustainable development, as well as the problems in implementing environmental policies are evident (Vig & Axelrod, 1999).

In the past, Europe and North America's industrial and economic growth had been fuelled by abundant resources acquired either domestically or from less developed countries in Asia and Africa. Globally, the affluent societies consume a grossly disproportionate share of the world's resources. The world over, development resulted in disparities in terms of socio-economic conditions between the rich and poor nations. Advanced industrial development in some parts of the world have brought to the fore problems like over-consumption of resources and goods, enormous amounts of garbage, acid rains, and pollution with devastating effects on living species and natural resources. Poor regions face resource depletion in the form of deforestation and mining, leading to cycles of drought and famine. A major cause of the continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialized countries. As it is, modern developmental processes have enabled humans to exploit natural resources

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indiscriminately. Even today, modern industrial attitudes are influenced by such exploitative mechanisms and the increasing rates of consumption have led to faster depletion of resources.

Essentially, communities have an interest in preserving the health of their environment for their own survival. However, in many instances, environmental preservation comes into conflict with economic growth and financial well-being, which are also integral to a healthy society. For example, modern industries often rapidly use up natural resources or produce harmful by-products as they manufacture items. Yet these industries are vital to the creation of much needed products, jobs and other necessities of modern society. Therefore, a compromise has to be made to placate those holding widely differing views on the environment. After all, everyone has some interest in environmental protection, and everyone has some interest in the preservation of business and economic well-being. As such, a balance has to be found between protecting the natural world and encouraging economic growth and development.

The role of education is of prominence here as people must be guided to make informed choices. The emphasis on the need for understanding the principles of sustainability and the assertion that learning the interdependence of the environment, the economy, and social systems can help in making the necessary changes towards sustainable utilization of natural resources and the environment. Agenda 21, the document produced by the United Nations Conference on the Environment and Development (UNCED) in 1992 succinctly reinforced the role of education in promoting sustainable development. Such an education for sustainability can be in

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many forms – formal, non-formal, and informal, ranging from the school curriculum or programs to adult education, and the media, reaching out to as many individuals as possible.

In schools, teachers today face more than before, a compelling responsibility to serve society by fostering the transformations which would put people on the path to sustainable development. Essentially, the shaping of attitude and values, commitment and skills needed to preserve and protect the environment begins at an early age. Since environmental problems are caused directly or indirectly by the patterns of production by industries, patterns of consumption and behavior of the consumers, educators play an influential role in developing new patterns of behaviors for individuals. Teachers should be at the forefront in pursuing the actions on EE. Teachers play a crucial role in forming, changing and establishing attitudes and values that are important for environmentally responsible behavior. Furthermore, teachers have to develop a high level of specialized knowledge and pedagogical skills to impart information regarding new facts, relationships, threats and conflicts in the environment. Another equally important feature is the exemplary nature of the lifestyle they lead for without a good teacher, the best curriculum can remain without effect.

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In retrospect, environmental concerns have come to occupy a prime position in international diplomacy and politics. At the international level this responsibility lies on the shoulders of institutions like United Nations in consultation with the comity of nations and community of NGOs. At the regional and national levels, the respective governments and non-governmental institutions should initiate affirmative actions.

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Similarly, the responsibility also lies with the communities, the schools and individuals for making concerted efforts to reduce the threats to global environment. All these actions reflect an ever increasing urgency on the implementation of EE for sustainable development.

2.2 Theoretical Framework

Environmental education is based on elements of definition, philosophy, curriculum and evaluation. A simple definition of EE would be *the process of learning about the environment, in the environment, and for the environment.* It is universally agreed, however, that EE should be interdisciplinary drawing from biological, sociological, anthropological, economic, political, and humanistic sources (Encyclopedia of Educational Research, 1982).

Philosophy refers to a system of beliefs, convictions, conceptions, doctrine, and principles. Environmental education would be centered on practical environmental issues, be interdisciplinary, aim at building up a sense of values in people, contribute to the public well-being, and be concerned with the survival of the human species. Its focus should reside mainly in the enlightened initiative of the teachers and receptiveness of the learners, whose involvement and action should be guided by both immediate and future concern on the local, national, and global levels (Stapp, 1993). It is important to note that the term EE curriculum is most often used to explain integrated, environmentally related units of study. According to Maria & Samuel (2010), a priority is for progress in integrating EE into the curriculum at the classroom level

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to be supported by continuing teacher education programs. Environmental education in the primary school includes such topics as pollution, populations and their dynamics, ecological systems and forest resources that are fused into the existing curriculum in already established content areas such as mathematics, science, social studies, and art. Environmental education was once debated as a specific content area to be recognized separately, just as are the content areas of math, science, physical education, etc. This concept is no longer popular and EE is viewed as an integrated curriculum throughout the other content areas.

It is relevant to note that most EE theories, research and constructs are based in formal education. Even though non-formal EE is recognized, it is not given structure, researched, or evaluated to the extent that EE is in the formal setting. Most evaluation has been involved with researching changes in children's environmental attitudes, and a change in behavior.

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Initially, since the field of EE is multi-defined and definitions are often entwined with philosophy, based on the review of the literature, some assumptions can be made. First, education is defined as the process of learning and EE is defined as the process of learning about the environment, in the environment, and for the environment. This definition of EE separates definition and philosophy. Philosophy is left as a variable for different educational entities to discuss, decide and structure around their own beliefs. Depending on their decisions, they will choose curricula to match their philosophy. If a group wants to include action or advocacy components, then that group selects a curriculum that is action oriented. If the group believes that scientific investigation and experimentation is the way to teach environmental education, then the curriculum is chosen on that basis or belief structure. Other

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assumptions can also be made from this investigation of EE. Second, EE takes place in formal and non-formal settings. Third, EE can be viewed as the total curriculum (Orr, 1992 & Van Matre, 1974) or it can be viewed as a content area that may or may not be integrated into other content areas (Hungerford, Harold & Volk, 1992).

According to Walker (1995), five criteria for developing and evaluating curriculum, are: (1) the curriculum reflects the philosophy and goals of the school (formal) or educational entity (non-formal), (2) the curriculum contains a clear scope and sequence of content for learning, (3) the curriculum contains suggestions on how to teach the content, (4) the curriculum contains suggested materials and resources, and (5) the curriculum contains suggestions on how to assess and evaluate. A good curriculum would contain all five of these elements.

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Evaluation also includes program evaluation, content evaluation and is inherent in each part of the educational development process. This study used Stake's Model of Countenance (1967) as a framework for the evaluation of the implementation of the EE program in the four selected schools. A detailed description of the model is provided in Chapter 3.

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2.3 An Overview of Environmental Education: UNESCO's Perspective

The 1972 Stockholm Conference on Human Environment in its principles of the Declaration of the Human Environment state that education in environmental matters, especially for the younger generation is essential in order to broaden the basis for enlightened opinion and respectable conduct by individuals, enterprises and communities in protecting and enhancing the environment. In 1977, at the UNESCO (United Nations Educational, Scientific and Cultural Organization) sponsored Tbilisi Conference, the need for widespread use of EE was firmly emphasized. It was here that EE was accepted as a learning process that increases people's knowledge and awareness about the environment and its associated challenges. It develops the necessary skills and expertise to address the challenges as well as fosters attitudes, motivation, and commitment to make informed decisions to take responsible action.

Even before the Tbilisi Conference, various definitions of EE have also been made by individuals and organization, (namely, Stapp et al. (1970); Cerovsky (1971); The United States Department of Health, Education and Welfare (1971)). All of them ultimately focused on the four components of knowledge, skills, affect, and behavior, and the ability of individuals and organizations to find solutions to environmental problems. Environmental education has, in essence, the aim of enhancing the quality of the environment thereby improving the quality of life. Knapp (2000) aptly pointed out that the ultimate goal of EE is to produce an environmentally literate and responsible citizen, one who can make decisions that will help check many of the environmental problems that will arise in the 21st century.

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The concept of EE accepts the totality of the environment. This is reflected clearly in the Belgrade Charter (UNESCO-UNEP, 1975) which considers the environment in its totality - natural and man-made, ecological, political, economic, technological, social, legislative, cultural and aesthetic. The major goals of EE were further reinforced during the Tbilisi Conference in 1977 where it stressed that opportunities were to be provided to the people to acquire knowledge and skills and to develop proper values and attitudes towards the environment. The Belgrade Charter (UNESCO-UNEP 1975) after which was followed through in the Tbilisi Declaration (UNESCO-UNEP 1978) outlined the objectives as well as the goals of EE at the international level. Subsequently various interpretations at the national level were proposed by a number of institutions and agencies around the world to support EE implementation. Hungerford, Peyton, and Wilke (1980) succinctly interpreted curriculum goals for curriculum development in EE which has as its primary goal, "... to aid citizens in becoming environmentally knowledgeable and, above all, skilled and dedicated citizens who are willing to work, individually and collectively, toward achieving and/or maintaining a dynamic equilibrium between the quality of life and quality of the environment" (p. 43).

Subsequently, Chapter 36 of Agenda 21, the document produced by the 1992 United Nations Conference on the Environment and Development (UNCED), further reiterated the importance of EE:

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> "Education, including formal education, public awareness and training, should be recognized as a process by which human beings and societies can reach their fullest potential. Education is critical for achieving environmental and ethical awareness, values and attitudes, skills and behavior consistent with sustainable development and for effective public participation in decision-making. Both formal and non-formal education are indispensable to changing people's attitude so that they have the capacity to assess and address their sustainable development concerns".
>
> (Agenda 21, Chapter 36)

Agenda 21 clearly emphasizes the need for understanding the principles of sustainability. It asserts that learning the interdependence of the environment, the economy, and social systems can help in making the necessary changes towards sustainable utilization of natural resources and the environment.

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2.3.1 Goals, Objectives, and Guiding Principles of Environmental Education

The Tbilisi Declaration was adopted by acclamation at the close of the world's first intergovernmental conference on EE organized by UNESCO in cooperation with UNEP in Tbilisi, Georgia (USSR) in 1977. The declaration together with two of the recommendations of the Conference constitutes the framework, principles, and guidelines for EE at all levels (local, national, regional, and international), and for all age groups both inside and outside the formal school system. These goals, objectives and guiding principles represent the point of reference for this study.

The Tbilisi Conference endorsed three goals of EE. The first goal was to foster clear awareness of and concern about, economic, social, political, and ecological interdependence in urban as well as rural areas. The second goal was to

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provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect the environment. The third goal was to create new patterns of behavior of individuals, groups, and society as a whole towards the environment. These goals were translated into five categories of EE objectives. These included awareness, knowledge, attitudes, skills, and participation. To elaborate further, the components of EE objectives comprised of awareness and sensitivity to the environment and environmental challenges. This leads to acquiring knowledge and understanding of the environment and environmental challenges. It sets the right attitudes of concern for the environment and increases the motivation to improve or maintain environmental quality. It also aims to provide the skills to identify and help resolve environmental challenges. Finally it involves participation in activities that lead to the resolution of environmental challenges.

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Also, the Tbilisi Declaration had established a set of guidelines which were valid for curriculum decision-making in any school, community, region or nation. The guiding principles for EE, as outlined by the Tbilisi Conference, reflected a definite need for both the acquisition and transfer of learning in EE. Program developers should strive to reflect these guiding principles in any curriculum development project, making certain that the need for both acquisition and transfer is met. These guiding principles which reflect the characteristics of EE is provided below. It is important that EE should:

- consider the environment in its totality - natural and built, technological and social (economic, political, cultural-historical, moral, esthetic);
- be a continuous lifelong process, beginning at the pre-school level and continuing through all formal and non-formal stages;

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- be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
- examine major environmental issues from local, national, regional and international points of view so that students receive insights into environmental conditions in other geographical areas;
- focus on current and potential environmental situations while taking into account the historical perspective;
- promote the value and necessity of local, national and international cooperation in the prevention and solution of environmental problems;
- explicitly consider environmental aspects in plans for development and growth;
- enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
- relate environmental sensitivity, knowledge, problem-solving skills and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
- help learners discover the symptoms and real causes of environmental problems;
- emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem solving skills; and
- utilize diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and firsthand experience.

All these guiding principles form the basis of reference for this study.

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2.4 Sustainable Development

In 1987, Brundtland famously defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). This concept clearly refers to the long-term outlook and draws upon the interdependence of the world's economy and its environment. Obviously it requires a long- term perspective for planning and policy development and focuses on actions incorporating new, integrative approaches to achieve economic, social, and environmental objectives.

From a holistic point of view, environmental threats are the product not only of population growth and of ignorant or careless individual actions; they are deeply embedded in our religious, cultural, economic, and social systems which are highly fragmented and differentiated. As a point, culture shapes the way people perceive the world and how people interact with it. The global environmental crisis facing humanity is a reflection of collective values, behavior and lifestyles. As such, culture is a very practical and concrete determinant of sustainable development. At the level of the community, household, or individual, the kind of change required by sustainable development will need to be rooted in the cultural specificity of the area or region if people are to be supportive of and involved in such change. The goal here is to impact on cultures and societies, increasing their concern over unsustainable practices and their capacities to confront and induce change. From another perspective, although Tim O'Riordan (1998) had resolutely pointed out that sustainability is about the physical and biological systems on which we humans still

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utterly depend, it's also about the economic and social policies nations must deploy to sustain those systems, as well as governance, that is, who decides what on behalf of whom to secure which objectives over what period of time.

Ever since the principle of sustainable development was first articulated in *Our Common Future*, (also known as the Brundtland Report), by the Brundtland Commission in 1987, promoting human well being while simultaneously conserving the natural environment has proven to be highly elusive. Sustainable development or sustainability (both being regarded as synonymous) challenges us to understand the nature of the resources on which we ultimately depend. Most importantly, it also challenges us to articulate and act on the values that are inherent in our relationship with nature. One way to meet these two challenges would be through the institutions that promote education to strengthen and to put society on a more sustainable tract. An example here would be to let schools take the lead. Here, the teacher factor is of prime importance as the task of developing an environmentally literate society, capable of effectively dealing with current and future environmental problems, starts with the teacher at the school.

In 1992, the United Nations Conference on Environment and Development (UNCED), (also known as the *Earth Summit*, met in Rio de Janeiro to discuss the planet's dwindling resources in the face of unrestrained economic growth and the failure of humankind to achieve equitable development. This resulted in the Rio Declaration setting out 27 principles for achieving sustainable development and complemented by Agenda 21 which serves as a guiding document for sustainable development. Emphasizing the importance of education for sustainable development,

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Agenda 21 identified education as an essential tool for achieving sustainable development. Four areas of action for education were highlighted and these include to improve the quality of basic education, to reorient existing education programs to address sustainable development, to develop public awareness and understanding, and, to provide training for all sectors of private and civil society. However, the ten-year review of Agenda 21 at the World Summit on Sustainable Development (WSSD) in Johannesburg in 2002 revealed that the goals laid at Rio were still a long way from becoming a reality. Chapter 36 of Agenda 21, *Promoting Education, Public Awareness and Training*, specifically calls for reorienting education towards sustainable development, increasing public awareness, and promoting training. Education is critical for promoting sustainable development and improving the capacity of the people to address issues related to the environment and development. Indeed, this calls for a serious rethink in education and greater efforts should be focused on Education for Sustainable Development (ESD).

2.5 Achieving Sustainable Development through Education (Education for Sustainable Development, ESD)

The importance of EE and awareness in societies is recognized globally. It is recognized that education is an essential tool for achieving sustainability. Public awareness, education, and training are the keys to moving society towards sustainability. Being a vision of education, ESD seeks to empower people to assume responsibility for creating a sustainable future. The nature of ESD calls for giving people knowledge and skills for lifelong learning to help them find new solutions to their environmental, economic, and social issues. As mentioned earlier, ESD was first

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described by Chapter 36 of Agenda 21 where four major thrusts were identified, namely to improve basic education, to reorient existing education to address sustainable development, to develop public understanding, awareness, and training. Essential to ESD are skills like envisioning, critical thinking and reflection, systemic thinking, building partnerships, and participation in decision-making (Tilbury & Wortman, 2004). These skills are to be learnt and applied to the cultural contexts of different groups of stakeholders comprising governments and intergovernmental bodies, mass media, civil society and non-governmental organizations, the private sector, and formal education institutions. Obviously, each of the different sectors has a different vision of sustainable development and how it can contribute. Moreover, how each of these groups and individuals views sustainable development will depend on its own values. The challenge is to bring these different stakeholders together to collaborate in partnerships so that people can learn from, and support each other in their endeavors.

Education for Sustainable Development (ESD) carries with it the inherent idea of implementing programs that are locally relevant and culturally appropriate. As such all sustainable development programs including ESD must take into consideration the local environmental, economic, and societal conditions. (Something to the effect of "thinking globally, and acting locally"). Because ESD is a lifelong process, the formal (schools), non-formal (nature centers, NGOs), and informal (local television, newspaper, and radio) educational sectors of the educational community must work together cooperatively for the education of people in all generations and walks of life. Ideally these three sectors should divide the enormous task of ESD by

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identifying target audiences and then focusing work within their mutually agreed upon realm. Such an effort would ensure ESD would reach a greater spectrum of people, and thereby preventing redundant efforts.

2.6 Malaysia's Response to the Calls for Education for Sustainable Development: The Malaysian Experience

In line with UNESCO's goal in Education for Sustainable Development (2005 – 2014, UNDESD) which comprises efforts to integrate the principles, values, and practices of sustainable development into all aspects of education and learning, Malaysia had formulated a five-year action plan called *The National Education Blueprint* (2006 – 2010). Besides focusing on educational issues of national interest, the plan also places great importance on UNESCO's goal of encouraging transformation in education that will create a more sustainable future in terms of environmental integrity, economic viability and a just society for present and future generations.

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However, at this point, an analysis of Malaysian education for Sustainable Development by Mohd Tamizi Maruddin, (2006) reveals some interesting observations. In his graduate studies, Mohd Tamizi did a comparative analysis of Malaysia and experiences in other countries on Education for Sustainable Development. His study revealed that, Malaysia in general is yet to have a conducive environment and support structure for it. He clarified that there is no specific policy that can provide mandate to execute more intensive effort on education for sustainable

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development. Mohd Tamizi also lamented that whenever there are programs related to sustainable development, they are hindered by implementation problems such as inefficiency and ineffectiveness. He pointed out that the need to broaden the definition of sustainable development to include the social and economic aspect is one major challenge in Malaysia. He clarified further that the current focus of sustainable development in Malaysia is somehow restricted to the issue of mere environmental concern while the other aspect such as poverty eradication, social equity are not given necessary and appropriate educational mention. As it is, he asserted that without such shifting of paradigm it will be difficult to implement education for other pillars like the social and economic aspects.

Malaysia aspires to achieve developed nation status by the year 2020. This definitely will have to be supplemented by greater and rapid economic growth within the country. Most importantly, this growth must be guided by the principles of sustainable development. Inevitably, the extent to which sustainable development is achieved will ultimately depend upon the knowledge, awareness, skills, values and attitudes of the people. As it is, moving forward from the present situation requires the formulation and articulation of policies that can help establish an infrastructure for fostering EE. Daniel, E. G. S. and Nadeson, T. (2006) at that point reported that a national wide initiative comprising smart partnerships between government agencies, private organizations and NGOs was gearing up for action with an eye for a national EE policy. There is a need for policy changes at the various levels to encourage EE. There is a need to initiate strategic policy changes, including establishing necessary partnerships, as the foundation for a coordinated strategy for EE. For example, at the local, State and Central levels, interest and investment in EE should be long-standing.

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Encompassing the vision of sustainability will require partners in government to develop effective approaches to EE. Enhancing cooperation and coordination will help in designing effective programs in EE.

2.7 Environmental Education in Malaysia

In Malaysia, there has been a growing recognition of the need for EE. However, it has to be noted that awareness of EE as an integral part of the Malaysian educational process only started in the mid 1970s, in line with the calls of UNESCO. The absence of environmental concerns in the First and Second Malaysia Plans (1966-1970 and 1971-1975) was evident. In 1974, the first environmental legislation (Environmental Quality Act) was enacted, followed by other regulations on environmental problems and pollution control. The *Third Malaysia Plan* (1976-1980) outlined a National Environmental Policy which reflected the increasing official concern and commitment to the environment. The plan mentioned the value of environmental education as an aspect of government policy. Subsequently, curriculum renewal followed the recommendations of the third development plan.

2.7.1 Formal Environmental Education

In the 1980's, Chelliah (1984) likened the pattern of EE to a sandwich, where the upper layer (the tertiary level) and the lower level (the elementary level) were catered for, but the in-between filling (the secondary level) was missing. However, this had

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since been rectified with the inclusion of environmental topics in the secondary school curriculum. Topics like *Environmental Equilibrium* and *Management of the Environment* which together constitute a wider theme of *Man and Management of the Environment* are catered for in the Form Four Biology syllabus produced by the Curriculum Development Centre, MOE Malaysia, 1990.

At the elementary school level, the environmental studies component is mostly represented in the SC and *KT* subjects. The other subjects in the curriculum, including the languages and mathematics are being gradually infused with knowledge and perspectives on the environment. With the introduction of *Environmental Education across the Curriculum* in the Malaysian primary and secondary schools in 1998, EE is to be infused in all subjects across the curriculum. This means that EE is infused in each subject in schools, rather than taught as a single subject. It was decided that the infusion of EE elements across curricular and in co-curricular activities would provide a more holistic view and understanding of the environment. As such, EE was given a new orientation in the national curriculum through an interdisciplinary approach at both the primary and secondary school levels. The focus would be on interaction between man and his environment, its main issues and problems, causes and crisis, sustainable development, and strategies towards sustainable development.

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At the tertiary level, Chelliah (1984) reported that significant progress was apparent. For example, at the National University of Malaysia, the University of Malaya, and the Education Faculty of the University of Agriculture Malaysia (now *Universiti Putra Malaysia*), EE was offered as an optional subject for the Diploma of

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Education Course. Presently, courses relating to EE and environmental science are offered in the undergraduate and post graduate programs by the various faculties at the universities like the National University of Malaysia, the University of Malaya, and the *Universiti Putra Malaysia*. For example, for the undergraduate program at the National University of Malaysia, the Environmental Science Program offers many courses related to the environment like *Man and Environment, Population Ecology and Community,* and *Energy Resources and the Environment* leading to a degree in Bachelor of Environmental Science. Likewise, the University of Malaya does offer degrees in Bachelor of Science (Environmental Management) and Bachelor of Science (Ecology and Biodiversity) while the *Universiti Putra Malaysia* also offers a degree in Bachelor of Environmental Management.

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2.7.2 Environmental Education at the Teacher Training Colleges / Institutes

Before 1995, *environmental studies* was not offered as a subject in the teacher training curriculum. Environmental education had been presented by the "infusion method" in the teacher training courses of study. Chelliah (1984) lamented that in the teacher training programs, training in content and method relate to the subjects currently taught in schools thereby depriving the prospective teacher of any exposure to EE. However, Mohamed Ali Hasan (1984) in his paper entitled, "Environmental Education in Teacher Training Institutions and the National Environmental Policy", clarified that EE and consumerism are touched upon and delivered to the teacher trainees in two ways, that is, through lectures in teaching Civics, *Pendidikan Jasmani* / Health Education, Malay Studies, Educational Technology, Home Economics,

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Geography Studies and Social Studies; and through co-curricular activities. Boh (1991) had commented that one of the many problems faced by Asian countries in implementing EE was the shortage of qualified teachers and leaders for non-formal EE activities. Boh further pointed out that the weakest point in EE in most Asian countries seemed to be the training of teachers and non-formal environmental education personnel.

Nevertheless, an important development in the teacher training curriculum was that, starting with the June 1995 intake of the Post Degree Teaching Course (*Kursus Perguruan Lepas Ijazah*), the subject *Environmental Education* (*Pendidikan Alam Sekitar*) was a compulsory paper in the first semester curriculum of all options. Trainees under the Basic Teaching Course (*Kursus Perguruan Asas*) were also exposed to ten hours of EE in the Semester 4 Local Studies subject. Starting with the August 1996 intake, the first batch of teacher trainees for the Malaysian Teaching Diploma Course (*Diploma Perguruan Malaysia*) majoring in Local Studies had 18 hours exposure to EE in its second semester syllabus. However, it was not taught as a separate subject like in the Post Graduate Diploma in Teaching Course.

Further developments in the teacher training curriculum resulted in the EE training program for pre-service teachers, "*Asas Dinamika Guru Pendidikan Alam Sekitar (DG-PAS)"* launched in January 2003. This core subject is offered to two groups of pre-service teachers enrolled full time in the teacher education institutes. The two groups are the post-graduate level teacher trainees who take this module in their second semester, and the diploma level trainees who are exposed to the module when they are in the fourth semester. This program aims to make students aware of

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and understand environmental issues, and to enable them to act individually or collectively towards environmental conservation and sustenance. Furthermore, this program also aims to equip trainees with the knowledge, skills and values, which will enable them to effectively implement EE in schools.

Presently, in addition to the courses mentioned, the students pursuing the Bachelor Degree Program in Teaching (*Program Ijazah Sarjana Muda Perguruan, PISMP)* have to undergo a preparatory course for three semesters. Those taking the Social Studies 1 subject as an elective have to take the Physical Environment and Human Environment papers when they are in Semester 1 and 2 respectively, which constitute two credits each (30 hours teaching period each). In addition, they have to undergo field study which comprises one credit with 15 hours teaching period. As for those majoring in Social Studies, they will have to take the Social Studies 2 subject as well during their preparatory course comprising papers like Physical Environment (1 credit, 15 hours interaction) in Semester 1 and Human Environment (1 credit, 15 hours interaction) in Semester 2, and The Environment: Practical Skills (*Alam Sekitar : Kemahiran Amali)* (1 credit, 15 hours interaction), among other papers. Subsequently, upon completing the preparatory course, when they pursue the Bachelor Degree Program in Teaching, the students majoring in Social Studies will be exposed to subjects like *Environmental Geography* (60 hours of interaction including a project / field study, in Semester 2), *Education for Sustainable Development* (60 hours of interaction including a practical (green audit / study, in Semester 3), and *Values and Ethics in Social Studies* (45 hours of interaction, in Semester 6). The papers mentioned above are of relevance to EE. Hence, it is observed that EE is

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provided for in the teacher training course for groups of teacher trainees specializing in specific courses.

2.7.3 Non-formal Environmental Education

The non-formal EE takes the form of out-of-school activities provided by governmental organizations, non-governmental organizations/volunteer organizations, and the mass media. Programs provided for in out-of-school activities include both short and long term projects; special holiday programs for students; group environmental training and educational programs; as well as research and environmental field trips, and ecological studies. For example, the projects comprise informal activities of an investigative nature aimed at solving local community problems or improving upon existing practices in agriculture, personal hygiene, community health, and management of energy resources (Boh, 1991). Furthermore, special programs for students during school holidays cover jungle orientation and map reading courses. Such activities may be provided by the various organizations at the Nature Study Centers, nature reserves, the Zoo Negara Education Centre, The University of Malaya Field Study Centre at Ulu Gombak, Selangor, and the Forest Research Institute of Malaysia.

Activities and programs which involve governmental organizations include those provided by the Division of Environment, Ministry of Science, Technology and Environment which distributes guidelines and explanatory notes relating to specific legislation, holds exhibitions, produces supplementary reading materials on the

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environment for school children and various other materials for the general public, organizes out-of-school activities, seminars, tree-planting campaigns, TV documentaries, lectures and talks.

In the early 1990's, the MOE, Malaysia together with The New Straits Times Press (Malaysia) *Berhad*, had jointly organized the annual year-long New Straits Times National Environmental Education competition - a newspaper recycling project aimed at instilling environmental awareness and appreciation and to carry out simple but concrete and effective activities that would contribute towards protecting and promoting the environment. Another joint project by the Education Ministry and the New Straits Times in 1992 was the annual *School in a Garden* competition, a project aimed at encouraging students in schools to beautify their school compounds by planting trees and flowering plants and carrying out simple landscaping so that their schools would be amidst an environment-friendly atmosphere.

In the past, the MOE had also issued directive letters for the schools to look after the cleanliness, beautification and landscaping of the schools (*Surat Pekeliling Iktisas No.4/1981: Kebersihan Di Sekolah-sekolah; Surat Pekeliling Iktisas Bil. 5/1985: Rancangan Mencantik dan Mengindahkan Sekolah dan Kawasannya; Surat Pekeliling Iktisas Bil. 14/1989: Kebersihan Sekolah; Surat Pekeliling Ikhtisas Bil. 1/1996: Sikap Mengutamakan Keceriaan Dan Kebersihan Di Kalangan Pelajar* and *Surat Pekeliling Iktisas Bil. 6/1997: Amalan Kebersihan Di Sekolah).* There was also the directive to the Education Directors of all the states to encourage agricultural activities at the schools (*Surat Pekeliling Ikhtisas Bil. 2/1998: Mempergiat Dan Memperluas Program Dan Aktiviti Pertanian Di Sekolah*). Another directive was the

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guide on the management and implementation of the Green School program (*Surat Pekeliling Ikhtisas Bil.6/2008: Panduan Pengurusan Dan Pelaksanaan Program Bumi Hijau Sekolah*).

Other ministries had also launched various programs like the *Greening the Earth* program by the Ministry of Science, Technology, and Environment; the *Anti Pollution Campaign* for vehicles on the road by the Transport Ministry; projects like *The Agriculture Park, Beautiful Village, Beautiful House* and waterfalls as recreational areas by the Agriculture Ministry; and the *No Smoking Zones* campaign at the hospitals and other public places by the Health Ministry.

Volunteer citizen groups which represent the public also carried out activities which cover a wide range of programs like conferences, seminars, workshops, campaigns and also meetings at the grass-root level with the people. Even as early as 1984 Chelliah had reported that their educational and information dissemination had taken imaginative proportions ranging from academic scientific journals such as the Malayan Nature Journal to books, popular periodicals, magazines, newspapers, pamphlets, reports and documents, as well as teaching materials for elementary and secondary school levels. These groups have spared no effort, within the limited manpower and financial resources, to disseminate information and to provide training on basic skills and practical methods to improve the quality of life of the people and to help them live in harmony with the environment.

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The mass media comprising the newspapers, television and radio are very important media for in-formal EE. They cover a wide range of topics on

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environmental issues, conservation and legislation. For example, the New Straits Times National Environmental Project in newspaper recycling had gained much support from the schools and also the private sector since its inception in February 1992. Besides this, periodicals on environmental education for the public are growing in numbers and various organizations and pressure groups publish newsletters and articles to educate the public on issues concerning the environment.

As such, insofar as non-formal EE is concerned, there is an increasing and on-going effort by the mass media (both press and electronic), to transmit environmental news to the general public. Agencies (both government and private), including NGOs, are also putting in great efforts to educate the general public to be more environmentally conscious through talks, seminars, exhibitions, and campaigns on environmental awareness and resource conservation.

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2.8 Environmental Education in the Malaysian Schools – Developments in the Curriculum

Initially, some efforts had been made to introduce an environmental curriculum at the primary and secondary school levels of education. Environmental concepts were formally introduced into the Malaysian education system in 1982 when the subject *Man and the Environment* (*Alam dan Manusia*) was introduced at the Primary school level in the Integrated Primary School Curriculum (*KBSR*). Being interdisciplinary in nature, the subject covered elements of Science, Health Science, Geography, History, Social Studies and Civics. The elements of EE had been integrated into that subject as the contents were based on studies of the individual, the immediate surroundings

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(the house), the school, the village and the district, while not forgetting the plants, the animals and physical components of the environment and man's relationship to them. Through this subject, students were guided so that they understood and realized the importance of environment in daily life.

In 1994 the subject had been replaced by *Kajian Tempatan* (Local Studies) and Primary Science at the primary school level to introduce the basic elements of the natural ecosystems. The Primary Science was introduced at Primary One level to steer early interest in Science and the environment. Schools were also encouraged to promote environment awareness during the teaching and learning process as well as through the co-curricular activities. A further division in contents in *Kajian Tempatan* were made in 2004 whereby a new subject Civics and Citizenship Studies (*Pendidikan Sivik dan Kewarganegaraan*) was introduced, drawing its contents partly from *Kajian Tempatan*. Subsequently, *EE across the Curriculum* was introduced in both the primary and secondary school curriculum since 1998. This means that EE was not taught as a single subject but across the curriculum and integrated in each subject. However, recent curriculum developments, (January 2011) witnessed the introduction of the new Standard Curriculum for the Primary School (*Kurikulum Standard Sekolah Rendah, KSSR),* starting with Year One pupils by the Curriculum Development Division, MOE. Subjects like *Kajian Tempatan* and Civics and Citizenship Studies are to be gradually removed from the curriculum starting from the present batch of Year One pupils.

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At the secondary school level, EE is infused into all subjects, particularly in Biology, Geography, Islamic and Moral Studies. It is to be noted here that the bulk of

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EE programs are usually promoted in co-curricular activities such as recycling projects, creation of garden in schools, talks on the environment, and clean-up campaigns, both at the primary and secondary schools.

Hence there is no specific subject on EE but environmental issues are integrated into the curriculum as cross-curricular issues in all subjects to spur the understanding amongst students in the interrelatedness and inter-connectedness of the environment, thereby providing a more holistic approach on the study of environmental matters.

2.9 Environmental Education Implementation Strategies

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To promote EE implementation, most supporters of EE (and as in the Malaysian experience in particular) adopted the strategy of addressing the goals of EE through other disciplines. This is in due cognizance of the nature of EE being interdisciplinary and rather than creating a separate course, EE is being integrated into the curriculum plans of certain subject areas.

It should also be noted here that when EE was promoted in the 1980's and early 1990's, professionals in the field recognized that adding a separate course on EE was not feasible given the schools' packed timetable. Therefore, many professionals recommended infusing EE, where environmental concepts could be blended or tied to the subject matter of existing curriculum. Ideally, with this approach extra class time would not be needed to add EE. However, there were some professionals who

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opposed this approach because it restricted student exposure to important environmental concepts and practices. Whatever approach was implemented, professionals in the field of EE recognized the importance of the classroom teacher to achieving program goals. As such, teachers play an integral role in this study, as their insights help understand the reality of EE implementation in the school.

Environmental education materials had been published by the MOE to assist teachers in teaching EE in schools. These include, *Teachers' Guidebook on the Infusion of EE Across the Primary School Curriculum*, *Teachers' Guidebook on the Infusion of EE Across the Secondary School Curriculum*, including sample teaching and learning modules. Schools were encouraged to produce their own teaching and learning modules and to set up education resource centers in addition to those produced by other governmental organizations such as the Department of Wildlife and Nature Parks, the Forestry Department, the Department of Tourism and NGOs such as World Wide Fund for Nature (WWF), and the Malaysian Nature Society (MNS).

Furthermore, various methods and approaches were adopted by various governmental and non-governmental organizations to create environmental awareness among school children. Among the programs and projects was the EE Program in Schools organized since the late 1980's like *Learning Stations for EE* which utilized the school compound and its surroundings for teaching basic environmental concepts through the environment or simulations; the EE materials mentioned earlier; and the training of teachers. The MOE had also issued directives in the form of circulars

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(S*urat Pekeliling)* to the schools on issues of cleanliness, beautification and landscaping as mentioned earlier.

Hence, the investigator feels that it is time to investigate the implementation part of EE in schools, (primary schools in particular), given the support system available.

2.10 Research Related to Environmental Education

This section reviews some literature and research conducted in the United States, England, Canada, and Malaysia. Research on EE has become popular since the 1970s. It is intended here to review a few studies done abroad until recent times and then cover the many masters and a few doctoral studies on EE in Malaysia from the 1980s till recent times. It is observed here that in many of the studies reviewed, knowledge and attitudes on environmental issues have been investigated on. Later research in EE had also investigated on the implementation of EE in the schools.

Historically, foreign studies conducted in the 1970s which coincided with the new thrusts towards EE in the late 1960s and 1970s include those by Klienke and Gardner (1972), Cohen (1973), Hounshell and Liggett (1973), Perkes (1973), Eyers (1975), Bohl (1976), Richmond and Morgan (1977), Hart (1978), and Strickland and Staver (1979). Some findings of the studies listed above which are of relevance in this study include those of Perkes (1973), Hounshell and Liggett (1973), Bohl (1976), Richmond and Morgan (1977), Hart (1978), and Strickland and Staver (1979).

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The study by Perkes (1973) found that the tenth and twelfth grade students in his study in the United States scored better on principle and concept variables but did not score well on specific knowledge variables. Likewise Bohl (1976) in his survey of tenth and twelfth grade students from another area in the United States also discovered that in general, the students did not respond well to factual type cognitive variables. A higher percentage of students in his study responded positively to conceptual type cognitive variables. Hounshell and Liggett (1973) administered to 2500 sixth grade students a 65 item instrument comprising 35 knowledge and 30 attitude items. Among the results revealed were that there were no significant differences between males and females on the knowledge subscale. However, urban school students scored significantly higher on the knowledge subscale than students from rural areas. The study by Richmond and Morgan (1977) in England revealed a rather low level of environmental knowledge among fifth grade secondary school students. In their study, in general, pupils responded poorly to factual knowledge items (overall correct response rate was approximately 46%). Pupils demonstrated a greater understanding of environmental concepts, with an overall correct response rate of a little over 60%. Hart (1978) examined B.S.C.S. biology and non-biology students' ecology comprehension, environmental information level and environmental attitudes. His study which involved twelfth grade students in Saskatchewan, Canada indicated that there were no significant differences found between the biology and non-biology students in terms of their environmental information levels. No significant differences were also registered between the male and female students in their comprehension of the ecology concept.

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Another study concerning environmental knowledge conducted by Strickland and Staver (1979) involved a different group of subjects. They examined 187 subjects from Indiana and 233 from Florida which included elementary school teacher trainees and elementary school teachers. In comparing the total knowledge scores of the teacher trainees and the elementary school teachers of Indiana, it was found that the teacher trainees' scores appeared to be significantly higher. Furthermore, their study revealed that the Indiana elementary school teacher trainees performed significantly better than their Florida counterparts and the experienced Florida and Indiana colleagues on the total test. Strickland and Staver explained that the results could be attributed to the fact that at the time of their study, the importance of ecology was a recent development, thus many of the teachers in the experienced teacher group had probably not had much exposure to ecological concepts during training. Finally, Bybee, Harms, Ward, and Yager (1980) in measuring students' performance on NAEP (National Assessment of Educational Progress) items indicated that knowledge about persistent science-related societal problems of environmental concerns, energy problems and basic areas regarding food supply, was disappointing among 13 and 17-year olds in America.

In 1992, for his doctoral studies at a foreign university, Arba'at Hassan did an extensive study involving an assessment of the perceptions of 129 Grade 6 school teachers regarding the status of *Alam dan Manusia* (Man and the Environment) in the primary school curriculum in Sabah, Malaysia. The study aimed at obtaining data regarding perceptions of Sabah Grade 6 teachers about the importance of EE goals as they relate to *Alam dan Manusia*, the extent to which the existing *Alam dan Manusia* materials accomplish the goals, the teachers' need for training, and the teachers'

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willingness to participate in training related to these goals. Arba'at utilized a modified bilingual instrument of *Alam dan Manusia* Teacher Questionnaire (ADMTQ) containing 15 discrete goals for EE encompassing knowledge, awareness, issue investigations and evaluations, and citizen actions to report on the perceptions of the teachers regarding the importance of the 15 discrete goals for EE. One hundred and twenty-nine questionnaires were returned and the findings indicated that in general, the Grade 6 teachers sampled in this study considered the goals for EE to be important as they relate to the subject of *Alam dan Manusia.* However, they believed that the existing materials in the subject did not accomplish the goals for EE. The study also found a discrepancy between the desired state of EE and the actual state of EE in Malaysia. Furthermore, a majority of teachers perceived that they needed additional training in order to accomplish the stated goals for EE and are willing to participate in training related to these goals.

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So far, all the studies reviewed were of a quantitative nature. It is observed that earlier researches on EE had focused on the quantitative approach. However, Palmer (1998, 119) has argued that the number of qualitative research studies had increased considerably during the 1990's. She further states that more recently there has been a reduction in the dominance of the quantitative approach and has observed a shift towards the use of more humanistic and interpretative lines of inquiry by environmental educators.

Among the more current foreign studies on EE, three are reviewed here and these include studies conducted by Wilson (2004), Lane (2006), and Tibble (2009). For her Masters' thesis, Wilson took on a qualitative approach and explored some of

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the challenges associated with EE, particularly in the formal sector, with a focus on Grades 4 – 6 in the Province of Ontario, Canada. The thesis initially provides a background on EE and its evolution over the past four decades. It also demonstrates the challenges of incorporating EE at three increasingly finer levels: the Province of Ontario's elementary curriculum guidelines, two school boards' EE strategies, and teachers responsible for the teaching of EE. It is not intended here to give a lengthy discussion but focus is on primary research involving interviews conducted with nine teachers who reported that they perceived EE to be important, and seemed willing to incorporate it into their lessons, but asked for assistance to incorporate resource materials. Also, they noted that the most effective way to teach EE is to imbed it within the existing curriculum, which is consistent with the way it is currently structured. Furthermore, they mentioned that their students did not lack concern of the environment, rather they needed help enhancing their knowledge of environmental issues. However, the teachers indicated that their ability to enhance the students' knowledge was constrained by a lack of available time and lack of assistance with resources.

Next, Lane's (2006) doctoral thesis investigated the implementation of EE in Wisconsin. She employed a mixed method of investigation whereby a statewide survey was designed and implemented to gain insight into the pervasiveness of EE implementation practices throughout Wisconsin. Besides this, the primary method of data collection was through in-depth interviews with EE professionals and classroom teachers. The interviews were also complemented with classroom observations and document analyses. Lane's study attempted to investigate how professionals in the field of EE in Wisconsin envision and promote EE implementation and how teachers

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include EE into their curriculum. The study also explored on the motivations and barriers to EE implementation and provided insights and suggestions to improve EE in Wisconsin. The study revealed that despite barriers to EE, there were teachers who did include EE in their classroom lessons. It was suggested that rather than return to past efforts to enforce EE implementation through mandates, the motivations and practices of teachers such as these can provide models to reexamine professional development in EE.

Another foreign study reviewed refers to one conducted by Tibble (2009) which explores the impacts of using Appreciative Inquiry (AI), which is a process designed to facilitate organizational change through positive inquiry and collaboration, for curriculum development in EE. In her study for her Masters' degree, Tibble applied AI's 4-D Cycle (Discovery, Dream, Design, and Destiny) at a small non-formal EE organization, Gore Range Natural Science School (GRNSS), to determine if the process could bring about a more visionary curriculum and begin to cultivate an ecological worldview among staff, board members, and program participants. In her thesis, Tibble gave a detailed explanation about the organization and its programs, about the AI process, how it was applied, and finally summarized the outcomes of each stage of the 4-D Cycle. Being qualitative in nature, the Discovery and Dream outcomes showed the results of 16 interviews with GRNSS's staff and board members and 14 interviews with local school district teachers and administrators. The Design outcomes summarized program recommendations and the kindergarten through 12th-grade curriculum framework that emerged from the interview results and collaborations with staff. The Destiny outcomes outlined the tangible results of the project consisting of a project report aimed at soliciting support,

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program recommendations, guiding principles for program development and staff training, and integration of some materials into GRNSS's graduate coursework in EE. Tibble concluded that the project had not yet ushered in a more visionary curriculum and an ecological worldview at GRNSS, but steps were made in that direction and the AI process held promise for both these goals.

In Malaysia, studies on environmental knowledge and attitudes were conducted by Cheong (1980), Chiang (1981), Ponniah (1981), Jayatilaka (1982), Chuah (1989), Teoh (1995), Fadzilah Muhammad Ali (1999), Lim (1999), Che Kalbi (1999), Abdul Aziz Shamsuddin (2003), Lim, (2004), Ismail (2005), and Norlila (2007). All these studies involved either the pre-service teacher education, secondary schools, or the primary schools levels and all these are quantitative research studies. Interestingly, quantitative research studies are still dominant in EE.

At the pre-service and teacher education levels, studies reviewed were conducted by Gan (1987), Chiang (1981), Teoh (1995), Salim (1998), Che Kalbi (1999), and Ho (2007). The study by Gan (1987) attempted to ascertain the current status of EE in the pre-service science teacher education programs in the universities in Malaysia, and to develop a set of curriculum guidelines for the improvement of these programs. In the study, Gan examined the curricula of the secondary school science teacher education programs at the various universities to ascertain the current status of EE in pre-service science teacher education programs in universities in Malaysia. A general survey comprising three questionnaires was also carried out with 22 science teacher education educators, 166 science teachers and 8 curriculum planners, and 298 secondary school students to assess the perceived curriculum needs

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of these science teacher education programs. Gan concluded that secondary school science teachers were not adequately prepared to integrate EE in schools. A set of curriculum guidelines was then developed based on the information gathered.

Chiang (1981) studied the effects of field study experience on environmental knowledge and attitudes from a sample comprising 94 science undergraduates of the University of Malaya using three questionnaires, namely, the Test on Environmental Knowledge and Understanding, the Environmental Attitude Questionnaire, and the Attitudes towards the Field Study Course Questionnaire. The findings indicated that generally the undergraduates had gained in environmental knowledge and understanding after one week of field study experience. In terms of attitude and reaction towards the field study course, a majority (over 90 per cent) of the students judged the field study experience as beneficial, rewarding, meaningful, important, valuable and enjoyable. Chiang concluded from the findings that field study experience is valuable and should be an integral part of an educational program at the tertiary level. The outdoors can be used as a teaching-learning laboratory at the tertiary level for the teaching of scientific concepts, principles, techniques and processes. It is further asserted that for field studies to be used effectively in the schools, a well-planned pre-service and in-service teacher preparation program is essential.

The investigator had also conducted a study for his Master of Education studies (Teoh, 1995) on the status of environmental knowledge of 231 teacher trainees in a teacher training college on selected environmental issues, namely, *Development an Environmental Quality*, *Ecological Balance*, *Natural Resource Management*, and

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Control and Protection of the Environment. The study also examined whether factors like gender, subject specialization, academic qualification, and background of academic streaming had a bearing on the knowledge of the selected environmental issues. Data collected using a test instrument were analyzed using descriptive statistics. It was found that overall, the teacher trainees scored an average of 15.83 (52.77%) for the total test comprising 30 test items (maximum score = 30). They were more knowledgeable in issues relating to natural resource management and conservation and least knowledgeable in issues on development and environmental quality relating to the ozone layer, and environmental health and safety. The findings also revealed that gender, academic qualification, and background of academic streaming had no significant effect on knowledge of the selected environmental issues.

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Following this, in the nineties, two other studies on teacher trainees were conducted by Salim (1998) and Che Kalbi (1999). In his Master of Education studies, Salim's project paper investigated on the knowledge and attitudes of teacher trainees on environmental issues. Salim conducted a survey, using questionnaires, involving 120 teacher trainees from two teacher training colleges in Penang. The study aimed at investigating whether teacher trainee's knowledge on environmental issues is related to their attitudes towards the environmental issues. The research also explored on whether higher knowledge levels led to a more positive attitude on environmental issues. Interestingly, the results of Salim's study indicated that there were no significant relationships between knowledge and attitudes towards environmental issues. In the study, teacher trainees with knowledge of environmental issues did not necessarily possess positive attitudes towards environmental issues. He concluded

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that efforts have to be stepped up to inculcate positive values, to raise their awareness level so that they can be more concerned about environmental issues.

Che Kalbi (1999) followed on with her project paper for her Master of Education studies on knowledge of environmental issues among teacher trainees of the fifth semester *Diploma Perguruan Malaysia* at another teacher training college. Following Teoh's footsteps, she attempted to ascertain the status of environmental knowledge of 143 teacher trainees on current environmental issues and also examining whether factors like subject specialization, gender, academic qualification, and background of academic streaming had a bearing on their knowledge of selected environmental issues. A test instrument was conducted and the results revealed that overall, 65.7% of the teacher trainees were at an average level on the knowledge of certain environmental issues for the total test comprising 38 test items categorized under four themes. It was discovered that 71.3 % of the teacher trainees were at average level concerning the knowledge of the theme *Development and Environment Quality*, 67% of the teacher trainees were also at an average level concerning the knowledge of the them, *Ecological Balance*, 72.0% of the teacher trainees were at an average level concerning the knowledge of the theme, *Natural Resource Management*, and 74.8% of the teacher trainees were at an average level concerning knowledge of the theme *Control and Protection of the Environment*. Also the findings of the study showed that subject specialization had a significant difference on knowledge of the selected environmental issues. However, it concurred with Teoh's study that gender, academic qualification and background of academic streaming had no significant effect on the knowledge of the selected environmental issues.

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In addition, Ho's doctoral dissertation (2007) focused on assessing the environmental citizenship and its contributive factors among 2728 pre-service teachers from ten selected Malaysian Teachers Training Centers throughout Malaysia. In this study, environmental citizenship is a notion of 'civic virtue' that manifests in the behavior, attitude, values, and action of an individual, involving both the exercising of environmental rights and carrying out ecological responsibilities. The findings of this descriptive survey revealed that environmental citizenship level among the pre-service teachers was found to be moderate, with improvement needed for many of the environmental citizenship contributive variables. The contributive variables, identified as environmental behavior, environmental attitude, environmental knowledge, sources from which information about the environment is obtained, and participation in environmental activities were positively correlated with environmental citizenship disposition. It was found that five of the factors contributed significantly towards environmental citizenship. A comparison made between pre-service teachers who were exposed to the EE program and those not exposed to it during teacher training showed that the former had significantly higher scores in environmental knowledge and environmental behavior. As expected, graduate pre-service teachers were found to fare better in most variables compared to their non-graduate counterparts. Interestingly, male pre-service teachers were found to have higher scores in environmental knowledge but lower in environmental attitude and behavior than their female counterparts.

Ho concluded that the EE Program implemented in the Malaysian Teachers Training Colleges is effective in disseminating environmental knowledge but not in developing environmental attitudes. She lamented that the EE Program enabled pre-

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service teachers to source for information but did not empower them to participate in decision-making nor to take action for a better environment. It was suggested that the EE Program incorporates more participative activities and experiential learning to inculcate desirable environmental citizenship attributes among future teachers to empower them in the crusade towards a better environment, and subsequently they in turn could empower the next generation of environmental citizens.

Studies involving the secondary schools were conducted by Cheong (1980), Ponniah (1981), Jayatilaka (1982), Ng, (1997) Fadzilah Muhammad Ali (1999), Lim (1999), Rozita (1999), Rashidah Begum (2002), Abdul Aziz Shamsuddin (2003), Lim, (2004), Rohiza, (2004), Ismail (2005), Norlila (2007), Santha Letchimy (2008), and Noor Ashikin (2008) . A brief review of the studies is provided in the section that follows.

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Cheong (1980) presented some preliminary findings of a survey of the environmental concerns of a sample of fourth year secondary science students in some Malaysian schools. Among the findings are those that indicate the level of knowledge and perceptions about various aspects of the environment and the attitudes of students towards them. The study noted poor performance on factual knowledge items especially on areas such as pollutants and radiation, energy and population growth. Following this, Ponniah (1981) examined knowledge and attitudes of 332 Malaysian secondary school students on environmental pollution using a questionnaire, a test and an attitude inventory. It was found that secondary students had considerable knowledge on certain aspects of environment pollution such as causes, sources, effects and examples of environmental pollution and ways and methods to control

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environmental pollution. However, on conceptualization of terms such as environmental pollution and pollutant and on knowledge of organization and agencies involved in pollution control, their knowledge and understanding was poor. The study also revealed that gender did not relate to knowledge about environmental pollution but 'ability groups' did influence students' knowledge and understanding of environmental pollution with higher ability students demonstrating superiority over the low ability ones.

Another study by Jayatilaka (1982) attempted a case study to ascertain the relevance of the teaching of ecology in creating environmental awareness in a Malaysian secondary school. The study showed that most students of the sample from a Malaysian secondary school comprehended the ecology content of both the Modern Biology and General Science syllabi with the high ability group within each academic stream (Science and Commerce) achieving high scores and low ability sub-group achieving average and low scores. As such, this finding compared favorably to Ponniah's study indicating that ability levels did influence students' knowledge and understanding of environmental issues.

Ng (1997) also conducted a study on knowledge, awareness and perception of Geography students and Geography teachers relating to environmental issues and environmental education. This research aimed at ascertaining the level of Geography teachers' and students' knowledge and awareness about environmental issues and whether there existed any differences in the students' knowledge and awareness about environmental issues with respect to variables like gender, achievement in Geography in *Penilaian Menengah Rendah* (*PMR*) and parents' educational background. In

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addition, this study also probed into whether there existed any differences in teachers' knowledge and awareness about issues with respect to variables like gender, academic qualification and teaching experience. Furthermore, Ng also was interested to know the perceptions of students and teachers about EE in the Geography curriculum with regard to its aims and objectives, contents and teaching methods and also their perceptions towards the incorporation of EE in Geography and other subjects in the school curriculum.

The research employed quantitative measures using questionnaires and was conducted at a district in Kedah (*Daerah Kuala Muda*) comprising six secondary schools and involving 216 Form Five Geography students who had received one year's exposure to EE elements in the Geography subject. Thirty teachers (13 males and 17 females) were also involved in the study. Of the thirty teachers, 18 of them were graduate teachers while the remaining 12 possessed either SPM or STPM and most of them, (22), had at least five years' experience.

Ng's (1997) research revealed that the students', (both male and female), knowledge about environmental issues was at a medium level whereas both male and female teachers' knowledge were high. Knowledge about environmental issues was clearly higher for students with grade A until D (medium level) at the PMR level when compared to students with Grade E (low level). It was also discovered that the level of knowledge about environmental issues was at a medium level for all groups of students with different parental educational background. Graduate teachers (high level) also scored better in knowledge about environmental issues than non-graduate

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teachers (medium level). Also, teachers with different teaching experience had a high level of knowledge about environmental issues.

Another interesting finding is that both the students' and teachers' (male and female) awareness about environmental issues were at a high level. This also applies for all groups of students with different parental educational background. Again, the graduate teachers scored better in awareness about environmental issues than the non-graduate teachers. An additional finding which is of relevance here is that both the students and teachers were most agreeable to the aims and objectives of EE in Geography to inculcate the feeling of concern and responsibility towards the environment. The students in the study were most agreeable to *management of natural resources* in the EE content whereas the teachers were most agreeable to topics like *pollution and its effect on health*. Finally, teaching aids in the form of documentary films and study tours were much favored by both the students and teachers.

Another study on environmental attitudes and knowledge in the secondary school was conducted by Lim (1999) for his Masters in Management studies. Lim attempted to measure the environmental attitudes and knowledge of Malaysian secondary school students. The survey was carried out by means of a self-administered questionnaire involving 355 students, (half of which were from the science stream while the other half were from the arts stream), from six schools in the Klang Valley, Melaka and Sarawak. Appropriate ethnic composition was also maintained in the sample. A total of six grouped variables were compiled for analysis, namely verbal commitment, actual commitment, affect, attitude, knowledge

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and total scores. Mean scores on the six grouped variables were computed to determine the levels of environmental attitudes and knowledge.

The study revealed that the students possessed strong feelings and emotions towards environmental issues but they were less committed to take actions to improve the environment. However, the overall level of environmental knowledge of the students was low, especially those from the arts stream. Gender difference was noted where girls displayed stronger emotional feelings towards environmental issues. However, their commitment level was no better than the boys. Ethnic variation was also observed. The Bumiputras – Malays and other indigenous groups, expressed stronger sentiments towards environmental issues. The Indians were most committed verbally in environmental matters while the Chinese were more proficient in terms of environmental knowledge.

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Lim (1999) also reported that participation in pro-environmental activities were not encouraging and not seemingly effective in heightening the environmental awareness of the students. He pointed out that members of Nature Clubs might have felt strongly towards the environment but they were no better than non-members in their commitment and knowledge in environmental issues. Lim further stated that participation in environmental camps only increased the knowledge level marginally without enhancing good environmental attitudes. In addition, he noted that parents' occupation apparently did have a significant influence on the level of affect and knowledge of students in environmental issues. Finally, his study also showed that the mass media – television, radio, and newspapers were the main sources of

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information on environmental issues for the students. The schools and nature clubs were also excellent sources of information.

Rozita (1999), in her Practicum Report for her Masters study focused on measuring the level of awareness on environmental issues among 140 secondary school students randomly selected from four schools around a town in Kedah, (Kulim). A comparative study was conducted to compare the feedbacks obtained from students who took Geography for their Malaysian Certificate of Education examination (70 of them) to another 70 who do not do so at the same level. The researcher utilized questionnaires to acquire the data required. The results show that students who took Geography generally had better and higher awareness level than those who did not take the subject. This study proved that the learning of the subject, Geography, especially in Form Four is capable of enhancing the knowledge on environment and increasing the awareness among them on the issues related to the environment. Furthermore, apart from formal learning in classroom, students also acquired knowledge on environmental issues from other sources such as magazines, newspapers and television documentaries.

Rashidah Begum's (2002) dissertation for her Master of Education degree took on a different approach whereby she attempted to determine the effectiveness of the *Wira Alam* Stage One project towards students' knowledge on pollution and caring for the environment. The study involved sixty Form One students from a secondary school in Selangor and four teachers who helped to implement the *Wira Alam* Stage One Activities. A pre- and post-test were conducted to determine whether there was a significant improvement in the students' achievement. Both the teachers

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and students were also given questionnaires to gather comments and proposals on the *Wira Alam* Stage One activities and module.

The findings from the research showed that there was a significant improvement in the students' knowledge (17% increase in marks) after performing the *Wira Alam* Stage One Activities. Furthermore, both the students and teachers who were involved in the *Wira Alam* Stage One Project felt that the module and the activities were effective in increasing the students' knowledge, understanding and awareness regarding pollution and care for the environment.

The same study conducted at the secondary school level by Abdul Aziz Shamsuddin, (2003) involving Form Four Geography students revealed that there was no significant correlation between the students' conceptual understanding of the environment and their willingness to protect the environment! This implied that the awareness level could be high but their sensitivity towards environmental issues were low.

Lim (2004) also conducted a study on environmental awareness, knowledge and attitude on tropical rainforest issues among secondary school students. Lim focused at determining if there were significant differences in students' environmental awareness, knowledge and attitude, students' reading and watching environmental program habit and students' involvement pertaining to tropical rain forest issues or activities between location of schools (urban and rural), forms (Form 1 and Form 4 Science and non-Science) and gender (male and female). The study revealed that the secondary school students showed a moderate level of environmental awareness

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but low level of environmental knowledge. The students showed a moderately positive attitude towards the environment. Furthermore, Lim found that the students' environmental awareness was significantly influenced by location of schools and the level of schooling (forms), with higher environmental awareness for students from urban schools and higher forms. However, gender showed no significant influence on awareness although there were significant interaction effect between location of schools with gender and between forms with gender. Interestingly, it was further pointed out that urban female students showed higher environmental awareness as compared to urban male students while rural male students had higher environmental awareness as compared to rural female students.

Rohiza (2004) conducted a study on the achievement of secondary school Science teachers in statements on environmental issues such as biodiversity, carbon cycle, ozone and global warming for her Master of Education studies. The survey was conducted in schools from two zones in KL Federal Territory, Sentul zone and Keramat zone, involving 82 science teachers, who were categorized into two groups, biology teachers and non-biology teachers. The data obtained was analyzed descriptively to see the achievement of the teachers. A t-test was done to detect any difference in achievement between the biology teachers and the non-biology teachers.

Rohiza's study found that the biology teachers showed a higher mean percentage in obtaining the right response for each item, i.e. 59.41% compared to the non-bio teachers with 55.13%. The biology teachers showed a higher percentage of mean score on issues in biodiversity, carbon cycle and global warming as compared to the non-biology teachers. Furthermore, there was a significant difference at $p < 0.05$

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between the mean score obtained by the biology teachers and the non-biology teachers on issues in carbon cycle and global warming. The Science teachers showed satisfactory achievements on two of the issues, i.e. carbon cycle and global warming, each with a mean score of 61.60%. However, on the average, the achievement showed by the science teachers on the environmental issues in the study was unsatisfactory, with a mean score of 55.93%. The study also discovered that there were some misconceptions held by the science teachers on issues in ozone toxicity, and this includes the amount of carbon dioxide content in the atmosphere, and were not clear of the carbon content trapped in fossil fuel. Furthermore, some even thought that global warming was due to the ozone hole in the atmosphere. In conclusion, Rohiza suggested conducting in-service courses and also the complete infusion of environmental education in the Science syllabus starting from the primary right up to the upper secondary school level.

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In 2005, for her Master of Environmental Technology studies, Lim (2005) conducted a descriptive study on environmental management and environmental education in two schools in the Klang Valley. The findings of the study indicated that students' and teachers' general knowledge about the environment was high and that the main sources of environmental knowledge were the television and newspapers. However, their understanding of environmental issues and recognition of environmental problems was only at the surface level and that their awareness and sensitivity towards environmental issues were low. Lim further pointed out that when it came to action, the respondents preferred conservation practices which required little effort such as switching off fans, but did not commit to action like taking along own shopping bags. Overall, Lim's study indicated that the students'

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level of environmental awareness was low and that the teachers' environmental awareness was only at a moderate level. The study also revealed that environmental management of noise levels and waste management in the schools were not satisfactory.

Another study conducted at secondary schools by Ismail (2005) on the environmental awareness of 670 Form Four students at a district in Jerantut (Pahang). The study involved 2 schools each at the urban, rural and Federal Land Development Authority (*Felda*) regions. In his research project report for his M. Ed. studies, Ismail clarified that the research intended to identify the level of environmental awareness amongst Form four students and used questionnaires to ascertain their level of knowledge and attitude towards the environment. The results obtained revealed that the students in the survey had a moderately high level of environmental awareness (mean=3.581), and knowledge (mean=3.298), and a high level of environmental attitude (mean=3.723). The attitude towards the environment showed a significant relationship with academic achievement (r=-0.151, p=0.034). Another correlation analysis shows a significant relation between knowledge and attitude towards the environment amongst the students (r=0.269, p=0.000).

For her masters' study, Norlila (2007) investigated the implementation of EE at secondary schools in Seremban, Negeri Sembilan. Here, the implementation of EE included the level of integration of EE by teachers and the level of awareness and environmental care practice by students. This research used surveys and the interview method as research instruments and it involved 250 students and 100 teachers who had been chosen randomly. The research found out that there was a moderate level

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of integration of EE by the teachers. The ANOVA test revealed that there were almost no differences found in the integration of environmental education by teachers according to their academic qualification. The test also showed that environmental awareness levels were different between students according to types of schools. However, there was no difference in environmental care practice by students according to types of schools. By using Pearson Correlation it was found that there was a weak connection between environmental awareness and environmental care practice. Interviews with government agencies found that the informal EE program complemented the existing EE program in school.

Subsequently in another study using a questionnaire by Letchimy (2008) for her Masters in Environmental Management, the level of 5R action among 214 Form Six students from 5 Secondary schools at a town in Kluang (Johore) was examined. The findings indicate that the level of 5R action was indifferent according to the elements in 5R. The 'recycling' action was the highest action practiced in the daily life of the respondents (41%). The second 5R action most practiced is the *rethink* (36.9%), followed by *reuse* (36.0%), *reduce* (27.1%) and lastly, the *repair* action (25.2%). The findings revealed that the *recycle*, *rethink*, and *reuse* actions were still at a low level. The *reduce* and *repair* actions were at a very low level. The respondents were more interested to practice the 5R actions at the comfort of their residence compared to practicing it in the school, and this is influenced by the financial factor. An interesting finding was that the cross-tabulation test showed that there was a significant relationship between the educational level of the head of the family and their response towards the 5R actions compared to the role of the teachers. Based on this, the researcher concluded that to achieve the objective of EE across the

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curriculum through the 5R actions, all the concerned parties need to collaborate and to take time to cultivate these actions completely in their daily lives.

For her Master of Education studies on the implementation of EE across the secondary school curriculum, Noor Ashikin (2008) employed qualitative research methods, namely the interview to obtain teachers' knowledge of the concept of implementing EE across the curriculum. Besides this, the study also identified the methods used by the teachers to implement EE across the curriculum and the problems faced. Fifteen secondary school teachers for each respective subject, namely, *Bahasa Melayu*, English Language, Mathematics, Science, History, Geography, Arts, *PJK*, Biology, Physics, Chemistry, *Pendidikan Agama Islam*, *Pendidikan Moral*, *Sains Pertanian* and *Kemahiran Hidup Bersepadu* were selected from one of the secondary schools in the district of Kota Star, Kedah. The findings of this study indicated that the teachers had the knowledge of implementing EE across the curriculum by stating that EE is inculcated into all the different subjects. The most common method of implementing EE across the curriculum was via incorporating moral values. Besides this, other methods such as discussion, and recycling were also used. However, the least utilized method was via acting, demonstration, outdoor activities and drawing. Among the implementation problems identified were time constrains, strict adherence to syllabus, "unrelated in various subjects", lack of skills, student attitudes, low English proficiency and students with low achievement. The teachers from almost all disciplines agreed that the syllabus and 'unrelated in various subjects' were the main hindrances. Several suggestions were made to the authority involved in the development of education, namely the Curriculum Development Centre, the Federal Inspectorates and also the school authorities, to enhance the

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implementation of EE across the curriculum and also to solve the problems encountered. These included continuous exposure of new teaching and learning strategies for the teachers as well as monitoring by the relevant authorities. Additionally, she also suggested having a special curriculum for EE.

Another study by Maria Salih and Hanizah (2009) explored the implementation of EE across the curriculum among the secondary school teachers. The objectives of the study were to obtain information regarding the current implementation of EE and the initiatives taken to expand EE in future. Also the teachers' perception of the implementation EE across the curriculum and the current practices in schools were studied. The sample consisted of 613 secondary school teachers from the states of Perak, Selangor and *Wilayah Persekutuan*. The findings showed that secondary school teachers were still unsure of about implementing EE across the curriculum in terms of information dissemination regarding the matter, its implementation, teaching and learning methods and classroom activities. All teachers faced similar problems in the implementation such as attitude, awareness, knowledge, skills, moral support, funds, time constraint and the curriculum itself.

In addition to that, there was a study presented by Nadeson and Nor Shidawati from the WWF-Malaysia presented at Best of Both Worlds International Conference on EE for SD, Kuala Lumpur in 2005. The paper gave an NGO's overview of the implementation of EE in Malaysian schools. It was pointed out that although certain subjects in the primary and secondary schools have infused EE in their textbooks, the holistic approach to EE within the curriculum was relatively superficial. It was felt that EE had not been adequately addressed and that the various existing EE programs,

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projects and activities were carried out on an ad-hoc basis, without long-term planning and objectives. Based on the findings, the paper advocated that an institutional EE framework will ensure the coordinated and holistic infusion of EE within the National Education System. The paper made recommendations covering a range of issues including institutional framework, curriculum development, human resource training and funding strategies with regards to EE in Malaysian schools.

Another study by Pudin, S., Tagi, K. and Periasamy, A. (2005) revealed that in Sabah, Malaysia the infusion of EE into the various subjects and the implementation of EE activities in school were not uniform. Some schools had been very successful while others had only lukewarm response. It was found that the successful implementation of EE in schools depended greatly on the headship and teachers. Among the usual reasons for not implementing EE were difficulty in infusing EE into the subject, rushing to finish syllabus and the financial constraints in organizing EE activities in school.

Additionally in another study, Pudin (2006) also gave an overview of the programs implemented by various organizations, the establishment of the Sabah EE Network (SEEN) and challenges encountered in promoting and implementing EE in Sabah. In her study, she revealed that the challenges faced by EE implementers were to win broader support for EE, changing people's attitude, generating action for EE, limited funding, duplication of activities, lack of skills and lack of coordination.

In another study by Periasamy, A. (2004) on "Exploring Teachers' Involvement in EE in Sabah, Malaysia" he indicated that the integration of EE into

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the teaching was minimal as the secondary school teachers lacked skills and commitment to contribute towards the environment even though it was part and parcel of their daily routine. He also concluded that it indicated towards a mismatch between curriculum demand and teacher practice.

One study involving both the primary and secondary school was conducted by Fadzilah Muhammad Ali in her doctoral studies, 1999. Fadzilah examined the level of environmental awareness among 486 Primary school and 477 Secondary school students from both the urban and rural areas, using questionnaires based on the Likert scale. The findings of this study indicated that the level of awareness on the environment amongst the students was very encouraging. Interestingly, it revealed that the students from the primary schools possessed a higher level of awareness compared to those from the secondary schools, and female students from both primary and secondary schools possessed a higher level of awareness on the environment. In addition, the findings also show that these groups of students were positive in their attitudes and values towards the environment and had sufficient religious knowledge pertaining to environmental issues.

From the review of literature it was evident that very few research on EE was conducted at the primary school level. Apart from the study by Fadzilah (1999) which involved both primary and secondary school students, another study by Chuah (1989) probed into attitudes towards environmental issues in the context of the moral development of 178 boys and 169 girls from ten Standard 6 classes in four primary schools in Georgetown, Penang. The study, using questionnaires, revealed that the majority of the Standard 6 pupils (98.5%) in his sample possessed medium to high

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overall attitudes towards environmental issues. Among the three categories of physical, biological and human environmental issues, pupils showed the most favorable attitudes towards human environmental issues and the least favorable attitudes towards physical environmental issues. The results also showed that the majority of the pupils (96.0%) possessed medium to high levels of knowledge about environmental issues. Generally the pupils were more knowledgeable in biological environmental issues relating to pollution, environmental health/safety, and ecological relationships when compared to physical environmental issues relating to natural resources/land use, cleanliness, and energy.

Another study involving the primary school focusing on a different perspective was conducted by Pauziah (2004). In her study, she examined the implementation of EE across the Curriculum at the primary school level. The aspects covered in the survey were teachers' experience in EE courses, the implementation of EE at the school level, strategies used by teachers to infuse EE in the subjects they teach, and problems faced by the teachers in their effort to infuse EE across the curriculum. The sample consisted of 115 trained teachers from four primary schools around Sungai Petani, Kedah.

The results of the study showed that the course attended by teachers was not sufficient in helping them to implement EE effectively in schools. However, the majority of the respondents indicated a positive perception towards EE across the curriculum and had made the effort to infuse it into the subjects they were teaching. From the aspects of teaching and learning strategies used for the infusion of EE, it was found that the teachers more often chose to use explanation, storytelling and

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discussion methods. The study also found that schools provided various teaching and learning resources for EE. However, the study also revealed that most teachers preferred to use the school compound as the teaching and learning resource for EE. From the aspect of problems faced in infusing EE, the main problems were identified as the lack of preparation time and difficulty in obtaining teaching aids.

Pauziah (2004) further proposed that an in-depth study on the needs of the teachers to raise their level of confidence as well as the effectiveness of EE be made. She also admittedly acknowledged that her study only focused on the teachers' perspectives and suggested that further studies be conducted on the students for a better view on the impact of EE.

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The literature reviewed thus far are masters' and doctoral theses related to EE done both locally and abroad. Altogether a total of 30 studies (21 done locally and 9 abroad) have been reviewed. It is observed that environmental knowledge and awareness as well as environmental attitudes are popular titles investigated upon by local as well as foreign researchers. However, recent studies by foreigners do focus on the implementation of EE programs (Wilson, 2004; Lane, 2006); and Tibble, 2009). Very few of such studies have been done locally.

Early foreign studies reviewed here were done in the 1970's and these studies had focused on environmental knowledge and attitudes towards the environment (Perkes, 1973; Hounshell & Liggett, 1973; Bohl, 1976; Richmond & Morgan, 1977; Hart, 1978; and Strickland & Staver, 1979). Many local researches reviewed here had also focused on particular attributes like environmental behaviors and attitudes

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(Chuah, 1989; and Lim, 1999), and environmental knowledge and awareness (Chiang, 1981; Ponniah, 1981; Jayatilaka, 1982; Gan, 1987; Teoh, 1995; Salim, 1998; and Che Kalbi, 1999). In some studies, knowledge and attitudes on environmental issues had been investigated together (Chiang, 1981; Ponniah, 1981; Salim, 1998; Lim, 1999; and Lim, 2004).

The findings of the studies reviewed show that a greater understanding of environmental concepts was recorded as compared to factual type cognitive variables. (Perkes, 1973; Bohl, 1976; and Richmond & Morgan, 1977). Many studies also indicated that affect and knowledge are related. Chuah (1989) found that pupils' attitudes towards environmental issues were found to be significantly and positively correlated to their knowledge of environmental issues. This result is consistent with the findings of Richmond and Morgan (1977) and Cheong (1980), where both of them found a strong correlation between conceptual knowledge and environmental attitudes among their secondary school students. A relationship clearly exists between attitudes and knowledge, with greater knowledge usually associated with more positive attitudes. Furthermore, attitudes appear to be more closely correlated with conceptual rather than factual knowledge. Another interesting finding is that in some studies, there were no significant differences between males and females on the knowledge subscale (Houndshell & Liggett, 1973; Hart, 1978).

A notable feature of the studies examined is that each of them approached different aspects or subjects while ascertaining the environmental knowledge and attitudes of their respective respondents. For example, Perkes (1973) conducted a survey of environmental knowledge and attitudes of tenth and twelfth grade students

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from five Great Lakes and six far Western States, whereas Richmond and Morgan (1977) conducted a national survey of the environmental knowledge and attitudes of fifth year secondary school pupils in England. Likewise, locally, Ponniah (1981) looked at environmental pollution knowledge and attitudes of Malaysian secondary school students, whereas, Chiang (1981) studied the effects of field study experience on environmental knowledge and attitudes among university students. Jayatilaka (1982) attempted a case study to see the relevance of the teaching of ecology to environmental awareness in a Malaysian secondary school while Chuah (1989) probed into attitudes towards environmental issues in the context of moral development of standard six pupils. In the more recent studies, Lim (2004) focused on environmental awareness, knowledge and attitude on tropical rainforest issues among secondary school students. Rashidah Begum (2002) attempted to determine the effectiveness of the *Wira Alam* Stage One project towards students' knowledge on pollution and caring for the environment while Letchimy (2008) examined the level of 5R action among Form Six students. As such, for each of these studies their focus on environmental matters differs although they refer to environmental knowledge and attitudes. Such variations in focus of environmental matters and approach of study do not enable one to make comparisons as each study has to be viewed independently.

The independent variables selected in the various studies are varied. Focusing on the local studies, these ranged from socio-economic status, gender (Chuah, 1989), ability groups based on academic performance (Jayatilaka, 1982), gender, academic performance and groupings of B.Sc./B.Sc.Ed. students (Chiang. 1981), and location of school, gender, grade level, and ability level (Ponniah, 1981). Many parameters selected in the studies differ and this does not allow for comparison between them.

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Most studies examined are of the survey type using test instruments and questionnaires. Analysis of results took on a quantitative nature. An interesting observation is that with the exception of one study by Noor Ashikin (2008), quantitative research studies dominated all the Malaysian studies reviewed. It was also observed that many researches on EE in Malaysia were superficial surveys confined to schools and teacher education institutes, giving descriptive analysis of environmental attitudes, behavior and knowledge of students. The investigator feels that other types of studies of a qualitative nature like observational studies would be equally challenging and revealing.

Most of the studies were conducted at the pre-service teacher education and the secondary school levels involving teacher trainees and secondary school students. Very few studies have been done at the primary school level. Besides focusing on the students, the area of teaching can be investigated upon. As it is, there is a dearth of studies related to EE conducted on teachers in the primary schools and on the implementation of EE in schools. Teachers are an important group as they are directly involved in inculcating environmental knowledge and awareness among the students. Teachers form the link between the formal curriculum and the students and therefore they have to be knowledgeable and to have the right frame of mind to teach environmental topics. Hence, this study aims to provide some information on the teaching of EE at the primary school. Specifically, this study adopts qualitative research methods to give an in-depth perspective on the implementation of EE in four selected primary schools in Malaysia.

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2.11 Literature on Projects in Environmental Education: Best Practices

Environmental education (EE) research literature has grown tremendously over the past four decades as educators attempted to seek the most effective methods for providing EE. Although published studies vary in their findings of the effects of various EE interventions, most researchers found some positive impact on participating students. (Dresner & Gill, 1994; Jaus, 1982; Shepard & Speelman, 1985/1986).

Environmental education researchers have suggested that programs might increase in effectiveness if in-class activities were combined with field experiences (Bogner, 1998; Dettmann-Easier & Pease, 1999). The study by Dettmann-Easier and Pease (1999) revealed that residential EE programs have stronger and more lasting effects on students than classroom-only instruction. Research also indicates that EE is most effective when it is provided as an integrated long-term curriculum (Ballantyne & Packer, 1996; Dettmann-Easier & Pease; Eagles & Demare, 1999).

Current literature suggests that EE programs intending to encourage pro-environmental attitudes and behaviors and to develop a personal ecological knowledge base among participants should offer a variety of techniques and characteristics within various sequential stages. For example, Gigliotti (1990) advocated for direct aesthetic experience with the natural environment while Hartig, Kaiser, and Bowler (2001) suggested environmental restoration activities to increase participant ownership. In addition, environmental education programs should include

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sensitive or emotional content (Armstrong & Impara, 1991; Pooley & O'Conner, 2000) and such programs should also provide for a multi-sensory learning environment to promote student engagement. Finally, such programs should also contain relevant and personal information that promotes empowerment and ownership (Kals, Shumacher, & Montada, 1999).

Within the sequential mode, educators can use varying types of experiences as unique elements in the greater picture of EE. These experiences may take place in the schoolyard during a single class period or be part of a residential curriculum, but their most common form is the short-duration field experience known as an out-of-school field trip. In her study that compared activities conducted in the schoolyard with traditional classroom activities involving elementary school boys and girls, Carrier (2009) discussed the unique learning styles of girls and boys and the findings that indicated the potential for schoolyard lessons to enhance instruction, meeting the needs of boys and girls.

It is to be noted here that many researchers have investigated the immediate effect of short-duration field experiences (Knapp & Barrie, 2001; Knapp & Poff, 2001; Palmberg & Kuru, 2000), but few have studied the long-term effect of such programs. In Farmer, Knapp, and Benton's study (2007), which included 30 students in a fourth grade class at a public elementary school in an urban town in eastern Tennessee, who in 2001 took an all-day field trip to Great Smokey Mountains National Park, the day's activities included a visit to Clingman's Dome, the highest mountain peak in the park, hands-on learning activities, and group discussions led by a National Park Service Ranger. Students examined red spruce (*Picea rubens*) and

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Frasier fir (*Abies fraseri*) trees; discussed the role of the moss spider (*Microhexura montivaga*) before the forest ecosystem underwent change; participated in a tree identification, food web activities, and an insect and tree discussion; hiked a short portion of the Appalachian Trail; completed an interactive learning experience using straws, cups, and thumbtacks to understand the effect of the Balsam wooly adelgid (*Adelges piceae*) on the Frasier fir. The rangers discussed the effect and possible causes of air pollution and led the students through activities at an air quality monitoring station. Finally, students discussed cars, pollution, environmental impact, and conservation behavior that could help address the problem.

Cachelin, A., Paisley, K., and Blanchard, A. (2009) noted that the recent push to reconnect children with nature is especially relevant to environmental educators who have been using the outdoors as a classroom for decades. Their study revealed that field-based participants were the only groups to express sentiments about conservation, wanting to return, being happy about themselves, and feeling safe. Classroom-based students were the only ones to express negative feelings. Moreover, field-based participants expressed sensations more frequently than did classroom-based students. Chawla (1988) also pointed out that, of particular importance is the idea that time spent outdoors fosters pro-environmental outcomes and that these outcomes may, for the most part, be affectively driven.

Gould (1994) aptly put it when he mentioned that: “we cannot win the battle to save species and the environment without forging an emotional bond between ourselves and nature as well – for we will not fight in order to save what we do not love … We must have visceral contact in order to love” (p. 44). Orr (2004), Sobel

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(1996), Pyle (1998), and Louv (2006), also emphasized the need for outdoor experiences that activate this emotional biophilia-based bond with nature and echoed the idea that an emotional bond with nature fosters an emotional sensitivity that is a prerequisite to pro-environmental behavior (PEB). However, despite this understanding, many EE evaluators often base success on quantitatively measured cognitive gains. Dettmann-Easier & Pease, (1999) also suggested that evaluation of EE program types is essential to help school teachers and administrators to make informed decisions about how best to use their limited resources of time and funds to provide EE to students. Furthermore, as pointed out by Fien, Scott, and Tilbury (2001), the process of evaluation of individual EE programs which is vital to learning what benefits are derived from the use of resources and strategies in these programs, is often overlooked.

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Bogner's study (1998) concluded that EE programs should provide "a combination of first-hand experience, participatory interaction, adequate preparation and subsequent reinforcement" (p. 28). Following this, Dettmann-Easier and Pease, (1999) also suggested that to increase the impact of the residential EE experience, centers should supply pre- and post-visit classroom activities to reinforce concepts and to integrate their curricula into schools' education programs.

The good thing about residential EE programs is that they offer opportunities for students to explore the environment firsthand, experience adventure-based challenges, and develop stewardship skills which comprises attitudes towards environmental conservation and the intentions and actions regarding environmental behaviors, in active outdoor settings. Such programs are aimed at enhancing

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environmental attitudes, increasing environmental knowledge and literacy, promoting citizenship skills, and encouraging stewardship behaviors that not only take place on site but also continue once the students return to their home communities. Furthermore, these intensive residential experiences also offer opportunities for personal growth by promoting teamwork, collaboration, and the development of leadership skills. The study by Stern, Powell, and Ardoin (2008), which explored the influences of 3- and 5-day residential EE programs at the Great Smoky Mountains Institute at Tremont on participants' connections with nature, environmental stewardship, interest in learning and discovery, and awareness of the Great Smoky Mountains National Park and biodiversity, revealed significant positive, short-term effects on all outcomes of interest. This reinforced the findings of the study by Farmer, Knapp, and Benton (2007), whereby many students remembered what they had seen and heard and had developed a perceived pro-environmental attitude even one year after their field trip experience.

Another form of environment-based education is the school-based EE in which the local environment is used as a context for integrating subjects and a source of real world learning experiences. School-based EE includes a variety of programs and instructional approaches such as, place-based education, Environment as an Integrating Context for Learning (EIC) models (Lieberman & Hoody, 1998), environmental service-learning, and Investigating and Evaluating Environmental Issues and Action (IEEIA; Hungerford, Litherland, Peyton, Ramsey, & Volk, 2003). Disinger and Monroe (1994) observed that despite this variety, there is a shared, primary emphasis on the essential elements of EE, namely, consideration of the environment in its totality, interdisciplinary, learner-centered instruction, and the

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development of critical thinking and problem-solving skills. It focuses on issue and action skills development (project or issue-based pedagogy), and students' learning experiences across core subject areas. Furthermore, this type of school-based EE supports the curriculum development goals of EE by Hungerford, Peyton, and Wilke (1980). However, despite the growing body of evidence that supports the educational efficacy of this instructional approach and its foundation of high-quality EE, relatively few teachers seem to practice environment-based education. The primary reasons why teachers did not implement EE being "lack of relevance to curriculum", and "too much other material to cover", which suggests a conceptual barrier of viewing the environment as a content area rather than as an integrating context or instructional method (University of Maryland Survey Research Center, 2000).

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Essentially, there is a need for a different perspective of curriculum theory in EE that focuses on learners' everyday experiences of environmentally problematic and enabling circumstances, enabling the use of problem-solving, interdisciplinary, and participatory action strategies. Stretching the above-mentioned model further would be one that promotes place-based education. The term *place-based education* has been used interchangeably with *community-based learning*, *service-learning*, *Environment as an Integrating Concept* (EIC), *sustainability education*, and *project-based learning*. The model exudes an explicit connection between the school and the community in which the school resides. As pointed out by Wadsworth (1978), it supports Piaget's theory on education which stresses the importance of educators' emphasis on students' "intrinsic motivation" towards learning, noting explicitly that "the child must be active to learn" (p. 78). This model of education provides the opportunity for the students to see the relevance of what they are learning, thus

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becoming more engaged in the learning process. A key component of many place-based education endeavors is the opportunity for civic engagement. Existing evaluations of place-based education show strong promise for improving student learning and community engagement, and closely related research has demonstrated that students who are engaged in real-world learning are more likely to succeed than those who learn equivalent material from abstract textbooks. The findings of many studies demonstrate powerful linkages between grounding the learning experience in the local context, enhanced student participation in community matters, and increased engagement in their academic studies. As Chi (2000) pointed out, in particular, service-learning experiences have been shown to promote a "pro-social, active conception of citizenship" in students when they are implemented consistently and intensively, include opportunities for analysis and reflection on the service experience, and provide regular opportunities for teachers and students to engage in dialogue. Lieberman and Hoody (1998), also reported on the findings of a study by researchers at the State Education Environmental and Roundtable, California that when the environment is used as an integrating context, student achievement and in-school behaviors improve.

Another important and effective approach to EE has been discussed by Higgs and Mc Millan (2006) in their study, "Teaching Through Modeling: Four Schools' Experiences in Sustainability Education". This study examined how four innovative secondary schools modeled sustainable practices to their students. It revealed that modeling is a valuable approach to sustainability education, promoting both learning about sustainability and adoption of sustainable behaviors in these schools. The four primary means by which these schools modeled sustainability were individual role

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models, school facilities and operations, school governance, and school culture. For schools, modeling sustainability appears to be one effective way to achieve the goals of sustainability education. Researchers have shown that modeling can be an effective way to teach knowledge, skills, and behaviors, motivate students to learn, and help them develop values (Cangemi & Kahn, 1979; Frayer & Klausmeier, 1972; Pintrich & Schunk, 2002). Investigations into effects of modeling on learning and behavior have shown that models can considerably shorten and improve learning and imitative behavior, particularly when students are exposed to multiple models (Schunk, Hanson, & Cox, 1987). In schools, modeling through facilities, governance, individual behavior patterns, and culture occurs throughout the entire day and can strongly impact students' thoughts and actions.

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In conclusion, the entire discussion above has highlighted some of the features of the best practices in EE. These include in-class activities combined with field experiences, schoolyard, outdoor experiences; residential EE programs such as out-of-school field trip; and school-based EE, place-based education, community-based learning, project-based learning, using the local environment as a context for integrating subjects (Environment as an Integrating Concept, EIC), and a source of real world experiences. Essentially, the best practices in EE should incorporate features like direct aesthetic experience with the natural environment, (hands-on learning activities / active participation); environmental restoration activities, (through group discussions, learner's everyday experiences of problematic and enabling circumstances leading to problem-solving); sensitive or emotional content, (to encourage pro-environmental attitudes and behavior); a multi-sensory learning environment, (through participatory interactions); and relevant and personal

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information that promotes empowerment and ownership, (leading to decision-making and problem-solving). Finally, another equally important and effective approach to EE would be teaching through modeling by means of individual role models, school facilities and operations, school governance, and school culture. Future attempts at EE should incorporate the features listed to ensure that the essential elements and curriculum goals of EE are met.

2.12 An Analytical Summary

It has been established by UNESCO/UNEP that education is an important tool for sustainable development (SD). Undoubtedly, Malaysia places great importance on UNESCO's goal on Education for Sustainable Development. In terms of formal education, the MOE has played an important role through its effort to develop a curriculum for EE in 1982 with the teaching of the subject called *Alam dan Manusia* (Man and the Environment) in the Primary school syllabus starting from Year 4 of schooling. Science was also incorporated in the new subject which guided the students to understand and realize the importance of the environment in daily life. In 1994, *Alam dan Manusia* was replaced by *Kajian Tempatan* (Local Studies) and Science. Nevertheless, the EE component was still contained in the two subjects.

EE across the Curriculum was introduced in both the primary and secondary school curriculum since 1998. This means that EE is not taught as a single subject but is taught across the curriculum and integrated or infused in subjects like Local Studies, Civics and Citizenship Studies, and Science. Environmental education

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is also infused via co-curriculum activities especially through Nature Clubs. However, it is observed that recent curriculum developments and changes introduced in the new Standard Curriculum for the Primary School (*Kurikulum Standard Sekolah Rendah, KSSR),* by the Curriculum Development Division, MOE seem to downplay the importance of EE by totally removing subjects like *Kajian Tempatan* and *Pendidikan Sivik dan Kewarganegaraan* (Civics and Citizenship Studies). As such, it is observed that although EE is being recognized within our National Education Policy, there is no strong and specific policy on EE as evidenced in the recent curriculum developments. Environmental education is never brought back to be taught as a classroom subject per se. What does this actually hold for the future of EE? Does it signify the "rise" and "fall" of EE? How will the EE educators react this time around?

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The implementation of *EE across the Curriculum* requires that the teachers be adequately trained with the necessary knowledge and skills of the concepts in EE. Problems might occur while implementing EE in schools. There looms the question and concern in the teachers' readiness to integrate EE in the subjects they teach. Are the teachers adept at facing the challenges in integrating or infusing EE into the curriculum? The study by Gan (1987), revealed that secondary school science teachers were not adequately prepared to integrate EE in schools. Although the MOE provides a guidebook on EE for all schools, and some teachers have been exposed to *EE across the curriculum*, its implementation might not be even. The feeling by the researcher is that the guidebook is rarely utilized by some principals and / or teachers. As the guidebooks for the implementation of EE might not be widely distributed, some teachers may even be unaware of their existence! The guidebook does outline

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proposed activities for EE but these may not be detailed enough for some teachers to conduct EE programs. Also, some teachers may not be able to develop EE programs themselves. Such shortfalls, coupled with the lack of teaching materials for teachers to integrate and infuse EE at schools may result in classroom teachings on environment that do not create the awareness that is required to be instilled in our students. Teachers play an integral role in this study, as their insights help understand the reality of EE implementation in the school.

The successful implementation of EE in schools depends on the level of understanding of the broad and complex concepts in EE that cover not only extra-curricular activities but also every aspect within the education system. In addition to that, it also depends greatly on the commitment, efforts and enthusiasm of their headmasters, their principles and the teachers. The lack of a strong policy on EE within the National Education Policy may have pushed its implementation to the bottom of the list of priorities in Malaysian schools. Within the National Education System, the framework for implementation is uncoordinated and not structured towards effectiveness. A specific policy on EE has to be in place to set a clear direction for especially the headmasters, which in turn determines the successful implementation of EE in schools.

