United Nations
Educational, Scientific and
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Education for Sustainable Development Country Guidelines for Changing the Climate of Teacher Education to Address Sustainability:

Putting Transformative Education into Practice

Brunei Darussalam, Indonesia, Malaysia, Philippines and Timor-Leste

United Nations Educational, Scientific and Cultural Organization (UNESCO)

UNESCO Office, Jakarta
Cluster Office to Brunei Darussalam, Indonesia,
Malaysia, the Philippines and Timor-Leste
Regional Science Bureau for Asia and the Pacific

UNESCO House
Jl. Galuh (II) No.5, Kebayoran Baru
Jakarta 12110, Indonesia
Phone : + 62-21-7399818
Fax : + 62-21-72296489
Email : ESDjakarta@unesco.org
URL : www.unesco.org/jakarta

ISBN: 978-602-98372-6-1

Editor:
Mee Young Choi
UNESCO Office, Jakarta

Design and Layout:
Perum Design Indonesia

Printed in Jakarta

Photos by: UNESCO Office, Jakarta

With support from the Japanese Funds-In-Trust

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Foreword

The "Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability" (UNESCO Education Sector Technical Paper No. 2 - 2005) emphasised the need to begin the process of reorienting teacher education. The Guidelines and Recommendations indicated that today's education systems have an inadequate number of trained teacher educators who are aware of the importance of Education for Sustainable Development (ESD) and are knowledgeable about ESD. This shortfall has led to a lack of institutional support for the creativity, innovation and risk-taking necessary to transform sustainability education.

To address the current gaps and challenges in ESD, UNESCO has organised a regional workshop within the framework of the UNESCO-Japanese Funds-in-Trust/JFIT Project. The Regional Training Workshop Programme, titled "Developing Capacities of Teacher Education Institutions (TEIs) of Brunei Darussalam, Indonesia, Malaysia, Philippines and Timor-Leste in Reorienting Teacher Education to Address Sustainability," was held in Jakarta, Indonesia on 8-10 December 2010. The training was organised in close cooperation with the respective National Commissions for UNESCO, TEIs and Ministries of Education in the five cluster countries of the UNESCO Office, Jakarta: Brunei Darussalam, Indonesia, Malaysia, Philippines and Timor-Leste.

The Workshop was a great opportunity for TEI teacher educators and representatives of the Ministries of Education (MoEs) responsible for teacher education from the five cluster countries to develop Country Guidelines to Reorient Teacher Education to Address Sustainability. The Workshop was conducted to equip TEIs and Ministries of Education (MoEs) with the tools to develop their country guidelines to address sustainability in teacher education. Several outcomes therefore resulted from the Workshop, including: 1) Establishment of a contract in support of ESD country guideline development by each participating country; 2) Identification of contractors for the ESD country guidelines; 3) Creation of a template for ESD country guidelines preparation, and; 4) Timeline for the development and finalisation of the ESD country guidelines by each participating country.

This document on ESD Country Guidelines for TEIs is the result of the Workshop discussed above and has been developed by the five cluster countries of the UNESCO Office, Jakarta. The developed guidelines ultimately aim to reorient each country's curriculum, policies, standard practices and programmes to address sustainability and implemen it in a tangible way. Although many idealistic

descriptions of sustainability and sustainability education exist, faculties of education must decide which themes should receive particular focus and create their own guidelines and design criteria on this specific area. Therefore, these ESD Country Guidelines are significant initial steps to ensuring teacher education programmes fit the environmental, social, cultural and economic conditions and goals of each country's communities, regions and nations.

UNESCO Office, Jakarta is incredibly grateful for all the contributing ESD Country Guideline Working Group Members, who are also ESD and Teacher Education experts not only in their countries but also in the Asia and the Pacific region. We would also like to convey our heartfelt thanks to the UNESCO National Commissions and the MoEs in the five cluster countries for their acknowledgements, which enabled all working group members to finalise this project. Finally, we would like to express our particular gratitude to the Japanese Funds-in-Trust for their financial support. Without all this effort and support, the ESD Country Guidelines for TEIs would have never been completed.

Hubert Gijzen, Ph.D.
Director and Representative
UNESCO Office, Jakarta

Abbreviations and Acronyms

ACB	ASEAN Centre for Biodiversity
APEID	Asia-Pacific Programme of Educational Innovation for Development
ASEAN	Association of South East Asian Nations
CC	Climate Change
CCC	Climate Change Council
CCE	Climate Change Education
CHED	Commission on Higher Education
CPS	Community Problem Solving
CSR	Corporate Responsibility
DepEd	Department of Education
DENR	Department of Environment and Natural Resource
DEPR	Department of Environment, Parks and Recreation
DID	Drainage and Irrigation Department
DR	Disaster Risk
DRR	Disaster Risk Reduction
DESD	Decade of Education for Sustainable Development
DOST	Department of Science and Technology
DND	Department of National Defense
DRRM	Disaster Risk Reduction Management
ECE	Early Childhood Education
EE	Environmental Education
EFA	Education for All
EPA	Enhanced Philippine Agenda
EMB	Environmental Management Bureau
ESD	Education for Sustainable Development
ESF	Education for a Sustainable Future
GCE	General Certificate of Education
ITC	Information-Technology Communication
INFORDEPE	Instituto de Formação de Docentes e Professores de Timor-Leste
ISDR	International Strategy for Disaster Reduction
ITB	Institut Teknologi Brunei
ITC	Information-Technology Communication
KD	Basic Competence *(Kompetensi Dasar)*
KEMDIKNAS	Ministry of National Education *(Kementerian Pendidikan Nasional)*
KUPUSB	Kolej Universiti Perguruan Ugama Seri Begawan
LPMP	Institute of Education Quality Assurance
LPTKS	*Lembaga Penempatan Tenaga Kerja Swasta*
M&E	Monitoring and Evaluation
MDGs	Millenium Development Goals
MDT	Multi-Disciplines Teaching
KLH	State Ministry of Environment of the Republic of Indonesia *(Kementerian Negara Lingkungan Hidup)*

MGT	Multi-Grade Teaching
MKU	Matakuliah Umum
MOE	Ministry of Education
MoNE	Ministry of National Education
MOSTE	Ministry of Science, Technology and Environment
MPTE	Master Plan for Teacher Education
MTT	Mobile Training Team
NATCOM	National Commission
NCBTS	National Competency-Based Teacher Standards of the Philippines
NDCC	National Disaster Coordinating Council
NDMO	National Disaster Management Office
NEAP	National Environmental Action Plan Framework
NEDA	National Economic Development Authority
NESP	National Education Strategic Plan
NGOs	Non-Governmental Organizations
NSTP	National Service Training Program
P4TK	Centre for Development and Empowerment Teachers and Education Personnel
PAIKEM	Active, Innovative, Creative, and Fun Learning Models
PAFTE	Philippine Association for Teacher Education
PBL	Problem Based Learning
PCARRD	Philippine Council for Agriculture, Forestry and Natural Resources Research and Development
PCBD	Philippine Council for Sustainable Development
PF	Portfolio Assessment
PLPG	Education and Training for Teacher Provision
PSPL	Educator Certificate in Direct Provision
PMO	Prime Minister Office
SHBIE	Sultan Hassanal Bolkiah Institute of Education
SK	Standard of Competence *(Standar Kompetensi)*
SNAP	Strategic National Action Plan
SPN 21	National Education System for the 21st Century (Brunei Darussalam)
STEP	Science, Technology and Environment Partnership Centre
SSP	Subject Specific Pedagogy
TEC	Teacher Education Council
TEIs	Teacher Education Institutions
TL	Timor-Leste
TVET	Technical and Vocational Education and Training
UBD	Universiti Brunei Darussalam
UNDESD	United Nations Decade of Education for Sustainable Development
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	The United Nations Children's Fund
UNITWIN	University Twinning and Networking Programme
UTM	Universiti Teknologi Malaysia
UU	Law *(Undang-Undang)*
WWF	World Wide Fund for Nature

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1. Introduction

> Sustainable Development (SD) seeks to meet the needs of the present without compromising those of future generations. SD [therefore] is a vision of development that encompasses respect for all life-human and non-human-and natural resources, as well as integrating concerns such as poverty reduction, gender equality,human rights, education for all, health, human security and intercultural dialogue.
>
> Education for Sustainable Development (ESD) aims to help people to develop the attitudes, skills, perspectives and knowledge to make informed decisions and act upon them for the benefit of themselves and others, now and in the future.
>
> The United Nations Decade for Education for Sustainable Development (UNDESD) 2005-2014 [in which UNESCO was designated as the leading agency in 2003] seeks to integrate the principles, values and practices of sustainable development into all aspects of education and learning, in order to address the social, economic, cultural and environmental issues we face in the 21st century[1] .

