

The Malaysian Primary Education System and Sustainability: Challenges and Opportunities

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Abstract

This research is mostly motivated by the UNESCO's declaration of the Decade for Education for Sustainable Development. Since the concept of sustainable development plays a vital role in the educational process of many countries around the world, it seems important for Malaysia as one of the main actors of the Association of the South-East Asian Nations (ASEAN) to synchronize its system of education towards sustainability. The experience of Malaysia as a leading developing country can be later on used by other developing nations. Since primary education plays an important role in shaping the new generation of each nation, the objectives of this paper are set to assess the present primary education system in view of its contributions to sustainable development and to propose approaches/methodologies to strengthen the system's contribution towards sustainable development. Therefore, this paper tries to propose appropriate policy recommendations and changes, specifically in terms of executing necessary actions to promote and improve the education system.

Keywords: Education for sustainable development; educational policies; primary school system; transforming education system

The research paper was primarily motivated by the UNESCO's declaration of the Decade for Education for Sustainable Development. The second motivating factor emerges from the fact that recently, the Malaysian education system is being criticized and severely questioned in terms of its direction. Many proposals (and some changes) have been put forward in response to these criticisms but some of the changes and new initiatives are seen as unsustainable and quite ad-hoc in nature. Therefore, it is hoped that this research paper will propose appropriate policy recommendations and changes, specifically in terms of executing necessary actions to promote and improve the education system.

The objectives of this research paper are therefore:

- To assess the present primary education system in view of its contributions to sustainable development
- To propose approaches/methodologies to strengthen the system's contribution towards sustainable development

The research was carried out using a qualitative approach whereby the data was acquired from primary and secondary sources. The primary data was collected from interviews and discussions with officials from the Ministry of Higher Education as well as teachers who participated in several related workshops. The secondary data was gathered from the papers that were presented during the workshops and also during the expert meetings. Another group of secondary data was analyzed based on previously published data i.e. reports, Education Development Plans, curricula, teaching modules, etc.

Research Framework

The general framework of the research is outlined below. The research was divided into several stages of implementation:

- a) Formation of an expert group to be directly involved in the research. This group included academicians who specialized in the areas of education and sustainability, as well as officials at the Malaysian Ministry of Education and the NGOs' representatives.
- b) Assessment stage - the present education system and the formal and non-formal curricula were assessed through workshops and expert meetings with teachers and officials that were involved in developing and monitoring the curriculum.
- c) Documentation stage - the findings were then compiled and assessed by an expert group.
- d) Preparation of the final document - based on the consultations with experts, the report was finalized for presentation to the Malaysian UNESCO Council and the Malaysian Ministry of Education.

Three expert meetings were organized for the project – for the purpose of collecting data and data analysis, as well as one workshop and a national conference which was held successfully as follows: the 1st Expert Meeting on Planning and Implementation of the Research and the Workshop on “The Situational Analysis of the Malaysian Primary Education System Towards Sustainable Development”. In this workshop, the teachers were introduced to the concept of Education for Sustainable Development (ESD) and later on discussed their views on sustainability and its relation to the current Malaysian Primary School Curriculum in different subjects.

“The 1st National Conference on Education for Sustainable Development in the Malaysian Primary School System” was held in February 2008. More than 40 Malaysian primary school teachers from different backgrounds and schools gathered together with several educators, representatives of the Malaysian Ministry of Education, representatives from NGOs as well as academicians to examine and discuss the ways of addressing sustainability in the Malaysian primary school curricula. The output of this national conference had been summed up in “The Declaration of Malaysia on the Primary Education System towards Sustainable Development” on the last day of the conference. This declaration will eventually be utilized by the Malaysian Ministry of Education in their decision-making process.

The results of the previous expert meetings, the workshop and the national conference on “Education for Sustainable Development in the Malaysian Primary School System” were discussed in the 2nd Expert Meeting on Addressing Sustainability in the Malaysian Primary School System” by the participants. More than 15 experts, educators, representatives from the Malaysian Ministry of Education, NGO members and academicians participated in this meeting to prepare the final report on “The Situational Analysis of the Malaysian Primary Education System towards Sustainable Development.”

Report of Findings

Education has been always a key factor in the existence and development of every society throughout the history of human being. As the matter of fact, this very important factor plays a central role in achieving a sustainably developed society. According to Fien (1995); “Education is critical for promoting sustainable development and improving the capacity of the people to address social issues.” However, before entering to any further discussion, we need to define the meaning of a sustainable society and its relation with the concept of education.

According to the International Sustainability Council (2008); “a sustainable society provides a high quality of life for all of its members without harming the integrity and efficiency of the natural systems and resources upon which all lives depend.” We have to pay attention that the limit of the human desires is nature. Human can design its dreams based on the borders of nature. Therefore, sustainability can be defined as achieving a pleasing existence for everyone within the means of nature for now and in future.

On the other hand, it is necessary to be aware of this important fact that a sustainable society is not only about the environment and nature. This concept covers a wider range of issues and phenomena. As Mulej (1998) argues; “the term Sustainable Development denotes the idea (and the concept supporting its implementation) of development, action, and behavior that are based on holism rather than one-sidedness.” Therefore, a sustainable society has to provide opportunities for each member of the community to reach his/her potentials. Some issues such as cultural diversity, providing adequate food, clothing, shelter, and a life of dignity for all people should be also addressed in a sustainable society.