The many factors on EE in the schools mentioned above are among the many challenges that need to be addressed and its practical implementation researched into. Various existing EE programs, projects and activities might have been carried out on an ad-hoc basis, sporadic, not systematic and without long-term planning objectives. There may even be constraints in organizing EE activities in schools. As such, it was

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the aim of this study to explore and evaluate the implementation of EE in the four schools identified and in doing so, will unfurl the commitment, efforts, the level of enthusiasm and the creativity of the respective schools in conducting EE.

The review of literature on EE has revealed that studies on environmental knowledge and attitudes are most popular amongst researchers. With the exception of one, all the Malaysian studies on EE reviewed took on a quantitative approach. Furthermore, a noticeable feature of the studies examined is that each of them approached different aspects or subjects while ascertaining the environmental knowledge and attitudes of their respective respondents. Very few researches on EE were conducted at the primary school level. There is a dearth of studies related to EE conducted on teachers in the primary schools, and on the implementation of EE in schools. Hence, this study takes on a qualitative approach and aimed to provide some information from the curriculum at the elementary school level. Specifically, this study looked at the implementation of EE in four Malaysian primary schools.

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CHAPTER 3

RESEARCH METHODOLOGY

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3.1 Introduction

This chapter outlines the methods used for this study on Environmental Education (EE) in the Malaysian primary school. This study employed qualitative research methods (in-depth interviews, observations, both in and outside the classrooms, and document analysis) to collect data for analysis. Qualitative research uses a naturalistic approach that seeks to understand phenomena in context-specific settings, such as "real world setting where the researcher does not attempt to manipulate the phenomenon of interest" (Patton, 2002). In other words, qualitative research allows one to find out the social realities in the natural settings. By employing qualitative methods in this study, it enabled the investigator to gather the different perspectives and the setting of the implementation process of EE. This reflects the characteristics

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of qualitative research being "naturalistic, inductive and the concern with process and meaning" as also emphasized by Bogdan and Biklen (2003, p. 42). To gain insights into the implementation of EE in the primary school, the investigator collected data through in-depth interviews, with additional insights through observations and document analysis. Additional supplementary help at understanding of EE concepts and perspectives was provided from the literature review along with some interviews with professional environment educators.

3.2 Conceptual Framework of the Study

To begin the study, the researcher reviewed UNESCO's perspectives on EE, the characteristics of EE since its inception, how EE is related to the bigger idea of Sustainable Development, (SD) and the role of EE as a tool for sustainable development. The international EE goals and objectives were also explored. Next, the study explored Malaysia's responses to the international EE goals and objectives and this included a review and update on the country's policy on the environment and also EE in the school curriculum. It was hoped that by assessing the current status of EE in the Malaysian primary school, the issues and challenges of the implementation of EE in the Malaysian primary school would also be revealed. Another section of the study also reviewed various models showing the best practices for EE implementation and aimed to propose some best practices in EE for the primary school. Also included were recommendations for future curriculum development for EE in the primary school. Figure 3.1 shows the Conceptual Framework of the study. A detailed

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explanation of the broad concepts in the Conceptual Framework of the study had been discussed in Chapter 2, Review of Related Literature.

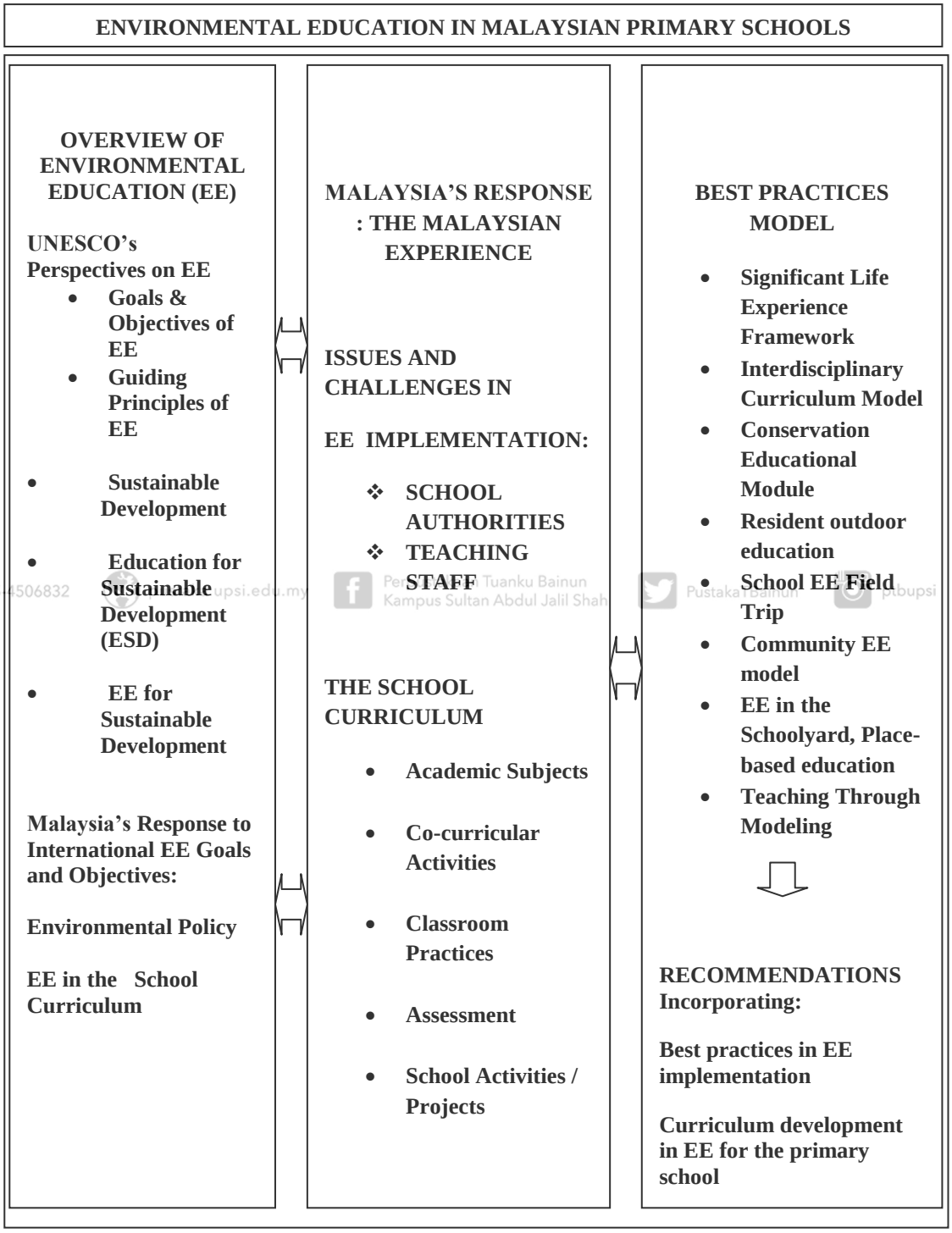


Figure 3.1. Conceptual Framework of the Study: Environmental Education in Malaysian Primary Schools

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3.3 Research Design

This study took on a qualitative case study design (multiple cases) to investigate and evaluate the implementation of EE in four selected Malaysian primary schools. The cases comprised of four National primary schools located in a district in Pahang, Peninsular Malaysia.

3.3.1 Using Stake's Countenance Model to Evaluate the Implementation of EE in Four Selected Malaysian Primary Schools

The purpose of this evaluation is to look into the implementation of EE in four selected Malaysian primary schools. Patton (1990) advocated that *implementation evaluation* is imperative for monitoring and getting feedback about the program as to whether it is running effectively or not and what kind of intervention is needed before evaluating the outcomes of the implemented program. Evaluators need to know what produced the observed outcomes in order to decide on what intervention needs to be taken to improve the program. As such, implementation evaluation informs researchers what is going on in the program, how the program has developed, and how and why the program has or has not deviated from the objectives as planned (Patton, 1990). Hence, this study looks into the implementation process of EE and if there is any disparity in the process it is the aim of this study to understand the issues, concerns and the reasons for the disparity, and to provide policy recommendations. Intentionally, the evaluation took on a more pragmatic design of evaluation rather than a methodological dogmatic one. As such, Stake's model of Responsive Evaluation (1983) was adhered to. This model which builds upon his earlier work,

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sets out to orient more directly towards project / curriculum activities than objectives and also attempts to audience requirements for information and refer to different value perspectives in reporting the success or failure of the program..

The approach used is the case study approach. In each school a multiple perspective was adopted through observations, interviews, and document analysis in order to provide a descriptive and analytical account of the implementation of EE in the schools and also insights on other factors. In terms of the methodology, the focus of the evaluation was to understand the problem(s), (if any) and the possibilities as seen in the close-up study practices rather than input and output. This evaluation is very much grounded on the assumption that the nature of the reality is subjective and multiple as perceived by stakeholders in the actual context. This is why the case study approach was adopted.

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Various data collection procedures were employed. The qualitative data mainly focused on the observations, interviews and also document analysis in order to understand the basic issues, concerns and the interaction with a range of stakeholders. This condensed kind of field work involving observations, interviews and document analysis involved extensive use of the voices of the stakeholders consisting of the school administrators and the teachers actually involved in the actual context. So in the analysis and interpretation, as far as possible the investigator tried to look at the data critically and also the triangulation of data from various sources and methods facilitated the understanding of the implementation of EE at the schools.

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So all this helps to explain the model that was used to evaluate EE at the schools. An evaluation model is useful in guiding the management of data collection and analysis. As the design of this study is complex and uses diverse qualitative methods, Stake's Countenance Model (1967) is the framework for this evaluation. This approach allows a wide range of data to be assimilated into an analysis.

3.3.1.1 Stake's Countenance Model

The model proposed by Stake (1967) suggests three phases of curriculum evaluation: the antecedent phase, the transaction phase and the outcome phase. The antecedent phase includes conditions prior to instruction that may relate to outcomes. Program antecedents may relate to conditions in existence before the program is run. The transaction phase constitutes the process of instruction while the outcome phase relates to the effects of the program. Here, program transactions are dynamic encounters and processes occurring during the operation of the program. The outcomes are the effects, both intended and unintended of the program. Outcomes are dependent on transactions and on antecedent conditions. Stake also emphasizes two operations: descriptions and judgments. Descriptions are divided according to whether they refer to what was intended or what actually was observed.

Stake believes that the starting off point is to determine the *intents* of a particular curriculum. Intents are planned-for conditions and behaviors, including desired, anticipated, and feared effects. These need to be described in terms of antecedents, transactions and outcomes. Antecedent intents relate to any conditions

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prior to the commencement of a curriculum and might include both students' and teachers' backgrounds and interests. Transaction intents are the procedures and events which it is expected will transpire as the curriculum unfolds. They take place in the classroom or teaching/learning environment. Outcome intents are the intended student outcomes in terms of achievement, together with the anticipated effects upon teachers, administrators and other parties. Having identified the intents, the evaluator will next analyze information in the descriptive matrix by looking at the congruence between intents and observations. Observations are descriptions of environmental events and consequences. Moving across the chart in a similar fashion, the evaluator will then apply standards to the descriptive data to form judgments. Judgments here, are separated according to whether they refer to standards used in arriving at the judgments or to the actual judgments. The evaluator, however, also studies the relationships, or contingencies, between antecedents, transactions and outcomes variables. An understanding of the vertical relationships on the chart is important for course improvement. Stake's data matrices provides a conceptual framework for completely thinking through the procedures of an evaluation dividing a complex interaction into manageable units and identify points at which instruments should be used to collect data (refer to Figure 3.2).

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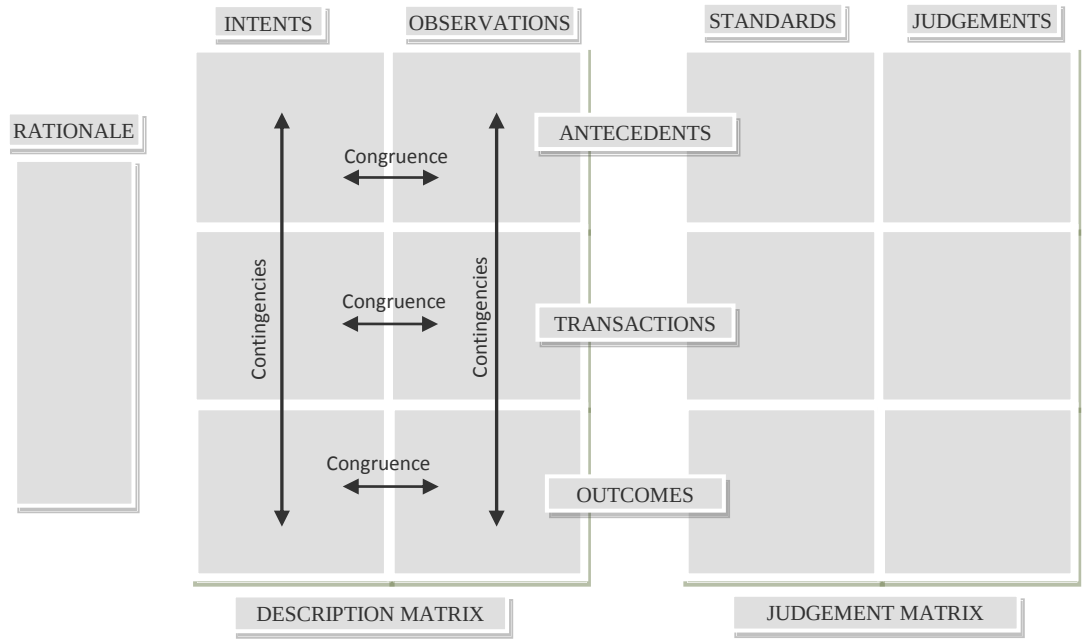


Figure 3.2. A Framework of data to be collected in the evaluation of an educational program (Source: Stake 1967)

From the explanation, for this study, three bodies of information were collected based on Stake's evaluation model. The antecedents are the pre-existing conditions of the schools. These include teacher and student characteristics, curriculum content, instructional materials, school environment and community context. The transactions are the actual process, which is the on-going program. This comprises the instructional process, events, social interactions and climate. Finally, the outcomes or the effects or the output the program provided which include student achievement, attitudes and effects on the school community and institution.

This study also looked at the congruence between the intents and the observations. Two critical elements of evaluation are based upon the descriptive and also the judgment. In the descriptive and the data, the intent and the observation of what actually happened in the classroom and the school were observed. Also, based

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on this data, the judgments in the forms of recommendations were made. On the data from the four cases, a relative comparison of data from the four schools was done and issues and concerns raised.

3.3.2 Naturalistic Inquiry and Case Studies

The evaluation took the form of naturalistic inquiry using the case study approach. Naturalistic inquiry, being a generic term, refers to the evaluation of the implementation of EE at the schools in their social contexts. As for case studies, they have been increasingly used in education. Case studies can be either single or multiple-case designs. Yin (1994) clarified that single cases are used to confirm or challenge a theory, or to represent a unique or extreme case. Multiple-case studies follow a replication logic, whereby each individual case study consists of a "whole study", in which facts are gathered from various sources and conclusions drawn on those facts.

Merriam (1988) stated that a qualitative case study design is chosen because the researcher is "interested in insight, discovery, and interpretation rather than hypothesis testing" (p. 10). Merriam further explained that the thick description obtained through prolonged, direct experience with the case study would aid in reaching deep understandings of the different perspectives. Incidentally, the goal of this study is to gain insights and understandings relating to the implementation of EE in the four selected primary schools (as cases) in Peninsular Malaysia.

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Stake (1995; 2000) clarified that qualitative case studies are characterized by the researcher spending extensive time on-site, personally in contact with the activities of the case, and reflecting and revising meanings of what is occurring. Similarly, this fits Merriam's (1988) description of case studies as heuristic, meaning they "can bring about the discovery of new meaning, extend the reader's experience, or confirm what is known" (p. 13). Stake (1995) also distinguished three types of case study : intrinsic, focusing on learning about the particular case under study; instrumental, examining the particular case in order to achieve a more general understanding about a research question; and collective, where several cases are studied to form a collective understanding of the issue or question. This study has features of all the case study paradigms mentioned.

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3.4 Data Collection Procedures

With regards to the qualitative data collection, observations using observation evaluation checklist and field-notes to gather data was conducted. The observations covered two major components, the physical set-up and the resources as well as observations of classroom teaching. As such observations looked into the components that facilitate the actual teaching learning and the kinds of assessment being done during the teaching learning process. With regards to interviews, the views come from the headmasters, the Senior Assistants (*Guru Penolong Kanan*, *GPK*), the teachers themselves, and also EE professionals and even up to the Curriculum developers. Documents like the School Annual Planning (*Perancangan*

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Tahunan Sekolah), the subjects' curriculum specifications, the school textbooks, workbooks, the teacher's record book and the pupils' workbooks were also analyzed.

The approach of this study was two-pronged. The first was reviewing literature and research materials pertaining to EE, including models of best practices of EE implementation. This helped to answer Research Questions 1 and 4 which are "What are the characteristics of EE as have been determined by the international standards?" and "What are the best practices of EE in schools?". Besides reviewing literature, interviews were also conducted with curriculum planners and professional environment educators to gather insights and perceptions into how the schools in Malaysia had fared in the context of the international standards, and also what could be proposed as a model or guideline for the implementation of EE in Malaysian schools.

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The second approach was conducting in-depth interviews with teachers, classroom observations on their teaching and curriculum study to ascertain the current status of EE in the four selected primary schools in Malaysia. The data from these sources were used to answer Research Questions 2 and 3, namely, "What are the issues and challenges in implementing EE in some selected Malaysian primary schools?" and "What are the experiences and challenges of teachers teaching EE in the classroom?". Interviews with school authorities and observations also provided information about the perceptions of the school authorities towards inculcating environmental awareness through the school curriculum. Table 3.1 shows the data collection matrix for the study.

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Table 3.1

Data Collection Matrix

Objectives	Research Questions	Methodology	Source / Sample
(1) To evaluate the current status of EE in four selected primary schools in Pahang, Malaysia based on international standards by UNESCO..	RQ1: What are the characteristics of Environmental Education (EE) as have been determined by international standards?	Document analysis, Interview.	Tbilisi Declaration, 1977, UNESCO ; Research literature. EE personnel (EEP).
	RQ1 Sub-question (a): How has the implementation of EE in four selected schools fared in the context of international standards?	Interview, Observation, Document analysis	Teachers, School administrators, EEP; School surroundings, Resources, Classrooms, Classroom teaching; School documents, UNESCO.
	RQ2: What are the issues and challenges in implementing EE in the selected primary schools?	Interview, Observation, Document analysis	Teachers, School administrators, EEP; Classroom teaching, School surroundings; Curriculum and Resources
	RQ2 Sub-question (a): What is the perception of the school authority towards inculcating environmental awareness through the school curriculum?	Interview, Observation, Document analysis	School administrators; School surroundings/ Resources; School documents, records, Headmaster's planning.
	RQ2 Sub-question (b): What measures have been / are being taken to promote environmental awareness through the school curriculum?	Interview Observation Document analysis	Teachers, School administrators; School surroundings, Class-room teaching; School documents, HM's plan.
	RQ3: What are the experiences and challenges of teachers incorporating EE in classrooms?	Interview, Observation Document analysis	Teachers; Classroom teaching; Curriculum, Teacher's Record.
	RQ3 Sub-question (a) How prepared are the teachers at incorporating EE in their lessons?	Interview, Observation Document analysis	Teachers; Classroom teaching; Teacher's Record / Lesson Plan
	RQ3 Sub-question (b): How do teachers teach about (and for) the environment?	Interview, Observation, Document analysis	Teachers; Classroom teaching; Teacher's Record, Resources
	RQ3 Sub-question (c): How do their EE practices compare to methods prescribed by professionals in the field?	Interview, Observation, Document analysis	EEP; Classroom teaching; Research literature, UNESCO.
(2) To study the best practices in EE and to propose some best practices in EE for the primary school.	RQ3 Sub-question (d): How do teachers assess the pupil's knowledge, skills and attitude towards the environment ?	Interviews Observation Document analysis	Teachers; Classroom teaching; Exercises, Worksheets, Test papers, Pupil's work , Teacher's Record.
	RQ4: What are the best practices of EE implementation in schools?	Document analysis, Observation, Interview	Research reports / literature, UNESCO School programs/ activities, School surroundings/Resources; EE Personnel
(3) To make recommendations for curriculum development in EE for the primary school.	RQ4 Sub-question (a): What are the recommendations for best practices of EE implementation in Malaysian primary schools?	Document analysis	Research literature

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This study employed qualitative case study research methods comprising in-depth interviews, observations, and document analysis. As supported by Merriam (1988) and Yin (1994), one of the case study's unique strengths is its ability to utilize a variety of evidence such as observations, interviews, and documents.

3.4.1 In-depth Interviews

The primary method used to collect data in this research was through in-depth interviews. In each personal interview, an interview guide (see Appendices B, C, and D) was prepared to ensure that the same basic lines of inquiry were adhered to. Patton (2002) clarified that

> "... An interview guide is prepared to ensure that the same basic lines of inquiry are pursued in each personal interview. It provides topics or subject areas within which the interviewer is free to explore, probe, and ask questions that will elucidate and illuminate that particular subject. Thus, the interviewer remains free to build a conversation within a particular subject area, to word questions spontaneously, and to establish a conversation style but with the focus on a particular subject that has been predetermined" (p. 343).

Based on the topics or subject areas, the interview process explored and probed to elucidate related information on the subject area. Through a series of interviews with the various stakeholders, namely, the curriculum planner and professional environmental educators consisting of Science and Social Science teacher educators, who are exemplary environmental educators, the aim was to provide additional supplementary help at understanding of EE concepts and perspectives and also to accumulate data on the perspectives on EE implementation.

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Interviews with school administrators, primary school SC, *KT* and *BM* teachers were also carried out to synthesize the findings and further enhance perspectives into the reality of EE implementation in the schools. Also, through these in-depth interviews, meaningful and useful insights into EE in the schools selected were provided by the participants. In conducting fieldwork, the headmasters, school supervisors (*GPKs)*, and the teachers were the key informants for this study.

The information at the schools was obtained through 39 face-to-face, audio recorded, and transcribed interviews, involving 18 teachers, 4 HMs, 4 *GPK* 1 and 4 *GPKKokur*. A total of seven interviews were also conducted with the EE Personnel (refer to Appendix E). The face-to-face interviews took place in a private, office setting. All of the interview questions (refer to Appendices B, C, and D) were asked of all participants. However, the semi-structured nature of the interviews allowed the participants to talk freely and expand upon those issues about which they felt the most passionate. Thus, each participant ultimately determined the length of time spent being interviewed. The participants were advised that their anonymity would be protected by referring to them by pseudonyms/number codes (refer to Appendix F) rather than by their real names in the final report. The participants were advised that their remarks would be recorded via handwritten notes and audio recording.

The interviews were guided conversations rather than structured interrogations. This approach kept the study participants more at ease, and thus they were more likely to reveal a more in-depth personal accounting of their experiences and perspectives. This interview tactic was consistent with the advice of Yin (2003)

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who explained the two major tasks of the interviewer throughout the interview process as being: "(a) to follow your own line of inquiry, as reflected by your case study protocol and (b) to ask your actual (conversational) questions in an unbiased manner that serves the needs of your line of inquiry" (p. 89). Upon completion of each interview, the investigator did a recap of the summary notes with the participant to verify the accuracy of the interpretation of his or her remarks. The participants were also informed that they would be shown the transcripts of the interview as soon as they were typed up. Upon the receipt of the transcripts of the interviews, they were asked to check them for accuracy as well as add any additional comments they might have thought of after leaving the actual interview.

Each of the thirty samples participated in a 45 to 75 minute semi-structured, open-ended interview, during which they responded to questions (refer to Appendices C, and D for the complete set of interview questions). Interview questions were constructed to seek answers to the Research Questions. The interview questions were reviewed with an expert qualitative research consultant, a university professor who has conducted qualitative studies for over 10 years.

Qualitative interviews with the teachers including classroom observation of their teachings comprised a large amount of the investigator's primary research. To gain insights into EE implementation at the selected Malaysian primary schools, the investigator collected data through in-depth interviews, with additional insights provided through observations and document analysis (teachers' record and pupils' work). A total of 18 teachers participated in in-depth interviews to analyze the EE implementation and its strategies. The investigator also took field notes to record

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observations gained during the lessons. Documents like the teachers' record and pupil's work and note books were also analyzed for illustrations of EE infusion or integration and assessment.

The interviews took place after the observations of the lessons. The investigator started with observations of classroom teaching at the two town schools after which the interviews were conducted. The interviews were conducted voluntarily outside of class time, at the teachers' convenience starting from the month of September 2012 and stretching onto September of 2013 (refer to Appendix E). Prior to conducting each interview the respondents were given a brief explanation (see Cover Letter, Appendix G) and were required to sign a letter of consent (refer to Appendix H). To ensure that participants were comfortable with the process, the investigator provided them with a clear briefing on the purpose of the research, the purpose of the interview, and also a set of the questions to browse through before the interviews started. Initially, the interviews were expected to last a minimum of forty minutes, but the duration depended on the length of the individual responses and this often extended to more than an hour as the respondents felt more relaxed and the interview took on a more open-ended conversational manner.

The investigator took caution of Patton's reminder that "... Data from informants represents perceptions, not truths" (Patton 2002, p. 321). Therefore, such findings were verified by relating them to other sources of data like observations, documentation, and other interviews. Patton had also advocated for the use of triangulation whereby "triangulation strengthens a study by combining methods. This can mean using several kinds of methods or data ...". Essentially, triangulation

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is using multiple research methods or approaches to acquire data and to investigate a research problem. This study has features of triangulation in that three different groups of people were accessed to collect data, namely curriculum planner, professional environmental educators, and a representative sample of teachers. Furthermore, within the group of teachers, data were collected via in-depth interviews, observations and document analysis. Thus, these multiple approaches provide a variety of perspectives into the situation being studied, which was the implementation of EE.

3.4.2 Observations

Observation is the act or practice of paying attention to people, events, and/or the environment (Reed & Bergemann, 2005). Observational research techniques solely involve the researcher or researchers making observations. Observations are usually flexible and do not necessarily need to be structured around a hypothesis. Systematic observation is long-term observation involving visiting a classroom many times and observing many different situations. It is planned, objective, and goal or question oriented. The goal of the systematic observer is to gather as much data as possible over a period of several observations about the school, the classroom, the students, the teacher, and the curriculum.

The methods of obtaining as objective a point of view as possible involve anecdotal observation, structured observation, and interview. Anecdotal observations focus on the situation and specifically on who says or does what rather than on

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personalities or interpretations of events. Structured observations are formal and require that one look for and record specified information that is called for on such things as checklists, socio-grams, and profiles. Some of these methods were adopted for the purpose of observation in this study. Observations both outdoor and in the classroom were conducted using checklists (green audit of the school and classroom teaching) and observation sheets. Observation notes on all actions and interactions were documented relating to the focus areas (that is, infusing EE elements into the lessons, teaching methodology and assessment). A total of forty seven observations of classroom teaching were made and they started from the month of June 2012 and stretched on till September 2013 (see Appendix I). The observation data were analyzed and compared to the categories that emerged from the interview data and document analysis. Observational research findings are considered strong in validity because the researcher is able to collect a depth of information about a particular behavior.

However, teachers being observed or interviewed in the study may have the tendency to present oneself in a more favorable light than is actually the case. This is known as social desirability bias (Dijkstra, Smit & Comijs, 2001) and is generally defined as providing responses that are perceived as more acceptable than the response that the participant would have made under neutral conditions. Social desirability is one of the most common sources of bias and can seriously affect the validity of the survey findings. In the case at hand, teachers being observed would conceivably want to show that they were more aware of EE programs or may wish to show that they do implement EE in their lessons. Likewise teachers being asked questions pertaining to socially sensitive behaviors like recycling and green

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orientation (Luchs, Naylor, Irwin & Raghunathan, 2010) are all likely to elicit distorted responses towards a socially acceptable standard resulting in biased responses.

In order to reduce social desirability bias, steps taken by the researcher to elicit a more accurate account of attitudes and behaviors were as follows: (a) avoided referring explicitly to the subject matter of the research (EE) at the outset so as to avoid priming respondents to become aware that EE was the main focus of the research (and felt any pressure to give pro-environmental responses); (b) reassuring respondents that 'there are no right or wrong answers', to reduce any concerns they might have about being judged for what they say; (c) using indirect questioning (Calder & Burnkrant, 1977) by presenting respondents with statements that 'other people have made' about a topic and ask them to choose the one that is closest to their own views to show that there are a range of 'acceptable' responses, rather than one 'right' one.

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3.4.3 Document Analysis

As pointed out by Patton (2002) records, documents, artifacts, and archives constitute a particularly rich source of information about many organizations and programs. One important use of documents is the corroboration of evidence from other sources (Yin, 1994). "Documents ... can be key repositories or measures for the case ... Quite often, documents serve as substitutes for records of activity that the researcher could not observe directly." (Stake, 1995) Furthermore, according to Rossman and Rallis

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(2003), document analysis plays an important role in qualitative research because it can supplement the data attained from interviews and observations with documented information.

This study used multiple data sources such as documents, in addition to interviews and observations. Among these data are documents that serve as a source of information on their own, such as UNESCO Reports, Declarations, Country Development Plans and Policies, Research Reports and literature, School Policy and Planning, Subject Syllabi, and the Teachers' Guide on Environmental Education. Moreover, some documents, like Reports and Declarations from UNESCO, and Country Development Plans and Policies that trace the development in environmental education helped to provide answers to some of the study's research questions. (For example, Research Question 1: "What are the characteristics of EE as have been determined by international standards?", Sub-question (a): "How has the implementation of EE in four selected Malaysian primary schools fared in the context of international standards?", and Research Question 4: "What are the best practices of EE implementation in schools?")

The relevant documents were investigated and analyzed for their content in environmental education-related and environmental-related factors based on themes developed for the purpose of the study such as policies on environmental education, the characteristics of environmental education, and the teaching of environmental issues involving teaching strategies.

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Data collection was a continuous process from as early as the proposal writing stage where documents related to EE like international and national policies on the environment, education, and subjects syllabi were explored. Fieldwork at the schools began at the onset of approval of this research from the university authority and the Education Planning and Research Division (EPRD), MOE (refer to Appendix J) which began in the month of June 2012. Incidentally, early contacts with some of the schools in the sample was established when on occasions, the investigator had the opportunity of visiting the schools in the course of providing supervision to the teacher trainees of the institute undergoing practical teaching at the various schools. This early networking process with the schools proved helpful and subsequently, the investigator did not encounter any problem in obtaining approval from the school authorities to conduct research. However fieldwork at the schools stretched a wee bit longer due to accommodating circumstances such as the school semester break, the many holidays due to the various celebrations within the state and country, school functions, term examinations, availability of the teachers in the school, teachers attending courses and also not forgetting the tight schedule at the investigators place of work. All these circumstances help explain the data collection process which stretched till September 2013.

3.5 Sampling Procedures

The convenience sampling method was used to select the four schools in the present study. According to Cohen, Manion and Morrison (2007), convenience sampling – or, as it is sometimes called, accidental or opportunity sampling – involves choosing

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the nearest individuals to serve as respondents or those who happen to be available and accessible at the time. "Researchers simply choose the sample from those to whom they have easy access. As it does not represent any group apart from itself, it does not seek to generalize about the wider population; for a convenience sample that is an irrelevance" Cohen et al., p. 114). Therefore, it must be noted that the parameters of generalizability in this type of sample are negligible. For this reason, a convenience sample may be the sampling strategy selected for a case study or a series of case studies.

To add geographical diversity, the schools were chosen from different areas. The four schools selected are National schools and two of the schools are located in the vicinity of the town while two others are situated at the outskirts (incidentally one of the schools was an all-indigenous student population) for representation. It was intended that from each school, one SC teacher, one *KT* teacher and one *BM* teacher would participate in the interview process making a total involvement of 12 teachers from the 4 primary schools. The school Headmaster (HM) and two Senior Assistants (*GPK* 1 *and GPK Kokur*) from each of the schools were also interviewed.

Personal contact with the headmaster and the *GPK* (Administration) through school visit proved to be an effective and successful way and this helped in recruiting teachers for the interviews and classroom teaching observations. Moreover, selection of the teachers relied on the interests of the study (which was, teachers teaching one of the three subjects, namely, *BM*, SC, and *KT* at Year 5). Thus the headmasters / GPKs helped identify the teachers involved and their compliance was established in

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providing information through interviews and observations of their teaching in the classroom.

The descriptions mentioned possess elements of purposive and criterion-based sampling as various criteria for the selection of participants were identified ahead of time (Ritchie, Lewis & Elam, 2003). The criteria being administrators of the schools involved in the decision-making process and also the teachers involved directly in the teaching of two subjects (SC and *KT*) containing vast concepts related to the environment and also teachers involved in the teaching of one general subject (*BM*), all at the same level, that is, Year Five. Hence, the headmasters and senior assistants (*GPKs*) and the teachers were selected. As such the participants selected in this study are key informants and expert insiders. Admittedly, there is also an element of convenience sampling as the investigator had to ensure that the four schools selected for the study are within easy access to facilitate the process of data collection. There was also consideration for manageability on the part of the researcher as the study employed qualitative research methods and a considerable amount of time had to be spent on the interviews and observation processes at the various schools sampled. As mentioned earlier, the schools were selected to ensure coverage and representation of the national schools and this comprised two schools located in the vicinity of the town while two others are at the outskirt including one with indigenous student population.

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Some baseline data on the curriculum for EE were also collected from the Curriculum developer from the Curriculum Development Division, MOE, and authorities in EE at the local universities, who are also professional environment educators consisting of Science and Social Science teacher educators through the

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interview process. Tables 3.2 and 3.3 show the personnel involved in the interview process to provide information for Research Questions 1, 2 and 3.

Table 3.2

Curriculum Planners and Professional Environmental Educators Involved in the Interview

Agencies	Curriculum Development Division, Ministry of Education	Department of Environment, Ministry of Natural Resources and Environment	University	Environmental Non-governmental Organization (WWF)
Number of interviewees	1	1	4	1
Total number of interviewees : 7				

Table 3.3

Schools and Personnel Involved in the Interviews

School	HM	*GPK*	SC Teacher	*KT* Teacher	*BM* Teacher
CO1	1	2	1	1	1
CO2	1	2	1	1	1
CO3	1	2	1	1	1
CO4	1	2	1	1	1
Number of interviewees	4	8	4	4	4
Total number of interviewees : 24					

A total of 7 key personnel (Environmental Education Personnel, EEP) consisting of the curriculum developer and professional environmental educators were involved in the interview as shown in Table 3.2, (refer to Appendix K for profile of the EEPs). It can be seen from Table 3.3 that a total of 6 personnel (HM, *GPK*1, *GPKKokur*, one SC teacher, one *KT* teacher, and one *BM* teacher) from each school were involved in the interview. A total of four rounds of observations on the lessons

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focusing on one class and one Grade level in all the four schools, were made to gather information on the EE implementation strategies. In addition to that, observations and auditing of the school in relation to EE were also conducted. As mentioned earlier, overall, the data collection process at the schools covered a period of about twelve months due to constraints like school holidays, school functions, the sampled teachers who were away attending courses, and also the investigator's official duty at workplace.

3.6 Research Instruments

The main instruments in this study comprise of the interview protocol, the observation sheet and the School Green Audit checklist. Sets of interview protocols are developed by the researcher for in-depth interviews with curriculum developers, professional environment educators, headmasters, senior assistants (*GPK*s) and teachers (refer to Appendices B, C, and D). For observational purposes, an observation sheet (see Appendix L) and the School Green Audit checklist (see Appendix M) as well as field-notes were used during environmental auditing and classroom teaching observations. The School Green Audit checklist was adapted from the Environmental Education Green Audit Form in the Post Graduate Diploma in Teaching (PGDT) Syllabus: Environmental Education. Teacher Dynamics. (English version), Teacher Education Division, (2003) for the purpose of environmental auditing. As for the document analysis of the EE contents of the three subjects for Year 5, a curriculum mapping form was used to identify the environmental elements (see Appendix N).

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This was based on the contents of EE across the Curriculum in the Integrated Curriculum for the Primary School (Appendix O).

3.7 Analysis of Data

Data analysis is an interactive process, beginning with the first interview, first observation, and first document to analyze, when insights and tentative hypotheses begin to develop (Merriam 1998). Creswell (2007) states, "During this process of describing, classifying and interpreting, qualitative researchers develop codes or categories and to sort text or visual images into categories" (p. 152). After verbatim transcripts were produced, experts recommend conducting initial data sorting by identifying broad categories cases can be broken into (Wolcott, 2001).

In qualitative research, the data collection and analysis process is a concurrent activity (Merriam, 1998; Stake, 1995). Miles and Huberman (1994) also suggest that analysis of qualitative data has to be done simultaneously with the data collection process mainly to enable the researcher to organize enormous raw data whether to use them or discard them if they do not relate to the research question.

Qualitative researchers have claimed that analysis of qualitative data carries several distinctive elements that then lead to the conclusions. Generally, they agree that the data analysis process is a cyclical process whereby the data go through the cyclical process of data reduction, data organization and data interpretation. It is a long process that starts from the time data is collected.

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Merriam (2009) explains that data analysis is a process of giving meaning to the data collected. A key stage in the process of deriving meaning from the data is that of data reduction. Data reduction refers to the process of "manipulating, integrating, transforming and highlighting the data while they are presented" (Sarantakos, 2005: 300). At this stage, the transcripts are read carefully to identify particular patterns or themes that would relate to the main objectives of the research. The data will then be organized and displayed. Data are then coded and categorized according to categories consisting of recurring themes that form a pattern related to the main concepts of the research study. Following this, the data are verified and finally conclusions are made. The whole process is the process of giving meaning to the data based on the respondents' interpretation and the researcher's understanding of the data.

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Data for the study were accumulated through a series of interview sessions, observations and document analysis. The first step in the process of data analysis was to create "order, structure, and meaning to the mass of collected data" (Rossman & Rallis, 2003, p. 278). It is important to rely on established processes to provide a structure for analysis. Towards this end, Rossman and Rallis' seven steps of "Generic Analysis" (pp. 279 – 290) provided a general qualitative framework for analysis.

The seven steps of "Generic Analysis" comprise of firstly, to organize the data. The second step is to become familiar with the data. This entails reviewing each transcript (line-by-line) to become familiar with the flow and content of the information and also to become aware of any information that specifically addressed the interview and research questions. The third step is to generate categories and

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themes from the units of responses. The themes were determined by becoming familiar with the transcripts and recurring categories and interpreting the meanings of the categories. The fourth step is to code the data by using words or phrases to represent concepts and ideas. Following this, the fifth step was to interpret the data. Then the sixth step also involved the search for alternative meanings and to group them together to develop categories and then to interpret them to determine the themes or essences of meaning. The final step was to integrate the themes back and to write a final report.

The analysis of data can be done either inductively where the categories, patterns, themes emerge out of the data, or it can be done deductively where the categories are predetermined based on literature review or theories, and applied to the data gathered. The procedures involved in analyzing qualitative data are not rigid but rather "arty" and "intuitive" (Patton, 1987, p. 154). Patton (1987) explains that the effort of uncovering patterns, categories and themes is a creative process where judgments are carefully made about what is significant and meaningful in the data.

In the case of this research, the data collected from the in-depth interviews, lesson observations were first transcribed. Then the transcriptions were printed out and were read through carefully several times. Short notes, comments and questions centralizing on the main issues of the study like teachers' perception, priorities and involvement were written in a column on the right side of each page of the transcript. The transcripts were read several times and reflections were made on the main issues related to the main research questions. A similar process was done to all the transcriptions generated from all the interviews.

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In the process of labeling the categories, the investigator used Merriam's (2001) suggestions to name the categories based on knowledge and experience in the related literature. Merriam (2001) suggested the categories should reflect the aims of the research study. Secondly, it should reflect the exhaustive reading of the data, that is, thorough reading of the data. The labels should be mutually exclusive. Next the categories should be sensitizing and lastly they should be conceptually congruent.

The interview questions help to formulate the themes and categories that relate to Research Questions. For example, in order to resolve RQ2 & RQ3, analysis of the findings of the interviews with the teachers were based on the following categories: awareness of the respective school's overriding goals and priorities; understanding of EE and its importance in the school and to self; awareness of the demands of their own subject curriculum; the teacher's personal evaluation of EE at their respective schools; the teacher's and pupils' involvement in EE program(s); teaching methodologies used; teacher's planning of lessons and the references used; whether the teacher had incorporated EE in their lessons, and how it had been done; on assessment being carried out; the resources related to EE which had been developed; on problems encountered at incorporating EE into their subject curriculum; challenges to teaching / implementing EE in the primary school; and finally, the teacher's opinion on whether EE should be taught as a separate or otherwise.

Similarly, initial analysis of the findings of the interviews with the school administrators were intended to lead to a discussion of the demographics of the pupil population; the school's overriding goals and priorities; subject areas that get the most energy and resources; the importance of EE in the school; perspective on EE

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and the demands of the curriculum; personal evaluation of EE at the respective schools; involvement in EE program(s); school's approach at including EE in its curriculum; views on teacher and pupil attitude towards EE; whether the teacher had incorporated EE in their lessons, and how efficient they are at it; the resources related to EE and their usage by the teachers; on collaborative efforts with other outside bodies in EE; and finally, opinion on whether EE should be taught as a separate subject or otherwise.

For the next group of interviewees, the EE professionals, initial analysis of the findings were intended to lead to a discussion of the importance of EE in the school, the current state of EE in the schools, and the direction for EE in future; curriculum needs and guidelines for EE in the primary school; the initiatives carried out in promoting EE in schools; opinion on how EE should be taught and assessed, opinion concerning the best approaches to teaching about the environment and environmental issues, best practices of EE; the role, characteristics, abilities and motivation of an environmental educator; major problems concerning the development, teaching and learning of EE in schools; challenges to teaching / implementing EE in the primary school; and finally, opinion on the indicators or standards to determine the effectiveness of EE in the schools.

Data obtained from the case studies are also analyzed under various categories. These include: the profile of the school, school administrators, school teachers, school facilities, main focus of the schools, curriculum and instruction, co-curricular activities, and programs / activities pertaining to EE. Additionally, data analyzed based on Stake's Countenance Model also yielded a number of categories

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which include school characteristics and atmosphere, school administrators, classroom atmosphere, teacher background, pupils' background, curriculum context, resource availability, instructional materials, school training and professional development, community contexts, and EE implementation. Findings from the analysis of data are presented in Chapter 5.

3.8 Considerations for Research Validity

The aim here is to identify the steps taken to ensure that the information gathered and analyzed is trustworthy and valid (audit trail – Appendix P). The following procedures were taken to support the validity of the data collection and analysis. Document studies and analyses on UNESCO's perspectives on EE were made. (UNESCO is the world body expounding EE goals and objectives.) Curriculum developers from the Curriculum Development Division, MOE, Malaysia and professional environmental educators who possess expert knowledge and experience in EE are selected to share their views and opinions. The investigator also used established criteria to identify a sample of teachers who can provide trustworthy insights into their own EE teaching experiences as well as their perceptions of the state of EE in their schools. For example, they are experienced teachers teaching the three subjects under study.

As for data collection, a variety of methods were used to collect data from the teachers including in-depth interviews, observations, and document review. Recorded interviews and field-notes were taken. Where necessary, the researcher conducted

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follow-up operations with the environmental educators and the teachers to confirm or disconfirm statements to provide supplementary information. As such, the study possesses features of triangulation in that it used a variety of methods to collect and verify data (document study, in-depth interview, and observation). Triangulation is defined to be "a validity procedure where researchers search for convergence among multiple and different sources of information to form themes or categories in a study" (Creswell & Miller, 2000, p. 126). Furthermore, different populations were accessed to collect data: curriculum developers and professional environmental educators, the headmasters and school supervisors (*GPKs*), and the teachers who were selected based on established criteria. Hence, the document analysis, observations and interviews conducted with the various key personnel are specially important to strengthen the validity of the findings as each method helps to cross-reference and also to cross-check the other.

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In addition to that the study took on multiple cases, that is, four schools and the processes of interviews, green auditing using the checklist and observations of teaching were repeated in each school to compare and validate the findings. As Yin (1994) pointed out that a strategy to enhance external validity is to investigate multiple cases. Stake (2000) called this a collective case study which can be used to understand a general phenomenon. Using these multiple approaches and cases provided a variety of perspectives into the situation being studied, (that is, EE implementation in the primary schools). The findings from these multiple approaches and cases were then synthesized to enhance perspectives into the reality of EE implementation in the primary school.

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The investigator is aware that in qualitative research, the researcher is the collector and interpreter of data. Maxwell (1992) asserted that not only does the researcher have subjective viewpoints entering the field, usually the sampled population is small, and so generalizing findings to a broader population is often questioned. It has to be pointed out here that it is not the intention of case studies to generalize findings to a broader population. However, although detailed data had only been collected from four primary schools, and not on a nation-wide scale, the policy and general practice in all primary schools are basically similar (for example, in terms of subject matter, the curriculum in general). Information gathered from an in-depth study on EE implementation at the four schools, pertaining to its characteristics and current status, might be probably applicable to practices at many other primary schools in Malaysia. (Representational generalization and inferential generalization, Ritchie & Lewis, 2003). The teachers selected from each of the schools are part of the general population and the sample population might also be representative of the parent population.

3.9 Ethical Issues

In any research endeavor, ethical considerations would arise and are unavoidable. The researcher is aware that in order for a research study to be trustworthy, it needs to be valid, reliable and also conducted in an ethical manner. Merriam (1998) had reminded that, "Ensuring validity and reliability in qualitative research involves conducting the investigation in an ethical manner" (p. 198). For example, protecting the anonymity of participants of the research is important. Hence, as encouraged by

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Creswell (2007), Merriam (1998), and Stake (1995), all subject data remain confidential and the participants of the interviews were given pseudonyms and the actual names of the schools were not mentioned. This ensures confidentiality and it was hoped that such measures would heighten trust, openness and cooperation from the participants. To ensure that all information is given voluntarily, participants were requested to sign a consent form. The researcher briefed the participants on the purpose of the research to allow them to decide voluntarily to either participate or not participate in this study. The interviews were conducted in a relaxed and conversational manner or atmosphere to gather insights into the various perspectives on environmental education. Each interview session took about forty minutes to slightly above an hour.

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3.10 Summary

This chapter explained the methodology of the study and described the research design, procedures for data collection and analysis, sampling procedures, and research instruments. A brief description of the conceptual framework of the study was also included. Details of the various concepts had been discussed in Chapter 2.

This study employed qualitative research methods in collecting data. These included in-depth interviews, observations of classroom teaching and document analysis. A two-pronged approach was adopted by first reviewing literature and research material pertaining to EE and secondly by conducting in-depth interviews, observations of classroom teaching and curriculum study to ascertain the current

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status of EE in four Malaysian primary schools as cases. The instruments utilized in this research include the interview protocols, observation sheet and checklist. Considerations for research validity and ethical issues were also discussed.

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CHAPTER 4

THE INQUIRY

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4.1 Introduction

This study embarked on a case study approach involving a total of four Malaysian primary schools (as cases) selected via purposive sampling based on the criteria such as different zones (urban / rural). The main objective was to study the individual cases and to look for the details of interaction with its contexts. In each school a multiple-faceted approach was adopted through observations, interviews, and document analysis in order to provide a descriptive and analytical account of the implementation of EE in the schools and also insights on other factors. Additionally, interviews were also conducted with seven Environmental Education (EE) personnel (one officer from the Curriculum Development Division, MOE, one Associate Professor and three Senior Lecturers from the local universities, one officer from the

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Department of Environment (DOE), Ministry of Natural Resources and Environment and one officer from the NGO, the WWF-Malaysia) who are critical informants on EE in Malaysia. Their views were sought on the various features of EE which are related to the Research Questions in the study. The following section provides information on the four case studies and data collected from the interviews with the EE Personnel (EEP).

4.2 Case Study One: *SK Cempaka* (CO1)

The data in Case Study One are presented in a total of fourteen categories. The following are detailed descriptions of the various categories.

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4.2.1 Profile of *SK Cempaka*

SK Cempaka is a town school located in a district in one of the east coast states in Peninsular Malaysia. It is about three kilometers from the town center by road. The school has got quite a long history as it was set up as early as 1913 as a premier English school in the district. Presently, it functions as a national primary school. Since the beginning of 2012 the school had converted and started operating as a single-session school. The main school building consists of three long two-storeyed blocks (Blocks I, H, and G) lined one after the other in single file starting from near the main entrance, (as shown in Figure 4.1). Figure 4.1 shows a total of 15 blocks named A to O which house the Pre School, the Information, Communication and

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Technology (ICT) lab, the Canteen, the hall right up to the guard house. Block I was formerly the District Education Office Block and it had since been handed to the school at the end of 2011. The three blocks (I, H and G) house the main office, the Resource Centre, the Science Laboratory, with the rest being taken up by the classrooms. Adjacent to the Block G lies the school canteen (Block M) and the ICT lab (Block F) is a new building situated further inside, after the third block of building (Block G). Facing the three blocks of buildings and as one looks down, is the vast school field which can be accessed by two flights of steps from the straight road which comes into the school. It poses quite a beautiful picture with the three main blocks of building situated on elevated land and overlooking the vast greenery of the school field at the land below as shown in Figure 4.2. As one goes down the second flight of steps, there is a path which leads to another single storey block housing a few classrooms (Block D). Flanking both ends of the field are the two more blocks housing the Pre-school (Block B) and the Living Skills workshop, a storeroom for sports utilities and also classrooms for religious classes (Block C). Finally, at the other far end of the field is the store house for sports. It must be mentioned here that all the blocks of buildings, (with the exception of the computer lab) had been in existence for more than 50 years.

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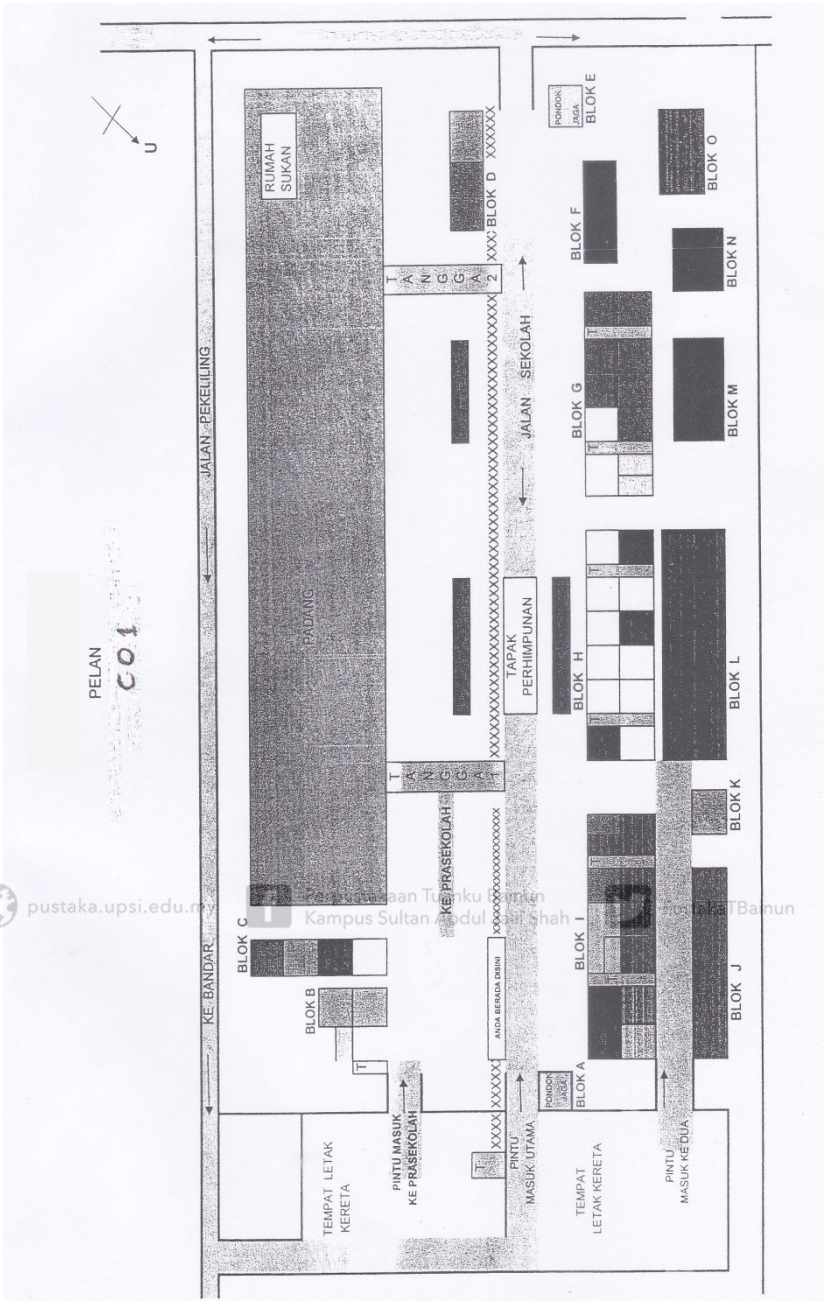


Figure 4.1. Plan of *SK Cempaka* (CO1)

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Figure 4.2. A view of the school field from the main block

Table 4.1

Enrolment of Pupils and Staff, SK Cempaka

School	Category/ Grade	Pupils		Teachers		Teachers		Support staff	
		Male	Female	Male	Female	Grads	Non grads	Male	Female
CO1	Urban / A	282	296	10	35	13	32	3	8
Total		578		45		45		11	

The school has a total enrolment of 578 pupils managed by the Headmaster (HM) and his three assistants, namely Senior Assistants for Administration & Curriculum, Pupils' Affairs, and Co-curriculum (*GPK Pentadbiran & Kurikulum, GPK Hal Ehwal Murid, and GPK Ko-kurikulum*) and a support staff (clerical and general) of 11 (3 male and 8 female) as shown in Table 4.1. The teaching staff comprises a total of 45 teachers (10 male and 35 female) of which 13 (28.9%) are Bachelor degree holders. For the overall running of the school, various committees are formed and these consist of 13 Committees for the Curriculum Unit, 17

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Committees for the Pupils' Affairs Unit and the Co-curriculum Committee. Notably, of interest to this study is the existence of committees which can promote EE, namely the school Canteen Committee (*JK Kantin Sekolah)*, Safety & Fire Committee (*JK Keselamatan & Kebakaran)*, Natural Disaster Committee (*JK Bencana Alam)*, and Cleanliness & Beautification Committee (*JK Kebersihan & Keceriaan)*, (all from the Pupils' Affairs Unit, *Hal Ehwal Pelajar, HEP*). The Co-curriculum Unit offers a number of options in the Uniformed Units (5), Clubs and Societies (7), and Sports and Games (6) for the involvement of the pupils as shown in Table 4.2. A thing to note here is the absence of an Environment Club at the school.

Table 4.2

Co-curricular Activities Offered in SK Cempaka

Uniformed Unit	Club and Society	Sports and Games
Pengakap	*Bahasa Melayu*	*Olahraga*
Tunas Puteri	*Bahasa Inggeris*	*Bola Sepak*
Puteri Islam	*Agama Islam*	*Bola Jaring*
Tunas Kadet Remaja Sekolah (TKRS)	*Sains dan Matematik*	*Bola Baling*
	Doktor Muda	*Hoki*
Taekwando	*Kelab Komputer*	*Catur*
	Kelab Rukun Negara / Cegah Jenayah	

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4.2.2 School Facilities

The main indoor facilities for teaching and learning are housed within the three main blocks of buildings comprising the classrooms, the Resource Centre, the Science lab, the Self-Access Centre, the Media room, the Music room and the hall. The ICT lab

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(Block F) is a separate single-storey building situated deep down the road at the far end and is used for computer classes. The Living Skills workshop (Block D) is situated on a separate block of building located on lower ground adjacent to the ICT lab.

Outdoor learning facilities include a vast school field (situated on lower ground accessed by two parallel flight of steps at both ends from the higher ground where the main blocks of buildings are located), rest places comprising a row of tables and stools (located between Block H and G), (refer to Figure 4.3) and also corridors containing various information boards. Lining the road leading right into the school are planted flowering plants and shrubs as part of the school beautification project. Facing inwards from the inner blocks of buildings (Blocks J to O) and separated by fencing are forested areas. Finally, one noticeable missing feature at the school is a Science garden.



Figure 4.3. Rest areas

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4.2.3 Vision and Mission

The Vision and Mission statements of the school are stated in Table 4.3. The school administrators and teachers who participated in the interviews had a clear understanding of the vision and objectives of their school and were able to relate them well. They were able to relate to that part of the vision of the school which was to be "Number One" , to be an excellent school in the district in the year 2013 (academic aspect). The school's mission statement clearly shows that the school aims at providing quality education, and producing quality pupils who excel in the academics as well as in co-curriculum.

Table 4.3

SK Cempaka's Vision and Mission Statements

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School	Vision and Mission Statements
CO1	Motto: *SK Cempaka* NUMBER ONE Vision: *SK Cempaka* will be an Excellent School in District L at the end of 2013 Mission: To provide quality education to all students in producing an excellent human being by: i. optimum usage of ICT in teaching and learning and also in all school management ii. optimum usage of the Resource Centre in teaching and learning iii. achieving school target of 30%5As and 100% pass in the *UPSR* iv. generating discipline and character of students so that they can be more excellent **v. creating a conducive environment in the school and in the classroom through the 3*K* Project** vi. identifying the welfare of poor students who qualify to receive aids vii. providing quality training in sports and leadership to every student to make him a human being of excellence at the various levels a. National in the archery event b. State in hand ball and net ball c. District in all events participated d. Zone in the events participated.

Source: School Management Planning Book (*Buku Perancangan Pengurusan Sekolah*) 2012

It is worth noting that the fifth Mission statement in Table 4.3 also aims at creating a conducive environment in the school and in the classroom. The interview sessions with the administrators, (HMCO1 and *GPK*1CO1) revealed that both of them

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made references to providing a conducive environment and quality education in order to produce quality pupils who are well-balanced all-round (in line with the National Philosophy of Education, NPE).

4.2.4 The School Administrators

The school administrators involved in the study include the Headmaster (HM), Encik Jallaludin aged 51 years, option/grade: General, *DGA*38; the *GPK* Administration and Curriculum (*GPK* 1), En. Rasdi, aged 47 years, option/grade: *Pengajian Melayu*, *DGA*32; and the *GPK* Co-curriculum (*GPK Kokur*), Puan Kamsiah, aged 45 years, option/grade: *Pengajian Melayu*, *DGA*32.

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Encik Jallaludin took over the helm of the school two years ago. Before starting here as the headmaster, he was the headmaster of a remote school in one of the Federal Land Development Authority (*FELDA*) schemes in the state. Since coming over to this school he had quite a handful of things to handle because according to him the school was without a headmaster for nine months. Besides, the school was in transition to switching over from a two-session school (morning and afternoon) to a single session school in 2012.

During the many visits to the school Encik Jallaludin could be seen directing the school workers and even helping out in tidying up the school and setting up new structures or boards. According to him, "... I'm just two years at this school. I'm correcting all those things which are not good in the school ... In the process *lah*, I'm

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in the process to make changes, whether it's administration, teachers, and also pupils in this school. So I take care, for the environment. Other than *PnP* (teaching and learning), our core business, we teach, that one, the environment also I look after."

> *(...saya baru 2 tahun di sekolah ini. Saya tengah membaiki apa-apa perkara yang tidak baik di sekolah ini. Dalam proses lah saya sekarang dalam proses untuk membuat perubahan, sama ada pentadbiran, guru, dan juga pelajar-pelajar di sekolah ini. So I take care, for alam sekitar. Lain daripada P&P, kita punya core business, kita mengajar, that one, alam sekitar pun saya jaga*.)
> (IntvHM1CO1/090513/Line 14-17)

Encik Jallaludin supports efforts at looking after the school environment and also programs to instill awareness about looking after the environment. His only grouse is that of funding (*kekangan dari segi kewangan*). He also mentioned that he was thinking of planting papaya trees by the side of the school field (which he did at his previous school). He likes planting fruit trees in particular because during the fruit season everyone can enjoy eating the fruits. At his previous school he had also planted *rambutan* trees and during the fruit season he had asked the school gardener to harvest the fruits for all (teachers, pupils and even visitors, parents) to eat at the canteen during recess. He also revealed that he had plans of making every teacher adopt a fruit tree so that each of them could be responsible for looking after the tree well to ensure that it bore fruits.

The *GPK*1 of the school, Encik Rasdi had been in the teaching service for sixteen years. He had served at five schools previously and was appointed *GPK* Co-curriculum in 2011 at another school before coming over here in 2013 as the school *GPK* Administration and Curriculum (*GPK*1).

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Encik Rasdi revealed that way back in 2010 he had attended a briefing by the District Forestry Department on the systematic felling of the trees in the forest (*penebangan balak secara terancang*). He enthused about the trip that they were taken to a forestry camp and were exposed to the systematic cutting of the trees including the replanting process. They also visited the forest nursery. He cherished the valuable experience which also involved the teachers and the school Parent-Teacher Society. The objective of the trip was to educate the teachers who would then disseminate to the pupils on what they learnt and observed. Encik Rasdi fully supports such programs involving the teachers, the pupils and also society because he believes that with such exposure, our country and also society will be able to live in a more comfortable situation, without pollution or with reduced pollution.

Puan Kamsiah revealed that she had been the school *GPKKokur* for three years. She went on to clarify that her responsibility here was to raise the achievement of the school in co-curriculum. She would rather focus on the vision of the co-curriculum of the school, that is, to continue to excel in co-curriculum and with this, its mission is to unravel the natural talent amongst pupils towards achieving excellence in co-curriculum.

Perhaps this helps explain why her main focus is in her present responsibility leaving her little time for her other duties (like teaching) in the school. Puan Kamsiah also had the responsibility of teaching *Kajian Tempatan (KT)* subject to a class of Year 5 pupils. Incidentally, the investigator had the opportunity to observe one lesson of hers in *KT*, teaching the topic on the founding of Malacca to her class of Year Five pupils. (ObsT*KT*1CO1/140512) It was observed that the teacher entered the class

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late and it seemed that she was ill-prepared for the lesson. Later, the investigator also discovered that Puan Kamsiah has a health problem and has to go to the local government hospital for treatment weekly. This probably helps to explain her moodiness inside and out of the classroom. She seemed to have her reservations on certain projects implemented by the present headmaster voicing that the school is so old with no room for expansion and insufficient funds. (Intv*GPKKokur*/090513/Line 48-53).

4.2.5 The Teachers in the Study

The school teachers involved in the study are Puan Bariah, the *BM* teacher (T*BM*1CO1); Puan Sakinah, the Science teacher (TSC1CO1); Puan Shamsiah, another Science teacher (TSC2CO1); Puan Syarifah, also a Science teacher (TSC3CO1); Puan Kamsiah, the *KT* teacher who is also the *GPKKokur*; and Mr. Kong, the *KT* teacher (T*KT*2CO1) who took over from Puan Kamsiah. Table 4.4 shows a summary of the background information of the teachers.

Puan Bariah, aged 45 years, is the head of the panel of teachers for *BM* (*Ketua Panitia* for *Bahasa Melayu*). She has a Bachelor degree (Information Technology) from Open University Malaysia (OUM) and a teaching certificate in Malay Studies, obtained during her days of training at a teacher training college. This is her 23rd year of service as a teacher. She has taught in three schools and presently she teaches *Bahasa Melayu* Year 5 and 6, and Science Year 4. She revealed that besides having attended courses for *Bahasa Melayu*, she had also attended a course in Science

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Pedagogy (*Pedagogi Sains*). For her co-curricular activities, she is an advisor for the Girl Guides' Movement (*Pandu Puteri Tunas*), the *Bahasa Malaysia* Society and also for handball.

Puan Sakinah, aged 49 years, is the head of the panel of teachers (*Ketua Panitia*) for Science in the school. She does not hold a Bachelor's degree. She possesses the *Sijil Pelajaran Malaysia* qualification and a teaching certificate in Mathematics and Science. She has been a teacher for 26 years. At the school, besides being panel head for Science, she is also a committee member for Civics and Citizenship Education (*Pendidikan Sivik dan Kewarganegaraan, PSK*) panel, the Resource Centre and also the advisor to the Science and Mathematics Society. She is also one of the advisors for *Puteri Islam* and netball. Most of the courses she had attended are related to the Science subject and one course she informed is the setting of Science questions. Presently, she teaches subjects like Science (Years 3, 5 and 6), *KT* (Years 5 and 6) and Civics (*PSK*, Year 4).

After the second observation, she informed the investigator that she was not interested in being observed further but was kind enough to arrange for the investigator to observe two other teachers teaching Science to the other Year 5 classes. In all fairness she was quite respectful and she tried to accommodate in her own way. Initially, she was also showing signs of not wanting to be interviewed, knowing that the session would be recorded. However, she relented when the day of interview approached.

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Puan Shamsiah is 40 years old and she is another Science teacher of the school. She possesses a Bachelor's degree in Education (Science) from OUM and also a Teaching Certificate in Science from the Ministry of Education. She has been at the school since 1998 (her first posting). She holds the position of *Ketua Panitia* (Head of Panel) for Civics and Citizenship Education (*PSK*). She teaches Science (Years 5 and 6).

Puan Syarifah, aged 40 years, is also a Science teacher of the school. She possesses a Teaching Certificate in Malay Studies (*Pengajian Melayu*) and has been a teacher for 15 years. She has taught for three years at a school in Miri, Sarawak before she came over to *Semenanjung Malaysia* where she taught at another school for 11 years before finally coming over to the present school. At the present school, she teaches *Bahasa Melayu* (Year 5), Science (Year 5) and the new subject, *Dunia Sains dan Teknologi* (Year 2). For co-curriculum she is the advisor for the *Tunas Puteri* Uniformed Unit, *Persatuan Bahasa Melayu*, and handball.

Puan Kamsiah holds the position of *GPKKokur* at the school. She also teaches *KT*. She has always appeared busy with her work as the *GPKKokur* which is her main commitment. However, it appeared that she was not so committed to teaching. (It was found that she was not prepared for her lesson, and was not punctual for class.) Although she held a high position at the school, she did not appear friendly. Like the *BM* teacher she was not so respectful and friendly.

The second time the investigator went to see her, she happily informed that she no longer taught *KT* to the class. There had been a change in the timetable and

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she had passed her subject on to another teacher – a Chinese man. She appeared happy to be relieved of her lesson!

Later on, the investigator came to know that she had not been well and had to go to the local hospital for treatment once a week, (on hemodialysis). This could help to account for her behavior and commitment towards her work.

Mr. Kong is a Chinese man, aged 36 years. He possesses a Bachelor degree in Business Administration and Marketing and a Teaching Diploma in the Chinese Language. He had been trained at the local Teacher Education Institute, Post-Graduate level program (*Kursus Perguruan Lepasan Ijazah*, *KPLI*) and graduated quite recently. As such this is his fourth year of service. At the school he is the *Ketua Panitia* for *Bahasa Cina* (*BC*). He teaches *BC* as his main subject (at *SK*, Year 1 to 4), and also subjects such as *KT* (Year 4 and 5) and *Pendidikan Seni Visual* (*PSV* Year 5). He took over Puan Kamsiah's class for *KT* (Year 5). At the school Mr. Kong is also involved in the Scouts Movement, the Crime Prevention Club and also football. He had also attended the Induction course for Standard Curriculum for Primary School (*Kurikulum Standard Sekolah Rendah, KSSR) BC* for the year 2012.

Mr. Kong had been very respectful and cooperative as a participant in the study (this was so probably because he knew the investigator even though he had not been taught by him). The investigator was able to get his cooperation easily after briefing him on the nature of the investigation.

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He is quite a busy person and had to go outstation to attend meetings quite often as he is the Master Trainer (*Jurulatih Utama*) for *BC* at the national level. Nevertheless, he kept up with his appointments at the school as he is a responsible man. Table 4.4 shows a summary of the teachers' background information.

Table 4.4

Summary of Teachers' Background Information, SK Cempaka

Teacher	Age (years)	Gender (M/F	Professional Appointment	Qualifications	Years of Service	Subjects Taught	Co-curriculum	Courses Attended
Pn. Bariah	45	F	*DG41*, Panel Head (*BM*), *AJK* Panel (SC), *AJK* Resource Centre	B.Ed (IT)(OUM); Teaching Certificate (Malay Studies)	23	*BM* (5, 6); SC (4)	Girl Guide; Handball	Science Pedagogy
Pn. Sakinah	49	F	*DGA32*, Panel Head (SC), *AJK* Panel (*PSK*), *AJK* Resource Centre, Adviser SC & MT Society	*SPM*; Teaching Certificate (MT & SC)	26	SC (3,5 & 6); *KT* (5 & 6); *PSK* (4)	Islamic Society; SC & MT Society; Netball	Developing Science questions
Pn. Shamsiah	40	F	*DGA32*, Panel Head (*PSK*), Adviser *SPBT*, Chief Assessor *PEKA*	*SPM*; Teaching Certificate (SC)	14	SC (5 & 6)	*Kadet Doctor Muda*; Netball	Nil
Pn. Syarifah	40	F	*DGA32*, Adviser *Guru Penyayang*, *AJK SPBT*	STPM Teaching Certificate (Malay Studies, *KH*)	15	*BM* (5); SC (5); *Dunia Sains & Teknologi* (2)	Girl Guide, *BM* Society, Handball	Nil
Pn. Kamsiah	42	F	*DGA32*, *GPK Ko-kur*	*SPM*; Teaching Certificate (*Pengajian Melayu*)	16	-	-	Nil
Mr. Kong	36	M	*DG41*, Panel Head (*BC*)	B. Business Management & Marketing (*UUM*); Diploma in Education.	4	*BCSK* (1-4); *KT* (4 & 5); *PSV* (5)	Scout Movement, Crime Prevention Club, Football	Induction Course *KSSR* for *BCSK* (2012)

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4.2.6 Curriculum

The national school curriculum is designed based on the principles inherent in the National Philosophy of Education with the aim towards further developing the potential of individuals in a holistic and integrated manner, so as to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious, based on a firm belief in and devotion to God. Towards this aim, on paper, it seems that relevant initiatives are in place to produce Malaysian citizens who are knowledgeable and competent, who possess high moral standards and who are responsible and capable of achieving a high stage of personal well-being as well as being able to contribute to the harmony and betterment of the family, the society and the nation at large.

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The curriculum for teaching and learning followed by teachers is the standard Malaysian Integrated Primary School Curriculum (IPSC) / (*Kurikulum Bersepadu Sekolah Rendah, KBSR*). Presently a new curriculum, the Standard Curriculum for Primary Schools (SCPS) / (*Kurikulum Standard Sekolah Rendah, KSSR*) is also running parallel to replace the IPSC which is slowly being phased out (by 2016). Both these curriculum are grounded in the National Philosophy of Education. The teachers are fully aware of the demands of the National Education Philosophy which has as its goal to ensure the development of the potentials in every pupil in an overall, balanced and integrated manner. This development covers the intellectual, moral, emotional and physical aspects to produce a balanced and harmonious human being with high morals. The curriculum followed by all the primary schools are similar as the education system in Malaysia is a centralized one.

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The *KBSR* reflected the demands of the National Education Philosophy as it consists of three areas of learning, namely, Communication (*Komunikasi*), Man and His Surroundings (*Manusia dan Alam Keliling*), and Individual Self-Development (*Perkembangan Diri Individu*). The first area, Communication, emphasizes the teaching of basics skills of the 3 Rs (reading, writing, and arithmetic). As such, the subjects in this area are the language subjects like *Bahasa Melayu*, English, Chinese, and Tamil and also Mathematics which is regarded as a kind of communication. Man and His Surroundings encompass two components, namely one which deals with sprituality, values, and attitudes (represented by Islamic Religious Education for Muslim students and Moral Education for non-Muslims) and the other which deals with humanities and the environment (represented by *Alam dan Manusia* or Man and the Environment). *Alam dan Manusia* is the equivalent to EE and it covered the general concepts of human and environmental development. However, this role was split between two subjects, namely *KT* and Science which replaced *Alam dan Manusia* in 1994. The *KT* subject's content was split further when a new subject, Civics and Citizenship Education (*Pendidikan Sivik dan Kewarganegaraan*, *PSK*) was introduced in 2004. Finally, within *KBSR*, the third area, Individual Self-Development, is composed of subjects such as Music, Art Education, and Physical Education. The Structure of the IPSC (*KBSR*) is shown in Figure 4.4.

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AREA	COMPONENTS	SUBJECT	
		PHASE II (Years 4, 5, 6), (Before 1994)	PHASE II (Years 4, 5, 6) (1994 onwards)
I COMMUNICATION	Basic Skills	*Medium of Instruction - *Bahasa Malaysia* - English Language	*Medium of Instruction - *Bahasa Malaysia* - English Language
		Mathematics	Mathematics
II MAN AND THE SURROUNDINGS	Spirituality Values and Attitudes	**Islamic Religious Education	**Islamic Religious Education
		**Moral Education	**Moral Education
	Humanities and Environment	Man and the Environment	Science
			Local Studies
			Civics and Citizenship Education (2004)
III INDIVIDUAL SELF-DEVELOPMENT	Arts and Recreation	Music	Music
		Art Education	Art Education
		Physical Education	Physical Education

Figure 4.4. Structure of the Integrated Primary School Curriculum, IPSC (KBSR) for Years 4, 5 and 6 (before 1994 and 1994 onwards)

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*The medium of instruction for national primary school is *Bahasa Malaysia*. The medium of instruction for national-type primary Chinese schools is Chinese, and for the national-type primary Tamil schools is Tamil.

**When Muslim students along with others who choose Islamic Religious Education learn the subject, other students are required to study Moral Education.

The implementation of *KSSR* brings about certain changes to the curriculum content and practices in the primary school system. *KSSR* is based on six key areas — communication, spiritual attitude and values, humanitarianism, literacy in science and technology, physical and personal development — to produce holistic individuals. The remodeling of curriculum content through the introduction of new subjects, emphasis on sound pedagogical approaches and holistic assessment methods are among the initiatives outlined in *KSSR*. In line with the National Key Result Area (NKRA) for the Ministry, the curriculum for Stage I primary schooling emphasizes the mastery of the basic 3Rs (Reading, Writing, and Arithmetic), reasoning skills,

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basic ICT, the development of socio-emotional, spritual, physical, cognitive, attitudes and values.

At stage II Primary school, as shown in Figure 4.5, the curriculum emphasizes strengthening and applying the 3Rs, basic ICT skills, development of socio-emotional, spiritual, physical, cognitive, attitudes and values. Content knowledge is presented through 9 subjects. Core subjects such as *Bahasa Malaysia*, English, Chinese and Tamil (for vernacular schools), Mathematics, Science, Islamic Education, Moral Education, Physical Education and Health Education are retained.

NO./ BIL.	SUBJECTS / *MATA PELAJARAN*	TIME IN A WEEK (MINUTES) / *MASA DALAM SEMINGGU (MINIT)*		
		SK	*SJKC*	*SJKT*
CORE SUBJECTS / *MATA PELAJARAN TERAS*				
1.	*Bahasa Malaysia*	300	240	240
2.	*Bahasa Inggeris*	300	180	180
3.	*Bahasa Cina*	-	300	-
	Bahasa Tamil	-	-	300
4.	*Matematik*	180	180	180
5.	*Sains*	120	120	120
6.	*Pendidikan Islam / Pendidikan Moral*	180	180	180
7.	*Pendidikan Jasmani*	60	60	60
8.	*Pendidikan Kesihatan*	30	30	30
9.	*Pendidikan Seni Visual*	60	60	60
10.	*Pendidikan Muzik*	30	30	30
11.	*Reka Bentuk & Teknologi / Teknologi Maklumat dan Komunikasi*	60	60	60
12.	*Sejarah*	60	60	60
ELECTIVE SUBJECTS / *MATA PELAJARAN ELEKTIF*				
13.	*Bahasa Arab/Bahasa Cina Sekolah Kebangsaan/ Bahasa Tamil Sekolah Kebangsaan/Bahasa Iban/Bahasa Kadazandusun/Bahasa Semai*	90	-	-
	Perhimpunan	30	30	30
	Jumlah	1500	1500	1500

Figure 4.5. Time Allocations Standard Curriculum for Primary Schools Phase II / *Peruntukan Masa Kurikulum Standard Sekolah Rendah Tahap II*

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However, some subjects are redesigned either by combining two or more disciplines of knowledge into one subject. Subjects such as *Kemahiran Hidup, KH* (Living Skills), *Pendidikan Sivik dan Kewarganegaraan, PSK* (Civics and Citizenship Education) and *Kajian Tempatan, KT* (Local Studies) are replaced by new subjects. The new subjects are Design and Technology / Information and Communication Technology, Visual Arts and Music and *Sejarah* (History). It is interesting to note here that the EE component gets more clouded and concealed to the extent that it leads to the interpretation that EE no longer exists!

Nevertheless, the *KSSR* requires teachers to apply classroom strategies which promote creative and critical thinking and innovation among pupils. Teachers need to carry out teaching and learning activities which are student-centered, provide opportunities for pupils to explore and test their hypotheses and ideas, solve problem and most importantly provide a fun learning environment. (Sounds anything new here?!) Classroom practices such as inquiry-based, problem-based and project-based are some recommended strategies which promote critical and creative thinking and innovation among pupils. Teachers need to be sensitive to students' learning needs and be able to identify learning styles which suits them best.

With regards to assessment, the *KSSR* proposes the implementation of school-based assessments to gauge students' potentials and the effectiveness of the teaching and learning process in the classroom. This formative assessment will inform teachers on suitable remedial or enhancement treatments for pupils. It will also help teachers identify and plan salient and effective classroom strategies.

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The learning and content standards that are outlined in *KSSR* were specifically aimed towards ensuring pupils acquire basic literacy skills by the end of Year Three, and was also in line with the second National Key Result Areas (NKRA) for the ministry —to ensure all primary school pupils have basic literacy skills after three years of formal schooling.

The new curriculum, *KSSR* will be implemented fully in 2016 where Year Six students will no longer be evaluated based on their *Ujian Penilaian Sekolah Rendah* (*UPSR*) results, but will be replaced with school-based evaluation (*penilaian berasaskan sekolah, PBS*) from their overall performance and classroom participation.

Towards this end, it is understood that the Ministry has carried out relevant training to expose primary school teachers to successfully and meaningfully impart the "improved" contents, required skills and expected values inherent in the *KSSR*. The initiatives carried out are aimed at informing teachers, parents and other associated stakeholders of the changes which are taking place in the field of education, particularly primary school education in Malaysia. The implementation of *KSSR* is a progressive and bold initiative by the Ministry to address the shortcomings in the *KBSR*. It is also aimed at preparing the future generation for the challenges ahead.

Finally, coming back to the present Year 5 Curriculum which is still based on the IPSC (*KBSR*), it is noted that there are relevant topics related to EE in the three subjects under study as shown in Figure 4.6. For example, for *BM* there are six main

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Subjects	Year 5 Topics Related to the Environment	
Bahasa Melayu (BM)	Unit 2: Educational Institution A1 A Safe School A2 The Nation's School is Our Common Aspiration A3 Success Awaits Continuous Effort Unit 3: Society A2 Cooperation is Basic to Harmonious Living Unit 4: The Environment A1 Living Comfortably in A Clean Environment A2 Caring Humans Ensure the Safety of the Earth A3 The Country's Cleanliness is Our Responsibility Reinforcement, Enrichment and Exercises Unit 10: Moral Values A1 Unity is the Core to Harmony Unit 12: Science Technology and Invention A3 Creative and Innovative Unit 15: Malaysia's Progress A3 Our Country is Progressive	*Unit 2: Institusi Pelajaran* *A1 Sekolah Selamat; A2 Sekolah Harapan Negara Impian Bersama;* *A3 Usaha Tidak Henti Kejayaan Menanti* *Unit 3: Kemasyarakatan* *A2 Kerjasama Asas Kesejahteraan Hidup* *Unit 4: Alam Sekitar* *A1 Alam Bersih Hidup Selesa; A2 Manusia Prihatin Bumi Terpelihara; A3 Kebersihan Negara Tanggungjawab Kita* *Pengukuhan, Pengayaan dan Latihan* *Unit 10: Nilai Murni* *A1 Bersatu Teras Keharmonian* *Unit 12: Sains Teknologi Dan Reka Cipta* *A3 Kreatif dan Inovatif* *Unit 15: Kemajuan Malaysia* *A3 Negaraku Maju*
Science (SC)	Theme A: Investigating Living Things Unit 1: Microorganisms Lesson 1: The Unseen Life Unit 2: Survival of the Species Lesson 1: Animal Survival Lesson 2: Plant Survival Lesson 3: Importance of Survival Unit 3: Food Chain and Food Web Lesson 1: Who Eats Who? Lesson 2: Tangled Up! Theme B: Investigating Force and Energy Unit 4: Energy Lesson 3: Renewable or Non-renewable? Theme C: Investigating Materials Unit 8: States of Matter Lesson 1: Three States of Matter Lesson 2: Changing States Lesson 3: What Goes Around Comes Around Lesson 4: Water Resources Theme D: Investigating the Earth and the Universe Unit 10: Constellation Lesson 1: Starry, Starry Night Unit 11: The Earth, the Moon and the Sun Lesson 1: They Move! Lesson 2: Day and Night Lesson 3: Phases of the Moon Unit 12: Strength and Stability Lesson 1: I See Shapes	*Tema A: Menyiasat Benda-benda Hidup* *Unit 1: Mikroorganisma; Pelajaran 1: Kehidupan yang tidak dapat dilihat* *Unit 2: Survival of the Species;Pelajaran 1: Animal Survival, Pelajaran 2: Plant Survival, Pelajaran 3: Importance of Survival* *Unit 3: Rantai Makanan dan Siratan Makanan; Pelajaran 1: Siapa Makan Siapa? Pelajaran 2: Tersirat!* *Tema B: Menyiasat Kuasa dan Tenaga* *Unit 4: Tenaga; Pelajaran 3: Boleh diperbaharui atau tidak boleh diperbaharui?* *Tema C: Menyiasat Bahan* *Unit 8: Keadaan Bahan; Pelajaran 1: Tiga keadaan bahan. Pelajaran 2: Perubahan bahan, Pelajaran 3: Kitaran Air, Pelajaran 4: Sumber Air* *Tema D: Menyiasat Bumi dan Alam Semesta* *Unit 10: Constellation* *Pelajaran 1: Starry, Starry Night* *Unit 11: Bumi, Bulan dan Matahari* *Pelajaran 1: Mereka Bergerak!* *Pelajaran 2: Siang dan Malam* *Pelajaran 3: Fasa-fasa Bulan* *Unit 12: Kekuatan dann Kestabilan* *Pelajaran 1: Saya Melihat Bentuk-bentuk*
KT	Theme of Knowing Our Country Unit 1: Location of Malaysia A. Location of Malaysia in South East Asia B. Location of Malaysia in the Asian Continent and in the World Unit 2: Physical Geography A. Landforms B. Weather and Climate in Malaysia C. Natural Vegetation and Wildlife	*Tema Mengenal Negara Kita* *Unit 1: Lokasi Malaysia* *A. Kedudukan Malaysia di Asia Tenggara; B. Kedudukan Malaysia di Benua Asia dan di Dunia* *Unit 2: Geografi Fizikal* *A. Bentuk Muka Bumi; B. Cuaca dan Iklim di Malaysia; C. Tumbuh-tumbuhan Semula Jadi dan Hidupan Liar*

Figure 4.6. Environmental topics in the three subjects curriculum, Year 5

Source: 1. *Bahasa Melayu Tahun 5. Sekolah Kebangsaan. KBSR. Kurikulum Semakan. Buku Teks*. K.L.: *DBP*. 2008.

2. Science Textbook Year 5. ICPS. Revised Curriculum. K.L.: *DBP*. 2007.

3. *Kajian Tempatan Sekolah Kebangsaan Tahun 5 KBSR. Buku Teks.* K.L: *DBP*. 2008.

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topics which are related to the environment such as T*he Environment*, *Educational Institution*, *Society*, *Moral Values*, *Science Technology and Invention*, and *Malaysia's Progress*. All these topics highlight in one way or other the safe school environment, caring for the environment, and good environmental values. The same goes for the Science subject consisting of themes such as *Investigating Living Things*, *Investigating Force and Energy*, *Investigating Materials*, and *Exploring the Earth and the Universe*. The *KT* subject also included a theme of knowing our country where the physical geography of Malaysia is explored (refer to Appendix N for Curriculum Mapping of the contents of EE across the curriculum). However, it suffices to say here that how much of the content knowledge and environmental values get to be imparted depends on how knowledgeable the teacher is and also the interest of the individual teacher towards environmental issues.

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4.2.7 Teaching and Learning

For the most part teaching and learning occurs in the classrooms, the Science lab, the ICT lab, the Living Skills Workshop, the Media room, the Self-Access room, the Music room and the school Resource Centre. Occasionally, the teacher brings the pupils outdoors at the school compound (especially for the Science class like for example, to collect some specimen for experiments), the school hall and the school field (especially for the Physical Education class).

With regards to teaching and learning materials, they consist of the syllabi, the curriculum specifications, the teachers' Guidebooks, text-books, the practical

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workbooks for the various subjects. All these are based on the national school curriculum to reflect the Malaysian identity.

4.2.8 Co-curricular Activities

It is stated that in the integrated approach the elements of knowledge, skills and values are combined in a holistic manner. In other words the education provided should comprise the theoretical and practical aspects as well as moral values to produce a balanced human being. As such the learning in the classrooms is further reinforced in co-curricular activities. At the school, besides offering participation in the uniformed units, the pupils are also involved in clubs and societies like the *Bahasa Melayu*, the Science and Mathematics, and the Computer club. One notable feature missing is the school Environment Club (*Persatuan Alam Sekitar / Persatuan Pencinta Alam*). Nevertheless, it is noticed that there are a number of activities where infusion of EE can take place, like for example, during the school Co-curriculum Day (*Hari Ko-kurikulum*), the school Cross-country event (*Merentas desa*) and also during camps for the various uniformed units like the Scouts Movement and Girl Guides (*Tunas Puteri*). It is noticed that from the school strategic planning book for the year 2012, an integrated camp for the Uniformed Units was planned for February 24 and 25, 2012.

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4.2.9 Programs / Activities Related to EE

The planned programs and activities of the school which are related to EE are shown in Table 4.5. It is noticed that the school did plan some activities related to the environment for the year. This includes the popular *gotong royong*, a collective effort to clean and spruce up the school compound was scheduled on May 19, 2012. Then there was the *Landscape Beautification Program* planned on July 26.

Table 4.5

Programs and Activities Related to EE Planned and Carried Out at SK Cempaka

School	Programs and activities related to EE planned and carried out within the year (2012)
CO1	1. *Perkhemahan Bersepadu Unit Beruniform* 2012, (Friday & Saturday, February 24 & 25) 2. *Program Gotong Royong* (Saturday, May 19– *JK Kebersihan*) 3. *Program Keceriaan Landskap* (*Aktiviti Keceriaan*), (Thursday, July 26 - *JK Keceriaan*) 4. *Mesyuarat JK Kantin, JK Perabut, JK Keceriaan & Kebersihan* (Tuesday, July 31- *GPK HEM*) 5. *Mesyuarat JK 3K* (January 24 & July 31)

Besides this the academic weeks follow certain themes and the teachers-in-charge during the specific week should speak on the theme during the week's assembly session at the school hall. Examples of themes followed include *Sensitive towards Current Issues* (*Peka terhadap Isu-isu Semasa*) (Week 8, February 21 – 25) and *Appreciating the Environment* (*Menghargai Alam Sekitar*) (Week 30, August 15 – 19).

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4.2.10 Interviews with School Administrators

Ten interview questions (refer to Appendix C) for the school administrators guided the answers to various perspectives of EE at the schools. The findings are presented and discussed according to the categories below.

4.2.10.1 Goals and Priorities of the School

Encik Jallaludin, the headmaster of *SK Cempaka* informed that the focus was to make the school excellent and glorious in the year 2013, in line with the motto of the school, "*SK Cempaka* Number One". He clarified further that being excellent covered all aspects, in *UPSR*, curriculum and character-building (*bina insan*). Encik Rasdi, *GPK*1CO1 and Puan Kamsiah, *GPKKokur*CO1 explained that the vision of the school was to make the school an excellent one in the district in the year 2015. Its mission was to give a balanced education to all its pupils in terms of intellectual, spiritual, physical and emotional development. However, Encik Rasdi seemed to speak of excellence in terms of academic achievement with the number of pupils scoring 5As increasing for three consecutive years:

> ... at this stage, our achievement for the past 3 years shows a good momentum from year to year lah, and also for last year we had 24 pupils acquiring 5As, and for this year the target of the school is to get 31 pupils scoring 5As .. and the passing percentage to be at least 80% ...
> (*"... pada peringkat sekarang, pencapaian kita sepanjang 3 tahun ini menunjukkan momentum yang baik daripada setahun ke setahun lah, dan pada tahun lepas dapat 24 pelajar dapat 5A, dan pada tahun ini, target kita sekolah ini dapat 31 orang untuk mencapai keputusan 5A.. dan peratus lulus sekurang-kurangnya kita mendapat 80% ...)* (Intv*GPK*1CO1/220513/Line 33-37)

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4.2.10.2 Subjects that Get the Most Attention

Encik Jallaludin asserted that he gives equal attention to all the compulsory subjects (*mata pelajaran wajib*) and core subjects (*mata pelajaran teras*). He disclosed that every year the school receives allocations for all the compulsory subjects as well as the core subjects. However, the core subjects (*mata pelajaran teras* which comprises the *UPSR* subjects) do get more.

Encik Rasdi also mentioned that the administration gives focus to all subjects. However, subjects which are given attention and are discussed often and monitored are the *UPSR* subjects, the core subjects like *Bahasa Melayu, Bahasa Inggeris, Matematik* and *Sains*. Similarly Puan Kamsiah also attested to the fact that the focus is on the core subjects, namely *Bahasa Melayu, Bahasa Inggeris, Matematik* and *Sains* for the *UPSR*.