The three terms above have only one goal: to create a better world for the current and future generations of all living things on planet Earth. ESD therefore aims to improve access to quality basic education, reorient education curricula, train and raise public awareness and help people develop the behaviours, skills and knowledge they need (UNESCO, 2002)[2]. Like SD, ESD is also a vision of education that empowers individuals to create a sustainable future. ESD is therefore not a particular programme or project, but is rather an umbrella for many forms of education that already exist, and new ones that remain to be created. ESD promotes efforts to rethink educational programmes and systems (both methods and contents) that currently support unsustainable societies (UNESCO, 2011)[3] .

Since the Johannesburg Summit in 2000, the UN DESD was proclaimed by the UN General Assembly as a ten-year period for education action beginning on the 1st January 2005. To promote the UNDESD 2005-2014 and also to accomplish Task Manager for Chapter 36 of Agenda 21, UNESCO has strived to define and promote the environmental perspectives of ESD and coordinating environmental lobbying as the lead agency since its designation in 2003. In particular, UNESCO continues to guide the global process to reorient education in support of SD and strengthen Member States' capacities to integrate its principles into their education policies and programmes, also in the context of the 2012 UN Conference on Sustainable Development (Rio+20). Furthermore,

1 http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/three-terms-one-goal/

2 UNESCO (2002) Education for Sustainability - from Rio to Johannesburg: Lessons Learnt from a Decade of Commitment

3 http://www.unesco.org/new/en/education/themes/leading-the-international-agenda/education-for-sustainable-development/education-for-sustainable-development/

UNESCO will focus on three components in the education system linked with ESD to respond to contemporary challenges for SD: advocacy for and monitoring of the DESD; provision of policy advice on Climate Change Education (CCE); and strengthening of CCE in secondary school teacher education programmes, curricula and assessment [4] .

To align with the global ESD directions above, UNESCO Office, Jakarta has promoted ESD projects especially focusing on reorienting Teacher Education, CCE and Education for Disaster Risk Reduction (DRR) to address sustainability. This paper is one of the tangible outputs from ESD project activities 2010 -2011 and has particular significance with respect to the dearth of development of country guidelines which can be a foundational step for relevant strategies and policies in the five cluster countries (See Figure 1.1. for these five countries' location information).

As UNESCO Education Sector Technical Paper No. 2(2005) stressed, it is noticeable that the ESD Country Guidelines of this paper, developed by national Working Groups, are a significant decisive power in curriculum developments. These Guidelines do not only enable teacher educators but also policy decision-makers, to deal with urgent problems - such as CCE and Education for DRR. At the same time, it should made clear that the ESD Country Guidelines of this paper are only the cornerstone of ESD development for Teacher Education Institutions in the five cluster countries, and therefore need further developments due to their limitations and obstacles (see Section 7. Conclusion: Further questions and future actions).

Figure 1.1 Five Cluster Countries of UNESCO Office, Jakarta

4 http://unesdoc.unesco.org/images/0019/001919/191978e.pdf

2. Brunei Darussalam

2.1 INTRODUCTION

The Decade of Education for Sustainable Development (DESD) initiative has been established since 2005 with the aims of integrating 'values, activities, and principles that are inherently linked to sustainable development into all forms of education and learning and help usher in a change in attitudes, behaviours, and values to ensure a more sustainable future in social, environmental, and economic terms. Its main intention is the promotion and improvement in the integration of Education for Sustainable Development (ESD) into the educational strategies and action plans at all levels and sectors of education in all countries.

Education plays an important role in disseminating knowledge and information about ESD to the public and society. Knowledge on ESD allows individuals to deal with and find ways to tackle problems that threaten the sustainability of the planet. Education serves in the broadest sense in promoting public awareness on ESD and for moving towards a sustainable future. UNESCO (2005) advocates the importance of Teacher Education Institutes (TEI) as key agents of transformative change for education and society. It is stated that *"Not only do teacher-education institutions educate new teachers, they update the knowledge and skills of in-service teachers, create teacher-education curriculum, provide professional development for practicing teachers, contribute to textbooks, consult with local schools, and often provide expert opinion to regional and national ministries of education. Institutions of teacher education also perform similar services for school principals who have significant impact on what occurs in schools"*. TEIs play a larger role than training teachers for the country as it is also a key institution in acculturating change. In Brunei, there are two TEIs namely Sultan Hassanal Bolkiah Institute of Education (SHBIE) and Kolej Universiti Perguruan Ugama Seri Begawan (KUPUSB). The focus of this paper relates to SHBIE while understanding that KUPUSB may also apply these guidelines.

There are several definitions of ESD as ESD is an evolving concept. For the purpose of this paper, we propose in following UNESCO's definition where ESD itself is seen as a process to empower individuals to develop the capacity to think and act on the environment, both locally and globally in order to live sustainably. It increases people's awareness of the economic, political, social, cultural, technological, and environmental forces which foster or impede sustainable development and develops individuals to make decisions which consider the long-term future of the economy, ecology, and equity of all communities without damaging the planet.

2.2 NATIONAL STATUS OF ESD IN BRUNEI

As a member of the United Nations, Brunei Darussalam supports the ideals of The United Nations Decade of Education for Sustainable Development (UN DESD) which provides an opportunity to progress towards implementing universal quality education that fosters the knowledge, skills, perspectives, and values that lead to a more sustainable future.

In 2007, the Government of Brunei Darussalam introduced a National Development Policy and Strategy. In its publication "Outline of Strategies and Policies for Development (OSPD)", Brunei Darussalam National Vision has 3 long range goals it hopes to achieve by 2035. The long term goal is For Brunei Darussalam to have an accomplished and well-educated people brought about by an education system that is comparable to the highest international standards; For its citizens to achieve a high quality of life that is among the top 10 nations in the world; and thirdly, to have a dynamic and sustainable economy that would place the country among the top 10 nations in the world in terms of income per capita.

The Brunei Government is also working on preserving the natural environment and cultural habitat which is properly protected and conserved. The strategies are: Conserving the country's unique biodiversity, rain forests and natural habitat; Implementing the highest environmental standards for existing and new industries in accordance with established international standards and practices; Establishing clear guidelines for the preservation of buildings and landmarks of cultural and historical values; Enforcement of appropriate regulations with regard to maintenance of the environment that affect public health and safety; and Supporting global and regional efforts to address trans-border and regional environmental concerns.

With regards to Brunei Darussalam, the Ministry of Education, which is the country's National Commission for UNESCO, serves as the lead agency that is responsible to report and update the status of the "Decade of Education for Sustainable Development" (DESD) in the Sultanate to the organisation.