Diversity is one of the most important issues that a sustainable society has to recognize and promote its existence as diversity gives birth to strength and flexibility of the human community. According to UNESCO-UNEP (2002); “diversity—as a source of innovation, creativity and exchange—is humanity’s guarantee for a mutually enriching and sustainable future. Together, cultural diversity and biological diversity hold the key to ensuring resilience in both social and ecological systems.” This cannot be achieved without a system of education designed to address these issues. Therefore a system of education for a sustainable society has to create balance between the human needs and the natural systems.

As mentioned, an appropriate system of education is the key to a sustainable society. In order to achieve such an appropriate educational system, many elements should be taken into consideration e.g. a society’s geographical location, the population texture of the society, the socio-economical background of the society, etc.

Education for Sustainable Development (ESD)

The United Nations Decade of Education for Sustainable Development is one of the most important UNESCO global movements in recent years. As per UNESCO (2005) definition; "The goal of the United Nations Decade of Education for Sustainable Development (2005-2014, DESD), for which UNESCO is the lead agency, is to integrate the principles, values, and practices of sustainable development into all aspects of education and learning."

This educational effort will encourage changes in behavior which will create a more sustainable future in terms of environmental integrity, economic viability, and a just society for the present and the future generations. This wide range of effects is argued by Hopkins and McKeown (2001) as; “education for sustainable development can improve agricultural productivity, enhance the status of women, reduce population growth rates, enhance environmental protection, and generally raise the standard of living.”

There have been extensive efforts around the world to fulfill the objectives of this decade and many countries, institutions and organizations around the globe are highly involved in these efforts in many different ways and forms e.g. researches, seminars, conferences, workshops, meetings, field works, etc.

Based on UNESCO’s (2005) description, the objectives for the DESD are to:

- facilitate networking, linkages, exchange and interaction among stakeholders in ESD;
- foster an increased quality of teaching and learning in education for sustainable development;
- help countries make progress towards and attain the Millennium Development Goals (MDGs) through ESD efforts;
- provide countries with new opportunities to incorporate ESD into education reform efforts.

Recognizing the manner in which sustainable development and other related educational processes are attained as well as how they vary in contextuality is a key component in developing UNESCO's objectives in its capacity as the leading agency of the Decade. The UNESCO's leadership role and, in fact, the tasks of the Member States are also defined in the UNDESD International Implementation Scheme (2005) by the four major thrusts of education for sustainable development:

- improving access to quality basic education;
- reorienting existing education programs;
- developing public understanding and awareness.
- providing training.

An overview on what has been done in different regions of the world and by different countries and organizations stress importance on how efforts made should address the social and cultural texture of the society in which the plans intend to be implemented.

In Malaysia's case, the focus of the sustainable development agenda has mostly been on the environment albeit with a broader definition and interpretation. In regards to this matter, the importance of expanding the definition of sustainable development and ESD is even more apparent.

Malaysian Education System

Malaysia is an example of one of many multiethnic and multiracial countries around the world. In fact Malaysia represents the true meaning of a diverse society in its many races, languages and religions. Population-wise, According to the Malaysian Department of Statistics (2010), Malaysian society consists of Malays 50.4%, Chinese 23.7%, Indigenous People 11%, Indians 7.1% and others 7.8% (2004 est.). In term of languages, Malaysia enjoys a vast variety such as; Bahasa Malaysia (official), English, Chinese (Teochew, Cantonese, Mandarin, Hokkien, Hakka, Hainan, Foochow), Tamil, Telugu, Malayalam, Panjabi, Thai and several indigenous languages such as Iban and Kadazan. The same applies to religion as Malaysian society has many different religions such as Islam, Buddhism, Daoism, Hinduism, Christianity, Sikhism, Bahaism and also Shamanism in East Malaysia.

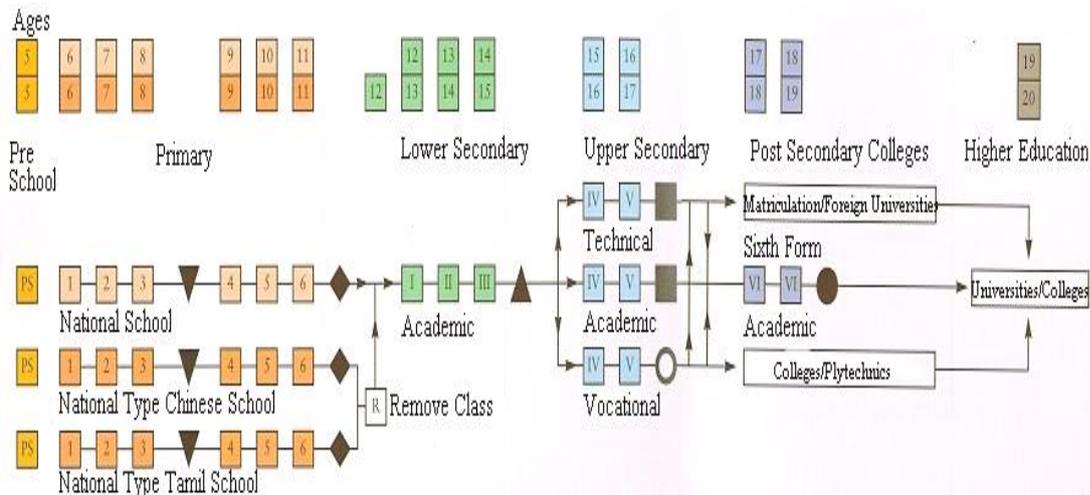
Based on the figures above, it is easy to comprehend how difficult it might be to keep such a diverse societal texture in harmony and provide a fair and equal system of education for them based on mutual understanding and respect. As it is argued by the UNESCO's International Institute for Educational Planning (IIEP, 2003), "education has both the potential of either easing or exacerbating ethnic conflict through the way it is organized and delivered to different ethnic groups." In such a diverse society, the education system should be able to adopt a guideline to address the cultural and ethnic needs of each group and at the same time keep this society in the frame of national community and unity.