4.2.10.3 Importance of EE

When asked about the position of EE at the school, Encik Jallaludin sounded enthusiastic and started to divulge on his plans to revive the Science garden and to plant trees and vegetable. He is also particular about cleanliness and landscaping. Encik Rasdi also informed that from this year onwards they had started to beautify the school by planting more trees and flowering plants. He feels that:

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> ... EE to me, is very appropriate at the school, especially at the early stage for children, at pre-school, not at stage 2. Like now at stage 2, that is year 5 and 6. For example in *KT*, is related to EE, it's being taught to the pupils at Year 5 and 6. But in my opinion *lah*, it should have been infused since pre-school, because the environment plays an important role *lah*"
> *.. PAS ini pada saya, sangat wajar lah, di peringkat sekolah, terutamanya pada peringkat awal kanak-kanak, di pra-sekolah, bukan pada tahap 2. Seperti mana sekarang ini pada tahap 2, iaitu tahun 5 dan 6. Misalnya dalam KT, ada kaitan dengan PAS, dia ajar pada murid pada tahun 5 dan 6. Tapi dalam pandangan saya lah, patut diterapkan pada tahap pra-sekolah lagi, sebab alam sekitar memainkan peranan yang penting lah.* (Intv*GPK*1CO1/220513/Line 171-176)

Likewise, Puan Kamsiah was of the opinion that it is nice as EE is to inculcate noble values among the pupils towards the environment.

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4.2.10.4 Desired Status of EE in Schools: EE as a Separate Subject?

Encik Jallaludin opined that there was no necessity in making EE as a separate subject in school. He felt that the child's everyday life is already related to the environment. He is surrounded by the environment. There are ample examples for him to see, like the trees and their uses, in the town and at the *kampung*. So all it needs is to infuse the values in every subject, across the curriculum and he thought that is enough. Encik Rasdi also shared the same opinion. He thought that there was no necessity for it to be a separate subject as the environment can be incorporated in all subjects. He felt that its emphasis only needs to be given attention. He added that there must be monitoring and evaluation (*Perlu ada pemantauan dan penilaian lah, alam sekitar ini saya rasa,* Intv.*GPK*1CO1/220513/Line393). He mentioned that there must be a circular or broadcast that environmental program must be emphasized.

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He felt that presently there is no such circular, only elements "across the curriculum" and this is left to the teacher as to whether to do or not. His proposal is to create a channel whereby there is special monitoring on the EE program involving the curriculum, school environment, and pupils' awareness. The following were his actual words:

> *(Kena ada satu.. er.. pekeliling ataupun siaran, program alam sekitar, mesti ditekankan, sebab sekarang tak ada saya rasa. Cuma dia elemen merentas kurikulum. Nak buat, tak hendak buat, bergantung kepada cikgu. Wujudkan satu saluran, maknanya khas pemantauan tentang program alam sekitar sekolah. Dalam kurikukum, persekitaran sekolah, kesedaran murid, saya rasa cara begitu pun boleh juga.)* (Intv*GPK*1CO1/220513/Line 393-399)

Puan Kamsiah was quick to shoot down the idea. She gave her justification as follows:

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> Ha, enough *lah*, there's no need to have many subjects. No need. Just insert in the other subjects ... Even though not very effective, but if one more subject is added, the teacher's burden is increased, it's better not to. Just make improvements *lah* ... If there are allocations, we can join with others like the NGOs. Even in co-curriculum there is plenty to deliver, so we have collaboration with others outside. Have specific programs involving the pupils, that is, if there are allocations ... She felt that already there are many programs in co-curriculum like in the program involving camping. Also during the previous Sports Day, there was the effort at decorating the sports houses using natural resources where prizes were given to the winners.

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> *(Ha, sudah lah, tak payah banyak banyak. Tak perlu banyak lagi lah mata pelajaran. Tak perlu. Selitkan saja lah dalam mata pelajaran-mata pelajaran lain itu... Tak berapa berkesan sangat lah. tapi kalau nak menambah satu mata pelajaran lagi, menambah lagi beban guru, baiklah tak payah. Penambahbaikan saja lah... Kira, ada peruntukan, kita bolehlah join dengan orang luar kan? join dengan NGO. Kokurikulum pun dah banyak dah nak disampai, jadi kita ada kolaborasi dengan pihak luar lah. Buat program-program tertentu saja melibatkan murid, itu pun kalau ada peruntukan... Entahlah, saya pun tak tahu lah. Pasal program ini banyak lah, dalam koko itu sudah penuh... Yalah, macam program perkhemahan kan? Macam hari sukan, tahun lepas, dia adalah menghiaskan rumah sukan menggunakan bahan alam. Kita bagi hadiah).*
> (IntvGPK*Kokur*CO1/090513/Line 253-255, 260-261, 265-268).

4.2.10.5 School EE Programs

Encik Jallaludin explained that the school program which is related to EE is on maintaining cleanliness and landscaping of the school. As mentioned earlier, the school project includes planting of trees and flowering plants. The school did not conduct a specific program on the environment. According to him EE is already incorporated into the subjects. He also stressed on the cleanliness of the school,

Encik Rasdi also clarified that the school's program on the environment is on cleanliness and beautification (*keceriaan*). He pointed out that:

> ... special program like I said just now is on the school beautification *lah*, which involves the teachers, students, and also members of the school. The program includes firstly *gotong royong*, cleaning the drains, trees planting, cutting the trees like what we planned at the building there, we want to cut the trees which are overgrown so that it looks beautiful ...

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> *(... program khas seperti saya ceritakan tadi itu mengenai keceriaan lah, keceriaan sekolah yang melibatkan guru, pelajar, dan juga semua warga sekolah. Program itu yang pertamanya gotong royong, membersihkan longkang, tanam pokok, memotong pokok-pokok yang macam kita rancang di bangunan sana, kita nak potong pokok yang dah semak supaya cantik ...)* (Intv*GPK*1CO1/220513/Line 222-226)

Puan Kamsiah viewed the school Integrated Camp (*Perkhemahan Bersepadu*) as a project which can be related to EE. The pupils camp at the school field and the infusion of EE can take place here where the pupils have to look after the cleanliness of the camping ground.

4.2.10.6 Perception of EE / Understanding of EE

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The school authorities were also asked about their perception of EE. This would reveal their understanding of it. According to Encik Jallaludin:

> Environment .. starts at Pre-school.. to year 6, we infuse it into certain subjects. Science, *KT* and Civics, and then *Bahasa* also can. In its teaching and learning, we can infuse values, cleanliness.. in the environment, about loving the environment.. cleanliness and all that, so this pupil .. we can also take to visit places which are clean and beautiful...
> *Alam sekitar ini.. dia start dari pra-sekolah lagi. Alam sekitar.. dia start dari pra-sekolah.. to year 6. Year 6, kita terapkan dalam subjek-subjek tertentu. Sains, KT and Siviks, and then Bahasa pun boleh. Dalam dia punya P&P, kita boleh terapkan nilai-nilai, kebersihan.. dalam alam sekitar ini, tentang kita menyayangi alam sekitar.. kebersihan semua itu, so budak ini.. kita boleh juga membawa melawat melihat kawasan bersih dan cantik...* (IntvHM1CO1/090513/Line 98-103)

Encik Jallaludin's interpretation of EE is about keeping the place clean and beautiful. It is about values of cleanliness and loving the environment.

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The *GPK*1 explained on the focus of EE in the curriculum. He also teaches *KT* and pointed out that the area on the environment is being stressed in the *KT* subject where it comprises many topics concerning the environment. He believed that every teacher incorporates elements of the environment which cuts across the curriculum. Like the headmaster, his understanding of EE is about beautifying the school and adding more greenery by planting trees and flowering plants. Similarly, the *GPKKokur*CO1 perceived EE as *gotong royong* to beautify the surroundings by planting flowering plants and trees.

4.2.10.7 Evaluation of School Performance in Terms of EE

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The school administrators were asked to evaluate on their school's performance in EE (from a scale of 1 to 10 points, with 10 being the highest and 1 being the lowest).

The following are evidences of their evaluations. Encik Jallaludin was quite confident of his work for the school:

> Being here for two years *lah* , we can give 8, because all the things that I implement in the school was successful ... there is reduction in trash ... And then from the environment point of view, we can see that it's neat. And then what I did, camping, the pupils followed ...
> *(Saya dalam 2 tahun di sini lah, kita boleh bagi dalam 8. Sebab benda yang saya implimen di sekolah ini Berjaya, sampahnya kurang, tidak ada budak-budak.. itu take time juga. And then dari segi alam sekitar sekolah ini, kita tengok, ceria. And then apa yang saya buat, perkhemahan, budak ikuti.)* (IntvHMCO1/090513/Line 135-138)

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However, Encik Rasdi gave only five marks (out of ten) when asked to assess on the progress of the school at efforts in EE. He explained that the process of educating the school population is on-going. He said that they were still in the process of not only instilling awareness but also bringing the pupils nearer to EE. This could be done by emphasizing to the teachers that in the subjects that they taught there ought to have elements of EE which cut across the curriculum. To infuse on the importance of EE, they have to explain to the pupils that even though it looked mundane, for example, throwing of trash like chocolate or sweet wrappers, these have to be thrown into the trash bins as it would pollute the area if done otherwise. Also during school assemblies, the pupils have to be reminded not to pluck the leaves from the plants as it would damage and harm the plants.

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Similarly Puan Kamsiah also gave an evaluation of five points out of ten and felt that EE was not so much emphasized in the school. From the investigator's observation, she seemed quite detached from the school and was not able to provide specific information related to her work as *GPKKokur.* At times she sounded negative and not so supportive and appreciative of what her superior had done so far. (Understandably, it has to be noted here that *GPKKokur* has a health problem and she goes for weekly treatment at the local hospital.) Excerpts of the interview conversation with her follows:

> Five *lah*, I give five. Moderate only *lah*. Because we like not very emphasize on it *lah*, not so emphasized on the environment.
> *(Lima lah, saya bagi lima. Sederhana saja lah. Sebab kita macam tak beratkan sangat itu lah, tak berat sangat lah tentang alam sekitar itu.)*
> (Intv*GPKKokur*CO1/090513/Line 93-94)

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She disclosed further:

> No collaborations *lah* with people from outside.
> *(Tak ade kolaborasi lah dengan pihak luar.)*
> (Intv*GPKKokur*CO1/090513/Line 151)

On school projects related to the environment:

> Not so much *lah*. Because if we want to do it, it needs money. The school lacks this resource lah. If we do *gotong royong*, in a year we have three times .. which involves the *PIBG*, a lot on that *lah* .. the achievement of *UPSR*.
> *(Tak begitu sangat lah. Sebabnya kalau kita nak buat itu, guna kewangan. Sekolah ini kurang dari segi sumber itu lah. Kalau kita buat gotong-royong itu, setahun lah ada 3 kali .. yang melibatkan PIBG itu, kebanyakan tentang itu lah.. pencapaian UPSR.)*
> (Intv*GPKKokur*CO1/090513/Line 155-158)

When pointed out to her that the school looked quite neat, she answered that:

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> That's because the Inspectorates came. The workers had a tough time, because the Inspectorates also complained on the environment, mostly on the environment *lah*, no beautification, amenities don't have. Limited space, old building, the cleanliness like at the toilets .. because these are old toilets, only a few are useable. One toilet for fifty pupils! That's what they complained.
> *(Itu sebab Nazir datang. Pekerja lah yang teruk lah, sebab Nazir pun memang komplain tentang persekitaran, persekitaran paling itu lah, keceriaan tak ada, prasarana tak ada. Kawasan terhad, bangunan buruk, kebersihan macam tandas.. tandas sebab itu tandas lama, ada berapa tandas saja yang boleh guna. Satu tandas untuk 50 orang murid! Itu lah yang dia komplain itu.)*
> (Intv*GPKKokur*CO1/090513/Line 231-235)

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4.2.10.8 Measures Taken / To Take for EE

Besides focusing on excelling in the *UPSR*, Encik Jallaludin also places much importance on producing a conducive school environment. By this he concentrates on two areas, that is, cleanliness (*kebersihan*) and landscaping:

> .. cleanliness and also landscaping. So we train the pupils *lah*, trash has to be thrown into the rubbish bins. I had warned the pupils that, maybe at one time if you don't use the rubbish bins, I will do away with them. Because I see a lot of trash everyday ... I wonder where they come from. So I want to make the school 'rubbish bin' free! So what they do .. they collect all the trash and create many things. They use these things they create, using recycled materials, as there are no rubbish bins. I think I want to implement this, that takes time also ...
> *(.. kebersihan dan juga landskap. So kita train budak lah, sampah kena buang dalam tong sampah. Saya pernah warning kepada budak-budak ini, maybe at one time kalau u tak nak gunakan tong sampah, saya akan tiadakan tong sampah. Sebab saya tengok everyday sampah cukup banyak, daripada mana datang, I pun tak tahu. So I nak buat satu sekolah tiada tong sampah! So apa yang dia buat .. semua bahan-bahan terbuang itu dia kumpul, dia buat macam-macam ini dia buat. Dia gunakan benda-benda itu, menggunakan benda recycle, memang tidak ada tong sampah. I think I nak implemenkan itu, that one take time pula...)*
> (IntvHMCO1/090513/Line 86-93)

He continues:

> ... now for Science, they also have tree planting. Just received letter yesterday, the District Council provides the plants, want to create a Science Garden lah. They brought here vegetable plants and small tree plants. Now only we get started. In the year I came, the school had nothing lah. The Science Garden was in a bad state, I want to continue all this, costing is very high! Now I see many changes, many I had endured, constraints. The main constraint is budgeting.
> *(... sekarang bagi Sains, dia juga ada tanam pokok-pokok. Baru surat dapat yesterday, Majlis Daerah membekalkan pokok-pokok, nak wujudkan taman Sains lah. Pokok-pokok sayuran, pokok-pokok renik, dia hantar sekolah. Baru kita mula lah. Dalam tahun saya masuk, sekolah ini nothing lah. Taman Sains itu sudah kondem itu, I nak continue semua ini, costing paling tinggi! Sekarang saya sudah nampak banyak perubahan, banyak yang saya hadapi, konstrain. Konstrain utama, bajet.)*
> (IntvHMCO1/090513/Line 74-81)

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He informed that there was collaboration with the District Council and the Agriculture Office (*Pejabat Pertanian),* where the Office supplied the fertilizer and the Council sent the seeds, plants and the soil. He was also thinking of planting *papayas* (which he did at his previous school) at the side of the field. He likes planting fruit trees because they can harvest it when the trees start fruiting and when the fruits are ripe. Over at his previous school he mentioned that he had planted *rambutan* trees and during the *rambutan* season he would ask his workers to pluck them and leave them in a big basket at the school canteen for all to eat. Anyone could eat and he had done that with the ripe *papayas* too. He was also thinking of giving or assigning every teacher a fruit tree to adopt and to care for it. If the tree dies he would not get to eat the fruits. So presently he was thinking of the budget, and also of preparing the area to ensure that it is free from pests like snakes, wild boars and monkeys which could pose a danger to the pupils and the teachers.

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The *GPK*1 also informed of the projects carried out by the school. For the year they intended to start to beautify the school by planting trees and flowering plants and this would be carried out in the afternoon involving the pupils so that the pupils would know and understand that the greeneries will provide shelter from the sun. This would be a special project for beautifying the school by the groups of pupils. He added that the previous month, they had carried out *gotong royong* with the help from the District Council which provided the plants as evidenced by the sight of the plants being planted by the side of the road. He was also pleased to point out that the District Council can also provide further advice and all they need is to write or phone them. They have also appointed a teacher as the coordinator for the school

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beautification and cleanliness. They have encouraged the pupils to plant flowering plants around the H Block as they have intention to start a flower garden.

On this matter Puan Kamsiah informed that from the initiatives of the teachers the school had *gotong royong* to beautify the surroundings by planting flowering plants and trees. She seemed quite detached from the school and did not inform of any plan of the school relating to EE. According to her there was no collaboration with other bodies outside the school.

4.2.10.9 Issues on the Implementation of EE in the School

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According to Encik Jallaludin, his main constraint on the implementation of EE programs here is funding. There is no budget for it. Anyway, even though being new to the school, (this is his third year at the school as headmaster), he had initiated some changes by setting things straight first and intends to carry out his projects mentioned earlier in the near future.

Besides the area of funding as a constraint, Encik Rasdi also identified a few other areas which needed improvement. For example, he mentioned that the school culture towards EE was only satisfactory. He was referring to the attitudes and awareness level of the teachers as well as the pupils towards looking after the environment. On another note, he felt that there should be monitoring and evaluation of EE by the relevant authority. He felt that the school EE program should be emphasized through a circular so that all schools would follow. Additionally, the

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Ministry should conduct courses on EE for the teachers to ensure that every teacher is exposed to EE.

On the same question about issues, Puan Kamsiah also mentioned that the school did not receive any allocations for EE. Another point that was brought up by Puan Kamsiah was that although the pupils were exposed to EE, they do not practise it. For example, they would not pick up trash unless they are told to do so. Based on her experience at her previous school which is located in the rural area, she observed that the pupils from the town school are not so serious at practising environmental values.

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4.2.11 Interviews with the Three Subjects Teachers

Two rounds of interviews were conducted with the subject teachers. A total of thirteen questions were posed to the teachers (refer to Appendix D). The findings are discussed under the following categories.

4.2.11.1 Goals and Priorities of the School

All the teachers interviewed were clear about the goals of the school. All of them quoted the school motto "*SK Cempaka* Number One" and mentioned that its mission is to be an excellent school (*sekolah cemerlang*) in the district.

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4.2.11.2 Subjects that Get the Most Attention

All the teachers gave similar responses stating without a doubt that the five examination subjects for *UPSR* get the most attention and resources. The focus of the schools is still on academic excellence. Samples of interview conversations are given below.

CO1 School teachers:

> Puan Bariah (T*BM*1CO1): "Overall, we must focus on five *UPSR* subjects because the goal of our school is to achieve excellence in the *UPSR* ..."
> *("Secara keseluruhan, kita mesti fokus kepada 5 subjek UPSR, kerana matlamat sekolah untuk mencapai kecemerlangan dalam UPSR ....")* (IntvT*BM*1CO1/161012/ Line 61-62)

> Puan Sakinah (TSC1CO1): " ... usually if we look at resources, it's the core subjects which receive more allocations, like *Bahasa Melayu, Bahasa Inggeris*, Mathematics, and Science, but for *KH*, it's given more because it is a subject which involves activities and apparatus and things like that ..."
> *("... kebiasaannya kalau kita lihat dari segi sumber, memang subjek teras lah akan diberi peruntukan yang lebih, seperti Bahasa Melayu, Bahasa Inggeris, Matematik, dan Sains, tetapi bagi mata pelajaran KH, juga er, diberi lebih, sebab KH itu, dia satu mata pelajaran yang lebih kepada aktiviti-aktiviti, alatan-alatan dan sebagainya lah.")* (IntvTSC1CO1/221012/Line 41-45)

> Mr. Kong (T*KT*2CO1): "... the area or subjects which receive attention are mostly examination subjects in the *UPSR*, like *BM, BI*, Science and Mathematics."
> *("... bidang ataupun mata pelajaran yang menerima perhatian iaitu kebanyakan subjek-subjek yang merupakan subjek peperiksaan di UPSR, seperti BM, BI, Sains dan Matematik.)* (IntvT*KT*2CO1/161012/ Line 27-29)

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4.2.11.3 Importance of EE

Puan Bariah felt that EE has to be stressed to all pupils so that they can appreciate the existing environment so that it is not polluted, not destroyed and also to prevent the extinction of flora and fauna. She clarified that EE does not exist as a subject, only it is infused into Health Education, *PJ*, Science, and little bit in the teaching and learning of *BM*. So it is not a priority here. However, indirectly in *BM* there are values to inculcate, like appreciating the environment and it is also questioned in Section C (*UPSR*) concerning moral values. So she had to inculcate values like "we have to be thankful for the natural happenings, appreciating the beauty and to love the natural environment by planting flowering plants around the house, school and other places".

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Personally, she felt that EE is important because the pupils of the present generation seem to have lack of appreciation because such values are seldom inculcated, probably because they are not exposed much. Much of their time is spent with computer games whereas at their age, she spent time at home helping out with gardening. So now they are not so conscious (*prihatin*) of the environment. According to her, present homes also do not place importance on planting trees. She further clarified that those days she did gardening which also served as a source of food for the family.

She mentioned that presently, it is not specifically stated that the teacher has to carry out EE. All is left to the discretion of the individual teacher. However for *BM* there is a topic on the environment. Also in Science there exists topics related to

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the environment. It is clearer in Science, like for example, to investigate the living environment where pupils conduct experiments. But in *BM* usually it is indirect, except for the specific topic on the environment in Year 5.

Next, on a personal note, Puan Sakinah felt that EE is an important area of study because from EE, pupils will produce positive learning and good thinking results. She informed that EE is not of "very" great importance here as the school has to concentrate on core subjects. She also clarified that in the primary school, EE is not directly included but indirectly there is integration (*penggabungjalinan*) and especially in the *KT* subject and Science, in the area of natural materials / resources (*alam bahan*) where EE is infused. She was of the opinion that EE is important for our students and they should be exposed in the primary school so that the pupils are aware of the environment, love the environment, and to produce a clean and beautiful environment. The details of EE in Science and *KT* is the transformation (*pengolahan*) of the environment and the effects of the transformation bring about pollution – water pollution, air pollution and land pollution. In *PSK* also EE infusion in primary schools is more towards cleanliness and to maintain the level of cleanliness.

Puan Syarifah was of the opinion that EE is important because she felt that the present generation is less appreciative of the environment. So infusion of EE should be compulsory for all subjects in order to produce a generation which appreciates the environment. Looking at the present situation, looking at discipline and attitude of the society towards the environment, she felt that the school is the place. She mentioned that "The school is the place where we can infuse environmental values".

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According to Mr. Kong, "EE is exposure to us that our lives are very close to the environment, cannot be separated from the environment. We have to look after the environment so that the resources available is always there ..." (IntvTKT2CO2/161012/Line 38-39). He elaborated further on the importance of EE:

> "Personally, I feel that EE is very important. If we see other countries, they do research on the environment. Over here EE is included in specific subjects like Science or *KT*. I feel that it is very important because we cannot be separated from the environment we live in. If we do not look after the environment we ourselves will receive the effects one day". (IntvTKT2CO2/161012/Line 60-66)

4.2.11.4 Desired Status of EE in Schools: EE as a Separate Subject?

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The investigator also asked the teachers on the desired status of EE in the school curriculum, on whether EE should be taught as a separate subject. The following are their responses.

Puan Bariah mentioned that it would be nice if EE can be included as an important subject in school ("*eloklah*"). It would be more focused with objectives and skills to be achieved. Presently it is only indirect and left to the initiative of the teacher but if it exists as a core subject then it would be easier for the teacher to impart EE. She supported the idea that EE should exist as a separate subject, but was aware that this would imply that we have to add one more option at the colleges for the subject (to train the teacher trainees).

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Puan Sakinah also agreed that EE can be taught as a separate subject because in the past *Alam dan Manusia* (Man and Environment), consisted of many infusion in one subject and when there was too much integration (*penggabungjalinan*) so pupils could not catch up and relate to them. She clarified further that if it is made one special subject, the pupils can focus, more attention can be given and the curriculum can be more detailed. However, she is aware that if it is a special subject the main problem would be time because the pupils have lots to learn with *KSSR* ... (laughs)... lots of challenges. In *KSSR* there is the World of Science and Technology, (*Dunia Sains dan Teknologi*) which can relate to the environment. Of course to her, EE is important. She supported the idea but cautioned that it must be based on detailed planning so that it can run smoothly.

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On a personal note, Mr. Kong mentioned that EE can be taught as a separate subject but expected that most teachers would not accept this suggestion because they feel that the environment is just a normal matter (taken for granted). He felt that it can be taught as a separate subject so that proper activities can be conducted, not only in theory but in practice. He gave the example that the pupils can be directed to clean up certain areas to give them the practical experience, like take them to the beach, let them see for themselves ... then if the area is dirty, to let them think of how to solve the problem. If it is "across the curriculum", it would only be to the extent of telling only, (even so only if the teacher remembers! If not, the teacher will just ignore it). So he felt that this subject is important.

Another Science teacher interviewed, Puan Syarifah asserted that "The school is the place where we can infuse environmental values. Only that if EE is made a

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special subject, it's difficult". (IntvTSC3CO1/221012/Line 162-164). She explained that presently there are too many subjects (amidst laughs), and suggested the inclusion of sub-topics in Science, *BM*, Moral Education instead. She even suggested at emulating measures done for Road Safety Education, that is, to include in *BM* one period or 30 minutes per week or even one hour for Road Safety Education (*Pendidikan Keselamatan Jalan Raya).* The same could be done for environmental education as there are 10 periods of *BM* per week!

She continued,

> "... Presently, even though the specific topics are already in certain subjects like *BM* and Science but when finish teaching the topic, that's it, finished! Whereas for *Pendidikan Keselamatan Jalan Raya*, they have to teach 30 minutes every week, meaning it follows the syllabus until year end. Meaning the component is compulsory, complete with the syllabus and also must write *RPH*, like prepared with module, *RPH* for *Jalan Raya* is ready, we must follow. Only if we choose to change the activity suitable for our students, but they provide the guide in the module, so every week they must have, complete with exercises, CD containing materials related to *Jalan Raya*, for example, symbols all in one bag for the teacher and for the pupils, they provide the books free of charge – all these in the *BM* subject, because for *BM* they have a lot of time, 10 periods a week. As for other subjects it might be difficult because do not have that many periods". (IntvTSC3CO1/221012/Line 173-178; 184-193).

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4.2.11.5 School EE Programs

Mr. Kong was quite positive of the developments in the school relating to EE. However, he admitted that presently there was no environmental club or society at the school. He mentioned that:

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> In this school there is no *Kelab Pencinta Alam*. But only being discussed during meetings and it is our HM's focus and request that we have to train pupils to start to look after the cleanliness of the class to the school level... Of course, the school does support efforts at EE, especially our HM who places importance on the beauty of the environment (keceriaan), the cleanliness of the school and efforts at greening the school surroundings, and also programs which are not official like *gotong royong*. We also notice that the workers also planted many trees to beautify the school environment.
> (IntvTKT2CO1/161012/Line 44-47; 50-57)

4.1.11.6 Curriculum and Instruction

Puan Bariah informed that presently, it is not specifically stated to carry out EE. All is left to the discretion of the individual teacher. However for *BM*, she clarified that there is a topic on the environment (refer to Figure 4.6). Also, the contents of the Science Syllabus in the primary schools consist of the knowledge and facts of environmental-related factors. There exists topics related to the environment as shown in Figure 4.6. It is clearer in Science, like for example, "investigate the living environment" where pupils conduct experiments. In *BM* it only occurs in a specific topic. Usually for every year there is a topic on appreciating the environment.

The investigator also asked her preparation for her lessons. Her responses are as follows:

> T*BM*1CO1:
> References usually, the first one has to be the guidebook ... the annual lesson plan, the lesson plan for the day, textbook which is the main one lah ... and besides that we have other references like the Sasbadi book ... which I use as an additional. But most importantly we have to refer to the Curriculum Specifications which is prepared by the Ministry so that we don't stray from the objective that we want to achieve.

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> *(Bahan rujukan biasanya yang pertamanya mestilah buku panduan, .. rancangan pengajaran tahunan, rancangan pelajaran harian, buku teks, dan juga itu yang utama, buku teks lah, dan sampingan, kita ada juga buku-buku dari sumber luar contohnya buku Sasbadi, biasanya saya suka gunakan buku Sasbadi sebagai buku rujukan tambahan yaa. Tapi yang paling penting, kita kena rujuk kepada huraian sukatan seperti yang disediakan oleh kementerian, supaya tidak tersasar daripada objektif yang kita nak capai lah.)*
> (IntvT*BM*1CO1/161012/Line 221-226)

Besides that Puan Bariah was also asked on how she taught the specific topics like Unit 4: Environment. She described the way she taught the topic as follows:

> Knowledge ... we teach through discussion, explaining from the textbook. Assessment, we use the system of examination ... composition or poetry on the environment, for the environment ... if Section C, usually we have topic on pollution, pollution on land ... then the pupils look for the values. Such topics are related to looking for values, that's all.
> *(Pengetahuan ... kita mengajar melalui perbincangan, menerangkan berpandukan buku teks. Penilaian, kita buat sistem peperiksaan, ... karangan ataupun kepada penulisan sajak tentang alam, bagi alam, ataupun dalam bentuk puisi lah ... . kalau Bahagian C, biasanya kita ada topik tentang pencemaran, tentang pencemaran alam, kemudian murid cari nilai. Topik-topik yang berkait itu untuk mencari nilai-nilai murni yang terdapat, itu saja lah.)*
> (IntvT*BM*1CO1/161012/Line 252-258)

On methodology of teaching, she likes to conduct discussion, oral communication between the pupils, to identify their existing knowledge, continuous drilling in the classroom, in particular for *BM*, all lessons were conducted in the classroom with group discussion and question and answer (Q&A) as the main activity.

Specifically on how she taught Unit 4 on the environment, she used the text from the book which to her is enough and complete. She used it for reading with correct intonation, answering questions orally - meanings of words, answering

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questions (both written and oral), discussion, writing essay and poems (*puisi*). She clarified that for the subject matter, to her it's more towards 'pantun', focus of the language. Like campaign, for example, "*gotong royong"*, it was done in writing (*penulisan)*, dialogue – orally, and more towards writing. So the main focus was on language skills and in the process she related to the content on the environment (to her there are many examples of it in our environment, but not clarifying any further).

Methodology used was focused on discussion in the classroom, and 'question and answer' (Q&A) sessions. She acknowledged that outdoor is also important, but mentioned that it is not so relevant for her subject, *BM*. She had never used the outdoor method as to her it is not suitable for teaching the subject. Her main focus is on language skills and clarified that only on occasions like competitions, then it is done on stage (*syarahan, puisi*) and also during school assembly.

She clarified further that if teaching language skills, she could not do outdoor activities like "planting trees" ... it would end up at not achieving her objectives. Her actual words were :

> ("*Kalau pertandingan syarahan, puisi, ok lah ... bawa ke pentas ke, ke perhimpunan pagi, ok lah, tapi kalau bahasa dibawa menanam bunga tak berapa kena lah ... ha ... itu lah masalah ..... kalau BM pula mengajar BM, jom kita tanam pokok ha ... saya tak boleh mengajar, objektif saya tak capai lah betul tak? Ha ... itu masalah!*")
> (IntvT*BM*1CO1/161012/Line 37-39; 40-42)

According to her the outdoor method is suitable for subjects like *KH* and Science where they have to carry out activities which are related, like gardening and conducting experiments. As for *BM*, it is more focused on writing, essay, "*puisi"*, "*sajak"* ... that's all!

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On assessment, she explained that it is done through formal (examination) and non-formal (through teaching-learning activities in class) means. The pupils were also given work in the form of exercises. As for the affective aspects she asserted that the teacher needs to know the pupils. This can be done by observing them during activities in the class, as individuals, on how the pupil projects himself in front of the class, and also communication during activities.

The Science teachers were also asked on how they taught a specific topic related to the environment. The specific topic was "Food chain and food web". For a start Puan Sakinah gave an introduction on living things. According to her, she brought the pupils out and asked the pupils to list out living things. Then for simulation, she used the song "*Bangau Oh Bangau*". She recalled that the pupils were very interested in this topic because it was something which they could see. She reiterated that " ... For food chain, we bring pupils out to look at living things (to list them) and make connections (on knowledge and skills). As for values, when the pupils see for example the grass condition – dry, we infuse values here like what happens here, what we should do about it ..." (IntvTSC1CO1/221012/Line 194-196; 197-200)

As for Puan Shamsiah, she also used simulation. She explained that " ... before that the pupils must know the three groups of animals – herbivore, carnivore, and omnivore, so that he is able to relate 'who-eats-what'" . (IntvTSC2CO1/221012/Line 92-95). The pupils were divided into groups and the teacher gave them the names of the animals, (she used flash cards), and the pupils

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would form the food chain or look for the "producer, primary consumer, secondary consumer" (*pengeluar, pengguna pertama, pengguna kedua*). She admitted that the class would be noisy a bit as the pupils got interested. From this activity, they explained the relations.

At the same school, Puan Syarifah used the slides from the compact disc (CD) which was supplied by the Ministry. She translated the *BI* words into *BM* when she used it. She explained that she let the pupils understand that the base is plants, and so they start with plants. In the class, they had group work, like playing games, solving puzzle, and at times the teacher gave the animals and they pasted according to the food chain. She noted that the pupils liked activities, they liked to present but the problem was after that, they did not remember! During examinations they cannot remember. They are not good at applying what they have learnt in the examination questions. That is the sad part! (Laughs). She explained that she was not able to help much because of the nature of the class and that also it consisted of many pupils (33 of them). So she mentioned that she only guided them to ensure that they pass the target that she set. She pointed out that due to the constraints (the class had remedial (*pemulihan*) pupils and also that she teaches Year 6, the class had to be left behind.

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On assessment Puan Sakinah clarified that for the Science subject, there is evaluation on practical work and it is recorded in the Science Practical Work Assessment (*Penilaian Kemahiran Amali Sains*, *PEKA*) book for each pupil. According to her the contents of *PEKA* are divided into two sections, Science process skills and manipulative skills. The manipulative skills focus on values on how the pupils handle the apparatus, how they take, how they arrange, and how they keep the

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apparatus. Whereas the Science process skills focus more on knowledge like when they carry out experiments, they observe, they classify, they list out the variables, and they come to a conclusion.

Mr. Kong also mentioned that: "... like for *KT*, there are topics on the environment, so here I shall include the elements to look after the cleanliness, our roles, the pupils' role... It is stated in the syllabus for *KT* which requires infusion of environmental values". (IntvT*KT*2CO1/161012/Line 69-73; 76-77).

(The topics related are shown in Figure 4.6, p. 157)

On how he would teach a topic on "*Bentuk Muka Bumi"* (landforms), Mr. Kong clarified that he would relate the topic to the areas where the pupils come from. They would be told to observe the surroundings and to identify whether they are areas for tourism, agriculture or industry. In class they would report on them in their group discussions. Besides that, he clarified that he used power point presentation consisting of pictures acquired from the internet. He found it more effective to let them see the pictures and to talk on what they see. For pupils' evaluation, Mr. Kong observed and encouraged them to be involved during discussion.

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4.2.11.7 Evaluation of School Performance in Terms of EE

The teachers were also asked to rate the success of the EE program at their respective schools, (on a scale of 1 to 10, with 10 being the highest score and 1 being the lowest). Some of their deliberations and evaluations are as follows:

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Puan Bariah rated 8 points on the implementation of EE program at the school. She considered the rating as "good" because, "... with the present administration, there is improvement, a lot of changes and HM is a person who is conscious (*prihatin*) and also plays his role in the development of the school. At this point, it looks okay." (Intv*TBM*1CO1/161012/Line 147-149).

As for Mr. Kong :

> I would give only 5 points (laughs) because from what I see, the pupils have yet to practise environmental values. Maybe it's because of lack of exposure by the class teacher where I notice that the classroom is dirty whenever I enter the class. I would always ask the pupils to clean the class before I start teaching (use about 2 – 3 minutes). I see that in this aspect we are not that successful yet.
> (Intv*KT*2CO1/161012/Line 82-87)

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Puan Sakinah gave a rating of 7 points. She felt that even though EE is important, they were more towards examinations. According to her "7" is good. She is confident that it can change in future if EE is made a core subject whereby the focus will be more. If it is just "*subjek sampingan*" or as infusion in other subjects, then there is not much.

4.2.11.8 Issues and Challenges

Puan Bariah felt that she had no problem at incorporating EE in the subject curriculum because to her EE is easy to incorporate. For example, in her *BM* lesson, if the topic was related to the environment, she could ask the pupils to explain, write

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essay, construct poems (*pantun*) appreciating the environment. The only point she brought up was that the outdoor method is not suitable for her subject as she mentioned that her objective would not be achieved. According to her the outdoor method is more suitable for subjects like *KH* and Science.

Mr. Kong felt that his pupils have yet to practise environmental values as he noticed that the classroom was dirty whenever he entered the class. He also mentioned that in the past there were efforts to collect old newspapers for recycling but the practice did not sustain. He added that it needs efforts and initiative from the individual teacher to stress on environmental values and generally, teachers tend to neglect their duty as much effort is focused on completing the syllabus and preparing pupils for examination.

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The teachers had not seen the Teachers' Guidebook for Environmental Education Across the Curriculum (when shown to them by the investigator) and had no guide on integrating EE into the subject curriculum. Nevertheless, all of them felt that they had no problem incorporating EE in their lessons.

4.2.12 Observations of Classroom Teaching

With the consent of the teachers, the investigator also carried out observations of classroom teaching for the three subjects. The findings are as follows.

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On instruction (classroom teaching), based on observations, when it comes to the actual implementation of *EE Across the Curriculum* in the classroom the investigator found that the teachers in the sample seemed to have very little sense of direction and very little EE actually took place.

4.2.12.1 *Bahasa Melayu* (*BM*) Lessons

Observations of the *BM* lessons at CO1 revealed that classroom cleanliness was attended to, (as evidenced by the sweeping of the floor by the pupil on duty and the occasional call by the teacher to *kutip sampah* before the start of the lesson). (Clean environment for study). It was observed that the pupils seem to generate trash during the lessons and very often, the trash basket at the back of the classroom was seen to be full.

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A total of three classroom teaching observations were made (17.06.2012, 12:05–1:05 p.m.; 03.07.2012, 10:35 – 11:35 a.m, and 13.07.2012, 07:35– 08:35 a.m.). The first lesson was on Reading, Comprehension and Vocabulary based on a passage in the text book on "*Leftenan Adnan*". The second one was a poetry recital based on "*Tanah Pusaka Tercinta*" (in praise of the motherland) and the third lesson was on noble values based on a reading passage which was related to EE (about the collective efforts of family members in cleaning and tidying the compound of the house). There was the inculcation of noble values in the three lessons and these were related to the contents of the lessons. It was noticed that classroom cleanliness was attended to (as

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evidenced by the sweeping of the floor by the pupil on duty and the occasional call by the teacher to *kutip sampah* before the start of the lesson).

However, it was noticed that the teacher only related more to the environment when the topic or passage concerned the environment (as in Lesson 3). The investigator felt that the teacher could have infused EE (environmental values) by also relating to the environment in Lesson 2. For example, in Lesson 2 on the poetry recital in praise of the motherland, the teacher could have asked about the interesting physical features about the country that make every citizen proud. It was observed that the teacher only related more to the environment when the topic or passage concerned the environment (Lesson 3). For the most part, the focus of the lessons was on language skills (vocabulary, poem, and writing), and also the correct procedure to score well in exams. Her lessons had an exams-oriented focus. Another particular point revealed is that during the three lessons, the teacher did not care so much about discipline in actual practice (for example, skipping the exchange of greetings at the start of the lessons (Lesson 1 and 2), and also at the end of Lesson 3. Interestingly, the teacher had talked about noble values in the three lessons but some of these values were not put to practice. Overall, the investigator felt that more of EE could have been infused in the three lessons (like including the environmental components or implications as in Lesson 3).

4.2.12.2 Science Lessons

Observations of the Science lessons also revealed some interesting findings. A fair amount of classroom cleanliness was being maintained (evidenced in the sweeping of

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the floor to clear the rubbish before the lesson started) by the pupil. A duty roster existed in front, on the soft board. There were the usual exchange of greetings at the start and end of the lesson as this is the norm. Discipline was maintained at all the lessons by the teacher(s). It was observed that most teachers followed a "standard operating procedure" that is, writing the day, date and topic on the blackboard at the start of each lesson.

Only two observations of Puan Sakinah's lessons (upon her request) were made (17.06.2012, 10:35 – 11:35 a.m; and 21.06.2012, 10:35 – 11:35 a.m.). A fair amount of classroom cleanliness was maintained (evidenced by the sweeping of the floor to clear litter before the lesson started). Moreover, as in most classrooms, a duty roster existed. In Malaysian schools the usual exchange of greetings at the start and end of the lesson is the norm. Interestingly, the teacher followed a *Standard Operating Procedure* of writing day, date and topic on the writing board. The lessons were on "Air and its effect on heat" (*Udara dan kesan pada haba*) and " Changes in the condition of substances" (*Perubahan keadaan bahan*). The focus of her lessons was on deriving the scientific facts through experiments. The investigator felt that the facts could have also been derived from the environment – the pupils' surroundings, and from everyday occurrences in the environment that we live in, as an example.

On another note, the teacher seemed to focus on getting the scientific procedures and facts right (and) for examination – to do well. The pupils were often reminded of the correct methods to score well in exams. Overall, the teacher seemed to lack the ability and skills to relate more to the environment, like for example,

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everyday practices and occurrences in the environment and also sourcing examples from the environment relating to the topics taught.

One observation of Puan Shamsiah's lesson was conducted on 25.06.2012 (10:35 – 11:35 a.m.) at the Science lab and the topic was on 'The three states of matter – solid, liquid and gas'. The lesson was on categorizing materials according to the three groups and the pupils were divided into groups to produce a scrap book per group. On the content of the lesson, the teacher could have guided them by using examples from the environment instead of only using examples in the Science lab. More emphasis from the teacher came in the form of reminders on how to achieve more marks as the groups were to compete to produce the scrap book.

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The investigator also managed to observe another Science teacher's (Puan Syarifah) lesson on another Year 5 class on the 26.06.2012, 10:35 – 11:35 a.m. and the topic was also on 'the three states of matter – their properties'. The lesson was conducted in the normal classroom. It was observed that the lesson was purely a lesson in Science on identifying the properties of the three states of matter.

The Science lessons focused on deriving the scientific facts through the experiments (the facts could also have been derived from the environment – their surroundings, and from everyday occurrences on the environment that we live in, as an example). It was observed that the Science teachers focused on getting the scientific procedures and facts right (and) for examinations – to do well in it. (Pupils are often reminded of the correct method to score well in the examination.) It was felt that the teachers lacked the ability and skills to relate more to the environment, for

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example, everyday practices and occurrences in the environment and sourcing examples from the environment relating to the topics taught.

4.2.12.3 *Kajian Tempatan (KT)* Lessons

For Puan Kamsiah (T*KT*1CO1/*GPKKokur*CO1), during the only *KT* lesson that the investigator observed (14.06.2012, 10:05–10:35 a.m.), she appeared unprepared. She was moody. The topic was on "the Sultanate of Malacca". It was observed that she did not prepare for the lesson and she used the textbook as a main teaching resource. (Even the story of the Malacca Sultanate needed constant reference to and reading from the text! Dependence on the school text was clearly detected.) Furthermore, the teacher did not bring in contemporary issues to make the lesson interesting. The lesson merely focused on historical facts. The geography element, even though related was not expanded upon. For example, it could have been related to environmental factors, natural resources and geographical location. It was also observed that the teacher did not focus on noble values and discipline. Efforts at conservation was never emphasized. The only evidence of inculcating environmental values was on stressing on the cleanliness of the classroom before the start of the lesson.

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Three observations of classroom teaching were made on Mr. Kong's (teacher who took over Puan Kamsiah's *KT* class) lessons (27.06.2012, 09:35–10:05 a.m., 11.07.2012, 09:35–10:05 a.m., and 01.08.2012, 09:05–09:35 a.m. The topics were on "The coming of external forces to Malacca", "The origins of the name of Sarawak",

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and "The administration of the state of Sarawak". The contents of the lessons were based on historical facts only and it was felt that the teacher could have expanded on the geography of the state of Sarawak and its interesting features.

In the classroom, Mr. Kong also appeared to be quite of a disciplinarian (probably because of the class of pupils he teaches – the last class). He appeared strict towards the pupils. Being a non-native speaker, his command of the national language was sufficient to get the message and contents across (in the spoken form). It was evident that he planned his lessons well. Overall, he was quite systematic in his approach and it looked like he still applied what he learnt at the Teacher Training Institute (*Institut Pendidikan Guru, IPG*), (in his usage of teaching aids like word-cards). He advocated cleanliness in the classroom and also energy conservation, like ensuring the pupils switched of the lights and fans before leaving for another class.

For the *KT* lessons observed, there was too much dependence on the school text. Teaching was by referring to the textbook (T*KT*1CO1). This reflected on teacher-preparedness for the lesson. The textbook seemed to be the only source of reference for this particular teacher. Furthermore it was observed that the teacher did not bring in contemporary issues to make the lesson interesting. Lessons merely focused on the historical facts. The geography element, even though is related but was not expanded upon. This could have been related to environmental factors / topics like natural resources and geographical location. The teacher did not focus on noble values and discipline. Efforts on conservation was never emphasized upon (T*KT*1CO1). In fact the attitude of the teacher was questionable – not prepared for lesson, coming in to class late, more focused on other work commitments. The only

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evidence of inculcating environmental values was on stressing on the cleanliness of the classroom, (T*KT*1CO1 & T*KT*2CO1), and energy conservation (T*KT*2CO1 – switching off lights and fan when the pupils were leaving the classroom).

4.2.13 Observations of the School (Environmental Scanning /Green Audit)

During the many visits to the school the investigator would always do an environmental scanning of the school to look out for new developments related to EE being implemented at the school. The results of the observations are based on the following categories.

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4.2.13.1 Policies that Support *EE across the Curriculum*

As mentioned earlier in Table 4.3, the fifth mission statement is to create a conducive environment in the school and in the classroom through the 3K Project (3K means *Kebersihan* (Cleanliness), *Keceriaan* (Beautification) and *Keselamatan* (Safety). In keeping up with its mission attention is being given to keeping the school compound clean and beautiful with the planting of flowering plants by the school gardener. The vision and mission statements are displayed in the office. In one of the information boards along the school corridor was displayed the 3K Committee.

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4.2.13.2 Displays of EE Related Materials

It was noticed that there were no displays of EE related materials on the many notice boards along the corridor. Since the environmental club does not exist, there is no information board to display materials related to EE.

4.2.13.3 Landscape Management

Existing landscape is being maintained with no new structures added. Flowering plants are planted by the side of the road in front of the school building. What looked like once a Science garden containing a nursery of plants exists in between two blocks of building. The school field is being maintained well.

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4.2.13.4 Energy Saving Measures and Economical Usage Practices

No energy saving measures and economical usage practices were detected at times of visits. There were no reminders or displays on the wall on any energy saving measures. On consecutive visits to the school it was noticed that an existing external faulty tap was dripping water (at the old Science garden). It took quite some time to be rectified.

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4.2.13.5 Management of Waste Disposal / Garbage

Waste / garbage disposal is managed by the local authority (Alam Flora) regularly. No spillage of waste / garbage was detected.

4.2.13.6 Special Features

The school has a vast school field, as shown in Figure 4.2, for outdoor co-curricular activities. It has a row of outdoor tables and stools, as shown in Figure 4.3, which serve as rest areas for the pupils during recess time. Additionally the rest areas can be used for group discussion during outdoor activities.

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4.2.14 Summary

SK Cempaka is operating with the necessary basic facilities for teaching and learning. Although the school has been in existence for more than 50 years, the school compound looks neat and tidy. It is evident that overall maintenance is being monitored by the HM, Encik Jallaludin closely who happens to be environmentally conscious and attends to matters related to the environment of the school as a whole. Encik Jallaludin had also disclosed that he has plans to plant fruit trees (papayas in particular) at the edge of the school field near the Pre School building. Efforts are geared towards maintaining a conducive learning environment in the school and in the classrooms for the students.

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4.3 Case Study Two: *SK Wan Idris*, (CO2)

The data in Case Study Two are presented in a total of fourteen categories. The following are detailed descriptions of the various categories.

4.3.1 Profile of *SK Wan Idris*

SK Wan Idris is also classified as a town school (*sekolah bandar*) and is situated across the road, just a stone's throw from *SK Cempaka*. This school has a long history too. It started in 1929 as a public school (*sekolah rakyat*). The concrete buildings only came up in 1975. Since then, the school has evolved till present day and it houses many blocks of buildings (8 in all, Blocks A to H as shown in Figure 4.7). It is situated on undulating (hilly) land and the blocks of buildings are not situated on the same level of land. The newer blocks (G and H), are on lower ground and as one enters the school from the lower ground, the land gradually gets elevated and access is through many flights of steps leading to the older blocks of the buildings (A and B). Another entry point to the school is an off-road from the main road leading past the guard-gate right to the higher blocks of buildings (A and B, which are also the older blocks). Such an environment provides interesting landscaping surrounded by gardens (*taman*) like the Kitchen Garden, for example.

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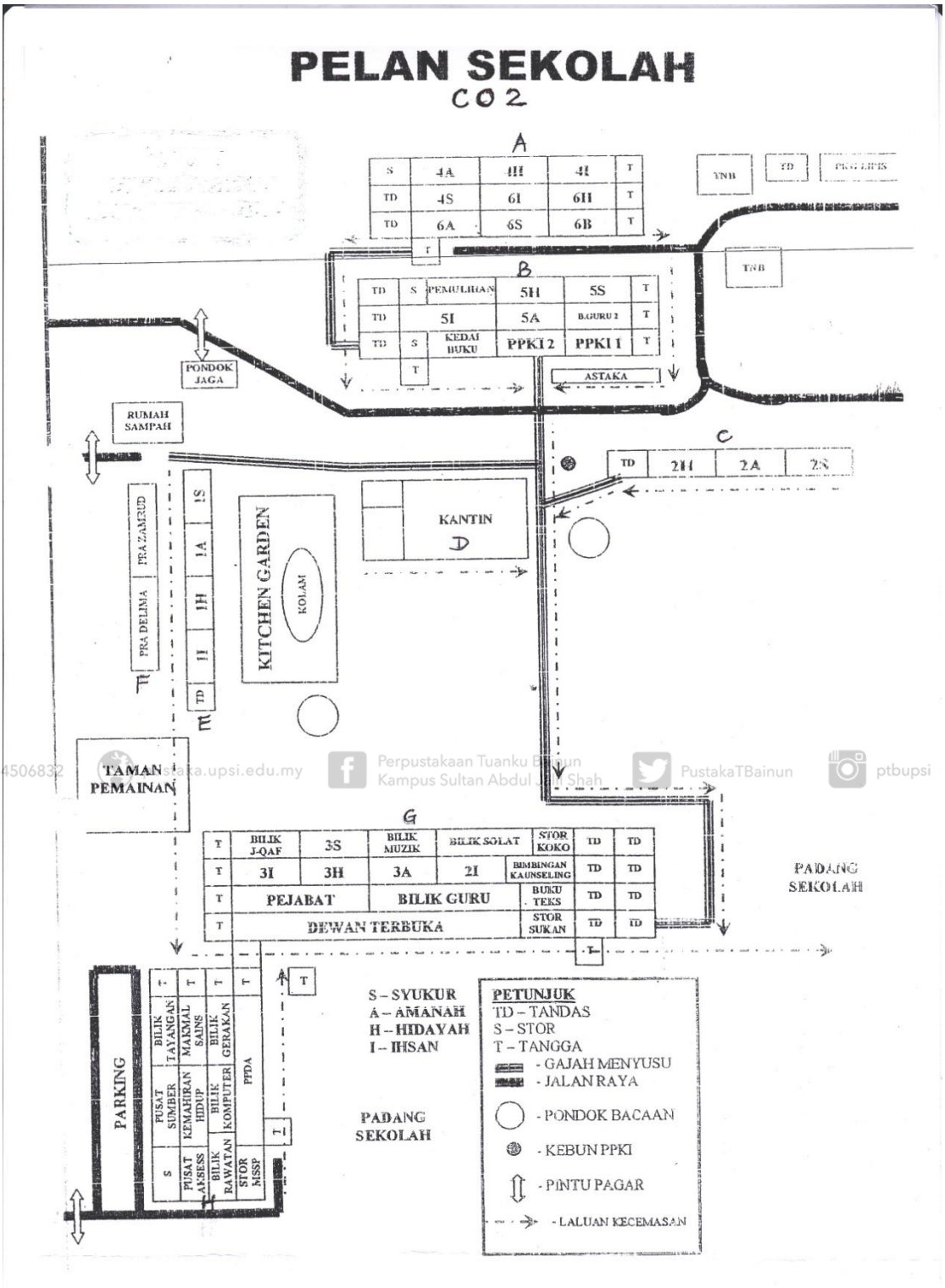


Figure 4.7. Plan of *SK Wan Idris* (CO2)

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Figure 4.8. The old block of the school



Figure 4.9. The new block of the school

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Table 4.6

Enrolment of Pupils and Staff, SK Wan Idris (CO2)

School	Category/ Grade	Pupils		Teachers		Teachers		Support staff	
		Male	Female	Male	Female	Grads	Non grads	Male	Female
CO2	Urban / A	315	342	12	44	27	39	2	8
Total		657		56		56		10	

The school has a total enrolment of 657 pupils (Table 4.6), managed by the headmaster and his three assistants (*GPK Pentadbiran & Kurikulum, GPK Hal Ehwal Murid, and GPK Ko-kurikulum*) and a support staff (clerical and general) of 10 (2 male and 8 female). The teaching staff comprises a total of 56 teachers (12 male and 44 female) of which 27 (48.2%) are degree holders. For the overall running of the school, various committees are formed and these consist of 22 Committees concerned with the administration and management of the school, 15 Committees with the Curriculum Unit, 13 Committees with the Pupils' Affairs Unit and 35 Committees with the Co-curriculum Yunit. Of interest to this study is the existence of committees which can promote EE, namely the School Canteen Committee (*JK Kantin Sekolah*) and the Cleanliness, Health and Safety Committee (*JK Kebersihan, Kesihatan & Keselamatan* , 3*K*) from the Pupils' Affairs Unit. The other committees are the School Beautification Committee (*JK Keceriaan Sekolah*) and the Kitchen Garden Committee (*JK* Kitchen Garden) from the Co-curriculum Unit. The Co-curriculum Unit offers a number of options in the Uniformed Units (6), Clubs and Societies (9), and Sports and Games (8) for the involvement of the pupils (see Table 4.7). There is the absence of the Environment Club or the Science Club at the school.

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Table 4.7

Co-curricular Activities Offered in SK Wan Idris

Uniformed Unit	Club and Society	Sports and Games
Pengakap	*Bahasa Melayu*	*Olahraga*
Pandu Puteri Tunas	*Bahasa Inggeris*	*Bola Sepak*
Puteri Islam	*Matematik*	*Bola Jaring*
TKRS	*Pendidikan Agama Islam*	*Bola Tampar*
Bulan Sabit Merah	*Rukun Negara*	*Bola Baling*
Pancaragam	*Keselamatan Jalan Raya*	*Sepak Takraw*
	Robotik	*Hoki*
	Kesenian dan Kebudayaan	*Memanah*
	Pencegahan Jenayah	

4.3.2 School Facilities

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Indoor learning facilities include the classrooms, the Resource Centre, the *Bilik Tayangan*, the Science lab, Computer lab, the Operations Room (*Bilik Gerakan*), and the halls (two in all). One hall (the smaller one) also houses an exhibition area for the Education on Prevention of Drugs Usage (*Pendidikan Pencegahan Penggunaan Dadah, PPDA*). Outdoor learning facilities comprise the Kitchen Garden, the school field, the Sheltered Stations (*Pondok Bacaan* (2)), the corridors containing the various information boards, and the playground (*Taman Permainan*) for the PreSchool, shown in Figure 4.7. One interesting feature is the presence of giant cactus plants and the fruit trees (bananas) around the Kitchen Garden area which also functions as the Science Garden. At the Kitchen Garden there is a pond (*kolam*). Overall, the school has ample open spaces for learning activities and for EE in particular.

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Figure 4.10. Information board at the Kitchen Garden

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Figure 4.11. Rest area at the Kitchen Garden

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Figure 4.12. Leading to the rest area at the Kitchen Garden



Figure 4.13. Kitchen Garden with giant cactus plants



Figure 4.14. Walkway at the Kitchen Garden

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Figure 4.15. Another view of the Kitchen garden



Figure 4.16. Herbal plants at the Kitchen Garden

4.3.3 Vision and Mission

The school's Vision statement reads, "*SK Wan Idris* Towards a High Achievement School in 2013". The Mission statement aims at building, increasing and generating excellence in curriculum, co-curriculum and also in human capital as shown in Table 4.8.

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Table 4.8

SK Wan Idris's Vision and Mission Statements

School	Vision and Mission Statements
CO2	Vision: CO2 Towards A High Performance School 2013
	Mission: To build, increase and generate excellence in curriculum
	To build, increase and generate excellence in co-curriculum
	To build, increase and generate excellence in human capital

Source: School Management Planning Book (*Buku Perancangan Pengurusan Sekolah*) 2012

4.3.4 The School Administrators

The school administrators involved in the study include the headmaster (HM), Encik Hassan aged 57 years, option/grade: General, *DGA*38; the *GPK* Administration and Curriculum (*GPK* 1), Puan Siti Rokiah, aged 48 years, opsyen/grade: *Pengajian Melayu*, *DGA*32; and the *GPK* Co-curriculum (*GPK Kokur*), Puan Faezah, aged 47 years, option/grade: *Pengajian Melayu, DGA*32.

Encik Hassan has been the headmaster of the school since 2008. He disclosed that before coming over here, he had been headmaster of three other schools at the outskirts and had served as headmaster for 25 years. He admitted that he has vast experience in management of different types of schools starting from 'under-enrolled' ones (less than 150 pupils) to the present one with an enrolment of around 600 pupils, 62 teachers and 10 support staff.

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Incidentally Encik Hassan has been awarded the 'Excellent Headmaster' award (*Guru Besar Cemerlang*) for his administration and management of the school. Acknowledging that the environment affects everybody, he is a keen supporter of keeping the school landscape and environment clean and tidy. There are recycle bins at the school and the school community takes part in the recycling project. He feels that *gotong royong* are a must and every year there will be one major one involving the school community and parents. He is also planning to have one involving an immediate neighboring secondary school which is situated on upper ground. He believes that when the drains at the school get clogged, it is partly due to the trash washed down from the drainage of the neighboring secondary school.

The *GPK*1, Puan Siti Rokiah clarified that she is new at this school as she was transferred here last year. Previously she had served at a small school and she realized that her task here is a challenging one. She reminded herself that she has to be as smart as an administrator using leadership style for effective communication with the teachers and pupils.

Incidentally, Puan Siti Rokiah is presently attending a leadership training course at *Institut Aminuddin Baki (IAB),* Genting Highlands which prepares her for the headmaster's post in the near future. As such she "juggles" between her work at the school and her course work at *IAB f*or a certain duration and admitted that this leaves her very little time to think of whether the teachers are inculcating EE in their subjects.

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Puan Faezah (*GPKKokur*CO2) is still new at the school. She came over here as *GPKKokur* in February 2011. However she has been a teacher for nearly 23 years and had served as Senior Assistant for Student Affairs (*Penolong Kanan Hal Ehwal Murid, PK HEM*) for 4 years and Senior Assistant 1 (*Penolong Kanan* 1, *PK*1) for 11 years at her previous school which was an "under-enrolled" one (*sekolah kurang murid*). From this record it shows that Puan Faezah has experience as an administrator in school besides teaching although she admitted that co-curriculum is another different area of responsibility and is new to her.

She assured that she fully supports any effort at educating the pupils about the environment and was able to describe the school's recycling program involving the teachers and the pupils. However she admitted that there was no environmental society or club at the school as the pupils are already fully occupied with the other co-curricular activities of the school.

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4.3.5 The Teachers in the Study

The school teachers involved in the study are Puan Bainun, the *BM* teacher (T*BM*1CO2); Puan Salbiah, the Science teacher (TSC1CO2); and Puan Khatijah, the *KT* teacher (T*KT*1CO2).

Puan Bainun, aged 40 years, was first posted to the school 15 years ago and has been with the school since then. Presently she is waiting to be upgraded as a graduate teacher as she had acquired her degree after following the degree course by

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the Ministry of Education (MOE) and the Open University of Malaysia (OUM). She possesses a Teaching Certificate in Malay Studies from the MOE after attending the teacher training course at a teacher training college earlier. As such she teaches *BM* (Years 5 and 6), *KT* (Year 5) and *Dunia Seni Visual* (*DSV*) Year 2.

She was positive about being chosen as a participant in the study and readily accepted the fact that she was to be observed while teaching. (The fact that the teacher had been a student of the investigator helped.) The investigator was able to get the respect and co-operation from her. Subsequently she acted as a liaison for the other two teachers in terms of passing messages and getting further information (for example, the *borang maklumat diri*).

Puan Salbiah is 44 years of age and has served 14 years as a teacher. She is the Head of Panel (*Ketua Panitia*) for the Science subject at the school. Besides this she holds other prominent posts and is a committee member in the Excellence, Welfare and Canteen Committees. She possesses a degree and a Teaching Certificate in Science. She is also the Master Trainer (*Jurulatih Utama*) for the Science subject at the state level. She had attended numerous courses related to her work as a Science teacher.

Like her colleague Puan Bainun, she is a respectful, modest and friendly lady. She accepted the fact that she was to be observed and there was no sign of any resentment or reluctance from her.

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Puan Khatijah, aged 41 years has 19 years of service as a teacher. She possesses a degree and a Teaching Certificate in *BM*. Presently, she teaches *BM* (Year 2), Science (Years 5 and 6) and *KT* (Year 5). She takes it positively (about being observed while teaching). There was no sign of any resentment. She is respectful. She kept up with appointments made and responded to the investigator's "sms"s promptly and the appointments went on as scheduled.

Table 4.9 shows a summary of the background information of the teachers.

Table 4.9

Summary of Teachers' Background Information, SK Wan Idris

Teacher	Age (years)	Gender (M/F)	Professional Appointment	Qualifications	Years of Service	Subjects Taught	Co-curriculum	Courses Attended
Pn. Bainun	40	F	*DGA*32, *Penyelaras PROTIM*	B.Ed (*KS*)(OUM); Teaching Certificate (Malay Studies)	16	*BM* (5, 6); *KT* (4) *DSV* (2)	*BM* Society	-
Pn. Salbiah	44	F	*DG*41, Panel Head (SC), *AJK Kecemerlangan*, *AJK Rawatan AJK Kantin*	B.Ed. (SC) (OUM); Teaching Certificate (SC)	14	SC (4,5 & 6);	-	*JU Pedagogi* SC *Thp*.2 (State); *JU Negeri KSSR* SC & *Tek.*
Pn. Khatijah	41	F	*DGA*32, *Penyelaras PLBS*,	B.Ed. (*BM*); Teaching Certificate (Malay Studies)	19	SC (5 & 6) *BM* (2); *KT* (5)	-	Nil

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4.3.6 Curriculum

Like for the previous school (CO1), the curriculum for teaching and learning followed by teachers is the standard Malaysian Integrated Primary School Curriculum (IPSC / *KBSR*) and also the Standard Curriculum for Primary Schools (SCPS / *KSSR*). The resources used consist of the text books, workbooks and Teachers' Resource books provided by the Ministry of Education. However, most of the teachers use other resource books like revision books related to their particular subjects and also other related materials acquired from the book shops and the internet.

4.3.7 Teaching and Learning

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Similarly, for the most part, teaching and learning occur indoors, in the classroom, the Media room (*Bilik Tayangan*), the Resource Centre, the Computer lab and also at the hall. Nevertheless, it was reported from many sources (the Science teacher, the *KT* teacher and the Headmaster) that occasionally the pupils were taken outdoors in the school vicinity like the Kitchen Garden to observe the surroundings and to collect specimens for studies related. However, during the many visits by the investigator such practices were not seen except for the Physical Education classes at the school field.

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4.3.8 Co-curricular Activities

Like any other primary school, besides offering participation in the uniformed units, the pupils are also involved in clubs and societies and sports and games. Table 4.10 shows the options offered to the pupils. One notable feature missing is the school Environment Club (*Persatuan Alam Sekitar / Persatuan Pencinta Alam*). Even there is no Science Society at the school. Nevertheless, it is felt that there are a number of activities where the teacher can infuse EE like for example, during the school Co-curriculum Assemblies Day and Co-curriculum Day, (*Hari Ko-kurikulum*, October 23), the school Cross-country event (*Merentas desa*) and also during camps for the various uniformed units. As an example, from the school planning book for co-curriculum for the year 2012, an integrated camp for the Uniformed Units was planned for March 23 and 24, 2012. An on-going class beautification competition was also started in the month of January.

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4.3.9 Programs /Activities Related to EE

It was noticed that the school did plan out for the year, some activities related to the environment as shown in Table 4.10. Regular *gotong royong* to clean the sports store were scheduled and a *Gotong Royong 3K* was scheduled on September 14. The Classroom Beautification Competition was started on January 30. Besides this the academic weeks follow certain themes and the teachers-in-charge during the specific week would speak and focus on the theme during the week's assembly session at the school hall. Examples of themes followed include 'To Beautify the Classroom and

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School Environment (*Menceriakan Kelas & Persekitaran Sekolah*) (Week 4, January 24 – 28), 'Looking after School Assets' (*Menjaga Harta Benda Sekolah*)(Week 7, February 13 – 17), (*Kebersihan Asas Keimanan)*(Week 10, March 5 – 8), (*Keceriaan Sekolah*)(Week 14, April 9 – 13), 'A Pupil's Responsibility' (*Tanggungjawab Seorang Pelajar*) (Week 26, July 16 – 20), 'My School My Home' (*Sekolahku Rumahku*)(Week 30, August 13 – 16), and 'Classroom Cleanliness & Beautification of the School Environment' (*Kebersihan Kelas & Keceriaan Persekitaran Sekolah*) (Week 35, September 24 – 28). The school also has an on-going Recycling Program (evidence of the recycling bins, see Figure 4.17, p. 212) and also the Stamp Bank Book for Recycling (*Buku Stamp Bank Kitar Semula*), Figure 4.18, p. 213) and it involves the whole school in collecting items for recycling. There is a record of sales for recycling too for the pupils as shown in Figure 4.19, p. 213.

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Figure 4.17. Recycling bins at the school

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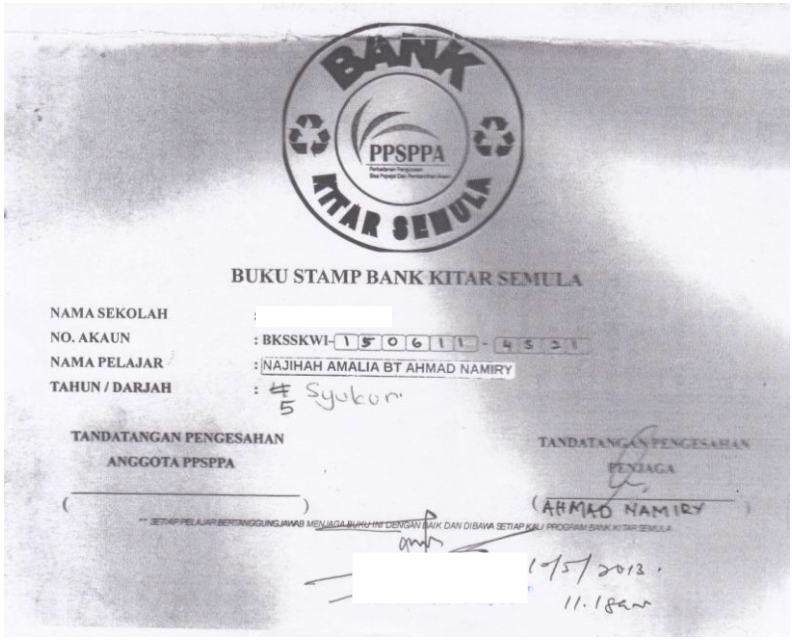


Figure 4.18. Stamp Bank Book for recycling

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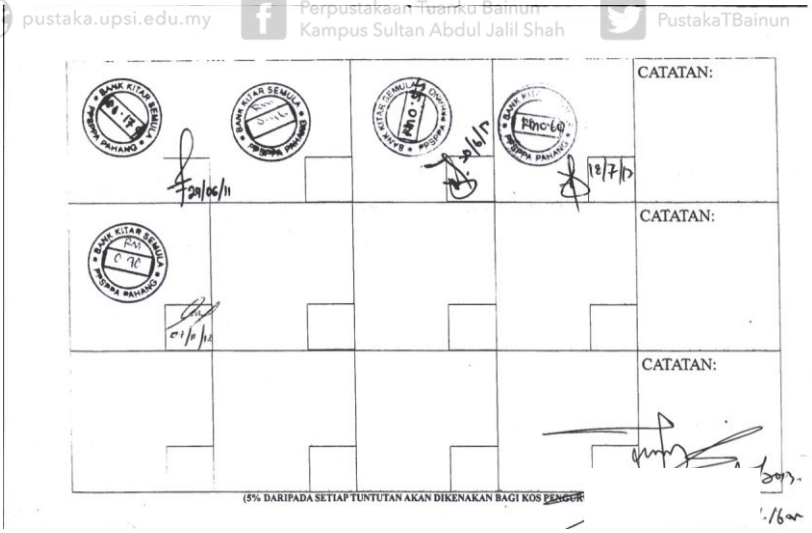


Figure 4.19. Record of sales for recycling

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Table 4.10 shows the programs and activities carried out at the school for 2012.

Table 4.10

Programs and Activities Related to EE Planned and Carried Out at SK Wan Idris

School	Programs and activities related to EE planned and carried out within the year (2012)
CO2	1. *Gotong Royong PPDa, (*Friday, April 20 – *SU PPDa)* 2. *Gotong Royong SPBT, (*Friday, October 12 - *SU SPBT)* 3. *Tema Mingguan Guru Bertugas: Menceriakan Kelas & Persekitaran Sekolah* (January 17-21) 4. *Tema Mingguan Guru Bertugas: Menjaga Harta Benda Sekolah* (February 13-17) 5. *Tema Mingguan Guru Bertugas: Kebersihan Asas Keimanan* (March 5 - 8) 6. *Tema Mingguan Guru Bertugas: Keceriaan Sekolah* (April 9-13) 7. *Tema Mingguan guru Bertugas: Tanggungjawab Seorang Pelajar* (July 16-20) 8. *Tema Mingguan Guru Bertugas: Sekolahku Rumahku* (August 13-16) 9. *Tema Mingguan Guru Bertugas: Kebersihan Kelas & Keceriaan Persekitaran Sekolah* (September 24-28)

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4.3.10 Interviews with School Administrators

Ten interview questions (refer to Appendix C) for the school administrators guided the answers to various perspectives of EE at the schools. The findings are discussed according to the categories below.

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4.3.10.1 Goals and Priorities of the School

At *SK Wan Idris*, Encik Hassan clarified that when he came over as headmaster of the school he looked at the vision and mission of the school and decided that they have to be changed. Having noticed that the performance of the school was not so good he decided to have a new vision and mission whereby the vision is to be an excellent cluster school for the year 2015. Its mission is to raise the performance or achievement of the school in the field of co-curriculum, curriculum and also in human development. However, he took pride in reporting that since then the school performance in the *UPSR* has increased every year.

The school *GPK*1, Puan Siti Rokiah also clarified that the main focus is in its vision and mission that is to achieve cluster school status in the year 2015 and also its mission which covers three main areas, namely curriculum, pupils' affairs and co-curriculum. *GPKKokur*CO2, Puan Faezah also mentioned about the vision of the school is to excel in both curriculum and co-curriculum.

4.3.10.2 Subjects that Get the Most Attention

Encik Hassan also admitted that *UPSR* subjects, like *BM, BI, Matematik* and Science, being core subjects receive the bulk of the allocations. However, he was quick to point out that allocations were also given to Physical Education and Art although more focus was on *UPSR*.

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Puan Siti Rokiah's opinion looks more focused on winning the many awards / status for schools being churned out by the MOE, especially to reward schools excelling in their academic achievements. Attention is being drawn to its vision to be a cluster school in 2015. Its mission is to be excellent in three main areas like curriculum, students' affairs, and co-curriculum. She also pointed out that the school has to acquire the "New Deals" first which has to be maintained for three consecutive years before moving into cluster schools. So all efforts have to be geared towards that and after achieving cluster school status, then they can move on to "High Achievement Schools". Her actual words are as follows:

> *Fokus utama sekolah ini lebih kepada, kita lihat kepada visinya lah, visi sekolah ini ar.. mencapai sekolah kluster pada 2015 lah. Dan juga misinya pula, menjurus kepada tiga bidang utama lah, menjana kecemerlangan lah dalam bidang, kurikulum, HEM, dan koko. Jadi setakat ini saya ingat untuk mencapai sekolah kluster itu, saya rasa belum sampai lah. Kita perlu mencapai kepada sekolah New Deal dahulu, sebab kluster itu lebih atas daripada New Deal. Jadi saya visi ini perlu diperbetulkan lah, diperbetulkan balik lah.. (gelak) maknanya kita perlu capai tahap itu, mengikut tahap daripada bawah ke atas, New Deal dulu, baru kita boleh mencapai kluster. Sekurang-kurangnya, kita perlu mencapai New Deal 3 kali dahulu, sebelum menjurus kepada kluster. New Deal ini, kalau kita tengok dia tertakluk kepada SKPM lah, SKPM itu maksudnya, kita lihat pada semua lah, dari segi pengurusan sekolah, kewangan sekolah, kemudian Std 4 itu, pengajaran dan pembelajaran guru, kemudian pengujian murid, itu semua sekali lah. Ha.. capai New Deal dulu baru kita bertuju kepada kluster. Bila kita mencapai kluster, baru kita boleh capai Sekolah Berprestasi Tinggi.* (Intv*GPK*1CO2/100513/Line 29-43)

Puan Faezah also echoed the same sentiment, "... for the main subjects, when teaching, it's more.. for *UPSR*, isn't it? Presently it's still towards *UPSR*, isn't it? Because *UPSR* symbolizes the school, when one mentions the school, the question on "how is the *UPSR?"* pops up.

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Evidence of her actual words is given below.

> (*Untuk mata pelajaran utama, kalau mengajar, adalah lebih sikit.. untuk UPSR kan? Sekarang ini masih menuju ke UPSR kan? Sebab, UPSR itu melambangkan sekolah, ha.. sebut sekolah UPSR macam mana?* (Intv*GPKKokur*CO2/100513/Line 55-57)

4.3.10.3 Importance of EE

Encik Hassan also acknowledged the importance of EE and according to him the school had initiated many projects. They had worked together with the District Council in looking after the environment. According to him, they had been provided the bins for recycling and it is still being maintained. However, he lamented that at times he saw that it did not function well and they had to phone them to come and collect. He also informed that he encouraged the teachers to plant trees. He was also proud to inform that there is a corner known as "Kitchen Garden" which had won an award at the state level. They had planted various types of vegetables and the teachers as well as the pupils were encouraged to use the land for planting purposes. However, lately they had encountered the problem of water leakage from the pond and they intend to fix it. Next he also disclosed that there are other garden areas in the school with *pinang* trees and flowering plants acquired from the District Council.

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Figure 4.20. Award for Kitchen Garden

Encik Hassan sees the importance of EE from the point of cleanliness. He wants all the teachers and pupils to be sensitive towards the cleanliness of the school compound which includes the cleanliness of the classrooms, the surroundings of the school, the school field, canteen, and the drains. The focus is also on the pupils' behavior when they are at the canteen. Attention is also on the classrooms so that they are neat and conducive. He also disclosed that allocations are given in the form of money for buying paint and also making charts to make the classrooms conducive

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for learning. This had been started since the previous year and it continues this year. He is quite satisfied as he has been seeing some changes since. Competitions for the classrooms in terms of cleanliness and beautification are held monthly too.

He also mentioned that he has plans to hold a *gotong royong perdana* with *PIBG* and a neighboring secondary school sometime in June and would also include the Fire Brigade, the army, and also the police to clean up the surroundings as well as to plant trees to beautify the school compound.

When the question on the status of EE at her school was posed to her, Puan Siti Rokiah has this to say:

> The environment? ... on the environment I do not see much *lah*. But if in the subject, probably there is focus *lah*, for example, in the Local Studies subject, Civics ... as I see it now, I see EE more in ... co-curriculum *lah*, like for example, environment .. I feel it's more towards ... recycling ... we acquire to sell, like newspapers ... that's a program .. recycling program *lah*.
> *(Alam sekitar?... alam sekitar saya tak beberapa nampak lah. Tapi kalau dalam subjek, mungkin ada diberi penekanan lah, contohnya dalam subjek KT, Sivik... kalau saya nampak sekarang ini, saya nampak PAS lebih kepada apa itu... dalam er.. kokurikulum lah, contohnya alam sekitar.. saya rasa lebih menjurus kepada.. macam.. apa itu.. kira macam.. apa bahan-bahan yang tak berguna lah kan, kita kitar semula lah.. macam itu lah lebih kurang, kita dapatkan untuk menjual, macam surat khabar, adalah program, program kitar semula lah.)* (Intv*GPK*1CO2/100513/Line 86-92)

She went on to inform that they were provided three bins, a joint program with the District Council, and that the pupils now know how to keep the environment clean as they would throw the plastic bottles in the bin provided. She also mentioned that they have many gardens but up till now they have not given specific attention to them. She disclosed that recently the inspectorates came to visit the school and gave suggestions

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to create gardens like the herbal garden, and have more greenery around the school. Up till now, they have made some changes, they beautify the areas around Block A and Block B. She admitted that the Kitchen Garden had not been given attention lately and perhaps they might plant more trees around the area next.

Puan Faezah (*GPKKokur*CO2) explained that in EE, we must instill in the pupils the culture of loving the environment by keeping the environment and the air clean. One must not destroy the plants and must not litter the surroundings. This can be practiced in co-curricular activities like during camping where cleanliness is emphasized. However, she admitted the there is no Environmental Club, saying that there is no space for it! (*Dah terlalu banyak lah, yang sedia ada (gelak) ada 11 dah!)*. (Intv*GPKKokur*CO2/100513/Line 91). So, on the status of EE at her school, she explained:

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> If like we concentrate on one, like the environment, we don't have. We have on beautification, we have a Committee for that, meaning we focus lah in beautification, planting trees and so on. Truly we don't have an Environmental club but we have the Committee for Beautification which involves the teachers *lah*.
> *(Kalau macam kita tuju satu kepada alam sekitar, memang tak ada. Kita ada keceriaan, kita ada JK Keceriaan, makna memberi fokus lah dengan keceriaan ini, tanaman pokok bunga dan sebagainya. Kelab alam sekitar betul, tak ada. Tapi kita memang ada JK untuk Keceriaan, yang melibatkan guru-guru lah.)*
> (Intv*GPKKokur*CO2/100513/Line 62-65)

She informed that at times they had also involved the *PIBG* where the parents helped in the *gotong royong* which is held once a year. The projects involved adding new plants and trees and also maintaining them. The planting is usually done by the workers. She also pointed out that the Kitchen Garden is not functioning as this depends on the interest of the teacher who has to be interested in agriculture. Also,

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there is no Science Garden (RC: Even though there are activities for Science, but these are often geared for preparing the pupils for the *UPSR*). She also explained that they infuse EE to the pupils by informing the pupils that we cannot do open burning as this would affect the environment.

4.3.10.4 Desired Status of EE in Schools: EE as a Separate Subject?

The responses from the school administrators who advocated that EE be a separate subject are as follows:

Encik Hassan mentioned that, "... for me, it's compulsory, because if we insert it in the subject, it won't make it important, so we have to separate so that it can be more focused, more focused. We have to create a special curriculum, how we can look after the environment so that it can be better, because if the environment is good, clean, beautiful, conducive, comfortable, fresh .. mainly *arr* .. sickness, less sickness lah ..." Evidence of his opinions are as follows:

> *("... bagi saya, wajib sebab kalau kita sisipkan saja dalam subjek, itu tak menjadi satu perkara yang penting, jadi kita kena asingkan supaya lebih fokus, lebih fokus. Kita kena buatnya satu kurikulum khusus, bagaimana kita nak menjaga persekitaran ini supaya menjadikannya lebih baik, sebab kalau persekitaran itu baik, bersih, ceria, kondusif, selesa, nyaman .. terutama sekali arr .. penyakit, kurang penyakit lah ...)* IntvHMCO2/090513/Line 333-338)

The *GPK*1CO2, Puan Siti Rokiah agreed to the idea, "I feel that I agree. It being a special subject for EE. I feel it is important. We have to inculcate it to the pupils, mainly primary school *lah*, on the importance of the environment, before they

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step into secondary school. Like people say, '*melentur buluh biarlah dari rebungnya*' (teach them when they are still at a tender age)."

> *(Saya rasa saya setuju. Dia adakan satu subjek khusus untuk PAS. Saya rasa penting. Kita kena terapkan kepada murid-murid, terutamanya sekolah rendah lah, pentingnya alam sekitar, sebelum mereka melangkah ke sekolah menengah. Seperti orang kata, melentur buluh biarlah dari rebungnya.)* (IntvGPK1CO2/100513/Line 285-288)

Puan Faezah (*GPKKokur*CO2) also added that: "... So in my opinion, it should be made a subject, because.. easy. When we don't have, it is very difficult to inculcate directly lah, right?

> *(Jadi pada pandangan saya, patut ia dijadikan sebagai satu mata pelajaran, sebab senang. Bila kita tak ada, jadi kita nak menerapkan secara langsung itu susah lah, kan?)*
> (Intv*GPKKokur*CO2/100513/Line 292-294)

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4.3.10.5 School EE Programs

The school headmaster mentioned that the school holds its annual gotong royong together with the Parent-Teacher Association every year. Puan Siti Rokiah's perspective of EE program in the school focuses on the beautification and the cleanliness of the school environment. Among the programs related to EE which are also revealed by the school's administrators are the recycling project and the Kitchen Garden and the Inter-class Competition on classroom beautification.

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4.3.10.6 Perception of EE / Understanding of EE

Encik Hassan's focus was on cleanliness. He wanted all teachers and pupils to be sensitive towards the cleanliness of the environment, especially around the school premise which includes the classroom, school compound, school field, canteen, the drains. Encik Hassan disclosed that he would involve the School Parent-Teacher Association soon in a *gotong royong* which would also involve a neighboring secondary school. He explained that the school is situated on higher ground and he noticed that the school drains nearby were often clogged. So they would clear the clogged drains and they would enlist the help from the Fire Brigade, the armed forces nearby and the police in the massive *gotong royong* (*Gotong Royong Perdana*).

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Puan Siti Rokiah admitted that her understanding on EE is not deep but would like to see the environment as beautiful and clean. As for Puan Faezah, in EE we must instill in the pupils the culture to love the place from the point of looking after it, its cleanliness and its air. We must teach them to throw trash into bins and not at any place like the drains and the river.

4.3.10.7 Evaluation of School Performance in Terms of EE

The school administrators were also asked to evaluate on their respective school's performance in EE (refer to Table 5.3, p. 376). Most of them had given above average points suggesting that they do give a certain amount of attention to EE. However, many agreed that there is still room for continuous improvement and many

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have plans about it but cited the absence of allocation for such programs related to EE being the main constraint.

The headmaster's evaluation goes like this:

> To say ten probably would sound too high, so I feel in 80% *lah*. Because we have programs, for the teachers and the pupils, for example one department ... they come to the school to collect newspapers.. so we encourage the pupils to keep the old newspapers, to keep plastic bottles, to keep empty cans for drinks .. so when they come, we give, and they get the money. The pupils get the money, the teachers also get the money. I can't recall the name of the company, they have office here. They come with their own lorry, they collect, they weigh, the pupils are given a book each, they stamp on the book. They come once in three months. Besides that we have the recycling bins managed by the District Council.
> *(Saya nak katakan 10 itu pun mungin tinggi sangat, jadi saya rasa dalam 80% lah. Sebab kita ada program, bagi guru dan murid, contohnya ada satu jabatan ... dia datang sekolah mengumpul surat khabar, jadi kita galakkan murid-murid kita ini supaya menyimpan surat khabar lama, menyimpan botol-botol plastic, memyimpan tin-tin minuman, jadi bila datang, kita bagi, lepas itu dia dapat duit. Murid itu dapat duit, cikgu itu pun dapat duit. ... Saya lupa lah apa badan itu, dia ada pejabat di sini. Dia datang dengan lorinya sendiri, dia pungut, dia timbang, murid itu diberi satu buku lah, dia cop pada buku itu. Dia datang 3 bulan sekali. Disamping itu, tong-tong kitar semula itu diuruskan oleh Majlis Daerah.)*
> (IntvHMCO2/090513/Line 177-189)

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However views from Puan Siti Rokiah differed a bit from that of the headmaster's. From the start she admitted that she did not pay particular attention to this. Understandably this *GPK* was busily involved in her course with the *IAB*, preparing her for promotion and had been away quite frequently. Her replies follow:

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> I give below five *lah*, because I haven't been paying much attention (amidst laughs). Because the infrastructures of the school, even though a town school, but the infrastructures are always placed outside, when compared to the class, in the class maybe I see it *lah* .. maybe there is a little EE, but outside I don't see much. There is development too, but less. Meaning there is room for improvement.
> *(Saya bagi di bawah daripada 5 lah, sebab saya kurang beri perhatian lah. (gelak) sebab apa, prasarana sekolah ini, saya ingat walaupun dia buat di sekolah bandar, tapi prasarananya selalu di luar, berbanding dalam kelas ya, dalam kelas mungkin saya nampak lah, apa itu.. PAS itu mungkin ada sedikit lah, tapi di luar saya tak berapa nampak. Pembangunan ada juga, tapi kurang. Maknanya ada ruang lah untuk diperbaiki.)*
> (Intv*GPK*1CO2/100513/Line 149-154)

Puan Faezah gave 8 marks (out of 10) on her school's performance in EE. She confirmed that there were projects and help from the *Majlis Daerah* in the form of plants and soil supplies. They also had recycling but admitted that for this year the project had not started as the teacher who handled this had been transferred. She offered many suggestions about things that they could do like asking each class to contribute two flower pots and look after them or to allocate certain sections to each class.

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4.3.10.8 Measures Taken / To Take for EE

Encik Hassan also disclosed that the previous year, he had approached the Agriculture Department to get expertise on creating a "school in a garden" to make the school more beautiful and attractive. However his request was rejected. He had high hopes of creating a beautiful environment in the school. According to him, a beautiful

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environment with trees, gardens and a clean environment will attract pupils to come to school. Outsiders would also like to visit the school because it looks beautiful and attractive. However, for this they need the expertise, the materials and the officers from the Department, from the District Council on landscaping as the teachers do not have skills and expertise on creating the garden. He lamented that the matter stopped at that as he was not able to secure help from outside agencies. In addition to that Encik Hassan mentioned that:

> I would encourage more in clubs, like the Environment Club, where the members consist of the pupils.. at present there is no such club. The pupils can get involved in the curriculum ya, like how to look after the environment, to collect materials related to the environment. He also can take articles from the newspapers to make a scrap book, concerning heavy development, reducing green areas, anything related to the environment. Such things could be made into a scrap book, in the environment society *lah*.
> *(Saya lebih menggalakkannya di kelab lah, misalnya kelab alam sekitar, yang dianggotai oleh pelajar-pelajar, sekarang, setakat ini belum ada kelab itu lah. Supaya murid ini terlibat dalam kurikulum ya, macam mana menjaga alam sekitar, mengumpul bahan-bahan berkaitan dengan alam sekitar. Dia juga boleh mengambil bahan-bahan artikel dalam akhbar untuk membuat buku skrap, mengenai kepesatan pembangunan, kawasan hijau dah kurang, semua berkaitan alam sekitar. Bahan-bahan itu boleh dibuat dalam buku skrap, dalam persatuan alam sekitar itu lah).* (IntvHMCO2/090513/Line 411-418)

On programs, Puan Siti Rokiah mentioned that they involved the community through the *PIBG*. For example they could involve the community, with the neighboring secondary school in clearing the drains, or projects like beautifying the school with plants they could get as contributions from the community. She admitted that this had not been carried out and suggested that perhaps this could be carried out in future. She disclosed that so far they had collected recycling materials which was carried out twice a year. The pupils would collect the recyclables and then sell them to the people outside who came in to collect. That was the only thing she noticed!

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She suggested EE be made a separate subject but to relate it to a program, acknowledging the importance of EE. She mentioned that probably after this they might have a program or an environmental club or to place it under the Science Club or even under the Civics club.

In co-curriculum, in terms of programs, they had camping and sports, also in subjects like *BM* and *BI* where they can infuse EE in them. However, Puan Faezah admitted that at present they have not carried out many due to time constraints.

4.3.10.9 Issues on the Implementation of EE in the School

Encik Hassan believed in his teachers to deliver "EE across the Curriculum" in the various subjects. He had also seen his teachers conducting their lessons outdoor. He does not see any major problem on its implementation in the school. He fully supports any effort to beautify and to keep the school clean. He has plans to create "a school in a garden" but laments that so far he has not been able to acquire the expertise from the relevant agencies to help out.

Puan Siti Rokiah brought up the issue of clogged drains partly caused by the neighboring secondary school. She also mentioned that although there had been a slight change for the past two to three years, the awareness and commitment of the school community could still be improved upon. She had also observed the teachers teaching in the classroom and informed that the teacher would only relate to the environment if the topic was on it. This might be attributed to the teachers being not

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exposed to EE through courses. She felt that in the school, EE was not given the attention it deserves and this is reflected in the actions of our society outside. Moreover, there is no specific subject for EE in school.

4.3.11 Interviews with the Three Subjects Teachers

Two rounds of interviews were conducted with the subject teachers. A total of thirteen questions (refer to Appendix D) were posed to the teachers. The findings are discussed under the following categories.

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4.3.11.1 Goals and Priorities of the School

The three teachers interviewed were clear of the focus of the school. Each and everyone of them were able to cite the vision and mission of the school, which was to excel in both the curricular and co-curricular fields and to be a high achievement school by the year 2013.

4.3.11.2 Subjects that Get the Most Attention

Puan Bainun informed that in terms of the curriculum, the focus was on the core subjects (*BM* – two papers, English, Science and Mathematics which are the subjects involved in the *UPSR*). Additionally, the subjects involved in competition, like

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Robotics and IT also received attention. According to her, the *UPSR* subjects and those that have or involve in competitions usually receive the bulk of allocation and attention.

However Puan Salbiah believed that allocation is accorded to all the subjects in the curriculum. Puan Khatijah also mentioned that the focus is on the core subjects (mata pelajaran teras) for *UPSR*, like *BM, Matematik, BI* and Science. However she believed that attention is also given to the other subjects as well.