Although ESD is a new concept, it is interesting to note that matters relating to the DESD had already been integrated into Brunei's school curriculum before the UN announced the 2005-2014 Decade of Education for Sustainable Development. The Ministry of Education (MOE) through its Brunei Darussalam National Commission for UNESCO is responsible for implementing, analysing, and monitoring best practices in ESD. This holistic self-development is in line with the Ministry's vision through its New Education System SPN 21 (National Education System for the 21st Century) as well as the goals of DESD.

A number of initiatives and activities related to the DESD have been organised by various agencies in the Sultanate. Activities and projects include tree-planting campaigns, cleaning campaigns; forums, seminars, workshops and conferences on related issues on culture, environment, energy,

biodiversity and many others. One of the significant efforts in the realization of ESD include: the collaboration of the Ministry of Education of Brunei Darussalam with UNESCO Bangkok to organize a workshop on Education for Sustainable Development (ESD) Co-ordination and Capacity Building, with Government and municipal level officials, as well as representatives from the private sector. The workshop was held from 19th-22nd April 2010.

The emphasis on sustainable development is clearly reflected by the previous Minister of Education. The former Minister of Education, Pehin Dato Hj. Abdul Rahman Taib, in his keynote speech at the Asia Inc Forum in 2007 stated that education for a sustainable future is important because it can contribute to improving and transforming the world in which we live. We can move faster towards a sustainable world if we understand the principles underlying this concept, provide humanity with the skills to critically evaluate information, adapt to change, and find creative solutions to intricate problems. A sustainable future will require people who think and act differently than they do today and will necessitate industries and businesses to minimize their own negative impact on the earth's ecosystems. It will therefore require persons with new skills, knowledge, attitudes, and values in order to take personal responsibility for sustainable development. Because human beings are at the centre of concerns for sustainable development, significant attention must be given to education to improve their capacity to address environment and development issues. The challenge of Education for a Sustainable Future (ESF) is to enable students to make choices that incorporate the essential principles and values of sustainability. To do this, students need to be given opportunities to think and act according to the principles of sustainability. This process will contribute to their development as informed and responsible citizens who demonstrate attitudes and make decisions that reflect concern for the sustainability of this planet. Brunei Darussalam, and perhaps many other nations, must recognise a number of barriers and challenges if they are to be successful in achieving their goals for education for a sustainable future.

The former Minister also urged that Bruneians must work harder towards translating Brunei desire for a sustainable future through the curriculum and teaching in the schools. School and higher institutions should be committed to and involved in special projects. It should not be just about reading textbooks in school but about putting into practice what has been learnt. Here, the teachers and school leaders can become role models for promoting positive attitudes towards a healthy environment and sustainability of our natural resources. They must not be perceived to just preach but must be seen to practice it. However, teaching children to understand and respect our environment and become committed to sustainability should not be confined to just within the school. It should be a wider community effort, beginning with the home and including private or public partnerships. This is part and parcel of quality education for all.

2.3 GOALS AND FOCUS OF THIS ESD COUNTRY GUIDELINE

The targets in this National ESD Guideline focus on the training of Pre-Service and In-Service teachers in Sultan Hassanal Bolkiah Institute of Education (SHBIE).

The target types of teachers will include:

- Early Childhood
- Primary
- Secondary
- TVET (Technical and Vocational Education and Training)

There will be a need to re-orient existing curricula and materials in order to integrate ESD into existing courses in SHBIE. Based on the issues and concerns of the National Development Policy and Strategy, topics such as these below should be integrated in some ways:

- Conservation of unique biodiversity, rain forests and natural habitat;
- Implementing high environmental standards for existing and new industries;
- Establishing clear guidelines for the preservation of buildings and landmarks of cultural and historical values;
- Regulations for maintenance of the environment;
- Supporting global and regional efforts to address trans-border and regional environmental concerns;
- Disaster Risk Reduction and Climate Change.

While these are the key areas to address, such implementation would require collaboration and supports from relevant stakeholders.

2.4 COLLABORATION AND SUPPORTS

For the realisation of the guidelines to be realised and implemented, it is imperative that a multi stakeholder participation process and a concerted effort from relevant authorities are required. As such, the key stakeholders and their relevant actions for ESD are depicted in Table 2.1.

An important step to foster collaboration and support is to raise awareness on the importance of ESD and its relevance to the country. While SHBIE can train teachers, other Ministries and stakeholders play a vital role in disseminating ESD to their agencies and support initiatives from SHBIE. Partnerships also need to be developed with other TEI's who are also implementing their guidelines. It will be vital to learn on successful initiatives of other TEIs while also taking into account on the particularity of context for the guidelines to be implemented and to be carried out successfully.

SHBIE and Schools need to form partnerships in ensuring that student teachers are able to practice ESD in schools and supported to do so. It will be very difficult for student teachers to do this if schools are not aware of the priorities of SHBIE in terms of ESD. Consequently, schools need to be aware of this issue and TEIs play a vital role in raising such awareness in schools. It is also desirable to develop model schools (which are currently in the works of SHBIE) who are implementing ESD in schools. Student teachers will be able to learn and develop initiatives

and activities which are of relevance to the school and their studies. This would allow student teachers to learn the challenges and opportunities about teaching and learning ESD in schools. The Ministry of Education can also develop recognition systems for awarding schools with good ESD practices and publicize the awarding. These will help reinforce what schools are doing and the mass media can help to raise awareness of such issues to the public. There is a need for such recognition to take place, if not schools will not see the incentives of implementing such practices.

Table 2.1 Collaboration and Support from Relevant Stakeholders to Move Forward ESD at the National Level

	Key stakeholders, partners and target groups	***Relevant activities to be conducted***
Broad	Department of Environment, Parks and Recreation (DEPR), Ministry of Development Ministry of Education Ministry of Religious Affairs Ministry of Health Universiti Brunei Darussalam Institute Teknologi Brunei NGOs and Private Sector Ministry of Industry and Primary Resources	Developing forums, seminars, workshops for Ministries Integrating ESD into all subjects. Religious Sermons Promoting a healthy lifestyle Providing expertise and consultancy to Ministries and stakeholders Disseminating information on energy usage
Promoting and Improving Quality Basic Education	Ministry of Education DEPR Ministry of Health Universiti Brunei Darussalam	Dispatching teachers to SHBIE to learn about ESD. Promotion of environmental awareness initiatives and programmes. Highlighting and sharing best practices of ESD implementation in schools. Training teachers who will lead ESD movement in schools.
Re-Orienting Existing Education Programmes	Ministry of Education Universiti Brunei Darussalam (TEI - Sultan Hassanal Bolkiah Institute of Education)	Integrating ESD into the National Education system in a holistic manner. Integrating ESD into existing teacher education modules for pre-service and in-service teachers. Developing Diplomas or Degrees in ESD.
Building Public Understanding and Awareness	DEPR Privat Sectors	Dissemination of environmental awareness materials Conducting of workshops, forums, seminars and media. Creating contests for best practices in environmental conservation Creating Communities of Practice
Providing Practical Training	DEPR & MOE Universiti Brunei Darussalam Institut Teknologi Brunei (ITB) Regional Partners Consultants	Training and educating individuals on the relevance of ESD in Brunei. Developing the capacity for individuals to lead change in their department, institute or ministry.

(Ibrahim, 2009)

2.5 PROMOTING TEACHING, LEARNING AND REFLECTION IN ESD

To develop an effective ESD programme for the targeted teachers, it will need to go beyond the presentation of facts. The learning experience will need to be "transformative" in order to *"help the individual become a more autonomous thinker by learning to negotiate his or her own values, meanings, and purposes rather than to uncritically act on those of others"*(Mezirow, 1997). The underlying principle would be to develop the capacity of the teachers to think and act.