According to the Malaysian Ministry of Education (2011), The Malaysian education system consists of three different schooling forms; firstly government-sponsored schools (National Schools), then private schools and thirdly, home-schooling. It is a fact that the Malaysian system of education is especially centralized when it comes to primary and secondary schools. Primary education in Malaysia encompasses a period of six years. It is aimed at providing pupils with a good foundation for reading proficiency, writing and arithmetic (3R's). At the end of the sixth year, primary school pupils will be assessed for the Ujian Penilaian Sekolah Rendah/The Primary School Assessment Test (UPSR/PSAT). Irrespective of their performance in the PSAT, all primary school pupils are promoted to Form 1, the foundation year of their secondary education.

As per the Malaysian constitution, the Malaysian Ministry of Education is responsible for preparing the National Education Policy based on the National Ideology or as it is called in the Malay language "Rukunegara". The principles of the National Ideology are - belief in god, loyalty to the King and the country, upholding the constitution, sovereignty of the law and good behavior and morality.

The main aims of the Government Educational Policy according to Adam (1995) are to: (1) equip students with the essential skills in a holistic and integrated manner, in order to produce individuals who are intellectually, spiritually, emotionally and physically balanced; as well as functionally literate; (2) inculcate and nurture national consciousness by promoting common ideals, values, aspirations and loyalties to foster national unity and national identity (3) produce skilled manpower for economic and national development; (4) instill desired moral values in the students so that they can contribute effectively towards the concept of nation building.

Figure 1 depicts the general public education system in Malaysia. Curricula wise, there are several variations of primary and secondary schools available in the Malaysian education system. The main point of division between these schools is their colloquial speech languages. All the schools use the national curricula and Bahasa Malaysia (Malay Language) as the medium of instruction along with their respective vernacular languages as their subject. For the Chinese or Tamil schools, students prior to Form 1 promotion have to undergo a year in the "Remove Form" to enable them to become accustomed to the national curricula effectively. Based on the factors mentioned above, there are four types of governmental schools in Malaysia; 1) National Schools (Malay), 2) National Chinese Schools, 3) National Tamil Schools and 4) National Arabic Schools (these schools are especially uncommon).



Source: The Ministry of Education Malaysia (2010)

Figure 1. The Malaysia Education System

In January 2003, a mixed mode instructional technique was introduced so that from Standard 1 onwards, science and mathematics would be taught in English whilst other subjects continued being taught in Malay. Tamil and Chinese vernacular schools went about doing what they have always done i.e. conduct classes in Mandarin and Tamil. However as the Seattle Times (2009) reported, “Malaysia announced it will abandon the use of English to teach math and science, bowing to protesters who demanded more use of the national Malay language.”

The structure of education in the community network can assist us by giving us a clearer idea of how the Malaysian education system functions. This structure can be divided into two sections namely; 1) Formal Education and 2) Non-Formal Education. Three ministerial divisions are in charge of Malaysia’s overall education system namely, the Ministry of Higher Education, the Ministry of Education and the Ministry of Natural Resources and Environment. These three ministries create a vertical relationship with some of the other formal educational institutions, private colleges and other universities. It must be said however that this vertical institution also ties itself horizontally with other informal institutions of education, community-based NGOs, media and local business communities. This structure ensures the smooth functioning of the Malaysian education system while simultaneously maintaining a holistic view towards the concept of education.

Policy and Institutional Role for ESD in Malaysia

The Malaysian education system experienced separatism during the colonial rule of the British, however in the post-independence; the system went about setting new goals to foster national unity through education. These attempts culminated resolutions that focused on diversity such as the Razak Report (1956), Rahman Talib Committee Report (1960) and Democratization of Education Report (1962).

In terms of Education for Sustainable Development and its relation to the competitive situation of today's global world, the Malaysian system of education has placed its prime focus on educating quality knowledge-workers and preparing them for the future of the nation. To achieve this, the re-engineering of the education system based on contemporary needs was taken into consideration. Coincidentally, this also channels the Malaysian education system towards the holistic approach that the UN and UNESCO are pushing for.

The success of any educational system is dependant on certain important issues, some of which are putting theory into practice, clarity of the policy, direction of the policy, assessment and monitoring, ability of the policy to fulfill the needed requirements and the commitment of policy implementers. More often than not the success of the system is reliant on a successful combination of these elements.

In Malaysia's context, the combination of the above elements has given birth to the Malaysian Education Development Master Plan 2006-2010. The national policy's understanding of the constructive and important role of education is addressed clearly in two sections of the 9th Malaysian Plan as; "Thrust 2: To raise the capacity for knowledge and innovation and nurture 'first class mentality'" and "Thrust 3: To address persistent socio-economic inequalities constructively and productively."

In the Malaysian Education Development Master Plan 2006-2010, the foundations of Malaysia's development were defined as; The National Mission, The National Development Policies, The National Education Policy, Islam Hadhari (a manifestation of Islam capable of answering the needs of today's world) and The National Integrity Plan. In term of Education Development Thrusts, elements such as access, equity, quality, efficiency and effectiveness of education management are regarded as top priorities.