4.3.11.3 Importance of EE

All the teachers acknowledged the importance of EE. As the environment affects one's life, all the teachers interviewed agreed that EE should be promoted in the school. All of them agreed that more could be done for EE at the school.

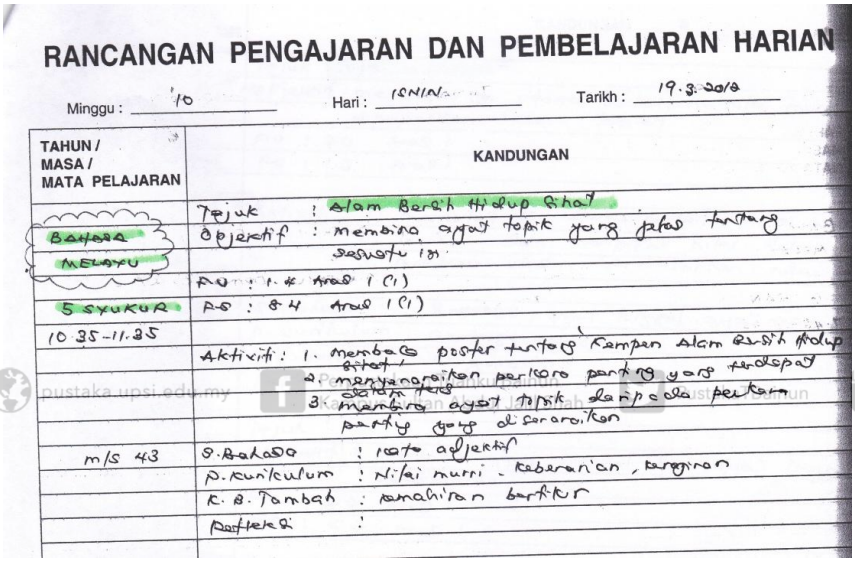
4.3.11.4 Desired Status of EE in Schools: EE as a Separate Subject?

For Puan Bainun, although having acknowledged the importance of EE, she did not see a necessity in making EE a separate subject (pointing out that already there are so many subjects in the curriculum!). In response to the investigator's reminder of the progress made at the present state of having "EE across the curriculum", she opined that it is because that it is not made compulsory for the teachers to incorporate the EE component in the lesson preparation (*Rancangan Pelajaran Harian*, *RPH*). She

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compared it with moral values, where critical and creative thinking (*Kemahiran Berfikir Secara Kritis dan Kreatif, KBKK*), and resources (*alat bantu mengajar, ABM*) have to be identified and stated by the teacher in her lesson preparation whereas for EE, there is no compulsion to do so. (A look at the teacher's record book revealed that very little is written in the lesson notes as they do not have to write a detailed lesson note like when they were undergoing training. So the brief lesson note for *BM* as well as for the other subjects did not reveal much, as shown in Figure 4.21.



RANCANGAN PENGAJARAN DAN PEMBELAJARAN HARIAN

Minggu : 10 Hari : ISNIN Tarikh : 19.3.2018

TAHUN / MASA / MATA PELAJARAN	KANDUNGAN
BAHASA MELAYU	Tajuk : Alam Sekitar Hidup Sihat
	Objektif : membina ayat topik yang jelas tentang sesuatu isi.
5 SYUKUR	AO : 1.4 Aras 1 (1)
10.35-11.35	AO : 8.4 Aras 1 (1)
	Aktiviti : 1. membaca poster tentang kempen alam sekitar hidup sihat / 2. menyenaraikan perkara penting yang terdapat dalam teks / 3. membina ayat topik lengkap berkaitan perkara penting yang di senaraikan
m/s 43	B. Bahasa : kata adjektif
	P. Kurikulum : Nilai murni - kebersihan, kerajinan
	K. B. Tambah : kemahiran berfikir
	Refleksi :

Figure 4.21. Lesson Preparation/Note

Puan Salbiah also acknowledged the importance of EE and agreed that EE can be made a subject so that more focus can be given to EE. Puan Khatijah also agreed that more could be done for EE including making Environmental Studies as a separate subject. On whether this measure would pose a heavier burden on the curriculum as there are already so many subjects, she explained that some cuts could be made on the existing subjects and suggested that maybe EE subject could be given one slot in a week and this would ensure that there would be someone teaching EE in a systematic way with a whole complete syllabus for it.

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4.3.11.5 School EE Programs

The teachers were asked about the programs related to EE which were carried out throughout the year in their respective schools. Most of them informed of the *gotong royong* aimed at keeping the school clean and also the school landscaping and beautifying efforts. Then there were the classroom beautifying competitions (*pertandingan keceriaan kelas*) which were conducted throughout the school term. These seem to be the only areas focused upon when it comes to matters related to EE. This also reflects on their understanding and perception of what EE entails. (Refer to RQ2 on their perception and understanding of EE.)

According to Puan Salbiah, she sees that the school does focus on EE, citing the program like recycling (there are recycle bins in the school), and once in a while the relevant authority does inform the school that they will come and collect the items , and the whole school community will get involved in bringing the items to recycle. Furthermore, there is a committee on *keceriaan* (*Jawatankuasa 3K*) which is also responsible for the state of cleanliness of the school. The school's Science Garden (*Taman Sains*) and Kitchen Garden was maintained and activities concerning EE can be carried out there. She acknowledged the importance of EE and is of the opinion that more can be done.

Puan Khatijah also mentioned that:

> ..., the school does participate in EE program like recycling (there are recycle bins in the school, at two places). Apart from that, some pupils had also participated in a camp concerning EE. (IntvT*KT*1CO2/030912/Line 48-50; 103-106)

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She acknowledged that EE is a very important aspect for one's life and needs to be promoted in school.

4.3.11.6 Curriculum and Instruction

Puan Bainun commented on the infusion of EE. She sees the potential in a few subjects like *BM*, Science, and *KT*. As for the others they are not so relevant and she does not see much opening for EE infusion. For her subject, she is able to infuse EE elements as there are certain topics on the environment. According to her it is easy to teach the EE aspect. As for the other topics which are not directly related, sometimes she does see the opening where she can also pay attention to it (like for example, on cleanliness). Her focus was to teach according to the requirements of her subject with regards to the skills, and the other things come as side items (*sampingan*). Her main focus was to ensure that her pupils get high scores in the exams, especially in the *UPSR*.

The responses from the teacher on how she prepared her lessons are as follows:

> I plan based on the curriculum syllabus which has been fixed, that's the main reference, meaning must be guided by the curriculum specifications, plan according to that *lah*.
> *(Saya merancang berdasarkan kurikulum sukatan pelajaran yang telah ditetapkan, itu rujukan utama, maknanya mesti berpandukan kepada huraian sukatan pelajaran, rancang melalui itu lah.)*
> (IntvT*BM*1CO2/040912/Line 8-10)

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She explained further that:

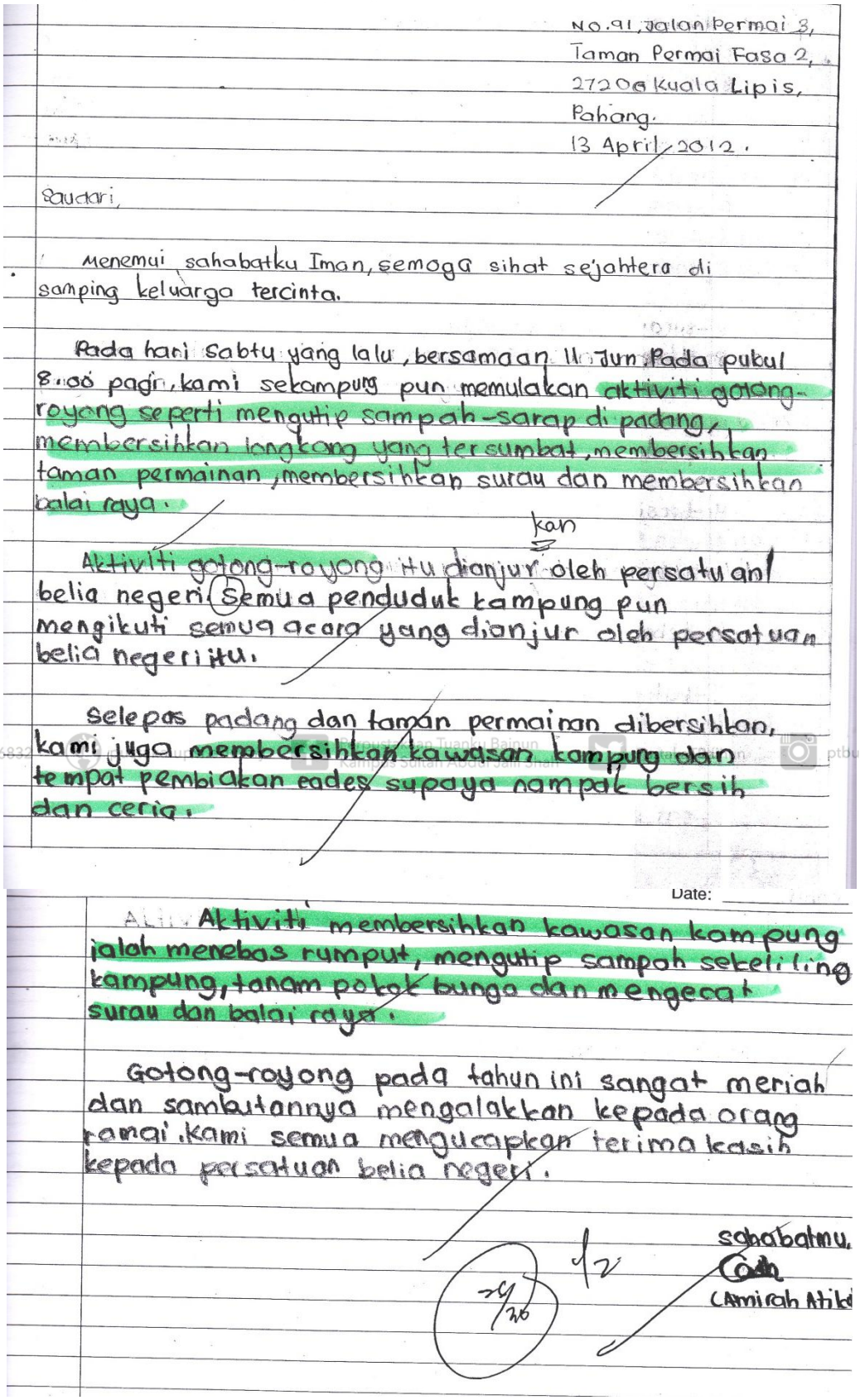
> The first guidebook is the Teachers' Guidebook, the textbook is compulsory to use, and other materials like the workbook. Other references there are, but seldom *lah*. We had been briefed that we must teach according to the textbook, must teach all the things in the textbook, cannot leave out *lah*.
> *(Buku panduan yang pertama sekali ialah Buku Panduan Guru, buku teks memang wajib gunalah, dan bahan-bahan lain seperti buku kerja. Rujukan lain ada, tapi jarang-jarang lah. Dulu kami pernah diberi taklimat pengajaran kita mesti berpandukan buku teks, buku teks ini mesti semua kita mengajar, tidak boleh tinggal lah.)*
> (IntvT*BM*1CO2/040912/Line 12-13; 15-17)

Puan Bainun's approach to teaching the topic "Environment" was also on discussion with the pupils. She clarified that for the topic "A clean Environment makes Comfortable Living" (*Alam Bersih Hidup Selesa)* in Unit 4: Environment, she remembers teaching the skills of sentence construction based on the pictures related to the environment depicting a picnic setting at the waterfall. She focused on the skills of stating the causes and to support the statement, like for example, on why one has to go for health examination. She was of the opinion that if the pupil is able to state the causes then he would have achieved the skill. It is noticed here that she did not give an example related to the environment. She admitted that it is more on the skills, "Ha, more on the skills, we only relate a bit with moral values *lah*, on what are the moral values. The pupils will explain".

> (*Ha, lebih kepada kemahiran, cuma kita kaitkan sikit-sikit sajalah dengan nilai-nilai murni juga lah, dalam ini apakah nilai-nilai murni? Budak itu pun jelas.) (*IntvT*BM*1CO2/030912/Line 46-48)

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No.91, Jalan Permai 3,
Taman Permai Fasa 2,
27200 Kuala Lipis,
Pahang.
13 April 2012.

Saudari,

Menemui sahabatku Iman, semoga sihat sejahtera di samping keluarga tercinta.

Pada hari sabtu yang lalu, bersamaan 11 Jun. Pada pukul 8.00 pagi, kami sekampung pun memulakan aktiviti gotong-royong seperti mengutip sampah-sarap di padang, membersihkan longkang yang tersumbat, membersihkan taman permainan, membersihkan surau dan membersihkan balai raya.

Aktiviti gotong-royong itu dianjur oleh persatuan belia negeri. Semua penduduk kampung pun mengikuti semua acara yang dianjur oleh persatuan belia negeri itu.

Selepas padang dan taman permainan dibersihkan, kami juga membersihkan kawasan kampung dan tempat pembiakan eades supaya nampak bersih dan ceria.

Date:

Aktiviti membersihkan kawasan kampung ialah menebas rumput, mengutip sampah sekeliling kampung, tanam pokok bunga dan mengecat surau dan balai raya.

Gotong-royong pada tahun ini sangat meriah dan sambutannya mengalakkan kepada orang ramai. Kami semua mengucapkan terima kasih kepada persatuan belia negeri.

sahabatmu,
Amirah Atik

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Figure 4.22. Pupil's work, letter writing

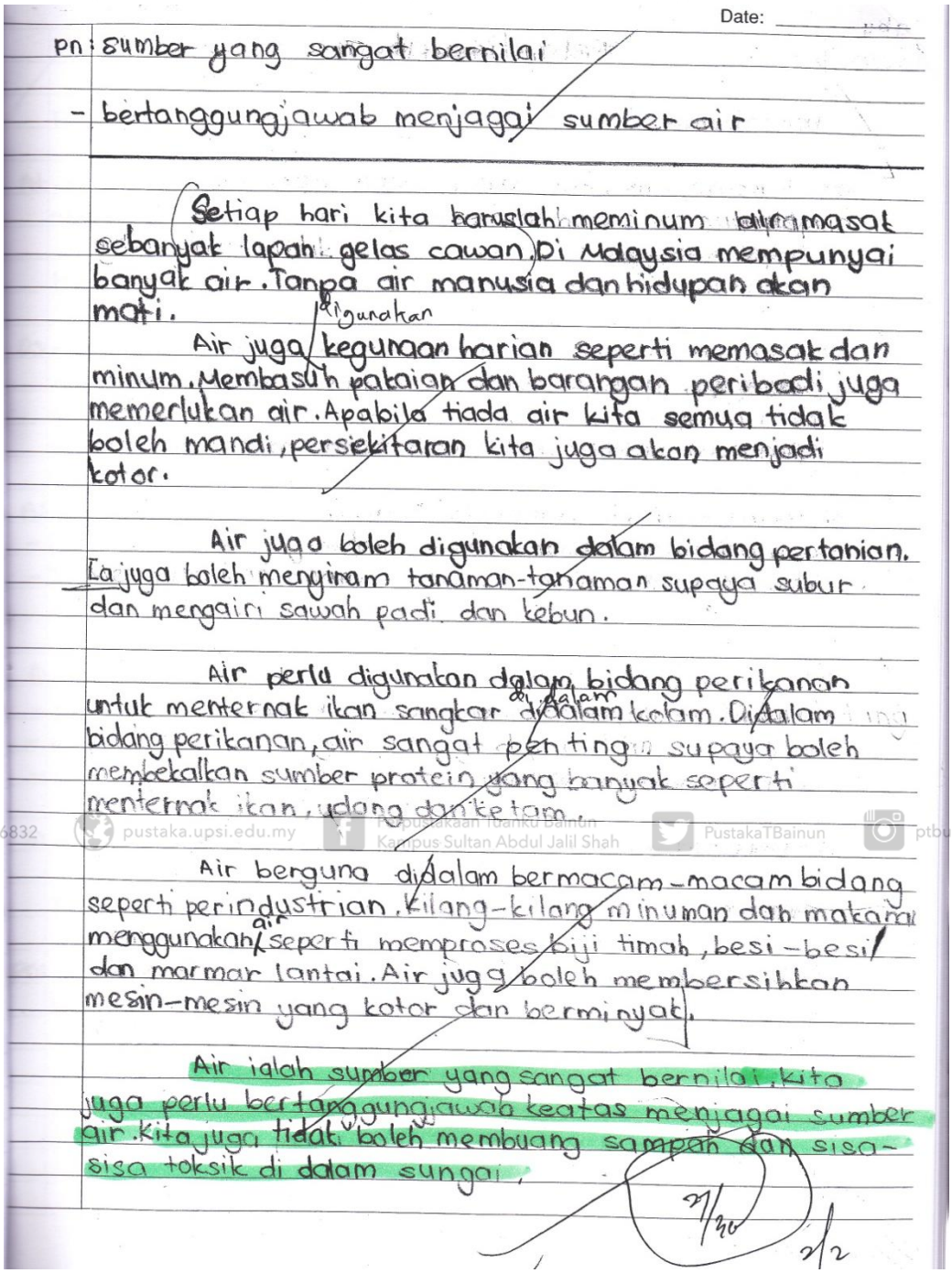
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She added that she had also used "play-acting" (*lakonan*) but more for set induction. She had never done "site visits" (*lawatan*) as that would take too much time. Her main focus was to achieve what her subject requires first. On how she evaluates her pupils, she gave questions as exercises and also composition writing (as shown in Figure 4.23). As for assessment on the affective domain, she mentioned that it is based on observation but admitted that there was no record as the focus was on knowledge. It was incorporated in the exercise questions. She clarified that the skills related to the topic would be in writing the composition, as shown in Figure 4.23.

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Date:

Pn: sumber yang sangat bernilai

- bertanggungjawab menjaga sumber air

Setiap hari kita haruslah meminum air masak sebanyak lapan gelas cawan. Di Malaysia mempunyai banyak air. Tanpa air manusia dan hidupan akan mati.

Air juga digunakan kegunaan harian seperti memasak dan minum. Membasuh pakaian dan barangan peribadi juga memerlukan air. Apabila tiada air kita semua tidak boleh mandi, persekitaran kita juga akan menjadi kotor.

Air juga boleh digunakan dalam bidang pertanian. Ia juga boleh menyiram tanaman-tanaman supaya subur dan mengairi sawah padi dan kebun.

Air perlu digunakan dalam bidang perikanan untuk menternak ikan sangkar di dalam kolam. Di dalam bidang perikanan, air sangat penting supaya boleh membekalkan sumber protein yang banyak seperti menternak ikan, udang dan ketam.

Air berguna di dalam bermacam-macam bidang seperti perindustrian, kilang-kilang minuman dan makanan menggunakan air seperti memproses biji timah, besi-besi dan marmar lantai. Air juga boleh membersihkan mesin-mesin yang kotor dan berminyak.

Air ialah sumber yang sangat bernilai, kita juga perlu bertanggungjawab keatas menjaga sumber air. Kita juga tidak boleh membuang sampah dan sisa-sisa toksik di dalam sungai.

27/30

2/2

Figure 4.23. Composition

The Science teacher, Puan Salbiah (TSC1CO2) remembered taking the pupils outdoor. She did outdoor teaching as she felt that it could present a clearer picture. She brought the pupils to the Kitchen Garden and there they could make connections by figuring out the birds, caterpillar, the snake (even though not available there) after

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having acquired the knowledge of the herbivores, the carnivores and the connection between food chain and food web.

Puan Salbiah also mentioned that she liked to teach through experiments. She clarified that through experiments, one could trace the steps systematically and also this ensured a pupil secure the marks (as marks are accorded at each step in the examination). In the past, she had also taken her pupils out on *lawatan* to Kitchen Garden when she taught about food chain and food web. She could find some living specimens there. She was aware of the different ways to make her lesson effective. She was confident of infusing EE in her lesson especially on topics which deal directly with the environment.

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Puan Salbiah also mentioned the two ways of evaluation, namely the Science process skills and Manipulative skills. She mentioned that when the pupils carried out the experiments, she observed and evaluated them.

Interestingly, for *KT*, Puan Khatijah (T*KT*1CO2) related the topic on landforms to the features of the face, consisting of 'high and low' areas. According to her, the pupils had enough exposure to areas which were high and low as the condition is easily available at the school ground. She gave group work to the pupils where they were asked to discuss on them. In addition to that, she mentioned that she also made use of pictures as she felt that the pupils would understand better if they see them.

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Puan Khatijah evaluated them based on the exercises she gave them during each teaching-learning session. Besides that she also observed them on their attitude although she did not use any specific instrument for that.

4.3.11.7 Evaluation of School Performance in Terms of EE

The teachers were also asked to rate the success of the EE program at their school, (on a scale of 1 to 10, with 10 being the highest score and 1 being the lowest). Some of their deliberations and evaluations are as follows:

Puan Bainun felt that presently the school does not focus so much on EE although there was a program on recycling going on. She informed that there had been more focus on EE previously as compared to now. She was aware that this all depended on the focus of leadership. (The present leadership is quite new, about 3 years and many of the projects like the Kitchen Garden, the Science Garden had been started earlier.) The Science / Kitchen Garden still exists but is maintained by the gardener and not by the pupils and academic staff and it is not focused upon as there is no competition anymore! (The school thrives on competing for awards and since there is no competition on it, the garden now exists as part of the school landscape and is being maintained by the gardener. Figure 4.24 shows the dry *kolam* at the Kitchen Garden.

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Figure 4.24. Dry kolam at Kitchen Garden

On her assessment of the state of EE involvement in the school, she only gave an evaluation value of 6 out of 10. She still went back to compare with efforts in the past. She felt that much more could be done like, for example, EE should be accorded the same importance as the school's Anti-Drugs Campaign among pupils. (IntvT*BM*1CO2)

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According to Puan Salbiah, she noticed that the school does focus on EE and gave a rating of 7 on her school's performance in terms of EE. She acknowledged the importance of EE and was of the opinion that more could be done. (IntvTSC1CO2)

According to Puan Khatijah:

> ..., the school does participate in EE program like recycling (there are recycle bins in the school, at two places). Apart from that, some pupils had also participated in a camp concerning EE.
> (IntvT*KT*1CO2/030912/Line 48-50)

She gave a rating of 7 on the school's performance in carrying out EE.

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4.3.11.8 Issues and Challenges

The only issue brought up by Puan Khatijah was that at present if it is left as it is (that is "EE across the Curriculum"), the teachers are not skillful enough to identify the EE aspects in the various subjects. Moreover, if it is left to the ability of the individual teacher to infuse EE in the lesson and since there is no compulsion (not stated in the syllabus), EE is often overlooked.

4.3.12 Observations of Classroom Teaching

At *SK Wan Idris*, observations of classroom teaching were also conducted by the investigator. The findings of the observations are reported below.

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4.3.12.1 *Bahasa Melayu* Lessons

For the *BM* lessons the early trace of EE observed was the teacher's sensitivity and the pupils' action on keeping the classroom clean (for example, asking the pupils to pick up trash and the pupil on duty sweeping the floor before the start on the lesson). (Environmental consciousness on having a clean surrounding before the lesson started.)

In the *BM* lessons observed, the teacher focused on the specific skills of the language (like making sentences, reading comprehension and identifying the noble

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values, and essay writing). The teacher had also focused on the correct way of writing, composing sentences so that her pupils could score high marks in the exams. (Exams-focused) The materials / resources used did contain environmental components and implications (for example, the picture used for Lesson 1 showed features of the environment; Lesson 2 – on the paddy field – greenery; Lesson 3 – what the family members do during leisure hours; and Lesson 4 – passage containing aspects of cleanliness and its implications). However, it was felt that the teacher could have spent a little more time infusing EE (for example in Lesson 1 – concerning the natural surrounding in the picture – its beautiful features like the waterfall, the pool the green plants, the ideal place for having a picnic). In Lesson 2 also, teacher could have elaborated on the description of the paddy field (like on its greenery). Lesson 3 was on leisure time activities outdoor, and in lesson 4, actions of civic-mindedness (as well as good citizenship) in keeping the environment clean.

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During the four observations of her lessons the investigator found her to be a systematic and effective *BM* teacher who had always been punctual for her lessons. She came prepared for her lessons and with a voice which was loud and clear, she guided her pupils well. She had no problem with classroom control. However, it was noticed that she is too exam-focused and her lessons were punctuated by linking to the effective way to score marks in the *UPSR*. It was noticed that she would only incorporate EE if the topic and materials used are directly related to EE. There were occasions when the investigator felt that she could have related more of EE to the day's lesson.

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4.3.12.2 Science Lessons

For the Science lessons, there was a certain amount or level of environmental consciousness among the teacher and the pupils (as evidenced by the efforts to keep the science lab clean and orderly). Also, on energy conservation, like cutting down on wastage (for example Lesson 1 – avoiding unnecessary wastage of the power from the dry cells in the torchlights). There was also linkage to the pupils' surroundings by naming the groups after the planets of the universe as the framed pictures were exhibited all around on the walls. Emphasis was also given to the disposal of waste products (after the experiments) in a proper and orderly manner.

Although there were instances of efforts at relating to the surroundings and experiences (for example, in Lesson 2 about the railway track expanding when heating up), the investigator felt that the teacher should open up more avenues to relate further the scientific principles introduced to everyday experiences like for example, concerning the weather (in Lesson 2) and its implications, and also everyday applications of the scientific principles introduced. It was observed that the teacher focused on the experiment approach towards learning. There was emphasis on the Scientific skills as the basic scientific steps and approaches were followed through systematically.

It was noticed that before she began her lesson she had always asked her pupils to recite a prayer (*baca doa*) after the initial greetings. In incorporating values she had also always asked her pupils to greet the investigator too before starting her lesson. Puan Salbiah is a responsible lady who keeps up with her appointment and

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made an effort to inform the investigator of any changes through text messages. It was observed that she always arrived early in class to prepare for her lesson. Her preparations would require her to open the laboratory early and to get the apparatus ready. She is professional in her approach. She likes to use the experiment approach towards learning. She is systematic and abides by the scientific approach of carrying out the experiment, recording and reporting. She is caring, motivating, and likes to promote the competitive spirit and also remembers with positive reinforcements (*peneguhan*).

Overall, she was effective and her actions befitted her position as the *Ketua Panitia mata pelajaran Sains*. In the presence of the investigator, it was noticed that she did try to incorporate EE in her lesson like stressing on cleanliness of the Science laboratory. There was a time during her lesson on the usage of battery (dry cells) during experiment in the lab and the investigator felt that the teacher could have stressed on cutting down wastage when the experiment was over and the torch was left on. (Obsv Lesson No. 1, dated 08.05.2012, 09:15 – 10:15 a.m.)

4.3.12.3 *Kajian Tempatan* Lessons

Finally, in *KT*, Lesson 1 was environment-related (geographical factors). The teacher could have used resources like pictures to attract attention and to make the lesson interesting (for example, using slides of pictures). The textbook seemed to be the only resource for her. She could have linked it to examples which the pupils were familiar with, like for example, the cactus found at the school's Kitchen Garden

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(Edible Garden). There could have been more EE infusion in the lesson based on the four factors affecting the type of vegetation. Lessons 2, 3, & 4 were purely historical – based on the historical facts on the Malacca Sultanate. However, the teacher could have also emphasized on the geographical aspects / factors that contributed to Malacca being an entrepot port, (like its strategic location, the geographical factors that brought the traders to meet and the products / natural resources for trade). Furthermore, with a little more initiative and ingenuity, the teacher could have related and compared post-historical and present day Malacca in terms of its natural resources and its geography (Lesson 3).

It had been observed that Puan Khatijah had always been punctual for her class. For all the lessons observed, it looked like she was prepared. She had been professional in handling her lessons. She wasted no time and started on the lesson promptly. However, one notable observation was that she did not check on classroom cleanliness before starting her lesson, (unlike the other teachers). Furthermore, her lessons followed a 'Standard Operating Procedure' (SOP) of writing the 'day', 'date', and 'title' of the day's lesson on the board. Nevertheless, she was systematic in delivering her lessons. Being confident, with a voice loud enough and clear and with speech, slow and steady, on the whole her teaching was effective. She would always deliver the whole package – inclusive of assessment.

However, it was noticed that she followed by the book. Her lack of resourcefulness showed and most of the time there was no attempt to relate to other disciplines (*penggabungjalinan*) and EE. As an example, on her lesson on 'Malacca as a centre for trade' (Lesson 3, dated 17.07.2012, 09:00 – 09:30 a.m.), she could have

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brought in the geographical aspects like strategic location and also on the products for trade. She was too exam-focused reminding her pupils to read and prepare well for the exams, (probably because she also teaches the Science subject in the *UPSR* class).

4.3.13 Observations of the School (Environmental Scanning / Green Audit)

During the many visits to the school the investigator would always do an environmental scanning of the school to look out for new developments related to EE being implemented at the school. The results of the observations are based on the following categories.

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4.3.13.1 Policies that Support *EE across the Curriculum*

The school's vision and mission statements do not relate to EE. They focus on achieving excellence in curriculum, co-curriculum and human capital. The main focus is to be a "High Achievement School".

4.3.13.2 Displays of EE Related Materials

No displays of EE related materials were seen at the many information boards in the various buildings. A label for keeping the place clean (*Sila Jaga Kebersihan*

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Kawasan ini) was placed in one of the pillars of the hall at Building H (see *Figure 4.7*). The school canteen displayed a label for keeping the place clean.

4.3.13.3 Landscape Management

Evidences of landscape management are found at the Kitchen Garden (shown in Figures 4.11, 4.12, 4.13, 4.14, 4.15 and 4.16 on pp. 202-204). The garden is maintained by the school gardener and it poses quite a beautiful sight with different types of plants and fruit trees like the giant cactus, herbal plants, flowering plants, shrubs and bananas on undulating land. Furthermore, the surroundings looked neat and the walkway leads to the other buildings on higher ground.

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4.3.13.4 Energy Saving Measures and Economical Usage Practices

No traces of energy saving measures or other economical usage practices were noticed. There were no labels at the various specific places like the switch boards or at the taps to serve as reminders.

4.3.13.5 Management of Waste Disposal / Garbage

Waste / garbage disposal is managed by the local authority (*Alam Flora*). There are bins at specific places at the corridors for trash. Additionally, there are recycle bins (as shown in Figure 4.17, p. 212), at two strategic places.

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4.3.13.6 Special Features

Besides the school field and two Sheltered Stations (*Pondok Bacaan*) special features of the school include the Kitchen Garden with its existing features like the giant cactus plants, flowering plants, herbal plants, shrubs and also fruit trees. It also has an information board with displays of related materials at the rest area (in Figures 4.10, 4.11, and 4.12 on pages 202 and 203). Additionally there is the playground (*Taman Permainan*) for Pre-School. The features mentioned above are suitable for outdoor activities related to EE.

4.2.14 Summary

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SK Wan Idris is a vibrant school with the necessary facilities for teaching and learning. Situated on undulating ground the school compound reflects some interesting areas for landscaping. Specifically for outdoor teaching, it has ample ground consisting of many interesting features like the greeneries and landscaping at the Kitchen Garden. Overall the surrounding looks neat and tidy. The headmaster, Encik Hassan supports efforts to promote EE and presently the school recycling program is on-going. Another project carried out throughout the school term which involves the pupils is the "Classroom Beautification Competition". Efforts are geared towards maintaining a clean and beautiful environment in the classrooms and the school surroundings to ensure a conducive and safe environment for study.

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4.4 Case Study Three: *SK Relau* (CO3)

The data in Case Study Three are presented in a total of fourteen categories. The following are detailed descriptions of the various categories.

4.4.1 Profile of *SK Relau*

SK Relau as a rural school, was started in 1933. It is located about 14 kilometers from the main town at which the other two town schools (CO1 & CO2) are located.

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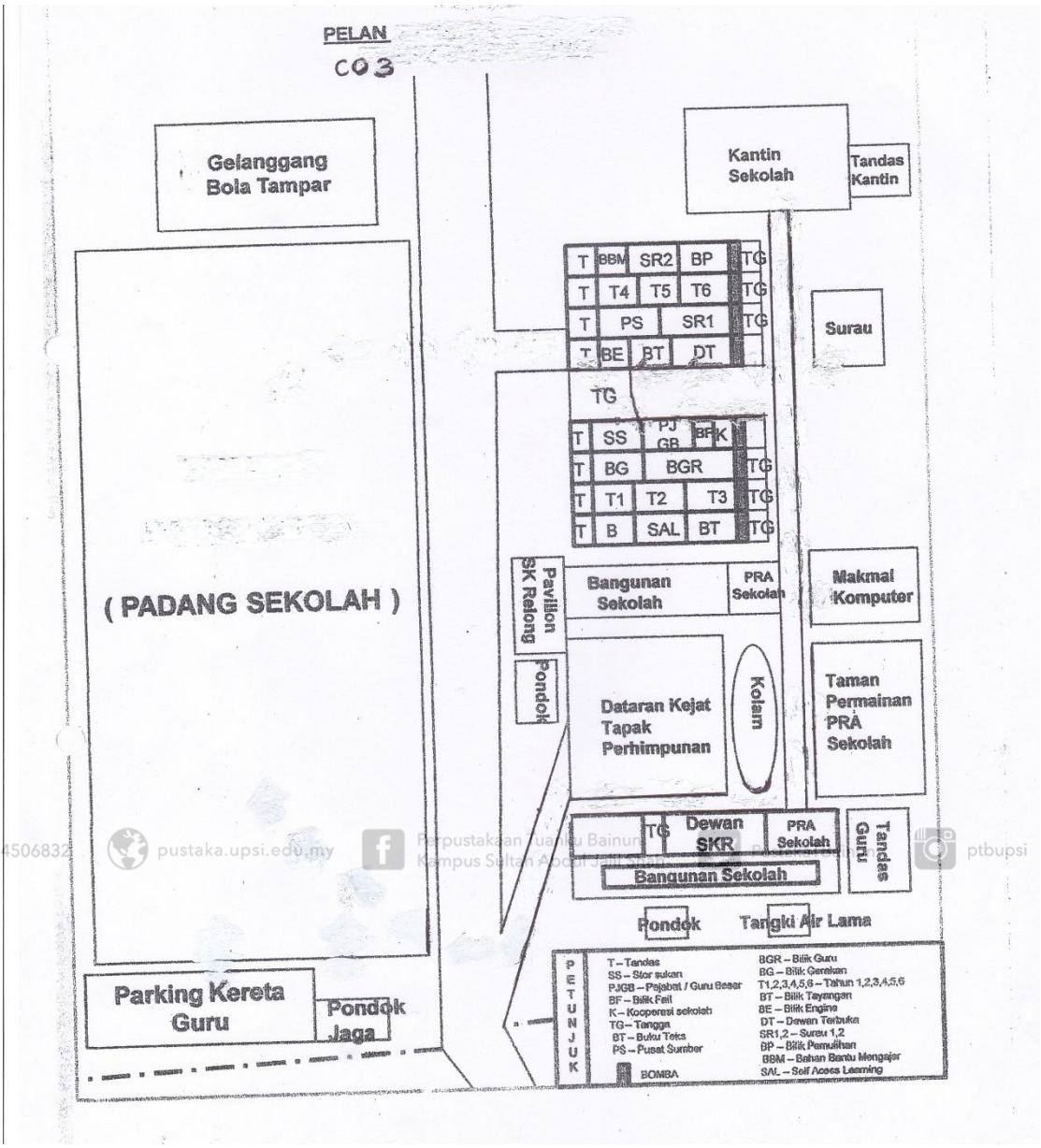


Figure 4.25. Plan of *SK Relau* (CO3).

Figure 4.25 shows a sketch plan of the school. Present day *SK Relau* consists of four blocks of buildings (including 2 new 4-storeyed blocks). As one enters the school by the access road after the gate, the school buildings are on elevated ground to the right while the school field is to the left. Figure 4.26 shows a view of the school buildings. The environment surrounding the school consists of the hills, limestone caves, and greeneries from vegetation of the surrounding forested area.

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Figure 4.26. A view of the school buildings

As shown in Table 4.11, the school has a total enrolment of 149 pupils (79 male and 70 female), managed by the headmaster and his three assistants (*GPK Pentadbiran & Kurikulum, GPK Hal Ehwal Murid, and GPK Ko-kurikulum*) and a support staff (clerical and general) of 3 (all female). The teaching staff comprises a total of 20 teachers (6 male and 14 female) of which 12 (60%), are degree holders.

Table 4.11

Enrolment of Pupils and Staff, SK Relau

School	Category/ Grade	Pupils		Teachers		Teachers		Support staff	
		Male	Female	Male	Female	Grads	Non grads	Male	Female
CO3	Rural / A	79	70	6	14	12	8	0	3
Total		149		20		20		3	

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For the overall running of the school, various committees are formed and these consist of 13 Committees for the school administration and management, 13 Committees with the Curriculum Unit, and 18 Committees with the Pupils' Affairs Unit (*Hal Ehwal Murid, HEM*). Of interest to this study is the existence of committees which can promote EE, namely the School Canteen Committee (*JK Kantin Sekolah*), Cleanliness, Health and Safety Committee *(JK Kebersihan, Kesihatan & Keselamatan)* , and the Beautification Committee *(JK Keceriaan* (all from the Pupils' Affairs Unit). The Co-curriculum Unit offers a number of options in the Uniformed Units (5), Clubs and Societies (8), and Sports and Games (5) for the involvement of the pupils, (as shown in Table 4.12 below). It is worth noting that there is the existence of the Mathematics, Science & Environment Club and also the ICT, Agriculture & Recreation Club at the school where EE can be promoted.

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Table 4.12

Co-curricular Activities Offered in SK Relau

Uniformed Unit	Club and Society	Sports and Games
Pengakap	*Bahasa Melayu*	*Olahraga*
Tunas Puteri	*Bahasa Inggeris*	*Bola Sepak*
Puteri Islam	*Agama Islam & Bina Insan*	*Bola Baling*
Tunas Kadet	*Matematik, Sains & Alam Sekitar*	*Bola Jaring*
Remaja Sekolah (TKRS)	*Keselamatan Jalan Raya*	*Badminton*
	Doktor Muda	
	Kelab Rukun Negara	
	ICT, Agriculture & Rekreasi	

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4.4.2 School Facilities

The indoor learning facilities include the classrooms, the Resource Centre, the Computer lab, and the school hall. There are also many outdoor learning facilities like the *Dataran Kejat Tapak Perhimpunan*, the pond, the School Pavilion, the *pondok* (a sheltered rest area), the *Taman Permainan PRA Sekolah*, the vast school field (*padang sekolah*), and the volleyball court (*Gelanggang Bola Tampar*) as shown in Figure 4.25. The immediate surroundings of the school are full of vegetation consisting of fruit trees and further inland are the forested area in the hills and limestone caves. Beautiful features and surroundings of the school are shown in Figures 4.27, 4.28, 4.29 and 4.30 below.

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Figure 4.27. The neat school surrounding

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Figure 4.28. Green space for outdoor activities



Figure 4.29. The School Pavilion

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Figure 4.30. The Pond next to the *Dataran Kejat Tapak Perhimpunan*

4.4.3 Vision and Mission

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SK Relau has as its vision, "to be among the best schools in the district in the year 2013" (not so far-fletched as compared to the other schools). Its mission statement is stated in Table 4.13. Included in the mission statement is the effort "to create a conducive and safe environment as well as to establish a continuous collaboration with the community". The goals of the school are further identified and they focus on four main aspects namely, the curriculum, co-curriculum, character-building, and also cleanliness, beautification and safety. In relation to this, the school aims to create a clean, beautiful and safe environment to realize the concept of "My School My Home" (*Sekolahku Rumahku*).

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Table 4.13

SK Relau's Vision and Mission Statements

School	Vision and Mission Statements
CO3	Motto: Knowledge Practice Success (*Berilmu Beramal Berjaya*) Vision: CO3 will be among the best schools in the district in 2013 Mission: To lead, manage and administer the school in a more effective and efficient manner. Seriousness in providing excellent and quality education to generate improvements in the academic field. To produce human beings with good behavior and morality To activate the potency of the students in co-curriculum in accordance to their interest and abilities. **To create a conducive, comfortable and safe environment as well as to establish a continuous collaboration with the community.**
Goals:	**Curriculum** To achieve a target of 100% Pass and 30% Excellence in all forms Evaluation of Average School Grade 0f 1.75 and below To achieve policy of 60:40 All students to master *3M* and *4M*. To uphold and implement policies stated by the Ministry of Education Malaysia **Co-curriculum** 100% students actively involved in uniformed unit and societies. To implement the policy of 1 Student 1 Sports To develop the potentials of the students in sports to represent school, district, state and country. **Character building** To build the commendable personality and morality of the students, disciplined and positive To produce a perfect human being, useful to the world and thereafter. **Cleanliness, Beauty, Safety, (3K) (*Kebersihan, Keceriaan, Keselamatan* (3K))** **To create a clean, beautiful and safe environment in the realization of the concept of 'My School My Home'**, (Sekolahku Rumahku)

Source: School Management Planning Book (*Buku Perancangan Pengurusan Sekolah*) 2012

4.4.4 The School Administrators

The school administrators involved in the study include the Headmaster (HM), Encik Zainuddin, aged 58 years, option/grade: General, *DGA*34; the *GPK* Administration and Curriculum (*GPK* 1), Puan Anis, aged 45 years, option/grade: *Pengajian Melayu*, *DGA*32; and the *GPK* Co-curriculum (*GPK Kokur*), Encik Wan Adnan, aged 45 years, option/grade: Pengajian Inggeris, *DGA*32.

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Encik Zainuddin came over as headmaster in March 2011 and is the 14th headmaster of the school. He has great sense of inculcating environmental values among the pupils and is upbeat and supports any effort related to EE.

He takes pride in disclosing the many projects of *gotong royong* at cleaning up the surroundings of the school with the local authority and community. Personally he had also taken the pupils to visit the limestone cave nearby where he also educated them on the natural features and the importance of preserving them for future generations. He has even drafted out projects like the Science Garden, Herbal Garden and also for agriculture at the various spaces available at the school and hopes that his successor will carry on with the projects he drafted for the next three years. (At time of interview, he disclosed that he would be retiring in a year's time.)

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Puan Anis also came over to the school as *GPK1* in December 2011. Like Puan Siti Rokiah of CO2, she is presently attending a training course at IAB, Genting Highlands which prepares her for the headmaster's post in the near future. As such she is quite busy with her work at the school as well as her course work at *IAB*.

However Puan Anis also shows interest and fully supports the idea of educating the pupils on the environment. She also disclosed that she had visited a school at another town in the process of collecting data for her course assignment and she was impressed at the efforts taken by the school in participating in the Sustainable School Award Competition (*Anugerah Sekolah Lestari*) and hopes that she can introduce some ideas at her school here in the near future. (Taking the cue from here,

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the investigator also made an effort to visit the school and to interview the teacher-in-charge of the project. It will be reported later.)

Encik Wan Adnan started as *GPK Ko-kur* at the school in Mei 2010. He is also upbeat about introducing EE in co-curricular activities. At the end of the interview session, he admitted that he had not thought much about it earlier. In the past, all his efforts were focused on ensuring that the co-curricular activities run off well at the school and with the hope that the pupils would bring back glory to the school when participating in sports and games at the various levels (district, state and national). Following the interview, he enthused that he would be incorporating more of EE in co-curriculum in the school in future.

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4.4.5 The Teachers in the Study

The school teachers involved in the study are Puan Balqis, the *BM* teacher (T*BM*1CO3); En. Shaiful, the Science teacher (TSC1CO3); and Puan Kalsom, the *KT* teacher (T*KT*1CO3). Table 4.14 shows the background information of the teachers.

Puan Balqis aged 39 years, received training at a teacher training college in Kuantan way back in 1994 to 1996, specializing in Malay Studies (*Pengajian Melayu*). After receiving training, she served at three rural schools before moving on to the present one since 1999 till now. She disclosed that she has been teaching the subject, *BM* for 15 years. She has also improved on her academic qualification and

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possesses a degree in Information Technology from the Open University of Malaysia (OUM).

At school she is the Head of Panel for Art Education (Ketua Panitia *Pendidikan Seni*), the Data and Information Teacher (*Guru Data & Maklumat*) and also the advisor for the *Bahasa Melayu* Society. Presently she teaches *BM* (*Pemahaman*, Years 5 and 6), Mathematics (Year 1), and *Pendidikan Seni Visual* (Year 6).

Encik Shaiful is a 45 year old man who was college-trained, specializing in Science, Post-diploma Teaching Course (*Kursus Perguruan Lepasan Diploma, KPLD*) in 1996. He has served as a secondary school teacher at three schools before switching over to the present school till now. He has 15 years of teaching experience. He possesses a Bachelor's degree in Science with OUM.

Presently he is the Head of Panel for Science (*Ketua Panitia*), the Coordinator for the school's laboratory, and the Secretary for the Student Affairs. He is also an advisor of the Mathematics, Science and Environment Society. He focuses on teaching the Science subject (Years 3, 5 and 6).

Puan Kalsom received early education at *Sekolah Seri Nering*, Kuala Terengganu and then to university at Universiti Utara Malaysia (UUM) in Public Management. She disclosed that she had worked in a private firm as a purchaser for five years. After getting married, she stopped working and continued with education at *Maktab Perguruan Islam*, Selangor, following the *Kursus Perguruan Lepasan*

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Ijazah KPLI course majoring in Social Studies. In 2009, she was posted to a primary school at Segambut, Kuala Lumpur. After teaching there for one year, she applied to be transferred to the present town and successfully got transferred to the present school in December 2009.

At the present school she holds the position of Coordinator for *Bestari* (*Penyelaras Bestari*) and Examinations Secretary (*Setiausaha Peperiksaan*) for *KSSR*. She teaches subjects like *KT* (Year 5), *BM* (Year 4), and Physical Education (*PJK*, Years 3 and 5). She also disclosed that at the first school for 11 months, she had taught *BM* and *Bahasa Arab*. All in, she has nineteen years of teaching experience. Table 4.14 provides some information of the teachers involved in the study.

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Table 4.14

Summary of Teachers' Background Information, SK Relau

Teacher	Age (years)	Gender (M/F)	Professional Appointment	Qualifications	Years of Service	Subjects Taught	Co-curriculum	Courses Attended
Pn. Balqis	39	F	*DG* 41, Panel Head (*Pend. Seni*) Guru Data Adviser *BM* Society	B. Ed (IT)(OUM); Teaching Certificate (Malay Studies)	15	*BM* (5, 6); *MT* (1) *PSV* (6)	*BM* Society	Nil
En. Shaiful	44	M	*DG*41, Panel Head (SC), *Penyelaras Makmal SU HEM*	B.Ed. (SC) (OUM); Teaching Certificate (SC)	15	SC (3,5 & 6)	-	eTEMS
Pn. Kalsom	35	F	DG41, *Penyelaras Bestari, SUP*	B. Management (*UUM*); Teaching Diploma (Social Studies)	19	*BM* (4) *KT* (5); *PJ* (3 & 5)	-	Nil

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4.4.6 Curriculum

As mentioned earlier, the education system in Malaysia is a centralized one. The curriculum used by all the primary government schools are similar. The teachers follow the standard Malaysian Integrated Primary School Curriculum (IPSC / *KBSR*) and the Standard Curriculum for Primary Schools (SCPS / *KSSR*, which runs parallel to replace the IPSC / *KBSR* which is slowly being phased out by 2016).

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4.4.7 Teaching and Learning

Teaching and learning usually occur indoors, in the classroom, the *Bilik Tayangan*, the Resource Centre, the ICT lab, the Living Skills workshop and also at the hall. The outdoor facilities provided which also serve as learning centers are the rest areas, the quadrangle where assemblies are held (*Dataran Kejat Tapak Perhimpunan*), which also showpieces a pond with running water, a Science Garden, corridors with information boards and also a school field (especially for the Physical Education class).

With regards to teaching and learning materials, they consist of the syllabi, the curriculum specifications, the teachers' Guidebooks, text-books, the practical workbooks for the various subjects. All these are based on the national school curriculum to reflect the Malaysian identity.

4.4.8 Co-curricular Activities

Besides offering participation in the uniformed units, the pupils are also involved in clubs and societies as well as sports and games. The Table 4.12 (p. 251) shows the options offered to the pupils. It is interesting to note that there is the existence of the Mathematics, Science and Environment Club and the ICT, Agriculture and Recreation Club. With such clubs there are opportunities to provide environmental education to the pupils and the school community. There are a number of activities planned where the teacher could infuse EE like for example, during the school Uniformed Unit

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Carnival (February 10 - 12), the school Cross-country event (*Merentas desa, January 18*), the Society Service & *Gotong Royong* (*Khidmat Masyarakat & Gotong Royong*, April 11), and the Integrated Camp for the Uniformed Unit (September 20 – 22). During the Integrated Camp an item presented was the "Presentation of Cultures" based on the environment theme. There were also activities on map reading and orienteering. The investigator was also informed that the school successfully carried out the "*Program 10,000 Langkah Cegas Aedes"* (a Communication for Behavioral Impact program, COMBI, a regional World Health Organization, WHO initiative) involving the village community and the Health Office on June 20. It was also reported that the Mathematics, Science, and Environment Club also successfully carried out two environment-related activities, namely, the Explore Race (Quiz and Experiment, April 25) and the Herbal Garden Project (June 27).

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4.4.9 Programs / Activities Related to EE

Besides the activities carried out under Co-curriculum (mentioned in the section under 4.4.8), as with the other schools mentioned earlier, the academic weeks followed certain themes and the teachers-in-charge during the specific week would focus on the theme during the week's assembly session at the school hall. Examples of themes followed which are related to EE include "Love the School and the Environment" (*Sayangi Sekolah & Alam Sekitar*) (Week 6, February 6 - 11), "Importance of Being Frugal" (*Pentingnya Berjimat Cermat*) (Week 12, March 19 – 24), "To Appreciate the School Assets/Properties" (*Menghargai Harta Benda Sekolah*) (Week 18, April 30 –

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Mei 4), and "Save Energy and Electricity Resources" (*Jimatkan Sumber Tenaga dan Elektrik*) (Week 21, May 21 – 25).

The programs and activities for the year 2012 which are related to EE are shown in Table 4.15.

Table 4.15

Programs and Activities Related to EE Planned and Carried Out at SK Relau

School	Programs and activities related to EE planned and carried out within the year (2012)
CO3	1. *Tema Mingguan Guru Bertugas: Sayangi Sekolah & Alam Sekitar* February 6 - 11) 2. *Tema Mingguan Guru Bertugas: Pentingnya Berjimat Cermat* (March 19-24) 3. *Khidmat Masyarakat & Gotong Royong* (April 11) 4. *Explore Race (*April 25 – *Persatuan Sains & Matematik)* 5. *Tema Mingguan Guru Bertugas: Menghargai Harta Benda Sekolah* (April - May 4) 6. *Program "10 000 Langkah Cegah Aedes", (20 June), (Usaha Kerjasama Sekolah, Pejabat Kesihatan Daerah Lipis, & Penduduk Kampung Relong)* 7. *Membina Taman Herba (* June 27 - *Persatuan Sains & Matematik)* 8. *Tema Mingguan Guru Bertugas: Jimatkan sumber Tenaga dan Elektrik* (August 21 - 25) 9. *Perkhemahan Unit Beruniform (September 20 - 22) (Pembersihan Tapak Perkhemahan/Gotong royong, Treking ke Gua Bama & Persembahan Malam Kebudayaan bertemakan alam sekitar)*

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4.4.10 Interviews with School Administrators

Ten interview questions for the school administrators guided the answers to various perspectives of EE at the schools (Appendix C). The findings are discussed according to the categories below.

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4.4.10.1 Goals and Priorities of the School

According to the administrators the focus is to make *SK Relau* one of the best schools in the district in terms of its achievement in curriculum and co-curriculum. The *GPK*1 disclosed there had been improvement on the school's achievement in the *UPSR* in terms of the number of passes and excellence (5As) and also co-curriculum (games).

4.4.10.2 Subjects that Get the Most Attention

Encik Zainuddin mentioned that he gives due consideration to all the subjects as it depends on the needs of the specific subject. Puan Anis clarified that there is no problem of contributions as the school gets support from the local community which comprises many ex-teachers who understand the needs of the school, like carrying out programs towards excellence. In terms of curriculum, Encik Wan Adnan also brought up that, like any other school, the core subjects which are being tested in the *UPSR* get the most attention and allocation.

4.4.10.3 Importance of EE

The school administrators were asked about their perspectives and the status of EE at the school. Encik Zainuddin clarified on the status of EE:

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> ... if we look at the primary school for EE, actually there is none, we only have Local Studies, we have err ...maybe Living Skills a bit, in Music a bit, and Art a bit. Ha, so for stating the actual position of EE .. that I am not able to say ... because there is no compulsory subject, but for the other subjects we still also .. do instill elements of it in Local Studies ... next, on the environment like for Year One, we have Science and Technology, maybe the teachers do include the environmental elements *lah* in education.
>
> *(... kalau kita tengok bagi sekolah rendah untuk pendidikan alam sekitar sebenarnya tak ade, kita hanya ada Kajian Tempatan, kita ade err ... mungkin Kemahiran Hidup sedikit, dalam dunia Muzik sedikit, dan Seni sedikit. ... Ha jadi untuk nak, nak, nak menentukan kedudukan sebenar pendidikan itu saya tak boleh bagi kata, sebab itu kita tak ade mata pelajaran wajib, tapi untuk mata pelajaran yang lain itu kita masih jugalah er .. menerapkan unsur-unsur tersebut dalam Kajian Tempatan.... kemudian dalam alam sekitar macam Tahun Satu kita ada Sain dan Teknologi, mungkin cikgu-cikgu memasukkan unsur-unsur alam sekitarlah dalam pendidikan itu.)*
> (IntvHMCO3/040213/Line 305-313)

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Puan Anis is also clear about the status of EE where she clarified that there is no specific subject on the environment for the primary school. She mentioned that it cuts across the curriculum like in Science, *BM*, *KT* and also in Civics where values on the environment are infused into it.

Encik Wan Adnan also explained on the status of EE in the school:

> ... normally environmental education if in the classroom, is indirect, right? Ah ... maybe in the *KH* subject, in the *BM* subject maybe it's inserted, right? Arr... maybe in Religious Education it's inserted. In co-curriculum, in school we have the Mathematics and Environment Club. We have society service (*khidmat masyarakat*) and it's related to the environment *lah*. This, we did provide aids with the society in terms of creating awareness of the pupils concerning their responsibilities towards the environment *lah*. Like last year we collected refuse within a one-kilometer area by forming groups with the villagers *lah* ... collecting all refuse which might give rise to the dangers of the aedes, right?

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> *(... Pendidikan alam sekitar ini kalau biasanya kalau dalam classroom, dia tak secara langsung, indirectly kan? Ah ... mungkin dalam subjek KH, dalam subjek BM mungkin masuk kan? Arr... subjek Pendidikan Agama mungkin masuk. Dalam bidang kokur pula ... kokur dalam sekolah ini kita ada Kelab Matematik dan Alam Sekitar. Kita ada khidmat masyarakat, ini berkaitan dengan alam sekitarlah. Ini kita buat khidmat bantu dengan masyarakat dari segi untuk membina kesedaran murid mengenai tanggungjawab mereka terhadap alam sekitarlah. Macam last year kita buat kutip-kutip sampah within 1 km area, kita bagi grouping termasuk penduduk kampunglah. Ah ... kutip-kutip sampah semua yang mungkin menyebabkan bahaya aedes kan.)* (Intv*GPKKokur*CO3/190213/Line 100-110)

4.4.10.4 Desired Status of EE in Schools: EE as a Separate Subject?

Encik Zainuddin also felt that, personally he agrees that it is better to have a special subject on the environment. He mentioned that the environment will shape a person's character.

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> *Yes ... Saya, saya kalau ikut saya, memang saya setuju... Lebih baik saya rasa diwujudkan satu mata pelajaran yang khas untuk alam sekitar ini... Alam sekitar ini dia akan membentuk diri ...* (IntvHMCO3/040213/Line 1192, 1196-1197, 1212)

Puan Anis also agreed that it has to be inculcated at a young age. Moreover it has to be made a culture from a young age, at the primary school. Otherwise, the pupils are just geared towards examinations only:

> *Ya, perlu pada saya sebab yalah kita kena terapkan pada peringkat bawah sebab bila sampai ke sekolah menengah dia dah terlalu banyak subjek lain lagi kan ... yalah melentur buluh biarlah dari rebung kan , ha kita kena budayakan daripada kecik lagi, sekolah rendah. Kalau tak, murid ini dia menjurus kepada peperiksaan saja.* (Intv*GPK*1CO3/180413/Line 419-423)

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Encik Wan Adnan agreed that viewed from one angle, there is a need but on the other, he asserted that we must not create too many subjects as he feared that more manpower is needed. He suggested it be included in *KH* and give enough focus to EE. He even suggested having an examination on the awareness of the pupils. He felt that when there is examination there will be enough focus. His actual words are as follows:

> *Dari satu aspek ... arr ... patut, tapi dari satu aspek lagi kita boleh terapkan dalam ... kita tidak perlu jadikan subjek itu banyak-banyak, tapi kita masukkan dalam misal kata subjek ... KH, kita masuk betul-betul kita fokus ada alam sekitar di situ, ha ... sebab terlalu banyak subjek saya takut kita perlukan lebih banyak tenaga kan.. Jadi kita masuk, tapi kena fokuslah betul-betul, jangan kita buat sampingan...*
>
> *Kita boleh serapkan dalam mata pelajaran tapi kita ada exam berkenaan kesedaran murid itu. Itu sekolah boleh buat kan, sebab benda exam mengenai kesedaran alam sekitar bukan benda yang susah kan, jadi murid itu dia kena tahulah. Kadang-kadang bila tidak ada exam dia tak fokus ... ha ... cikgu pun tak fokus. Bila ada exam kita fokus.*
> (Intv*GPKKokur*CO3/190213/Line 444-449; 470-474)

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4.4.10.5 School EE Programs

On the school programs, Encik Zainuddin informed that they have allocated one day for *gotong royong perdana* (main *gotong royong*). The cleanliness program also involve the parents where they bring their own equipment for agriculture purposes. Efforts have been made to clean up the school compound and to clear the trees which pose a danger to the pupils. Other projects include the painting of murals and these are often done by visiting university students and also by the students from the Teacher Education Institute. There was also a project involving the Health office, the

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local folks and the school community about the prevention and eradication of the aedes mosquitoes whereby a massive cleansing of the area was conducted and it was a huge success.

On projects, Puan Anis informed that they give encouragements and stressed on looking after the cleanliness and beautification of the school and the classrooms. Often at the afternoons during co-curriculum they also had programs like *gotong royong*, creating a herbal garden. Besides that, the *gotong royong perdana* involving the PIBG is an annual affair. Also they have the *3K* Committee (*Kebersihan, Keceriaan and Keselamatan*) which emphasizes it on the daily practices of the pupils.

Encik Wan Adnan pointed out that although programs for EE are very few, it is not a main program. The main projects of the school include the school sports and camping. For environment it is only a part of it. He had praises for the headmaster as he stresses on the beautification of the school environment. According to him, the headmaster has plans for a wood ball lawn and also to plant more flowering plants. However, like the others, he lamented that the main problem is that of funding or budgeting. Nevertheless, he disclosed that measures are on-going even though they are slow. Furthermore, areas have been assigned to the teachers and he is of the opinion that there is still room for improvement in terms of the commitment of the teachers concerned. Presently they are not satisfied and want to improve on the environment so that the pupils will like to come to the school.

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4.4.10.6 Perception of EE / Understanding of EE

It seems that to the school administrators, EE means keeping the school clean and tidy and beautiful (*keceriaan*). Efforts are geared towards making the school conducive for study.

4.4.10.7 Evaluation of School Performance in Terms of EE

Encik Zainuddin scored 8 points for his school. According to him the school is ever ready to offer help to the community in the village *gotong royong*. Likewise they have also had programs which involved the community and the Health Office like the COMBI project aimed at eradicating the aedes mosquitoes.

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As for Puan Anis, she gave seven points as she felt that the school looked conducive enough. She admitted that they did not focus solely on it but the two things being stressed upon are mainly cleanliness and beautification. She also admitted that at the primary school level, they are tied down with academic subjects. She opined that if EE is made a specific subject, then more focus would be given. She clarified that presently it is inserted in the other subjects and also during co-curriculum.

Encik Wan Adnan gave six points stating that they do have programs related to the environment from the aspect of beautifying the school. According to him what is needed is that the Ministry should initiate a project related to the environment every

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year for every school to participate. He suggested that the Ministry should provide a budget and this will motivate the schools to participate. One more thing is that in the curriculum or syllabus itself there must be lots of awareness on the environment so that the teachers can pay attention to it. Thirdly, to him the awareness must also come from the teachers themselves.

4.4.10.8 Measures Taken / To Take for EE

Encik Zainuddin has many plans which include a camping site planted with fruit trees for shade, also setting up learning stations, a wood ball lawn, a herbal garden, and also a nursery where the pupils can make use of during the Science lesson. At the field he also intends to plant *pinang* trees around the school field.

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According to Puan Anis, throughout the year there are also many activities related to the environment, like during camping where the pupils were told not to damage the plants, the trees and also to keep the place clean. There was also a day trip to the cave nearby where the pupils were also introduced to the vegetation around the area. Another activity was the COMBI project with the Health Office and the village community. They have also started an Art Gallery which exhibits the works of the pupils and the teachers. She also mentioned that she hoped to include projects related to the environment as she was impressed with the efforts made by another school she visited which took part in the Sustainable School Award Competition (*Anugerah Sekolah Lestari*).

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Encik Wan Adnan also confirmed that there were projects with the villagers on cleaning the surroundings. Other institutions involved include the university, and also the Health Office with the COMBI project. Also in co-curriculum they could put to practice what they learnt like during camping, values on cleanliness, and looking after the trees and not damaging them could be infused. Also in societies and clubs, they could have an 'Environment Day' at the school on the second week of every month. He admitted that he has not seen any individual project on the environment carried out by the clubs.

4.4.10.9 Issues on the Implementation of EE in the School

One of the issues brought up by the headmaster is that there are no allocations for EE in school. He clarified that if there are allocations he could ask the local community to help in carrying out programs for the environment.

Puan Anis also brought up about the time factor. She explained that presently the school programs are packed and there is no room for a program on the environment. She admitted that many of the programs are towards achieving academic excellence.

Encik Wan Adnan mentioned that there is no curriculum for EE. Furthermore there are no EE courses conducted for the teachers. Another observation of his is that in terms of teaching methodology he seldom sees teachers using the outdoors to teach their lessons. Most of the lessons were conducted indoors.

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4.4.11 Interviews with the Three Subjects Teachers

Two rounds of interviews were conducted with the subject teachers. A total of thirteen questions were posed to the teachers (refer to Appendix D). The findings are discussed under the following categories.

4.4.11.1 Goals and Priorities of the School

Puan Balqis informed that the main focus is to make *SK Relau* an excellent (*cemerlang*) and renowned (*terbilang*) school among the schools in the district in the year 2013. She clarified that this covers the academic and co-curriculum fields. When this question was posed to Encik Shaiful, he repeated what Puan Balqis had said. Additionally he elaborated that the mission of the school is to develop the potentials of the pupils and be balanced in their physical, intellectual, emotional and spiritual development, thus realizing the aims of the National Education Philosophy. Finally Puan Kalsom, like Puan Balqis, was also able to relate the vision of the school. Also, like Encik Shaiful, she also elaborated on the mission of the school to develop the potentials of the pupils.

4.4.11.2 Subjects that Get the Most Attention

Puan Balqis mentioned that the core subjects like *BM*, Maths, *BI* and Science get the most attention in terms of resources and allocations. Encik Shaiful also agreed that

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the *UPSR* subjects are the main focus of the school. When posed the same question to Puan Kalsom, she also mentioned that they aimed to achieve excellent results in the five core subjects. However besides that, she also noticed that there was a lot of attention for religious programs and activities in the school. She also clarified that other subjects could also ask for allocations if there are specific projects to be carried out.

4.4.11.3 Importance of EE

The three teachers acknowledged the importance of EE as it is important to teach the children to love and look after the environment. They were able to quote the many projects which are related to EE, like *gotong royong* cleaning the school compound, the school beautification and the COMBI project which involved the community.

4.4.11.4 Desired Status of EE in Schools: EE as a Separate Subject?

Puan Balqis also felt that EE needs to be a separate subject because the pupils need to be inculcated about the importance of looking after the environment. Pupils of primary schools need to receive the input directly, not by "*selitkan"* (insertion). If it is a separate subject, perhaps more content can be included together in the teaching-learning compared to by only "*selit-selitkan"* in other subjects.

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On whether EE should be a separate subject, Encik Shaiful also agreed that "... this is a good suggestion for the future where EE truly *arr*.. gives awareness and also its impact will involve everybody on this earth. I feel in future there is a need *arr* .. to make EE a special subject to give awareness and also that we all can get involved in looking after the environment seriously". (IntvTSC1CO3/071112/Line 372-377). He suggested that 30 minutes weekly could be given to EE as a new subject. (IntvTSC1CO3/071112/Line 409-410).

Puan Kalsom also accepted that EE is important. On whether EE should be a separate subject : " Ha, separate ..." " Because if we just paste, we insert a bit, pupils do not see, if separate, we have topic, got its theme so pupils can see clearly, understand clearly." "Got, I feel there is a need." (IntvT*KT*1CO3/071112/Line 1121, 1125-1127, 1131)

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4.4.11.5 School EE Programs

According to Puan Balqis (T*BM*1CO3):

> The school does give attention to EE, like eg. in the *KT* subject and also in Co-curricular activities like we have camping where EE is infused in the activities. We also had visited Gua Besar and there we explained to the pupils on things related. Also in Science, activities like making scrap books containing names of plants. Also under Health Education, the school had joint activities with the District Health office under the COMBI program (a program related to curbing the breeding of the Aedes mosquito). It involved the participation of the villages in the neighborhood where there was a competition on collecting rubbish around the neighborhood. Of course the school supports such efforts at EE. In the past, the school had also organized campaigns, like 'anti-smoking', coloring contest, poster drawing, '*bersajak*', etc.
> (IntvT*BM*1CO3/071112/Line 67-71; 77-79; 86-88)

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Encik Shaiful was of the opinion that this school gave support to EE indirectly during a specific school program. For example, the Science Club activity of *gotong royong* to clean the school surrounding. He pointed out that such an activity receives attention from the school administration.

On the standing for EE in the school Puan Kalsom took a long pause to think, (the investigator had to guide her as to whether there were any program related to EE) . She mentioned the yearly G*otong Royong Perdana*. She also disclosed that they were planning to hold a *gotong royong* with the *Persatuan Ibubapa dan Guru* (*PIBG*), to look after the cleanliness of the school. So the school does give attention to this. She also mentioned that she had also seen the Science teacher had conducted a lesson involving tree planting (*tanam pokok*). She also informed that if the pupils do not come in their attire for *Pendidikan Jasmani dan Kesihatan* (*PJK*), they are asked to pick up litter at the field before entering class. Also the school workers were asked to help in transferring the flowers or planting them. In addition, Puan Kalsom attested the school supports efforts at EE with the *PIBG* providing the budget for *jamuan* during programs like, for example, the visit to Gua Besar (not its real name) for a camp organized under co-curriculum for uniform units. The camp involved pupils of Year 3, 4, 5 & 6 and at the camp there was also talk about the trees (" ... *ada bawa murid pergi naik Gua Besar, maksudnya dia kita bawa cerita pasal pokok-pokok, ah macam itulah*.") (IntvT*KT*1CO3/071112/ Line 250-251)

She also mentioned about another program, COMBI, (Communication for Behaviorial Impact, a strategy to address the global dengue problem formulated by the Pan American Health Organization which is a regional network of the World

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Health Organization) involving the school, comprising teachers and pupils of Year 4, 5, & 6; the *kampung,* and *Pejabat Kesihatan Daerah.* The program stressing on preventive measures was carried out to eradicate the aedes mosquitoes. It also included a competition on collecting garbage.

4.4.11.6 Curriculum and Instruction

The three teachers interviewed were aware of the curriculum demands of their respective subjects. They were also aware that in "EE across the Curriculum" all subjects have to incorporate EE.

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The responses from the teachers on how they prepared their lessons are as follows:

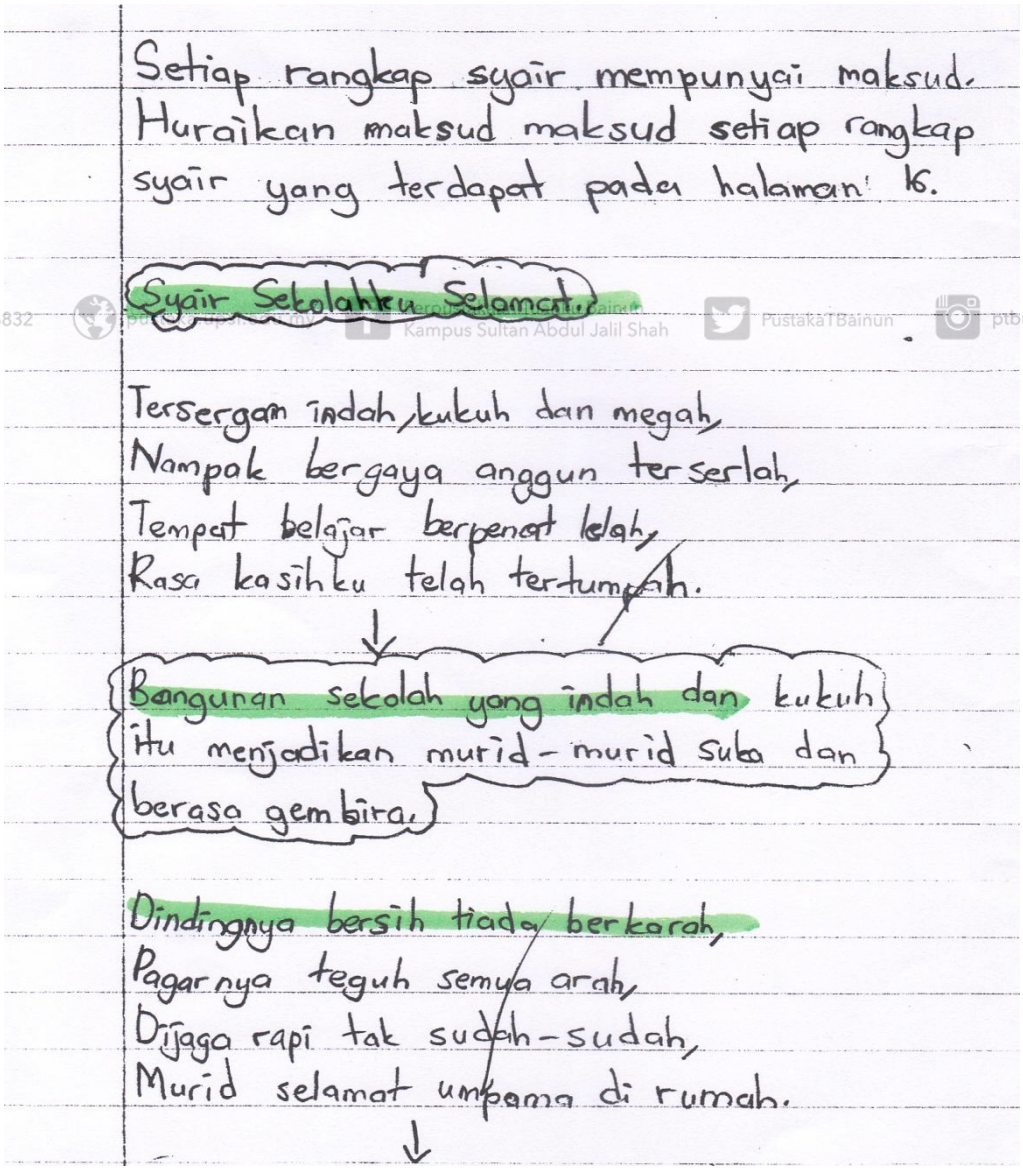
> Like me, *BM*, because we have to follow the syllabus available, right? .. For me, I am more towards the pupils understanding the grammar, if the passage concerns the environment, I will insert ... if not there is none, because we have many topics, right? So whichever is suitable, I will include it, if not consider don't have *lah*. I plan my lessons according to the Curriculum Specifications *lah.*
> *(Macam saya, BM, sebab kami kena ikut sukatan yang ada kan? ... kalau saya, kalau saya lebih menjurus kepada murid memahamkan tatabahasa, kalau ada petikan berkaitan dengan PAS, saya akan selitkan .. kalau tak ada itu macam tak ada lah, sebab kita ada banyak tajuk kan, jadi yang mana itu sesuai, saya akan masukkan, kalau tak ada, kiranya tak ada lah.*
> *Saya merancang berdasarkan HSP lah.)*
> (IntvT*BM*1CO3/071112/Line 102-108)

On the topic "Environment", Puan Balqis also discussed the topic with the pupils on "what is meant by the environment", "a clean environment", and also whether they felt comfortable living in a dirty environment. The pupils were also

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asked to give examples of a polluted environment like the river, and maybe on garbage which is not managed well, including actions which can be taken to overcome the problem. They were also asked to find the meanings of words like 'polluted' (*tercemar*) and 'to be concerned' (*prihatin*) in the dictionary. On incorporating the idea that one must look after the environment, the teacher mentioned that she had asked the pupils to compose poems (*sajak*, *pantun*). An example of the pupil's work on interpretation of a poem is given in the next four pages for Figure 4.31.


Setiap rangkap syair mempunyai maksud. Huraikan maksud maksud setiap rangkap syair yang terdapat pada halaman 16.

Syair Sekolahku Selamat.

Tersergam indah, kukuh dan megah,
Nampak bergaya anggun terserlah,
Tempat belajar berpenat lelah,
Rasa kasihku telah tertumpah.

Bangunan sekolah yang indah dan kukuh itu menjadikan murid-murid suka dan berasa gembira.

Dindingnya bersih tiada berkarah,
Pagarnya teguh semua arah,
Dijaga rapi tak sudah-sudah,
Murid selamat umpama di rumah.

Figure 4.31. Interpreting the poem (*continued*)

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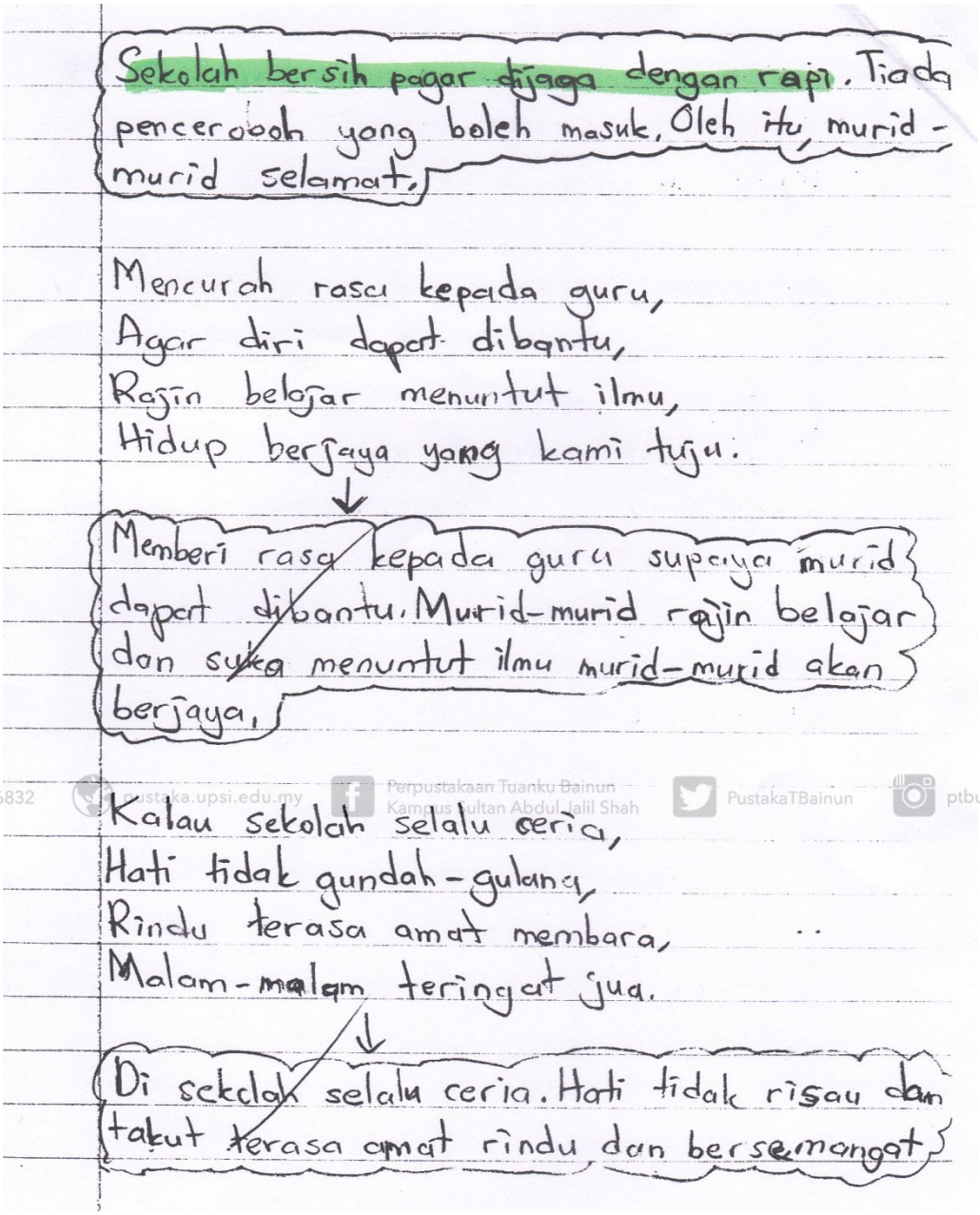


Figure 4.31. Interpreting the poem (*continued*)

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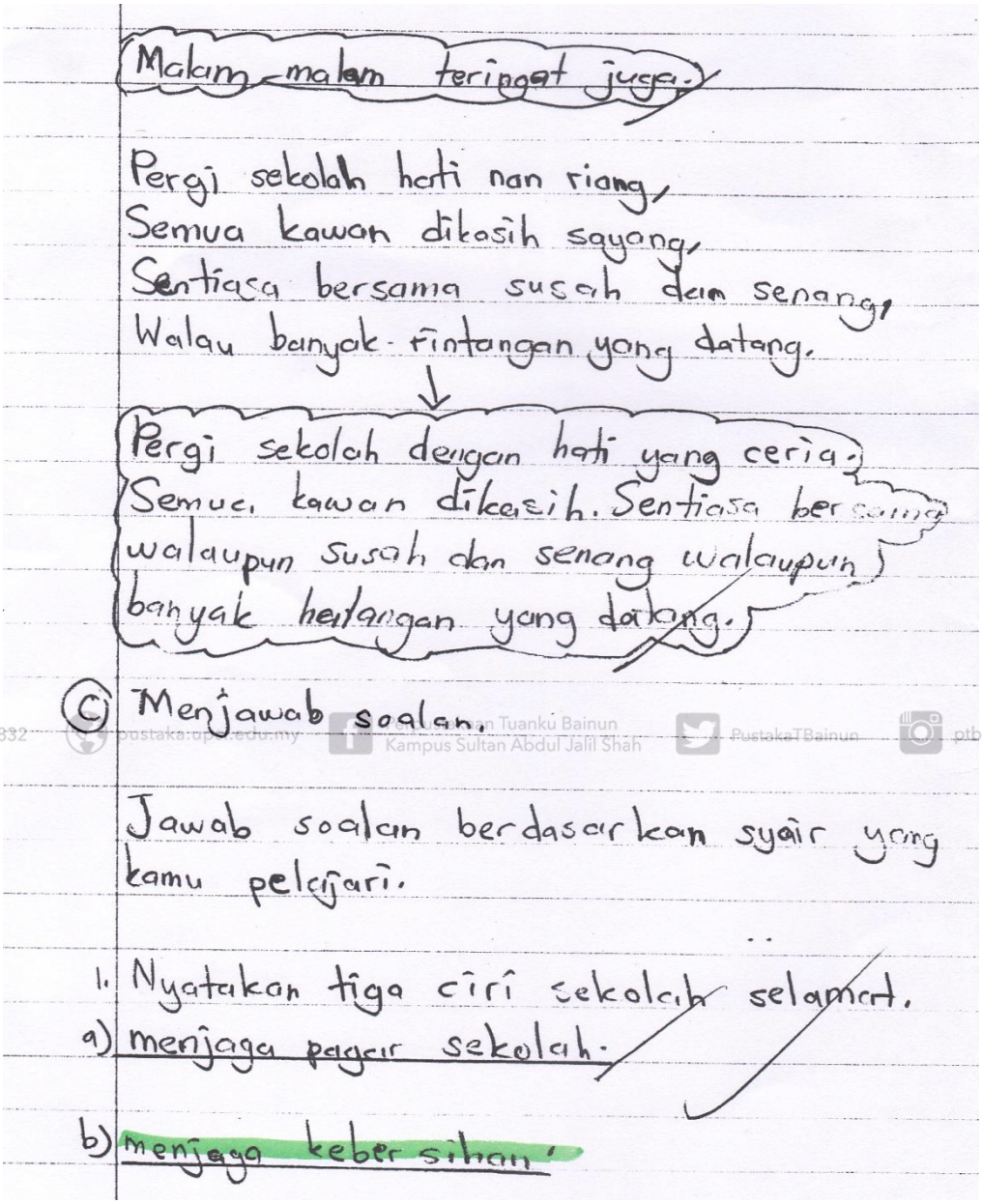
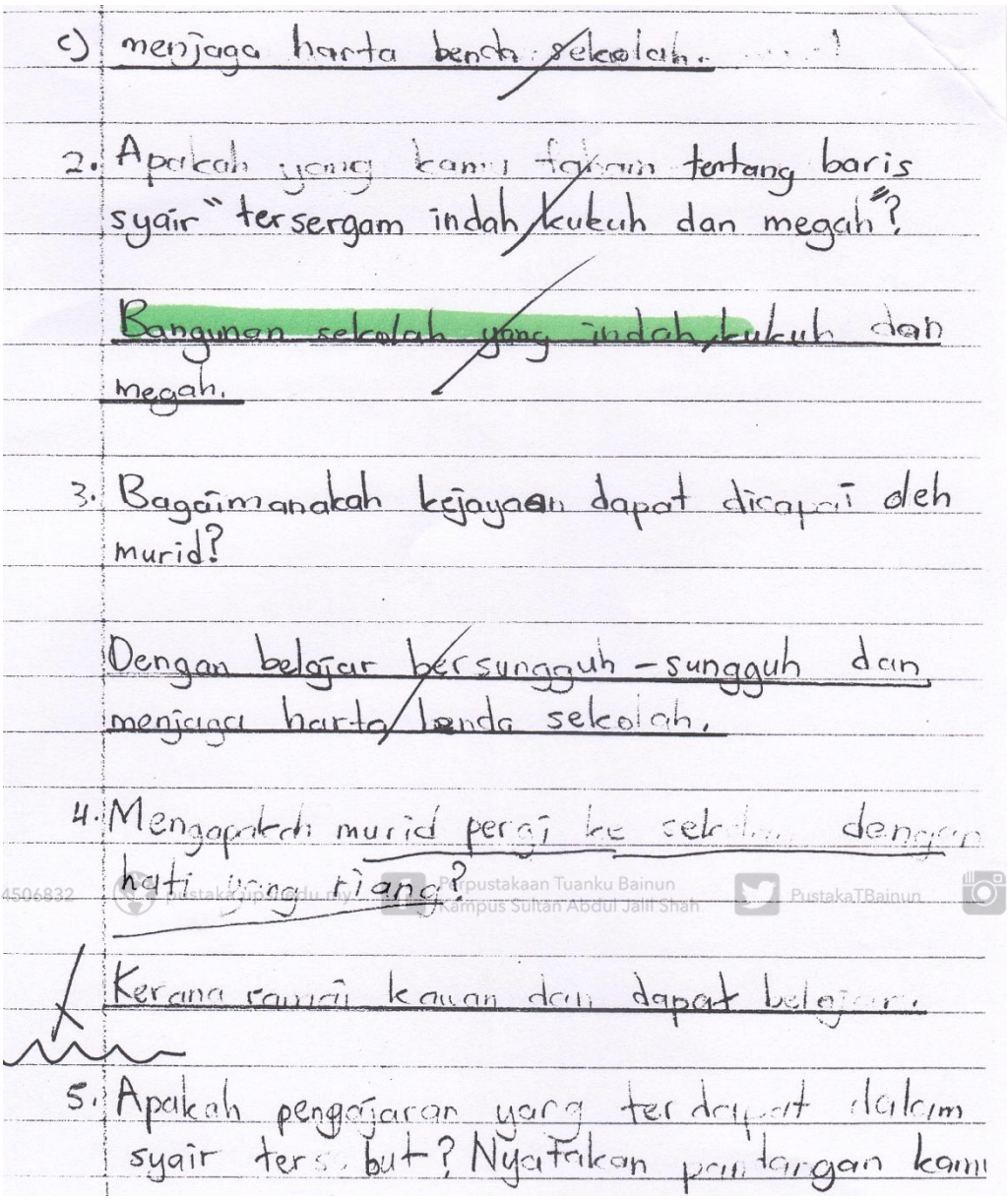


Figure 4.31. Interpreting the poem (*continued*)

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c) menjaga harta benda sekolah. ....!

2. Apakah yang kamu faham tentang baris syair "tersergam indah, kukuh dan megah"?

Bangunan sekolah yang indah, kukuh dan megah.

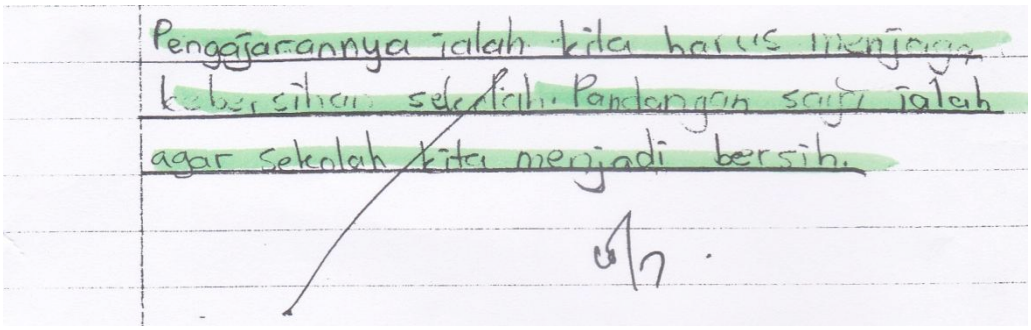
3. Bagaimanakah kejayaan dapat dicapai oleh murid?

Dengan belajar bersungguh-sungguh dan menjaga harta benda sekolah.

4. Mengapakah murid pergi ke sekolah dengan hati yang riang?

Kerana ramai kawan dan dapat belajar.

5. Apakah pengajaran yang terdapat dalam syair tersebut? Nyatakan pandangan kamu



Pengajarannya ialah kita harus menjaga kebersihan sekolah. Pandangan saya ialah agar sekolah kita menjadi bersih.

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Figure 4.31. Interpreting the poem (*continued*)

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With regards to assessment she explained that she focused on the pupils' comprehension and grammar. She also disclosed that there is a test on writing skills in Section C of the *UPSR* where the pupils are asked to identify the moral values and to write a short composition on them. On assessment of the pupils' behavior (*tingkah laku*), she mentioned that it can be based on observation, like for example, whether the pupil picks up trash when he sees it, or whether he helps his friends. However, she clarified that no marks are given but this is stated in the pupils' leaving certificate. (No evidence was given.)

In his explanation about how he taught the topic on "food chain" and "food web", Encik Shaiful clarified that he explained "food chain" first and then "food web". Following that he asked the pupils (individually first, then in groups) to build the food chain and food web. Pupils were also asked to use mind-maps. The explanation part by the teacher was done with the aid of video presentation. Encik Shaiful also mentioned about *PEKA.* In addition, he used worksheets apart from the usual exams and also conducted quizzes. As for values, he mentioned that he usually allocate an extra mark on how the pupils clean and keep the apparatus after use.

In introducing the topic "Malaysia – Landforms", Puan Kalsom related it to the pupils' experience where they were asked to relate to the landforms of the places they have been. For assessment, Puan Kalsom explained the values and then asked the pupils to put to practice daily and she observed them on that. However, she also mentioned that there was no instrument for that.

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4.4.11.7 Evaluation of School Performance in Terms of EE

The teachers were also asked to rate the success of the EE program at their school, (on a scale of 1 to 10, with 10 being the highest score and 1 being the lowest).

Puan Balqis rated 8 points on the implementation of EE program at the school. (She considered this score as "high".) This was based on the positive responses and reactions from some pupils after campaigns had been carried out. However she felt that there was still room for improvement as there were still pupils who are not aware of the importance of looking after the environment.

She agreed that the rating can still improve if there are concerted efforts from the teachers and the pupils, with more infusion, more awareness campaigns, and infusion of values for all subjects, even starting from Kindergarten (*TADIKA*) to Year 6, throughout the year, ("*usaha berterusan sepanjang tahun tidak tertumpu pada waktu-waktu tertentu sahaja*"). (IntvT*BM*1CO3/071112/Line 164-165)

Encik Shaiful rated 5 points (out of 10) on the standing of EE at the school. He felt that much more needed to be done and felt that they have to make the students be more aware on the importance of looking after the environment. He informed that for the whole year, only one *gotong royong* on cleaning the school compound had been conducted (by the Mathematics and Science club). He clarified that at the school level this is under the responsibility of *AJK Keceriaan*. *Gotong royong* had also been carried out involving the parents, the whole neighborhood, and the whole community. He believed that there is still much room for improvement with

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contributions from the school academic and non-academic staff, and the students. He suggested having more activities which really give awareness. Up till now he noticed that the students still like to throw litter like plastic bags for water and cakes, especially during afternoon activities at the school field. (IntvTSC1CO3/071112)

Puan Kalsom gave 8 points on the standing of EE at the school. She was satisfied and mentioned that she had heard favourable comments from a visitor from Johore about the school environment ... mentioning that the school is beautiful, the environment surrounding it consists of the hills, the caves, and the greeneries. She admitted that her 8 points ranking is high as she felt satisfied with the school's performance so far. (IntvT*KT*1CO3/071112)

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4.4.11.8 Issues and Challenges

Puan Balqis indicated that she was not that certain about the technique of integration but she just incorporate EE wherever she felt was relevant. She felt that the challenge is to make the pupils aware of good practices on the environment and this requires a concerted effort from the teachers.