Research indicates that Problem-Based Learning (PBL) is an appropriate pedagogy associated with ESD. Problem-based learning emphasizes learning by doing. It also provides a motivating context for learning. Students are given a real-world problem similar to those they would face as professionals. They take ownership of the problem and the problem-solving process (Steinemann, 2003).

The Institute aims to develop appropriate and relevant case studies for students to engage in PBL in relevant modules. This would allow teachers to take an active role and allow them to think critically. Studies have also indicated that PBL encourages and promotes critical thinking among students in comparison to teacher centred approaches (Ozturk et al, 2008).

Some of the ways of promoting, learning and reflection of ESD are depicted in Table 2.2.

Table 2.2 Ways of Promoting, Learning and Reflection in ESD

Promoting	Create partnerships between governments, institutions, organisations, civil society, the private sector and the media to translate ESD concepts into goals and actions. Provide professional development opportunities for in-service teachers to enhance their skills and knowledge of ESD. Provide recognition of relevant of ESD activities carried out in schools and their contribution to society.
Learning	Develop innovative and hands on materials for teaching and learning ESD. Create a website and newsletters for teachers and students on related ESD events. Develop initiatives and competition between schools on ESD related activities.
Reflection	Using indicators to measure progress of ESD related activities in schools and TEI's. Undertaking research (quantitative and qualitative) on the impact of ESD in schools and TEI's. Identify problems and challenges in the implementation of ESD. Designing solutions and strategies to overcome problems and challenges.

2.6 EXPECTED OUTPUTS

A. ESD Modules in Teacher Education Programme

Develop ESD training modules for pre-service early childhood, primary, secondary teacher education programmes. Include a mandatory sustainability education component in current pre-service teacher education programmes. The modules are expected to develop teachers' understanding of the concept of sustainability; to develop teachers' understanding of the relationship between sustainable development, environmental education and citizenship; to develop teachers' ability to plan for sustainability across the curriculum; to develop teachers awareness of the contribution made by specific subjects - in particular Science, Geography, Information and Technology - and to develop the knowledge, skills and attitudes which will enable teachers to take action for change in their personal and professional lives.

B. ESD Related Certification (Capacity Building for Teachers)

Design as an in service training programme with the objective to enable teacher-learners to take up environment and sustainable development concerns and issues in the classroom, and engages their students in practical, action-oriented activities and projects.

Build teacher capacity to incorporate sustainable development topics into their teaching programmes using a practical and relevant approach. Develop a pilot/demonstration project on integrating ESD into postgraduate programmes at SHBIE as part of sustainability education, develop concept paper on options for integrating/providing ESD training at SHBIE and develop educator capacity to deliver programmes.

C. ESD Related Instructional Tools (Handbooks and Case Studies)

Develop course materials for the delivery of sustainability content in the Graduate programmes at SHBIE; Develop a resource/guidebook for inclusion and teaching of sustainability content across national curricula; Conduct in-service teacher; workshops/seminars to encourage use of guidebooks. Enhance the capacity of curriculum developing units to integrate ESD input into curriculum reforms factoring in the views of different stakeholders; e.g. health, green environment, HIV/AIDS.

Courses and materials available covering various aspects of ESD, including environmental, social, and economic considerations. The reoriented curriculum addressing sustainability and expanded to include critical thinking skills, skills to organize and interpret data and information, skills to formulate questions, and the ability to analyze issues that confront communities. Guidelines available to all teachers and curriculum developers on integrating ESD into national curricula Sustainability content actively taught across national curricula.

ESD instructional tools are expected to be focus more on multimedia, interactive professional development program with materials, exercises, and links that help educators deepen their understanding of education for sustainability and its importance in addressing the economic,

social, and environmental issues in Brunei. It is recommended that the instructional tool should include a basic understanding of sustainable development, help in understanding the range of social, economic, and environmental issues facing the world today, the interrelationships among these different types of issues, and the ways that education is key to the empowerment of Bruneian working for a sustainable future.

D. ESD Network for Teacher Education Institutes (Create Communities of Practice)

Teachers and administrators of the schools should recognize the need to involve local people in helping the school to improve. This might include improvements in its students' achievements, curriculum, and the campus and its contribution to local community development. This will provide an opportunity for the school to work in partnership with parents, children, and local volunteers to develop a curriculum that relates at the same time to Educating for Sustainable Development.

The Community Problem Solving (CPS) project should be practiced as it contains components that would help in developing actions and competency among teachers that would be sustainable. CPS is a very good approach because it focused more on working out local problems. CPS provides teachers with an opportunity to practice the skills that are needed to participate in finding solutions to the local issues that concern them. This helps to develop the important citizenship objectives of learning for a sustainable future and integrates skills - for both students and teachers - of using experiential and enquiry-based strategies. It also integrates skills in the planning of values clarification and values analysis with the possible solutions so students can take action to help achieve a sustainable future.

E. ESD website

Given the number of environmental, social, and economic problems we currently face worldwide, the need for ESD is paramount and the Internet is key. The ESD website offers educators a seemingly endless supply of resources and materials for integrating ESD into the curriculum and classroom. The advent of collaborative online work spaces will enable educators in Brunei to share resources, knowledge, and ideas. The website also serves to facilitate networking linkages, exchange and interaction among stakeholders in ESD.

2.7 ADDRESSING CLIMATE CHANGE EDUCATION

Teachers play an important role in teaching and disseminating information on climate change to their students. Their roles today should be expanded to not solelyteaching their subject content but also to develop future citizens who are conscious of their actions towards the environment. A crucial step to facilitate this process would be in the production of competentteachers (Pre-Service and In-Service) in addressing issues of climate change through education and training in higher education.

Teacher training programmes more than 15 years ago had little, if any, coverage on climate change. Thus, re-orienting teacher education through Climate Change Education is crucial. In-service teachers will need to update their knowledge through professional development programmes and pre-service teachers will need to learn to address these new challenges. These are important for teachers of the new generation.

In addressing climate change education, teachers should be aware on the key areas such as:

- Willingness to take actions on environmental issues;
- Understanding their role as teachers in teaching students about climate change;
- Developing future leaders (their students) to lead in environmental issues and initiatives;
- Awareness of the connections between global and local events;
- Interpreting the causes and consequences of events related to climate change;
- Pedagogies for teaching climate change in schools;
- Knowledge of best practices in promoting ESD in schools.

2.8 EDUCATION FOR DISASTER RISK REDUCTION

The Director General of UNESCO, Mr. Koichiro Matsuura, highlighted the significant role of education in improving the capacity of individuals and communities to reduce the risk of disasters: *"anticipating, educating and informing are the keys to reducing the deadly effect of such natural disasters".*

Education for Disaster Risk Reduction (DRR) takes into account the relationships between society, environment, economy, and culture and their impacts. It also promotes critical thinking and problem-solving as well as social and emotional life skills that are essential to the empowerment of groups threatened or affected by disasters. ESD, through its interdisciplinary and holistic approach to learning, helps create resilient societies. It encourages a long-term perspective in decision-making processes, critical thinking, and holistic and innovative approaches to problem-solving. ESD therefore, contributes to DRR while DRR increases the relevance and the quality of education in disaster-prone areas.

Earth's climate is rapidly changing and a lot of countries are not safe in the event of disasters. Although Brunei appears to be safe from major natural disasters such as earthquakes and volcanoes, it received a wakeup call in January 2009. During that night, torrential rain had caused flash floods which have disrupted much of the nation. It was the worst flood that Brunei had in the last 40 years and 2 people died during this incident. During the event, landslides occurred in settlement near to hills. Brunei, during that period was not prepared for such disaster. Other threats include dry seasons which can cause forest fires and pandemics such as swine flu (H1N1) and avian flu (H5N1).