In attempting the above criteria, certain important issues need to be taken into consideration such as making equal opportunities in education available and promoting the excellence of educational institutions. Achieving these objectives require proper strategy planning which can be categorized into nation building, developing human capital, strengthening national schools, bridging educational gaps, enhancing the teaching profession and accelerating excellence of educational institutions.

In addition to what has been said above, some critical success factors should also be factored in such as the cooperation and commitment of education, community cooperation and commitment of educational stakeholders, delivery system and monitoring and evaluation system. The combination of all the said elements will lead us to the main objective of the plan which is to provide a quality education for all.

Implementing ESD in the "Educational Development Master Plan (EDMP)"

The EDMP (given its role in the Malaysian education system) can act as a driving force in the policy formulation, planning and implementation of EfSD programmes. The UN on the SD Chapter 36 of Agenda 21 (1992) acknowledges

the role of EfSD in “promoting education, public awareness and training”. This then reflects the critical role of a quality education in the SD context. As was mentioned before, the strategic thrusts of the EDMP play a crucial role in the success of the EfSD goals. A closer look at what these thrusts are will better depict the relationship between EfSD and EDMP.

Thrust 1: Nation Building - in terms of policy, this thrust attempts to address the process of nation building, national identity and human resource development. The objectives of this thrust are to produce students with strong personalities, patriotic, who adhere to religious and moral values and live together in a caring, democratic, liberal, tolerant, united and science-oriented society. In terms of its strategy, Thrust 1 tries to strengthen the national language as the basis of unity and knowledge, strengthen unity and national integration, cultivate a love of the arts, heritage and national culture and promote a clear understanding of Islam Hadhari.

Thrust 2: Developing Human Capital - in term of policy, this thrust undertakes the development of human capital with knowledge and skills as well as good values. The objectives of this thrust are to inculcate the desire for knowledge, skills and competence, foster positive values, morals and attitudes as well as to inculcate discipline among students. Co-curricular activities such as; uniform bodies, sports and games, clubs and societies were incorporated with the objectives of promoting patriotism and nation-building, molding leadership while building character and inculcating moral and positive values.

The strategies that were adopted for this thrust provide more opportunities in education for both parents and students to raise the interest and ability of students to master knowledge and skills and shape the competency and personality of students by:

- Strengthening the curriculum and co-curriculum
- Acculturating courtesy and good manners
- Strengthening the 3K Programme (cleanliness, health and safety)
- Enhancing student discipline
- Improving and updating evaluation and assessment systems

Thrust 3: Strengthening National Schools - this thrust endeavors to promote national schools as the school of choice to enhance and reinforce unity among students of differing races and ensures excellence in teaching and learning. In terms of achieving this goal, important strategies such as expanding preschool education, strengthening the leadership of the school principals/heads, improving the quality of teachers, reinforcing the school culture, reinforcing the curriculum (ensure Level 1 pupils master the 3Rs, introduce Chinese and Tamil languages, introduce special needs programmes and increase access and choices to the secondary stage), reinforcing co-curriculum and sports, improving the support system, improve academic performance and improving infrastructures as well as schools performance.

Thrust 4: Bridging the Educational Gaps - this thrust attempts to bridge the educational gaps of location, socio-economic status and students’ abilities. It is to ensure all schools and students have equal opportunities and capability to

excel. Some of the gaps that were categorized are the urban poor, digital divide, socio-economical issues, students with special needs, etc. Among the ways by which these gaps are to be bridged is to develop educational infrastructure and facilities in the rural areas, increase participation rate of the students and reducing the risk among students of dropping out, increasing the number of trained teachers in remote areas and improve the support system for students who are poor, with special needs and the ethnic minorities.

Thrust 5: Enhancing the Teaching Profession - this thrust tries to enhance the quality, career and welfare of teachers to make teaching a respected profession. To achieve this goal, strategies considered are improving the selection of teacher candidates (academic qualifications, teacher’s personality, inventory tests, written English test, individual interviews and group interviews), strengthening teachers’ training (upgrade teachers’ qualifications by establishing Teachers’ Education Institutes (TEI), Teaching Schools, design and formulation of the TEI curriculum, strengthen and expand courses and training, expand and enhance R&D) , strengthening the teaching career (increase promotional opportunities for principals and teachers, increase quota for promotion and housing and incentives), improving teachers’ working environment and welfare and strengthening human resource planning and management.