Encik Shaiful mentioned that the school needs more resources like for example, videos on the dangers posed by the gigantic amount of waste generating liquids and toxic gases, to make the pupils understand the situation more. As for Puan Kalsom she felt that the challenge for the teacher is to have a deeper understanding of EE.

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4.4.12 Observations of Classroom Teaching

At *SK Relau*, observations of classroom teaching were also conducted by the investigator. The findings of the observations are reported below.

4.4.12.1 *Bahasa Melayu* Lessons

From observations, it was noticed that very little EE existed in Puan Balqis's lessons. At the most it was just asking the pupils to pick up litter before the start of the lesson proper and the lesson would purely focus on the language skills to be imparted for the day.

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4.4.12.2 Science Lessons

As for the Science lessons it was noticed that Encik Shaiful did infuse EE in the four lessons observed. His lessons were quite interesting and the lessons were delivered using power point presentation. It was noticed that he could relate his lesson to the environment. The pupils were seen to be responsive during his lessons.

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4.4.12.3 *Kajian Tempatan* Lessons

On the implementation of EE in the classroom, it was noticed that Puan Kalsom gave emphasis on the cleanliness of the classroom before the start of the lesson. During observations, the topics she taught were related to the environment (*Bentuk Muka Bumi di Malaysia, Zon Iklim Dunia, Faktor-faktor yang mempengaruhi cuaca dan iklim di dunia, and Tumbuhan Semulajadi dan Hidupan Liar*). It was observed that everything was taught following the text book. The investigator felt that she could have been more resourceful using other visual aids such as picture slides to make the lesson more interesting. Nevertheless, she did infuse EE in her lessons.

4.4.13 Observations of the School (Environmental Scanning / Green Audit)

During the many visits to the school the investigator would always do an environmental scanning of the school to look out for new developments related to EE being implemented at the school. The results of the observations are based on the following categories.

4.4.13.1 Policies that Support *EE across the Curriculum*

Existing policy that supports *EE across the Curriculum* is evidenced in one of the school's Mission statement**:** To create a conducive, comfortable and safe environment as well as to establish a continuous collaboration with the community. In addition to

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that, one of its goals is on "Cleanliness, Beauty and Safety (*Kebersihan, Keceriaan, Keselamatan, 3K*)": To create a clean, beautiful and safe environment in the realization of the concept of "My School My Home" (*Sekolahku Rumahku*).

4.4.13.2 Displays of EE Related Materials

There were no displays of EE related materials at the many notice / information boards in the school.

4.4.13.3 Landscape Management

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Existing landscape was maintained well by the gardeners. The school surroundings looked neat and tidy as evidenced in Figures 4.27, 4.28, 4.29 and 4.30 in pages 252 to 254.

4.4.13.4 Energy Saving Measures and Economical Usage Practices

No traces of energy saving measures and economical usage practices were detected during times of visits to the school.

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4.4.13.5 Management of Waste Disposal / Garbage

Besides being managed by the local authorities (*Alam Flora*), on two occasions the investigator noticed the workers did open burning near the school canteen during the early part of the morning.

4.4.13.6 Special Features

Among the special features in the school are the pond at the school assembly ground (*Dataran Kejat Tapak Perhimpunan*), the School Pavilion, a sheltered rest area (*pondok rehat*), the playground for Pre-School and the vast school field. In addition to that, the immediate surroundings of the school are full of vegetation consisting of fruit trees and the forested area in the hills and limestone caves situated further inland. The neat school surroundings with its green space are suitable grounds for outdoor activities.

4.4.14 Summary

SK Relau does not lack the facilities for teaching and learning. Situated on hilly ground the school compound reflects some interesting areas for landscaping. Overall the school compound looked neat and tidy. The headmaster, Encik Zainuddin is upbeat about inculcating environmental values and supports efforts to promote EE at the school. As with the other schools, efforts are geared towards maintaining a clean

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and beautiful environment in the classrooms and the school surroundings to "ensure a conducive, comfortable and safe environment" for study. Encik Zainuddin had also disclosed an issue on the problem of throwing rubbish by the pupils in his Strategic Plan for 2013 – 2015 and had planned to tighten discipline and to instill awareness and understanding on the need to look after the cleanliness of the environment (*Pelan Strategik Tahun 2013-2015, Unit Hal Ehwal Murid*).

4.5 Case Study Four: *SK Kuala Besar* (CO4)

The data in Case Study Four are presented in a total of fourteen categories. The following are detailed descriptions of the various categories.

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4.5.1 Profile of *SK Kuala Besar*

SK Kuala Besar is a relatively new school as it started in 1960. It caters for the surrounding indigenous population. It is situated at about 48 kilometers from the main town at which CO1 and CO2 are located. The school building consists of a block of double-storey building housing six classrooms, one Resource Centre, one Music / Audio-visual room, one Science lab, one administration room, one teachers' room, one sports' storeroom and a classroom for Preschool. It is also provided with a canteen, a Computer lab, a Pre School block and four units of houses for teachers. (The plan of the school is shown in Figure 4.32)

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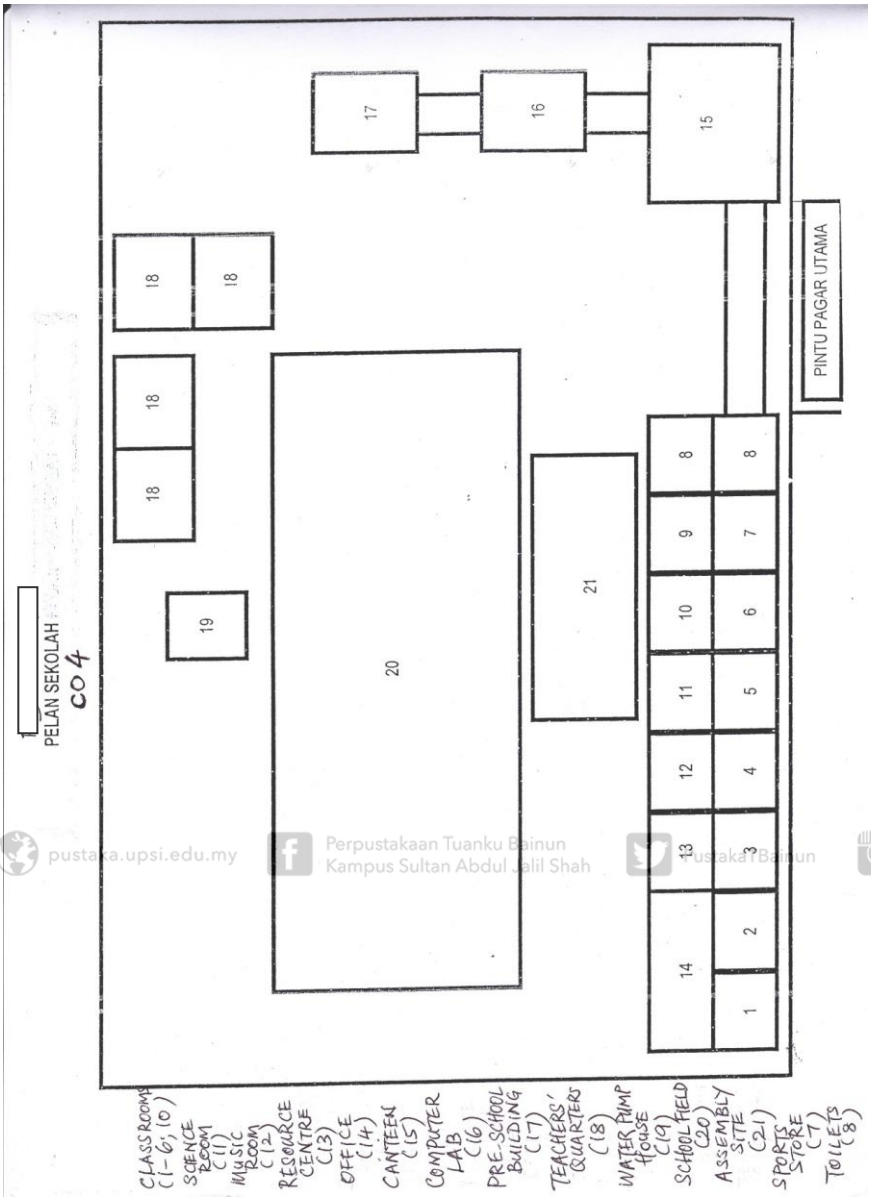


Figure 4.32. Plan of *SK Kuala Besar* (CO4)

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Figure 4.33. Entrance to the school



Figure 4.34. Rest area at the school

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Table 4.16

Enrolment of Pupils and Staff, SK Kuala Besar

School	Category/ Grade	Pupils		Teachers		Teachers		Support staff	
		Male	Female	Male	Female	Grads	Non grads	Male	Female
CO4	Rural / Indigenous (*Orang asli*)	73	92	8	8	6	10	0	2
Total		165		16		16		2	

The school has a total enrolment of 165 pupils (73 male, 92 female) managed by the HM and his three assistants (*GPK Pentadbiran & Kurikulum, GPK Hal Ehwal Murid,* and *GPK Ko-kurikulum*) and a support staff (clerical and general) of 2 (female). The teaching staff comprises a total of 16 teachers (8 male and 8 female, inclusive of the HM and *GPK*s) of which 6 are degree holders (37.5%). For the overall running of the school, only two main committees are formed considering the fact that there are only 16 teaching staff (inclusive of the HM and *GPK*s). The two committees are the Curriculum Committee comprising 18 units, and the *JK Program Peningkatan Kurikulum dan Kemajuan Pendidikan* (*PKKP*) comprising almost all the teachers representing the various units like administration, pupils' affairs, co-curriculum, *Bina Insan*, discipline, school beautification (*keceriaan*), resource centre, pupils' literacy and numerical skills (*LINUS*), guidance and counseling, health, and sports.

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Of interest to this study is the existence of the Beautification (*Keceriaan*) unit where EE can be inculcated. The Co-curriculum Unit offers only one option in the Uniformed Unit (Scout Movement), two Societies (Language Society and Science &

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Mathematics Society), two clubs (Agriculture and *Seni Budaya*) and Sports (athletics) and four Games (football, handball, *sepak takraw* and *ping pong*) for the involvement of the pupils as shown in Table 4.17. There is also a committee for beautification (*keceriaan*) which is responsible for looking after the environment of the school. Environmental education can also be incorporated in activities carried out by the Agriculture Club. However, there is the absence of the Environment Club at the school.

Table 4.17

Co-curricular Activities Offered in SK Kuala Besar

Uniformed Unit	Society and Club	Sports and Games
Pengakap	*Persatuan Bahasa* *Sains dan Matematik* *Agriculture* *Seni Budaya*	*Olahraga* *Bola Sepak* *Bola Baling* *Sepak Takraw* *Ping Pong*

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4.5.2 School Facilities

Facilities for indoor learning comprise of the classrooms, the Resource Centre, the Music / audio-visual room, the Science lab, and the Computer lab. The school has ample open space for outdoor learning and such areas include the school field which is regularly maintained, and the walkway which was adorned with information boards.

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Figure 4.35. The school field



Figure 4.36. Open space for activity



Figure 4.37. Greeneries at the school

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Figure 4.38. Part of school beautification

4.5.3 Vision and Mission

SK Kuala Besar's vision was to be a school for the most excellent indigenous pupils in the state by the year 2012. As such its mission was to provide quality education through the holistic approach to produce a well-balanced and harmonious human being based on the National Education Philosophy. One of the points stated in its Clients' Charter for the pupils was "to ensure that every pupil feels safe and comfortable in the school compound". Table 4.18 shows the school's vision and mission statements.

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Table 4.18

SK Kuala Besar's Vision and Mission Statements

School		Vision and Mission Statements
CO4	V:	CO4 will be a school for the most excellent indigenous pupils in the state by the year 2012
	M:	To provide quality education through the comprehensive approach to for a harmonious and well-balanced human being based on the National Education Philosophy
	Clients' Charter	
	Pupils : To ensure that every pupil feels safe and comfortable when at the school compound.	

Source: School Management Planning Book (*Buku Perancangan Pengurusan Sekolah*) 2012

4.5.4 The School Administrators

The school administrators involved in the study include the Headmaster (HM), Encik Azizul, aged 53 years, option/grade: *BM* and *Sejarah*, *DGA*34; the *GPK* Administration and Curriculum (*GPK* 1), Encik Zabidi, aged 47 years, option/grade: *PSR Pengajian Melayu*, *DGA*32; and the *GPK* Co-curriculum (*GPK Kokur*), Puan Roslinda, aged 42 years, option/grade: *BM/KH*, *DGA*32.

Encik Azizul has been headmaster of this school since September 2006. He reported that this school has a 100% enrolment of indigenous (*orang asli*) children and definitely he faces many challenges in the course of managing it. He had been in the teaching service for more than 33 years where he started as a secondary school teacher teaching History (*Sejarah*) which is his favorite subject. After that he was transferred to a primary school before coming over to head this school.

He agreed that EE should be implemented in the school. At his school he assured that the whole community is committed with the task of setting good habits of

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personal hygiene and cleanliness amongst the *orang asli* children and also keeping the school clean, safe and tidy. He agreed that the "EE across the Curriculum" is not implemented well as the teachers were not informed or trained on the technique of integration in the various subjects. (IntvHMCO4/300813)

Encik Zabidi had served at three schools before coming over here as the *GPK* 1 (*Pentadbiran*). He had also served as *PK HEM* (*Penolong Kanan Hal Ehwal Murid*) and *PK* 1 at two previous schools.

He clarified that over here the main focus is on setting the right attitude amongst the *orang asli* pupils because the main reason why this group is left behind is because of their attitude *("... dia ketinggalan disebabkan oleh sikap dia"*). (Intv*GPK*1CO4/140313/Line 13). He also mentioned that the school does not have any particular program on EE and it is left to the individual teacher to infuse it in the lesson. As for the school as a whole, the area of cleanliness is always focused upon.

Puan Roslinda had just been appointed the *GPK* Co-curriculum at the beginning of 2013. She clarified that like any school the focus is on excellence in the academics as well as co-curriculum.

She added that efforts were also focused on the pupils' personal hygiene and cleanliness. Lately the school had also embarked on planting flowering plants and was also in the process of setting up a garden in front of the main building. These were efforts at beautifying the school compound and to keep it clean and tidy.

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4.5.5 The Teachers in the Study

The school teachers involved in the study are Cik Bibi, the *BM* teacher (T*BM*1CO4); Encik Suhaimi, the Science teacher (TSC1CO4); Cik Suzana, also a Science teacher (TSC2CO4) who took over from Encik Suhaimi; Encik Zabidi, the *KT* teacher (T*KT*1CO4) and Ustaz Kassim (T*KT*2CO4), also a *KT* teacher who took over from Encik Zabidi.

Cik Bibi, aged 32 years, possesses a degree in Environmental Science from *Universiti Kebangsaan Malaysia* (*UKM).* She followed the Post-graduate level program (*Kursus Perguruan Lepasan Ijazah, KPLI)* at a Teacher Training College and obtained a Diploma in Teaching, specializing in *Kajian Tempatan, KT* and *Pendidikan Sivik dan Kewarganegaraan, PSK* (Civics and Citizenship Education). Such credentials show that Cik Bibi is the most qualified teacher for EE. She had been at the school (her first posting) for three years. However, at the school she was asked to teach *BM* (Years 1 and 5) and had been doing just that since then. She also holds the position of the Media and Resource Centre Teacher (*Guru Media & Pusat Sumber*).

Encik Suhaimi is a young man of 31 years of age. He possesses a Bachelor's degree in Science from the Open University of Malaysia, OUM and a Diploma in teaching in Science and *Kajian Tempatan* from a Teacher Training College.

This is his fourth year of teaching at the school. He holds the position of the Head of Panel for Science, (*Ketua Panitia Science*). Before that, he had taught at

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Kuala Lumpur for five years. At the school he teaches Science (Years 2, 4 and 5), Mathematics (Year 2), and Moral Education (Year 3). He had attended Science courses conducted by the State Education Department and District Education Department (*Jabatan Pelajaran Negeri, JPN* and *Pejabat Pendidikan Daerah, PPD*) and also the Environmental Education (*Pendidikan Alam Sekitar*) course by Institut Perguruan Ilmu Khas, Kuala Lumpur. According to him (and also verified from observation of his lessons), he had no problem at infusing EE in the lesson. (ObsTSC1CO4/041012)

Cik Suzana is a new teacher at the school. She looked very young (27 years old) and took over the teaching of Science from Encik Suhaimi who has since been transferred to another school. She also took over the position of Panel Head for Science (*Ketua Panitia*) as well as the Coordinator for School-based Assessment (*Penilaian Berasaskan Sekolah*). Prior to her posting here, she had taught for three years at a town school in Ipoh, Perak. She possesses a Bachelor's degree in Education (Science) and at the school she teaches Science (Years 4 and 5), Moral Education (Year 3), and English Language (Year 2). In co-curriculum she was involved in the Scout Movement, the Science Society and also netball.

Cik Suzana also revealed that she had the privilege of attending the Centre for Education, Training and Research in Renewable Energy and Energy Efficiency (CETREE) workshop when she was at her previous school at Ipoh. She admitted that she had been involved with the subsequent activities at her previous school after attending the workshop. However, she lamented that such activities are non-existent

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at the present school and there are no resources for her to initiate or to introduce it here.

Encik Zabidi, aged 47 years, was the school *GPK*1 (Administration). He possesses a degree in Special Education from OUM and a Teaching Certificate in Malay Studies (*Pengajian Melayu*).

He disclosed that he was quite new at teaching the *KT* subject (2 years). He had taught Mathematics for many years at previous schools and also at the present school. At college he specialized in Malay Studies (*Pengajian Melayu*), but at the previous schools, the headmaster had asked him to teach Mathematics. He admitted that being more experienced in Mathematics, he would prefer to teach Mathematics. He admitted that "*KT* ... like no other teacher, have to take *lah*" (IntvT*KT*1/041012/Line). However he was quick to correct that this is not a problem because they are all related and he had learnt it. This is his fourth school. He was at his first school for seven years, at the second one for five years, the third school for another five years, and then he was transferred here. At the other schools he had taught only Mathematics.

He also disclosed that he had not attended any course for the *KT* subject. Furthermore, he had also not attended any course on the environment. However, he mentioned that he knew about infusion of EE because it is in the curriculum, in the syllabus and moreover in *KBSR* also it stresses on "EE across the curriculum". In addition, he pointed out that in *KT* there are specific topics concerning the environment. He did not see any problem in relating it. He clarified that the teacher

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would teach about the environment when the content is directly related to the environment. Encik Zabidi has since been transferred to another school in the same district.

Ustaz Kassim, aged 36 years, has a Diploma in Teaching for Islamic Studies. He took over En. Zabidi's class for *KT* (Year 5). He had taught at a school in Limbang, Sarawak for 10 years and he came over this school in 2011. At the present school he teaches Islamic Studies (Years 1 to 4, and Year 6), *Bahasa Arab* (Years 2 and 3) and *KT* Year 5. He is also involved in the Scout Movement, Road Safety Adviser and also the Adviser for football.

Ustaz Kassim had not attended any course related to EE but he disclosed that he had been one of the advisers of the school Environmental club at his previous school in Sarawak. However he lamented that at the present school there is no such club and the *orang asli* children need more attention in other areas (referring to the 3 'R's).

The background information of the teachers, namely Cik Bibi, Encik Suhaimi, Encik Zabidi, Cik Suzana and Ustaz Kassim is shown in Table 4.19.

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Table 4.19

Summary of Teachers' Background Information, SK Kuala Besar

Teacher	Age (years)	Gender (M/F)	Professional Appointment	Qualifications	Years of Service	Subjects Taught	Co-curriculum	Courses Attended
Cik Bibi	32	F	*DG*41, *Guru Media*, *Guru Pusat Sumber*	B. Envtl. SC (UKM); Teaching Diploma (Soc. Studies)	3	*BM* (1 & 5);	-	*PdP BM*; *KSSR*
En.Suhaimi	31	M	*DGA*29, Panel Head (SC),	B. Ed.(SC)(OUM); Teaching Diploma (SC, *KT*)	4	SC (2,4 &5); *MT* (2); *Pend. Moral* (3);	-	Induksi Sains Tahap 2; *KSSR Tah.*2
En. Zabidi	47	M	*DGA*32, *GPK Pentadbiran*	B. Ed. (*Pend. Khas*)(OUM; Teaching Certificate (*PSR*-Malay Studies)	26	*MT* (4); *KT*(4 & 5)		Nil
Cik Suzana	27	F	*DGA*32, Panel Head (SC) *Penyelaras PBS*	B. Ed. (SC); (Science)	3.5	SC (4 & 5); *Pend. Moral* (3); English Language (2)	Scout Movement, Science Society, Netball	CETREE
Us. Kassim	36	M	*DGA*32, *Guru PPDA*	*SPM*; Teaching Diploma (Islamic Studies)	16	Islamic Studies (1-4, 6); *Bahasa Arab* (2 & 3); *KT* (5)	Scout Movement, Road Safety Club, Football	Nil

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4.5.6 Curriculum

As the education system in Malaysia is a centralized one, the curriculum used by all the primary schools are similar. The teachers follow the Standard Malaysian Integrated Primary School Curriculum (IPSC / *KBSR*) to prepare the pupils for the

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UPSR. However, the Standard Curriculum for Primary Schools (SCPS / *KSSR*), also runs parallel to the IPSC / *KBSR* and it is scheduled to replace *KBSR* fully by 2016.

The basic references are the school textbooks and workbooks for the pupils. The teachers (Cik Bibi, En. Suhaimi, and Cik Suzanna) admitted that they do not really follow every part of the textbook or the workbook as they have to adjust to the capability of the indigenous pupils. Obviously the level of education amongst indigenous children is quite low when compared to that of the non-indigenous children at the other three schools. So very often, the teachers have to use other materials from other revision books and also the internet and make adaptations so that the pupils could follow.

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The *GPK Pentadbiran* who also happens to teach the Local Studies subject to Year 5 before he went on transfer to another school also disclosed that there is flexible usage and reference to the main syllabuses as the abilities of the indigenous children are different (lower) when compared to their counterparts (non-indigenous) at the other schools. He mentioned that at this school, the teachers have to grapple with the issue of attitudes, low achievements and seasonal low attendance rate amongst the pupils. In addition to that, the *GPK Kokur* mentioned that at the school, they are more occupied with correcting bad habits (littering), attitudes (attendance) and adherence to basic personal hygiene amongst the pupils. Such measures are often stressed upon during assemblies and it was disclosed that early every morning before the pupils enter their respective classrooms, they are supervised to pick up litter around the school compound. The lesson on cleanliness was stressed upon at all times.

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4.5.7 Teaching and Learning

Teaching and learning activities usually occur indoors, in the classroom, the Resource Centre, the Computer lab, the Science room and also at the Music / Audio-visual room. The outdoor facilities provided which also serve as learning centers are the *Tapak Perhimpunan* where assemblies are held, corridors with information boards and also the school field (especially for the Physical Education class).

With regards to teaching and learning materials, as with the other schools, they consist of the syllabi, the curriculum specifications, the teachers' Guidebooks, text-books, the practical workbooks for the various subjects. All these are based on the national school curriculum to reflect the Malaysian identity. However, as mentioned earlier, not all references were used and the teachers had to make adaptations according to the ability of the indigenous pupils.

4.5.8 Co-curricular Activities

Besides offering participation in the uniformed units, the pupils are also involved in clubs and societies as well as sports and games. However, the number of activities offered were reduced due the small size of the academic staff at the school. The Table 4.17 on page 292 shows the options offered to the pupils. It is interesting to note that there is the existence of the Science and Mathematics Society and the Agriculture Club. With such a society and club, there are opportunities to provide EE to the pupils and the school community. There are a number of activities planned

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where the teacher can infuse EE, like for example, the many *gotong royong* (5) and the School Cleanliness Campaign (launched on March 5, 2012).

4.5.9 Programs / Activities Related to EE

The school planned 5 *gotong royong* for the year, namely *Program Gotong Royong Kelas* (January 7), *Gotong Royong Pra Sekolah* (March 31), *Gotong Royong Perdana PIBG* (July 7), *Gotong Royong Pusat Sumber* (July 28), and the *Program Gotong Royong Perdana* (September 20). There was also the launching of the School Cleanliness Campaign on March 5.

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Furthermore, the academic weeks follow certain themes and the teachers-in-charge during the specific week would speak on the theme during the weekly assembly session at the school hall. Examples of themes followed which are related to EE include “Personal Cleanliness / Hygiene” (*Kebersihan Diri*) (February 13 - 17), “Love the School” (*Sayangi Sekolah*) (April 9 – 13), “MySchool MyHome” (*Sekolahku Rumahku*) (September 10 - 14), and “Wasting is the act of the devil” (*Membazir Amalan Syaitan*) (October 29 – November 2). Table 4.20 shows the activities and themes related to EE for the year, 2012.

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Table 4.20

Programs and Activities Related to EE Planned and Carried Out at SK Kuala Besar

School	Programs and activities related to EE planned and carried out within the year (2012)
CO4	1. *Program Gotong Royong Kelas (Saturday,* January 7 - *Semua guru)* 2. *Gotong Royong Prasekolah (Saturday,* March 31 - *Prasekolah)* 3. *Mesyuarat Keceriaan & Motivasi (*May 2 – *Unit Keceriaan & Motivasi)* 4. *Gotong Royong Perdana PIBG (* July 7 – *AJK PIBG)* 5. *Gotong Royong Pusat Sumber (* July 28 – *AJK PSS)* 6. *Program Gotong Royong Perdana (*September 20 – *SU HEM)* 7. *Tema Mingguan Guru Bertugas: Kebersihan Diri* (February 13 – 17) 8. *Tema Mingguan Guru Bertugas: Sayangi Sekolah* (April 9 – 13) 9. *Tema Mingguan Guru Bertugas: Sekolahku Rumahku* (September10 – 14) 10. *Tema Mingguan Guru Bertugas: Membazir Amalan Syaitan* (October 29 – November 2)

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4.5.10 Interviews with School Administrators

Ten interview questions (refer to Appendix C) for the school administrators guided the answers to various perspectives of EE at the schools. The findings are discussed according to the categories below.

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4.5.10.1 Goals and Priorities of the School

The school administrators of *SK Kuala Besar*, CO4 (school with 100% indigenous pupils, *orang asli*) were committed to raising the level of education among *orang asli* children. However its vision statement also aimed at being an excellent school for *orang asli* children in the state by 2015. ("*Untuk matlamat SK CO4, visinya SK Kuala Besar akan menjadi sebuah sekolah untuk murid asli yang cemerlang di peringkat negeri menjelang tahun 2015,"* (Intv*GPKKokur*CO4/140313/Line 13-15).

Puan Roslinda further clarified that with regards to its mission to give quality education, the school takes on a comprehensive approach to produce a balanced human being which is in line with the National Education Philosophy. Its aim is to be excellent in the academics as well as in co-curriculum. According to Puan Roslinda:

> ... the mission of *SK CO4* is to provide quality education through a comprehensive approach in producing a well-balanced and harmonious person based on the National Education Philosophy. To be excellent all-round, develop humans in the academics, also in co-curriculum, meaning all-round *lah*.
> *(... misi SK Kuala Besar untuk memberi pendidikan yang berkualiti melalui pendekatan yang menyeluruh bagi melahirkan insan yang seimbang dan harmoni berlandaskan Falsafah Pendidikan Negara. Cemerlang ini kira menyeluruh lah, bina insan dari segi akedemik, dalam bidang kokurikulum pun, maksudnya menyeluruh lah.)*
> (Intv*GPKKokur*CO1/140313/Line 15-20)

4.5.10.2 Subjects that Get the Most Attention

Encik Azizul did not deny that subjects in the *UPSR* receive the most attention but he added that the school policy or for that matter, the government, regards all the

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subjects important as they are all integrated and they cut across the curriculum. So all subjects, like the core subjects and other subjects do get their allocations.

Encik Zabidi explained that based on the results of the *UPSR*, they focused on *Bahasa Inggeris*, Mathematics and Science. Accordingly, they focused on the subjects which needed improvement.

Puan Roslinda also mentioned about the school focusing on *Bahasa Melayu* and *Bahasa Inggeris*, as well as Mathematics and Science which are core subjects in the *UPSR*.

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4.5.10.3 Importance of EE

Over at this school consisting of indigenous children, the HM, Encik Azizul was also asked to clarify the status of EE at the school and the measures taken. Being well-informed he mentioned that the area on the environment is integrated with certain subjects, mainly Science and Health Education as it cuts across the curriculum. He feels that the environment is important to the *orang asli* children even though they are not aware of the fact that they live in a natural environment which is different from that of the urban area. According to him the pupils need to be taught on how to look after the environment, for example, on the importance of keeping the area clean and green. The idea that around their houses need to have flowering plants to make their houses beautiful is somewhat new to them as all along their surroundings consist of the natural vegetation and they seem to take things around them freely. He also

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explained that in the process of teaching them, the pupils were also taken out to identify the plants and their characteristics.

Encik Zabidi also shared his thoughts. He explained that they infuse EE in the lesson where there are specific topics which the teachers can relate to the environment. According to him, it also depends on the subject. The teacher will teach if it is stated in the curriculum. Looking back at the two years he had been at the school, he mentioned that there has been an improvement in the pupils' behavior in keeping the school clean. During his first year at the school, he noticed that the pupils liked to litter and throw refuse into the drain. However, after repeated reminders, especially during school assemblies where the emphasis to look after the cleanliness of the school and that rubbish was not to be thrown all over the place was conveyed, the situation had since improved. This also included looking after the school assets, the environment, the trees and flowering plants.

Finally to confirm with Puan Roslinda on her thoughts about the status of EE at her school, she mentioned that EE is emphasized amongst the indigenous pupils too. From the point of looking after the cleanliness and personal hygiene, it was noticed that the *orang asli* children do not pay much attention to it as it is not emphasized at home by their parents. She also disclosed that they like to walk barefooted when they go home after school. This they did when upon leaving the school gate for home many could be seen taking off their shoes and keeping them in their bags and walking home barefooted!

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4.5.10.4 Desired Status of EE in Schools: EE as a Separate Subject?

The main concern of the administrators of *SK Kuala Besar* (CO4) was that already there were many subjects in the curriculum. Encik Azizul commented that already in the system there are too many subjects (amidst laughs). He bemused that many people tried to include many new things for our pupils as they say that all the information is important. He was worried that too many subjects might complicate matters. Excerpts of his views are as follows:

> *... sebab kita ini sistem di Malaysia ini terlampau banyak sangat mata pelajaran! (Gelak) .. Semua orang cuba nak masukkan benda-benda baru pada murid kita lah ... semua orang nyatakan semua maklumat penting, ha tapi nak jadikan ia sebagai satu mata pelajaran baru saya rasa akan menambah, merumitkan lagi kan. Sekarang musim millenium ini, unsur teknologi informasi ha, nak cuba diterapkan ... aaah ... di samping Sain dan Teknologi lah ya. Jadi kalau banyak sangat subjek-subjek nanti merumitkan keadaan lah.*
> (IntvHMCO4/300813/Line 369-376)

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Encik Zabidi also agreed, "actually there are already many subjects, if we include the subject, it will be a problem as the *orang asli* children will have to go back late (amidst laughs). He felt that even the teachers would not agree. Evidence of his views are as follows:

> *Mata pelajaran sebenarnya banyak dah, kalau kita nak masuk lagi, mungkin budak kita balik lagi lewat. (gelak) ha itu masalah dia. Jadi dari segi itu, guru-guru mungkin tak berapa setuju lah. (gelak) tambahan lagi, budak asli. Budak asli, kalau tambah lagi masa, lagi dia susah belajar, sebab sekarang ini pun, pagi mungkin dia boleh belajar lagi lah, kalau dah lepas rehat, tak berapa nak mendengar dah, nak tambah lagi pukul 3 itu kan, mungkin susah sikit lah...*
> *Macam mana yang ada lah, kita terapkan. Semua mata pelajaran boleh terapkan...*
> *Er.. itu lah, kita kena ingatkan guru kita supaya sentiasa menerapkan ilmu ini lah...*
> (Intv*GPK*1CO4/140313/Line 246-251; 254-255; 257-258)

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He suggested that we infuse EE in all subjects and the teachers have to be constantly reminded on this. He opined that such things have to come from the top management and expressed hope that in future this will be done:

> *(Benda ini perlu ada penekanan daripada pihak atas dulu, maka kalau dia beri tumpuan, maka ada lah buku itu. Tapi sekarang tak ada buku itu. maknanya daripada pihak atas tak berapa kuat lagi lah. Mungkin akan datang dia akan buat lah...)* (Intv*GPK*1CO4/140313/Line 260-263)

Puan Roslinda also echoed the same feeling, "... we can retain what is being done because there already is EE in *KH*."

> *(...Kalau kita kekal yang sedia ada pun boleh juga, sebab dalam KH pun sudah ada.)*
> (Intv*GPK*1CO4/140313/Line 212-213)

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4.5.10.5 School EE Programs

Among the programs that are encouraged are the planting of flowering plants to beautify the school environment and also the planting of vegetables. However Encik Azizul reiterated that it is very important to have the co-operation of the parents. Together with the encouragement, support and contributions from the parents, where the parents work together with their children, he feels that the program would be more successful. He clarified that so far they have been successful at the *gotong royong* level in cleaning the school compound, beyond that they have yet to be taught, like the planting of plants and beautification of the place.

Encik Zabidi also disclosed that up till now the school does not have a specific program on the environment, it is only infused in the class. He remembers that the

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previous year, some pupils had participated in the district level environmental camp. Nevertheless when they returned, there were no follow-up activities and admitted that the practice was never emphasized. He clarified that for such an important area to progress, it should be emphasized at the Ministry of Education, the District Education Office, (*PPD*) and then by the headmasters.

4.5.10.6 Perception of EE / Understanding of EE

On his perception of EE, Encik Azizul felt that the pupils should give attention towards looking after the environment. The pupils should know that the environment is very important and it is essential that they keep the place green by having trees and flowering plants around the house. He explained that in the *orang asli* community, the concept of a beautiful house with flowering plants is still distant to them. So his focus is towards greening the school compound as to him if it is maintained well and beautiful it gives a pleasant and calm feeling.

While acknowledging the importance of EE, Encik Zabidi felt that in EE the pupils are taught about the importance of looking after the environment. Puan Roslinda also echoed the same views about the importance of looking after the environment for the generations to come. She elaborated that trees are important for beautifying the place as well as providing oxygen.

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4.5.10.7 Evaluation of School Performance in Terms of EE

Encik Azizul gave six points as he felt that they are still at the awareness stage. To him the co-operation of the parents are very important to make the program more successful. During *gotong royong*, the school had been successful in getting their co-operation but they have to be told on what to do for looking after the cleanliness of the school. Beyond that they have no knowledge in things like planting flowers to beautify the area.

Encik Zabidi on the other hand gave 7 points as he viewed it from the changes in the pupils which he felt was moderate. He felt that, probably they have to give more emphasis to EE. Furthermore, they need to have a program at the school.

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Like her headmaster, Puan Roslinda also gave six points which to her is moderate. She explained that the *orang asli* children only act when they are directed to. For example, on classroom cleanliness, if the teacher does not direct, the pupils will not act even though they do notice trash around. This applies to the school surrounding as well. She was of the opinion that besides infusing EE in the school, the parents have to play their roles. At the school, during school assemblies, this was often mentioned. The pupils have to be directed and only then will they act upon it. So the level of awareness in the pupils is still low. However, she also mentioned that from what the headmaster had said, previously, the situation was even worse but now it is improving. She related that initially when the pupils were given the worksheets, they would make aeroplanes out of the papers given. However, now there are fewer

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cases like this, indicating that things have improved slightly. The teachers are reminded that they have important roles to play.

4.5.10.8 Measures Taken / To Take for EE

Encik Azizul reiterated that the process of maintaining the "greenness" of the school surrounding is on-going with the planting of trees and flowering plants to beautify the area. Furthermore, he would also encourage the planting of vegetables. He disclosed that he has identified and even assigned a teacher to initiate this and he expected the effort to take off after the *UPSR*.

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Encik Zabidi thought that for the environment, probably they could set up corners at the school like the Environment Corner. According to him, that could probably help but admitted that there is nothing specific for the environment so far (amidst laughs). He also mentioned that there is no Science Garden, only plans to plant flowering plants and trees near the entrance of the school. Furthermore, up till now there is no collaboration with other body or agency outside the school. He had hoped that the matter should come from the top. At the moment, even though that it is important, the focus is on other things like the *UPSR*, and *LINUS* where at the end of Year 3, the pupils should be able to read. He was proud to inform that at present, all the pupils in Year 4 are able to read, which is a very good achievement for an *orang asli* school. He also disclosed that there is a "Road Safety Program" where there is a specific curriculum for the pupils in the *BM* class. He pointed out that this shows that there is emphasis and if it is done this way, they would put in an effort.

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Likewise, he suggested that this could also be done for the environment next. Nevertheless, they have attempted to change the attitude of the pupils and have included them in looking after the environment. Even though they do not have any specific program, they have always had the practice of involving them in cleaning up the school environment like picking up trash from the drains before entering the classroom. The idea was to make sure that the environment is clean before they enter the classroom and he hoped that the pupils would bring this idea of keeping the environment clean at their homes too. He had hoped to include the parents too in future.

Puan Roslinda also mentioned that there is no collaboration with any body from outside which is related to EE. She revealed that at her previous school, (this being her first year at the present school), they had a herbal garden and a Science Garden. She reiterated that the present school focuses on the academic subjects. The pupil enrolment is small and there is no way that they can have many clubs and societies. At the moment they have societies / clubs for *Bahasa Melayu, Bahasa Inggeris,* Mathematics, Science, and Road Safety only. She explained that the Road Safety Club was a directive from the Ministry and they have a book on it. On another note, she opined that if there are gardens in the school, they could teach the pupils to look after the specific areas. She felt that by giving responsibilities to the pupils, like looking after specific areas, and also in programs like planting of flowering plants, it would be more effective. She related this example to her previous school again where they even labeled the trees and also engaged in planting flowering plants.

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4.5.10.9 Issues on the Implementation of EE in the School

The interviews with the school administrators revealed that the main issue was to raise the level of awareness on the importance of looking after the environment among the *orang asli* children. By looking after the environment, it means keeping the place clean and not destroying the plants. According to Encik Azizul, the challenge is that he felt that they haven't succeeded in making the pupils love the plants as such things are taken for granted because the *orang asli* houses are surrounded by forests.

On another matter, in the classroom Encik Azizul agreed that, for example, in a *BM* lesson on the topic related to the environment, the *BM* teacher actually used the topic to strengthen language skills. He realized the "flaw" here as he mentioned that the teacher should use the language to strengthen knowledge about the environment.

On his work as the headmaster, he confided that he also has to set his priority for his teachers, that is, to achieve "academic excellence". He explained that this is the main expectation of the stakeholders, to see good results.

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4.5.11 Interviews with the Three Subjects Teachers

Two rounds of interviews were conducted with the subject teachers. A total of thirteen questions (refer to Appendix D) were posed to the teachers. The findings are discussed under the following categories.

4.5.11.1 Goals and Priorities of the School

When asked about the goals and priorities of the school, the teachers interviewed referred to the vision and mission of the school. It was mentioned that the vision of the school is to make *SK Kuala Besar* an excellent school among the orang asli schools in 2015. Besides that Cik Suzana elaborated that its mission is to guide the pupils so that they are balanced in all aspects in terms of their physical, emotional, spiritual and social development according to the National Education Philosophy. According to Ustaz Kassim, the focus of the school is to guide pupils to acquire the three basic skills of reading, writing and arithmetic (3Rs).

4.5.11.2 Subjects that Get the Most Attention

According to Cik Bibi, the focus is on improving the achievement in *Bahasa Inggeris* besides the *UPSR* subjects like Mathematics, Science and *Bahasa Melayu*. Cik Suzana also mentioned that usually the core subjects in the *UPSR* receive the most attention. However, she pointed out that the administration also does give

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consideration to teachers who are interested in carrying out specific programs related to cleanliness and beautification of the school or classroom. Ustaz Kassim also agreed that the core subjects like *Bahasa Melayu*, *Bahasa Inggeris*, Mathematics and Science do receive the most resources. He also noticed that Physical Education (*PJ*) also received a lot of allocations in acquiring *PJ* equipment for the School Sports Day.

4.5.11.3 Importance of EE

All the teachers interviewed acknowledged that EE is important to guide the pupils to look after the environment. Cik Bibi asserted that it is important to give exposure to pupils on looking after the environment. Specifically, she cited examples like sometimes the *orang asli* children do not understand why they cannot throw rubbish into the river and also on why we plant trees around our houses. Cik Suzana added that the *orang asli* pupils have to be guided in maintaining cleanliness too. Ustaz Kassim also explained that EE is important because it educates pupils to love the environment and to avoid the ill effects of not looking after the environment.

4.5.11.4 Desired Status of EE in Schools: EE as a Separate Subject?

Ustaz Kassim acknowledged the importance of EE to the extent that he advocated that EE be made a separate subject in schools. Ustaz Kassim felt that there should be an EE subject so that the pupils will better understand and will love the

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environment more. Moreover under the present circumstances there are teachers who are not serious about it.

Cik Suzana suggested having an environmental society or club but this could not be implemented in the school due to the small number of pupils and teachers in the school. Encik Zabidi reminded that at present there are already many subjects in the curriculum. Moreover he expected that the teachers would not agree to this proposal. So he advocated that we maintain the status quo of having "EE across the Curriculum" but stressed that the teachers have to be constantly reminded to infuse environmental values in their lessons. Cik Bibi also felt that there are pros and cons about making it a separate subject and felt that at present it is not necessary because it is present in all subjects. The important thing is to give exposure on environmental values to the pupils. She also suggested the setting up of an environmental club at the school.

4.5.11.5 School EE Programs

The teachers revealed that there are projects related to the environment. These include trees planting under the Living Skills subject and also *gotong royong* at cleaning the school compound. Besides that there are activities related like every morning before entering class the pupils were asked to pick up trash around the school compound and to throw them into the trash bins. There are also plans to create gardens by planting flowering plants.

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4.5.11.6 Curriculum and Instruction

In terms of the curriculum, the teachers are aware of the demands of the various subject requirements. They claimed that they used various resources like revision books in addition to the school texts. However, as pointed out by Cik Bibi, she had to make adaptations according to the ability of the *orang asli* children and there were times where the school texts were not adopted.

The response from the teacher on how she prepared her lessons are as follows:

> T*BM*1CO4:
> Got guidebook. Do not refer, *ha*. Last year I did use also, but Year Four. This year I do not refer.. I adapt with their level *lah* ... in the book, it's a little difficult to follow, hmm ...
> *(Ada buku panduan? Tak rujuk, ha. Tahun lepas saya guna juga, tapi Tahun empat. Tahun ini saya tak rujuk .. saya menyesuaikan dengan aras mereka ini lah ... dalam buku itu susah sikit nak ikut, hmm ...)*
> (IntvTBM1CO4/041012/Line 70-72)

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On the topic "*alam bersih hidup selesa",* for *BM*, Cik Bibi remembered showing a video on pollution and then had a question and answer session with the pupils. From there she proceeded to expose them to ways to look after the environment. She had also included a song on "a clean environment" as she remembered that in an hour of teaching and learning there were group activities, and discussion on how to look after the environment. She noticed that the pupils like group activities. She had also used the magazines from the Department of Environment which was available at the Resource Centre and had also let the pupils make scrap books from newspaper cuttings. For assessment she had group presentations. As for attitude, she lamented

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that often the pupils have to be reprimanded. They had to be reminded to keep clean. She noticed there had been a slight improvement after continuous reminders.

Encik Suhaimi (TSC1CO4) also brought the pupils outdoor in search of the insects or animals involved in the food chain and food web. This way, the teacher could relate what the pupils actually saw with what they had learnt. The Science teacher also mentioned that he observed the pupils' behavior when they were carrying out the experiments. Apart from that, assessment is based on the knowledge of the pupils and attention is focused on *UPSR* exams questions.

Finally, for *KT* Encik Zabidi also made use of pictures to teach the same topic on landforms as he felt that the pupils would remember what they see. He went further to mention that occasionally, he had taken the pupils out to observe the school surroundings, to introduce them to the vegetation available at the school compound. This would relieve the boredom of being always in the classroom but admitted that the pupils are difficult to control at times.

On their explanations on how they carried out assessment on their pupils for the lessons they conducted, all of them mentioned that besides the usual question and answer, exercises, worksheet and examination type assessment, they also observed the pupils while they work. As for Encik Zabidi who also is the school's *GPK*1 at that point, he mentioned that he would always inculcate the values in his pupils. He observed them on their attitude and mentioned that there had been a slight improvement in their awareness and attitude towards littering at the corridor. Such

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matters were often stressed upon during assemblies to correct their attitude and according to him, once this was corrected, it would be easier to teach them in class.

4.5.11.7 Evaluation of School Performance in Terms of EE

The teachers were also asked to rate the success of the EE program at their respective schools, (on a scale of 1 to 10, with 10 being the highest score and 1 being the lowest). Some of their deliberations and evaluations are as follows.

Cik Bibi gave 7 points based on the involvement of the pupils, teachers and gardeners at keeping the school compound clean and also projects aimed at beautifying the school like planting of flowering plants. Cik Suzana also gave 7 points and felt that there should be on-going programs to sustain the mood of the pupils. However, Ustaz Kassim gave an evaluation of only 4 points as he compared it to his previous school at Sabah which had done more. He wanted to see more programs related to the environment being carried out in the school.

4.5.11.8 Issues and Challenges

At *SK Kuala Besar* the main issue and challenge brought up by the teachers interviewed was to correct the attitudes of the *orang asli* pupils towards keeping the school compound clean. Encik Zabidi informed that littering is quite a common practice among them. So the challenge is to keep on reminding them not to litter and

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destroy the plants as well as to educate them well on personal hygiene too. In addition to that, Cik Bibi reported that they are slow learners and many of the materials in their school text books have to be adapted to suit their level of ability.

4.5.12 Observations of Classroom Teaching

At *SK Kuala Besar*, observations of classroom teaching were also conducted by the investigator. The findings of the observations are reported below.

4.5.12.1 *Bahasa Melayu* Lessons

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Observations of Cik Bibi's lessons revealed that she did incorporate EE in her lessons (Obs. Lesson No. 1, dated 05.10.2012, 09.30 – 10.30 a.m. on '*Aktiviti Gotong Royong*', Obs. Lesson No.3, dated 21.06.2013, 12.30 – 1.30 p.m. on '*Kebersihan Negara Tanggungjawab Kita'*, and Obs. Lesson No. 4, dated 15.07.2013, 09.30 – 10.30 a.m. on Sentence construction based on picture on "*Gotong Royong"* cleaning and beautifying the classroom). It was observed that the teacher was adept at infusing EE in her lessons and was quite creative and innovative at sourcing and adapting materials for her lessons.

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4.5.12.2 Science Lessons

Observation of Encik Suhaimi's lesson, indicate that he had no problem at infusing EE in the lesson. (ObsTSC1CO4/041012). In class it was observed that Cik Suzana who took over from Encik Suhaimi, did relate to EE when the topic was directly related (for example during Observation Lesson No. 1, dated 21.06.2013 (10:00 – 10:30 a.m.) when she went through the examinations questions and when it dealt with topics like "Survival of the species, food chain and food web".

4.5.12.3 *Kajian Tempatan* Lessons

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The investigator had the opportunity to observe Encik Zabidi's (T*KT*1CO4/*GPK*1CO4) lesson once before he went on transfer (promotion) to another school where he taught about the topic on house (*rumah*), (ObsTK1CO4/140313). Taking into consideration the ability of his pupils, he let them draw a picture of their dream house and discussed on the materials to make the house thus relating to the resources from the environment.

Finally, in his lesson (Observation Lesson No. 1 dated 15.07.2013, 11:30 – 12:00 noon on *Tumbuhan Semulajadi dan Hidupan Liar*) Ustaz Kassim (T*KT*2CO4, the teacher who took over the *KT* class from Encik Zabidi), was able to relate to the environment as the topic was related. However, Lesson No. 2 on 05.09.2013, 9:40 – 10:10 a.m. was on *Kesultanan Melayu Melaka*, on how Malacca got its name and the

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historical fact was stressed upon. The only environmental value inculcated was picking up litter before the start of the lesson.

4.5.13 Observations of the School (Environmental Scanning / Green Audit)

During the many visits to the school the investigator would always do an environmental scanning of the school to look out for new developments related to EE being implemented at the school. The results of the observations are based on the following categories.

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4.5.13.1 Policies that Support *EE across the Curriculum*

It was noticed that the Client Charter of the school aims to ensure that every pupil feels safe and comfortable when at the school compound.

4.5.13.2 Displays of EE Related Materials

There were plenty of displays for the academic subjects (especially English Language). There was a display on “Regulations of the School” and also pictures on right dressing. However none of these were related to the environment.

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4.5.13.3 Landscape Management

Existing landscape was well maintained as shown in the earlier section (in Figures 4.33, 4.34, 4.35, 4.36, 4.37 and 4.38 on pages 290, 293, and 294). During visits to the school, the investigator could see the school gardener at work. The grass at the school field was regularly cut.

4.5.13.4 Energy Saving Measures and Economical Usage Practices

No traces of energy saving measures and economical usage practices were detected at times of visits to the school. The investigator noticed that the school staff had a free hand at usage of the school photo-stating machine.

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4.5.13.5 Management of Waste Disposal / Garbage

There were ample trash bins provided. (The investigator was told by the GPK1 that the pupils generate a lot of trash daily.) These were arranged in a row at the verandah outside the classrooms. During times of visits, the general worker was seen sweeping the corridors outside the classrooms.

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4.5.13.6 Special Features

These include the vast school field, surrounding greeneries, palm trees and shrubs . A garden of flowering plants was being set up. This is part of the school beautification project.

4.5.14 Summary

SK Kuala Besar has the basic facilities for teaching and learning. Overall the surrounding looks neat and tidy. The field is maintained well and during many visits, the investigator noticed that the grass was being mowed by the workers. Encik Azizul, the headmaster is supportive of any effort at keeping the school compound neat and tidy. Such a measure goes along with fulfilling the Clients' Charter of the school relating to the pupils, that is, "to ensure that every pupil feels safe and comfortable when at the school compound". Although there was just a small number of staff, it was noticed that there are on-going efforts to beautify the school surrounding. The latest effort is the planting of flowering plants and the setting up of a garden at the front of the main building, a short distance as one enters the school gate. There are ample opportunities for the teachers to inculcate good environmental habits among the indigenous pupils.

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4.6 Interviews with Environmental Education Personnel, EEP (Critical Informants)

Interviews were also conducted with seven Environmental Education Personnel (one Curriculum Development Officer from the Curriculum Development Division, Ministry of Education, one Environmental Control Officer from the Department of Environment, Ministry of Natural Resources and Environment, five Senior University Lecturers whose work are related to EE, and an officer from the World Wide Fund for Nature, WWF) to acquire their views on the various perspectives of EE. The findings of the interviews are reported in the following categories which are related to the research questions.

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4.6.1 Characteristics of EE

The investigator interviewed EE professionals (EE Personnel, EEP) to seek contemporary views on the features of EE. (For Profile of EE Personnel, please see Appendix K).

Encik Mohd Tarmizi (EEP1), the Curriculum Officer from the Curriculum Development Division, MOE, was of the opinion that there are many ways to make the students love the environment. According to him, an effective way to teach EE would be through activities outside the classroom. Although there are constraints in carrying out outdoor activities, he felt that when there are activities outside the classroom, the students' feelings and awareness of the environment would be deeper.

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("*... saya lihat salah satu cara yang paling berkesan dengan membawa akitiviti luar ... tapi bila kita tengok ... akitiviti luar itu banyak kekangan kan? Tapi bila kita ada aktiviti luar, perasaan pelajar ataupun ... kesedaran pelajar itu dia lebih mendalam* ...") (IntvEEP1/301112/Line 749-752). As such he would encourage all subjects to give exposure to students in EE through outdoor activities. This could be carried out through having programs related to EE. Furthermore, he added that EE should be 'hands-on' and could be conducted during co-curricular activities using various venues in the school as learning stations. (" ... *Hands-on ... kita buat dalam aktiviti ... kokurikulum, persatuan BM* ...) (IntvEEP1/301112/Line 771-772). However, he lamented that this was seldom carried out. Nonetheless, he suggested that activities could be carried out at the school compound.

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Puan Nora (EEP2), an officer from the Department of Environment (DOE), asserted that EE must involve the practical aspect which comprises the action itself, it must be hands-on, ("*... Salah satunya ialah dia kena ada praktikalnya ...*") (IntvEEP2/270912/Line 170). The lady further clarified that EE should be something which can be carried out and not to be read from books alone.

The investigator also had the privilege of interviewing four senior university lecturers from three different local universities (EE personnel 3, 4, 5 and 6). Dr. Elise (EEP3), an Associate Professor from the Education Faculty of the University of Malaya opined that for EE to thrive, the school must be very learner-centered and the teaching of EE should be context-based involving activities. She clarified that, for example, any subject teacher should be able to connect the environment with what he or she is teaching. Another important feature which she pointed out was that EE

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should always instill the responsible behavior of the pupils not only in school but at home or wherever they are. In conducting EE, Dr. Elise suggested that it could be done outdoors with follow-up activities in the classroom.

Another Senior Lecturer from Faculty of Science and Mathematics of Sultan Idris Education University, Dr. Hamzah (EEP4) clarified that EE should consist of three aspects, knowledge (*pengetahuan*), which brings awareness (*kesedaran*), leading to practice (*amalan*) which is a very important part. Elaborating further, for knowledge we must explain the natural processes, the life functions in our ecosystem which benefit living things and man in particular. In a nutshell EE comprises the theory part and also the practical aspect. There must be plenty of hands-on activities, on-site experiential learning which are project-based.

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Senior Lecturer Dr. Samantha (EEP5), of the Faculty of Environmental Studies, *Universiti Putra Malaysia* who teaches EE in the Masters program at the varsity also agreed that EE includes the knowledge aspect which covers areas like the ecosystem and the interrelatedness between the elements. Also important is that EE has to be put to practice as scientific knowledge itself is not enough. Overall, it is about awareness, environmental consciousness and being concerned about the environment. In a nutshell it comprises six basic elements like knowledge, attitude, behavior, skills, evaluation followed by taking action and participation. Clearly, Dr. Samantha's interpretation of EE are aligned to the components of EE as listed out by UNESCO. Furthermore, she clarified that it has to be holistic, on-going and must be interrelated to other issues as well and not on its own.

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One more Senior Lecturer's views was sought on the matter. Dr. Zabeda (EEP6), is a Senior Lecturer from the Department of Science and Technology, Faculty of Science, University of Malaya. Dr. Zabeda also holds the position of Director of UMCares – The Community and Sustainability Centre at the University of Malaya. Dr. Zabeda opined that in EE "we have to have the foundation of knowing nature and then looking at issues and challenges that we have at the moment, and then how to solve them" (IntvEEP6/130614/Line 284-286). Furthermore, Dr. Zabeda felt that nature studies should be included, " ... nature studies .. issues .. and activities of man and also how students even at the school level can make a change". She added that it would be good to include the 'pro-activeness' in their education itself, " ... not just knowing about nature, knowing about the issues, but also to give some experience like getting involved in *gotong royong* .. they do something like do a recycling project and try to relate back to what they have learnt in class". (IntvEEP6/130614/Line 298-301).

Finally, to seek representation from the NGO, the investigator also interviewed Cik Nor Ashikin (EEP7), the Manager of EE Program, Formal System, WWF-Malaysia. Cik Nor Ashikin stressed that EE is about empowering the youths, the students towards taking action and making informed decisions in the daily lives. She pointed out that to achieve this there is a need to integrate values into the school system through leadership skills, interpersonal skills, problem solving skills, anticipatory skills and also creative thinking skills being applied to the local environmental issue. The emphasis is on a value-centric rather than of a material-centric nature. She added that EE is dynamic and should be driven to local issues. By this the students should take on a practical approach and practice the environment in

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the classroom, outside the classroom within the school compound, and also outside the school.

4.6.2 Desired Status of EE in Schools: EE as a Separate Subject?

All the EE Personnel (except one, EE personnel 4), advocated for the status quo, voicing no space due to the compact nature of the present curriculum (“*kurikulum sekarang sudah padat”*), with no room for one more new subject (EE personnel 1, EE personnel 2 and EE personnel 6). Environmental Education Personnel 3 explained that due to the interdisciplinary nature of EE, it should remain “across the curriculum” (EE Across the Curriculum). Environmental Education Personnel 5 also echoed the same views reminding that the guiding principles of EE suggested that EE should not be taught in a “capsule”.

EE personnel 7 who is from WWF-Malaysia also informed that they are not pushing for EE as a single subject as she revealed that she understands the present situation at the school , with subjects-overload, and would not ask for EE as a subject. Moreover, she understood well how the school system works and if they were to ask to introduce EE, then there would be other parties clamoring for other subjects to be included. Anyway, she felt that it is very easy to integrate EE or to infuse EE into the languages, Science and Geography. As such she felt that the elements of EE, or the values of EE should be integrated and to appear in all subjects.

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She reiterated that "... it is important that elements of EE appears in all subjects rather than it being made as a single subject, because we do not .. to me, I personally feel that we do not have to pass EE in order to be environmentally aware." (IntvEE7/040214/Line 92-94). She clarified that although it is important to have the skills, knowledge and the values need to be inculcated, EE does not have to be a critical subject or a pass subject in order for someone to be environmentally aware. Referring back to her research study, she pointed out that knowledge does not promise that someone would be environmentally literate. It is the values inculcated in all the subjects that is important.

However, EE personnel 4 who is a Senior Lecturer of a university who also advises the varsity's "Friends of the Environment" club (*Kelab Rakan Alam Sekitar*) and also had vast experience working with the schools, insisted that EE should stand alone as a subject, so that EE concepts can be included in the curriculum and be taught in a proper manner. Drawing upon his practical knowledge and observation, he also pointed out that the present state of having "EE across the Curriculum" is ineffective as very minimal EE or none at all is implemented in the classroom by the teachers.

4.6.3 What is the Current State of Environmental Education in Malaysian Schools?

On the current state of EE in Malaysian schools Encik Mohd Tarmizi reiterated that EE cuts across the curriculum (secondary and primary school). He clarified that in Pre-school, there is a module on EE. In the primary school, it cuts across the

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curriculum, like for example in *BM, BI, Pendidikan Islam*, Science, it's quite clearly stated ("*ada tertulis ada tersurat*") and for others we depend on the skills of the teacher. For example, in History he can look at how early settlers look for clean water sources.

Puan Nora was also aware of the current status of EE in the school. She mentioned that EE is essential and if possible she would want it to be compulsory in schools. However at present it exists as "EE across the Curriculum" and elements of the environment are inserted into subjects like Science, Geography and *Sejarah.*

According to Dr Samantha, even though lately she had lost touch with the primary school system, she still knows that nothing has changed with "EE across the Curriculum" saying:

> ... from what I know I think nothing has changed as yet .. there is a little bit of integration here and there .. *ermm* .. but I don't see much. I think if you look into the subject syllabus, the Science syllabus, the Maths syllabus, the English syllabus, you could see some topics have got environmental aspects or it touches on the environment but not all of it. So it depends solely on the teacher whether this particular teacher has an environmental orientation or not, to talk about the environment. If the teacher is not oriented or not so much aware about environmental issues, then it is not probably touched on. So it is entirely left to the deliverer of that curriculum.
> (IntvEEP5/050214/Line120-128)

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4.6.4 How should EE be Taught?

On how EE should be taught, Encik Mohd Tarmizi proposed that as we teach our subject, we infuse EE, and we emphasize on how we can instill in our students so that they love the environment. This can be done in many ways and he felt that the most effective way is to have outdoor activities. He admitted that even though there are constraints but when we have outdoor activities, the feelings and the level of awareness of the students is deeper. However, although intense, he also felt that they may not last long. Therefore he hoped that it is done throughout the year pointing out that when one subject carries out activities outdoor, the other subjects will follow suit. He pointed out that if it is done in class only it is not sufficient. There should be activities outside the classroom, for example during co-curriculum so that the students can experience for themselves.

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He strongly feels that it is necessary to have outdoor activities. On 'hands-on' activities he related them to those conducted during co-curriculum, for example, the *BM* Society could have activities at the school garden or near the pond. Such places could be used as learning stations.

Puan Nora also agreed that the teacher has to conduct activities outdoor. She felt that " ... the environment is something we hold, we have to see, we have to touch, feel all of it ...". As such if it is done in class by writing on the board she feels that it would not be effective, unless they do experiments outside at the garden and have activities outside the classroom. She feels that it would be effective for pupils who wish to know and to learn. One way is by incorporating a practical component to EE:

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> *... Kalau sekadar dalam kelas tulis dekat papan hitam saya rasa tak efektif lah, melainkan kalau dia buat eksperimen keluar ke taman, keluar ke luar, buat-buat aktiviti di luar, saya rasa efektif bagi pelajar yang nak mengenali dan pelajar yang nak belajar. Kalau setakat tulis atas kertas, papan hitam memang tak boleh lah sebab alam sekitar itu memang sesuatu kita pegang, kita perlu lihat, kita perlu sentuh, rasa semua.*
> (IntvEEP1/270913/Line 154-159)

She also pointed out we actually do not teach EE, because EE is more towards the behavior itself. It is 'hands-on', it is not to be read from books alone. It has to be applied, to be carried out. She shared that during her visits to the schools, she gathered that mostly there were 'hands-on' activities like for example, making soap from recycled oil during co-curriculum. It is not like the type of activity like just reading up from the books. Even for the *Bahasa Melayu* subject on poetry (*pantun*) she pointed out that the teacher could bring the pupils out to the school garden to seek inspiration from the surroundings of the garden. She reiterated that there must be learning outside the classroom, "hands-on", and activities related to the environment, like examining the trees around them. According to her, that would be most effective as the pupils will remember better than just memorizing from the book.

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Dr. Hamzah, a Senior Lecturer who also is also the adviser to the varsity's *Friends of the Environment Club*, *Kelab Rakan Alam Sekitar*), related EE to three aspects, namely, knowledge, awareness and practice. He clarified that in practice, we must focus on the functions that benefit mankind, like for example on the service of the ecosystem to make him appreciate it. So, besides delivering the theory part, he would recommend many hands-on activities which are planned by the students themselves. He pointed out that it would be a challenge for the teacher to bring the

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students out of the school to contribute to society. He admitted that such measures are lacking. Nevertheless, he pointed out that for it to be effective, the student has to experience it. For this he would recommend that EE should be project-based.

Dr. Samantha also shared quite a bit on how EE should be taught:

> Hands-on, minds-on and I think the classic tale is about 'in, about, for the environment', alright? That still stays and that still holds true. But I think we got to get a lot of practice. So that's why having on-going projects is good. If you are talking about the school for example, then it has to be a school policy for habits, forming habits .. the kids for example switching off the light, water .. you know, it has to be everyday, all the time, and not a one-time project, one week, okay, no more, okay? Just like many schools, I think their favorite project is recycling. So they'll have one week, recycling week, and then done! No more you know, so by right, *err* .. just to have a comparison, a small example, is you should have a recycling program that's on-going and recycling is a part of life, not a program. It is the practice, just like in many advanced countries like Japan, Korea ... recycling is not a project or a program, it is a part of life. Every household will automatically keep their trash and then they go to the recycling center, it is a daily life thing and not a program. Like here, for us it is still a project, a recycling project. But after some time the project dies off! And then it is not there anymore, the recycling bins are also gone, nobody does it anymore. So that's the difference of being a habit or practice and a project. (IntvEEP5/050214/Line 464-480)

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Dr. Zabeda shared on a new perspective when asked of how EE should be taught:

> There is a new perspective in saying that "you don't start with information, you start with action, and from the action you infuse the knowledge". So probably there should be a change in the way we approach EE. We give an exposure to students to do real action on the ground. Maybe students in *Darjah* 1 or all have to do a project in recycling program or *gotong-royong* program. And then after that, use that as a basis to teach Science, to teach things that can be related to that. That means giving them the exposure first, they may not understand why they're doing it, but then after that, infuse the knowledge. Maybe that could be more effective than the way we have been using now, which is more exams-oriented.
> (IntvEEP7/130614/Line 662-670)

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Cik Nor Ashikin showed great experience in explaining on how EE should be taught:

> When you teach, there are components of your lesson, the introductory can be done in the classroom, then maybe you have to go out, for example when you talk about waste management, to explain what is waste management, one is that the lesson can be carried out in the classroom, then for reinforcement, you can actually play a game on recycling, and then we go to bigger issues… what happens, what is the effect of you not recycling, the impact if you don't manage your household waste well, so that lesson could actually be taking out to the land field, to the local land field. This is where the rubbish that you throw in your house goes, and how much waste from the population from the kampung is generated there, what type of waste do you see there. It can be contextual, so they see… oh that's why they need to recycle, that's why we need to think, and think, and think if we throw that, where would the waste go. And also at the same time, you can also bring them to the seaside, or maybe to the mangrove, where we can see that because the roots of the mangrove are waste trap, and technically, that is the ocean tide, so how come there is waste in the ocean, so it means that whatever you do in land affects the marine life. So these are the few things how you connect, so there would actually be able to make the connection that, okay, I need to be more responsible if I go to the beach, or maybe, at the very minimal is for them to know that I need to be careful when I throw the rubbish from the house, because at the same time you would know where it is going to end up. So basically after that you can say that what are the things you can do apart from recycling, like composting. So that could also be something practical, they can actually go to the garden and maybe do simple composting initiative. (IntvEEP7/040214/Line 571-593)

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4.6.5 The Role of the Environmental Educator

Encik Mohd Tarmizi pointed out that the environmental educator or teacher has a big role in transforming the young generation into becoming future leaders who love the environment. With constraints like there is no single *alam sekitar* (environment) subject the teacher has to read up, especially to gain knowledge concerning the environment. As it is knowledge keeps on increasing and so are the methods of

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infusing EE. Furthermore, the teacher must be able to adapt well to local conditions. For example, if the teacher teaches at the interior, the pupils would have much knowledge of trees as the world around them is full of trees, so there need not be so much time spent on telling the pupils on how to look after the trees.

So a good environmental educator should always update himself on information related to the field and sharing them with the pupils and the teachers during school assemblies. Finally he added that to motivate an educator to teach EE, the school administrator should give acknowledgements to the teachers who are committed not in monetary terms, but in the form of letter of appreciation (*surat penghargaan*) or awards in appreciation of what had been done by the teacher.

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Puan Nora also shared her views on the requirements of an environmental educator. Besides having knowledge and understanding of the environment, the environmental educator must be able to influence the students to be interested in the environment and to extend the knowledge and message to their parents and the local community as well. He knows how to attract the interest of his students by employing various techniques and activities in the classroom as well as outdoors.

Dr. Samantha also elaborated on this:

> Definitely you need the knowledge, the skills, plus of course the awareness .. you may have the knowledge but if it is just a profession it doesn't work as well, so ... basic teaching skill is definitely needed. All the pedagogical part of it, being an educator, it's necessary and be able to get students to participate is important. So these are the basic skills for the educator...
> (IntvEEP5/050214/Line 518-522)

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On what motivates the environment educator:

> That comes from the heart I think *ha ha*, *ya* that comes from the heart. It's just like the love of literature you know, *ya* you may call yourself a language teacher and of course you know all the basics of the grammar, language structure, and you teach the kids. But if you don't have the love of the language then you may read a poetry but you don't really understand what the poetry means.
> (IntvEEP5/050214/Line 526-530)

On the qualities of an environmental educator, Cik Nor Ashikin asserted that he has to be visionary, adventurous, and needs to be always on an exploratory mode. Furthermore the values of caring for the environment have to be strong in an environmental educator. He has to be resourceful to possess knowledge which is very important as well.

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On what motivates an environmental educator she has this to say:

> Like I said, one is the support, support from the head. Two is time is also an issue, a factor, because of how the lesson is designed, the timetable in the school is designed, and also how the curriculum is designed… I am not sure whether that kind of curriculum that is exam oriented still exist, it does, Malaysia has actually got a long way of moving away from… you got to have long "A"s to bring back to your home. The value of successors you cannot quantify by just earning A's or B's, but it's got to be something more than that. So that needs to change. Which I think when it comes to behavior it's got to be a challenge. Attitudes of the system, meaning the government (laughs).
> (IntvEEP6/040214/Line 668-676)

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4.6.6 What Do You Perceive as the Major Problems Concerning the Development and Teaching and Learning of EE in Schools?

The EEPs were also asked of their views on the problems concerning the development as well as the teaching and learning of EE in schools. According to Encik Mohd Tarmizi:

> The main problem is that the teachers do not understand deeply on how to infuse EE in teaching and learning. And some teachers, when it is not a subject, there is a lack of emphasis *lah* ... he teaches according to his subject ... *aar* ... he does not relate well on the environment. *Ha* ... we do understand *lah* this problem ... (IntvEEP1/301112/Line 934-938)

On another note, he pointed out that if the teachers understand and the school administrators network with other sources well, it would be quite easy to bring in the programs like '*ceramah*'. He believed that such things would not incur high costs because one department could attend to transport while another could take charge of other things.

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As for challenges to teaching or implementing EE in schools, he mentioned that one would be to ensure the students' safety at all times and all procedures have to be followed. He realized that in the event of accidents, very often the teacher is not protected! Anyway, he hoped that the teachers are not discouraged by this. He also talked about the bridge collapse incident at Perak recently where the teachers and pupils were involved while carrying out outdoor activities. He admitted that there were times when he thought that as a teacher and upon seeing the risks and responsibilities to be taken for such outings, one would opt for not conducting such activities outdoor. However, he felt that it should not be thought this way. To be

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safe, the only thing is that the teacher must follow all the regulations and procedures required and take the necessary precautions.

He also suggested that even if the teacher is reluctant to bring the pupils out of the school for activities due to certain constraints like no time to prepare the paperwork and too many procedures, the teacher could conduct activities at the school compound instead. He pointed out that even so, the teacher still has to make the necessary preparations, and reminded that these are sacrifices that the teacher has to make.

Encik Mohd Tarmizi also mentioned about the Teachers' Guidebook on EE. In the past, the *Pusat Perkembangan Kurikulum, PPK* had produced *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR, KBSM,* and *PraSekolah.* However, as these books were produced quite some time ago, and when they visited the schools, many schools did not have them. These books were not reprinted as these modules were prepared according to the existing syllabus and since then, there had been curriculum revision, and changes in the syllabus. Anyway, he mentioned that the teachers can still use the old modules for guidance as in it are shown ways to teach *alam sekitar*. However, he mentioned that " but the book is at the school, I feel many of the books are in the headmaster's room, in the library, never referred to I feel ... no more available ... *ha* ... we are aware of that." *("...tapi buku itu memanglah di sekolah, saya rasa kebanyakannya ada di bilik pengetua, di library, tak dirujuklah rasanya ... dah tak ade pun ... ha ... kita maklum itulah.*") (IntvEEP1/301112/Line 368-370)

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Puan Nora also identified a few constraints in the implementation of EE in the schools. Among the usual constraints are the time factor, packed curriculum, not enough funds and focus on academic achievements. She also disclosed that the support of the school authorities is very important. There were schools which did not participate in DOE programs due to not getting the support of the principals as the focus of the schools were on other things like, for example, academic achievements.

Dr. Samantha sees that the major challenge comes from the headship:

> Challenges? ... and it usually starts with the school board, the school administrators. I think the hardest to tackle is the school administrators. We got to make the school administrators understand that no doubt directive comes from the Ministry, the CDC, the Ministry of Education, the Ministry of Environment, the Ministry of Science. If the school administrators are not concerned about it, then they'll just push it aside. So if the school administrators are aware and concerned then they will make an effort to implement whatever programs that has been instructed or suggested .. usually they cannot instruct you what to do, they'll do that. For example if you want to have a green garden in the school, a garden project .. it's all entirely up to the school. It's the top level administration .. you've got to tackle all these, the top level administrator all the way down to the teachers themselves, then only things will work. So if you have one passionate teacher but the school administrators are not for it, then it is a very difficult struggle.
> (IntvEEP5/050214/Line 555-568)

Dr. Hamzah felt that because EE is not a compulsory subject, so no one pays attention to it**.** Other factors are time constraints and funding. One reason why many schools do not allow outdoor activities to be carried out is due to safety concern. He revealed that one of his students had conducted a survey on this and it showed that two factors, namely safety and funding were the main hindrances. The two factors resulted in making the "hands-on" activities being shelved. So the easy way would be to have theory in class.

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Dr. Elise identified three major problems in its implementation. They are the leadership of the schools, teachers who do not have the skills and knowledge, and the lack of skills to get resources and to be able to use them. She agreed that presently it was supposed to be infused into every subject but the problem is in its implementation, the teaching side. She added that,

> " ... if the school leadership is not in the know about environmental issues, they will just probably not emphasize it, they will allow the teachers to teach whatever they think is important, and they won't even talk about, they won't even give the message about EE to be infused in the teaching". (IntvEEP3/291113/Line 138-142)

She also pointed out that,

> " ... And you must also remember that very solid subjects like Biology, language, they have a lot of environmental elements inside. But when you see teachers teach Biology, when it comes to the environment chapter, they do theory. So that is what I'm trying to say, that the thing is there, but when it comes to implementation, it doesn't get off the ground." (IntvEEP3/291113/Line 244-248)

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About the resourcefulness of the teachers to get and use the resources, she also reminded:

> "... a lot of modules have been done, like the Malaysian Nature Society, WWF, they have distributed and it's on-line for teachers to download. But then again, and with the internet, the teachers can get ideas about EE virtually at their fingertips, but nobody bothers, it's there, the resources are there."
> (IntvEEP3/291113/Line 287-290)

Dr. Zabeda admitted that she is not in the school system and she doesn't actually know about the latest changes in the curriculum. When the investigator pointed out to her that with *KSSR*, subjects like *KT* and *PSK* (Civics) are taken off she

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exclaimed, "Wow! Because I'm not aware of all this! Of the education system .. on EE .." (IntvEEP6/130614/Line 299).

On another note, she mentioned that,

> " ... there was one time when I was looking at the syllabus also, yes those dimensions in understanding nature and also talking about issues in environment is also covered in Science .. so now it's mostly in the Science but I don't know how far Science teachers are able to go to more of the affective mode, you know. Err .. it's more of .. I think information .. abstract information, *ya*."
> (IntvEEP6/130614/Line 388-393)

Finally, Cik Nor Ashikin gave some enlightening information on the present situation which does not give EE the necessary "push":

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> Ok, I would like to reiterate that for the Ministry to make EE as a priority, one of the steps is to include it in the National Education Policy. As I've mentioned that and I'm going to repeat it that with the policy it will pave the way to many other initiatives like funding, training of teachers. We've worked with teachers before .. we have teachers who are interested but they do not know how to go about doing it ... and when we go to schools sometimes teachers are interested but they do not know how to go about how to infuse EE in the schools. So one of our projects is actually to help them address that, for them to how do they infuse EE in subjects like *BM* or English or Geography or Science and they don't have the confidence. When they don't have the confidence .. they don't have the knowledge, the skills, so they don't have the confidence. When that happens, the interest will die out. So what we did is that we address the need, the gap .. so filling in the skills of infusing EE.
> (IntvEEP7/040214/Line 240-252)

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She continued:

> Well, talking from experience, from what we've done thus far, and from where EE is moving on .. where WWF is concerned .. we've tried addressing the issue at policy level, so that didn't work much .. it was actually put to a halt! But at the same time we were also working at the grassroot level .. meaning that we were working with the students, with the lecturers .. and also with the teachers .. with the teacher trainees .. so to me the direction that EE should be going is to expose them with more skills, with more issues at hand, with more current issues. The way I see it is that there is a gap between knowledge and also participation or action. So that gap needs to be filled by giving them the skills, by exposing them to more knowledge and helping them to connect the knowledge to the action ...
> (IntvEEP7/040214/Line 261-270)

4.6.7 Indicators or Standards to Determine the Effectiveness of Environmental Education at the Institutions of Learning.
Best Practices of EE in Schools

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The EE professionals also gave their opinions on best practices of EE implementation in schools which covers certain aspects of the features of EE. Encik Mohd Tarmizi clarified that there are no written indicators or standards. However, he explained that when he visits a school to see whether the EE program is successful or not, he would ask the school administrator as to whether the program is being carried out. He would also look at the teachers' record to see whether activities related to EE had been carried out and also whether there was infusion. He would ask the teachers on their understanding of EE and also observe the pupils on whether they "*menghayati"* the school environment in terms of keeping the environment, classroom clean and tidy.

Another guide he shared is to also observe for occurrences of vandalism, room lights and fans on when empty. If things are alright, this means that there are signs

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that the school has started practicing it. In addition to that, he would also see whether the school has won any award related to the environment or had taken part in competitions related to it organized by outside body, for example "Eco-use", a program by a private company. Next, also include an overall look at the school environment and reports on activities carried out by the school which are related.

He disclosed that "When we enter a successful school, there is this feeling that .. oh .. this is a good school, *ha* ... a calm feeling ... *aar*... this is only one of it ... *aar* ... but I feel that this happens to many schools nowadays, from this aspect I see it .. but from the intrinsic awareness, we are not sure *lah*." (From the physical point of view, yes but not sure from the point of intrinsic awareness.)

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Puan Nora, the DOE officer explained that for her Sustainable School Project at the schools, she would look at four aspects as indicators. They are the school "greening", management, curriculum and co-curriculum (*penghijauan, pengurusan, kurikulum dan ko-kurikulum*). Besides that, she would look at the school networking with other agencies to see the extent of actions. In the school itself it has to take on a "whole-school" approach where everyone, the teachers, the school clerk, the gardeners, the whole school community has to be involved. According to her only then will EE succeed.

Dr. Elise looked at what other countries are doing and discovered that some of the things that they have done is that they actually have developed a showcase of exemplary cases of environmental education so that they can impart this to others. They also actually have clubs in the school, like the Environmental Club, for example,

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with all their activities in place, with well-planned action plans for the whole year. Furthermore they must have certain outputs, maybe like composting being done and it is in the message board to inform people of it. According to her, that can be standards on EE. The other thing is resources. She explained it means that when we go to a school we can see the resources that the teachers have, to teach from and within the school. They have areas where they can conduct activities. So these could also be indicators of the best practices of EE at the school.

As for Dr. Hamzah, he suggested that maybe we could put them under various categories. For example, there are many schools which have set up a "herbal garden" and a "green corner". Then, there is the involvement of students in projects and competitions and have won awards. Also there is the collaboration of schools with NGOs like the Malaysian Nature Society which are involved in environmental work. It could also be an indicator if the school has joined societies which are related to the environment.

Dr. Samantha referred the best practices of EE to those advanced countries of Japan, Korea and in Europe. Like for example, the Netherlands where the system is so established and in-built that even the garbage collection truck has no garbage to collect from each household! This implies that the citizens are so disciplined and environmentally conscious that they practice recycling their waste products. The system set-up is already there. She also quoted examples of the most liveable cities like Melbourne, Australia and also others like in the Netherlands where conservation efforts are at their best and justifying them as clean, healthy and safe places to live in. Another example she related was that of the experiences of her students at a canteen

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of a Korean Center of Learning where cleaning up and the separation of trash is the responsibility of all, from the customer right up to the canteen lady and the cleaner. The trash is being taken care of right up to the source. Taking a lesson from there and coming back to our schools, perhaps one of the best practices in schools would be 'zero garbage' (*sifar sampah*) or even low electricity and low water consumption. It implies a total involvement of everybody in the organization and not so much to be guided by laws and regulations alone.

One more representative from the university was consulted on the characteristics and best practices of EE. Dr. Zabeda who is a Senior Lecturer from the Department of Science and Technology Studies, Faculty of Science, University of Malaya and is also the Director of UMCares–The Community and Sustainability Centre at the University of Malaya, stressed that the environment of the school should show or exude the feeling. For example, we can see people appreciating the greenery and the beautiful surrounding. There is a close connection between the school community with the environment. There are efforts to keep the place clean. The recycling program is on and there are measures to conserve water and electricity. It is reflected in the culture of the institution or school itself.

Finally, a representative from the NGO, Cik Nor Ashikin (EEP7, WWF-Malaysia Officer) also gave her views on best practices of EE where she insisted that " ... it has to be the whole school approach, meaning that everyone has to be on board on that sustainability bus." She clarified further that the driver of the "sustainability bus" is the headmaster or the headmistress and even the security guard knows of the policy. Everybody is involved, the canteen operator and right to the security guard.

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For example, if the security guard sees someone carrying polystyrene outside the school, then one of the things is that he can actually advise the person explaining this being "zero polystyrene area". And also they need to be trained, which includes the canteen operators, school administration or the procurement unit, or the chief clerk. When it comes to having canteen tenders, they need to be told that the policy is that polystyrene should not be used. She stressed that everyone has to be on board when the school is having *zero polystyrene* campaign, for example.

She also disclosed on the indicators or standards to determine the effectiveness of EE at the various institutions:

> I would say that one is that the sustainability value, showcase in the management, in terms of energy saving measures, energy efficiency, water conservation. It boils down to policy, maybe they want to adopt a policy when it comes to procurement, they don't serve bottled water when it comes to meeting, and when it comes to attitude toward wastage of food, but not to say that they are very prudent in managing their resources. That's one where the administration is concerned. When it comes to students, there shouldn't be a need to have a merit or demerit system when it comes to them doing things which is environmentally friendly. They do it because they think that it is out of their responsibility, and it's actually part of their value. So to me, that's more towards behaviour, I don't believe in people building structures. Like maybe building they say when it comes to environment, it's landscape, I don't believe in that, I am not a person where when it comes to people asking for funding, I don't want to do with building structures, I believe in money being spent in developing the skills and capacity of the students and teachers, and because if we build structures, it's there and then that's it. You might not use it 2 to 3 months down the line, if you invest in people, then that's where the changes will happen. So I believe in investing in people, rather than building structures.
> (IntvEEP7/040214/Line 691-708)

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4.7 An Analytical Summary

In this chapter the investigator had reported on the four cases along certain broad categories like the profile of the school, school facilities, vision and mission, the school administrators, the implementers in the classroom, curriculum, teaching and learning, co-curricular activities, and programs and activities related to EE. In addition to that, the findings of the interviews with the school administrators and the three subject teachers were discussed under the various categories related to the implementation of EE at the four schools. The findings through observations of classroom teaching and also observations of the school were also reported. Finally, also included are the views of seven EE personnel on various perspectives of EE.

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Two schools (CO1 and CO2) in the sample are town-based while the other two are situated away from the town (17 kilometers, CO3 and 38 kilometers, CO4 respectively) with one (CO4) comprising of a dominant (100%) indigenous (*orang asli*) pupil population. Essentially, the town-based schools have a higher concentration of teachers, pupils as well as clerical and general support staff. Generally all the schools have a higher percentage of female teaching staff and pupils (with the exception of CO3 where the number of male pupils slightly outnumbered the females, 79:70). The statistics also show that the schools have not achieved the 50% of graduate population amongst the teachers (again with the exception of CO3 where the number of graduate teachers is 12 out of 20, 60%).

In terms of facilities, all the four schools have the same basic facilities consisting of building blocks containing classrooms, Resource Center, media room,

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Science Labs, Self-Access room, Music room, Meeting room, the teachers' rooms and also not forgetting the administrative offices. There are also the additional blocks housing the Computer / IT lab, the Living Skills workshop and also the Canteen block. As it is, some schools may have more blocks of building for classrooms (like in CO1 and CO2, as shown Figures 4.1 and 4.7) as this commensurate with the enrolment of the school.

In terms of open space, the investigator is of the opinion that all the schools do not lack the space and facilities to carry out environmental education activities. All the four schools have added features like the rest houses (*pondok rehat*) or rest areas, shaded areas, trees, flowering plants, greeneries and also not forgetting the school fields and these could be utilized as learning stations with information boards containing periodically updated information related to the environment. Information boards containing EE-related materials can also be put up at hallways and open halls. While some had created a garden, although barely maintained (Kitchen Garden in CO2) and also a fish pond with running water (in CO3), the Science Garden and the fish pond at CO1 have closed down (not maintained). Notably, there is the absence of the Science garden at CO1, CO3 and CO4.

Generally, the vision and mission of the schools focus on the attainment of excellence in the form of pupils' achievement in the academics as well as co-curricular activities. It is noted here that also stated in the Mission Statement of the two schools (CO1 and CO3) and in the Clients' Charter of CO4 is the effort at " creating a conducive environment in the school and in the classroom through the *3K* (*Kebersihan, Keselamatan dan Kesihatan*) Project" (CO1); "To create a conducive,

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comfortable and safe environment as well as to establish a continuous collaboration with the community" (CO3); and "To ensure that every pupil feels safe and comfortable when at the school compound". Additionally, CO3 has also included in its goal statement. "Cleanliness, Beauty, Safety, (*3K*) (*Kebersihan, Keceriaan, Keselamatan* (3K)): "To create a clean, beautiful and safe environment in the realization of the concept of 'My School My Home', (*Sekolahku Rumahku*). Surprisingly, CO2 which boasts of having a recycling program does not have any statement or indicator which relates to the environment in its vision or mission statement or goals. It focuses on achieving "High Performance" status as well as achieving excellence in curriculum, co-curriculum, and human capital. Nevertheless, in terms of projects involving environmental awareness for the pupils as well as the school community this school had on-going projects like the school recycling project and the "Classroom Beautification Competition". In addition to that, the Kitchen Garden which also functions as the Science Garden was also utilized by individual teachers for teaching-learning purposes.

The vision and mission statements of the schools are usually exhibited on office walls and also at the main notice board usually located in front of the office or some are painted or written on the wall of the main building block. Generally, the respondents were quite clear about the vision and mission of their respective schools and about their duties and responsibilities.

All the schools are headed by male headmasters whose ages range from 51 to 58 years. All the school heads acknowledged the importance of EE to be inculcated in their schools and have plans to transform the school environment to make it

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conducive for studies. Most of their plans centered upon beautification projects like planting of trees and flowering plants and keeping the school environment clean. The focus is on the proper maintenance of the school environment and facilities.

Generally all the other administrative staff (*GPK*s) are also aware and show support at efforts mooted by the headmasters although it was detected that while some showed concern and were interested, and one *GPK* (*Pentadbiran* and *Kurikulum*) of CO1 had also attended a briefing by the District Forestry Department on the systematic felling of the trees, there are a few who are detached and seemed not overly concerned and are less enthusiastic. Some had the notion that to get a program going, there must have the funds for it. However, few realized that attempts at EE do not mean that schools must build new structures or embark on new big projects as showpieces. Existing structures and facilities can be utilized for activities related to the environment and also towards conservation.

A total of 17 teachers took part in the study (interviews and classroom teaching observations). Of the 17 teachers, 12 of them are females (70.6%) whilst 5 (29.4 %) of the sample consist of male teachers. 10 of them (58.8%) are in their early forty years of age while 6 (35.3%) are in their early thirties with one, the youngest, being 27 years of age. Also, 12 (70.6%) of the sample participants (teachers) possess Bachelor's degrees, while the others have lower academic qualifications. All the sample participants' (teachers) subject qualifications match the subjects that they presently teach. All of them teach subjects they are trained for besides teaching other subjects. Sample participants' (teachers) year of service fell into four broad categories: beginning teachers with 3 years experience – (1, 5.9%); 4 years – (3,

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17.7%); 14 - 19 years of service – (10, 58.8%) and more that 20 years (3, 17.65%). 8 of the sample participants (47%) are involved in *UPSR* classes.

Interestingly, only 4 (23.5%) sample teachers had attended or are exposed to a course in EE while (76.5%) had no such opportunities at all. Upon observation of their conscious involvement in EE only 3 of them (17.7%) have put in more focus while also covering the basic curriculum in class (Obs TSC1CO2, TSC1CO3, and TSC2CO4). Incidentally this group comprises the teachers teaching the Science subject.

All the schools follow the standard Malaysian Integrated Primary School Curriculum (IPSC / *KBSR*) and also the Standard Curriculum for Primary Schools (SCPS / *KSSR*) which replace the *KBSR* fully in 2016. These being the national school curriculum, are principled along the aims of the National Philosophy of Education towards developing the potential of individuals in a holistic and integrated manner. The teachers were fully aware of the demands of the National Education Policy to produce individuals who are intellectually, spiritually, emotionally and physically balanced and harmonious. However, when it is transformed to the daily practices in class as instruction, the quest for excellence in examinations results (*UPSR* in particular) takes center stage.

As for the curriculum that is being taught in the schools, the teachers seemed to believe that they had implemented according to its demands. They were also aware of the EE component in each of the three subjects (*BM*, Science and *KT*) and they

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give focus to it when topics related to EE occur. In this sense the interdisciplinary nature of EE in the lessons and also "EE across the curriculum" is not clearly visualized. As it is, it is very much dependant on the knowledge and skills of the teachers at integration of EE in their lessons. Although it was observed that very little or no EE took place in the classrooms, the Science teachers seemed to have a better understanding of EE concepts. Another important finding of the observations and interviews was that very little (except for Science teachers) or no environmental teaching (for *BM* and *KT*) was done outdoors. The "in the environment" factor was never realized. This is cause for concern as the research literature indicated the importance of teaching 'about and for the environment as well as in the environment'.

In terms of co-curricular activities it was observed that it has been the standard practice of the schools to offer a variety of choices of activities in the three components of uniformed units, clubs and societies, and sports and games as shown in Tables 4.2, 4.7, 4.12, and 4.17. However, the number of choices also depends on the pupils' enrolment. It is noticed that the two urban schools do not have environment clubs or societies. As for the other two rural schools, there is the presence of the Mathematics, Science and Environment Club and the ICT, Agriculture and Recreation Club (in CO3) and the Agriculture Club (in CO4). These types of clubs would be able to provide opportunities for activities related to the environment.