Education for DRR can help mitigate the impact of such disasters in future through identifying useful framework for consideration and implementation such as the Hyogo Framework for Action

2005-2015 by the International Strategy for Disaster Reduction (ISDR). Knowledge of such disasters are currently limited to students who are taking Geography in Cambridge General Certificate of Education (GCE) 'O' and 'A' Level as in depth case studies are presented here. It is proposed that such knowledge of natural disasters be integrated to other subject areas as well. This would allow all students and teachers to be knowledgeable and updated on what actions should be taken should such disasters occur again such as flooding.

2.9 MONITORING AND EVALUATION

Monitoring and Evaluation of ESD-related activities are required to ensure adequate progress in ESD development. Thus, we propose the use of Indicators to monitor the development of ESD in teacher education. We have used the ESD indicators as proposed by UNESCO (UNESCO, 2007):

- Status Indicators: Assess variables that determine the position or standing of ESD in a country. These are also known as baseline indicators.
- Facilitative Indicators: Assess variables that assist, support or encourage engagement with ESD. Context, process and learning indicator types belong to this category.
- Effect Indicators: Assess variables relating to initial, medium and long-term achievements during the DESD. Output, outcome, impact and performance indicators belong to this category.

We have adapted table 2.3 from Tilbury & Janousek (2006) and UNESCO (2007) and made relevant examples to Brunei which could be potentially useful indicators.

Table 2.3 Indicators for Monitoring and Evaluation

	Indicator Type	Fuction	Indicators
Status	*Baseline*	To identify the status of the overall ESD picture	Conceptions and Misconceptions of ESD among faculty members and student teachers. % of new teachers receiving pre-service training in ESD. % of courses which has an ESD component/s. Preparedness/Readiness of faculty members to integrate ESD into their programmes.
Facilitative	*Context*	To identify the existence of ESD support systems	National Education Policy and Higher Education policy which requires pre-service teacher education courses to provide training in E National Education Policy which requires in-service teachers to receive professional development in ESD.

	Indicator Type	Fuction	Indicators
Facilitative	*Prosess*	To identify the existence of ESD processes and activities	Pre-service and In-service teacher education courses provide training on ESD-related content and pedagogy.
	Learning	To assess outputs such as tools and learning resources and the immediate results of an activity	Reflections on insights, challenges and obstacles in the process of training pre-service and in-service teachers in ESD.
Effect	*Output*	To assess outputs such as tools and learning resources, and the immediate results of an activity	% of new teachers certified as having received pre-service training in ESD. % of in-service teachers certified as having professional development and training in ESD.
	Outcome	To assess outcomes related to changes or improvements that result from ESD efforts	% of new and experienced teachers using ESD-related content and pedagogy in the classroom.
	Impact	To assess impacts that result from ESD efforts	Students in schools use sustainable practices in daily life. ESD related activities are the norm in schools. Parents take active involvement in childrens' ESD related activities
	Performance	To assess the change in the status of the overall ESD picture in a region or country	% increase in new and experienced teachers received training and professional development in ESD. New courses and certification in ESD. % increase in usage of ESD-related content and pedagogy in the classroom % increase in practitioner research on ESD in schools and classrooms

In short, integrating ESD into TEIs in the country and the school curriculum is promising. The authors would like to thank UNESCO for inviting the authors and the Dean of SHBIE, Dr. Romaizah Salleh for her support in writing this guideline.

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Prepared by:

- Mr. Desmond Tan Chia Chun, Lecturer, Sultan Hassanal Bolkiah Institute of Education
- Dr. Hanapi Mohammad, Lecturer, Sultan Hassanal Bolkiah Institute of Education

3. Indonesia

PREFACE

Indonesia participated in the Decade of Education for Sustainable Development (DESD) on the World Environment Day in 2005 through the signing of a memorandum of understanding between the Ministry of National Education and the Ministry of Environment. This is to reflect Indonesian's commitment to the 2009 Bonn Declaration which mandated that every country should integrate the concept of Education for Sustainable Development (ESD) into its education system, teacher development, subject development, and curriculum development. The declaration states that:

> *Reorient curriculum and teacher education programs to integrate ESD into both pre-service and in-service programs. Support teacher education institutions, teachers and professors to network, develop, and research sound pedagogical practice. Specifically support teachers to develop ESD strategies that can work with large class sizes, and to evaluate ESD learning processes.*

The 6th Biennial Meeting of the International Network of Teacher Education Institutions associated with the UNESCO Chair on Reorienting Teacher Education to Address Sustainability, 19-21 May 2010 in Paris reaffirmed the message above and encouraged each participating country to take necessary steps to implement ESD.

This guideline is one of the indicators of our country's commitment in implementing ESD. The guideline is intended to be a national guideline for Teacher Education Institutions (TEIs) on the knowhow of integrating ESD into the existing curriculum. Since TEIs (LPTKs) have the autonomy to develop their own curriculum and syllabuses, this guideline is suggested to be used as a reference. It is our belief that an overall guideline should be set at the national level to make sure that the goal set by the government is achieved. For the success of ESD implementation, it is important to undertake collective effort and commitment to improve the guideline.

3.1 THE UN DESD 2005 - 2014 AND NATIONAL POLICY

Sustainable development is a current priority, considering the current world's condition of population growth There are also various current issues, such aslimited natural resources, energy crisis, water crisis, food crisis, environmental crisis (global warming, pollution) affecting globalization, democracy, human rights, and civil society. Those factors are the reasons why we need sustainable development. It is expected that sustainable development can increase public awareness on the importance of harmonizing environment management, economic aspects, as well as cultural aspects within the society. In short, sustainable development is development that meets the needs of the present without compromising the ability of future generation to meet their own needs.

Related to the problems addressed above, the United Nation declared the period of 2005-2014 as the Decade of Education for Sustainable Development (DESD), which aim to integrate principles, values, and practices of education sustainable into all education and learning aspects. Besides, the Bonn Declaration 2009 also mandated that every country should integrate the concept of Education for Sustainable Development (ESD) into education system, teacher development, subject development, and curriculum development.

Indonesia launched the Decade of Education for Sustainable Development on the World Environment Day in 2005, with an initial emphasis on improving environmental protection and conservation measures within the country. This launch involved the signing of a memorandum of understanding between the Ministry of National Education and the Ministry of the Environment which aims to improve environmental understanding amongst communities and to provide support in addressing environmental and conservation issues. Since then, there has been progression of DESD-related activities as Indonesia has included a wider range of stakeholders and focus on additional areas of importance for sustainable development. With Indonesia being exposed to so many natural disasters, disaster reduction has been chosen as one of the themes for ESD and the DESD as an opportunity to strengthen national policies on education for disaster management and preparedness.

Implicitly, the ESD concept has been integrated into the education system in Indonesia as there are already existing programs and activities relating to ESD. It can be seen from school, university programs and activities related to ESD themes such as green school and green campus. Although teacher training institutes under the Ministry of National Education have developed modules on ESD to develop teachers' knowledge on ESD, ESD has not been expicitly integrated into the teaching and learning process in the classroom. It may be because there is no explicit policy available relating to DESD concept, or it may be because teachers and prospective teachers are not sufficiently equipped with ESD knowledge to integrate ESD into their teaching and learning process. This problem leads our attention to the existing curriculum in the Teacher Education Institutes (TEIs). Apparently, there are no TEIs incoorporating ESD into their curriculum. It can

be assumed that these factors may become obstacles to implement ESD at schools level since teachers do not have sufficient knowledge in integrating ESD into their subjects.