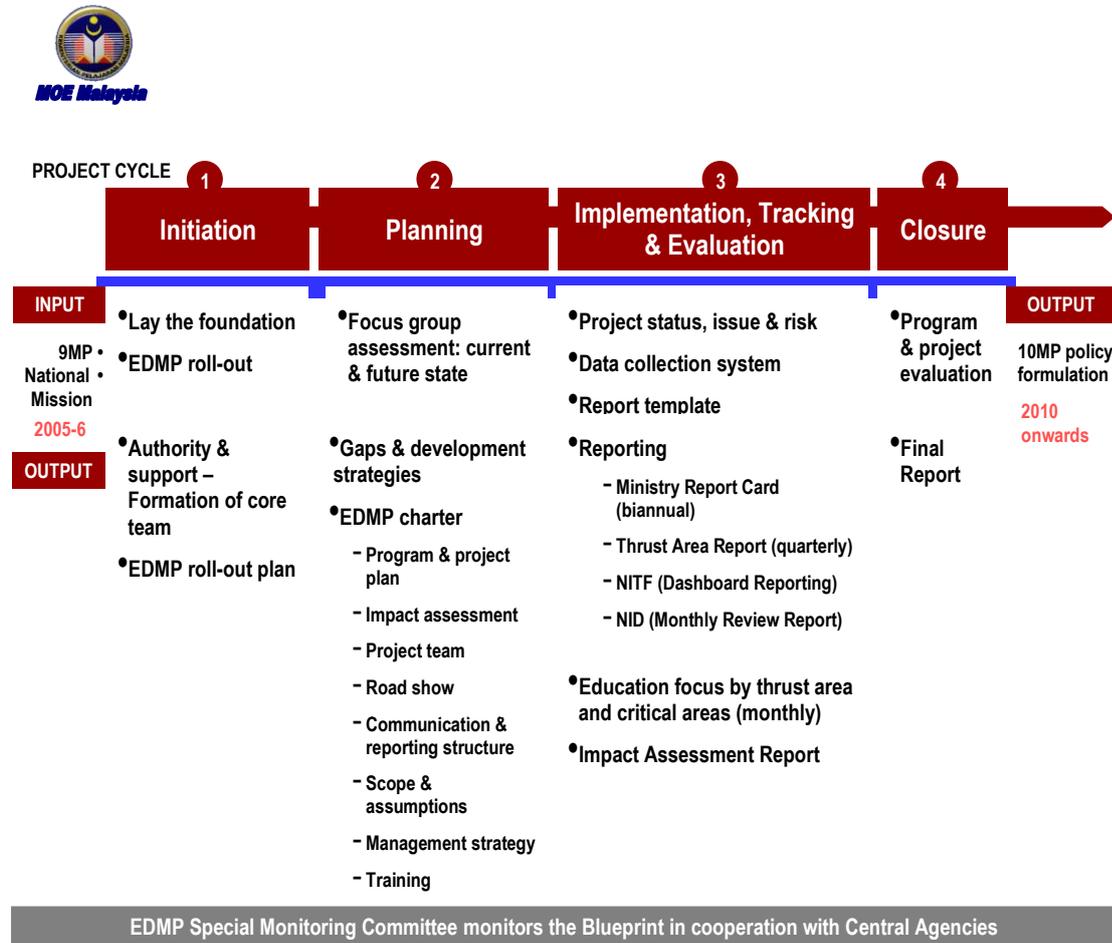
Thrust 6: Accelerating the Excellence of Educational Institutions - the attempt to develop local educational institutions into world standard ones in order to build up exemplary institutions as models for other institutions within the same cluster. With respect to the abovementioned thrusts, we need to understand that the institutional role of ESD is directly related to the commitment of all the stakeholders. The understanding of the stakeholders in regards to policies, areas of focus, strategies and action plans is important so that these can be synergized with their expertise and capabilities. This agenda can be achieved by a strong cooperation within and outside the Ministry of Education for dissemination of EDMP. Other key elements that are crucially important in this matter are developing the Key Performance Indicators (KPIs), internal accountability and monitoring & evaluation.

In terms of the the structure of the EDMP, the committee chart as showed in Figure 2 can be used;

LEVEL	COMMITTEES	CHAIRPERSON
TOP MANAGEMENT	Monitoring and Evaluation	Minister of Education
MOE	Working Committee	Secretary General & Director General of Education
STATES	Working Committee	State Education Directors

Figure 2. EDMP Committee Chart

The Blueprint of EDMP can be considered as showed in Figure 3:



Source: The Ministry of Education Malaysia (2009)

Figure 3. The Blueprint of EDMP

Malaysian Primary School System and ESD

As was mentioned, the primary focus of the Malaysian education system in the scope of sustainability is mostly on Environmental Education (EE). The main focus of Malaysian Environmental Education is to provide education for and about environment. However, the Malaysian definition of EE also goes beyond that of standard EE and in addition attempts to upgrade the living standards of people as well. Therefore as argued by Pudis et. al. (2005), “environmental education in Malaysia is geared towards addressing environmental challenges such as littering, water pollution, air pollution and the degradation of biodiversity”.

The Education for Sustainable Development (ESD) has also been refined to include the line: "to achieve SD through understanding and wise management of natural resources". The Malaysian interpretation of environmental education enables the acquisition and mastery of inquiry and scientific skills. It also aims

to create a society which is sensitive and caring, knowledgeable, skilled and committed to solving environmental problems.

The objectives of this approach are to: 1) gain experience, knowledge and basic understanding about the environment and its problems, 2) to be sensitive, aware and caring about the environment and the problems relating to it, 3) have a positive attitude, value and love for the environment, 4) understand that natural resources utilized in national development should only be undertaken with careful planning, 5) acquire skills needed to identify and solve environmental problems and 6) to be given the opportunity to be actively involved in solving environmental problems.

The status of Environmental Education (EE) in Malaysia is such that EE is not yet a subject on its own in the education system; however its elements have been integrated across subjects and co-curriculum activities. These integrated elements can be viewed through channels such as God is the creator of the universe and all living things, the interaction between earth and the universe, non-living things and natural resources, living things and their habitat environment, interaction between, man, animals and plants, management of the environment, etc.