In the four cases studied, it was noticed that all the cases did plan and carry out certain activities related to the environment. The most common ones being *gotong royong* at cleaning the school compound and also the school landscaping or beautification projects like the planting of flowering plants beside walkways.

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Besides that, all schools carried out the integrated co-curricular camps which involved the pupils who are in the various uniformed units where ideas like keeping the environment clean and the understanding of minimum destruction and restoration of the environment they are in, might have been incorporated during the camps. As mentioned earlier, one school (CO2) had even maintained the Kitchen Garden / Science Garden and the school recycling project. It had carried out the "Classroom Beautification Competition" to promote environmental awareness among the pupils. At all the schools various themes (some related to EE) were assigned to each academic week and the teacher-in-charge would ensure that activities were related to the themes for the week which include emphasis on it through reminders and speeches during the school assembly. The themes are shown in Tables 4.5, 4.10, 4.15 and 4.20.

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The case studies revealed that there were positive aspects pertaining to the implementation of EE like school policies (mission and goals), facilities (physical features), and support from the relevant sources (administration). At the same time there were concerns and shortcomings in its implementation in terms of instruction, teacher preparedness and qualifications (knowledge and skills), as well as resources. The following chapter analyzes the findings from the various sources discussed above to provide answers to the research questions on the implementation of EE in schools.

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CHAPTER 5

DATA ANALYSIS AND INTERPRETATION

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5.1 Introduction

In this chapter, data obtained through the qualitative method of inductive inquiry and observation (interview, observation and document study) are analyzed and interpreted in relation to emerging issues and concerns pertaining to Environmental Education (EE) at the four schools (or cases). The issues which are of concern relate to the lack of focus in EE, teachers not trained in EE integration, no Teachers' Guidebook on *EE across the Curriculum* at the schools, school resources and facilities were not utilized for EE, no funds or allocation for EE, and no monitoring of EE from the relevant authorities. From the case studies, the data are analyzed under various categories and these include the profile of the school, school administrators (the people at the helm), school teachers (implementers in the classroom), school facilities, main focus of the

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schools (vision and mission), curriculum and instruction, co-curricular activities and programs and activities pertaining to EE. Additional categories relating to the Research Questions also emerged from the findings of the interviews with the school administrators, interviews with the three subject teachers, observations of classroom teaching and observations of the schools as a whole. Besides the cases, additional information was also sought through interviews with seven EE personnel (EEP). The categories that emerged include their opinions on the state of EE at the school, the characteristics of EE and the best practices of EE in schools.

The analysis and interpretation of the emergent categories were done according to the research questions of the study. Additionally, the analysis and interpretation of the emergent categories were also done within the framework of Stake's Countenance Model. The conclusion of this chapter highlights the status of the EE being implemented at the four schools.

5.2 Analysis and Interpretation of Data According to the Research Questions

The EE subject, as an independent course of study is not offered in Malaysian schools. However, this does not mean that school pupils both at the primary and secondary schools levels, are not exposed to environmental concepts and issues. A quick perusal of the various curricula that is currently used in the schools reveals that there are EE indicators in the many subjects being taught in school. (See Figure 4.6 in Chapter 4, p. 157, on environmental topics in three subjects curriculum, Year 5). This goes in line with the National Education Policy where *Environmental Education*

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Across the Curriculum was introduced in both primary and secondary schools in 1998. This means that EE is not taught as a single subject but is taught across the curriculum and integrated in each subject. At all levels of school education, the integration approach is adopted. This involves the practices of insertion which is to add separate activities about the environment into the curriculum, infusion which blends environmental concepts into existing lessons when the opportunity arises, and integration which is to insert environmental topics into the existing curriculum. Evidences of these practices are shown in the three subjects' curriculum as shown in Figure 4.6 (in Chapter 4, page 157).

For schools in Malaysia, the Ministry of Education (MOE) had taken certain initiatives and measures to educate the learning generations about the environment. For example, in the curriculum contents of the school syllabus, knowledge and awareness about the environment are instilled across the curriculum. Environmental Education is not being taught as a subject but appears as aims and objectives of certain subjects. The Curriculum Development Center (now known as Curriculum Development Division, MOE produced a guidebook, *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR* (Teachers' Guidebook for Environmental Education Across the Curriculum *KBSR*) in 1998 which outlined proposed topics and activities for EE in the various subjects for all levels of primary school. The contents of EE across the Curriculum listed in the teachers' guidebook are *God the Creator of the Universe, The Earth and the Universe, Non-living Things, Natural Resources and Energy, Living Things and its Surroundings, and Interactions between Man, Animals and Plants*. (*Tuhan Pencipta Alam Semesta; Bumi dan Alam Semesta; Benda Bukan Hidup, Sumber Semula Jadi dan Tenaga; Benda Hidup dan Alam Sekitarnya;* and

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Interaksi antara Manusia, Haiwan dan Tumbuhan.) It also explained the strategies for its implementation which comprises aspects like teaching and learning, the setting up of EE Stations, the EE Resource Centre, and assessment.

Furthermore, sampled infusion of EE in the various subjects and at different levels were included like, for example, EE contents in *Bahasa Melayu*, (*BM*) Year 5, *Bahasa Inggeris*, (*BI*) Year 2, *Matematik* Year 4, *Sains* Year 6, *Pendidikan Islam* Year 3, *Pendidikan Moral* Year 1, *Pendidikan Seni* Year 5, *Pendidikan Muzik* Year 3, *Pendidikan Jasmani dan Kesihatan* Year 2, *Kemahiran Hidup* Year 5, and *Kajian Tempatan* Year 5. Alongside the EE contents, suggested activities were also included. Complete lesson plans for specific topics were also included for *BM* Year 6, *Matematik* Year 5, *Sains* Year 6, *Pendidikan Islam* Year 5, *Pendidikan Moral* Year 6, *Pendidikan Seni* Year 3, and *Pendidikan Muzik* Year 1 as samples. Finally, at the end of the guidebook were affixed relevant and useful references as information like the Langkawi Declaration on the Environment, the 16 moral values on the environment, photographs showing outdoor teaching and learning activities for EE, and a glossary. Clearly the *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR* had incorporated the acquisition of knowledge on the environment and environmental matters.

A similar guidebook and a module had also been produced for the secondary school and pre-school respectively. Although some may have observed that the *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR* might have fallen short in the transfer of learning where practical applications to issues and the solutions are seldom met, clearly, this commendable effort by the Curriculum

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Development Center, MOE would have paved the way for the implementation of EE across the curriculum at the schools as it would serve as a useful guide on its implementation.

At the schools, essentially, the teachers and the school administrators are the keys to the successful implementation of EE in the subjects and the school curriculum. In this context, this study attempted to investigate and evaluate the implementation of EE in four selected Malaysian primary schools. The investigator sought answers as to how the schools were meeting the challenge of implementing EE and what emphasis was being given by the school authorities to the EE dimension of learning in school. This is related to how conscious in the first place, were the school headmasters and teachers of the need to inculcate the desired values of *EE across the school curriculum* as a whole and also within the boundaries of three selected subjects at Year 5 level, namely *BM* (Malay Language), Science, and *KT* (Local Studies). Also, the study attempted to find out whether the individual school has an integrated system or rationalized framework for EE-inculcation across the school curriculum.

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5.2.1 RQ 1: What are the Characteristics of Environmental Education (EE) as have been Determined by International Standards?
RQ 1 Sub-question (a): How has the Implementation of EE in Four Selected Malaysian Primary Schools Fared in the Context of International Standards?

The first research question aimed at identifying the characteristics of environmental education (EE) as had been determined by the international standards, (UNESCO, in particular). Besides the documents, viewpoints of EE professionals (EE personnel)

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were also sought. This was established through interviews with EE professionals. The study also intended to ascertain on how the four Malaysian primary schools had fared in their implementation of EE in the context of international standards. As such, besides establishing a consensus on the characteristics of EE, the study also looked at the implementation of EE at four selected Malaysian primary schools and gauged on how they fared in the context of international standards.

5.2.1.1 Characteristics of EE

Documentary evidence on the characteristics of EE had been provided by the Tbilisi Declaration (1978) and had been presented in Chapter 2. Briefly, the Tbilisi Declaration (1978) suggested that ideally, EE should enhance critical thinking, problem solving, and effective decision making skills as well as educate individuals to weigh various sides of an environmental issue to make informed and responsible decisions. Bearing this in mind, the schools should take cognizance of these demands of EE to ensure the effective implementation of EE in the school curriculum. The guiding principles for EE, as outlined by the Tbilisi Conference, reflect a definite need for both the acquisition and transfer of learning in EE. Program developers should strive to reflect these guiding principles in any curriculum development project, making certain that the need for both acquisition and transfer is met.

Although EE has branched into a multitude of approaches and the scope of what was considered relevant to EE had grown even broader over the decades, the Tbilisi Declaration's foundational recommendations remain relevant. The guiding

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principles for EE which also reflect the characteristics of EE include considering the environment in its totality; a continuous lifelong process; interdisciplinary in approach; include examining major environmental issues; focusing on current and potential environmental situations; promoting local, national and international cooperation; considering environmental aspects in plans for development and growth; enabling learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences; relate environmental sensitivity, knowledge, critical thinking and problem-solving skills and values clarification; helping learners discover symptoms and causes of environmental problems; and utilizing diverse learning environments and a broad array of educational approaches to teaching and learning about the environment, for the environment, and from the environment with due stress on practical activities and first-hand experience.

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All these guiding principles form the basis of reference for this study. Incidentally, these guiding principles are reflected in congruence with some of the features of the best practices in EE provided in Chapter 2. This supports the relevance of the Tbilisi Declaration's guiding principles till this day. The features include in-class activities combined with field experiences, schoolyard, outdoor experiences; residential EE programs such as out-of-school field trip; and school-based EE, place-based education, community-based learning, project-based learning, using the local environment as a context for integrating subjects (Environment as an Integrating Concept, EIC), and a source of real world experiences.

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Essentially, the best practices in EE should incorporate features like direct aesthetic experience with the natural environment, (hands-on learning activities/ active participation); environmental restoration activities, (through group discussions, learner's everyday experiences of problematic and enabling circumstances leading to problem-solving); sensitive or emotional content, (to encourage pro-environmental attitudes and behavior); a multi-sensory learning environment, (through participatory interactions); and relevant and personal information that promotes empowerment and ownership, (leading to decision-making and problem-solving).

Finally, another equally important and effective approach to EE would be teaching through modeling by means of individual role models, school facilities and operations, school governance, and school culture. A point to note here is that as in modeling, before the children start their formal education, EE should start at home with parents being role models. Most appropriately, environmental awareness should start at homes and schools, with the children being first taught like, for example, not to throw rubbish indiscriminately. At our local front, the lack of awareness might have caused people in discarding various items like food leftovers and plastic bags in the drains and rivers, and this could affect the ecosystem. Parents and teachers must teach children about environmental protection and stress how it could help preserve the environment for the benefit of all.

Having looked at documentation on EE, the researcher also interviewed seven EE personnel to seek contemporary views on the features of EE. The seven EE personnel interviewed had focused on certain important features of EE. Among the features of EE being highlighted were learner-centered; activity-oriented; *hands-on*;

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outdoor activities; context-based; issue-driven (especially to local issues); problem-solving; dynamic; holistic; comprising three major aspects: knowledge, awareness and practice; six basic elements: knowledge, attitude, behavior, skills, evaluation, and action; value-centric; *theory and practice*; ecosystem and the interrelatedness between the elements; nature studies; on-site experiential learning and project-based. Incidentally, it can be gathered here that their views go alongside the main characteristics of EE as propounded by UNESCO.

5.2.1.2 Implementation of EE in Four Selected Schools

In this study, five interview questions for the school teachers and school administrators also helped to guide the answers to the sub-question on "How has the implementation of EE in four selected Malaysian primary schools fared in the context of international standards?" The interview questions related include, "What are the overriding goals or priorities of your school?", "In your school, what subject areas get the most attention and resources?", "In your school, how important is environmental education?", "Does your school have a program related to environmental education?" and "On a scale of 1 – 10, how successful is the environmental education program at your school?".

In answering the RQ1 sub-question (a), the discussion is drawn to the responses to the related interview questions and is reported in the sections that follow.

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5.2.1.2.1 Goals and Priorities of the Schools.

The goals and priorities are reflected in the vision and mission statements of the respective schools as shown in Tables 4.3, 4.8, 4.13, and 4.18 on pages 142, 205, 255 and 295. All the teachers and school administrators interviewed were quite clear about the vision and mission of their respective schools. The priority of each school seems to be to excel in the academics and to come up top (or among the tops) in the *Ujian Penilaian Sekolah Rendah* (*UPSR*) examination results leading to being top and excellent schools in the district. This point was highlighted upon by the respondents.

Upon examination of the schools' vision and mission statements and their goals (see Tables 4.3, 4.8 and 4.13), three schools (CO1, CO3, and CO4) have also included statements related to providing a conducive environment for study. *SK Cempaka* (CO1) has in its mission statement aimed at providing quality education to every pupil through a conducive school environment within and outside the classroom through projects carried by the *3K* (*Kebersihan, Keceriaan and Keselamatan)* Committee. *SK Relau* (CO3) has also incorporated in its mission statement, "To create a conducive, comfortable and safe environment as well as to establish a continuous collaboration with the community" and *SK Kuala Besar*, (CO4) in its Clients' Charter (*Piagam Pelanggan*) would ensure that the pupils are safe and comfortable when they are in the school compound. Although this was not highlighted upon in their responses, all the teachers and school administrators were able to relate the goals to the objectives of the National Education Philosophy (NEP).

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5.2.1.2.2 Subjects that Get the Most Attention and Resources

The responses to the second interview question further revealed the main focus of attention of the schools. All the teachers and school administrators gave similar responses stating without a doubt that the five examination subjects for *UPSR*, namely *BM* (two papers), *BI*, *Matematik* and *Sains*, get the most attention and resources. Samples of interview conversation were given in Chapter 4. The main focus at the schools seems to be clearly on good achievements in the all-important *UPSR*. All the teachers interviewed were clear about that.

It is obvious that currently, *UPSR* subjects like *BM*, *BI*, *Sains*, and *Matematik* receive the most energy and resources at the schools. These are subjects that are tested in the nation-wide examination (*UPSR*) and for which schools are held accountable to the various District Education Offices (*Pejabat Pendidikan Daerah*, *PPD*) and parents as stakeholders. Like Encik Azizul, the headmaster of SK Kuala Besar stated "... as HM, what we have to manage is that the thing that must come first, must come first .. meaning academic excellence ... that takes up much .. our thoughts .. our energy, our resources towards there ... ha, the District Education Office also pressured ..." (IntvHMCO4/300813/Line 319-322, 325). As such classroom teachers are more pressured to ensure their pupils do well in the nation-wide *UPSR*. Incidentally the teachers involved in the interviews were also teaching the *UPSR* classes for subjects like *BM* and Science. (A point of concern here is that the teachers are so overwhelmed by the demands of teaching their own subjects that they do not have time to think of incorporating EE!)

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5.2.1.2.3 Importance of Environmental Education (EE)

All the teachers and administrators interviewed acknowledged the importance of EE and that pupils have to be exposed to it. Based on the teachers responses on the importance of EE in schools, all the teachers interviewed acknowledged the importance of EE and 13 of them (out of 16, 81.3%), agreed that for EE to be effective, it should be made a separate subject. The school administrators (HM, *GPK*1, and *GPKKokur*) of the four schools were also asked the same questions on the importance of EE and its desired status. All the school administrators also agreed that EE is important and that more could be done. Five of them (out of 12, 41.7%) also agreed that EE should be a separate subject. The other school administrators believed that EE should remain at its present status, that is, *across the curriculum* as it is not feasible to add in a new subject, given the present tight school schedules. (They forget that the curriculum structure can be changed or reorganized with new subjects introduced while others be combined or taken off to meet the challenges of present needs and relevance. Since all of them acknowledged the importance of EE, the area of relevance is one related to the environment.) A detailed compilation of the views of the respondents on the desired status of EE is shown in Table 5.1

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Table 5.1

Views on Desired Status of EE in Schools

Personnel	Should EE be a separate subject?	
Teachers :	Yes	No, to remain as it is. (*EE across the curriculum*)
T*BM*1CO1	√	
TSC1CO1	√	
TSC2CO1		√
TSC3CO1		√
T*KT*2CO1	√	
T*BM*1CO2		√
TSC1CO2	√	
T*KT*1CO2	√	
T*BM*1CO3	√	
TSC1CO3	√	
T*KT*1CO3	√	
T*BM*1CO4	√	
TSC1CO4	√	
TSC2CO4	√	
T*KT*1CO4	√	
T*KT*2CO4	√	
	13 (81.25%)	3 (18.75%)
School Administrators:		
HMCO1		√
*GPK*1CO1		√
GPKKokurCO1		√
HMCO2	√	
*GPK*1CO2	√	
*GPKKokur*CO2	√	
HMCO3	√	
*GPK*1CO3	√	
*GPKKokur*CO3		√
HMCO4		√
*GPK*1CO4		√
*GPKKokur*CO4		√
	5 (41.67%)	7 (58.33%)
EE Personnel:		
EE Personnel 1		√
EE Personnel 2		√
EE Personnel 3		√
EE Personnel 4	√	
EE Personnel 5		√
EE Personnel 6		√
EE Personnel 7		√
	1 (14.29%)	6 (85.71%)

As can be viewed in Table 5.1 almost all of the teachers (81.25%) and five school administrators (41.67%) agreed that EE should be made a separate subject as EE, presently is very important and relevant. By making it a subject the pupils will learn more EE concepts and the teachers would be obliged to teach it. However, three teachers (Puan Shamsiah, TSC2CO1; Puan Syarifah, TSC3CO1; & Puan Bainun,

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T*BM*1CO2) mentioned that EE can remain as it is, *across the curriculum*. On whether EE should be a separate subject , Puan Shamsiah pondered and said that " ... presently there are already many subjects, if too much the pupils also do not get it too, so if it's inserted like at present, at least the pupils do get a bit of it." (Laughs). (IntvTSC2CO1/221012/Line 138-142). However, she agreed that in practice, not all teachers incorporate the EE aspect as required. There are shortcomings in its implementation.

From Table 5.1, it is clear that five out of twelve of the school administrators advocated that EE should be taught as a separate subject. Those who opposed cited the present curriculum being "overloaded" as the main reason and some of them offered suggestions to make it more effective.

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As for the seven EEP, six of them (EEP 1, EEP 2, EEP 3, EEP 5, EEP 6 and EEP 7) advocated for the status quo. They pointed out that presently there is no space due to the compact nature of the present curriculum ("*kurikulum sekarang sudah padat"*), with no room for one more new subject (EEP 1, EEP 2 and EEP 6). Environmental Education Personnel 3 opined that due to the interdisciplinary nature of EE, it should remain "across the curriculum" (*EE Across the Curriculum*) while EEP 5 also reminded that the guiding principles of EE suggested that EE should not be taught in a "capsule". Also EEP 7 who is from WWF-Malaysia also informed that they are not pushing for EE as a single subject as she revealed that she understood the present situation at the school, with subjects-overload. Moreover, she anticipated well how the school system works and if they were to ask to introduce EE, then there would be other parties clamoring for other subjects to be included. Anyway, she felt

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that it is very easy to integrate EE or to infuse EE into the languages, Science and Geography. As such she felt that the elements of EE, or the values of EE should be integrated and to appear in all subjects.

However, the fourth EE personnel, a lecturer from a local education university insisted that EE should stand alone as a subject, so that EE concepts can be included in the curriculum and be taught in a proper manner. Drawing upon his practical knowledge and observation, he also pointed out that the present state of having *EE across the curriculum* is ineffective as very minimal EE or none at all is implemented in the classroom by the teachers.

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5.2.1.2.4 Curriculum and Instruction

All the teachers interviewed attested to the fact that they were aware of their subjects' curriculum demands. They were aware that presently, it is not specifically stated to carry out EE. All is left to the discretion of the individual teacher. Nevertheless the teachers were also aware that there are topics on the environment in the various subjects as shown in Figure 4.6, on page 157 in Chapter 4. It is clearer in Science, like for example, *investigate the living environment* where pupils conduct experiments. In *BM* there is a specific topic or unit on *the environment* for Year Five. The investigator was told by the *BM* teacher from CO2 that usually for every year there is a topic on appreciating the environment in the *BM* textbook. As for the subject *KT*, it is very related to the environment (refer to Figure 4.6, page 157).

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Next, on instruction (classroom teaching), based on observations, when it came to the actual implementation of *EE Across the Curriculum* in the classroom the investigator found that the teachers in the sample seemed to have very little sense of direction and very little EE actually took place. This finding is similar to earlier studies conducted in secondary schools by Gan (1987), Periasamy (2000, 2004) and Maria Salih and Hazinah Nor Hanipah (2009) which reported that the teachers were inadequately prepared to intergrate EE in their lessons.

It was observed that the teacher only related more to the environment when the topic or passage concerned the environment (*BM* Lesson 3 at CO3). In most of the lessons the focus was on the language skills (vocabulary, poem, & writing), and also the correct procedure to score well in exams (exams-oriented focus). Overall it was felt that more of EE could have been infused in the lessons observed by including the environmental components or implications.

Observations of the Science lessons also revealed some interesting findings. A fair amount of classroom cleanliness was being maintained (evidenced in the sweeping of the floor to clear the litter before the start of the lesson) by the pupil. A duty roster existed in front, on the soft board. There were the usual exchange of greetings at the start and end of the lesson as this is the norm. Discipline was maintained at all the lessons by the teachers. It was observed that most teachers followed a *standard operating procedure* that is, writing the day, date and topic on the blackboard at the start of each lesson.

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The Science lessons focused on deriving the scientific facts through the experiments (the facts could also have been derived from the environment – their surroundings, and from everyday occurrences on the environment that we live in, as an example). The Science teachers focused on getting the scientific procedures and facts right (and) for exams – to do well in it. (Pupils were often reminded of the correct method to score well in the examination.) It was felt that the teachers did not show the ability and skills to relate more to the environment, for example, everyday practices and occurrences in the environment and sourcing examples from the environment relating to the topics taught.

As for the *KT* lessons which were observed, there were too much dependence on the school textbook by the teachers. Teaching was by referring to the textbook (T*KT*1CO1). This reflected on teacher preparedness for the lesson. The textbook seemed to be the only source of reference for this particular teacher. Furthermore it was observed that the teacher did not bring in contemporary issues to make the lesson interesting. Lessons merely focused on the historical facts. The geography element, even though related, was not expanded upon. This could have been related to environmental factors / topics like natural resources and geographical location. The teacher did not focus on noble values and discipline. Furthermore, efforts on conservation was never emphasized (T*KT*1CO1). In fact the attitude of the teacher was questionable – not prepared for lesson, coming in to class late, more focused on other work commitments. The only evidence of inculcating environmental values was on stressing on the cleanliness of the classroom, (T*KT*1CO1 & T*KT*2CO1), and energy conservation (T*KT*2CO1 – switching off lights and fan).

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5.2.1.2.5 EE Programs and Evaluation of How Successful is the School at Implementing EE

The teachers and school administrators were asked about the programs related to EE which were carried out throughout the year in their respective schools. Most of them informed of the *gotong royong* aimed at keeping the school clean and also the school landscaping and beautifying efforts. Then there were the classroom beautifying competitions (*pertandingan keceriaan kelas*) which were conducted throughout the school term (CO2). These seem to be the only areas focused upon when it came to matters related to EE. This also reflects on their understanding and perception of what EE entails. (Refer to RQ2 on their perception and understanding of EE.)

A look at school documentation (*Buku Perancangan Tahunan 2012*) revealed more activities and programs related to EE. Table 5.2 shows programs and activities related to EE which were planned and carried out within the school during 2012. From the table it is evident that the *gotong royong* was a prominent activity planned by each of the four schools with some held on a big scale (G*otong Royong Perdana*) involving the local community (CO3 & CO4). However, besides *gotong royong*, three of the four schools (CO2, CO3, & CO4) had included topics or themes related to the environment as their weekly focus (see Table 5.2, *Tema Mingguan Guru Bertugas*). Overall, in all fairness, some programs related to EE had been planned at the four schools studied.

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Table 5.2

Programs and Activities Related to EE Planned and Carried Out Within the Year 2012

Schools	Programs and activities related to EE planned and carried out within the year (2012)
CO1	*1. Perkhemahan Bersepadu Unit Beruniform 2012, (Friday & Saturday, 24 & 25 February)* *2. Program Gotong Royong (Saturday,19 Mei – JK Kebersihan)* *3. Program Keceriaan Landskap (Aktiviti Keceriaan), (Thursday, 26 July- JK Keceriaan)* *4. Mesyuarat JK Kantin, JK Perabut, JK Keceriaan & Kebersihan (Tuesday, 31 July- GPK HEM)* *5. Mesyuarat JK 3K (24 January & 31 July)*
CO2	*1. Gotong Royong PPDa, (Friday 20 April –SU PPDa)* *2. Gotong Royong SPBT, (Friday, 12 October- SU SPBT)* *3. Tema Mingguan Guru Bertugas : Menceriakan Kelas & Persekitaran Sekolah (17-21 January)* *4. Tema Mingguan Guru Bertugas: Menjaga Harta Benda Sekolah (13-17 February)* *5. Tema Mingguan Guru Bertugas: Kebersihan Asas Keimanan (5-8 March)* *6. Tema Mingguan Guru Bertugas: Keceriaan Sekolah (9-13 April)* *7. Tema Mingguan guru Bertugas: Tanggungjawab Seorang Pelajar (16-20 July)* *8. Tema Mingguan Guru Bertugas: Sekolahku Rumahku (13-16 August)* *9. Tema Mingguan Guru Bertugas: Kebersihan Kelas & Keceriaan Persekitaran Sekolah (24-28 September)*
CO3	*1. Tema Mingguan Guru Bertugas: Sayangi Sekolah & Alam Sekitar (6- 11 February)* *2. Tema Mingguan Guru Bertugas: Pentingnya Berjimat Cermat (19-24 March)* *3. Khidmat Masyarakat & Gotong Royong (11 April)* *4. Explore Race (25 April – Persatuan Sains & Matematik)* *5. Tema Mingguan Guru Bertugas: Menghargai Harta Benda Sekolah (30 April-4 May)* *6. Program "10 000 Langkah" Cegah Aedes, (20 June), (Usaha Kerjasama Sekolah, Pejabat Kesihatan Daerah Lipis, & Penduduk Kampung Relong)* *7. Membina Taman Herba (27 June- Persatuan Sains & Matematik)* *8. Tema Mingguan Guru Bertugas: Jimatkan sumber Tenaga dan Elektrik (21-25 August)* *9. Perkhemahan Unit Beruniform (20-22 September) (Pembersihan Tapak Perkhemahan/Gotong royong, Treking ke Gua Bama & Persembahan Malam Kebudayaan bertemakan alam sekitar)*
CO4	*1. Program Gotong Royong Kelas (Saturday, 7 January- Semua guru)* *2. Gotong Royong Prasekolah (Saturday, 31 March - Prasekolah)* *3. Mesyuarat Keceriaan & Motivasi (2 May – Unit Keceriaan & Motivasi)* *4. Gotong Royong Perdana PIBG (7 July – AJK PIBG)* *5. Gotong Royong Pusat Sumber (28 July – AJK PSS)* *6. Program Gotong Royong Perdana (20 September – SU HEM)* *7. Tema Mingguan Guru Bertugas: Kebersihan Diri (13 – 17 February)* *8. Tema Mingguan Guru Bertugas: Sayangi Sekolah (9 – 13 April)* *9. Tema Mingguan Guru Bertugas: Sekolahku Rumahku (10 – 14 September)* *10. Tema Mingguan Guru Bertugas: Membazir Amalan Syaitan (29 October – 2 November)*

The teachers and school administrators were also asked to rate the success of the EE program at their respective schools, (on a scale of 1 to 10, with 10 being the highest score and 1 being the lowest). The teachers and administrators gave a range

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of scores from 5 to 8 (average to above average scores) as shown in Table 5.3 below. All agreed that there was room for improvement.

Table 5.3

Evaluation of School Performance in EE from Interviews

SCHOOLS	TEACHERS	Evaluation of School Performance in EE (on a scale of 10)	SCHOOL ADMINISTRATORS	Evaluation of School Performance in EE (on a scale of 10)
CO1	*TBM*1CO1	8	HMCO1	8
	*T*SC1CO1	7	*GPK*1CO1	5
	*T*SC2CO1	-	*GPKKokur*CO1	5
	*T*SC3CO1	-		
	*TKT*2COI	5		
Average marks		6.7		6.0
CO2	*TBM*1CO2	6	HMCO2	8
	*T*SC1CO2	7	*GPK*1CO2	5
	*TKT*1CO2	7	*GPKKokur*CO2	8
Average marks		6.7		7.0
CO3	*TBM*1CO3	8	HMCO3	8
	*T*SC1CO3	5	*GPK*1CO3	7
	*TKT*1CO3	8	*GPKKokur*CO3	6
Average marks		7.0		7.0
CO4	*TBM*1CO4	7	HMCO4	6
	*T*SC1CO4	-	*GPK*1CO4	7
	*T*SC2CO4	7	*GPKKokur*CO4	6
	*TKT*1CO4	7		
	*TKT*2CO4	4		
Average marks		6.3		6.3
4 Schools	17 Teachers		12 School Administrators	

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5.1.1.3 Summary

The characteristics of EE according to UNESCO standards were identified at the beginning of the chapter. Seven EE professionals (EE personnel) had also emphasized and clarified on certain characteristics of EE and their views were aligned with UNESCO standards. In terms of performance of the four schools studied in the

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practice of EE according to UNESCO standards, certain aspects needed improvements.

Overall, the four schools did provide the basic facilities which can be utilized for teaching EE. The school authorities as well as the teachers acknowledged the importance of EE. Efforts were geared towards keeping the school environment clean and also aimed at beautifying the school environment (*keceriaan*). This is aligned to what was stated in the goals and objectives of the schools, "to provide a safe and conducive environment for study". In all fairness, the school authorities also provided attention towards such goals besides focusing on the all-important achievement of coming up top (or among the tops) in the academics (*UPSR* in particular).

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The headmasters of the four schools might have a better direction of EE implementation and it was evidently shown in the planned programs and activities related to EE in Table 5.2 on page 375. Nevertheless, implementation of EE at the various schools was not uniform, with different or varying degrees of interpretation and implementation. One school, (CO3), had involved the local community with its project like *COMBI* (Communication for Behavioral Impact, a strategy to address the global dengue problem formulated by the Pan American Health Organization, which is a regional network of the World Health Organization). At another school, (CO2) there were projects aimed at promoting environmental awareness among the pupils like the recycling project, the "Classroom Beautification Competition" and the maintenance of the Kitchen Garden / Science garden for teaching-learning activities. At the four schools, there were the usual *gotong royong* projects aimed at cleaning up

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and beautifying the school compound, (only focused on *kebersihan* and *keceriaan*). Although there were organized talks on specific topics related to EE as themes for the teacher-in charge during the week (*Minggu Guru Bertugas*), during the weekly assemblies (*perhimpunan*), it was observed that the individual schools did not have an integrated system or rationalized framework for EE-inculcation across the school curriculum. There were no specific programs and projects for EE inculcation (except for the recycling project, the "Classroom Beautification Competition", and the maintenance of the Kitchen Garden / Science garden carried out in one school, CO2). Most school authorities attributed this to the lack of or no funds or allocations. The teachers also provided the usual reasons for not being able to implement EE as having no time in infusing EE into the subject, rushing to finish the syllabus in preparation the pupils for examinations, and financial constraints in organizing EE activities in schools.

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As such, efforts by individual schools showed a piece-meal type of approach (which suggests a lack of an integrated system or rationalized framework for EE-inculcation across the school curriculum). Moreover, a point to note here is that the interpretation of EE by the school authorities and teachers was limited to maintaining cleanliness and beautification of the school. Efforts aimed at going beyond that to promote other environmental values like the practice of moderation, frugality, reducing wastage and the importance of conservation were not focused upon.

The study revealed that in the practices of teaching, very few of the characteristics of EE were clearly evident in the sample schools. Even if EE had been implemented, it had been superficial and there were no systematic approach to

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integrate EE concepts into the curriculum. There seem to be a mismatch between curriculum demands and teacher practice in terms of EE integration. This was also pointed out by Periasamy (2004) who made the same conclusion in his study on secondary school teachers' involvement in EE in Sabah, Malaysia. Of course the teachers are not to be blamed for this predicament. In the first place they were not teaching EE as a subject! Furthermore, they were not trained at integration of curriculum techniques. As a result, most of the lessons observed were classroom-based, no outdoor teaching, no experiential learning and relating to the environment as many felt that it would involve much preparation and also due to time constraints. This shows that the guidelines or teaching strategies suggested in the Teachers' Guide for EE across the curriculum were not adhered to as they were not available at the schools.

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Based on the interviews with teachers and observations of classroom teaching, it could be concluded that the state of EE is vague and the direction ambiguous. In terms of *EE across the curriculum* there seems to be a sort of professional breakdown between the planners and the implementers. These included the understanding of the objectives and the contents and also the strategies of instruction in the subjects. There seems to be a mismatch between curriculum demand and teacher practice. As a result, very little EE took place in the classroom. Essentially, the implementation of the planned curriculum for EE in schools has to be disseminated accurately to the teachers and the school administrative officers and staff so that they can acquire the skills in interpreting the concepts and objectives within the school curriculum. However, due to a lack of policy within the National Education Policy, EE remains very much at the sidelines when it comes to educational initiatives and reforms. This

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is further aggravated in the lack of specific allocations to provide training for teachers in the skills of infusion and integration and/or in the development of resources of EE.

A point to note is that the Curriculum Officer interviewed (EEP 1), did express concern over the current state of EE implementation. A point of concern here is that there is no longer any monitoring by the Curriculum Development Division – citing shortage of manpower as an excuse, thus giving rise to lack of enforcement. However, he would not go so far as to say that the program failed. He believed that teachers do include EE in their subject area at some point or other and infused EE might have gone unnoticed by the teacher simply because they do it indirectly as the focus of the environment just comes naturally. This may be attributed to the interdisciplinary nature of EE where environmental concepts can easily be blended into other subjects but the shortcoming is that the concepts may be so infused that the teacher does not even know he or she is implementing EE!

A check on documentation, the *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Curriculum KBSR* which reflects the policy for EE curriculum implementation indicates that efforts are not comprehensive in nature even though the Teachers' Guide on EE across the Curriculum *KBSR* does relate the EE element to selected sampled topics/subtopics. Although the guidebook does outline proposed activities for EE, these are not detailed enough for the teachers to conduct EE. It needs the resourcefulness of the teacher to refer to the Teachers' Guide on EE across the Curriculum KBSR and of course the availability of this reference at the school! The generations of teachers even within the schools have changed to the point that no one knows if it's on the shelf anymore! This was confirmed in the interviews with the

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teachers and headmasters where only one teacher (TSC3CO1) had seen it when it was newly launched in 1998 but subsequently the *Buku Panduan Pendidikan Alam Sekitar Merentas Kurikulum KBSR* had not seen the light of day at the shelf of libraries or in the possession of present-day heads of subject panel (*panita mata pelajaran*).

A quick examination of the various curricula (in the three subjects studied), currently used in the primary schools in particular, reveals that undeniably, there are environmental subject indicators in the various subjects. (See Figure 4.6, page 157) As an example, specifically the Year Five *KT* subject does contain topics/subtopics relevant to the contents of EE across the Curriculum *KBSR*. For example, Theme 3, Knowing Our Country comprises topics/subtopics like location of Malaysia in relation to South East Asia, the Asian Continent, and the world. In terms of physical features, it discusses the types of landforms and their importance in relation to economic activities. It also discusses the type of climate experienced in Malaysia and the world's climatic zones and the economic activities. A point to note here is that it does not specify explicitly how the elements of EE can be infused into the topics. There is no indication of it in the Syllabus Specifications as well as the text book. It is left to the discretion of the individual teacher's interpretation and ingenuity. The school text only explains the physical features without relating to the environmental values like adaptation, the practice of moderation, and the importance of conservation. So in terms of practice, dissemination of EE would fall short of actual curriculum demands.

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5.2.2 RQ 2: What are the Issues and Challenges in Implementing EE in the Selected Primary Schools?

RQ 2 Sub-question (a): What is the Perception of the School Authority towards Inculcating Environmental Awareness through the School Curriculum?

RQ 2 Sub-question (b): What Measures have been / are being taken to Promote Environmental Awareness through the School Curriculum?

Research Question 2 (RQ 2) consists of one main question and two sub-questions aimed at identifying the issues and challenges in implementing EE, the perception of the school authority towards inculcating environmental awareness, and also the measures taken to promote it through the school curriculum. Answers to these questions (in RQ2) were derived from interviews, classroom teaching observations, and also analysis of documents.

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Seven interview questions including, "What are the overriding goals or priorities of your school?", "In your school, what subject areas get the most attention and resources?", "In your school, how important is environmental education?", "How is environmental education featured in your school?", "Does your school have a program related to environmental education?", " On a scale of 1 – 10, how successful is the environmental education program at your school?", and "How would you describe your school's approach to including EE in its curriculum?" are relevant and they help to answer RQ2.

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5.2.2.1 Issues and Challenges in Implementing EE in the Schools

The findings from the interviews, observations and also analysis of documents revealed some interesting issues. Incidentally these issues pose as challenges in the implementation of EE in the schools.

5.2.2.1.1 Lack of Focus in EE

The successful implementation of EE in schools depends greatly on the commitment, efforts and the level of enthusiasm of their headmasters and the teachers. Besides the teachers, strong administrative support is the key to successful EE in schools. A look at the vision and mission statements of the respective schools seem to suggest that all the schools are bent on being excellent schools in the district with a time-frame given and to excel in three aspects, academics, co-curriculum and character building (*bina insan*) in line with the National Philosophy of Education. Understandably, many schools are vying for the many awards that the MOE is offering these days such as "New Deals", "Cluster School", "High Performance School", etc.) which dish out awards for the school heads and staff in the form of cash awards to spur the schools to perform better in academic achievement (especially in the all-important *UPSR*). As a case in point, when asked about the overriding goals and priorities of her school, *GPK*1CO2's opinion looks more focused on winning the many awards / status for schools being churned out by the MOE, specially to reward schools excelling in their academic achievements as mentioned earlier.

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Upon further examination of the four schools studied, two schools, (CO1 and CO3) have incorporated in the school mission statement, CO1: "... to create a conducive school environment in and out of the classroom through the *3K* Projects", (" ... *mewujudkan persekitaran sekolah yang kondusif di dalam dan di luar bilik darjah melalui Projek 3K*"), CO3: "... to create a conducive, comfortable and safe environment as well as to engage a continuous collaboration with the community." ("... *mewujudkan situasi persekitaran yang kondusif, selesa dan selamat serta menjalin permuafakatan komuniti yang berterusan"*). Additionally, CO3 also included in one of its goals under "Cleanliness, Beautification and Safety" (*Kebersihan, Keceriaan* and *Keselamatan, 3K*): "to create a clean, pleasant and safe environment in the realization of the concept of "My School, My Home" (*mewujudkan persekitaran yang bersih, ceria dan selamat untuk merealisasikan konsep "Sekolahku Rumahku"*).

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The other school, CO4 also included in its Clients' Charter (*Piagam Pelanggan*) for the pupils: "to ensure that every pupil feels safe and comfortable at the school compound" (*memastikan setiap murid berasa selamat dan selesa sepanjang semasa berada dalam kawasan sekolah*). Of course, without any doubt, the school environment itself must be conducive, resourceful and safe for children to explore the natural world, appreciate the physical surrounding, and to engage the society. However, none of these were detected in CO2's vision and mission statements. This school seems to focus on achieving "High Performance School" in 2013 (Vision: *CO2 Ke arah Sekolah Berprestasi Tinggi 2013*) and to develop, raise and generate excellence in curriculum, co-curriculum and human capital (*membina, meningkat dan*

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menjana kecemerlangan kutikulum, ko-kurikulum dan modal insan) as shown in Table 4.8 on page 205.

The priority of each school is to excel in the academics and to come up top (or among the tops) in the *UPSR* examination. This is reflected in the focus and priority areas of the school. As mentioned by many school administrators and teachers, examination subjects like those *UPSR* subjects (*BM, BI,* Science and Mathematics) receive the most attention and resources. So currently, *UPSR* subjects like *BM, BI,* Science and Mathematics receive the most energy and resources. These are the subjects that are tested in the public examination and for which schools are held accountable to the main stakeholders like the various district education offices (*PPD*s) and of course the parents.

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It is obvious in the first place EE is not focused upon by the schools as seen in the vision and mission statements. As pointed out by Palmer (1998), EE is a field characterized by a paradox where few would doubt the urgency and its importance yet EE holds nowhere near the priority position in formal education programs around the world. The justification is that there is no compulsion to carry out EE and moreover, there is no directive from the MOE to carry out any specific project on EE. Even the *Anugerah Sekolah Lestari,* (Sustainable School Award), a competition for both primary and secondary schools, organized by the Department of Environment (DOE) in collaboration with the MOE, at the various levels (district, state and national) is not compulsory for every school's participation. The DOE Officer interviewed (EEP 2) can attest to that, "... Because our program is open, so it's left to the individual schools which send in their participation to us ... It's left to the schools to enter, ("...

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Sebab program kita terbuka, so *atas sekolah masing-masing yang menghantar penyertaan kepada kita ... Terpulang kepada sekolah untuk masuk...*") (IntvEEP2/270913/Line 48-49, 53). The officer went on to mention that, "... Yes, there are those which do not participate ... we did receive calls from the teachers sometimes but their top management did not support. There are headmasters and principals who do not support, also it's because of lack of funds ... there are many constraints .. The main problem from the management *lah* ... cannot get support from the top management". (IntvEEP2/270913/Line 505-506)

In the course of interviewing the *GPK*1 of CO3, the investigator came to know of a school in the district which had participated in the *Anugerah Sekolah Lestari* (Sustainable School Award) competition. The investigator made a visit to the school and had the privilege of interviewing the teacher-in-charge, Puan Hayati on the project. The conclusion to be made from the observation and the interview was that of the difficulty to sustain the interest of maintaining the structures specially created for the competition. For the competition, the school had constructed structures like the fish pond, the plants nursery and the learning stations situated at the rest places (*pondok rehat*) and the corridor. After the competition and at the present situation, the teacher-in-charge admitted that attention towards maintaining it has been dwindling and nothing much have changed to sustain its ambience. It has been left to its bare existence and the teacher admitted that she alone is left to handle the project as everyone else is busy with other things. Moreover, being young and new, she is also loaded with other heavy responsibilities at the Information, Communication and

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Technology (ICT) unit and as such she barely has time to maintain the various stations.

The teacher was kind to take the investigator on a tour of the various "structures" created for the competition and on observation it was obvious that such areas were created merely as showpieces for the sake of competition. In some places, it looked run-down with no signs of proper maintenance. The teacher reminded me that what I saw was not a "picture-perfect" of the original presentation during competition stage and promised to supply me with the complete paraphernalia (which she did) later. Nevertheless, in all fairness, in comparing this school with the four others in the study, it is obvious that some features and practices are better off than the four schools in the study. For example, the structures created remain as showpieces and some features created remain, like for example, the labels as reminders to conserve water and electricity, to keep the place clean and also the toilets were better off than the other schools. Also the school environment is kept clean and tidy too as with the other schools in the study.

Coming back to the discussion on the focus on EE at the schools studied, obviously, the schools treat EE as truly "*sampingan"* (side-dressing) only, subject to the availability of extra funds, space and time! As we have seen, only in cases of competition and with funding, probably more attention had been given within the time span. Currently, *UPSR* subjects like *BM, BI*, Science, and Mathematics receive the most energy and resources at the schools. These are subjects that are tested in the nation-wide examination and for which schools are held accountable to the various District Education Offices (*PPD*s). As such classroom teachers are more pressured to

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ensure their pupils do well in the nation-wide *UPSR*, and exclude EE because it is not included in the exams. The pressure to address the standards in core subject areas of *BM, BI,* Science, and Mathematics was mentioned several times during the interviews with the HMs and subject teachers. Although it was not necessarily that having standards was the problem, it was that EE concepts, (if any, at a very minimal portion) were included within the standards. It is probable that very often, teachers are so overwhelmed by the demands of teaching their own subjects that they do not have time to think of incorporating EE!

5.2.2.1.2 Teachers Lack Training / Qualifications / Exposure to EE Integration

Of the 17 teachers involved in the study, only one had a degree in Environmental Science from a local university. The others possess qualifications in the subjects they teach (they teach the subjects they were trained in at the teacher training colleges), but only three of them, (Puan Salbiah, TSC1CO2; Encik Shaiful, TSC1CO3; and Cik Suzana, TSC2CO4), had attended a course related to EE. No induction courses (*kursus pendedahan*) for the many teachers have been conducted. The issue here is that of the handicap experienced by lack of specialized training in EE to stimulate interest and understanding of EE concepts.

The Curriculum Officer (EEP 1) lamented that their hands are full as there are not many officers around and funds are scarce for the organization of courses and training. Moreover any endeavor from their part is subjected to the policies and demands of the government of the day and these seem to be issue driven rather than

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for the long term benefits of education. It looks like lesser importance or attention is placed on EE. This is reflected in the downsizing of the once separate Environment Unit and is now combined with the Geography Unit and now known as the Geography and Environment Unit with a shrunken staff of only two officers from four previously. He also acknowledged that teachers may be receiving inadequate preparation in EE and hopes that the Teacher Education Institutes and the Teacher Education Division can help out with the exposure and training for the pre-service and in-service teachers. (*"... jadi aa... pendedahan perlu ditekankan lagi lah dan kita harap sistem latihan perguruan perlu ditekankan sebab bila dah masuk, guru dah masuk dalam sistem pekerjaan dah menjadi guru kita nak melatih semula, terpaksa memakan kos yang tinggi lah, ha... jadi kalau pihak BPK berharap lah kalau masa latihan perguruan aa... kita dedahkan pelajar aa... bakal guru dengan elemen-elemen PAS... "*) (IntvEEP1/301112/Line 182-187)

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Furthermore, he also informed that in the past, they had conducted courses for the Master Trainers (*Jurulatih Utama)* and had given exposure on how to integrate EE. However, he lamented that in the course of conducting in-houses, the courses might have been "diluted". Nevertheless, it was his hope that the teachers would be versatile and would be able to adapt to changes in the curriculum when the need arises.

Thus the integration of EE into teaching was minimal as the teachers lack the skills to do so. Periasamy (2004) also reported the same situation among secondary school teachers. There was no professional development in EE at the schools, and teachers rarely see EE emphasized in in-service courses. To exacerbate the situation,

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resources in EE are scarce. As such, trained teachers were ill-equipped to handle EE in the classroom. At the most, contemporary teachers reinforce their own individual subjects rather than integration of EE into their subjects.

The WWF-Malaysia representative (EEP 7) also agreed that the lack of training of teachers in EE is an issue here. As such she envisaged the training of teachers with the right skills to infuse EE in their subjects. She also proposed the training of the various District Education Officers who would then be entrusted with the responsibility of training, monitoring and evaluating the program in all schools within their respective districts. She even proposed working closely with the MOE as she felt that the training part is very pertinent.

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5.2.2.1.3 Lack of Understanding of EE and its Demands

All the teachers involved acknowledged the significance of teaching EE in schools. All agreed on the need to enhance it further as a source of creating a society equipped with the appropriate knowledge, skills and values in tackling environmental issues. All teachers interviewed agreed that EE is important but when asked about their understanding of EE, many understood EE as keeping the environment clean and beautiful (*kebersihan dan keceriaan*) and that was about it!

It was noticed that the Science teachers had a better vision and understanding of EE compared to teachers of the other subjects. This may be attributed to the fact that the Science teachers might have been exposed to the overlapping of

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environmental issues that appears in Geography, Science, Biology and Chemistry as subject-content. As such, these teachers might be able to implement the education in, about and for the environment and confidently acknowledged that they integrate it in the Science subject, whereas, other teachers had minimum interaction with environmental content and thus revealed insufficient knowledge of it nor integrate sufficiently in their teaching (although they may claim that they are adept at integration).

Further insights into teacher practice revealed that the education in and for the environment occurred at a low level indicating that teachers did minimum implementation of integration. This further supports Periasamy's (2000) argument that Malaysian teachers have limited exposure to skills and knowledge on integrated curriculum and models to effectively practice in the classroom. Another point to note here is that all the teachers interviewed (except for T*BM*1CO4 who possesses a bachelor degree in Environmental Science, and TSC1CO3 who had attended a 3-day course in EE organized by the local Teacher Education Centre), were not trained in EE. This also helps to account for their lack of knowledge and skills in EE.

The following are examples of a few who were not able to articulate well their views about what EE is. Furthermore, their ideas on EE was quite shallow too.

INTV*BM*1CO3:

> *Arr*... EE according to my opinion, we try to infuse among pupils on the importance of looking after the environment ... this we can insert in the subject ... all subjects *lah* ... *BM*, indirectly, like I teach *BM* we can insert, we insert like ... *aa* ... relating to road safety, we can talk about cleanliness ... or in class ... If we have activities outside also perhaps we will include the pupils on the importance of looking after the environment, rivers, etc. ....

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(IntvT*BM*1CO3/071112/Line 48-54)

Upon probing further ...

> Perhaps we *ar* ... the meaning like for example, besides looking after the cleanliness we *aa* ...the air ... *arr*... things related to the environment *lah* ... *arr* ... what ... like forests for example ... *arr* ... the air ... water pollution .... perhaps we can include them, right? This is what I understand.
> (IntvT*BM*1CO3/071112/Line 60-63)

(Teacher seemed to have a shallow understanding of EE. Understood it as " the importance of looking after the environment, cleanliness, and things related to the environment like the air, the forests, and water pollution".)

INTVSC1CO3:

> To me EE is a very useful education because it gives awareness to students and the school community (*warga sekolah*) concerning the goodness of environmental education ..... Ah, and by right, emphasis towards EE, like I'm teaching Science, should be given because there are specific topics which involves EE directly."
> (IntvTSC1CO3/071112/Line 35-37; 39-41)

(Teacher was not able to articulate well his ideas about EE, although he is aware of the topics in his subject and also being exposed to EE.) On the teacher's understanding of EE and its contents:

INTV*KT*1CO3:

> Eg. in p&p we infuse a bit *ah* values on the environment like arr ... we love the environment, pick up litter and like during assembly, the teacher on duty have to ask the pupils to eat at the canteen, rubbish throw in the bin, *ah* .. like that...
>
> (Laughs) ... We ... *ah* ... ask the children to love the environment ...
>
> One, he looks after cleanliness, after that he ... if the trees are planted, he rehabilitates, rehabilitation ...
> (IntvT*KT*1CO3/071112/Line 136-139; 147; 151-152)

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(Needed to coax her into answering sentence by sentence, not much idea in her!)

> ... *Ermm* ... avoid actions like destroying, like children always if they like the plants, they like *ermm* ... the flowering plants they like to break them. Even though it's not the practice of the pupils of this school, only a few naughty ones.
> (IntvT*KT*1CO3/071112/Line 165-167; 171)

(Teacher was not able to articulate well her ideas about EE.)

The DOE officer (EEP 2) was of the opinion that the school teachers are adept at the different techniques of teaching. However, she commented that it is important for the teachers to possess the knowledge about the environment. At times, the teachers only referred to the school textbook which does not give a comprehensive account of the environment and so it could not be delivered correctly to the pupils.

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5.2.2.1.4 The Problem with *Across the Curriculum, Infusion* and *Integration*

Although incorporating EE into other subject areas might be the realistic way at the present moment to ensure EE is part of the primary (as well as the secondary) school programs, there arise the possibility that it would be difficult (if not impossible) to meet the goals of EE, (that is, transforming awareness to action) through either insertion, infusion or integration. Insertion of EE involves just picking and choosing activities from EE resources and plugging them into the curriculum. Some people use infusion and integration interchangeably. However, some feel that integration is at a higher level than infusion. One opinion is that infusion is when we blend EE into existing curriculum and integration is when we insert an environmental topic into the existing curriculum. The problem with integration was highlighted by Meier, Cobbs and Nicol (1998) who found in several studies that teachers were frequently unwilling

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to change their teaching practices. Even when they expressed vocal support for integration, an examination of their practice found that little integration was actually taking place.

Nonetheless, whether it is with insertion, infusion or integration, it is too dispersed. If we rely on infusion, pupils wouldn't probably be able to pull all those things together from all the different subjects or classes and see how all those things tie together. Instead they would get a fragmented approach. Pupils' exposure to EE may be happenstance and piecemeal and undeniably it is too much to expect them to connect these disparate experiences on their own.

Moreover, the goals of citizen action skills and participation require significant amount of class time and are not conducive to being taught through the infusion approach. It would be difficult for a teacher to infuse something as extensive and comprehensive as for example, *global warming*, or *ecological imbalance* which can be viewed as an issue analysis activity. It is possible to infuse issue analysis when the curriculum is properly structured and the teachers have the training and motivation to provide EE instruction.

Certain quarters may question the necessity for such depth in EE especially at the primary school level. Nevertheless, as Neal (1990) had pointed out that the primary years are a coherent and essential stage in the educational process. Basically it is a stage which has distinctive needs and requirements. He explained that essentially, the early years of schooling is regarded as an essential phase in the educational process. Therefore, in order that sound and meaningful learning should

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take place, there must be ample opportunity for direct personal experience of the child's own environment. He reminded that such experiences should be planned by teachers with due regard given to the concepts, skills and aptitudes they intend children to develop during the primary school years.

Essentially, there should be the balance between the teaching of facts, the development of skills, the understanding of the concepts which underlie knowledge, and the processes through which this knowledge is acquired and developed. Good EE, like any good education, must lead students out and on from their immediate perceptions and experience to a wider understanding. It requires ample time and careful planning on the part of the teachers. On this note, with EE being interdisciplinary in nature, paradoxically it may not be realistic to expect subject area teachers to include environmental topics in their curriculum, especially when they perceive that EE is not a priority! Hence, in reality the integration of EE into teaching was minimal as the teachers lack the skills to do so. In acknowledging the importance of EE, thirteen of the teachers interviewed were of the opinion that for EE to be effective, it should be taught as a separate subject.

5.2.2.1.5 Lack of Resources Related to EE at the Schools: No Teachers' Resource Book on EE, and Facilities like EE Learning Stations.

Evidently, as EE is not a subject, materials and references related to EE are lacking at the schools. Wilson (2004) who took on a qualitative approach and explored some of the challenges associated with EE with a focus on Grades 4 – 6 in the Province of Ontario, Canada, reported that teachers indicated that their ability to enhance the

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students' knowledge was constrained by a lack of available time and lack of assistance with resources. All the teachers (except for one, TSC3CO1) and the school administrators did not have any knowledge of the existence of the all-important guide for *EE across the curriculum*, "*Buku Panduan Pendidikan Alam Sekitar Merentas Kurikulum KBSR*" and definitely it was not available at any of the four schools studied.

On the whole, the main source of reference for most teachers seems to be the text book for their particular subject they teach. Although many mentioned that they referred to the Teachers' Guidebook and other revision books, none of these books was available and shown to the investigator. In planning, some also remembered to mention that they referred to their Subjects Specifications (*Huraian Sukatan Pelajaran*) and their Annual Planning for Teaching (*Rancangan Pengajaran Tahunan*). The Science teachers could fall back on the CDs provided by the MOE (CDs supplied for use during Teaching and Learning of Science and Mathematics in English (*Pengajaran dan Pembelajaran Sains dan Matematik dalam Bahasa Inggeris, PPSMI*). Besides that, it seems that they were more resourceful than their counterparts in sourcing related materials from other sources like the internet, for example, besides using the textbooks, Teachers' Guidebook and also the workbook. As for references and materials related to EE, none was available. As mentioned earlier, when asked about the *Buku Panduan Pendidikan Alam Sekitar Merentas Kurikulum KBSR*, the teachers and school administrators mentioned that it was not available at their schools. Almost all of them have not seen it and were ignorant about the existence of this all-important guide!

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Furthermore, the interviews revealed that there was no collective efforts to develop teaching materials. The *BM* teacher of CO1, T*BM*1CO1 felt that individual teachers do make their teaching aids which may be related to EE. However, she did not see it being done collectively because there was no emphasis on it here. Among the resources used by the teacher include textbook (main source, to her complete with what she wants), from the *Pusat Sumber Sekolah* like references, examples of pupils' writings (*puisi, sajak*) and also from the internet. She informed that presently, the pupils can search for materials in the internet as there is internet coverage in this school.

However, at the same school (CO1), T*KT*2CO1 did not see any of the resources, teaching materials developed by the school teachers. To his knowledge, most of the materials had been bought. There was no activity of developing teaching materials together. Anyway, he lamented that there was not much of such materials, and if bought by the school, they were under the care of the *Panitia Mata Pelajaran* (subject panel), and kept by them. He remembered that for *KT*, the school had bought some charts (but could not recall the specifics). He believed that those charts follow certain topics on the environment for *KT* subject and if they were still around, he thought that they were with the *Panitia Mata Pelajaran.* However, the teacher had not used such materials because he took over teaching the subject from another teacher sometime in July and the topic related to the environment had been taught earlier.

Over at another school, CO3, teacher TSC1CO3 also felt that teachers did develop teaching aids on their own. However they did not do it collectively. He also

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mentioned that more materials related to EE are required. He clarified that for example, a video on the dangers posed by the gigantic amount of waste generating liquids and toxic gases to make the pupils understand the situation more. At the same school, T*KT*1CO3 mentioned that she had in the past, prepared slides containing pictures of animals complete with sounds to capture the interest of pupils when explaining the sub-topic on *wild animals*. At CO4, the *BM* teacher (T*BM*1CO4), mentioned that she had also prepared slides, a video clip on pollution from the internet, and also a song on *Kebersihan Alam Sekitar* when she taught Unit 4 on *Alam Sekitar*. The teacher seemed resourceful as she chose materials suitable for her pupils (*orang asli* children) and did not rely solely on the textbook. (Teacher has background knowledge on EE, possesses a bachelor degree in Environmental Science from a local university.)

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Thus, it can be noticed that there are varying degrees of resourcefulness amongst the teachers when it comes to developing and using resources. Generally, a majority of the teachers relied on the school textbooks, workbooks and other revision books related to their subjects. References and resource books on EE are generally lacking at the schools and at the *Pusat Sumber* (Resource Center) in particular. The MOE and others like the DOE could do well to design new EE materials that can address the current needs of the teachers and of course to reimburse the schools with EE resource books and other paraphernalia and most importantly, guidebooks on how to implement EE across the curriculum.

Finally, another thing that needs mentioning here is that besides the resource books, other resources and facilities gazetted for EE were noticeably absent at the

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schools. For example, the Science Garden (at CO1 and CO2) looked abandoned and not utilized for EE activities. There was even no mention of the Science Garden at CO3 and CO4! There was no notice board on EE as understandably there is no Club or Society under the name of *Kelab Alam Sekitar* to attend to it. Additionally, the schools could gazette Learning Stations at specific locations like the rest area (*pondok rehat*), Science Garden, pond area, and a stretch of the walkway where EE and other teaching-learning activities could be activated.

5.2.2.2 The Perceptions of the School Authority towards Inculcating Environmental Awareness through the School Curriculum

After having taken a look at some of the issues and challenges in implementing EE in schools the discussion is now directed at the RQ2 Sub-question (a) concerning the perception of the school authorities towards inculcating environmental awareness through the school curriculum. Although the important role of the individual teacher is highly acknowledged to ensure the successful and effective implementation of EE, the importance of the support and commitment of the school authority towards inculcating environmental awareness is never denied. This was pointed out by Pudin, Tagi and Periasamy (2005) that the successful implementation of EE in schools depended greatly on the headship and teachers. This was supported by views of EEP3 and EEP5 who stressed the importance of headship in supporting EE programs. What follows are perceptions of the school authorities towards inculcating environmental awareness through the school curriculum. All the school authorities of the four schools acknowledged the importance of EE. However their understanding of EE did not go beyond that of cleanliness and beautification of the school. Nevertheless the

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school authorities' (headmaster and the Senior assistants) support for EE was manifested in the various programs and activities at their respective schools under study as shown in Table 5.2, page 375.

Like the school teachers, the school administrators were also asked to evaluate on their respective school's performance in EE (refer to Table 5.3, p. 376) most of them had given above average points suggesting that they did give a certain amount of attention to EE. However, many agreed that there was still room for continuous improvement and many had plans about it but cited the absence of allocation for such programs related to EE being the main constraint.

5.2.2.3 Measures that Have Been Taken / Are Being Taken to Promote Environmental Awareness through the School Curriculum

RQ2 Sub-question (b) focused on measures that have been / are being taken to promote environmental awareness through the school curriculum. Overall, all school heads did give a bit of attention to matters like cleanliness and the beautification of the school surroundings to provide a conducive and safe environment for the pupils and staff. However, the degree of attention varies from just ensuring the provision of the basic amenities and maintenance by the general workers (*pekerja swasta*) for cleaning and gardening purposes and also the occasional *gotong royong* aimed at cleaning the school compound, to programs like the school recycling project (at CO2), larger projects like *gotong royong perdana* involving the local community and the local health authority (COMBI at CO3). Also included were the school beautification projects like planting of trees and other flowering plants with help from the District

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Council (at CO1 & CO3) and one school head, (HMCO3), had even organized a fieldtrip to a limestone cave nearby where EE was also incorporated.

5.2.2.4 Summary

Among the issues and challenges revealed through interviews with teachers and school administrators are the lack of focus in EE as much attention was on acquiring excellence and good results in the *UPSR*. Moreover, the teachers were not trained in integrating EE into the subject curriculum and as a result there could be a lack of understanding of EE and its demands. In the first place EE was not a priority as elements of it was not exhibited in the respective schools' vision and mission statements. The implementation of EE across the curriculum seemed muddled with limited knowledge and interpretation as there was no guidebook on its implementation at the four schools studied. Consequently, there seemed to be a mismatch between curriculum demands and teacher practice in EE. There was also a lack of resources related to EE and facilities were seldom or never utilized and converted for EE practices.

As to the perceptions of the school authorities towards EE and the measures taken, the interviews revealed that overall the school administrators in the four schools studied acknowledged the importance of EE and all of them were supportive of putting in efforts to improve the school's physical environment by focusing on two aspects: school cleanliness and beautification (*kebersihan dan keceriaan*). From casual observations during school visits, the investigator found the

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school environment clean and pleasant. It was reported that a fair amount of collaboration was maintained with the local authority, (*Majlis Daerah*) (CO1, CO2, & CO3) for supply of plants and soil, and the *Persatuan Ibubapa dan Guru* (*PIBG*) (all the schools involved) during *gotong royong*. One school (CO3) even had a project involving the District Health Office and the village community in keeping the compound clean and clear of the aedes mosquitoes (*gotong royong, COMBI*). There were activities related to EE which were carried out throughout the year. During the many visits to the schools, it was noticed that the headmasters of two schools in particular, (CO1 & CO3) were actively involved in their schools' beautification projects. All had plans to work further on landscaping but lamented at the constraint of having no funds and allocation for projects related to EE.

5.2.3 RQ 3: What are the Experiences and Challenges of Teachers Incorporating EE in Classrooms?

RQ 3 Sub-question (a): How Prepared are the Teachers at Incorporating EE in their Lessons?

RQ 3 Sub-question (b): How do Teachers Teach about (and for) the Environment?

RQ 3 Sub-question (c): How do their EE Practices Compare to Methods Prescribed by Professionals in the Field?

RQ 3 Sub-question (d): How do Teachers Assess the Pupils' Knowledge, Skills and Attitude towards the Environment?

Research Question 3 (RQ3) delves further in curriculum instruction and teachers were asked about their experiences and challenges at incorporating EE in their lessons. It also aimed at observing their performances in the classroom to assess on how prepared they were and also how they incorporated EE in their lessons. Also of interest here is the type of assessment being carried out for EE. Six interview questions for the teachers were related to Question 3. These include, "What is your

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understanding of EE?", "What EE programs have you attended?", "List and elaborate on the main types of teaching methodologies that you employ in presenting your lessons to your pupils", "Do you incorporate EE in your lessons?", "How do you assess the work of your pupils?", " Has your school / staff developed any material/resources that are useful / effective in the teaching and learning of EE?", and "Do you encounter any problem at incorporating EE into your subject curriculum?" The analysis of findings related to RQ3 is provided in the sections that follow.

5.2.3.1 Experiences and Challenges at Incorporating EE in Their Lessons

Many teachers felt that EE did not pose a challenge or obstacle to them. Many were of the opinion that the contents are manageable as teaching primary school pupils do not require a deep understanding of concepts. Many were of the understanding that for as long as they attended to classroom cleanliness before the start of the lesson, and also maintaining neatness (*keceriaan*) in the classroom, EE had been incorporated!

Puan Bariah (T*BM*1CO1) mentioned that she had no problem at incorporating EE in the subject curriculum because she felt that EE is easy to incorporate, as humans and the environment are interrelated. For example, in her lesson if the topic was related, she would explain, ask the pupils to write essay, beautify the school, home, construct poems on appreciating the environment, and also include a *pantun.* She did not perceive any threat to EE implementation because such matters are not difficult.

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However, Puan Sakinah, the school Science teacher had this to say:

> From the point ... challenges, at the primary school level, we must keep on training them many times, must infuse all the time, we cannot infuse this and then abandon it ...
> *(Dari segi... cabaran, peringkat sekolah rendah itu, murid itu kita mesti latih berulang kali lah murid itu, mesti terap setiap masa, kita tidak boleh terap ini kemudian tinggalkan...).*
> (IntvTSC1CO1/221012/Line 242-244).

Mr. Kong (T*KT*2CO1) also did not encounter any problem at incorporating EE into the subject curriculum. However, as to the challenges to teaching EE, he mentioned that the main barrier is for the pupils to put to practice what had been taught. He had always asked his pupils to look after the cleanliness of their surroundings but sad to say, many a time when he entered the class, he found the classroom untidy and dirty!

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5.2.3.2 How Prepared are the Teachers at Incorporating EE in Their Lessons?

This question is related to the basic qualities the teacher possesses like qualifications, exposure and understanding of EE, preparation for the lessons, resources referred to, availability of the resources and facilities and also the level of commitment. As a matter of fact, how much EE, what gets taught, and how it gets taught is very dependent on individual teachers as it is related to the teacher's awareness, enthusiasm, interest, comfort level at incorporating EE and also the exposure or training he received on EE.

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With regards to qualifications, all the teachers possess a diploma in teaching in the subject they presently teach and had been at the job for a minimum of at least three years. Most of them also possess a Bachelor degree and one of them Cik Bibi (T*BM*1CO4) possesses a Bachelor's degree in Environmental Science from a local university while another teacher Encik Shaiful (TSCCO3) at *SK Relau* (CO3) had in the past, attended a 3-day EE course conducted at a local Teacher Education Institute. It was also discovered that two other teachers, Puan Salbiah (TSC1CO2) and Cik Suzana (TSC2CO4) had attended a course related to the environment conducted by CETREE (Center for Education, Training and Research in Renewable Energy and Energy Efficiency). Incidentally it is noted here that the Science teachers were better exposed to EE than the others and were more skillful at incorporating EE in their lessons.

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On how they prepared for their lessons and what references they used, generally the *BM* teachers mentioned that they referred to the Teachers' Guidebook, the school textbook, and Curriculum Specifications. However, Cik Bibi (T*BM*1CO4) clarified that she did not refer to the guidebook. She explained that she had to adapt to her pupils' level as the *orang asli* children could not follow what is in the textbook.

The investigator had also shown the *BM* teachers the Teachers' Guidebook for Environmental Education Across the Curriculum *KBSR* (Buku *Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR*). All of them had not seen it. A typical response would be "... This is the first time I see. I have not seen this book yet ..." (*Yang ini first time saya tengok. Saya tak pernah tengok buku ini lagi*, (IntvT*BM*1CO1/161012/Line 233)

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The Science teachers were also asked on how they prepared for the day's lesson and what type of books they referred to in preparing the lesson. The investigator had the privilege of interviewing the three Science teachers of *SK Cempaka* (CO1). The teachers were aware that they had to refer to the Curriculum Specifications, the textbook, the Practical Science book, and the Teachers' Guidebook. Puan Sakinah (TSC1CO1) who is also the head of panel for the subject (*Panitia mata pelajaran*) also mentioned about using the modules from the State Education Office which comprises graphic organizers for Science. Puan Shamsiah (TSC2CO1) also mentioned about referring to the Annual Lesson Plans provided by the State Education Department and the CDs from the Ministry (provided for the Teaching of Science and Mathematics in English Program (*Program Pengajaran Sains dan Matematik dalam Bahasa Inggeris, PPSMI*) and also other reference like the revision book by Sasbadi and also pictures from the internet. (It was not shown to the investigator though). Likewise, Puan Syarifah (TSC3CO1) also mentioned that she used the CD from the Ministry and revision book from Pelangi and also materials from the internet.

At the other schools, the Science teachers (Puan Salbiah, TSC1CO2 and Encik Shaiful, TSC1CO3) also mentioned about references similar to what the Science teachers at CO1 had said like the Curriculum Specifications, the Teachers' Guidebook, the textbook, and the Practical book. Encik Shaiful (TSC1CO3) also mentioned about looking for materials from the internet and Encik Suhaimi (TSC1CO4) mentioned about making adaptations to suit the ability of his pupils which comprises the *orang asli* children.

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All the Science teachers, except Puan Syarifah (TSC3CO1), had also not seen the *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR* and were surprised that such a book exists!

The *KT* teachers' responses to the same question (on preparations and references used) were quite similar. Mr. Kong (T*KT*2CO1) referred to the syllabus, its contents and the learning outcomes when he planned his lesson. He also referred to other revision books besides the Teachers' Guidebook, and also from the internet. Besides referring to the syllabus, revision books, workbooks, textbook, Puan Khatijah (T*KT*1CO2) also discussed with the other two teachers who taught the same subject and together they planned the lesson. At times, she mentioned that she also referred to the head of panel for the subject (*ketua panitia mata pelajaran*).

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Likewise, the *KT* teachers mentioned that they had not seen the *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR.*

> I have not seen this teachers' guidebook. I only have the Teachers' Guidebook for *KT*.
> *(Saya tak pernah lihat buku panduan guru ini. Saya hanya ada Buku Panduan Guru untuk KT.)*
> (IntvT*KT*2CO1/221012/Line 16-17)

> Ha I have not seen such a book!
> (*Ha buku seperti ini saya tak pernah lihat.)*
> (IntvT*KT*1CO2/030912/Line 24)

> Arr .. this don't have .. Ah .. haven't seen.
> *(Arr .. ini tak ada ... Ah.. tak pernah lihat.)*
> (IntvT*KT*1CO3/071112/Line 802, 807)

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The teachers claimed that they referred to the basic references like the *Sukatan Pelajaran, Huraian Sukatan Pelajaran, Buku Panduan Guru* and the textbook when they planned their lessons. One notable item which is missing is the *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR.* So it's all up to the initiative and commitment of the individual teacher to incorporate EE in the lesson. Very often this is often overlooked. Even if the teacher is committed to incorporate EE, it is also left to the ingenuity, resourcefulness to search for related references. Again, this raises the question of how serious and dedicated the teacher is towards the environmental cause. Also, there was no combined effort to develop teaching materials and resources. It does not seem to be the nature of practice in the schools. At the most, they claimed that they develop supporting materials on an individual basis. However, there was no evidence at the time of interview and observation.

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5.2.3.3 How do Teachers Teach about (and for) the Environment?

The question above is related to the methodology the teachers employed when they taught specific topics related to the environment. Besides asking the teachers to recall and describe on how they taught specific topics related to EE, they were also asked about the resources they used in the lessons. The findings of the interviews with the teachers are presented below.

The *BM* teachers were asked on how they taught the specific topics like Unit 4: Environment. Most of them would use the contents to focus on the demands of the subject comprising language skills like reading and comprehension and writing. The

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lessons were conducted in the classroom and activities were focused on language skills and other demands of the subject. The teachers would involve the pupils in group discussion and would end up with the pupils writing out the noble values or writing a composition on the topic.

Clearly, the Science teachers used a variety of methods ranging from experiments (discovery approach), group discussions, group work, fieldwork and also *play-acting* (*lakonan*). They mentioned that the pupils loved it when they were brought outdoor but the main problem was about controlling them well and this involved careful planning.

The teachers found it easy to infuse values in their lessons as in Science, there are topics related to EE. From the interviews, it is evident that discussion in class and group discussion seems to be the popular technique used by the teachers. Pauziah (2004) who examined the implementation of EE across the Curriculum at the primary school level also reported that the teachers more often chose to use the discussion methods as a teaching and learning strategy. It also shows that the Science teachers claimed that they used a variety of techniques including bringing the pupils outdoors especially when teaching certain topics like *food chain and food web*. At other times they used the CD provided by the MOE as teaching aids. They seemed to be more resourceful in using teaching aids as guides to their lessons and experiments were also often held in the Science lab where an overhead projector was available.

Nonetheless, the other subject teachers claimed to have also used a variety of ways and teaching aids within the classroom. The *KT* teachers also claimed that they

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did employ a variety of methods including using the school surroundings when teaching certain topics like *alam sekitar fizikal - bentuk muka bumi*, *cuaca*, and *tumbuhan semulajadi*.

Observations of teaching gave further insights on teachers' practice in the classroom. Twelve teachers were observed. All in all, there were 47 observations (4 observations for each subject, with the exception of 3 for *KT* at CO4 as the investigator felt that saturation point had been met). The observations of the teachers revealed that their demonstrated lessons for the most part did not incorporate the environment directly. They would incorporate the environment directly only when the day's topic was about the environment or something close to it. The inculcation of skills or values was seldom raised in the lessons even though many opportunities existed. On the whole the teachers seemed to focus on dissemination of knowledge and activities associated with it. Further insights into teacher practice revealed that education in the environment was not detected and education for the environment occurred at a low level indicating that the teachers did minimum implementation of integration.

The only obvious feature observed was that some teachers would remind the pupils to pick up the bits of paper or litter found scattered on the floor at the start of the lesson (while there were many who did not even had the time to do it, especially when they entered their classes late, they just went straight to the day's topic or skills). In the *BM* lessons the inculcation of noble values was a requirement and the noble values were related to the contents of the lesson. However, there were instances where the teacher could have infused environmental values by also relating to the

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environment (OBS 1 & 2, T*BM*1CO1). The teacher only related to the environment when the topic or passage concerned the environment (OBS 3, T*BM*1CO1). From observations of classroom teaching by the two *BM* teachers (T*BM*1CO1 & T*BM*1CO2) there were early traces of the teacher's sensitivity and the pupils' action (like sweeping the floor at CO2) on keeping the classroom clean. Before the start of the lesson, there was the occasional call by the teacher to the pupils to pick up trash (*kutip sampah*) and to throw them into the trash basket situated at the back of the classroom. However, T*BM*1CO1 could have infused more of EE incorporating the environmental components or implications in the three lessons (OBS T*BM*1CO1).

In the case of T*BM*1CO2's lessons the materials / resources used did contain environmental components and implications (for example, the picture used for Lesson 1 showed features of the environment: the waterfall, the pool, the green plants; Lesson 2 – on the paddy field – greenery; Lesson 3 – what the family members do during leisure hours; and Lesson 4 – passage containing aspects of cleanliness and its implications. The teacher could have spent a little more time infusing EE (for example, Lesson 1 – concerning the natural surroundings in the picture – its beautiful features like the waterfall, the pool, the green plants, the ideal place for having a picnic). In Lesson 2, the teacher could have elaborated on the description of the paddy field – its greenery. Lesson 3 was on leisure time activities outdoor, and in lesson 4, actions of civic-mindedness (as well as good citizenship) in keeping the environment clean. In sum the teacher could have taught the topics mentioned above in such a way that the discussions within the classroom happen beyond the contents in the passages.

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As for the Science lessons observed, a fair amount of classroom cleanliness was maintained (evidenced in the sweeping of the floor before the start of the lesson in CO1), a class duty roster existed. However, it was noticed that the teachers focused on deriving the scientific facts through the experiments (the facts could also have been derived from the environment – their surroundings, and from everyday occurrences on the environment that we live in, as an example). The focus was on getting the scientific procedures and facts right (and) for exams – to do well in it. (Pupils were often reminded of the correct method to score well in exams.) It was observed that, generally, the teachers seemed to lack the effort or focus (or they never thought about it) to relate more to the environment, for example, to relate to everyday practices and occurrences in the environment, and sourcing examples from the environment relating to the topics taught.

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At *SK Wan Idris* (CO2), there was a certain amount or level of environmental consciousness among the teacher and the pupils (as evidenced by the efforts to keep the science lab clean and orderly). Also, there was mention of energy conservation and cutting down on wastage (for example, in Lesson 1 – avoiding unnecessary wastage of the power from the dry cells in the torch lights). There was also linkage to the universe by naming the groups after the planets of the universe as the framed pictures are exhibited all around on the walls. It was also observed that there was also the disposal of waste products (after the experiments) in a proper and orderly manner.

Although there were instances of efforts at relating to the surroundings and experiences (for example, in Lesson 2 – about the railway track expanding when heating up), the investigator felt that the teacher should open up more avenues to

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relate further the scientific principles introduced to everyday experiences like, for example, concerning the weather (Lesson 2) and its implications, and also everyday applications of the scientific principles introduced.

During the *KT* lessons observed, it was noticed that the teacher (T*KT*2CO1) was serious at maintaining order and a clean environment before the start of the lesson. T*KT*2CO1 did not relate to the environment because the topic were not related to it. It was on the origins of the state of Sarawak (*Asal usul Negeri Sarawak*). As for T*KT*1CO2's lessons, Lesson 1 was environment-related (geographical factors). It was felt that the teacher could have used resources like pictures to attract attention and to make the lesson interesting (for example, usage of slides containing pictures). The textbook seemed to be the only resource for her. She could have linked it to examples which the pupils were familiar with, like for example, the cactus found at the school's Kitchen Garden (Edible Garden). There could have been more EE infusion in the lesson based on the four factors affecting the type of vegetation.

Lessons 2, 3, & 4 observed were purely historical as they were based on the historical facts on the Malacca Sultanate. However, the teacher could have also emphasized on the geographical aspects / factors that contributed to Malacca being an *entrepot* port (like its strategic location, the geographical factors that brought the traders to meet and the products / natural resources for trade). Furthermore, with a little more initiative and ingenuity, the teacher could have related and compared post-historical and present day Malacca in terms of its natural resources and its geography (Lesson 3).

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5.2.3.4 How do their EE Practices Compare to Methods Prescribed by Professionals in the Field?

Teacher practice in terms of EE infusion or integration and methodology was far from what was proposed by the professionals in the field. There was very little or no outdoor activities or projects. Infusion or integration of EE was at a minimal or superficial level. Of course the teachers were not to be blamed for this predicament. In the first place they were not teaching EE as a subject! Furthermore, they were not trained at curriculum integration techniques and the teachers' guide (*Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR*) was not available in the schools studied (as a matter of fact, in most schools). As a result, most of the lessons observed were classroom-based, no outdoor teaching as many felt that it would involve much preparation and they simply did not have the time for that! Many preferred the discussion or group discussion method.

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The teachers could have been more creative and resourceful in using more interesting and contemporary materials to support the teaching-learning process but many chose the brief and outdated textbooks as their main or sole guide. The *BM* and Science lessons were more focused on the subjects skills (reading & writing for *BM*, experiments for Science) and still towards acquiring the skills to score well in the examination. The KT lessons were more focused on content knowledge and the main source of reference was the school textbook.

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5.2.3.5 How do Teachers Assess the Pupils' Knowledge, Skills and Attitude towards the Environment?

The teachers were asked about the type of assessment they conducted in the course of delivering the lessons. On assessment and evaluation, the most frequent type employed was the basic question and answer and pencil and paper type of assessment to test the pupils' knowledge on content of the day's lesson.

For BM the assessment part was focused on the language skills like writing or composing as in the case of constructing sentences which probably end up in the form of a composition. As for the Science subject there were also worksheets used by the Science teachers for testing knowledge and skills. The *KT* teachers also engaged pupils in question and answer sessions (Q&A) with occasional group activities to discuss and present on specific areas or issues. Monthly and term tests were conducted for the three subjects and the questions were mostly based on content knowledge on the topics taught and not on the environment.

On aspects like values most of the teachers claimed that they observed the pupils' behavior from time to time and made prompt correction of undesired behavior as and when it occurred. There were no instruments for testing skills (except for Language skills and Science skills) and values and attitudes and there was also no record-keeping of such aspects too.

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5.2.3.6 Summary

In conclusion, the goals of EE were never fully attended to and will never be resolved. The knowledge part of EE to increase awareness was superficial although pupils might acquire awareness from other sources like the mass media. The skills and action parts were lacking and there was no mechanism in the form of co-curricular activity (Environmental club or society) to project EE activities. The actions of the school authorities seemed to focus on school cleanliness and beautification in the form of landscaping in the process of providing a conducive environment for the pupils. Other environmental values like the practice of moderation and conservation of resources seemed to be overlooked and not emphasized. The EE professionals proposed initiatives and collaboration with related bodies or organizations (Non-Governmental Organizations, NGOs), but the actions of the school administrations did not go beyond that of acquiring representations and participation from the Parent-Teacher Association (*Persatuan Ibu bapa dan Guru, PIBG*), the local District Council (*Majlis Daerah*) and the local community. Undeniably, acquiring help from the bodies concerned is a good step but it could do well if the schools collaborate with environmental groups like the Worldwide Fund for Nature (WWF) and Malaysian Nature Society (MNS) to carry out EE activities. Additionally, this would produce significant results in efforts to incorporate EE across the curriculum.

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5.2.4 RQ 4: What are the Best Practices of EE Implementation in Schools?

RQ 4 Sub-question (a): What are the Recommendations for Best Practices of EE Implementation in Malaysian Primary Schools?

Research Question 4 (RQ4) brings us back to the best practices of EE implementation in schools. Again, besides analysis of recent documents on research discussing characteristics and recommendations for best practices in EE, the views of EE professionals were also sought.

5.2.4.1 Best Practices of EE Implementation in Schools

It has been established that the best practices of EE implementation go alongside UNESCO's guiding principles for EE. The guiding principles include: considering the environment in its totality; a continuous lifelong process; interdisciplinary in approach; include examining major environmental issues; focusing on current and potential environmental situations; promoting local, national and international cooperation; considering environmental aspects in plans for development and growth; enabling learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences; relate environmental sensitivity, knowledge, critical thinking and problem-solving skills and values clarification; helping learners discover symptoms and causes of environmental problems; and utilizing diverse learning environments and a broad array of educational approaches to teaching/learning about and from the environment with due stress on practical activities and firsthand experience.

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Specifically the features of the best practices in EE had been discussed in Chapter 2. These include in-class activities combined with field experiences, schoolyard, outdoor experiences; residential EE programs such as out-of-school field trip; and school-based EE, place-based education, community-based learning, project-based learning, using the local environment as a context for integrating subjects (Environment as an Integrating Concept, EIC), and a source of real world experiences. Essentially, the best practices in EE should incorporate features like direct aesthetic experience with the natural environment, (hands-on learning activities / active participation); environmental restoration activities, (through group discussions, learner's everyday experiences of problematic and enabling circumstances leading to problem-solving); sensitive or emotional content, (to encourage pro-environmental attitudes and behavior); a multi-sensory learning environment, (through participatory interactions); and relevant and personal information that promotes empowerment and ownership, (leading to decision-making and problem-solving). Finally, another equally important and effective approach to EE would be teaching through modeling by means of individual role models, school facilities and operations, school governance, and school culture.

The EE professionals also gave their opinions on characteristics of best practices of EE implementation in schools which covers certain aspects of the features mentioned above. According to Encik Mohd Tarmizi (EEP 1) the school should engage in a program related to EE like for example, the school recycling program. He would also look for signs that the school is practicing it like free from vandalism, conservation measures and also taking part in competitions related to EE. As for Puan Nora (EEP 2), she would look for the school's sustainable project which covers

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four aspects as indicators, namely "greening", management, curriculum and co-curriculum. In addition to that, she would also look at the school's networking with other agencies to gauge the extent of actions related to EE. Also, to her EE should cover a "whole-school" approach where everyone is involved.

Dr. Elise (EEP 3) suggested a showcase of exemplary practices in EE which include the school having an environmental club with well-planned action plans and activities in place for the whole year. Additionally, there must be resources where the teachers can teach and conduct activities. As for Dr. Hamzah (EEP 4), there must be involvement of students in projects and competitions related to the environment. He also suggested collaboration with NGOs in environmental work. Dr. Samantha (EEP 5) referred to the total involvement of everyone in the organization (holistic development) maintaining a culture on environmental practice in areas of conservation of resources like low electricity and water consumption. There has got to be an on-going awareness program which eventually leads to habit-forming.

Dr. Zabeda (EEP 6) stressed that the environment of the school should show or exude the feeling with people appreciating the greenery and beautiful surroundings. There is a close connection between the school community with the environment. There are conservation measures and it is reflected in the culture of the school. Finally Cik Nor Ashikin (EEP 7, WWF-Malaysia Officer) also stressed on the "whole-school" approach which has become school policy, with everyone engaging in energy saving and conservation measures.

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5.2.4.2 Recommendations for Best Practices of EE Implementation in Malaysian Primary Schools

Drawing from the UNESCO guiding principles for EE and the views of EE professionals on best practices of EE in schools it is proposed here some recommendations for best practices of EE in Malaysian primary schools.

Environmental education should consider the environment in its totality. It considers the global as well as the local environment and should focus on current and future perspectives on environmental conditions. It is contextual. Schools should embark on a holistic approach in EE and everyone has to be well informed and trained in the roles to be played in maintaining a sustainable environment.

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Environmental education is interdisciplinary and can be taught through and used to enhance all subjects in the curriculum. It should be a continuous, on-going process and not to be taught in a fragmented, piece-meal manner. It is not to be taught in a "capsule" and there has to be connectivity with the other subjects or areas of education.

Environmental education should encompass 5 main aspects, namely, knowledge, awareness, skills, attitudes, and participation. It transcends the division of knowledge, skills and attitudes by seeking commitment to action in an informed manner to realistic sustainability.

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Environmental education should emphasize participation in preventing and solving environmental problems. It should be issue-driven and can be project-based. It should foster and arouse a sense of personal responsibility and provide greater motivation and commitment towards the resolution of the environmental situation. To carry out activities, it can be supported by an environmental club or society. Additionally there could be initiatives and collaboration with related bodies or organizations (NGOs)

5.2.4.3 Summary

The best practices of EE according to UNESCO standards were identified at the beginning of the chapter. Seven EE professionals (EE personnel) also gave their views on certain features of best practices of EE at the schools. The best practices relate to showcases of exemplary practices in EE which covers the areas of management of the school along the concept of sustainable development. Also included in the suggestions are the mechanisms in carrying out EE at the schools which involve having environmental clubs focusing on efforts of conservation and also collaborating with NGOs involved in environmental work.

As mentioned earlier, the implementation of EE at the various schools was not uniform, with different or varying degrees of interpretation and implementation. Efforts of conservation have to be continuous and not sporadic or “piece-meal” and everyone has to be involved in it. In terms of performance of the four schools studied in the practice of EE according to UNESCO standards, certain aspects needed improvements. This include areas like school policy, management and utilization of

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resources, involvement in EE projects like recycling and collaboration with NGOs involved in environmental work and also in curriculum and instruction.

Following this four recommendations were given which would ensure a better implementation of best practices of EE in the schools. Firstly, in terms of policy, schools should embark on a holistic approach in EE and everyone has to be well-informed and trained to maintain a sustainable environment. Secondly, being interdisciplinary EE should be taught across the curriculum. It should be a continuous on-going process and not to be conducted in a fragmented, piece-meal manner. Thirdly, in curriculum and instruction, EE should encompass five main aspects namely, knowledge, awareness, skills, attitudes and participation. Finally, EE should be issue-driven and project-based. It should emphasize participation in preventing and solving environmental problems.

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5.3 An Analytical Summary

At the beginning of the chapter, the characteristics of EE according to UNESCO standards were identified and they served as a backdrop for comparison between contemporary views of seven EE professionals. It was found that the seven EE professionals spoke in congruence with the world body. The characteristics and guiding principles of EE as propounded by UNESCO remain very relevant at present times and they serve as a benchmark for EE planning and implementation.

In terms of performance of the four schools in their practices of EE, overall, the four schools did make attempts at keeping the school environment clean and tidy,

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as well as beautiful, thus creating a conducive and attractive environment for study. Generally the headmasters of the four schools had a clear direction on this as it is reflected in the statement of the schools' mission, goals or Client's Charter. There were planned activities (though sporadic) related to EE which were incorporated into the school program. The school authorities and the teachers acknowledged the importance of EE. However, EE was interpreted at just a shallow level where only efforts of cleanliness and attractiveness (or beautification) of the schools were focused upon. The ideas of energy or resource conservation were not expanded upon or taken seriously. Overall, implementation of EE at the four schools was uneven with different or varying degrees of interpretation and implementation. At one school, (CO2) projects involving environmental awareness were more prominent while at the other three schools there were less emphasis on such projects. The primary focus of the schools was still in achieving excellence in the public examination (*UPSR*).

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The study revealed that in the practices of instruction (teaching), very few of the characteristics of EE were clearly evident in the sample schools. Implementation of EE in the classroom had been minimal or superficial. Although all the teachers acknowledged the importance of EE, many had a shallow understanding of the contents of EE. Like the school administrators, many understood EE as keeping the environment clean and tidy as well as beautiful and attractive and that was about it! Clearly there was a lack of understanding of EE and its demands.

Many issues and challenges in implementing EE unfurled through interviews and observations of classroom teaching. These include lack of focus in EE as much attention and resources were focused on acquiring excellence and good results in the

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UPSR. Environmental education was not a priority at the schools. There is the absence of a policy statement on EE within the National Education Policy. As such, EE remains at the sidelines when it comes to educational initiatives and reforms. In acknowledging the importance of EE, the school heads had plans to work further to promote EE but lamented at the constraint of not receiving funds and allocations for carrying out programs or projects related to EE.