The most determining aspect to effectively implement ESD in schools is the competency of teachers to integrate ESD into their teaching and learning process. This may be achieved by providing sufficent knowledge and understanding on ESD to teachers and prospective teachers. In the end, integrating ESD into TEIs' curriculum seems to be the most effective way to produce ESD-oriented teachers and lead prospective teachers to be accustomed to ESD issues.

This material aims to provide guidelines to TEIs on how to create an ESD-oriented teaching and learning climate through intervening in the existing curriculum and syllabus so that TEIs can produce ESD-oriented teachers who possess sufficient knowledge on ESD issues.

3.2 STATUS OF NATIONAL ESD

Implementation of ESD in the national education should be based on legislation, national education policy, and strategy. The legislation, national education policy, and strategy will provide a clear direction on various programs and activities of ESD from the central, local to the education unit level, including curriculum and competencies of educators and education personnel in the implementation of ESD.

In Indonesia, ESD is relevant to the mandate of the 1945 Constitution, particularly in Article 31 Paragraph 3 which mandates that government shall establish and conduct a national education system, which increases the faith, piety, and noble character in the context of the intellectual life of the nation, governed by legislation. Act No. 20 of 2003 on National Education System as a follow-up of the 1945 Constitution states that the national education serves to develop skills and to form the character and civilization of a dignified nation in order to achieve the intellectual life of the nation. The objective of national education is to form comprehensive intelligence and competitive Indonesian human beings, which include spiritual intelligence, emotional and social intelligence, smart and kinesthetic intelligence (the Ministry of National Education Strategic Plan 2010-2014). Mandate of Law Number 17 Year 2007 on the National Long Term Development Plan (RPJPN) Year 2005-2025 also becomes an important foothold in implementing ESD. It was showed in 2005-2025 RPJPN the direction of vision, mission and direction of the 2nd medium-term development (2010-2014) :

- **Vision and Mission of RPJPN 2005-2025**
  The vision of national development in 2005-2025 includes: Self reliance, advanced, just and a prosperous Indonesia. These can be pursued through eight national development missions, one of which is to realize sustainable development. Sustainable development tries to realize the harmonious and sustainable Indonesia by improving the management of development implementation to maintain a balance between utilization, sustainability, availability, and

usefulness of natural resources and environment while maintaining function, carrying capacity, and comfort in life in the present and future, through harmonious space utilization between the use for residential, social and economic activities, and conservation efforts; improve the economic utilization of natural resources and sustainable environment, improving the management of natural resources and environment to support the quality of life, provide beauty and comfort of life, and to improve the maintenance and utilization of biological diversity as a basic capital of construction.

- **Direction of The 2nd Medium Term Development (2010-2014)**
  In order to achieve sustainable development, natural resource management and conservation of environmental functions should become more developed through institutional strengthening and increased public awareness. This is characterized by the development process of rehabilitation and conservation of natural resources and environment, accompanied by the strengthening active participation of society, preservation of biodiversity and distinctiveness of other tropical natural resources utilized to realize the added value, competitiveness of the nation, as well as national development capital in the future; solid institutional, anticipatory capacity and disaster management at every level of government and implementation of marine development as a movement supported by all sector. The condition is supported by the increased quality and consistency of spatial planning of space utilization by integrating it into development planning documents and regulatory enforcement in order to control the utilization of space.

Sustainable development in ESD is considered as an important process and goal directed to ensure human life in the present and future. This was corroborated also by Act No. 23 of 1997 on Environmental Management. The preamble of the Act states that: in order to efficiently utilize natural resources to promote the general welfare as mandated in the 1945 Constitution and to achieve happiness of life based on Pancasila, it is necessary to implement environmentally sustainable development based on integrated and comprehensive national policy while taking into account the needs of present and future generations. Furthermore, Article 1 Paragraph 3 of the Act asserts the notion of sustainable development. It defines that environmentally sustainable development is a conscious and planned effort, which integrates the environment, including resources, into the development process to ensure capability, welfare, and quality of life of the present and future generations.

Ministry of National Education (MONE) Strategic Plan 2010-2014 has launched education for sustainable development as an embodiment of international conventions implementation, including the World Summit on Sustainable Development and Decade of Education for Sustainable Development (DESD). Education development policies associated with ESD is incorporated in the paradigm of Education for Growth, and /or Sustainable Development (PuP3B). The Paradigm invites people to think about the sustainability of the planet earth and the whole universe. Strategic Plan of MONE 2010-2014 mandates that education should foster understanding of the importance of sustainability and ecosystem balance, namely the understanding that humans are part of the

ecosystem. Education should provide insight on the values of natural and social responsibility to demonstrate to learners that they are part of the social system which requires synergy with other human beings and part of the natural systems that must work together with nature and all of its contents. By having a critical understanding of the environment (social and natural) and all forms of investment in the environment, the good and the bad, including development will be displayed (Kemdiknas Strategic Plan 2010-2014).

Operationally, the 2010 ESD policy is characterized by joint agreement between the Ministry of Environment with the Ministry of National Education (No. 03/MENLH/02/2010 and Number 01/II/KB/2010) on Environmental Education, which is a renewal of joint agreement on 1996 and 2005. Article 2 on Scope of the agreement includes: (a) Development of the implementation of (ESD), including environmental education conducted in all lines, levels, and types of education as a place or a means in creating change in the mindset, attitude, and behavior of environmentally cultured human; (b) Coordination and synergy in the preparation of short, medium, and long term environmental education program as part of ESD; (c) Revitalization of research and development in the field of environmental protection and management; (d) Giving awards to individuals, institutions, and community who care, serve or get achievement in the field of environmental protection and management; and (e) Increasing participation, capacity, and commitment of community, central and local education policy makers as well as educators and education personnel to actively maintain and preserve the environmental functions. It was agreed that the Minister of Environment as the first party responsible in the field of environmental protection and management is obliged to preserve the environmental functions and to prevent pollution and /or damage to the environment. The national education of minister, as the second party, is responsible in managing the education system to determine national policy and education standards to ensure quality education. The implementation of national sustainable development requires human resources who are conscious and able to maintain the sustainable function of the environment. Knowledge, values, attitudes, behaviours, and insights about the environment need to be taught early to all levels of society and learners in all units, path, level, and type of education. Knowledge and empowerment of community and institutions actors and environmentalists need to be improved (Joint Decree of Minister of Environment and Minister of Education, 2010). It was also followed by Minister Regulation Number 63 Year 2009 on Education Quality Assurance System which has similar contents with the Strategic Plan.

The discussion above shows that there are legislations that explicitly mandates and manages ESD, namely the Strategic Plan 2010-2014, the Joint Decree between Minister of Environment and Minister of Education in 2010, and Ministry Regulation on Education Quality Assurance System. Nevertheless, MONE Strategic Plan 2010-2014 is still limited as a paradigm and a challenge of education, and not as a strategic objective yet. Consequently, funding for implementation of ESD programs and activities do not exist yet. In the Joint Decree of 2010 between Minister of Environment and Minister of Education, the regulation is still limited to environmental perspectives, while the socio-cultural and economic perspectives have not yet been set.

Although the curriculum does not explicitly incorporate ESD programs in learning, the ESD values which are summarized in the 15 components of ESD (Human Rights, Security, Gender Equality, Cultural Diversity and Cross-cultural Understanding, Health, HIV /AIDS, Governance, Natural Resources, Climate Change, Rural Development, Sustainable Urbanization , Prevention and Disaster Relief, Poverty Reduction, Corporate Responsibility (CSR), and the Market Economy) have been implicitly included in the Standard of Competence/Basic Competence (SK /KD) in almost all subjects in appropriate portion with the characteristics of each subject (Puslitjaknov, 2009). However, reorientation of programmed learning activities integrating ESD values needs to be done. The implication is the need to prepare educators and education personnel who are competent in the implementation of ESD through the reorientation of teacher education curriculum through in-service and pre-service training.