The implementation of the above elements into the curricula by the Ministry of Education with the cooperation of the Curriculum Development Centre (CDC) advocates spiritual, moral and student-centered approaches in the teaching and learning of EE. It also attempts to make the teaching and learning processes more student-centered and fun. Other equally important aspects that are to be incorporated are evaluation and monitoring.

In terms of implementing appropriate strategies for EE, the Malaysian education system has adopted certain elements from EE materials such as teacher's guide books, marine educational kits, greening of schools, and greater understanding of the waste cycle. At the same time, EE is made a compulsory subject for trainee teachers in Teachers' Training Colleges and it is also offered as an in-service course for resource teachers.

Apart from the above attempts, a series of sufficient supporting programs and activities are essential for the success of this concept. River Watch Program, Environmental Cadets/Brigade, Environmental-Themed Competitions, Environmental Materials and Training Programs are among the activities which have already been introduced to the Malaysian education system.

As a specific example, the Department of Fisheries at the Ministry of Agriculture has designed a program with the cooperation of the Hong Kong and Shanghai Banking Corporation (HSBC) to educate the public and to instill the values of conservation for the protection of marine resources.

In another attempt; the Department of Wildlife and National Parks created a course on nature conservation at Lanchang and Taman Negara (The State of Pahang) to instill awareness in the younger generation on nature conservation. Other institutions such as the National Institute for Public Administration (INTAN) conduct regular workshops on managing Malaysia's natural heritage or even a career option in biodiversity.

It must be said here however that the implementation of these programs is not exactly easy sailing. Curricula transformation is one of the main

constraints of implementation whereby the process of transforming the curriculum towards answering the objectives of EfSD should be done carefully - needing a vast amount of attention, financial resources and expertise. Teaching-related issues such as training as well as teaching and learning pedagogy are among the most important elements in this concept.

The Role of Teachers' Training in the Malaysian Education System with Regards to ESD

The concept of ESD had already been introduced into the Malaysian Teachers' Training curriculum in various ways such as in Environmental Education, Sustainable Development and Social Studies. This subject was offered to all of the 27 nation-wide institutions of teachers' training by the Teacher Education Division of the Malaysian Ministry of Education.

The criteria in which the components of ESD in the subjects will be offered to the student teachers can be categorized as:

- 1) an understanding of the human-environment relationship and
- 2) the sense of respect and responsibility with which humans should manage the environment and the earth.

This process strives to provide education to the student teachers *about* the environment *for* the environment and *in* the environment in order to enable the student teachers to understand and comprehend the environmental issues and to act individually or in groups to preserve and conserve the environment. It equips future teachers with knowledge, skills and moral values that will assist them in implementing ESD components across the school curricula effectively.

This program is designed with the objective to enable future teachers to state the significance of environment related issues and its integration into the teachers' education curriculum, to acquire knowledge in analyzing and addressing associated environmental problems, to elaborate the concept of sustainable development in the process of planning and development of natural resources, to identify the social responsibilities of government, non-governmental organizations and corporate bodies in addressing environmental issues, to elaborate and apply environmental related values across the school curriculum, to foster positive values and attitude towards the environment, to participate and act individually or as a group in the preservation and conservation of the environment and to integrate elements of ESD into school-based curricula.

A wide range of topics and issues are covered in the themes and contents of the future teachers' curriculum which may be directly or indirectly related to the core elements of ESD. A few examples of the themes incorporated are ecosystem and environmental issues, sources of environmental issues, consequences of the environmental issues, addressing the issues, sustainable development concept, historical background and the origin, principles, guidelines of agenda 21, ESD and its four pillars, the purpose of sustainable development, approaches to sustainable development, ecosystem based management, environmental acts and international conventions, environmental citizen, sustainability, economy and society, sustainable future, individual choices,

collective actions, integration and overcoming challenges, evolving strategies, gender, environment and development, human rights and development, state of un-sustainability, globalization and development, ESD across the curriculum, whole school approach, integration of ESD in the teaching and learning process, co-curricular approach and greening programs.

In fulfilling the ESD objectives, the Department of Teachers' Training has made substantial collaborative jobs in cooperation with different stakeholders to produce a module, the "*Environmental Education Module*" 2002/2003 for teachers & lecturers in conjunction with WWF, carrying out a series of courses to train lecturers in teacher training institutions to integrate ESD concepts across various teachers' training curriculum, organizing Daily Lesson Plans, writing competitions, integrating ESD concepts across various school subjects (April-December 2002) for the student teachers in the teacher training institutions, organized a course to train school head masters and principles of selected schools in Malaysia on various concepts of ESD (Nov-December 2003), Facilitating lectures in the institutes of teacher education in cooperation with the Ministry of Environment, organizing environmental camps for student teachers in selected teacher training institutions (24-27 June 2004 at Endau Rompin), organizing programs for student teachers during the Environmental Week (2001,2002, 2003 ,2004,2005 ,2006 & 2007), organizing short courses for future teachers to produce a project-based learning integrating ESD concepts and ICT skills across school curricula in collaboration with "Intel - Teach for the Future", etc.

One of the most important issues in teachers training in relation with ESD is how to sustain these activities and efforts. In sustaining these movements, the Department of Teachers' Training is trying to improve integration of ESD into the teachers' curriculum, promote and support the establishment of ESD in all educational programs, develop teachers' training-based materials on ESD curricula and identify and disseminate best practices on ESD issues across the teachers' training curricula.