The teachers were not trained at integrating EE into their subjects. Consequently, the implementation of "EE across the Curriculum" seemed muddled with limited knowledge and interpretation. Insights into teacher practice revealed that the "education about, in and for the environment" occurred at a low level indicating that the teachers were not adept at integration. It seems that nothing much had changed since Periasamy's (2000) study that Malaysian teachers have limited exposure to skills and knowledge on integrated curriculum and models to effectively practice it in the classroom. A guidebook (*Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR*) which was produced by the then Curriculum Development Centre, Ministry of Education way back in 1998 would have paved the way for the implementation of *EE across the Curriculum* and served as a useful guide on its implementation. However, the study revealed that such a guidebook was absent at the schools and the teachers (with the exception of one teacher, Puan Syarifah, TSC3CO1), the other teachers in the study and the school administrators had admitted that they had never seen the book before. Consequently, a mismatch occurred between curriculum demands and teacher practice in terms of EE integration. Also there was a lack of resources related to EE and school facilities were seldom or never utilized and converted for EE practices.

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The goals of EE were never fully attended to and it seems that they will never be resolved under the present circumstances. The knowledge part of EE to increase awareness was superficial, the skills and action parts were lacking and there was no directive to set up a mechanism in the form of an Environmental club or society to project EE activities. Furthermore, the goals of citizen action skills and participation require a significant amount of class time and seems not conducive to being taught through the infusion approach.

Finally, the best practices of EE implementation in schools were identified from the UNESCO guiding principles and also from the views of seven EE professionals. These involve areas like school policy, management and utilization of resources, participation in EE projects like recycling and collaboration with NGOs involved in environmental work and also in curriculum and instruction.

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The recommendations for best practices of EE in Malaysian primary schools which encompass the characteristics of EE are considering the environment in its totality with its global and local environment focusing on current and future perspectives on environmental conditions. It is contextual in nature, and schools can employ a holistic approach in EE involving everyone in maintaining a sustainable environment in the school. Recognizing the interdisciplinary nature of EE, it can be taught through and used to enhance all subjects in the curriculum. Essentially, the implementation of EE should be a continuous on-going process.

Most importantly, EE should encompass five main aspects, namely, knowledge, awareness, skills, attitudes, and participation. It transcends the division

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of knowledge, skills and attitudes by seeking commitment to action in an informed manner to realistic sustainability. Essentially EE should emphasize participation in preventing and solving environmental problems. It should be issue-driven and can be project-based. It should foster and arouse a sense of personal responsibility and provide greater motivation and commitment towards the resolution of the environmental situation.

5.4 Analysis based on Countenance Model: Description and Judgment

The data gathered from the case studies are evaluated further using Stake's Model of Countenance (1967). The model serves as a framework for the evaluation of the implementation of the EE program in the four schools. The findings of the case studies were analyzed and fitted into the matrices identified in Stake's Countenance Model. It is depicted in Tables 5.4, 5.5, and 5.6 which show both the descriptive and judgment matrices. As such in this model, two critical elements of evaluation were based upon the description and also the judgment. The descriptive matrix is divided according to whether they refer to what was intended (intents) or what was actually observed (observations). The judgment matrix relates to the standards and judgments.

Three bodies of information were collected based on Stake's evaluation model. The antecedents were the pre-existing conditions of the schools. A total of nine features of relevance to the study were identified and plotted onto the description matrix. These include the school characteristics or atmosphere, the school administrators, the classroom atmosphere, teacher background, pupils' background,

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curriculum context, resource availability, school training and professional development and community contexts. The transactions were the actual process or the on-going program. A total of five features were identified and these include EE implementation in school, curriculum and instruction, behavioral interactions, time allocation, and the sequence of events and social climate. Finally, the outcomes or the effects or the output the program provided which include improved conditions, school administrators' attitude and commitment, teachers' attitude, skills and commitment, pupils' attitude and community contexts.

The intended antecedents, transactions and outcomes are shown in the first column of the descriptive matrix of the three tables respectively. The second column shows the observed antecedents, transactions and outcomes in the three tables based on the features identified earlier (Tables 5.4, 5.5 and 5.6 respectively). In addition, the three tables also show the judgment matrix in relation to standards and judgments. A representation of the processing of descriptive data is shown in Figure 5.1 where the intent data is based on logical contingency and the observed data is based on empirical contingency. In addition it also depicts the congruence between the cells of the intended and observed cells at the antecedent, transaction and outcome levels. The model managed the analysis of congruence between what was intended to occur and what was actually observed to occur as well as contingency interaction between evaluation variables. By allowing the simultaneous analysis of multiple facets, the evaluation discovered significant interactions important for program improvement. The analyses using Stake's model are shown in Tables 5.4, 5.5 and 5.6.

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Table 5.4

Countenance Matrix: Program Antecedents

Schools: CO1, CO2, CO3, CO4

Description matrix		Judgment matrix	
Intents	Observations	Standards	Judgments
Program antecedents			
School characteristics/ Atmosphere			
-School background: All National schools (*SK*), -School location: 2 urban (CO1 & CO2), 2 rural (CO3 & CO4) -Vision & Mission: (overriding goals & priorities) excellence in academic achievement and co-curriculum -Allocations: according to pupil enrolment	CO1 old but functioning, formerly a premier school CO2 new & old buildings, vibrant atmosphere CO3 rural setting atmosphere small enrolment CO4 rural and small indigenous enrolment	Provides basic pre-school and primary education (K and six levels) All brick buildings with basic furniture Typical Malaysian Primary schools Financial support from the government Safe environment, conducive for study Clean and properly maintained	Functional Adequate facilities and amenities for EE However room for further enhancement like science garden in CO1, CO3, & CO4. Lack of focus in EE in Vision /Mission Statements (CO2)
-School environment and facilities: adequate and functioning Space for a variety of games and sports	Buildings and green areas for teaching & learning activities, cleanliness maintained & efforts at landscaping	Basic indoor and outdoor facilities and amenities for teaching & learning and sports & games	Room for learning stations
School administrators			
Background, priorities, perception of EE, evaluation of school performance in terms of EE	Experienced teachers although non-grads, accommodating, positive, conscious efforts to keep school environs clean, tidy & beautiful Rated average (6 points out of 10) to very good (8 points) in terms of school performance for EE	Qualified and experienced Focused and visionary Environmentally conscious Provides clean and beautiful environment conducive for learning High academic expectation for pupils	Experienced Acknowledged importance of EE Environmentally conscious Conscious efforts at providing a clean, tidy & conducive environment for study
Classroom atmosphere			
-Classroom environment -Opportunities for promoting environmental values	Packed, clean at times, made untidy at times with litter on floor Class duty roster exists Info or display boards exist but not well-maintained / updated or utilized for EE	Class size: urban/rural Enough light and proper ventilation Conducive for learning	Class size: urban (40); rural (30) Functional Room for info boards for EE Absence of signs / reminders for conservation
Teacher background			
-Age -Gender -Academic qualification -Professional qualification (Attended teacher training)	Teachers who participated were similar to the country's teacher population; aged 30 – 45 years; Female majority; minimum SPM but majority have Bachelor degree Adept in their respective fields	Possess formal qualification, teacher training specializing in general or specific subjects	Teachers in the study are qualified primary school teachers Qualified in their respective subjects as had undergone training

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Table 5.4 (*continued*)

Schools: CO1, CO2, CO3, CO4

Description matrix		Judgment matrix	
Intents	Observations	Standards	Judgments
Program antecedents			
-Years of teaching experience -Initial familiarity with EE components in subjects -Exposure to EE & "EE across the curriculum" (curriculum demands/position of EE in curriculum) -Teachers' perception of EE -Teacher's evaluation of school performance in EE	Experiences range from 3 to 26 years High %age with no exposure to EE Acknowledged the importance of EE Rated lower in terms of their schools' performance for EE (6 and below) Admitted that they wanted to see more done for EE in their respective schools High expectations for pupils' achievements and academic success	Qualified teachers	Qualified teachers Acknowledged the importance of EE Aware of "EE across the curriculum" Not trained in the skills of integration Did not have opportunity to attend in-service training in EE. Clear about the vision and mission of their schools
Pupils' background			
-Same age group (Year 5); Follow the same curriculum; Take the same subjects in *KBSR*	School children without major issues relating to physical or health conditions; same age group, coeducational	Children of mixed ability Receptive, disciplined	Except for CO4, other classrooms comprise of Malay majority pupils (CO4 with 100% indigenous pupils)
Curriculum context			
Centralized *KBSR* & *KSSR* "EE across the curriculum"	EE topics in the various subjects curriculum	Malaysian curriculum for pre-school & primary school grounded in National Philosophy of Education (NPE)	Curriculum (syllabus) has EE topics
Resource availability			
-All equipment & materials should be available and functioning	Possess individual unique physical surroundings / landscapes; manmade structures	Resource room Variety of teaching-learning materials	Functional, availability of Resource Center. Possess individual unique physical surroundings/ landscapes and manmade structures
-Instructional materials: school textbooks, workbooks, teachers' guide, "Teachers' Guidebook for EE across the Curriculum *KBSR*"	Standard school texts & workbooks Teachers' Guidebook for EE not available Teachers' Guidebooks for the various subjects: claimed but not shown	All schools use Ministry approved school texts, workbooks, Teachers' Guidebooks. Teaching aids	Adequate for the individual subjects However, no Teachers' Guidebook for EE across the Curriculum at the schools
School training and professional development			
In-house training, collaboration of teachers in producing resource/ teaching materials	None within school, individual effort	Continuous professional development (CPD)	Training in their respective subjects by Education Department

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Table 5.4 (*continued*)

Schools: CO1, CO2, CO3, CO4

Description matrix		Judgment matrix	
Intents	Observations	Standards	Judgments
Program antecedents			
Community contexts			
Availability of projects/programs Involvement of *PIBG*/community, *NGO*s	*PIBG*, District Council (CO1, CO2 & CO3) and Health Center involvement (CO3)	Collaboration in school programs and activities	Involvement by *PIBG*, Community, District Council, and Health Center in *gotong royong*

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Table 5.5

Countenance Matrix: Program Transactions

Schools: CO1, CO2, CO3, CO4

Description matrix		Judgment matrix	
Intents	Observations	Standards	Judgments
Program transactions			
EE implementation in school			
-School's priorities -School's approach at incorporating EE	Focused on excellence in academic achievement (*UPSR*); school cleanliness and beautification (landscaping); to provide a conducive environment for study; generally awareness level high; one obvious project is *gotong royong* , no other programs related due to non-availability of funds	"EE across the curriculum" Values incorporated Sustainable school concept (*Sekolah Lestari*) Holistic development Enculturation of school community Conducive for study, safe place for pupils	Focus on good exams results. (*UPSR*) EE not beyond cleanliness and beautification Generally, school was usually clean and properly maintained Uneven implementation of EE between the schools Programs are sporadic and fragmented, no continuity
Curriculum and instruction (implementation in the class)			
-Teacher preparation (teacher preparedness) -Teaching approach, strategy, method, and technique (methodology) -Teacher focus (focus of lesson) -Infusion/integration of EE ("EE across the curriculum") -Usage of resources (resourcefulness of teachers) -Developing resources -Assessment measures	Except for one (T*KT*1CO1), the teachers did prepare for their lessons Lessons mostly conducted in the classroom, pupil-centered, discussions, experiments (Science) Focused on knowledge and skills of respective subjects. Only sign of EE was conscious effort to keep classroom clean (teacher asked pupils to pick up trash from the floor before the start of lesson Only when topic related to EE, Taught according to contents from the book, quite superficial Infusion and integration at a minimal level, Science teachers more resourceful (also T*KT*1CO3), Resources/teaching aids developed on an individual basis; Q&A and exercise/worksheets mainly testing knowledge and a bit of skills (Science skills)	Integrated curriculum Interdisciplinary Values education "EE across the curriculum" Issues driven Project-based Theory and Practice (hands-on) Pupils-centered Critical thinking and problem solving skills A variety of methods and techniques Both indoor and outdoor teaching Teaching "about the environment, in the environment and for the environment" A variety of resources Assessment based on knowledge, skills and attitude (values)	Implementation according to the level of pupils (need to make some adjustments for *orang asli* children) Teachers understood respective subjects curriculum demands Main focus of teachers was to prepare pupils for examinations (esp. *UPSR*) Accountability Touched on EE when topic related, superficial, limited knowledge, too much dependence on school textbooks, not very resourceful. Very little integration of EE in the lessons No Teachers' Guide-book for integration of EE Room for greater utilization of facilities, teaching resources and space for outdoor activities

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Table 5.5 (*continued*)

Schools: CO1, CO2, CO3, CO4

Description matrix		Judgment matrix	
Intents	Observations	Standards	Judgments
Program transactions			
Behavioral interactions -Teacher attitude and responses -Pupils' attitude and responses Teachers and pupils are actively engaged in activities in and outside the classroom	Positive but sometimes stressed out. Pupils actively participate in classroom activity. No outdoor activity observed.	Positive two-way interaction High consciousness and awareness level Active participation Concern translated to corrective and preventive measures	Awareness not translated to action (both teachers and pupils)
Time allocation			
As in syllabus As in timetable	Quite often the teachers entered late during change of class. However, this was usually adjusted and covered for and the teacher usually completed the lesson (unfinished work was to be completed at home).	Standard allocation of time for each slot Optimum utilization of time for each teaching slot	Time allocation for subjects but not for EE integration
Sequence of events, **Social climate** -Knowledge, awareness, action -Collaboration with *PIBG*, the local community, & NGOs	Programs involving community (*PIBG*, District Council, and Health Centre) for example, *gotong royong*	Positive, full of initiatives Programs involving community Support services to the school	Irregular However, community did participate in school activities in various forms. Community agencies did provide support services to to the schools. Relationship between school and community was close

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Table 5.6

Countenance Matrix: Program Outcomes

Schools: CO1, CO2, CO3, CO4

Description matrix		Judgment matrix	
Intents	Observations	Standards	Judgments
Program outcomes			
Improved conditions -School environment /landscape: towards a clean and beautiful environment -Sustainability elements: optimum management of resources -Structures and support systems in place (for example, information / education boards Environment club/ society)	Regular/daily maintenance: floors of corridors swept daily, toilets washed daily contract workers, grass cut regularly. Classroom cleanliness maintained although trash created daily (Duty roster in class exists) Conservation of resources not emphasized (electricity and water usage; paper usage in the office) Outdoor facilities like Science garden not maintained for education purposes (for example, Kitchen Garden at CO2) Information boards for EE and Learning Stations for EE: non-existent. Only one school has Mathematics, Science and Environment club (CO3)	Clean, safe and conducive environment for study. A sustainable environment. Indoor and outdoor facilities maintained and added for EE activities (for example, Learning Stations) Conservation measures for usage of resources emphasized.	Uneven developments in EE. Not much changes. Individual initiatives of schools. No specific funds / allocations. Creation of garden at CO4 noted. *Gotong royong* at cleaning the school compound was a continuous effort.
School administrators: attitude and commitment -Acknowledgement that EE is important Positive support -Intention to incorporate EE/"whole school approach" -Initiatives / allocations for EE activities	Conscious effort to keep school compound clean, tidy, pleasant, beautiful (planting of flowering plants and intention to plant fruit trees (HMCO1) Emphasis on conservation measures not detected	Environmentally conscious, provides the leadership by initiating programs/ projects to enhance the school environment. Able to source for funds for EE projects.	Showed keen interest. No new programs/ projects initiated (except for garden: flowering plants, in CO4)

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Table 5.6 (*continued)*

Schools: CO1, CO2, CO3, CO4

Description matrix		Judgment matrix	
Intents	Observations	Standards	Judgments
Program outcomes			
Teachers: attitude and commitment **Teacher's skills**			
Positive Environmentally conscious Acknowledgement that EE is important. Conscious effort Full of initiatives -Teachers skillful at infusing EE (EE integration) Makes good use of the environment/materials/ Resources -Evaluation of knowledge, skills and values	Teachers acknowledged that EE is important, many even advocated for EE as a school subject. However, not much conscious effort detected. Teachers busy, EE not in their list of priorities. Attention on classroom cleanliness before start of the lesson. EE integration very minimal/ superficial, not skillful. Seldom use the school environment as a resource Lack of curriculum material and references for EE at the schools. Efforts on individual basis to source teaching materials	Teacher initiatives and commitment level to inculcation of EE values high. Teachers skillful at EE integration The education "about the environment, in the environment, and for the environment" EE integration is well accounted for in their lessons Teachers are resourceful in sourcing for EE materials. Teachers employ varied and relevant teaching methodologies for EE.	Generally teachers focused on the demands of their specific subjects. It was left to the individual initiative to incorporate EE in the lesson. Implementation of EE in the classroom needs further commitment. Teachers need training on EE integration. Teachers need Guidebooks/references/ resource materials for EE
Pupil attitude			
Positive Environmentally conscious Conscious effort in keeping school environment sustainable	Need constant reminders to to keep classroom/school environment clean and tidy. Amount of trash generated on a daily basis quite high	Play an active part in EE program	Just involved in *gotong royong* activity. More participation at CO2 with school recycle program
Community contexts			
Involvement in school EE programs (for example, *gotong royong*), home and community/society support Collaboration with NGOs	Existence of programs (*gotong royong*) involving *PIBG* and community.	Participation of community in school project (for example, *gotong royong*)	Relationship between school and community was close.

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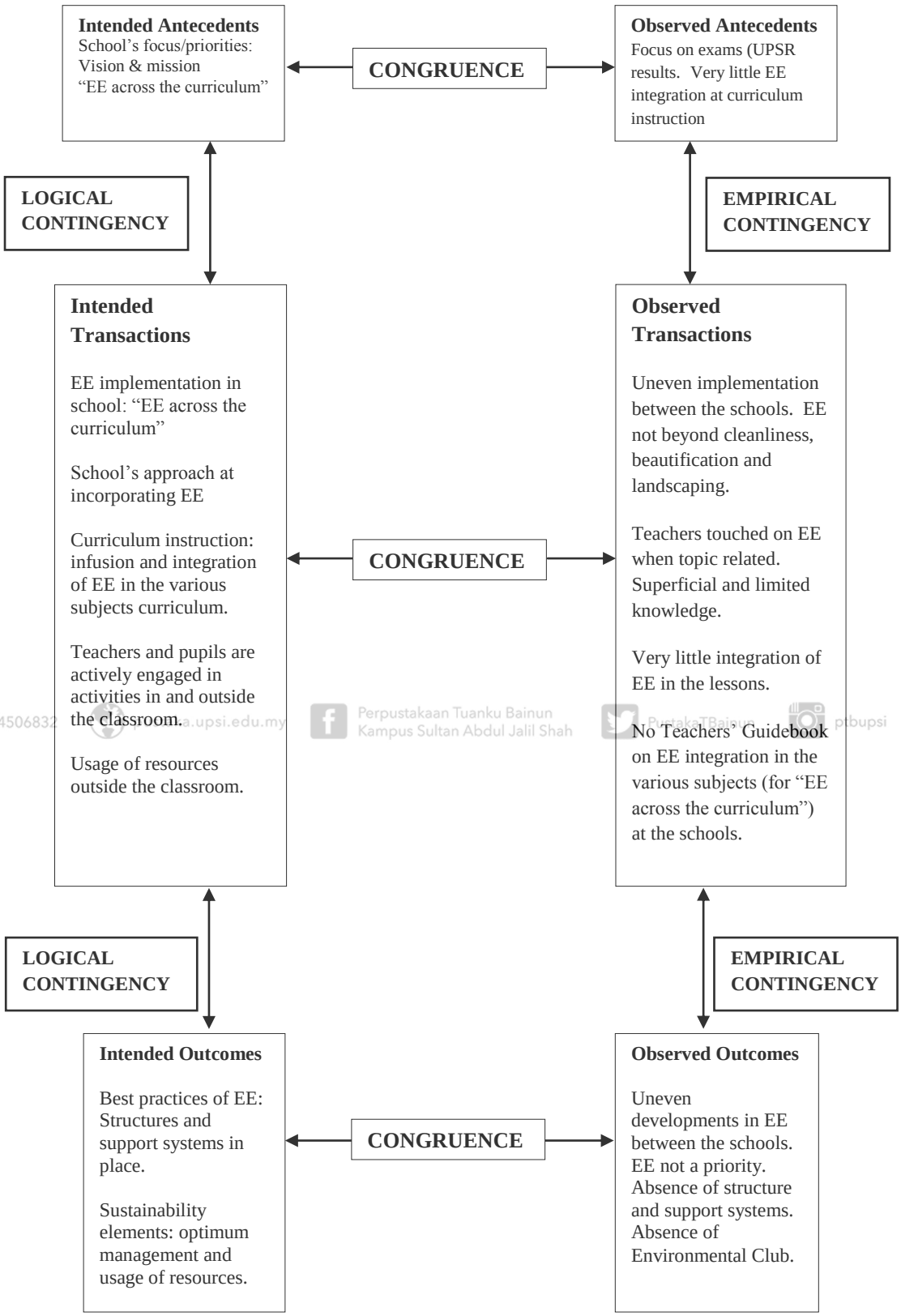


Figure 5.1. A Representation of the Processing of Descriptive Data

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Figure 5.2, shows the relative comparison between the four cases leading to the identification and discussion of issues and concerns. Subsequently an absolute comparison of the issues and concerns with the standard of excellence was done. The excellent standards are spelt out in the 3rd column and finally the judgments are presented in the 4th column of Tables 5.4, 5.5, and 5.6 respectively. The three tables are to be viewed together with Figure 5.2.

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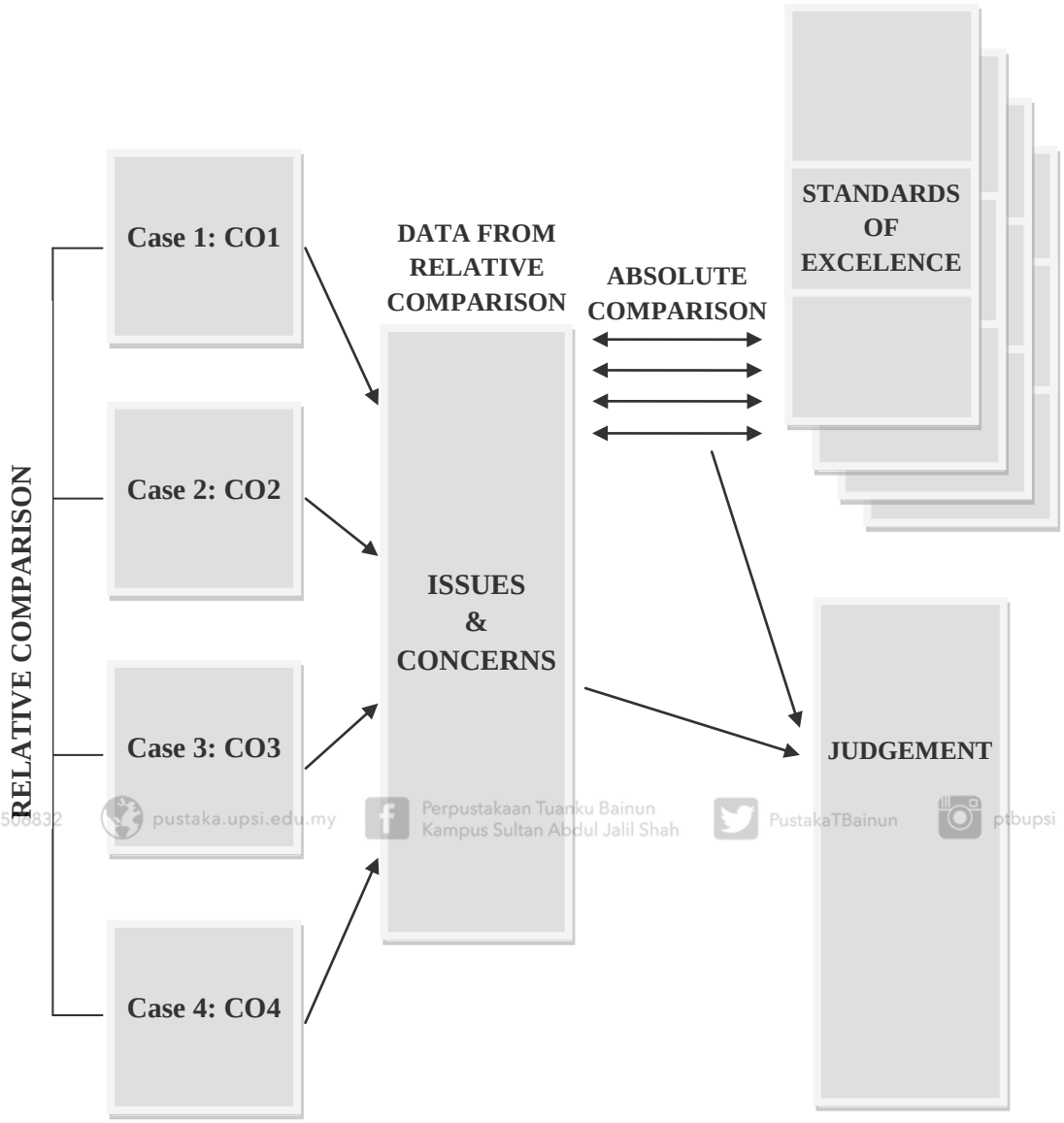


Figure 5.2. A Representation of the Process of Judging the Merit of an Educational Program (Modified Version of Stake's Countenance Model 1967)

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5.4.1 Evaluation Results

The subject of the evaluation is the implementation of the *Environmental Education Across the Curriculum* program in the four selected Malaysian primary schools. The completed countenance matrix for this evaluation is shown in Tables 5.4 – 5.6. For any educational program there are two principal ways of processing descriptive data. They are by finding the contingencies among antecedents, transactions, and outcomes, and also finding the congruence between intents and observations.

The data for a curriculum are congruent if what was intended actually happens. Contingencies are relationships among the variables that permit the improvement of a program. In the sense that evaluation is the search for relationships that permit the improvement of the program, the evaluator's task is to identify outcomes that are contingent upon particular antecedent conditions and instructional transactions. The outstanding characteristics of the features identified are summarized in the sections that follow.

5.4.1.1 Congruence

School characteristics and atmosphere describe the situations at the four schools. All the schools are National Schools (*Sekolah Kebangsaan, SK*). Two of them are located at the town while the other two are situated away from the town (17 km. and 38 km. respectively) with one consisting of an all – *orang asli* pupil enrolment. Overall, the overriding goals and priorities of the schools were to achieve excellence

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in academics and co-curriculum and to be top at the district level in their own category, in terms of the *UPSR* exams results. It was found that the environment and facilities which include buildings and green areas at the four schools were adequate for teaching and learning activities both indoor as well as outdoor. Cleanliness was maintained and there were efforts at landscaping and beautification measures.

School administrators refer to headmasters and *Guru Penolong Kanan* Administration and Curriculum (*GPK*1) and *Guru Penolong Kanan* Co-curriculum (*GPKKokur*) of the respective schools. It was found that they were formerly experienced teachers and all acknowledged the importance of EE. All (especially the headmasters) were positive, accommodating and did make conscious efforts to keep the school environs clean, tidy, beautiful and safe for the pupils. All agreed that there was still room for improvement and the concept of "EE across the curriculum" was still to be fully implemented citing the lack of funds and allocation being the main stumbling block.

Classroom atmosphere refers to the classroom environment and opportunities for promoting environmental values. It was observed that the classrooms were generally packed with around 30 desks and chairs. Generally, the classrooms were clean at times and made untidy at times with litter on the floor and the waste basket over-spilling with trash. However, class duty roster existed as well as information or display boards but they were not well maintained, updated or utilized for EE.

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Teacher background relates to personal characteristics, academic and professional qualifications, years of teaching experience and perception of EE and its implementation at their respective schools. The teachers who participated were similar to the country teacher population with a minimum academic qualification of *Sijil Pelajaran Malaysia* (*SPM*) but with a majority having Bachelor's degrees. All were trained and adept in their respective fields with teaching experiences ranging from 3 to 26 years of service. All acknowledged the importance of EE and were aware of *EE across the curriculum*. However, it was discovered that a high percentage of them (97%) did not have exposure to EE and were not trained at EE integration into the curriculum. All had high expectations for pupils' achievements and academic success. All admitted that they wanted to see more being done for EE at their respective schools.

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Pupil background shows that they were all in the same age group, with mixed ability and (with the exception of 100% indigenous, *orang asli* children at one school, CO4), and are typical of the country's pupil enrollment. They followed the same curriculum and took the same *KBSR* subjects.

Curriculum context is centralized in the Malaysian *KBSR* curriculum for the Primary School and grounded in the National Philosophy of Education. In "EE across the curriculum" there are EE topics in the various subjects curriculum.

Resource availability is important for EE implementation. Generally it was found to be functional and there was the availability of the Resource Center housing a variety of teaching-learning materials. There was also the Information,

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Communication and Technology (ICT) room for teaching and learning purposes. Moreover, each school possessed individual unique physical surroundings in the form of landscapes and other man-made structures like the fish pond, the information or bulletin boards along walkways and the rest places (*pondok rehat*) which could be converted into learning stations. As for the instructional materials, there were the school textbooks, workbooks, and the Teachers' Guide book for the various subjects. All schools used the Ministry approved school texts, workbooks and Teachers' guidebooks for the various subjects. However, the Teachers' Guidebook "*Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR*" was non-existent at all the four schools.

School training and professional development is important in providing continuous professional development (CPD). Occasionally the teachers attended courses in their respective subjects which were conducted either at the national, state or district level. However, it was discovered that the practice of "in-house training" and the collaboration of teachers at producing resource or teaching materials never existed at the respective schools. What existed was the individual efforts to meet their own individual demands.

Community contexts was important as the school was seen as part of the local community surrounding it. All the schools did involve the school Parent-Teacher Association (*Persatuan Ibu bapa dan Guru*), the local community and the local authority like the District Council and the Health Center (in CO3) in projects like *gotong royong* at cleaning the school and its surroundings. There were also measures at planting flowering plants and trees.

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Environmental education implementation in school ensured that the "EE across the curriculum" policy is adhered to. Generally, the schools' approach to incorporating EE did not go beyond projects like *gotong royong* aimed at maintaining a clean, tidy, beautiful and pleasant environment conducive for study. There was also the occasional reminders during school assemblies and programs (if any) were sporadic and fragmented. There was uneven implementation between the schools.

Curriculum instruction is one of the most researched part of this study. This comprises teacher preparation, teaching approach/strategy/method/technique, teacher focus, integration of EE in the lesson, usage and development of resources and also assessment measures. Generally speaking, the teachers did prepare for the day's lesson. However, their lesson preparation took on a brief note focusing on the topic, the lesson objectives, the knowledge and skills to be imparted for the day. Such a preparation was a far cry from the days of lesson preparation they had to endure during their teacher training days. Also notably, the lessons were mostly conducted in the classroom and were pupil-centered involving them in group discussions and experiments (for Science). The focus was on the knowledge and skills of the respective subjects. The only sign of EE was the conscious effort (among some teachers who were sensitive enough or when they remembered) to keep the classroom clean before the start of the lesson.

Usually, the teacher taught according to the contents from the school textbook. Environmental education was touched upon only when the topic taught was on the environment or something related to it (like environmental issues). Infusion and integration was at a minimal level. The resources and teaching aids were developed

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on an individual basis. Most lessons took on a "question and answer" (Q & A) basis with exercises and worksheets mainly testing knowledge and a bit of skills (Science skills). Overall, the teaching "about the environment, in the environment and for the environment" was lacking. There was room for the greater utilization of facilities, teaching resources and space for outdoor activities.

Behavioral interactions include teacher attitude and responses, pupil attitude and responses and the active participation of pupils in activities in and outside the classroom. Generally, from the teachers' side, it was positive but sometimes stressed-out due to pressures related to accountability for pupils' performance in the *UPSR*. (Many teachers in the study were also teaching the examination classes). From the pupils' side, it was observed that they actively participated in classroom activities. Generally, teachers and pupils were aware of environmental issues but there was very little opportunity to see the awareness being translated to action except during times like the *gotong royong*. Conservation and preventive measures like saving electricity in the classroom, saving water, reducing trash in the classroom, and on the usage of paper at the office was never emphasized as there were no reminders on the walls to educate the school community on such measures.

Time allocation was set for the various lessons and it followed a teaching period of thirty minutes for each lesson at the primary school level. There was time allocation for each subject but there was no time allocation for EE integration. Furthermore, it was observed that quite often, the teachers entered late during change of class but this was usually adjusted and covered for and the teacher usually completed the lesson, as unfinished work was to be completed at home by the pupils.

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Sequence of events and social climate were planned out by the school before the start of every school year. It was noticed that the schools did plan some activities related to the environment like for example, the *gotong royong* to clean up the school compound. There were also programs planned out which involved the community at large. These included collaborative efforts with the *PIBG*, District Council and the Community Health Center providing support services to the school during *gotong royong*. Relationship between the school and the community was close.

Improved conditions collected information on sustainability elements introduced at the schools. Generally, there was uneven development in EE at the four schools. Not much change is anticipated at the schools in study. The constant effort at maintaining school cleanliness, its tidiness and beautification measures through *gotong royong* would be a continuous effort of the schools. However, EE was never emphasized in the classroom as long as there was no specific slot for it. Learning stations for EE would not materialize as there was no emphasis for EE. Clubs related to the environment would be non-existent as already there were many clubs and societies at the schools. Essentially, for EE to thrive, the structures and support systems like resources on EE for the teachers, learning stations, information or education boards and school environmental club or society planning out related activities must be in place.

School administrators' attitude and commitment is important to put in place the structures and support systems for EE. Acknowledgement that EE is important is a good sign and generally the school administrators were

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environmentally conscious and showed keen interest. Some had come up with new thoughts or initiatives like floral garden and the planting of fruit trees in the school compound. However a step forward would be to adopt a "whole school approach" where everyone of the school community would get involved to promote greater ownership and accountability. This would entail the enculturation of the school community where everyone practices conservation and sustainability measures like reducing trash by recycling and conservation of resources like electricity, water and controlled usage of paper.

Teachers' attitude and commitment are also very important prerequisites. Acknowledging the importance of EE and being environmentally conscious are important steps but translating them into actions needed proper attitude, commitment and guidance. It was observed that the teachers focused on the demands of their specific subjects. Implementation of EE in the lessons needed further commitment and teachers need the training on EE integration. Furthermore teachers need guidebooks or references and resource materials for EE.

Teachers' skills at EE integration is a requirement. Efforts should be taken by the relevant authorities like the Teacher Education Institutes, the Teacher Education Division and the Curriculum Development Division to provide the necessary training and resource materials to the teachers.

Pupil attitude indicates the success or failure of the education provided. Observations at the schools revealed that while generally they were positive and were environmentally conscious to a certain level, the pupils needed constant reminders to

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keep their classrooms and the school environment clean and tidy. One headmaster (HMCO1) pointed out that the amount of trash generated on a daily basis at the school was quite high.

Community involvement in the school program like the *gotong royong* would continue to be the schools' conscious effort at building good relationship with the local community while carrying out activities at safeguarding the environment. Collaboration should extend to NGOs like the Malaysian Nature Society, the World Wide Fund for Animals (WWF), the Environment Protection Society Malaysia (EPSM), and the Friends of the Earth Society Malaysia (*Sahabat Alam Malaysia*) where proper guidance on EE in the non-formal sector can be provided.

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5.4.1.2 Contingencies

A formative evaluation, however, uses more than specified discrepancies to assess program merit during the developmental stages. Many qualifying aspects were also found to be important in considering program improvement. A few relationships, or contingencies, between the above features were found to affect the program.

Resource availability was a critical feature because "EE across the curriculum" also depended on the physical structures and supporting materials for the integration of EE in the various subjects curriculum. Besides, support systems which include structures for EE must be in place. Although there were resources which were appropriate and functioning, occasional difficulties like pressures of time and

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also other priorities or focus altered the intended usage of these resources. As such the individual unique features comprising of physical surroundings, landscapes and other man-made structures were never fully optimized in terms of usage. Furthermore, supporting materials were also found to be lacking and as such it was left to the ingenuity of the individual teacher to source for materials and to prepare teaching aids. Seriously, the Teachers' Guidebook for EE across the curriculum was missing at all the schools under study.

School training and professional development is an important component where the teachers could share their knowledge and skills through continuous professional development. However, it was gathered from the interviews with the teachers that the practice of "in-house training" and the collaboration of teachers at producing resource or teaching materials never existed at the respective schools. What existed was the individual efforts to meet their own individual curriculum demands. Although the teachers could claim that they were trained in their own subject curriculum, none of them had ever attended a course on EE integration into the curriculum.

Curriculum instruction ensures that the goals of EE are achieved through imparting the knowledge, skills and values by means of integration into the lessons. Although the teachers were aware of "EE across the curriculum", their main focus was to prepare the pupils for examinations. EE integration was superficial and there was room for greater utilization of facilities, teaching resources and space for outdoor activities.

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Observations on **behavioral interactions** amongst the teachers and the pupils noted that the environmental awareness was never (except for the *gotong royong*) really translated to action. As an example, there is room for greater emphasis on preventive and conservationist measures like recycling, cutting down on wastage and litter, and also energy-saving measures like saving electricity and water.

There was the standard **time allocation** for each slot and for each subject. However, there was no time allocation for EE integration in the subject curriculum.

Teachers' attitude and commitment are an important gauge of educational experiences. Given the present demands, the teachers mainly focused on the pupils' academic achievement leaving no room or attention for EE integration in their respective lessons. There is room for greater teacher initiatives and commitment at inculcation of environmental values in their lessons.

Teachers' skills ensure the proper implementation of EE in the classroom. It was observed that the teachers lacked the skills at EE integration in their respective subjects.

Finally, **allocations and funding** are the necessary requirements for any project implementation. It is left to the ingenuity and initiative of the individual school administrator to source for funds for EE projects. Securing support from local community agencies and NGOs would help provide the support services to the school.

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The evaluation results revealed the same issues and concerns which unfurled during the course of the investigation. It had been discussed in the data analysis and interpretation for Research Question 2 (5.2.2.1, page 383-398). The issues and concerns include school focus, curriculum instruction, teacher skills, resource availability and usage, *EE across the Curriculum*, and funding (allocations) as shown in Figure 5.3.

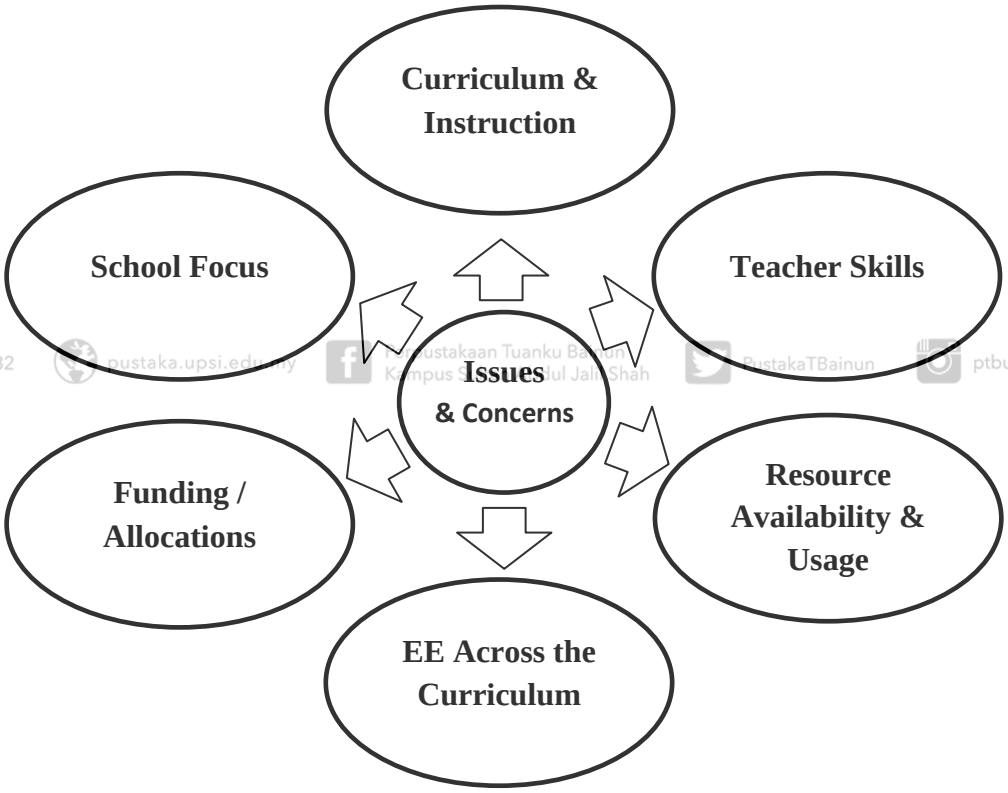


Figure 5.3. Issues and concerns

Briefly, the focus of the four schools was on academic achievement leaving no allocation in terms of time and funding for EE. There was very little EE integration in the classroom. The teachers were not skillful at EE integration as they were not trained or exposed to it. Furthermore, the Teachers' Guidebook for EE integration

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was not available at the four schools studied. Consequently the demands of EE were never fully understood and adhered to.

5.4.2 Recommendations

Based on feature congruence and contingency analysis, the following modifications are recommended:

For a start, all schools should include a statement aimed at creating a sustainable and conducive environment in the vision or mission statements. This would provide a focus and also serve as a reminder to the school community for a greater responsibility and commitment towards maintaining the sustainability concept whereby there is optimum management of resources.

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The structures and support systems for EE must be in place. There should be more outdoor facilities like the gardens and learning stations where pupils can engage in "hands-on" experiential learning activities. Another feature to include would be the information or education boards placed at strategic locations, along walkways and also at the learning stations to educate the school community on current issues like those related to the environment.

To build on the above-mentioned proposal, an important requisite would be funding and allocations. Headmasters must be resourceful at seeking funds to provide the necessary allocations to create the support systems for *EE across the curriculum*.

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Securing support from local community agencies and NGOs would help provide the support services to the school in the implementation of EE projects in the school.

Support system may also take the form of a club or society like the school Environmental Club, with all their activities in place and well-planned action plans for the whole year. The club may be managed by the pupils and guided by the teachers. Of course there must be certain outputs for the year, like for example, recycling or composting being done and this have to be in the message board to inform people about it and to encourage participation.

The availability of resources for EE is a very important requirement for the teachers to work on. This constitutes in part the structures and support systems like the gardens and the learning stations which had been explained earlier, where the teachers can conduct activities related to EE. However, another equally important part would be the supporting materials for teaching EE and also the all-important teachers' guidebook for incorporating / integrating EE into the various subjects curriculum. The relevant authority like the Curriculum Development Division or other related bodies like the Department of Environment can provide the necessary supporting materials to the schools. Furthermore, this can also come from the NGOs like the Malaysian Nature Society (MNS) or the World Wide Fund for Nature (WWF) in providing education officers in the schools to guide the teachers on project implementation and monitoring.

On the part of the teachers at the schools, there should be greater collaborative and co-operative efforts at producing related teaching-learning materials. For

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example, interesting and colorful teaching aids like EE activity and game books, CDs, and posters covering environmental issues could help improve the dissemination of environmental knowledge and information to the pupils.

The teachers must be trained in the skills of integration of EE into their subjects' curriculum. The Teacher Education Institutes and the Teacher Education Division should plan and organize regular courses in EE as part of the continuous professional development for the teachers. At the home front, the schools must also engage the teachers in *in-house training* sessions where the teachers' knowledge and skills could be upgraded. This would also give direction to the teachers who are not exposed to EE concepts.

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Finally, on time allocation for EE, there was even a suggestion by a few teachers interviewed that the EE program could also emulate the Road Safety Education (*Pendidikan Keselamatan Jalan Raya*) program where 30 minutes of the *BM* class per week could be allotted to EE which could be taught in modular form. This would make the EE component compulsory and the *BM* teacher would teach the EE component every week. Moreover this measure is feasible as there are ten periods of *BM* per week.

5.4.3 Summary

The purpose of the study was to evaluate the EE program in four selected Malaysian primary schools using Stake's Countenance Model as the organizational framework.

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The model managed the analysis of congruence between what was intended to occur and what was actually observed to occur as well as contingency interactions between evaluation valuables. By allowing the simultaneous analysis of multiple facets, the evaluation discovered significant interactions important for program improvement. This study had also demonstrated the relevance of the Stake model for the formative evaluation of the EE program.

5.5 Current State of EE in the Selected Schools

The teachers who participated in this study helped in the investigation on the reality of EE implementation into subject area curriculum in the four schools. They explained and demonstrated (in their lessons which were observed) how they incorporated EE (or not) in their subject area of teaching. Findings from these investigations along with the interviews with the school administrators and also EE professionals (professional environment educators) were intended to help gain a better understanding of the approach to EE implementation. Observations of teaching did help to reveal the extent of EE implementation in the classroom. In most occasions there arise the expectation of the teachers to include more EE in the lessons.

In Malaysia, mandating teaching competencies and curriculum development characterizes a "top down" approach to EE implementation. Promoters from the top (Curriculum Developers) endorse teachers to incorporate EE in their lessons. The idea was that by requiring the teachers to include EE (as in *EE across the curriculum*), EE would be integral to the school curriculum. However, there is evidence (from observations of classroom teaching, interviews of teachers, and pupil's work and

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teacher's record) that EE is far from being an integral component of the school system, especially in classroom teaching. Teachers are the key to EE implementation, and ultimately they are the ones who need the knowledge and skills to effectively include EE into their subjects and school curriculum. The Curriculum developer admitted that more needs to be done to support the teachers before they enter the field and also while they are practicing teachers. However, courses on EE to give exposure to teachers on the infusion/integration approach are not forthcoming, reason being lack of funds and current demands and emphasis do not warrant such actions. Without this support, teachers will be working in isolation and EE will continue to be viewed as "*sampingan"* and if implemented, it would be done in a piecemeal and fragmented manner!

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CHAPTER 6

SUMMARY, RECOMMENDATIONS AND CONCLUSION

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6.1 Introduction

This chapter presents the summary of the findings in terms of the research questions, implications for the future of environmental education (EE) as well as recommendations for best practices and curriculum development in EE in Malaysian primary schools.

There were three objectives to this study:

(1) to evaluate the current status of EE in four selected primary schools in Pahang, Malaysia based on international standards by UNESCO;

(2) to study the best practices in EE and to propose some best practices in EE for the primary school; and

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(3) to make recommendations for curriculum development in EE for the primary school.

In the first objective, the investigator sought answers as to how the four selected Malaysian primary schools were meeting the challenge of implementing EE. Specifically the study looked at what emphasis was being given by the school authorities to the EE dimension of learning in school, how conscious in the first place, were the school headmasters and teachers of the need to inculcate the desired values of EE across the school curriculum as a whole and also within the boundaries of teaching and incorporating EE in three selected subjects, namely *Bahasa Melayu*, Science, and *Kajian Tempatan*. Also it looked at whether the individual school had an integrated system or rationalized framework for EE-inculcation across the school curriculum. Next, for the second objective, the investigator reviewed literature related to best practices in EE and also sought contemporary opinions from EE personnel for the best practices of EE in Malaysian primary schools. This culminated in the recommendations for best practices in EE for the Malaysian primary school. Finally, for the third objective, the investigator also reviewed literature to make recommendations for curriculum development incorporating effective teaching and learning approaches, activities and resources in EE for the primary school. The objectives of the study were translated into four main research questions and eight sub-questions as listed in Chapter 1 (pp. 18-19).

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6.2 Summary of Findings

The following sections present the summary of the research findings according to the research questions.

6.2.1 Research Question 1

The first research question aimed at identifying the characteristics of Environmental Education (EE) as had been determined by the international standards, (UNESCO, in particular). Besides establishing a consensus on the characteristics of EE, the study also looked at the implementation of EE in four selected Malaysian primary schools and gauged on how they fared in the context of international standards.

In general, all the EEPs interviewed stressed that EE must take on a practical approach. It must be action-oriented with hands-on activities. It cannot be taught just in the classroom as it involves practical applications and must include problem-solving activities on-site. For EE to be beneficial there should be the element of experiential learning aimed at studying and tackling issues related to the environment and as such it can be project-based. All these views are in congruence with the guiding principles of EE by UNESCO which include interdisciplinary in approach, issues-driven, problem-solving and decision-making, experiential learning with practical activities, and using diverse learning environments and a broad array of educational approaches to teaching and learning about and for the environment. All these had been mentioned in Chapter 2.

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Three EEPs interviewed, Encik Mohd Tarmizi, Puan Nora and Associate Professor Dr. Elise (EEP 1, 2, and 3) were of the opinion that there is more EE in schools now than ten years ago. However, another EE personnel, Dr. Hamzah (EEP 4) lamented that, "... nothing much have changed!" Nevertheless all agreed that more needs to be done. Given the nature of focus in schools, which is still towards high academic achievement in examinations such as the *UPSR*, there is little concern for EE to be seriously implemented in schools. It is left to the consciousness, initiative, ingenuity and equally important, the commitment of a few school administrators and teachers to take on the issue of the environment. Very often EE remains sidelined due to constraints such as lack of funds, packed curriculum, focus on examination subjects, time constraints, teachers not trained for it, no directives from the top and no monitoring by the relevant authorities and so there is no compulsion for implementing EE. Findings from interviews with school administrators and teachers revealed an average to above average scores (6 to 8 out of 10), in terms of performance at implementation of EE, (self-assessment of their respective schools) and all agreed that more could be done for EE.

In the practices of teaching, very few of the characteristics of EE were clearly evident in the sample schools. Incorporation of EE concepts were superficial, all of the lessons observed were classroom-based, with no outdoor teaching, no experiential learning or relating to problem-solving of related environmental issues. In the present scenario with no fresh directives and no monitoring from the Ministry, it would seem that the status quo would remain. It is a clear barometer of the strength of the resolve towards EE in the school curriculum. Although many have talked the talk, and many

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talked about walking the talk, the same situation prevails. It is evident that EE would never get the attention it deserves. As such the objectives of EE which comprise five categories, namely, awareness, knowledge, attitude, skills and participation will never be fully achieved.

Given the interdisciplinary nature of EE, curriculum demands in Malaysian schools at present require EE to be implemented across the curriculum. However, Dr. Hamzah, the EE educator from the varsity, as with a few school administrators (5 out of 12, 42%) and many teachers (13 out of 16, 81%) interviewed vouched for EE to stand alone as a subject so that the basic concepts in EE can be transferred in a progressive and systematic manner and to run a complete course starting from primary school (not piece-meal and fragmented in nature). In this way, attention is being paid to it by the specific teacher teaching the subject. As it is, the present practice of *EE across the curriculum* leaves much to be desired and it had been observed that very minimal EE, if at all, occurred in or outside the classroom and in the school as a whole.

However, this would suggest a break from the guiding principles of EE as proposed by the early conferences which pointed out that EE being interdisciplinary should not be taught in a "capsule" but as *across the curriculum* as is being done till now. The only setback is in its implementation and efforts should be channeled towards ensuring that EE is being carried out by everyone. This may need greater enforcement and monitoring by the relevant authorities. If need be, the enforcement and monitoring can be empowered within the purview of the various District Education Offices in the many states within the country.

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Perhaps one could take a clue from a foreign research by Lane (2006) which reported that several of the other environmental educators in her study mentioned that the ideal implementation of EE would be infusion in the elementary and middle school years with a "capstone" course at the secondary level. Lane went on to explain that usually, an Environmental Science course was identified as the "capstone", where students could assimilate their previous EE experiences and have a semester or year-long opportunity to conduct an issue investigation.

Despite efforts of the Ministry of Education (MOE) to ensure the inclusion of EE by securing it in the curriculum (as in *EE across the curriculum*), it is generally marginalized in today's school system. The idea was by requiring teachers to integrate EE in the subject area, EE would be integral to the school curriculum. However, as discussed earlier, there is evidence that EE is far from being an integral component of the school system, especially in curriculum instruction. Again, given the present focus at the schools due to the demands and pressures from the various stakeholders (the headmasters, the District Education Offices, the parents) for high academic achievements and striving for the various awards, the characteristics of EE would never blossom the way it was intended to be!

Having said all the shortcomings at the schools in terms of focus and priorities, with due fairness, the case studies revealed that the four schools studied did provide the basic facilities which could be utilized for EE. However it was discovered that such facilities were seldom utilized for curriculum instruction of subjects by the teachers. There were efforts at keeping the schools clean, tidy, and

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beautiful thus providing a safe and conducive environment for study. This was in keeping with the schools' (*SK Cempaka*, CO1 and *SK Relau*, CO3), Mission Statements and also the Clients' Charter of another school (*SK Kuala Besar*, CO4). This was also in keeping up with the demands of various circulars (*Pekeliling*) by the MOE on school cleanliness, beautification and landscaping (as mentioned in Chapter 1). However, there was uneven emphasis given to the implementation of EE at the four schools. It was found that projects involving environmental awareness were more prominent in one school (CO2) with its on-going recycling project and the "Classroom Beautification Competition" held throughout the school term. Also there is the attractive Kitchen Garden which also functions as the Science garden for teaching-learning practices. The schools did carry out *gotong royong* of cleaning up the surroundings and various themes (with some related to EE, like on cleanliness and safety) were assigned to each academic week. The teacher-in-charge would ensure that activities were related to the themes for the week which included emphasis on it through reminders and speeches during the school assembly.

6.2.2 Research Question 2

Research Question 2 looked at issues and challenges in implementing EE in the four selected schools. It also secured the perceptions of the school authorities towards inculcating environmental awareness through the school curriculum. Also, it enquired about the measures taken, on-going projects and also future plans of the schools at promoting EE.

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Interviews with teachers and school administrators, observations and school records revealed a few issues and concerns which needed attention. These revolved around matters like school focus or priority, funding, training, knowledge of EE integration, resources, and a mismatch between curriculum demands (*EE across the curriculum*) and teacher practice in the classroom. Such issues are here to stay if no concerted efforts are made by the relevant authorities to arrest the shortcomings.

Interviews and observations also revealed that all school administrators and teachers acknowledged the importance of EE and had initiated efforts at keeping the school environment clean and pleasant to provide a safe and conducive environment for study. The case studies revealed that besides the basic facilities and infrastructures for teaching and learning, the schools did not lack the open spaces and facilities for implementing EE. These included rest areas, a Science garden / Kitchen Garden (in *SK Wan Idris*, CO2), sheltered areas, school fields, and also information boards along walkways or corridors, trees, flowering plants and greeneries.

The study also found that community relations between schools and the public seemed to be on the rise. The enthusiasm of community involvement in school projects seemed to be equal in both the urban and rural areas. This took the form of the Parent-Teacher Association participating in *gotong royong* of cleaning up the school compound while the town schools (CO1 and CO2) also had the privilege of acquiring help in the form of supply of soil and plants from the District Council and the Agriculture Office. This shows that a fair amount of collaboration had been established with the local authorities, namely the District Council, the school Parent-Teacher Association and also the local Agriculture Office. However, efforts seemed

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to concentrate on giving attention to maintaining cleanliness and beautification of the school compound (did not go beyond that like recycling, except for one, CO2, reducing wastage and energy conservation efforts). The findings of the interviews with the headmasters revealed that they had plans to work further on landscaping but lamented at the constraint of not having allocations for projects or programs related to EE.

In terms of curriculum instruction, it was observed that very minimal *EE across the curriculum* took place. This could also be related to the lack of resources like guidebooks) related to EE at the schools. In particular, to cap it all, they had no guide to the implementation of *EE across the Curriculum*. Interestingly, on the Ministry of Education Teachers' guidebook for "EE across the Curriculum for *KBSR*", (*Pendidikan Alam Sekitar Merentas Kurikulum KBSR*), all the teachers interviewed, except one, mentioned that they had not seen it and were not aware of its existence! A quick check at the schools' Resource Centers and also with the headmasters revealed that there was no sign of it. Teachers depended mainly on textbooks and workbooks on the subjects they taught. Furthermore, teachers were not trained at EE integration.

Dr. Hamzah who is from a local university that trains teachers for secondary schools and had been involved with projects with neighboring schools, was quite aware of curriculum changes for the primary schools. He lamented at the changes made, like the disappearance of the subject *Alam dan Manusia* (Man and the Environment) from the *KBSR* and also the gradual phasing out of *Kajian Tempatan* (Local Studies) when the *KSSR* takes over fully in 2016. He interpreted this to be a

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step backward for EE in the curriculum. Furthermore it could also be interpreted as a sign of the decline of EE in the formal curriculum. Therefore, together with a majority of teachers interviewed (13 out of 16, 81%), he vouched for a separate subject for EE in the primary school to ensure that the goals and objectives of EE be attended to seriously.

6.2.3 Research Question 3

Research Question 3 continued with probing into the experiences and challenges of teachers at incorporating EE in the classroom. It also entailed looking at how prepared the teachers were at incorporating EE in the lessons. Another thing of interest here was to look at how teachers teach about (and for) the environment. The effort was also aimed at comparing their EE practices to exemplary practices of EE teaching. Finally, RQ3 also looked at the method of assessment on EE being administered by the teachers.

While the curriculum prepared for EE in the three subjects (*BM*, Science and *KT*) was considerably adequate, the implementation in the classroom at the school level needed a lot more improvement in terms of support materials and teacher preparation. Implementation of the curriculum had some weaknesses, specifically inadequacy of teachers in carrying out varied methods or techniques both in and outside the classroom. Curriculum implementation appeared to be restricted to merely following the syllabus and teaching based on subject matter. Teachers might not have adequate knowledge on EE although some of them thought that

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incorporating EE at the primary school level is easy. From the interviews, it was found that a few of the teachers seemed to have a shallow understanding of EE. Furthermore, the textbooks used needed improvement and update, and the schools lacked teaching-learning materials on EE. In addition to that, there was no apparent effort by teachers collectively to develop materials for EE in particular.

The integration of environmental values was meant for pupils to learn about the environment, in the environment and for the environment. The goals of EE were never fully attended to and will never be resolved. The findings revealed that the knowledge part of EE to increase awareness was superficial although pupils might acquire awareness from other sources like the mass media. The skills and action parts were lacking. There was no room for an extra-curricular club or society to conduct EE activities. The EE professionals proposed initiatives and collaboration with related bodies or organizations (NGOs). However, the actions of the school administrations did not go beyond that of acquiring help and participation from the Parent-Teacher Association (*Persatuan Ibubapa dan Guru, PIBG*), the local District Council (*Majlis Daerah*) and the local community. It could do well if the schools collaborate with environmental groups like the Worldwide Fund for Nature, Malaysia (WWF Malaysia) and Malaysian Nature Society (MNS) to carry out EE activities. Only then would the *EE across the curriculum* get more pronounced.

Next, as the EE program was not subjected to any form of public examination or monitoring, its implementation was not carried out in earnest and its outcome left much to be desired. With regards to testing and assessment, it was found that the teachers resorted to more traditional ways of pen-and-paper tests, and questions and

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answers ("Q & A") which, very often, only attended to the knowledge category. Very often the contents tested bore no relation to EE. There was the occasional composition or poems related but the *BM* teacher would be more interested in the language skills rather than elaborating on the contents. On aspects like values, even though the teachers interviewed claimed that they observed the pupils' behavior from time to time there were no instruments as well as record-keeping of such aspects pertaining to environmental values.

6.2.4 Research Question 4

Research Question 4 reviewed the best practices of EE implementation in schools. It also asked for recommendations of best practices of EE implementation in Malaysian primary schools. Here, besides reviewing the literature on best practices of EE, the views of EE professionals were also sought to provide characteristics of best practices of EE implementation in schools. Such contemporary views of best practices of EE implementation would also provide a platform of references and recommendations for EE implementation in Malaysian primary schools.

As stated in Chapter 2, in terms of teaching and learning, the best practices in EE should incorporate features like direct aesthetic experience with the natural environment, (hands-on learning activities / active participation); environmental restoration activities, (through group discussions, learner's everyday experiences of problematic and enabling circumstances leading to problem-solving); sensitive or emotional content, (to encourage pro-environmental attitudes and behavior); a multi-

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sensory learning environment, (through participatory interactions); and relevant and personal information that promotes empowerment and ownership, (leading to decision-making and problem-solving). Another equally important and effective approach to EE would be teaching through modeling by means of individual role models, school facilities and operations, school governance, and school culture.

The best practices model demands more from the schools but it seems that many of the best practices were not in place. There were no efforts at recycling (except for CO2). Efforts of conservation like reducing wastage of water and electricity were not emphasized upon. Some structures, (for example, the fish pond, the Kitchen Garden with its plants and flowering plants or shrubs) would be installed as part of the school's participation during competitions like the *Anugerah Sekolah Lestari*. At other times when not participating in competitions, the whole effort or project gets either abandoned or just barely maintained by one single caretaker, the teacher or the school gardener! Furthermore, there was no support of an environmental club at the schools to carry out environmental activities.

It should be noted here that EE should not be merely viewed as building new structures. In essence, it should be able to utilize or convert available structures or resources based upon the principles of reuse, repair, and recycle. Whatever measures taken should incorporate the true values of EE which is based on the concept of conservation, reducing wastage and being sustainable throughout.

The EE professionals did give a few recommendations on the best practices of EE in schools. These included activities both in and outside the classroom, practical,

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hands-on, project-based, and supported by an environmental club. There might even be a policy on "zero garbage" and low electricity and water consumption measures to curb wastage of energy usage. There should be total involvement of everybody in the school as reflected in the culture of the school and everyone should participate in recycling and keeping the school clean. The school would exude an environment-friendly ambience making it the responsibility of everyone to contribute towards making it a pleasant and conducive place to study. The environment of the school should truly reflect the education provided making it a landmark culture of the school. Pupils and visitors alike, are then attracted to come to the school when it exudes a clean, tidy and beautiful environment which is conducive for study. Further recommendations for curriculum development incorporating some of the best practices in EE for the primary school are provided in section 6.4, (p. 480).

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6.3 Implications and Recommendations

The sections that follow discuss the implications from the research findings and also presented recommendations for a better implementation of EE at the schools which cover the areas of policy, practice and future research.

6.3.1 Implications for EE in Malaysian Primary Schools

The discussion on the research findings on the implementation of EE leads to many implications on the fate of EE in the Malaysian primary schools. With no new

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directive from the top and no monitoring of EE by the MOE, and with increased demands on teachers' time to address standards in other disciplines to improve pupils' test scores (*UPSR*), (what next with KSSR?), the outlook for EE looks dim. It looks like it will not change for the better. (In fact, from the views of the fourth EE personnel, Dr.Hamzah, "... nothing much has changed!"). The fifth EE personnel, Dr. Samantha also has this to say, "... I actually looked into our new vision policy, Malaysia Plan, about our Blueprint .. I was a little disappointed that nothing was mentioned about EE per se but it does say something about trying to improve the environment, should be more conscious of the environment but nothing about EE when it comes to education. So that was a little setback, you know" (IntvEEP5/050214/Line 141-146). The same sentiment was voiced by the fourth EE personnel earlier on the availability of EE in the new curriculum (*KSSR*) and in the Blueprint respectively, "That's why like I said ... almost nil, don't have ..." "**...** as I remember don't have ... it is not touched on**.** This is a constraint *lah* if we discuss it, we are at the crossroads, we say another thing, its implementation is on another thing, that's the actual story happening in the schools!" (IntvEEP4/091213/Line 274, 283-289)

With very minimal EE in the classroom (or none at all), there is no assurance that its goals are being met. Basically the goals for EE start with awareness and appreciation which builds a base for gaining knowledge and skills that can eventually be used to participate in environmental issue resolution. Along the way, students also explore attitudes and values that relate to the environment and to issues of the environment. Essentially, EE should lead students from awareness to action (citizen participation). As such, the ultimate goal of EE is for students to become

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environmentally literate, which essentially involves students being responsible citizens with regards to the environment. In the present situation as observed, even if teachers did include lessons that increase awareness of the environment and ecological knowledge, the goals related to values and attitudes, citizen action skills and experience were not addressed as thoroughly and efficiently.

Furthermore, with EE being randomly scattered, piece-meal with no continuity, there is little chance that the pupils will receive a comprehensive exposure to all aspects of EE. According to the goals of EE (UNESCO), pupils need a progressive and continual involvement in EE experiences to develop environmental literacy. In the present curriculum, although EE is interdisciplinary in nature, it may not be realistic to expect subject area teachers to include environmental topics in their curriculum – especially when EE is not a priority.

Another point to note is that even if the subject teacher did teach about the environment to the pupils, in actual fact the environment became the main vehicle or content by which the subject teacher communicated the concepts and skills in their teaching area. In other words, for example, the *BM* teacher was using the topic or content about the environment to address the concepts and skills in *BM* and not the other way round!

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6.3.2 Recommendations

The following recommendations are made based on the empirical findings of this study. They involve three main areas of action, namely, policy, practice and research.

6.3.2.1 Policy

It is imperative that the National Education Policy include clearly a policy statement on EE. Environmental education should be introduced to children as early as possible and it should be taken seriously. There is a need to incorporate EE objectives into the existing curriculum. This will set a clear direction especially for headmasters and principals who in turn determine the successful implementation of EE in schools. Should such a statement be installed, the teachers are reminded to infuse or integrate EE into their lessons. Essentially, the teachers would have to include an objective on environmental values to be inculcated during every lesson (like what is being done for moral values). This will ensure an eventual increase in commitment and momentum in EE implementation in schools and in the classroom in particular. Furthermore, schools should have their own policies for EE. Essentially, EE should be on a "whole-school" approach. Everyone should be involved and that includes school administrators, academic staff, non-academic / support staff, pupils and also the local community.

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The curriculum needs a revamp. When a child starts formal education, EE should be part of the learning process. The Curriculum Development Division needs to extend the scope of existing curriculum to include EE at all levels of schooling so that the complex environmental issues are disseminated to all students progressively. This should also include a clearly defined minimum teaching hours for EE on a weekly basis in a specific subject like, for example *Bahasa Melayu*, where Road Safety Education (*Pendidikan Keselamatan Jalan Raya*) has secured a slot.

In the curriculum, EE should be modeled along the lines of Road Safety Education (*Pendidikan Keselamatan Jalan Raya*) where it is slotted for a duration of 30 minutes every week in the *Bahasa Melayu* (*BM*) lesson. (*BM* has got a total of 10 periods in a week.) This was also proposed by three teachers during the interview (TSC3CO1, T*KT*1CO1, TSC1CO3). The full introductory course of EE at the primary school level could be presented in modular form. Incidentally, it needs to be pointed out here that this does not compromise *BM* as language skills do go along in tandem with EE. Additionally, it is obvious that *BM* teachers have to be trained in EE techniques and integration as well.

Still on the topic of curriculum, since the abolishment of *Alam dan Manusia* (Man and Environment) and phasing out of subjects like *KT* and *PSK*, starting from Year 4 in 2014 for *KSSR* (of which they play an important part in incorporating EE), there is still no replacement in sight. A replacement of a similar subject in the school curriculum will continue to provide knowledge, awareness, and skills in EE to the students.

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Teachers are the key to learning and the quality of education depends on them. The teachers of all subjects must be competently equipped with the right knowledge and skills of integration of EE in the lessons. Under the present scenario, since EE is subsumed under various topics in the various subjects in the Malaysian primary school curriculum, very much is left to the initiative and ingenuity of the teachers to interpret and understand these environmental components or implications. It is also expected of them to improvise the relevant materials and discover the appropriate transmission of environmental knowledge to the pupils. In the light of this, the MOE should conduct regular training and in-service courses in EE to give direction to the teachers who are not exposed to EE concepts. Additionally, courses, workshops, seminars and in-house training at the schools can be conducted to upgrade and update the teachers' skills and evaluation methods as well as to develop new teaching and learning techniques and resource materials for EE. Essentially, periodic review and updating for the teachers is vital for them to keep abreast with the latest changes, innovations and development in EE and to boost their confidence and motivation to teach EE.

In addition to in-service courses on EE for teachers, the MOE should also consider exposing EE to all pre-service teachers at the Teacher Education Institutes. The MOE can ensure that all pre-service teachers should undergo a course in EE before they graduate. Currently, EE is taught as a subject in one semester only in the Teaching Degree Program for Science and Social Science. A course in EE should also be made compulsory to all teacher trainees at the Teacher Education Institutes.

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Proper measures with monitoring should be taken to ensure that EE is thoroughly implemented. There can be no half-measures as it will not bring real benefits to our children. Relevant measures like monitoring by the District Education Offices (*Pejabat Pelajaran Daerah, PPD*), as was also proposed by EEP 7, can help ensure that EE is properly implemented.

Infrastructure in the form of facilities like Environmental Learning Stations could be established at every school to facilitate the conduct of outdoor activities within the school compound. The MOE should provide specific funding allocations for EE at the schools. As it is, at the schools, many keen implementers are faced with limited funding to execute programs. Most importantly, the school environment itself must be conducive, resourceful and safe for children to explore the natural world and to appreciate the physical surroundings. In sum, the challenge is to set up and institutionalize a system of educational planning and implementation that will produce citizens of the country who care for and are committed to look after the environment today and in the future.

6.3.2.2 Practice

A holistic approach to EE encompassing methodology, evaluation and continuous and structured monitoring should be assimilated in the daily teaching and learning in schools. Presently, although certain subjects in the primary and secondary schools have integrated EE in their textbooks, the holistic approach to EE within the curriculum is relatively superficial. In the curriculum, special emphasis should be

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placed on application of investigative and evaluative environmental action skills. For example, at the primary school level, one way to do this is to let the pupils explore the real world with guided supervision, discovering animals and plants, examining surrounding environments, and contributing ideas and taking action to improve things around them. The intention is to make them appreciative, thankful, knowledgeable and optimistic with many other basic values to hold on to. Notably, EE should be part of the learning process. The curriculum should provide them with a wholesome education so that they will grow up to value things and everything around them.

In the formal part of education, there must be proper implementation of *EE across the Curriculum*. There must be greater effort in instruction concerning *about the environment*, *in the environment*, and *for the environment*. In the primary school curriculum the pupils must be exposed to EE like the ideas about the environment and about conservation progressively from Kindergarten right up to Year 6. The curriculum should offer teachers the opportunity to try out a variety of techniques which will involve group discussions, case studies, experimentation and role-playing. The group activities employed by the teachers will encourage students to explore issues related to the environment. In this way, children can actively participate in discussing and finding ways to resolve environmental problems.

Notably, EE should involve *applied learning* which is a promising approach where pupils use what they have learnt in real world contexts. One obvious strength of this method of *applied learning* is to capture the pupils' interest and thus motivate them by showing the relevance and usefulness of what they are learning. Eventually

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this sets as a base for life-long learning habits where skills like communication, learning and thinking skills are incorporated into the teaching-learning process.

Incidentally, this fits into the newly introduced curriculum, *KSSR* which focuses on school-based assessment which can incorporate coursework like projects. School-based assessment is being implemented in *KSSR* and with this EE can be project-based while incorporating the various techniques and resources in EE implementation. For example, pupils can be given projects and assignments on topics related to issues related to the environment. It is here that EE can be nature-based, issue-driven and also incorporating problem-solving and decision-making approaches.

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Undoubtedly, the schools need to take up the challenge by changing not only the content of curriculum and programs but also, more importantly, the delivery system. Obviously, teachers will need varied instructional strategies. Therefore the key challenges facing the country through the MOE is to train the teachers to be more creative and innovative and to adopt this *applied learning* method. In order to make teaching increasingly interesting and effective, teachers must undergo a constant learning process. It must also be said that teaching facilities and equipment must be adequate and up-to-date. The Teacher Education Institutes should also rise in tandem with such demands and ensure that all the teacher trainees are equipped with knowledge and skills to impart EE in schools.

There is a need to develop more teaching materials and to make these materials more accessible to teachers. Interesting and colorful teaching aids such as

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EE activities and game books, CDs, as well as posters for each environmental issue could improve the dissemination of environmental knowledge and information to the pupils. Essentially, there should be many teaching aids for the teacher to use them in infusing EE. Such teaching aids which are colorful and attractive such as game books, activity books as well as posters and CDs depicting each environmental issue can increase the knowledge and attitude of students towards EE.

In terms of resources and references, the Teachers' Guidebook for EE must be renewed and produced by the MOE to provide guidance for EE integration. There must be greater collective effort amongst the teachers at producing resource materials related to EE. In addition, to make it easy to convey the idea about the environment and on issues concerning the environment, other mediums of instruction can be employed, such as books, pictures, charts and videos. The ministry should consider running courses on resource development and management for trained teachers. They should be given proper training in order to impart EE to students.

The structure for education on the environment must be set up. This comprises the school boards / notice boards for displaying information on the environment at strategic locations, along hallways to educate the school community and visitors. There must be greater utilization and allocation of space for EE. This can include the setting up of a Science garden, an agricultural garden, a herbal garden as well as rest areas or learning stations (*pusat-pusat pembelajaran*) for supporting activities outside the classroom.

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Environmental education must be supported by a club/society related to the environment. For example, initiating the Environment Club (*Kelab Alam Sekitar*), Nature Lovers' Club (*Kelab Pencinta Alam*), or Friends of the Environment Club (*Kelab Rakan Alam Sekitar*) and the club is to be managed by a group of dedicated environmentally-inclined teachers lending support to the pupils who also manage the running of the club/society. This caters for informal as well as non-formal EE.

Last but not least, the school administrators as well as the teachers should "walk the talk" as asserted by Dr. Zabeda (EEP 6). In other words, they should be role models at EE implementation. Ultimately, EE is reflected in the culture of the institution. It involves the process of enculturation of environmental values as proposed by Dr. Samantha (EEP 5). Everyone in the school should know about it and participates in it as well. This includes activities like *gotong royong*, cleanliness campaigns, planting of flowering plants and trees, recycling, composting, as well as saving electricity and water. In sum, such measures are aimed at cleanliness, beautification, energy saving and reducing wastage.

6.3.2.3 Future Research

This study had investigated and evaluated the implementation of EE at four selected primary schools. The shortcomings of EE implementation at the schools in the study had also been identified. Given that there is limited research on the implementation of EE at the schools, additional research studies are necessary in this area. The need to continue research pertaining to the implementation of EE is crucial in ensuring that

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EE attains its rightful place in the Malaysian education curriculum. Given the growing concern about both local and global environmental issues, EE has to continue to be of concern to educational and policy makers in the field of education.

This study identified the status of EE implementation at four selected primary schools. It is recommended that the study be replicated in more primary schools covering the whole of Malaysia (representation from the various states). This additional research could serve to present a clearer picture of EE needs and accomplishments from a larger number of coverage of schools and would be enlightening to compare the data collected from different schools to uncover similarities and differences. Additionally, conducting a mixed-method study would offer additional comparative analysis. Studies of this kind could also be done in secondary schools.

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Replicating this study with other types of schools, like National-Type Primary Schools (*Sekolah Jenis Kebangsaan Cina, SJKC* and *Sekolah Jenis Kebangsaan Tamil, SJKT*) is one recommendation for future research. This would offer academic leaders the ability to compare results to ascertain whether there are differences in terms of EE implementation among the different streams. The same study can also be replicated at all levels: primary, secondary, college and higher educational institutes to present a total picture of EE implementation at different educational levels.

In the formal curriculum the study involved three subjects, namely *BM*, Science and *KT*. Future research can cover the other subjects like English Language

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and Moral Studies in order to examine the implementation of *EE across the curriculum* for a wider range of subjects. In addition to that, the issues that arose from the case studies like, for example, on EE integration in the various subjects could be used as springboards for further investigations. Another area of research would be to investigate whether the problems or major hindrances to the implementation of *EE across the curriculum* do occur on a nationwide scale.

6.4 Recommendations for EE Curriculum Development in the Malaysian Primary School

In particular, the investigator also proposes some considerations for the EE Curriculum in the Malaysian primary school which was adopted (with adaptations) from the Curriculum Development Center (CDC), MOE / UNESCO project for EE for the Primary School in the ASEAN region (1999). A description of this curriculum is provided in the section that follows.

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The proposed EE curriculum in the Malaysian primary school should emulate the format of the Road Safety Education Program being implemented in the *BM* subject starting from Year 1 to Year 6 where it is slotted for a duration of 30 minutes every week in the *BM* lesson. (*BM* has got a total of 10 periods in a week comprising 30 minutes for each period.). (The Pre-School has got its own module on EE.) The content of the curriculum is based on themes and topics related to the environment. The themes and topics are presented in the section that follows.

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6.4.1 Themes and Topics

Essentially, EE in the Malaysian primary school should embody the three aims of learning about the environment, developing skills in investigating the environment, and also acquiring a concern for the environment. In other words it aims to capture the "Head, Heart, and Hand" (3Hs) of the learner. This signifies the intellectual, the basic human and ethical attitudes and values, as well as the personal involvement of pupils in action projects.

In order to achieve the first aim of learning about the environment, pupils must acquire knowledge and understanding of environmental concepts, the local and global environments, as well as the past and the planning for future environments. For the second aim, essentially pupils must be given the opportunity to identify, clarify, and analyze alternative views on environmental issues and then evaluate possible resolutions to them. Equally important is the third aim of acquiring a concern for the environment where pupils must develop positive values and attitudes towards the environment. This also entails the ability to express sensitivity towards the environment and to hold a Malaysian perspective towards our unique environment, one that is rich in biodiversity. This requires the responsibility of all Malaysians towards its conservation and preservation. Ultimately, the pupils will have to apply their knowledge, skills and values, to participate actively in maintaining and improving the quality of their environment, thus contributing to the development of a global environmental ethic.

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To realize the three aims mentioned above, the curriculum can be organized using a thematic approach embodying three themes namely, Theme A: Living Things and their Environment, Theme B: Interaction between Living Things in the Environment, and Theme C: The Need for Proper Management of the Environment towards Sustainable Development. For the first theme, *Living Things* comprise human beings, plants and animals. The first theme can include topics like *Basic Needs of Living Things* and *Specific Needs of Human Beings*. The second theme can introduce topics like *The Environment; The Ecosystem; Diversity of Plants and Animals*; *Human Beings, Plants and Animals are constantly adapting themselves to their Environment;* and *The Natural World / The Ecosystem exists in a State of Equilibrium*. Finally the third theme should comprise topics like *Human beings'' Responsibilities in the Society; Human beings utilize Natural Resources;* Human *beings' Activities and their Effects on the Environment;* and *The Importance of Conserving the Environment*.

The suggested curriculum outline for a six-year program proposed by the CDC (1999) was adopted with adaptations and tabulated to show various topics in accordance to the three themes. Specifically, the thematic outline and the topics can be arranged based on two-year programs, namely, Year 1 and 2, Year 3 and 4, and Year 5 and 6 as shown in Table 6.1.

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Table 6.1

Themes and Topics for Two-year Program

Year	Theme / Topic
1 & 2	Theme A: Living Things and Their Environment. • Basic Needs of Living Things: Food, Water, Air, and Space. • Specific Needs of Human Beings: Clothing, Shelter, Clean Environment, Interaction and Communication between Fellow Human Beings. Theme B: Interaction Between Living Things (Human beings, Plants and Animals) in the Environment • The Ecosystem exists in a Balanced State (Equilibrium): Different Ecosystems, Types of Ecosystems, Living and Non-living Elements of an Ecosystem Theme C: The Need for Proper Management of the Environment Towards Sustainable Development. • Human being's Responsibilities in Society: Self, Family, and Society. • Human beings utilize Natural Resources: various types of resources for different purposes.
3 & 4	Theme A: Living Things and Their Environment • Basic Needs of Living Things: food (balanced diet); air (in a balanced composition) • Specific Needs of Human beings: to live in a society (importance of values, beliefs and culture in the society); to be involved in economic activities. Theme B: Interaction Between Living Things (Human beings, Plants and Animals) in the Environment • Diversity of plants and animals • Human beings, plants and animals are constantly adapting to their environment • The Ecosystem exists in a state of equilibrium
5 & 6	Theme C: The Need for Proper Management of the Environment Towards Sustainable Development • Human beings' responsibilities in the society • Human beings utilize natural resources • Human beings' activities and their effects on the environment • The importance of conserving and preserving the environment

Note. Adapted from "An Environmental Education Dimension of Curriculum for Primary School in the ASEAN Region," Ministry of Education & UNESCO. (1999).

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6.4.2 Teaching-Learning Approaches

Two teaching-learning approaches could be adopted in EE, namely, the *Sensory Experience Approach* and the *Problem-Solving Approach*. The Sensory Experience

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Approach aims to encourage pupils to gain an appreciation of an area through the use of as many of their senses as possible. An integral part of the approach is the development of sensory awareness skills of sight, hearing, smell, feel and taste. When using this sensory experience approach, it is necessary to select an area which contains a wide variety of sensory stimuli. This may be found within the classroom or outdoors. With this approach pupils get involved in activities like sensing the environment using the senses of sight, hearing, smell, taste and touch to extract information from the environment. Learning activities which make the maximum use of the senses provide an important basis for developing in pupils an understanding of environmental concepts.

In the problem-solving approach, the pupils of all ages can be involved in identifying and working towards solutions to environmental problems. Here, the environment of the classroom, the school grounds, the home and the community all contain problems which may be appropriate starting points for investigation by the pupils. The pupils will have the opportunity to analyze the problems as well as the solutions to the problems. Essentially, the purpose of learning about the environment through the application of problem-solving skills is to link conceptual understandings with practical experiences.

Other teaching-learning strategies include the project work, experiments, field trips, situational analysis, role playing, simulations, debate, discussion, games and puzzles, and hobbies.

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6.4.3 Teaching-Learning Activities

In order to realize these aims, the curriculum can be organized to include activities suitable for the various year groups:

For Years 1 and 2, the curriculum should include activities that promote touching, hearing and the use of the other senses as ways of gathering information about the environment. For a start, such activities should emphasize objects with a relatively small number of properties (for example, size, shape, color, and smell). The activities should also promote the examination of simple cause and effect relationships in their environment. (For example, "What would happen if our classroom had no roof? / no light?") Also to be included are values education activities where they should focus on simple and clearly defined issues (for example, personal hygiene, keeping neat and clean in terms of their clothing, and no littering).

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With regards to Years 3 and 4, activities should present situations in which cause and effect relationships may be examined. This can also include simple problem-solving activities that address problems identified by pupils (for example, furniture, tables and chairs arrangement in the classroom, and other decorations). The activities can begin to stress a practical orientation that will result in a stronger commitment to the improvement of the pupil's environment. Also the activities can begin to involve the pupils in making decisions about themselves and their environment.

Finally for Years 5 and 6, the activities can deal with a larger number of variables and promote the search for logical relationships (for example, concept webs

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like food chain, food web). Also activities can be developed which emphasize the process of predicting. Besides that, to be included are activities that can promote the identification of significant environmental questions and the classification of environmental issues. Opportunities should be provided for pupils to be involved in decision-making and to realize the need to accept consequences of their decisions. Such activities can also promote the concept of choice and decision-making in the context of responsible action towards the betterment of the environment.

6.4.4 Teaching and Learning Resources

These include books and other printed materials, teaching kits, CDs, VCDs, DVDs and also the classroom and its contents, and also not forgetting the environment outside the classroom. The internet also provides a vast source of learning materials. Besides captivating the pupils' attention, the resources help the pupils to understand the environmental concepts and issues better as such resources may contain a variety of sensory stimuli (sight, hearing, smell, taste and touch).

6.4.5 Assessment and Evaluation

The main purpose of assessing the pupils' learning in EE is to provide information which can be used by the pupils, teachers and parents in planning further education. Assessments can be used as a means of monitoring pupil progress and reporting. A most direct way of assessing knowledge objectives (what the pupils know) is by using

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such simple techniques like true/false items, multiple choice questions, quizzes, sentence completions and oral or written tests. Assessing skills objectives (what the pupils can do) would require pupils to complete tasks like projects, essays, taking part in formal dialogue, the completion of log books and conducting experiments and demonstrations.

Attitudes are not straightforward to assess. When we assess feelings, values and attitude objectives (for example, pupils develop a concern for the quality of the environment), we are interested in what pupils really believe rather than how they claim they would. Undoubtedly, it is very difficult to assess attitudes and values because as soon as pupils know they are being assessed, they are likely to demonstrate those values which they think the assessor will reward. Therefore to assess the achievement of environmental values objectives, it may be useful to focus on the actual behavior of pupils towards their environment in informal contexts such as at the playground or while engaged in classroom or outdoor activities using checklist or anecdotal records.

The assessment of pupils' achievements should be carried out during a unit of work as well as at the completion of it. Information may be gathered by informal means, like for example, observing the processes pupils employ when working with others on environmental problem-solving tasks. It would be appropriate to employ a variety of assessment methods to cater for pupils with different learning abilities.

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6.5 Conclusion

The findings and interpretations of the study revealed that *EE across the curriculum* was not fully implemented in the selected schools. There was uneven emphasis given to the implementation of EE at the four schools. Projects promoting environmental awareness amongst the pupils were more prominent in one school whereas the other three schools did not emphasize on such projects. In curriculum instruction of subjects, the incorporation of EE concepts was superficial. All of the lessons observed were classroom-based, with no outdoor teaching, no experiential learning or relating to problem-solving of related environmental issues. Interestingly, it was noticed that the Science teachers had a better vision and understanding of EE compared to teachers of the other subjects. As such, these teachers might be able to implement the education in, about and for the environment and confidently acknowledged that they integrate it in the Science subject, whereas, other teachers had minimum interaction with environmental content and thus revealed insufficient knowledge of it nor integrate sufficiently in their teaching. Inevitably, the objectives of EE which comprise five categories, namely, awareness, knowledge, attitude, skills and participation were not fully achieved.

Suggestions for best practices include a holistic approach in EE and should be taught across the curriculum. In curriculum and instruction, EE should encompass five main aspects namely, knowledge, awareness, skills, attitudes and participation. Notably, EE should be issue-driven and project-based emphasizing participation in preventing and solving environmental problems. As for recommendations for

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curriculum development, effective teaching and learning approaches, activities and resources in EE should be given due consideration.

Stapp (1978) had pointed out that attitudes toward the environment are generally acquired very early in life, and to change an attitude takes a very strong and reinforcing environment. Therefore educational programs must start early and transcend both formal and non-formal education. Eagles and Demare (1999) also noted that it is important that both formal and informal EE programs are directed at children at an early age because they experience a major development of their attitudes during their younger years, and their attitude structures are well-formed by the end of high school.

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As such, EE is important at the primary school level because it lays the foundation for the students to appreciate the environment and to develop the right attitude towards the environment. It also paves the way for students to think critically when examining various perspectives on environmental issues. The students of today will be making decisions that will shape the future of the environment. By educating them about the environment now they will develop an early sense of social responsibility and will be better prepared to engage intelligently in making decisions about the environment in the years to come. It is here at the primary school that a strong foundation for environmental awareness, knowledge, skills, attitudes and action is laid for producing citizens of tomorrow who will rise to the occasion of being global partners in looking after the environment.

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REFERENCES

Abdul Aziz Shamsuddin. (2003). *Conceptual environmental understanding among form 4 Geography students*. (Unpublished master's project paper). University of Malaya, Kuala Lumpur.

American Psychological Association. (2010). *Publication manual of the American Psychological Association* (6th ed.). Washington, DC: Author.

Arba'at Hassan. (1992). *The perceptions of Grade 6 school teachers regarding the status of Alam dan Manusia (Man and the Environment) in the primary school curriculum in Sabah, Malaysia*. (Unpublished doctoral dissertation), Southern Illinoise University at Carbondale.

Armstrong, J., & Impara, J. (1991). The impact of an environmental education program on knowledge and attitude. *The Journal of Environmental Education, 22*(3), 36–40.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Ballantyne, R., & Packer, J. (1996). Teaching and learning in environmental education: Developing environmental conceptions. *Journal of Environmental Education*, *27*(2), 25–33.

Bassey, M. (1999). *Case study research in educational settings*. Buckingham: Open University Press.

Bogdan, R. C. & Biklen, S.K. (1998). *Qualitative Research for Education. An Introduction to Theory and Methods*. (3rd ed.). Boston: Allyn and Bacon.

Bogner, F. (1998). The influence of short-term outdoor ecology education on long-term variables of environmental perspective. *Journal of Environmental Education*, *29*(4), 17–30.

Boh, B. (1991). *Environmental Education in Asian Countries*. Department Papers Series, No. 1, Asia Technical Department, Environment Division and Population and Human Resources Division, Technical Department, Asia Region, World Bank, April 1991.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Bohl, W. B. (1976). A s*urvey of cognitive and affective components of selected environmentally related attitudes of tenth, and twelfth-grade students in six mideastern, four southwestern, and twelve plains and mountain states.* (Doctoral dissertation), The Ohio State University, 1976. University Microfilms International, Ann Arbor, Michigan.

Bybee, R., Harms, N., Ward, B. & Yager, R. (1980). Science, Society and Science education. *Science Education, 64*(3): 377–395.

Cachelin, A., Paisely, K., & Blanchard, A. (2009). Using the Significant Life Experience Framework to inform Program Evaluation: The Nature Conservancy's Wings & Water Wetlands Education Program. *The Journal of Environmental Education, 40*(2), 2–14. Available from ProQuest Dissertations and Theses, ProQuest Education Journals database.

Calder, B. J. and Robert E. B (1977). Interpersonal Influence on Consumer Behavior: An Attribution Theory Approach. *The Journal of Consumer Research*, *4*(1), 29-38.

Cangemi, J. P., & Kahn, K. H. (1979). Social learning theory: The role of imitation and modeling in learning socially desirable behavior. *Education, 100*(1), 41–46.

Carrier, Sarah J. (2009). Environmental Education in the Schoolyard: Learning Styles And Gender. *The Journal of Environmental Education*, *40*(3), 2–12.

Centre of Environment Education. (2005). *Education for Sustainable Future: United Nations Decade of Education for Sustainable Development (2005-2014).* Unpublished document.

Cerovsky, J. (1971). Environmental Education: Yes-But How? *Your Environment, 11* (1), 17.

Chawla, L. (1988). Significant life experiences revisited: A review of research on sources of environmental sensitivity. *The Journal of Environmental Education*, *29*(3), 11–21.