In order to implement ESD optimally, the status of ESD should be explicitly stated in the legislation and national education policy. Therefore, the Strategic Plan must be followed up by operational and measureable components of ESD through learning activities in each educational unit. The National Strategy on ESD implementation should be established through coordination among the parties (stakeholders) from national, regional, to education unit levels.

3.3 GOAL AND FOCUS OF THE NATIONAL ESD GUIDELINE

A. Goals and Focus of the National ESD Guideline for Reorienting Teacher Education to Address Sustainability

Objectives and Focus

While TEIs (LPTKs) have the autonomy to develop their own curriculum and syllabuses, a guideline is necessary to be used as a reference. A common background should be set at the national level to make sure that the goal set by the government is achieved. The present Guide Book was developed with the following objectives in mind:

- To provide TEIs with guidelines on how to intervene in the existing curriculum and syllabuses to facilitate ESD;
- To provide TEIs with guidelines on establishing national networking with potential stakeholders that are mandated to implement ESD;
- To provide TEIs with guidelines on how to establish research centers on ESD to get recognition from the government and other stakeholders;
- To provide TEIs with guidelines on how to establish international networking with international agencies of ESD;
- To provide TEIs with guidelines on how to establish coordination with local governments, such as governor, regent, and subregent;
- To provide TEIs with guidelines on how to develop ESD learning objectives, ESD learning materials, ESD teaching methodology, and ESD learning evaluation techniques.

The focus of the Guide Book

Realizing that ESD is on the agenda of national priority, all formal sectors including higher education institutions are expected to play a role in promoting and implementing ESD.

Among the uiversities, LPTKs or TEIs have a specific missionto train prospective teachers. As indicated earlier, TEIs have not explicitly incorporated ESD into their curriculum, it is then wise to encourage all TEIs to implement ESD by focusing on ESD teacher training with the following framework:

- ESD is to be incorporated as an addition to the existing curriculum. Therefore, it is not necessary for TEIs to create a new deparment, say, ESD department. It is not only unnecessary, but will also lead to obligation of recognizing a newly-claimed expertise or specific profession of ESD teachers;
- By completing the required courses, TEI graduates will be qualified to teach either as a class teacher or a subject teacher. Either way, they should be provided with skills of teaching ESD across the curriculum;
- As all TEI students are required to conduct a teaching practice at patner school as part of internship program, it is recommended that the internship be evaluated against the criteria including ESD implementation.

Reorienting TEIs to address sustainability

There are 12 public TEIs (Teacher Education Institute) and more than 100 private TEIs throughout Indonesia offering preservice training for more than 700,000 education students, which constitute the majority (27.16 %) of the total university students. Those prospective teachers are potential propagaters and practitioners of ESD. Unfortunately, ESD is currently not incorporated in the existing curriculum of TEIs. Efforts should be made to incorporate ESD without necessarily causing major changes in the curriculum. Reorienting TEIs implies empowering schools and teacher educators to develop ESD awareness on the part of students.

Following are the guidelines for reorienting schools and teachers educators:

1. Reorienting all school teachers All teachers, regardless of their subjects, should promote ESD in their teaching. ESD is not to be positioned as a school subject like English, Mathematics, Science, etc. Ideally as students learn school subjects, they will not realize that they are being exposed to ESD. That is to say, ESD is learned uncosnciously, where ESD is taught across the curriculum. To do this, the following are practical suggestions to be implemented at schools:
    - . *ESD be socialized through seminars and workshops designed for different groups of teachers*

      Elementary and secondary teachers are the most potential human resources to play inspearheading and in soializing ESD. Unfortunately, they are not capable of doing this as their preservice training did not provide them with the minimum skills required. The most feasible way of updating their knowledge and practice of ESD is through in-service programs or seminars specifically designed for ESD. Care should be taken in designing the syllabus or materials of training to make sure that they are suitable for teachers.

- *ESD materials be made available for use, such as brochures, film, video, powerpoints, etc.*
  Developing appropriate and meaningful materials of long-established school subjects such as mathematics and sciences is still problematic, let alone of those newly-established ones like ESD. Therefore, schools should develop, enrich, and update their own collection of ESD materials and teaching media.
- *ESD be included in in-service training curriculum for teachers as part of professional development*
  ESD is not incorporated in the existing curriculum of most TEIs throughout Indonesia. Incorporation is not simply inserting the technical words of ESD in the syllabus, but inimplementing ESD in the classroom and outside. Teachers are ESD advocators and propagators while students are practitioners of ESD. This suggests that teaching ESD is not solely the teaching of theories or concepts of ESD, but in implementing ESD in day-to-day activities inside the class and outside.
- *Schools to promote ESD through extra-curricular activities.*
  ESD is a concept to be shared by all, including school principals, teachers, and students. When ESD is implemented through extra-curricular activities, the lesson is shared not only by students, but also by parents and the public in general. Tangible ESD programs will be more impressive for the public and the impact will be more tremendous. Such programs are worth publicizing in the local community. Finally, it is the public that educates the public.

2. Reorienting teacher educators The suggestions for school teachers above would be much more easier to follow if they had received ESD in their pre-service training. Therefore, the current TEI curriculum should be reoriented to prepare prospective ESD-concious teachers. To do this, the following are practical suggestions to be implemented at TEIs:

   - *Research on ESD be promoted to find alternative strategies of implementing ESD at different levels of schooling.*
     Preschool, elementary, junior secondary, and senior secondary school students whom are of different ages should be taught differently. Introducing ESD to them should be designed accordingly.
   - *All departments regardless of their area of study need to provide students with ESD.*
     Considering that ESD is an area open for anyone, it is not uncommon that faculty members count on their fellow members to secure ESD in the curriculum. There should be a school teacher or principal mandated to monitor ESD implementation, otherwise it will not take place at all.
   - *All prospective teacher students be encouraged to explore ways of integrating ESD in their respective field of study.*
     The vision of ESD should be socialized to prospective teachers of any school subject. Elementary school teachers, being the class teachers rather than subject teachers,

have more opportunities to integrate ESD issues into almost all school subjects all day long. However, relevant teaching media should be made available for use.

- *ESD be included in the curriculum of general subjects such as MKU Agama, MKU Bahasa, MKU Lingkungan Hidup, etc.*
  MKU courses are generally perceived as less important undergraduate subjects, while MKU Bahasa Indonesia is perceived as the least important one. Absence of redefining and revitalizing the content and mode of delivery, the MKU subjects will remain "the neglected step child." Thus, the MKU subjects need invigorating by incorporating new content including ESD issues.
- *TEIs collaborate with other stakeholders such as the Ministry of Environmental Affairs on joint research and projects on ESD*
  The Ministry of Environmental Affairs is probably the ministry most responsible for safeguarding the earth from pollution, global warming,etc. The ministry has initiated many ESD projects involving schools and NGOs. Unfortunately, these projects are not known by other stakeholders including those within MONE.

3.4 PROMOTING ESD TEACHING, LEARNING, AND EXPECTED OUTPUTS

A. Promoting ESD Teaching and Learning

Despite the national guidelines, universities including TEIs have their autonomy in developing their curriculum. Recently promoted by the Ministry of National Education, the ideas of ESD are not well socialized within the bureaucracy of MONE, universities, and schools. Some claim that conceptually they are familiar with ESD, and to a certain extent, have implemented ESD in one way or another. The fact shows, however, that collectively TEIs have not done much. Reasons include lack of coordination among the stakeholders. Internally, most TEIs would perceive ESD as a soft skill to be taught indirectly, and therefore no one is fully liable for the failure nor accountable for the success. Adopting different curriculum, pedagogy, and assessment approaches within different countries context could be a solution. International networking on ESD is indeed inevitable to enable participating country members to share the lessons learned.