ESD Related Activities at Schools

Apart from the conceptual and theoretical aspects of ESD, the other vital aspect is the implementation of these concepts into practice. For this crucial purpose, the Malaysian Ministry of Education has started collaborative projects with different stakeholders involved in ESD such as the Centre for Education, Training and Research in Renewable Energy and Energy Efficiency (CETREE) on issues related to renewable energy or energy efficiency.

The goal of this project is to infuse energy conservation into the primary school cross-curricular and co-curricular. This program seeks a way to introduce these concepts to the pupils not only at the knowledge-based level but also on skill, attitude and on a behavioral basis. In this project, students will be introduced to different concepts in relation with energy such as energy exploration, energy technology, the negative effects of non-renewable energies, energy services, etc.

The approach of this project is a "4M Approach" in which the four concepts of Meaning, Memory, Motivation and Measurability are at the highest level of consideration. This project is also awareness-raising, implementation as well as attitude & behavioral change based. This project targets 4 major school activities namely - classroom teaching and learning, after school curriculum, science and technology carnival and the energy month. This project attempts to integrate itself into the 8 subjects of the curriculum that is to say mathematics, science, the Malay language, the English language, Islamic education, arts, local studies and life skills.

In reaching the objectives of this project, 8 nation-wide pilot schools have been chosen to integrate the above project into their curricula. 16 module drafts have been prepared and the contents of the modules have been designed in a language user-friendly session that lasts for approximately 30 – 60 minutes. In regards to after-school curriculum, a draft book containing easy and simple activities relating to energy conservation and efficiency has been published and distributed among schools.

Another important and successful manner of introducing the concept of ESD into the Malaysian education system is the concept of Sekolah Lestari (Sustainable School). Sekolah Lestari helps to shape a school environment that takes into consideration environmental protection and conservation in various aspects such as environmental management, curriculum, co-curriculum and greening activities.

The involvement of the school community (which includes students, teachers, administrative and supporting staff) in these aspects will provide an opportunity for them to practice, appreciate and embrace environmentally-friendly attributes in their way of life at school, home, in the community, within society and the nation.

The Sekolah Lestari (Sustainable School) concept is designed on an integrated approach, which involves the school community as a whole, their families, local communities, the government and private sector as well as non-governmental organizations. This concept encompasses the integrated approach in management, curriculum, co-curriculum and greening activities. Sekolah Lestari aspires to encapsulate both current and planned environmental activities. It shall also serve as a centre of learning and education that is capable of influencing both the school community and society towards a way of life that is sustainable.

Based on the mission of the Sekolah Lestari and its concept, among the activities practiced at these schools is a Word Bank in which students start building a word bank in their classrooms. Keywords can be considered such as biodegradable, compost, landfill, environment, toxic waste, etc. Another activity is Basic Words -Phonics/Word whereby lists are made using relevant words e.g.: bin, pack, use, make, throw and such basic words as occurs throughout the unit. Pictures and sentences can be used to explain how two different resources are recycled in a simple step-by-step guide format.

Finding where the nearest recycling centre is located, either through the local council or private collecting centre is another practice in these schools. This will help pupils understand how different resources are recycled as well as the

people who are involved in the recycling process with jobs in waste collection, sorting and processing, advocacy, etc.

There is also an introduction of art activities that is being practiced at Sustainable Schools which involve the usage of waste material. Examples of such activity are:

- Mosaics using egg cartons or cheese boxes as a base container, with moist sand or play dough, then colored plastic, glass and paper shapes.
- Fabric collage pictures using scrap fabrics.
- Mobiles-newspaper constructions: flowers to hang, boats to sail and hats to wear (at school parades).

At Sustainable Schools, students are encouraged to seek information in books, magazines, brochures and the Internet; they are also introduced to brainstorming activities, problem-solving skills, etc.

In regards to environmental issues, Sustainable Schools try to foster good environmental values by raising awareness amongst the school community about the importance of environmental protection and conservation; to encourage the school community to carry out effective environmentally friendly activities, to heighten cooperation between schools and communities in making environmental education a success and to generate a school surrounding that is conducive for producing a school community that practices a sustainable lifestyle.

Another important project which is still being carrying out by WWF-Malaysia is “Developing EE Policy within the Malaysian National Education Policy”. The project is currently entering its 2nd Phase whereby all the data which have been collected nationwide via surveys involving students (primary, secondary and university), teachers, lecturers, public and business sectors and politicians. The data is being processed and the final report will be handed to the Ministry of Education for further action.

By strengthening the institutional framework (especially through the EE Policy) as well as creating a credible and replicable EE Model (although the testing site is at the secondary level), we can create a good platform for transforming the current EE teaching practices at primary schools towards producing children who are more appreciative of the environment. Through the networking with various parties within Malaysia and at the international level, student would be able to increase their cognitive competencies while enhancing their environmental knowledge.

In this project; teachers are encouraged to use interesting and interactive methods of teaching environmental related subjects with a participation of various stakeholders. Courses of various disciplines via the respective subjects are taught within the school environment in order to create a sense of belonging and also to enable them to master the required knowledge and skills.

For this purpose, teachers have to continuously build environmentally-related knowledge and skills and establish good networking with relevant stakeholders for the purpose of executing various EE program as well as for raising funds.