Che Kalbi Mohd Ali. (1999). *Pengetahuan Isu-isu Alam Sekitar di kalangan guru pelatih KDPM Semester 5 Maktab Perguruan Kota Bharu.* (Unpublished master's project paper). University of Malaya. Kuala Lumpur.

Chelliah, T. (1984). *Environmental Education: Some Policy Issues*. Paper presented at the Fourth National Convention on Education, Petaling Jaya, 6–8 August 1984.

Cheong, S. Y. (1980). *Science and Environmental Orientations-A Malaysian Case Study*. Paper presented at the Eighth Biennial Conference of AABE, Osaka, Japan.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Chi, B. (2000). *Service-learning as "citizenship" education: The promise and the puzzle*. Corporation for National Service. Retrieved September 3, 2004, from http://www.nationalservice.org/research/fellows_reports/2000/chi.pdf

Chiang, S. H. (1981). *The effects of field study experience on environmental knowledge and attitudes among university students*. (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

Chuah, T. I. (1989). *Attitudes towards environmental issues in the context of the moral development of Standard Six pupils*. (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

Cohen, M.R. (1973). Environmental Information Versus Environmental Attitudes. *The Journal of Environmental Education*, 5(2): 5-8.

Creswell, J.W. (2007). *Qualitative inquiry & research design*. Thousand Oaks, CA: Sage.

Creswell, J. W. & Miller, D. L. (2000). Determining validity in qualitative inquiry. *Theory into Practice, 39*(3), 126.

Daniel, E.G.S., Nadeson, T. & Mhd. Shafiee bin Abd Ghani. (2006). *Organizing for action in environmental education through smart partnerships: A Malaysian Experience.* A paper presented at the International Conference for the Environment in Zimbabwe, April 2006.

Dettmann-Easler, D., & Pease, J. (1999). Evaluating the effectiveness of residential environmental education programs in fostering positive attitudes toward wildlife. *Journal of* Environmental Education, *31*(1), 33–40.

Dewan Bahasa dan Pustaka. (2006). *Bahasa Melayu Tahun 5. Sekolah Kebangsaan. KBSR (Kurikulum Semakan). Buku Panduan Guru.* Kuala Lumpur: DBP.

Dewan Bahasa dan Pustaka. (2006). *Bahasa Melayu Tahun 5. Sekolah Kebangsaan. KBSR (Kurikulum Semakan). Buku Teks.* Kuala Lumpur: DBP.

Dewan Bahasa dan Pustaka. (2008). *Kajian Tempatan Sekolah Kebangsaan Tahun 5. KBSR. Buku Teks. Kurikulum Semakan* Kuala Lumpur: DBP.

Dewan Bahasa dan Pustaka. (2006). *Kajian Tempatan Tahun 5 KBSR Sekolah Kebangsaan. Kurikulum Semakan. Buku Panduan Guru.* Kuala Lumpur: DBP.

Dewan Bahasa dan Pustaka. (2007). *Science Textbook Year 5. Integrated Curriculum For Primary Schools. (KBSR).* Revised Curriculum. Kuala Lumpur: DBP.

Dewan Bahasa dan Pustaka. (2008). *Science Year 5. Practical Book. Integrated Curriculum For Primary Schools.* Kuala Lumpur: DBP.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Dewan Bahasa dan Pustaka. (2006). *Science Year 5. Teacher's Guidebook. Integrated Curriculum For Primary Schools. (KBSR).* Revised Curriculum. Kuala Lumpur: DBP.

Dijkstra, W., Smit, J. H. & Comijs, H. C. (2001). Using social desirability scales in research among the elderly. *Quality & Quantity* 35: 107–115.

Disinger, J., & Monroe, M. (1994). *Defining environmental education: An EE toolbox workshop resource manual*. Ann Arbor: University of Michigan National Consortium for Environmental Education and Training.

Dresner, M., & Gill, M. (1994). Environmental education at summer nature camp. *Journal of Environmental Education, 25*(3), 35–42.

Eagles, P., & Demare, R. (1999). Factors influencing children's environmental attitudes. *Journal of Environmental Education, 30*(4), 33–38.

Education Planning and Policy Research Division. (2004). *National Education Policy*. Ministry of Education, Malaysia.

Encyclopedia of Educational Research (1982).(Fifth Edition) Vol 2. Sponsored by the American Educational Research Association, Editor in Chief Harold E. Mitzel (New York: The Free Press, A division of Macmillan Publishing Co.).

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Eyers, V. G. (1975). *Environmental Knowledge and Beliefs Among Grade 10 Students in Australia*. (Unpublished doctoral dissertation). Oregon State University.

Fadzilah Muhammad Ali. (1999). *Tahap kesedaran alam sekitar di kalangan pelajar di sekolah rendah dan sekolah menengah: satu kajian kes.* (Tesis kedoktoran). Universiti Kebangsaan Malaysia, Selangor, Malaysia.

Farmer, J., Knapp, D., & Benton, Gregory M. (2007). *The Journal of Environmental Education, 38*(3), 33–43. Available from ProQuest Dissertations and Theses, ProQuest Education Journals database.

Fien, J., Scott, W., & Tilbury, D. (2001). Education and Conservation: Lessons from an evaluation. Environmental Education Research, 7, 379–395.

Frayer, D. A., & Klausmeir, H. J. (1972). *Modeling as a technique for promoting classroom learning and prosocial behavior.* Washington DC: Office of Educational Research and Improvement. (ERIC Document Reproduction Service No. ED073409).

Gan, S.L. (1987). *Environmental Education in Malaysia: Curriculum Guidelines for Preservice Science Teacher Education Programs.* (Unpublished Ed D. Dissertation). University of Hawaii.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Gigliotti, L. M. (1990). Environmental Education: What went wrong? What can be done? *The Journal of Environmental Education, 22*(1), 9–12.

Gillett, D. P., Thomas, G.P., Skok, R. L., & McLaughlin, T. F. (1991). The effects of wilderness camping and hiking on the self-concept and the environmental attitudes and knowledge of twelfth-graders. *The Journal of Environmental Education*, *22*(3), 33–44.

Glesne, C. (1999). *Becoming qualitative researchers: An introduction.* (2nd ed.). New York: Addison Wesley Longman.

Gould, S. (1994). *Eight Little Piggies: Reflections in Natural History.* New York: W.W. Norton.

Harris, F. (2004). *Global Environmental Issues.* West Sussex, England: John Wiley & Sons Ltd.

Hart, E. P. (1978). Examination of BSCS Biology and Non-biology Students' Ecology Comprehension, Environmental Information Level and Environmental Attitude. *Journal of Research in Science Teaching, 15*(1), 73–78.

Hartig, T., Kaiser, F, & Bowler, P. (2001). Psychological restoration in nature as a positive motivation for ecological behavior. *Environment and Behavior, 33*(4), 590–607.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Higgs, A. L. & McMillan, V. M. (2006). Teaching Through Modeling: Four Schools' Experiences in sustainability Education. *The Journal of Environmental Education, 38*(1), p. 39–53.

Ho, Y. M. (2007). *Environmental Citizenship Among Pre-Service Teachers in Malaysian Teachers Training Colleges.* (Unpublished doctoral thesis). *Universiti Putra Malaysia*, Selangor, Malaysia.

Hounshell, P.B. & Liggett, L. (1973). Assessing the Effectiveness of Environmental Education. *The Journal of Environmental Education, 5*(2), 28–30.

Hungerford, H., Litherland, R., Peyton, R., Ramsey, J., & Volk, T. (2003). *Investigating and evaluating environmental issues and actions: Skill development program*. Champaign, IL: Stripes.

Hungerford, H., Peyton, B., & Wilke, R. (1980). Goals for curriculum development in environmental education. *The Journal of Environmental Education, 21*(3), 8–21.

Ismail Hussin. (2005). *Tahap kesedaran alam sekitar di kalangan pelajar Sekolah Menengah Kebangsaan Daerah Jerantut, Pahang.* (Unpublished master's thesis). Universiti Kebangsaan Malaysia, Selangor, Malaysia.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Jaus, H. (1982). The development and retention of environmental attitudes in elementary school children. *Journal of Environmental Education*, *13*(2), 12–18.

Jayatilaka, Bridget Chitra. (1982). *Relevance of the teaching of ecology to environmental awareness: a case study of a Malaysian Secondary school.* (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

K. Purushotham Reddy and D. Narasimha Reddy. (2003). Second Edition. *Environmental Education*. Hyderabad: Neelkamal Publications Pvt. Ltd.

Kals, E., Schumacher, D., & Montada, L. (1999). Emotional affinity toward nature as a motivational basis to protect nature. *Environment and Behavior, 31*(2), 178–202.

Kelly, A.V. (2009). *The Curriculum. Theory and Practice*. 6th. Edition. London: Sage Publications Limited.

Kementerian Pelajaran Malaysia. (1981). *Surat Pekeliling Iktisas No. 4/1981. Kebersihan Di Sekolah-Sekolah.*

Kementerian Pelajaran Malaysia. (1985). *Surat Pekeliling Iktisas Bil. 5/1985. Rancangan Mencantik dan Mengindahkan Sekolah dan Kawasannya (Landscaping).*

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Kementerian Pelajaran Malaysia. (2007). *Sukatan Pelajaran Pengajian Sosial I. Kursus Persediaan. Akademik.* Kuala Lumpur: Bahagian Pendidikan Guru, Kementerian Pelajaran Malaysia.

Kementerian Pelajaran Malaysia. (2007). *Sukatan Pelajaran Pengajian Sosial II. Kursus Persediaan. Akademik.* Kuala Lumpur: Bahagian Pendidikan Guru, Kementerian Pelajaran Malaysia.

Kementerian Pelajaran Malaysia. (2008). *Surat Pekeliling Iktisas Bil. 6/2008. Panduan Pengurusan Dan Pelaksanaan Program Bumi Hijau Sekolah.*

Kementerian Pelajaran Malaysia. (2010). *KSSR Kurikulum Standard Sekolah Rendah*

Kementerian Pendidikan Malaysia. (1979), *Laporan Jawatankuasa Kabinet Mengkaji Pelaksanaan Dasar Pelajaran.* Kuala Lumpur.

Kementerian Pendidikan Malaysia. (1982), *Buku Panduan Am, Kurikulum Baru Sekolah Rendah.* Kuala Lumpur.

Kementerian Pendidikan Malaysia. (1989). *Surat Pekeliling Iktisas Bil. 14/1989. Kebersihan Sekolah.*

Kementerian Pendidikan Malaysia. (1996). *Surat Pekeliling Iktisas Bil. 1/1996. Sikap Mengutamakan Keceriaan Dan Kebersihan Di Kalangan Pelajar.*

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Kementerian Pendidikan Malaysia. (1997). *Surat Pekeliling Iktisas Bil. 6/1997. Amalan Kebersihan Di Sekolah.*

Kementerian Pendidikan Malaysia. (1998). *Buku Panduan Pendidikan Alam Sekitar Merentas Kurikulum KBSR.* Kuala Lumpur: Pusat Perkembangan Kurikulum.

Kementerian Pendidikan Malaysia. (1998). *Surat Pekeliling Iktisas Bil. 2/1998. Mempergiat Dan Memperluas Program Dan Aktiviti Petanian Di Sekolah.*

Kementerian Pendidikan Malaysia (2000). *Rancangan Pembangunan Pendidikan, Kementerian Pendidikan Malaysia.* Kuala Lumpur: Kementerian Pendidikan Malaysia.

Kementerian Pendidikan Malaysia. (2001). *Falsafah Pendidikan Kebangsaan, Matlamat Dan Misi, Pusat Perkembangan Kurikulum, Kementerian Pendidikan Malaysia.* Kuala Lumpur: Kementerian Pendidikan Malaysia.

Kementerian Pendidikan Malaysia. (2003). *Sukatan Pelajaran* Environmental Education. Teacher Dynamics. Post Graduate Diploma in Teaching. Kuala Lumpur: *Bahagian Pendidikan Guru.*

Kementerian Pendidikan Malaysia. (2013). *Surat Pekeliling Ikhtisas Bil. 2 Tahun 2013: Pelaksanaan Kurikulum Standard Sekolah Rendah (KSSR) Tahap II Secara Berperingkat-peringkat Mulai Tahun 2014.*

Kementerian Pendidikan Malaysia. *Huraian Sukatan Pelajaran Kurikulum Bersepadu Sekolah Rendah SK Tahun 5 Bahasa Melayu.*

Kementerian Pendidikan Malaysia. *Kurikulum Bersepadu Sekolah Rendah Huraian Sukatan Pelajaran Kajian Tempatan Tahun 5.*

Kementerian Penerangan. (2011). *Rancangan Malaysia Ke Sepuluh (2011 – 2015).* Retrieved from http://www.epu.gov.my.

Kleinke, D. J. & Gardner, E. F. (1972). Syracuse Environmental Awareness Tests – Level III. Final Report on Constructing and Norming. Albany, New York: New York State Education Department.

Knapp, D. (2000). The Thessaloniki Declaration: A wake-up call for environmental education? *Journal of Environmental Education, 31*(3), 32–40.

Knapp, D. H., & Barrie, E. (2001). Content evaluation of an environmental science field trip. *Journal of Science Education and Technology*, *10*(4), 351–357.

Knapp, D. H., & Poff, R. (2001). A qualitative analysis of the immediate and short-term impact of an interpretive program. *Environmental Education Research, 7*(1), 55–65.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Lane, Jennie Farber. (2006). *Environmental Education Implementation in Wisconsin: Conceptualizations and Practices.* (Unpublished doctoral dissertation). University of Wisconsin, Madison.

Lewis, J. & Ritchie, J. (2003). Generalising from qualitative research. In Richie, J. and Lewis, J. (Eds.). *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (pp. 263–286). Thousand Oaks, Calif.: Sage Publications.

Lieberman, J., & Hoody, L. (1998). *Closing the achievement gap: Using the environment as an integrating context for learning*. San Diego, CA: State Education and Environmental Roundtable.

Lim, A.L. (2004). *A Study on Environmental Awareness, Knowledge and Attitude Towards Tropical Rainforest Issues Among Melaka Secondary School Students.* (Unpublished master's thesis). University of Malaya. Kuala Lumpur.

Lim, M. H. (1999). *A Study of Environmental Attitudes and Knowledge of Malaysian Secondary School Students.* (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

Lim, S. F. (2005). *A study of environmental quality and environmental Education in three suburban secondary schools.* (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Louv, R. (2006). *Last child in the woods: Saving our children from nature-deficit disorder*. Chapel Hill, NC: Algonquin.

Luchs, M.G, Naylor R.W, Irwin J.R, & Raghunathan R. (2010). The Sustainability Liability: Potential Negative Effects of Ethicality on Product Preference. *Journal of Marketing*, *74*(5), 18-31.

Malaysia. (1966). *First Malaysia Plan 1966–1970.* Kuala Lumpur, Government Printers.

Malaysia. (1971). *Second Malaysia Plan 1971–1975*. Kuala Lumpur, Government Printers.

Malaysia. (1976). *Third Malaysia Plan 1976–1980*. Kuala Lumpur, Government Printers.

María C. C & Samuel J. S (2010). The school curriculum and environmental education: A school environmental audit experience. *International Journal of Environmental & Science Education. 5*(4), 477-494.

Maria Salih & Hazinah Nor Hanipah. (2009). *Penerapan Pendidikan Alam Sekitar Merentas Kurikulum Di kalangan Guru Sekolah Menengah: Satu Tinjauan.* Penyelidikan UPSI 2009 (Geran Fundamental IPTA).

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Maslow, A. H., (1970). *Motivation and personality* (2nd ed.). New York: Harper & Row.

Maxwell, J. A. (1992). Understanding validity in qualitative research. *Harvard Educational Review, 62*(3), 279–300.

Meier, S., Cobbs, G., and Nicol, M. (1998). Potential benefits and barriers to integration. *School Science and Mathematics*. *98*(8): 438-447.

Merriam, S.B. (1988). *Case study research in education: A qualitative approach.* San Francisco, CA.: Jossey-Bass Publishers.

Merriam, S. B. (1998). *Case Study Research in Education: A Qualitative Approach.* San Francisco: Jossey-Bass Publishers.

Merriam, S. B. (2009). *Qualitative Research: A guide to design and implementation.* San Francisco: Jossey-Bass Publisher.

Merriam, S.M. (2001). *Qualitative research and case study applications in education: Revised and expanded from case study research in education* (2nd ed**.).** San Francisco: Jossey-Bass Publisher.

Miles, M. B. & Huberman, M. A. (1994). *Qualitative data analysis: An expanded sourcebook.* 2nd edition. Thousand Oaks, CA: Sage Publications.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Ministry of Education. (1999). *An Environmental Education Dimension of Curriculum for Primary School in the ASEAN Region.* (Document prepared by Curriculum Development Centre, Ministry of Education, Malaysia under UNESCO Contract No. 116.109.9

Ministry of Education. (2003). *Education Development Plan 2001–2010: Generating educational excellence through collaborative planning.* Ministry of Education Malaysia.

Ministry of Education. (2003). *Post Graduate Diploma in Teaching Syllabus: Environmental Education. Teacher Dynamics*. (English version). (Unpublished document). Teacher Education Division, Ministry of Education, Kuala Lumpur.

Ministry of Education. (2012). *Preliminary Report. Malaysia Education Blueprint 2013 – 2025.* September 2012. http://www.moe.gov.my/userfiles/file/PPP/Preliminary-Blueprint-Eng.pdf

Ministry of Education. (2006). Integrated Curriculum For Primary Schools. Curriculum Specifications. Science Year 5.

Ministry of Science, Technology and the Environment, Malaysia. (2002). *National Policy on Environment.* Selangor, Malaysia: D'FA Print Sdn. Bhd.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Mohamad Ali Hasan. (1984). *Environmental Education in Teacher Training Institutions and the National Environmental Policy*. Paper presented at the Fourth National Convention on Education, Petaling Jaya, 6–8 August 1984.

Mohd. Tamizi Maruddin. (2006). *Education for Sustainable Development: Comparative Analysis of Malaysia Experiences and Other Countries.* (Unpublished master's thesis). Waseda University, Japan.

Nadeson, T. & Nor Shidawati. (2005). *The Implementation of EE in Malaysian Schools: A NGO's Overview.* Paper presented at Best of Both Worlds International Conference on Environmental Education for Sustainable Development, Kuala Lumpur, Malaysia. September 2005.

Neal, P. & Palmer, J. (1990). *Environmental Education in the Primary School.* Oxford: Basil Blackwell Ltd.

New Sunday Times (2010, October 3). *Wat-er waste*. Headlines, p. 8.

Ng, Tiak Sui. (1997). *Satu kajian tentang pengetahuan, kesedaran dan persepsi pelajar dan guru Geografi mengenai isu-isu dan pendidikan alam sekitar.* (Unpublished master's thesis). Universiti Sains Malaysia, Pulau Pinang.

Noor Ashikin Binti Mohd Yusop. (2008). *Penerapan Pendidikan Alam Sekitar Merentasi Kurikulum Di kalangan Guru Sekolah Menengah: Satu Kajian Kes.* Laporan Penulisan Ilmiah Ijazah Sarjana Pendidikan (Biologi). (Tidak diterbitkan). Universiti Pendidikan Sultan Idris, Tanjong Malim, Perak.

Norlila binti Talib. (2007). *Pelaksanaan Pendidikan Alam Sekitar di Sekolah Menengah Daerah Seremban.* Kertas Projek Penyelidikan Ijazah Sarjana Pengurusan Persekitaran. (Tidak diterbitkan). Universiti Kebangsaan Malaysia, Bangi, Selangor.

O'Riordan, T. (1981). *Environmentalism.* (2nd ed.). London: Pion.

O'Riordan, T. (1998). *Transition to Sustainability: The Politics of Agenda 21 in Europe*. London: Earthscan.

Orr, David W. (1992). *Ecological Literacy: Education and the Transition to a Postmodern World.* Albany, New York: University of New York Press.

Orr, D. (2004). *Earth in mind*. Washington, DC: Island Press.

Palmberg, I.E., & Kuru, J. (2000). Outdoor activities as a basis for environmental responsibility. *The Journal of Environmental Education, 31*(4), 32–36.

Palmer, J.A. (1998). *Environmental Education in the 21st Century*. Theory, practice, progress and promise. New York: Routledge.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Palmer, J. & Neal, P. (1994). *The Handbook of Environmental Education*. London: Routledge.

Patton, M. Q. (1987). *How to Use Qualitative Methods in Evaluation.* Thousand Oaks, CA.: Sage Publications.

Patton, M. Q. (1990). *Qualitative evaluation and research methods.* Newbury Park, CA.: Sage.

Patton, M. Q. (1991). *How to Use Qualitative Methods in Evaluation.* Newbury Park, California: Sage Publications, Inc.

Patton, M. Q. (2002). *Qualitative Research and Evaluation Methods*. (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Pauziah Abd Wahab. (2004). *Pelaksanaan penerapan pendidikan alam sekitar merentas kurikulum di peringkat sekolah rendah.* (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

Periasamy, A. (2000). *Integration as a form of curriculum reform: The teaching of environmental education in KBSM Geography in a Malaysian context.* PhD Dissertation. University of Queensland, Australia.

Periasamy, A. (2004). *Exploring Teachers' Involvement in Environmental Education in Sabah, Malaysia.* http://www.aaee.org.au/docs/2004conference/AAEE%202004%20Conference%20Proceedings%20Contents%20page.htm

Perkes, A. C. (1973). *A Survey of Environmental Knowledge and Attitudes of Tenth and Twelfth Grade Students from Five Great Lakes and Six Far Western States.* (Unpublished doctoral dissertation). The Ohio State University.

Pintrich, P. R., & Schunk, D. H. (2002*). Motivation in education: Theory, research, and applications*. (2nd ed.). Columbus, OH: Merrill-Prentice Hall.

Ponniah, J. G. (1981). *Environmental Pollution Knowledge and Attitudes of Malaysian Secondary School Students.* (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

Pooley, J., & O'Conner, M. (2000). Environmental education and attitudes: Emotions and beliefs are what is needed. *Environment and Behavior, 32*(5), 711–723.

Powers, Amy L. (2004). An Evaluation of Four Place-Based Education Programs. *The Journal of Environmental Education, 35*(4), 17–33.

Pudin, S., Tagi, T. & Periasamy, A (2005). *Environmental Education in Malaysia and Japan: A Comparative Assessment.* Paper presented at the International Conference on Education for a Sustainable Future, Ahmedabad.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Pudin, S. (2006). Overview of Environmental Education and Awareness Programmes in Sabah. *Paper presented during the Fourth Sabah-Sarawak Environmental Convention 2006.*

Punch, Keith F. (2004). *Developing Effective Research Proposals*. London: Sage Publications Ltd.

Pyle, R. (1998). *The thunder tree: Lessons from an urban wildland.* New York: Lyons Press.

Rashidah Begum Gelamdin. (2002). *Tahap Keberkesanan Projek Wira Tahap Satu terhadap Pengetahuan di kalangan Pelajar di Selangor tentang Pencemaran dan Penjagaan Alam Sekitar*. (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

Reed, Arthea J. & Bergemann, Verna E. (2005). Fifth Edition. *A Guide to Observation, Participation, and Reflection in the Classroom.* Boston: McGraw-Hill.

Richmond, J. M. & Morgan, R. F. (1977). *A National Survey of the environmental Knowledge and Attitudes of Fifth Year Pupils in England*. Environmental Education Information Report, Ohio: ERIC/SMEAC Information Reference Center.

Rissom, H.W. (1980). *German Commission for Unesco. Environmental Education in Europe. Final Report.* Bonn:German Commission for Unesco.

Ritchie, J. & Lewis, J. (Eds.). (2003). *Qualitative Research Practice: A Guide for Social Science Students and Researchers*. Thousand Oaks, Calif.: Sage Publications.

Ritchie, J., Lewis, J. & Elam, G. (2003). Designing and selecting samples. In Richie, J. and Lewis, J. (Eds.). *Qualitative Research Practice: A Guide for Social Science Students and Researchers.* (pp. 77–108). Thousand Oaks, Calif.: Sage Publications.

Rohiza Jamaluddin. (2004). *Pencapaian Guru Sains Sekolah Menengah Dalam Pernyataan tentang Isu Alam Sekitar. Kertas Projek Ijazah Sarjana Pendidikan.* (Tidak diterbitkan). Universiti Malaya, Kuala Lumpur.

Rolston, Holmes III. (2003). Environmental Ethics. In Bunnin, N. and Tsui-James, E.P. (eds.). *The Blackwell Companion to Philosophy*. (2nd ed.). p. 528. Oxford: Blackwell Publishing.

Rossman, G. B. & Rallis, S. F. (2003). *Learning in the field: An introduction to qualitative research*. Thousand Oaks. CA: Sage Publications.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Rozita Abd. Latif. (1999). *Tahap Pengetahuan dan Kesedaran tentang Isu-isu Alam Sekitar di kalangan Pelajar*. (Unpublished master's thesis). Universiti Sains Malaysia, Pulau Pinang.

Salim Rejab. (1998). *Pengetahuan dan Sikap Guru-guru Pelatih terhadap Isu-isu Alam Sekitar*. (Unpublished master's project paper). University of Malaya, Kuala Lumpur.

Santha Letchimy a/p Nachimuthu. (2008). *Pendidikan Alam Sekitar Merentas Kurikulum.* (Unpublished master's thesis). Universiti Kebangsaan Malaysia, Selangor.

Sarantakos, S. (2005). *Social Research.* (3rd edition). Melbourne: Macmillan Education.

Schunk, D. H., Hanson, A. P., & Cox, P. D. (1987). Peer-model attributes and children's achievement behaviors. *Journal of Educational Psychology*, *79*, 54–61.

Shepard, C. L., & Speelman, L. R. (1985/86). Affecting environmental attitudes through outdoor education. The Journal of *Environmental Education*, *17*(2), 20–23.

Simons, H. (2009). *Case Study Research in Practice*. London: SAGE Publications Ltd.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

SK Cempaka. (2012). *Perancangan Tahunan Sekolah.*

SK Kuala Besar. (2012). *Perancangan Tahunan Sekolah.*

SK Relau. (2012). *Perancangan Tahunan Sekolah.*

SK Wan Idris. (2012). *Perancangan Tahunan Sekolah.*

Sobel, D. (1996). *Beyond ecophobia: Reclaiming the heart of nature education. Great Barrington.* MA: The Orion Society.

Stapp, W. B. (1978). An Instructional Model for environmental education. *Prospects-Quarterly Review of Education, Vol.08. No. 4, 1978. Issue 28 – Educating for a Better Environment.* UNESCO.

Stapp, W. B., Havlick, S., Bennett, D., Bryan, W. Jr., Fulton, J., Mac Gregor, J., Nowak, P., Swan, J., & Wall, R. (1970). The Concept of Environmental Education. *The Education Digest, 35*(7): 9–11.

Stapp, W. B. Some Overall Imperatives of the Environmental Education Movement in Kaufman, Donald G.,Franz, Cecilia M (1993). Biosphere. New York: Harper Collins College Publishers. 604-605.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

Stern, M. J., Powell, R.B., & Ardoin, N. M. (2008). What difference Does It Make? Assessing Outcomes From Participation in a Residential Environmental Education Program. *The Journal of Environmental Education, 39*(4), 31–44. Available from ProQuest Dissertations and Theses, ProQuest Education Journals database.

Stake, R. E. (1967). *The Countenance of Educational Evaluation.* Teachers College Record, Vol. 68, No. 7 April, p. 529.

Stake, R. E. (1983). '*Program evaluation, particularly responsive evaluation.'* In Madaus, G.F., and Stufflebeam, D. L. (eds.). Evaluation Models: Viewpoints on Educational and Human Services Evaluation. Boston, Mass.: Kulwer-Njhoff, pp. 287–310.

Stake, R. E. (1995). *The Art of Case Study Research*. Thousand Oaks, CA: Sage.

Stake, R. E. (2000). Case Studies. In N.K. Denzin & Y.S. Lincoln (Eds.). *Handbook of qualitative research* (2nd ed., pp. 435–454). Thousand Oaks, CA: Sage.

Strickland, A. W. & Staver, J. R. (1979). A Hoosier View of Ecological Attitudes and Knowledge. *Journal of Research in Science Teaching, 16*(3), 249–253.

Teacher Education Division. (2003). Post Graduate Diploma in Teaching syllabus : Environmental Education. Teacher Dynamics. (English version). Unpublished document.

Teoh, E.S. (1995). *Knowledge of environmental issues among teacher trainees of Maktab Perguruan Tengku Ampuan Afzan, Kuantan.* (Unpublished master's thesis). University of Malaya, Kuala Lumpur.

The Star (2011, February 3). Future Prospects. LIFESTYLE, Star Two, T2.

The Star (2011, October 25). Trash trail. LIFESTYLE, Star Two, T1–5.

Thiagarajan Nadeson & Nor Shidawati, A. R. (2006). The Implementation of Environmental Education In Malaysian Schools: an NGO's Overview: *Proceedings Of The Conference On Best Of Both Worlds: Environmental Education For Sustainable Development. 6-8 September 2005.* Malaysia: Forest Research Institute Malaysia.

Tibble, C. (2009). *Cultivating an Ecological Consciousness: Appreciative Inquiry for Curriculum Development in Environmental Education.* (Unpublished master's thesis). Prescott College in Education: Environmental Education.

Tilbury, D. & Wortman, D. (2004). *Engaging People in Sustainability.* Commission on Education and Communication, IUCN, Gland, Switzerland and Cambridge.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

UNCED. (1992). *UN Conference on Environment and Development: Country Report-Malaysia.* National Steering Committee on Environment and Development, Ministry of Foreign Affairs, May 1992.

UNESCO. (1977). *Tbilisi Declaration.* Retrieved from http://www.gdrc.org/uem/ee/tbilisi.html

UNESCO-UNEP. (1978). *Intergovernmental conference on environmental education.* Tbilisi (USSR), 14–26 October, 1977, Final Report, Paris.

UNESCO. (1980). *Environmental Education in the light of the Tbilisi Conference: Education on the Move,* Paris UNESCO.

UNESCO. (1996). *United Nations Decade of Education for Sustainable Development: International Implementation Scheme.* Paris: UNESCO.

UNESCO-UNEP. (1975). *The Belgrade Charter: Global Framework for Environmental Education*, produced and adopted at Belgrade Workshop, Yugoslavia, 13–22 October 1975.

United Nations General Assembly, Conference on the Human Environment, Stockholm, June 5–16, 1972, Draft Declaration on Human Environment. A/Conf. 48/4.

United States Department of Health, Education and Welfare. (1971). *Environmental Education Handbook*, Washington.

University of Maryland Survey Research Center. (2000). *Environmental studies in The K-12 classroom: A teacher's view*. College Park, MD: Author.

Van Matre, Steve. (1974). *Acclimatizing: A Personal and Reflective Approach to a Natural Relationship.* Martinsville, Indiana: American Camping Association.

Vig, N. J. and Axelrod, R.S. (eds.) (1999). *The Global Environment*. London: Earthscan Publications Ltd.

Wadsworth, B.J. (1978). *Piaget for the classroom teacher*. New York: Longman.

Walker C.G. (1995). Environmental Education: Perception, Theory and Reality. Available from ProQuest Dissertations and Theses, ProQuest Education Journals database. UMI Number: 9613184

Wilson, E. B. (2004). *Environmental Education: Goals and Challenges.* (Unpublished master's thesis). Carleton University, Ottawa, Ontario.

Wolcott, H. F. (2001). *Writing up qualitative research.* Thousand Oaks, CA: Sage Publications.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

World Commission on Environment and Development (WCED). (1987). *Our Common Future*. Oxford: Oxford University Press.

Yin, R. K. (1994). *Case Study Research: Design and Methods*. Thousand Oaks, Calif.: Sage Publications.

Yin, R. K. (2003). Case study research. (3rd ed.). Thousand Oaks, CA: Sage Publications.

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

05-4506832 pustaka.upsi.edu.my Perpustakaan Tuanku Bainun Kampus Sultan Abdul Jalil Shah PustakaTBainun ptbupsi

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APPENDIX A

SCHEDULE A

Tbilisi Declaration (1977)

The world's first intergovernmental conference on environmental education was organized by the United Nations Education, Scientific, and Cultural Organization (UNESCO) in cooperation with the U.N. Environment Program (UNEP) and was convened in Tbilisi, Georgia (USSR) from October 14-26, 1977.

Delegates from 66 member states and observers from two nonmember states participated. Representatives and observers from eight U.N. agencies and programs also participated. Three other intergovernmental organizations and 20 international nongovernmental organizations also were represented. In all, 265 delegates and 65 representatives and observers took part in the conference.

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The Tbilisi Declaration was adopted by acclamation at the close of the intergovernmental conference. The declaration noted the unanimous accord in the important role of environmental education in the preservation and improvement of the world's environment, as well as in the sound and balanced development of the world's communities.

The Role, Objectives, and Characteristics of Environmental Education

The Tbilisi Declaration together with two of the recommendations of the Conference constitutes the framework, principles, and guidelines for environmental education at all levels—local, national, regional, and international—and for all age groups both inside and outside the formal school system.

I. The Conference *recommends* the adoption of certain criteria which will help to guide efforts to develop environmental education at the national, regional, and global levels:

1. Whereas it is a fact that biological and physical features constitute the natural basis of the human environment, its ethical, social, cultural, and economic dimensions also play their part in determining/he lines of approach and the instruments whereby people may understand and make better use of natural resources in satisfying their needs.

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2. Environmental education is the result of the reorientation and dovetailing of different disciplines and educational experiences which facilitate an integrated perception of the problems of the environment, enabling more rational actions capable of meeting social needs to be taken.
3. A basic aim of environmental education is to succeed in making individuals and communities understand the complex nature of the natural and the built environments resulting from the interaction of their biological, physical, social, economic, and cultural aspects, and acquire the ~knowledge, values, attitudes, and practical skills to participate in a responsible and effective way in anticipating and solving environmental problems, and in the management of the quality of the environment.
4. A further basic aim of environmental education is clearly to show the economic, political, and ecological interdependence of the modern world, in which decisions and actions by different countries can have international repercussions. Environmental education should, in this regard, help to develop a sense of responsibility and solidarity among countries and regions as the foundation for a new international order which will guarantee the conservation and improvement of the environment.
5. Special attention should be paid to understanding the complex relations between socio-economic development and the improvement of the environment.
6. For this purpose, environmental education should provide the necessary knowledge for interpretation of the complex phenomena that shape the environment, encourage those ethical, economic, and esthetic values which, constituting the basis of self-discipline, will further the development of conduct compatible with the preservation and improvement of the environment. It should also provide a wide range of practical skills required in the devising and application of effective solutions to environmental problems.
7. To carry out these tasks, environmental education should bring about a closer link between educational processes and real life, building its activities around the environmental problems that are faced by particular communities and focusing analysis on these by means of an interdisciplinary, comprehensive approach which will permit a proper understanding of environmental problems.
8. Environmental education should cater to all ages and socio-professional groups in the population. It should be addressed to (a) the general non-specialist public of young people and adults whose daily conduct has a decisive influence on the preservation and improvement of the environment; (b) to particular social groups whose professional activities affect the quality of the environment; and © to scientists and technicians whose specialized research and work will lay the foundations of knowledge on which education, training, and efficient management of the environment should be based.
9. To achieve the effective development of environmental education, full advantage must be taken of all public and private facilities available to society for the education of the population: the formal education system, different forms of non-formal education, and the mass media.
10. To make an effective contribution towards improving the environment, educational action must be linked with legislation, policies, measures of

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control, and the decisions that governments may adopt in relation to the human environment.

II. The Conference *endorses* the following goals, objectives, and guiding principles for environmental education:

The *goals* of environmental education are:

1. to foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas;
2. to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment;
3. to create new patterns of behavior of individuals, groups, and society as a whole towards the environment.

The categories of environmental education *objectives* are:

Awareness—to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.

Knowledge—to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

Attitudes—to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.

Skills—to help social groups and individuals acquire the skills for identifying and solving environmental problems.

Participation—to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

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Guiding principles—environmental education should

1. consider the environment in its totality—natural and built, technological and social (economic, political, cultural-historical, ethical, esthetic);
2. be a continuous lifelong process, beginning at the preschool level and continuing through all formal and non-formal stages;
3. be interdisciplinary in its approach, drawing on the specific content of each discipline in making possible a holistic and balanced perspective;
4. examine major environmental issues from local, national, regional, and international points of view so that students receive insights into environmental conditions in other geographical areas;
5. focus on current and potential environmental situations while taking into account the historical perspective;
6. promote the value and necessity of local, national, and international cooperation in the prevention and solution of environmental problems;
7. explicitly consider environmental aspects in plans for development and growth;
8. enable learners to have a role in planning their learning experiences and provide an opportunity for making decisions and accepting their consequences;
9. relate environmental sensitivity, knowledge, problem-solving skills, and values clarification to every age, but with special emphasis on environmental sensitivity to the learner's own community in early years;
10. help learners discover the symptoms and real causes of environmental problems;
11. emphasize the complexity of environmental problems and thus the need to develop critical thinking and problem-solving skills;
12. utilize diverse learning environments and a broad array of educational approaches to teaching, learning about and from the environment with due stress on practical activities and first-hand experience.

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APPENDIX B

INTERVIEW QUESTIONS: EE PROFESSIONALS

Introduction

Thanks for your time.

The purpose of the interview is to gain information on environmental education and its implementation in the primary school.

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Questions (for EE Professionals)

1. What is your perception of the state of environmental consciousness amongst Malaysians?

   What do you think is the level of commitment on the environment amongst Malaysians?

2. Is EE an essential issue at the school?

   Should EE be considered a priority in our school system?

   Should we promote environmental education as a critical / important subject in the schools? Why?

   What do you think is the desired status of EE in the school?

   What should be the direction for EE in the curriculum in future?

   What are the characteristics of EE?

3. What is the current state of environmental education at Malaysian schools (primary and secondary) ?

   What is the present state of EE curriculum for the primary school?

   What do you think should be the curriculum needs of EE for the primary school?

   What kind of curriculum guidelines could be adopted to further EE in the primary school in Malaysia?

4. What are the initiatives carried out in promoting environmental education at the various learning institutions ?
   (Curriculum Reforms, Training Programs for the Teaching staff, Teaching and learning materials, Collaboration with other government agencies, private organizations and NGO's)

5. How should environmental education be taught?
   (As a subject / Infused or integrated into the subjects / whole curriculum).

   In your opinion what is the best way to teach environmental education?

   How should environmental education be assessed at the schools? (both primary and secondary?

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6. What do you think is the role of the environmental educator?

   What are the characteristics and abilities which determine a ‘good environmental educator’?

   What motivates an educator to teach EE?

7. What do you perceive as the major problems concerning the development and teaching and learning of EE in schools?

   What do you think are the challenges to teaching/implementing EE at the schools ?

8. What are the indicators or standards to determine the effectiveness of environmental education at the various institutions (primary school, secondary school, teacher training institutes, and the universities)?
   (Focus on the primary school.)
   What are the best practices of EE implementation in schools?

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APPENDIX C

INTERVIEW QUESTIONS: HEADMASTER/*GPK*

Introduction

Thanks for your time.

The purpose of the interview is to gain information on the implementation of environmental education in the primary school.

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Questions: (for Headmaster/*GPK*)

1. What are the overriding goals or priorities of your school? (Vision and mission)
   How well is your school doing at achieving those goals?

2. Tell me about the demographics of your student population.
   What opportunities does that present?
   What challenges?
   Do you anticipate any changes in the future?

3. In your school, what subject areas get the most energy and resources?

4. In your school, how important is environmental education?
   How is environmental education featured in your school?
   Describe how your school gives attention to environmental education.
   What is your personal perspective on environmental education?
   How does your school determine what is taught in environmental education at each grade level?
   Does your school have a program related to environmental education?
   On a scale of 1 – 10, how successful is the environmental education program at your school? (1 is least and 10 is most successful)
   What would make it the most successful?
   What would your school and teachers need to make it the most successful?

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5. Have you attended any environmental education program?
   If yes, describe and explain what was valuable about the experience?
   Any suggestions for improvement?
   What do you believe are the benefits for students who participate in these types of programs?
   What do you believe are the roadblocks or challenges for your school and teachers to participate in environmental education programs? (Ask for specifics).

6. How would you describe your school's approach to including environmental education in its curriculum?
   In your opinion, what is the general attitude of your teachers as well as their students towards EE?
   Are the teachers incorporating elements of EE into the subjects that they teach?
   Are your school teachers adept at infusing environmental education in the various subjects that are being taught by them?

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7. List the resources/materials that your school has that can help in the teaching and learning of environmental education. Describe them.
   In your opinion have these resources been used by the teachers of your school?
   (Has your school/staff developed any material/resources that are useful /effective in the teaching and learning of environmental education? Describe them.)

8. Presently is there any collaboration with other outside bodies relating to environmental education?
   Would you like to pursue greater collaboration with other outside bodies relating to environmental education?
   How would you recommend to go about it?

9. In your opinion do you think that environmental education should be taught as a separate subject?

10. Would your school be interested to incorporate environmental education (more if there is already) into its present curriculum?
    What are some of the existing efforts/initiatives?
    How can these efforts be further consolidated / expanded?
    What program/action can be initiated to foster further interest in environmental education in your school?

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APPENDIX D

INTERVIEW QUESTIONS: TEACHER

Introduction

Thanks for your time.

This interview is voluntary.

If there are any questions that you do not want to answer, just tell me that you'd like to pass and we'll move on to the next question.

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Have you signed the consent form?

Our conversation will remain confidential.

The purpose of the interviews is to gain information on the implementation of environmental education in the primary school.

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Questions (for Teacher)

Set A

1. What are the overriding goals or priorities of your school?

2. In your school, what subject areas get the most attention and resources?

3. What is your understanding of environmental education?

   In your school, how important is environmental education?

   To your knowledge, does your school support efforts at environmental education?

   Do you personally feel that environmental education is an important area of study? Why?

4. How do you determine what is taught in environmental education at each grade level?
   Do you have a curriculum map to refer to at each level?

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5. On a scale of 1 – 10, how successful is the environmental education program at your school? (1 is least and 10 is most successful)

   Do you anticipate any changes in the future?

   What would you need to make it most successful?

6. What environmental education programs have you and your students participated in?

   How many years have you been participating in the environmental education program?

   Why do you participate in the environmental education program?

   Could you describe an experience that you've had on an environmental education program that was particularly meaningful and why?

   What do you think is most valuable for your students when they participate in an environmental education program?

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What do you hope for in an EE program?

What challenges or obstacles exist in participating in environmental education programs?

How do you overcome those obstacles, if any?

7. List and elaborate on the main types of teaching methodologies that you employ in presenting your lessons to your pupils.

   To what extent do you employ mixed modes of delivery, and in what contexts and why?

   Describe the mixed modes of delivery adopted.

8. Do you incorporate environmental education in your lessons?

   If you do what is your major emphasis?

   What teaching and learning styles do you use?

   Why are these styles of learning adopted?

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   Describe each of them.

   Are there some more effective than others and why?

   Which of these are more effective?

9. How do you assess the work of your pupils?

   What type of assessment do you give to your pupils on environmental education?

10. Has your school/staff developed any material/resources that are useful / effective in the teaching and learning of environmental education? Describe them.

    List the resources/materials that you use in teaching environmental education.

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11. Do you encounter any problem at incorporating environmental education into your subject curriculum?

    What do you think are the challenges to teaching / implementing environmental education at the primary school?

    What program/action can be initiated to foster further interest in environmental education in your school?

12. In your opinion do you think that environmental education should be taught as a separate subject? Why?

13. What about co-curriculum?

    What co-curriculum unit / activity are you involved in?

    Do you integrate environmental education across co-curricular activities?

    How do you do that?

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Set B

1. Good morning, can you please tell me about your experience as a teacher and also as the subject teacher?
2. How do you teach:

   BM: Unit 4 *Alam Sekitar*?

   SC: Unit 2 *Survival of the Species?*

   Unit 3 *Food chain and food web*

   KT: Topic 2 *Geographical Features – Physical Geography of Malaysia*?
3. What method(s) of teaching have you used when you taught the topic?

   What are the teaching-learning activities used?
4. How did you prepare to teach this topic?

   What are the resources that you used to teach the topic?
5. On *environmental values* which cuts across the curriculum, how do you infuse them in your lesson?
6. How do you assess the pupils' knowledge, skills, and attitude for the topic taught?

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APPENDIX E

RECORD OF INTERVIEWS AT THE SCHOOLS AND WITH EE PERSONNEL

SCHOOL : CO1

Administrators	Dates and Time
HMCO1	09.05.2013 (12:10 p.m. – 12:55 p.m.)
*GPK*1CO1	22.05.2013 (8:55 a.m. – 9:50 a.m.)
*GPKKokur*CO1	09.05.2013 (11:40 a.m. – 12:05 p.m.)
Teachers	
T*BM*1CO1	16.10.2012 (12:35 p.m. – 1:25 p.m.); 22.10.2012 (10:15 a.m.– 10:25 a.m.)
TSC1CO1	22.10.2012 (10:10 a.m. – 10:45 a.m.)
TSC2CO1	22.10.2012 (12:00 noon – 12:20 p.m.)
TSC3CO1	22.10.2012 (12:40 p.m. – 1:15 p.m.)
T*KT*2CO1	16.10.2012 (11:45 – 12:30 p.m.); 22.10.2013 (10:15 a.m.– 10:25 a.m.)

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SCHOOL : CO2

Administrators	Dates and Time
HMCO2	09.05.2013 (9:35a.m.– 10:25 a.m.)
*GPK*1CO2	10.05.2013 (9:50 a.m.– 10:20 a.m.)
*GPKKokur*CO2	10.05.2013 (10:30 a.m. – 11:05 a.m.)
Teachers	
T*BM*1CO2	03.09.2012 (11:45 a.m. – 12:20 p.m.); 04.09.2012 (10:10 a.m. – 10:20 a.m.)
TSC1CO2	03.09.2012 (11:15 a.m. – 12:00 noon); 04.09.2012 (10:35 a.m. – 10:40 a.m.)
T*KT*1CO2	03.09.2012 (12:05 p.m. – 12:40 p.m.); 04.09.2012 (10:15 a.m.– 10:25 a.m.)
TMediaCO2	15.06.2012 (11:45 a.m. – 12:25 p.m.)

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SCHOOL : CO3

Administrators	Dates and Time
HMCO3	04.02.2013 (10:45 a.m. – 12:00 noon)
*GPK*1CO3	18.04.2013 (10:00 a.m. – 10:45 a.m.)
*GPKKokur*CO3	19.02.2013 (10:50 a.m.– 11:40 a.m.)
Teachers	
T*BM*1CO3	18.04.2013 (12.50 p.m. – 1:35 p.m.); 30.04.2013 (10:15 a.m. – 10:25 a.m.)
TSC1CO3	19.03.2013 (10:15 a.m. -11:00 a.m.); 18.04.2013 (10:45 a.m. -10:55 a.m.)
T*KT*1CO3	30.04.2013 (11:15 a.m. – 12:00 noon); (12:00 noon – 12:10 p.m.)

SCHOOL : CO4

Administrators	Dates and Time
HMCO4	30.08.2013 (9:35 a.m. – 10:10 a.m.)
*GPK*1CO4	14.03.2013 (9:35 a.m.– 10:10 a.m.)
*GPKKokur*CO4	14.03.2013 (12:15 p.m.– 1:00 p.m.)
Teachers	
T*BM*1CO4	15.07.2013 (12:15 p.m. – 12:30 p.m.); 05.09.2013 (9:50 a.m.– 10:30 a.m.)
TSC1CO4	04.10.2012 (11:00 a.m. – 11:30 a.m.)
TSC2CO4	30.08.2013 (9:50 a.m. – 10:35 a.m.)
T*KT*1CO4	15.03.2013 (9:40 a.m. – 10:10 a.m.)
T*KT*2CO4	05.09.2013 (11:10 a.m.– 11:45 a.m.)

School which took part in *Anugerah Sekolah Lestari* (Sustainable School Award) Competition

Teacher	Date and Time
PenySekLes	14.05.2013 (9:30 a.m.– 10:00 a.m.)

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INTERVIEWS WITH EE PERSONNEL

ENVIRONMENTAL EDUCATION PERSONNEL (EEP)	Dates and Time
Encik Mohd, Tarmizi, EEP 1	30.11.2012 (10:15 a.m. – 12:00 noon)
Puan Nora, EEP 2	27.09.2013 (11:10 a.m. – 11:45 a.m.)
Associate Professor Dr. Elise, EEP 3	29.11.2013 (3:30 p.m. – 4:10 p.m.)
Dr. Hamzah, EEP 4	09.12.2013 (11:45 a.m.- 1:10 p.m.)
Dr. Samantha, EEP 5	05.02.2014 (2:15 p.m. – 3:25 p.m.)
Dr. Zabeda, EEP 6	13.06.2014 (1:00 p.m. – 2:30 p.m.)
Cik Nor Ashikin, EEP 7	04.02.2014 (11:50 a.m.- 1:15 p.m.)

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APPENDIX F

SCHOOL / HEADMASTER / *GPK* / TEACHER : CODES AND PSEUDONYMS

CODES	SCHOOLS
CO1	*SK Cempaka*
CO2	*SK Wan Idris*
CO3	*SK Relau*
CO4	*SK Kuala Besar*

HEADMASTER / GPK	
	PSEUDONYMS
HMCO1 GPK1CO1 GPKKokurCO1	En. Jallaludin En. Rasdi Pn. Kamsiah
HMCO2 GPK1CO2 GPKKokurCO2	En. Hassan Pn. Siti Rokiah Pn. Faezah
HMCO3 GPK1CO3 GPKKokurCO3	En. Zainuddin Pn. Anis En. Wan Adnan
HMCO4 GPK1CO4 GPKKokurCO4	En. Azizul En. Zabidi Pn. Roslinda

TEACHERS		PSEUDONYMS
TBM1CO1	*BM* Teacher	Pn. Bariah
TSC1CO1,TSC2CO1, TSC3CO1	Science Teachers	Pn. Sakinah, Pn. Shamsiah, Pn. Syarifah
T*KT*1CO1, T*KT*2CO1	*Kajian Tempatan* Teachers	Pn. Kamsiah, Mr. Kong
T*BM*1CO2	*BM* Teacher	Pn. Bainun
TSC1CO2	Science Teacher	Pn. Salbiah
T*KT*1CO2	*Kajian Tempatan* Teacher	Pn. Khatijah
TMCO2	MediaTeacher	Pn. Maimunah
T*BM*1CO3	*BM* Teacher	Pn. Balqis
TSC1CO3	Science Teacher	En. Shaiful
T*KT*1CO3	*Kajian Tempatan* Teacher	Pn. Kalsom
T*BM*1CO4	BM Teacher	Cik Bibi
TSC1CO4, TSC2CO4	Science Teacher	En. Suhaimi, Cik Suzana
T*KT*1CO4, T*KT*2CO4	Kajian Tempatan Teachers	En. Zabidi, Us. Kassim

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APPENDIX G

COVER LETTER
June 2012

Dear Sir / Madam,

Currently, I am pursuing my doctorate degree at the Sultan Idris Education University, Tanjong Malim and conducting a research study relating to education. I will be gathering data for my study and you are invited to participate in this study.

As a participant, you will be asked to participate in an individual interview, which will be conducted during the months of January till March at your convenience. Each interview will take approximately forty minutes to complete, mainly to get feedback about your perspectives to my research topic. The interviews will be recorded. You will also be observed while you are teaching.

These data will be kept in a secure place and will be used for this research project only. With your help I hope to find out some implications that have yet to be studied – and that may help educators to design courses and training that are more effective.

Your participation in this study will be important, but won't take much of your time. Your responses will be kept in strictest confidence and measures will be in place to protect your identity. The consent form is attached. There is no penalty for not participating in the study.

Thanks again for your participation in this important study.

Sincerely,

Teoh Eng Seah
Doctoral Student
Faculty of Education and Human Development
Sultan Idris University of Education
Tanjung Malim, Perak Darul Ridzuan
Email: teohengseah@gmail.com

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APPENDIX H

Sultan Idris Education University
Faculty of Education and Human Development

CONSENT TO PARTICIPATE IN RESEARCH

[ ] I agree to be part of the project.

[ ] I agree to participate in this study. I am willing to participate in interviews.

[ ] I agree that the interviews will be recorded.

[ ] I agree to be observed while I am teaching.

Your responses will only be viewed and studied by the Principal Investigator and the data will be fully protected.

CONFIDENTIALITY
There will be no information obtained in connection with this study that can be identified with you. Your name, address or other information that may identify you will not be associated with your responses during this research study.
When the results of the research are published or discussed in conferences, no information will be included that would reveal your identity.

Signature of participant : _____

Name of participant : _____

Date : _____

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APPENDIX I

RECORD OF OBSERVATIONS OF CLASSROOM TEACHING AND SCHOOLS (GREEN AUDIT)

OBSERVATIONS OF CLASSROOM TEACHING

SCHOOL : CO1

Teachers	Date / Time	Topic / Skill
TBM1CO1	17.06.2012 (12:05 p.m. – 1:05 p.m.) 03.07.2012 (10:35 a.m. – 11:35 a.m.) 17.07.2012 (7:35 a.m. – 8:35 a.m.)	Leftenan Adnan – Comprehension & Vocabulary Tanah Pusaka Tercinta – Poetry Recital Reading passage related to EE – Noble values
TSN1CO1	17.06.2012 (10:35a.m. – 11:35 a.m.) 21.06.2012 (10:35 a.m. – 11:35 a.m.)	Udara dan kesan pada haba – Experiment Perubahan keadaan bahan - Experiment
TSN2CO1	25.06.2012 (10:35a.m. – 11:35 a.m.)	Pepejal, Cecair & Gas - Experiment
TSN3CO1	26.06.2012 (10:35 a.m. – 11:35 a.m.)	States of Matter - Experiment
TKT1CO1	14.06.2012 (10:05a.m. – 10:35 a.m.)	Kesultanan Melayu Melaka
TKT2CO1	27.06.2012 (9:35 a.m. – 10:05 a.m.) 11.07.2012 (9:35a.m. - 10:05 a.m.) 01.08.2012 (9:05a.m. – 9:35 a.m.)	Kedatangan Kuasa Luar ke Melaka Asal usul nama Sarawak Administration of the state of Sarawak
	11	

SCHOOL : CO2

Teachers	Date / Time	Topic / Skill
TBM1CO2	04.06.2012 (9:00 a.m. – 10:00 a.m.) 22.06.2012 (8:45 a.m. – 9:45 a.m.) 28.06.2012 (10:35 a.m. – 11:35 a.m.) 06. 07.2012 (8:45 a.m. – 9:45 a.m.)	Membina ayat Nilai-nilai murni Menulis karangan Nilai-nilai murni – amalan baik
TSN1CO2	08.06.2012 (9:15 a.m. – 10:15 a.m.) 06.07.2012 (7:45 a.m. – 8:15 a.m.) 17.07.2012 (9:30 a.m. – 10:15 a.m.) 20.07.2012 (7:45a.m.– 8:15 a.m.)	Shadows – Experiment Udara mengembang apabila dipanaskan – Experiment Sifat-sifat gas – Experiment Acids and alkali - Experiment
TKT1CO2	17.06.2012 (10:00 a.m. – 10:35 a.m.) 26.06.2012 (8:45 a.m. – 9:15 a.m.) 17.07.2012 (9:00 a.m. – 9:20 a.m.) 31.07.2012 (8:45 a.m. – 9:15 a.m.)	Faktor-faktor yang mempengaruhi jenis tumbuhan semulajadi Kegemilangan Melaka Melaka sebagai pusat perdagangan Melaka sebagai pusat penyebaran ilmu
	12	

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SCHOOL : CO3

Teachers	Date / Time	Topic / Skill
TBM1CO3	10.09.2012 (8:45 a.m. – 9:15 a.m.) 24.09.2012 (8:20 a.m. – 9:15 a.m.) 04.02.2013 (8:20 a.m. – 9:15 a.m.) 18.04.2013 (11:35a.m. – 12:35 p.m.)	*Keselamatan Jalan Raya* *Simpulan Bahasa* *Kemasyarakatan – nilai-nilai murni* *Kesalahan Tatabahasa*
TSN1CO3	24.09.2012 (9:20 a.m. – 10:20 a.m.) 15.10.2013 (9:25 a.m. – 10:15 a.m.) 22.01.2013 (12:35 p.m. – 1:35 p.m.) 04.02.2013 (9:15 a.m. – 10:15 a.m.) 19.02.2013 (12:35 p.m. – 1:30 p.m.)	*Bentuk-bentuk Tiga Dimensi* Discussion on the examination questions *Kemandirian spesis* Food chain Food web
TKT1CO3	19.02.2013 (8:45 a.m. – 9:15 a.m.) 13.03.2013 (8:45 a.m. – 9:15 a.m.) 19.03.2013 (8:45 a.m. – 9:15 a.m.) 30.04.2013 (8:45 a.m. – 9:15 a.m.)	*Bentuk Muka Bumi di Malaysia* *Zon Iklim dunia* *Faktor-faktor yang mempengaruhi cuaca dan iklim di dunia* *Tumbuhan Semulajadi dan Hidupan Liar*
	13	

SCHOOL : CO4

Teachers	Dates and Time	Topic / Skill
TBM1CO4	05.10.2012 (9:30 a.m. – 10:30 a.m.) 14.03.2013 (11:00 a.m. – 12:00 noon) 21.06.2013 (12:30 p.m. – 1:30 p.m.) 15.07.2013 (9:30 a.m. – 10:30 a.m.)	*Aktiviti Gotong Royong* *Orang Utan* – Comprehension & vocabulary *Kebersihan Negara Tanggungjawab Kita* *Membina ayat*
TSN1CO4	04.10.2012 (9:30 a.m. – 10:30 a.m.)	Revision on Microorganism, *Kemandirian Spesis*, Food chain and Food web
TSN2CO4	21.06.2013 (10:00 a.m. – 10:30 a.m.) 30.08.2013 (8:10 a.m. – 9:10 a.m.) 05.09.2013 (12:00 noon – 1:00 p.m.)	Discussion on examination questions Electricity Electricity
TKT1CO4	14.03.2013 (1:00 p.m. – 1:30 p.m.)	*Lukis rumah*
TKT2CO4	15.07.2013 (11:30 a.m. – 12:00 noon) 05.09.2013 (9:40 a.m. – 10:10 a.m.)	*Tumbuhan Semulajadi dan Hidupan Liar* *Kesultanan Melayui Melaka – Melaka Mendapat Nama*
	11	

OBSERVATIONS AT THE SCHOOLS (GREEN AUDIT)

CO1	CO2	C03	CO4
17.06.2012	04.06.2012	15.10.2012	04.10.2012
03.07.2012	06.07.2012	07.11.2012	13.03.2013
01.08.2012	03.09.2012	19.02.2013	22.05.2013
16.10.2012	14.02.2013	18.04.2013	30.08.2013
22.10.2012	10.05.2013	14.05.2013	05.09.2013

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APPENDIX J

BAHAGIAN PERANCANGAN DAN PENYELIDIKAN DASAR PENDIDIKAN
KEMENTERIAN PELAJARAN MALAYSIA
ARAS 1-4, BLOK E-8
KOMPLEKS KERAJAAN PARCEL E
PUSAT PENTADBIRAN KERAJAAN PERSEKUTUAN
62604 PUTRAJAYA.

Telefon : 03-88846591
Faks : 03-88846579

Ruj. Kami : KP(BPPDP)603/5/JLD. 8(78)
Tarikh : 31 Mei 2012

Teoh Eng Seah
IPG Kampus Tengku Ampuan Afzan
KM 10, Jalan Padang Tengku
27200 Kuala Lipis
Pahang

Tuan/Puan

Kelulusan Khas Untuk Menjalankan Kajian Di Sekolah, Institut Perguruan, Jabatan Pelajaran Negeri Dan Bahagian-Bahagian Di Bawah Kementerian Pelajaran Malaysia

Adalah saya dengan hormatnya diarah memaklumkan bahawa permohonan tuan/puan untuk menjalankan kajian bertajuk :

"Environmental Education In Selected Malaysian Primary Schools: An Evaluation" diluluskan.

2. Kelulusan ini adalah berdasarkan kepada cadangan penyelidikan dan instrumen kajian yang tuan/puan kemukakan ke Bahagian ini . **Kebenaran bagi menggunakan sampel kajian perlu diperoleh dari Ketua Bahagian/Pengarah Pelajaran Negeri yang berkenaan.**

3. Sila tuan/puan kemukakan ke Bahagian ini senaskah laporan akhir kajian/laporan dalam bentuk elektronik berformat Pdf di dalam CD bersama naskah *hardcopy* setelah selesai kelak. Tuan/Puan juga diingatkan supaya **mendapat kebenaran terlebih dahulu** daripada Bahagian ini sekiranya sebahagian atau sepenuhnya dapatan kajian tersebut hendak dibentangkan di mana-mana forum atau seminar atau diumumkan kepada media massa.

Sekian untuk makluman dan tindakan tuan/puan selanjutnya. Terima kasih.

"BERKHIDMAT UNTUK NEGARA"

Saya yang menurut perintah,

(DR. HJ ZABONI BIN DARUS)
Ketua Sektor
Sektor Penyelidikan dan Penilaian
b.p. Pengarah
Bahagian Perancangan dan Penyelidikan Dasar Pendidikan
Kementerian Pelajaran Malaysia

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s.k

Prof Madya Dr Amir Hasan Bin Dawi
Timbalan Dekan (Pengajian Siswazah & Penyelidikan)
Fakulti Pendidikan dan Pembangunan Manusia
Universiti Pendidikan Sultan Idris
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62604 Putrajaya

Rektor
Institut Pendidikan Guru Malaysia
Aras 1, Enterprise Building 3
Blok 2200, Jalan Persiaran APEC Cyber 6
63000 Cyberjaya

Pengarah
Jabatan Pelajaran Negeri Pahang

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APPENDIX K

PROFILE OF THE EE PROFESSIONALS

EE Personnel 1 (Encik Mohd. Tarmizi)

EE Personnel 1 is an Assistant Director of the Geography and Environment Unit at the Curriculum Development Division (CDD), Ministry of Education. Before joining the CDD, he had been a Geography teacher for 12 years. Besides teaching Geography, he had also taught other subjects like Mathematics, Science and Living Skills. He had also been an examiner of the SPM Geography paper for a number of years before joining the CDD.

As an officer of the Geography and Environment Unit, his job is to ensure that the implementation of environmental education goes on well at the schools. He also attends to the continuous improvement of the curriculum and produces modules and teaching materials for the teachers. Besides that, he also conducts courses for the teachers on education and he collaborates with NGOs in its implementation at the school. Also from time to time he also attends the courses on environmental education conducted by the NGOs

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EE Personnel 2 (Puan Nora)

EE Personnel 2 is the Environment Control Officer of the Department of Environment (DOE), Ministry of Natural Resources and the Environment. She works at the Strategic Communications Division and this is her third year here with the Division. Her job and focus is the schools (School and Pre-school Units), and the institutes of higher learning (IPT). She takes charge of programs related to education and awareness for the schools and also institutes of higher learning. She informed that at the School Unit, two programs have been introduced, namely, *Program Sekolah Lestari Anugerah Alam Sekitar* and *Projek Wira Alam*. Also at the IPT Unit there is the Debate on the Environment. For Preschool there is a module on environmental education.

She clarified that for environmental education she goes out to the schools upon request but admitted that there is no follow-up or monitoring. Her job is to introduce the program and then let the teachers implement it. She disclosed that there are schools that acquired the full support of the top management while there are also others that do not receive the same privilege.

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EE Personnel 3 (Associate Professor Dr. Elise)

EE Personnel 3 is Associate Professor at the Department of Mathematics and Science Education, Faculty of Education, University of Malaya, Kuala Lumpur. This is her 19th year with the varsity. She started as a Science teacher teaching Biology in the 1980s and now she trains Biology teachers at the varsity.

She is quite familiar with nature and she feels that it is a very good way of imparting environmental educational knowledge to future teachers. She clarified that her area of expertise actually lies in cognition but over the years she had developed a strong relationship with environmental education. She is now Associate Professor of Science Education as well as Environmental Education. In addition to that she is at present involved in the implementation and evaluation of environmental education with WWF-Malaysia.

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EE Personnel 4 (Dr. Hamzah)

EE Personnel 4 is a senior lecturer at the Department of Biology, Faculty of Science and Mathematics at the Sultan Idris Education University. His field of specialization is in Biology and he disclosed that his research interest lies in conservation biology and environmental science education. He started teaching at the university in 1998.

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At the university, he had taught the Environmental Science subject. He is also the adviser to the *Kelab Rakan Alam Sekitar* which had carried out many activities related to the environment.

EE Personnel 5 (Dr. Samantha)

EE Personnel 5 is a senior lecturer at the Department of Environmental Management, Faculty of Environmental Studies, Universiti Putra Malaysia (UPM). Her area of expertise is on environmental education and management. Before joining UPM she had been a lecturer at Maktab Perguruan (now Institut Pendidikan Guru, IPG), Science Department for over 20 years teaching Biology and Pedagogy.

She joined UPM since 2012 (this being her third year here). At UPM, she teaches environmental education for the Masters program and the course is called *Principle of Environmental Education*. Besides that she also lectures her group of Bachelor of Environmental Management and Bachelor of Environmental Science students in Biology and Science for Environmental Management.

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EE Personnel 6 (Dr. Zabeda)

EE Personnel 6 is a senior lecturer and researcher at the Department of Science and Technology Studies, Faculty of Science, University of Malaya. She holds a B. Sc. in Ecology from the Institute of Biological Sciences, Universiti Malaya; M.Sc in Environmental Management and Policy from the International Institute of Industrial Environmental Economics (IIIEE), Lund University, Sweden; and M. Sc and Ph D in Science and Technology Policy from SPRU Science and Technology Policy, University of Sussex, United Kingdom.

In line with her academic background, Dr. Zabeda's research interest is primarily to understand the relationship between the development of science, technology and innovation (STI) and environmental protection, particularly within the context of sustainable development and associated challenges to late-industrializing countries. Her area of expertise includes *Environmental Protection* (Sustainable Development; Inclusive Development, Green technologies; Waste management; Energy; Sustainability Science; Greening of campus, Sustainability transitions), *Policy Studies* (Science, technology and innovation policy; Sustainability Policy; Higher Education for Sustainable Development; National Innovation system; Technological innovation system;), and also *Environmental Ethics* (Religion) Incidentally, at present she also holds the position of Coordinator of UMCares (The Community and sustainability Centre).

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EE Personnel 7 (Cik Nor Ashikin)

EE Personnel 7 is the Manager of Formal System, Environmental Education at World Wide Fund for Nature (WWF Malaysia). She leads and manages the environmental education program in WWF Malaysia. Basically her job scope revolves around stakeholders in the Ministry of Education community, specifically from *Institut Pendidikan Guru Malaysia*, Curriculum Development Division, as well as teachers, lecturers, teacher trainees and also all the other administration in the schools and campuses involved in her project.

She has been in this career path with WWF Malaysia for the past 10 years. Before that she was an English teacher for 4 and a half years and then she moved on as a lecturer in private universities. She also had a short stint of training with kindergarten teachers. As such, she had been in the education line for quite some time and where environment education is concerned it started once she joined WWF Malaysia. She believes that it was a calling when she started working in WWF Malaysia. Environment and education are the two things she feels strongly about, so because of the interest and passion, she stayed on this career path. So here, her area of specialty include training in EE, education for sustainable development, youth development and youth empowerment.

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APPENDIX L

OBSERVATION OF TEACHING

Environmental Education in the Primary School

School : .....

Teacher : .....

Date : .....

Description of teaching and learning activity	Comments

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APPENDIX M

CHECKLIST / SCHOOL GREEN AUDIT

School : ..... Date : .....

Criteria for Evaluation : Very weak, Weak, Good, and Excellent

No.	Aspect	Evaluation / Comments
A.	**Administration**	
I	Policies that support the Integration of Environmental Education Across the Curriculum.	
	a. In the school mission statement	
	b. Supervisory Committee on Sustainable Development	
	c. Action plan	
	d. Implementation	
	e. Budget / Financial allocation	
	f. Information dissemination	
	g. Networking with Stakeholders	
	h. Monitoring system	
	i. System of Reporting	
	j. Responses to Progress Report	
II	Display of Environmental Education related materials and Information	
	a. in the office	
	b. in the classroom	
	c. in the school canteen	
	d. in the library	
	e. in the laboratory	
	f. in the school lavatory	
	g. in the workshop	
	h. in the school hall	
	i. at the corridor	
III	Landscape Management (e.g. cleanliness, beautification, maintenance); Greening	
	a. along the roads	
	b. around the school buildings	

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	c. around green areas / field / sports complex)	
	d. around local resource areas / natural areas / garden	
	e. in rest areas	
	f. in learning stations	
	g. in mini forest areas	
	h. in wetland areas	
	i. at other places	
IV	Energy saving and economical usage practices	
	a. Usage of fans, air conditioners, lights and other electrical appliances	
	b. Innovative ideas to use alternative energy other than electricity	
	c. Practice of minimizing water wastage (e.g. taps are drip free, immediate repair of leaking pipes	
	d. Recycling used water	
	e. Setting up strategic places to collect rain water	
	f. Efficient planning and implementation of collecting run-off water in school compound	
	g. Solar energy	
	h. Monitoring of usage of paper and other writing materials	
	i. Management of electronic media	
	j. Management of non-electronic media	
V	Management of waste disposal / garbage	
	a. Management of biodegradable waste	
	b. Practice of compost activities	
	c. Practice recycling activities	
	d. State of septic tanks	
	e. Management of waste materials in the laboratory	
	f. Management of waste materials in the workshops	
	g. Management of old and obsolete electrical /electronic appliances (computers, TV, radio, OHP)	
	h. Management of obsolete and used furniture	

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B.	**Curriculum**	
I	**Teaching and Learning :**	
	a. Existence of environmental topics in the various school subjects.	
	b. Study on the environment by the students.	
II	**Staff / teacher competency development:**	
	a. Programs / workshops / seminars to expose the teachers to environmental education	
C.	**Co-curriculum**	
I	Integration of Environmental Education Across Co-curricular Activities	
	a. Planning awareness projects and activities by clubs and societies	
	b. Implementing awareness projects	
	c. Participation of school citizens in the arranged activities	
II	Networking :	
	a. between clubs and societies within the school	
	b. between schools	
	c. between school and the local community	
III	Capacity Development (School trips, Camping, Expedition, Talks, Workshop, Seminar, etc.) for teachers, staff, and students.	
	a. School trips	
	b. Camping/Expedition/*Kembara* to areas of natural environment	
	c. Talks/Workshop/Seminar/Training for students, teachers and staff	
IV	Participation in Competitions like:	
	a. Debate	
	b. Drama	
	c. Poetry Recital	
	d. Drawing	
	e. Essay writing	
D	**Achievements and Awards**	
	a. District level	
	b. State level	
	c. National level	
	d. International level	

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E	**Special features**	
	a. Creativity, uniqueness, and commitment	
	b. Innovation	

Comments / Suggestions :

.....
.....
.....
.....
.....
.....

Signed : .....
( )
Date : .....

(Adapted from :

Post Graduate Diploma in Teaching (PDGT) Environmental Education Teacher Dynamics Syllabus, Green Audit Form.

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APPENDIX N

CURRICULUM MAPPING OF THE CONTENTS OF EE ACROSS THE CURRICULUM KBSR IN *BM,* SC AND *KT* (YEAR FIVE)

Year : .....

Contents of EE			
2.1 God the Creator of the Universe	***BM***	**SC**	***KT***
2.1.1 God the creator of the universe			
2.1.2. God the creator of man, animals and plants			
2.1.3 Man is responsible in administering and managing wisely among man, animals, plants and the resources found on earth			
2.1.4 Man needs to practice environmental values			
2.2 The Earth and the Universe			
2.2.1 The earth, sun and moon and its interrelationships			
2.2.2 The rotation of the earth and the phenomena of night and day			
2.2.3 The rotation of the earth and the phases of the moon and the phenomena of high and low tides			
2.2.4 The beauty of the universe, solar system and the stars			
2.3 Non-living Things, Natural Resources and Energy			
2.3.1 Characteristics and forms of non-living things			

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2.3.2 Air			
i. The importance of air for living things			
ii. Composition of air: Nitrogen, oxygen, carbon dioxide, inert gases, water vapor, dust, ash and microorganisms			
iii. Carbon cycle, oxygen cycle and nitrogen cycle			
iv. Ozone layer and its importance			
v. Pollution			
2.3.3 Water			
i. Types of water: Sea water, rain water, river water, water dew, underground water and glacier.			
ii. The importance of water			
iii. Water cycle			
iv. Water pollution			
2.3.4 Rocks and Soils			
i. The importance of rocks for providing minerals and soil formation			
ii. The importance of minerals			
iii. The importance of soil			
iv. Types of Soil: Sandy soil, peat, loam and clay			
v. The source of soil erosion, its effect and ways to overcome it			
2.3.5 Natural resources			
i. Natural resources - Renewable resources: Animals, plants, water and air			
- Non-renewable resources: Minerals and fossil fuels			
ii. Natural resources for sustainable development			
iii. Solar energy, resources and its uses in solar heaters and solar pots			
iv. Energy from fossil fuels			
v. Water power for hydro power generators for producing electrical energy			

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vi. Wind power for providing electrical energy and moving things like water pump and grinders			
2.4 Living Things and its Surroundings 2.4.1 Diversity of plants and animals			
i. Classification of plants and animals - Plants: Woody and non-woody plants			
- Animals: Mammals, reptiles, amphibians, birds and fish			
ii. The importance of biodiversity			
iii. The extinction of species			
2.4.2 Basic needs of living things i. Food: Importance, ways of getting food and the necessity of a balanced meal			
ii. Water: Importance and the necessity of clean water			
iii. Air: Importance, way to breathe and the necessity of clean air			
iv. Space: Importance and the necessity of having enough space			
2.4.3 Special needs of man			
i. Food, clothing and shelter			
ii. Clean environment			
iii. Societal living			
iv. Involvement in economic activities			
2.5 Interactions between Man, Animals and Plants 2.5.1 Man, animals and plants always adapt with the environment			
i. Plants and animals live in different habitats - Factors influencing the lives of animals			

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- Factors influencing the lives of plants			
ii. Ways animals and plants adapt to its habitat - Animals: Save itself, find food, move and multiply			
- Plants: Ways of getting food nutrients, shelter, sunshine and multiply			
iii. Ways animals adapt behavior with the environment to find food, migration and safety			

2.5.2 Natural world exists in equilibrium i. Natural world consists of different ecosystems. - Types of ecosystems			
-Living and non-living components in an ecosystem			
ii. Interactions between components of the ecosystem - Food chain and food web			
- Carbon cycle, oxygen cycle and water cycle			
- Population in the ecosystem: Cooperation, social behavior and competition.			
- Competition within the ecosystem: Intra-species and interspecies competition.			
2.5.3 Equilibrium within the natural environment			
i. Production of important elements for life: Oxygen, carbon dioxide, minerals, and fossil fuels.			
ii. Transformation of dangerous elements to living things: Waste			
iii. Recycle: Oxygen cycle, water cycle and recycle waste.			

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iv. Adaptation of living things in the environment.			
2.6 Management of the Environment			
2.6.1 Man's responsibility in society i. Every individual is responsible to himself, family and society			
ii. Forms of responsibility: Looks after own safety, family and society			
iii. Relationship between societies: Mutual respect, cooperation and mutual help.			
2.6.2 Man uses various natural resources for different purposes i. Resources from living things: Animals and plants			
ii. Resources from non-living things: Soil, minerals, water, air and solar energy			
iii. Renewable resources: Animals, plants, water, air and solar energy.			
iv. Non-renewable resources: Minerals and fossil fuels.			

2.6.3 Man's activities and their effect towards the environment i. Major activities of man - Agriculture			
- Hunting and fishing			
- Construction			
- Mining			
- Industries			
- Lumbering and the opening of forests			
- Usage of natural sources of energy			
- Social and recreation			
ii. Environmental problems and issues caused by man's activities, cause and effect			

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- Air pollution			
- Water pollution			
- Land pollution			
- Sea pollution			
- Thermal pollution			
- Noise pollution			
- Soil pollution			
- Extinction of species.			
iii. Population and its related environmental problems -Population distribution			
-Population increase			
-Effects of overcrowding towards the environment: land offerings, fuels and the demands for food and drinks.			
iv. Natural disasters and its effect on the environment. -Types of disaster: Typhoons, volcano eruption, earthquakes, drought and floods.			
-Effects of natural disasters: Destruction of properties, loss of lives, destruction of animals and plants, siltation, forest fires, decline in agricultural productivity and disruption of the earth's equilibrium.			
v. Alternative solutions - Air pollution: Control industrial activities, reduce smoke from motor vehicles like using lead-free petrol and tree planting.			

-Water pollution: Construction of dams, provide clean water, recycle water from factories to agricultural areas, usage of underground water,			

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pembetungan dan saliran yang baik and also the wise usage and control of poisons and chemicals.			
-Maintaining the fertility of the soil: Natural fertilizer, green fertilizer and compost.			
-Destruction of the soil: Selective felling of trees, heavy penalty, replanting and education.			
2.6.4 The importance of maintaining the environment i. Reasons for maintaining the environment - Thankful and in appreciation of the gift of God			
- Ecology			
- Economy			
- Ethics			
- Aesthetics			

ii. Ways of maintaining and rehabilitating the environment -Replanting of trees			
-Law enforcement			
-Reduce, reuse and recycle			
-Cleaning the rivers and sea			
-Provide education and awareness to the public			
-Avoid over-exploitation			
-Maintaining forest reserves			
-Use technology to raise efficient usage of solar energy			
-Rehabilitate the land and water			
iii. Solving environmental problems -Identify environmental issues			
-Collect data and information concerning environmental issues			
-Analyze data and information			
-Find the best method of solving			
-Evaluate the effect of the method used.			

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iv. Action from the public -Method: Persuasion, education, providing information, punishment, consumer action, law enforcement and management of the ecosystem			
-Organizations involved in the management of the environment: *Jabatan Alam Sekitar* (*JAS*), *Jabatan Perhutanan*, *Jabatan Perlindungan Hidupan Liar dan Taman Negara* (*PERHILITAN*), non-governmental organisations like *Tabung Alam Malaysia* or World Wide Fund for Nature Malaysia (WWF Malaysia) and *Persatuan Pencinta Alam Malaysia* or Malaysian Nature Society (MNS).			
-To change lifestyle by avoiding wastage of the earth's resources.			

NB.: The contents of Environmental Education Across the Curriculum are translated from *Buku Panduan Guru Pendidikan Alam Sekitar Merentas Kurikulum KBSR, Pusat Perkembangan Kurikulum, Kementerian Pendidikan Malaysia.* 1998. pp. 4-12.

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APPENDIX O

THE CONTENTS OF ENVIRONMENTAL EDUCATION ACROSS THE CURRICULUM

INTEGRATED CURRICULUM FOR THE PRIMARY SCHOOL *(KBSR)*

The contents of environmental education across the curriculum is divided into six main titles.

2.1 God the Creator of the Universe

2.1.1 God the creator of the universe

2.1.2. God the creator of man, animals and plants

2.1.3 Man is responsible in administering and managing wisely among man, animals, plants and the resources found on earth

2.1.4 Man needs to practice environmental values

2.2 The Earth and the Universe

2.2.1 The earth, sun and moon and its interrelationships

2.2.2 The rotation of the earth and the phenomena of night and day

2.2.3 The rotation of the earth and the phases of the moon and the phenomena of high and low tides

2.2.4 The beauty of the universe, solar system and the stars

2.3 Non-living Things, Natural Resources and Energy

2.3.1 Characteristics and forms of non-living things

2.3.2 Air

i. The importance of air for living things

ii. Composition of air: Nitrogen, oxygen, carbon dioxide, inert gases,

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water vapor, dust, ash and microorganisms

iii. Carbon cycle, oxygen cycle and nitrogen cycle

iv. Ozone layer and its importance

v. Pollution

2.3.3 Water

i. Types of water: Sea water, rain water, river water, water dew, underground water and glacier.

ii. The importance of water

iii. Water cycle

iv. Water pollution

2.3.4 Rocks and Soils

i. The importance of rocks for providing minerals and soil formation

ii. The importance of minerals

iii. The importance of soil

iv. Types of Soil: Sandy soil, peat, loam and clay

v. The source of soil erosion, its effect and ways to overcome it

2.3.5 Natural resources

i. Natural resources

- Renewable resources: Animals, plants, water and air
- Non-renewable resources: Minerals and fossil fuels

ii. Natural resources for sustainable development

iii. Solar energy, resources and its uses in solar heaters and solar pots

iv. Energy from fossil fuels

v. Water power for hydro power generators for producing electrical energy

vi. Wind power for providing electrical energy and moving things like water pump and grinders

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2.4 Living Things and its Surroundings

2.4.1 Diversity of plants and animals

i. Classification of plants and animals

- Plants: Woody and non-woody plants
- Animals: Mammals, reptiles, amphibians, birds and fish

ii. The importance of biodiversity

iii. The extinction of species

2.4.2 Basic needs of living things

i. Food: Importance, ways of getting food and the necessity of a balanced meal

ii. Water: Importance and the necessity of clean water

iii. Air: Importance, way to breathe and the necessity of clean air

iv. Space: Importance and the necessity of having enough space

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2.4.3 Special needs of man

i. Food, clothing and shelter

ii. Clean environment

iii. Societal living

iv. Involvement in economic activities

2.5 Interactions between Man, Animals and Plants

2.5.1 Man, animals and plants always adapt with the environment

i. Plants and animals live in different habitats

- Factors influencing the lives of animals
- Factors influencing the lives of plants

ii. Ways animals and plants adapt to its habitat

- Animals: Save itself, find food, move and multiply
- Plants: Ways of getting food nutrients, shelter, sunshine and multiply

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iii. Ways animals adapt behavior with the environment to find food, migration and safety

2.5.2 Natural world exists in equilibrium

i. Natural world consists of different ecosystems.

- Types of ecosystems
- Living and non-living components in an ecosystem

ii. Interactions between components of the ecosystem

- Food chain and food web
- Carbon cycle, oxygen cycle and water cycle
- Population in the ecosystem: Cooperation, social behavior and competition.
- Competition within the ecosystem: Intra-species and interspecies competition.

2.5.3 Equilibrium within the natural environment

i. Production of important elements for life: Oxygen, carbon dioxide, minerals, and fossil fuels.

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ii. Transformation of dangerous elements to living things: Waste

iii. Recycle: Oxygen cycle, water cycle and recycle waste.

iv. Adaptation of living things in the environment.

2.6 Management of the Environment

2.6.1 Man's responsibility in society

i. Every individual is responsible to himself, family and society

ii. Forms of responsibility: Looks after own safety, family and society

iii. Relationship between society: Mutual respect, cooperation and mutual help.

2.6.2 Man uses various natural resources for different purposes

i. Resources from living things: Animals and plants

ii. Resources from non-living things: Soil, minerals, water, air and

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solar energy

iii. Renewable resources: Animals, plants, water, air and solar energy.

iv. Non-renewable resources: Minerals and fossil fuels.

2.6.3 Man's activities and their effect towards the environment.

i. Major activities of man

- Agriculture
- Hunting and fishing
- Construction
- Mining
- Industries
- Lumbering and the opening of forests
- Usage of natural sources of energy
- Social and recreation

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ii. Environmental problems and issues caused by man's activities, cause and effect

- Air pollution
- Water pollution
- Land pollution
- Sea pollution
- Thermal pollution
- Noise pollution
- Soil pollution
- Extinction of species.

iii. Population and its related environmental problems

- Population distribution
- Population increase
- Effects of overcrowding towards the environment: land offerings, fuels and the demands for food and drinks.

iv. Natural disasters and its effect on the environment.

- Types of disaster: Typhoons, volcano eruption, earthquakes, drought and floods.

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- Effects of natural disasters: Destruction of properties, loss of lives, destruction of animals and plants, siltation, forest fires, decline in agricultural productivity and disruption of the earth's equilibrium.

v. Alternative solutions

- Air pollution: Control industrial activities, reduce smoke from motor vehicles like using lead-free petrol and tree planting.
- Water pollution: Construction of dams, provide clean water, recycle water from factories to agricultural areas, usage of underground water, *pembetungan dan saliran yang baik* and also the wise usage and control of poisons and chemicals.
- Maintaining the fertility of the soil: Natural fertilizer, green fertilizer and compost.
- Destruction of the soil: Selective felling of trees, heavy penalty, replanting and education.

2.6.4 The importance of maintaining the environment

i. Reasons for maintaining the environment

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- Thankful and in appreciation of the gift of God
- Ecology
- Economy
- Ethics
- Aesthetics

ii. Ways of maintaining and rehabilitating the environment

- Replanting of trees
- Law enforcement
- Reduce, reuse and recycle
- Cleaning the rivers and sea
- Provide education and awareness to the public
- Avoid over-exploitation
- Maintaining forest reserves
- Use technology to raise efficient usage of solar energy
- Rehabilitate the land and water

iii. Solving environmental problems

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- Identify environmental issues
- Collect data and information concerning environmental issues
- Analyze data and information
- Find the best method of solving
- Evaluate the effect of the method used.

iv. Action from the public

- Method: Persuasion, education, providing information, punishment, consumer action, law enforcement and management of the ecosystem
- Organisations involved in the management of the environment: *Jabatan Alam Sekitar* (*JAS*), *Jabatan Perhutanan*, *Jabatan Perlindungan Hidupan Liar dan Taman Negara* (*PERHILITAN*), non-governmental organisations like *Tabung Alam Malaysia* or World Wide Fund for Nature Malaysia (WWF Malaysia) and *Persatuan Pencinta Alam Malaysia* or Malaysian Nature Society (MNS).
- To change lifestyle by avoiding wastage of the earth's resources.

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APPENDIX P

AUDIT TRAIL

No.	Issue / Activity	Sources / Body of Knowledge
1.	Statement of the Problem	**Document/book review** Worldwide environmental concerns. The role of education – environmental education (EE). EE concept; Characteristics of EE; EE goals and objectives; Curriculum guidelines by UNESCO. Tbilisi Declaration (1977) The Brundtland Report (1987) ("Our Common Future") on Sustainable Development. Environmental Education for Sustainable Development Malaysia's Response EE in the School Curriculum *EE Across the Curriculum* Issues and Challenges
2	Development of Theoretical Framework	Tbilisi Declaration and Recommendations (1977). Overview of EE, UNESCO's Perspective of EE. Encyclopedia of Educational Research (1982); Stapp (1993); Maria and Samuel (2010); Walker (1995); and Stake's Model of Countenance (1967).
3.	Development of Conceptual Framework of the Study • Overview of EE • UNESCO's Perspective of EE • Malaysia's Response to International EE Goals and Objectives • The School Curriculum • Formal and Non-formal EE • EE across the Curriculum	Tbilisi Declaration and Recommendations (1977). Malaysia Development Plans. School Policy Statements and Planning. Curriculum Specifications of the relevant subjects. Teacher's Guide on EE. ProQuest Theses and Dissertations, ProQuest Education Journals database.

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	• Issues and Challenges in EE Implementation • Best Practices Model in EE • Proposed Best Practices in EE for Schools	
4.	Development of Research Questions (RQ)	Relate to the purpose / objectives of the study.

	Activity	**Sources**
5.	Literature Review • EE concepts; Characteristics of EE; EE Curriculum Goals and Objectives; Curriculum Guidelines. • Malaysia's Response / Government policies • Studies on EE • Best practices models of EE	UNESCO Reports; Tbilisi Declaration and Recommendations (1977). Malaysia Development Plans and Policies. ProQuest Theses and Dissertations, ProQuest Education Journals database
6.	Research Design • Case Study • Determining Case and Participants	Case study research design, research articles and reference text by Stake (1995) and Yin (2003) Purposive sampling Convenience sampling - Cohen, Manion and Morrison (2007).
7.	Plan for Data Collection.	Data Collection Matrix. Fieldwork at the schools commenced in June 2012 (after approval letter from EPRD).
8.	Plan for Data Analysis & Management:	Rossman and Rallis (2003) "Generic Analysis" as a guide. Miles and Huberman (1994) Data reduction, Data organization and display, Data interpretation and conclusion Thematic analysis based on Stake's Countenance Approach (Stake, 1967), Data from the Case Study

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		involving four selected schools.
	Document analysis • Curriculum mapping of EE across the Curriculum elements for three subjects at Year Five level. Identify three subjects for study (two subjects showing strong inclination towards EE and one general subject. • Analysis of documents related to the three subjects. • Topics/subtopics identified in the subjects. • Compare with UNESCO curriculum goals/objectives, specifications and guidelines. (Are the topics/subtopics in line with UNESCO specifications?)	Subjects syllabi and Specifications of the three subjects. School textbooks, Teacher's guidebook School's strategic planning
	Interviews • Perspectives on Environmental Education • Transcribing (verbatim) to run concurrently with data collection	Professional environmental educators (Authorities on EE at the Universities); Curriculum developers from the CDD, KPM and DOE; WWF (NGO); Headmasters and GPKs; and Teachers (three from each of the four schools teaching the three subjects selected – two with strong inclination to EE, one general subject). Conducted towards the end after completing classroom teaching observations, over a period of three to six months. Interviews recorded after obtaining permission from participants
	Observations • Support and commitment given to Environmental Education. (To carry out first when visiting the school – can guide interview process.) • Observations of teaching in the classroom • Analysis of data to run concurrently with data collection.	Checklist / Green Audit of the schools. (To cross-check with the interviews.) Observation of Teaching Field notes, Memos

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9.	Consider Validity and Ethical Issues • Maintaining Validity and Reliability of Study	Triangulation method of data collection was used (interview, observation, document analysis) Recorded interviews involving three groups of participants (teachers, school administrators, and EEP) Interview transcribed verbatim and participant validation. Audit trail
	• Ethical Issues Obtaining approval to conduct the study. Ethical Consideration	Approval from EPRD and Headmasters of the selected schools Informed consent from participants was obtained before commencing the study.
10.	Planning for Report Writing	Follow the guide and structure by the Institute of Graduate Studies. Book and Literature review
11.	Completion of Report	The report was made ready for submission on February 13, 2015

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