There are many different ways in achieving the goal of imparting EE into the primary school system some of which are by;

- Simplifying reading materials, activity books and other printed resources from international websites. e.g. UNESCO, Eco-Schools, etc.
- Introducing EE as a compulsory/core subject in Teachers' Training Colleges
- Capacity building/ exposure for teachers to further strengthen EE knowledge through workshops, seminars or dialogues (locally or internationally)
- Smart Partnership between the Ministry of Education agencies and other stakeholders such as other relevant government agencies universities and NGOs.
- Student earning processes. (in classroom, school compounds and field visits)

Recommendations

ESD should not be perceived and taken only as a separate subject i.e. environmental studies but as something that permeates all subjects. It implies a learner-centered pedagogy that promotes interdiscipline, ensures relevance of knowledge to the learner's experiences, encourages active learner participation, helps the development of critical thinking and participatory skills and caters for life-long education. Consequently, initiatives promoting ESD within the formal education sector should not be viewed as intrusions into other subjects, but as opportunities for the country to improve its educational system.

Based on the research done, the following are the suggestions recommended for further improvement of the Malaysian primary education:

For schools

- Develop an appropriate curriculum that promotes sustainable development, based on an interdisciplinary approach.
- Ensure that the content refers to and deals with issues related to sustainable development that are relevant to the experiences of the learners. (e.g. there is a possible fallacy of citing an example from Africa for a country in the Pacific Islands)
- Promote a holistic education that combines technical knowledge with moral, social and personal development.
- Encourage children to actively take part in decision-making processes at their schools and to be responsible for the improvement of their schools' environment.
- Encourage children to take an active role in activities which foster sustainable development in their school and community.
- Involve the schools in Local Agenda 21 initiatives and in partnership with the national, regional and international levels.
- Appoint a coordinator responsible for the implementation of ESD at the school.

- Involve the whole school community (including parents and children) in drawing up school policies and action plans for the sustainable development of the school in question.
- Encourage planning and responsible management of the school and its grounds, promoting prudent energy consumption and water usage, sustainable waste management schemes including recycling and safe transport of the school students.

The Government

The government should consider:

- Developing and implementing a national strategy for ESD.
- Facilitate the development of a curriculum that promotes sustainable development through nationwide consultation to support its infusion into the educational system.
- Support and encourage initiatives aimed at reorienting existing educational structures and practices to address sustainable development at all levels.
- Support initiatives by NGOs to organize environmental education programs, especially for adults, in order to promote lifelong learning, sustainable lifestyles and active participation in decision-making.
- Promote networking among, and training for, environmental educators and facilitators.
- Support training schemes on sustainable work practices and processes.
- Strengthen the capacity of schools to promote ESD.
- Support and promote traditional knowledge and traditions that are conducive to sustainable development.

Conclusion

The research found that ESD in Malaysia (though given some importance), is not coherently organized and does not effectively offer the adequate opportunities for individuals to develop the necessary skills and overall capacity to deal with sustainable development issues. Nevertheless, Malaysia is gradually building up an infrastructure aimed at supporting future ESD initiatives with the ultimate goal of assisting Malaysia in its challenge to adopt sustainable development principles. Thus, it should be stressed that Malaysia needs to make ESD a national priority. There is an urgent need to provide more formal and informal ESD education programs especially for children and adults, promoting the adoption of sustainable lifestyle and values, and active participation in decision-making relating to sustainable development. This process will gradually take place when the agenda becomes mainstream discussion.

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References

- Adam, T., A., (1995). Art Education in Malaysia. University Malaya, p.1
- Education Development Master Plan (2006). *Pelan Induk Pembangunan Pendidikan 2006-2010*. Putrajaya: Government of Malaysia.
- Fien, J. (1995). *Environmental education for a sustainable environment*. Griffith University, Australia.
- Hopkins, C., & McKeown, R. (2001). ESD: Past Experience, Present Activity, Future Promise. *Educational Philosophy and Theory*. 33(2).
- International Institute for Educational Planning (2003). *Planning education in multi-ethnic and multicultural societies*, 21(3), 1564-2356.
- International Sustainability Council (2008). Principles for a sustainable Society. Available at: <http://www.thesustainabilitycouncil.org/principles/principle4.php> (Accessed on January 2011)
- Malaysian Department of Statistics (2011). Statistical Release for the Social and Demography. Available at: http://www.statistics.gov.my/portal/index.php?option=com_content&view=section&id=21&Itemid=89&lang=en (Accessed February 2011)
- Malaysian Ministry of Education (2011). Education System of Malaysia. Available at: <http://www.mohe.gov.my/educationmsia/education.php?article=system> (Accessed March 2011)
- Mulej, M., & Kajzer, S. (1998). "Ethics of interdependence and the law of requisite holism." In Rebernik, M. (ed.), STIQE '98, ISR, Maribor, pp. 116-130.
- Pudin, S., Tagi, K., an Periasamy, A., (2008). Environmental Education in Malaysia and Japan: A Comparative Assessment. Centre for Environment Education. India.
- The Seattle Times (2009). Malaysia drops English used to teach math, science. Available at: http://seattletimes.nwsourc.com/html/nationworld/2009432500_apasmalaysialanguagedebate.html (Accessed on March 2011)
- UNEP-UNESCO (2002). Cultural Diversity and Biodiversity for Sustainable Development. Report of the jointly convened UNESCO-UNEP High level Roundtable. Nairobi, Kenya.
- UNESCO (2005). Education for Sustainable Development. Available at: <http://www.unesco.org/en/esd> (Accessed on January 2011)

United Nations (1992). Agenda 21, Chapter 36. UN Conference on Environment and Development. Available at: <http://www.un-documents.net/a21-36.htm> (Accessed on February 2011)