It would be helpful to identify teacher educators' competencies for ESD before designing the curriculum, pedagogy, and assessment approaches. The competencies of ESD teachers include, but not limited to, the following:

- *Ability to introduce ESD across the curriculum.*
  Teachers often learn best when they learn from each other. The idea of integrating ESD across the curriculum implies that every teacher shares responsiblity to propagate ESD in his/her class. However, in itself thereis a danger of promoting the wrong concept o ESD. Therefore, teachers's knowledge about ESD and how to teach it shoud be updated on a regular basis.

- *Ability to convince students on the importance of sustainable development.*
  Nothing is more convincing than real life examples of their immediate life. Teaching ESD is identifying ESD issues from students' experiences and relating those issues with life in general. Students shoud get convinced that those issues are part of their responsibilities.
- *Ability to create learning situations to facilitate students' understanding of ESD.*
  Optimal learning take place in situations that facilitate the learning process. Situations include not only physical but also psychological and social atmosphere. This suggests that luxirous rooms and buildings do not necessarily guarantee optimal learning. Of out most importance are the teachers themselves.
- *Ability to present examples of implementing ESD in daily life.*
  Giving examples is a technique of optimal teaching. When ESD is incorporated across the curriculum and accross school subjects, the source of examples becomes unlimited to explore.
- *Ability to collaborate with fellow teachers on joint programs on ESD.*
  As all teachers are expected to play a role in developing ESD programs, overlapping will be unavoidable. Overlapping is to be encouraged when it facilitates learning and it happens when teachers collaborate for sucess in ESD.

It is hoped that in the short future we will see the outcomes as follows:

- *An increase in faculty members who are conversant in ESD and are willing to incorporate ESD into their syllabus.*
  An active campaign should be initiated to convert teachers into ESD experts through deliberate dialogues and communication formally and informally. Lecturer-initiated textbooks on ESD are a good indicator of success.
- *A body of research (e.g. case studies and action research) that illustrate reorienting teacher education to address sustainability.*
  Research findings are the most powerful means of convincing pople of new ideologies and perspectives including ESD. Small scale research like classroom action research and case studies are inexpensive yet insightful and inspiring for teachers especially novice ones. The findings are to be shared to reach more people.
- *Increased discourse of ESD in conferences and publications*
  Conferences and publications are good indicators of successful socialization and conciousness arising among people. Teachers and researchers should be encouraged to present in conferences and share publications as part of professional development.
- *Increase in numbers of ministries and directorates within the MONE which incorporates ESD into policy (e.g. teacher certification guidelines and primary and secondary curriculum).*
  As a national concern of us, ESD could be approached by different ministries and by directorates within MONE. Again, avoiding unnecessary overlap cross sectional coordination among stakeholders is vital.

In the International Symposium of the International network of TEI, May 19-21, 2010, sample ESD success stories from different countries were reported and shared by member countries. Similar symposiums have been held nationally and internationally. The reports are available for access and adoption by TEIs. It is critical that a working group representing major TEIs be established to develop a common curriculum across the TEIs to ensure that the government's commitment to ESD is achieved.

To integrate ESD in TEIs means that ESD is to be promoted into pre-service training and in-service training programs. The integration should take place in the framework elaborated as follows. In pre-service training programs, ESD is implemented in many ways including but not limited to the following:

- Creating a mandatory course on ESD as part of general subjects to be taken by TEI students. The ESD course should cover introduction to ESD, techniques of teaching ESD, ESD material development, and ESD evaluation.
- Encouraging students to do research for graduating (skripsi research) on ESD issues.
- Integrating ESD on teaching internship in a partner school.

In in-service training programs, ESD is implemented in many ways including but not limited to the following:

- Teachers are encouraged to conduct classroom action research in ESD.
- ESD is included in the training as part of professional development and promotion.
- Teachers are encouraged to collaborate with fellow teachers in developing projects on ESD across the curriculum.

B. Expected Output

ESD integration will be clearly seen in the curriculum developed at all levels and types of education. ESD-oriented curriculum is prepared as a hidden curriculum by transforming the three (3) ESD dimensions (economic, social and environmental) into the activities of education management. The three dimensions concretely look at the integration of six (6) pillars of ESD (Holistic approach, Learning throughout Life, Focus on the Learner, Deep Thinking, Diverse Methods of Democratic Work, and Different Perspective) in learning activities. Ultimately, education will produce a generation that has the knowledge, skills, and attitudes that better contribute to sustainable behaviors to realize sustainable development for the community in accordance with the five (5) indicators of ESD in learning namely knowledge, issues, skills, values, and perspective. Figure 3.1 illustrates how ESD values should integrated into the existing curriculum of TEIs.

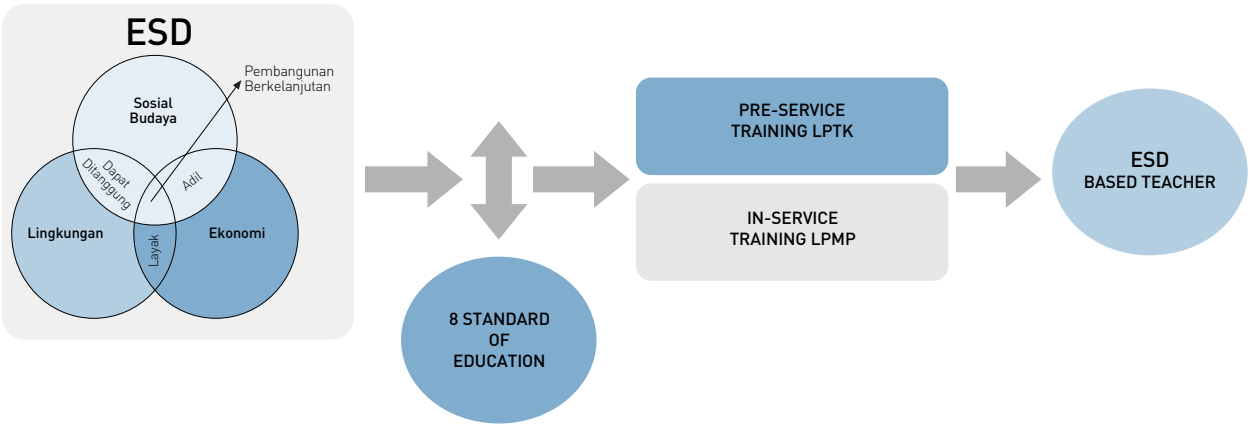

Figure 3.1 Integration of ESD values into the curriculum of LPTK and P4TK

Integrating ESD values into the existing curriculum of TEIs entails the following mechanism that involves key components as follows.

- ESD comprising environment, economy, and culture is a concept to be incorporated into the existing curriculum of LPTK or TEIs and P4TK;
- The existing curriculum of LPTK or TEIs and P4TK varies from institution to institution, yet they have commonalities in many respects. The integration should be interdisciplinary and holistic, in which the ESD is not a subject taught separately but integrated in the existing subjects;
- The development of curriculum at any educational level should made with reference to eight standards of national education;
- LPTK, LPMP (Institute of Education Quality Assurance), and P4TK (Center for Development and Empowerment of Teachers and Education Personnel) are responsible for developing their own curriculum;
- The final product as expected from this mechanism is professional ESD-based teachers.

ESD and Teacher Certification

LPTK, PPPPTK, and LPMP have very vital roles in maintaining education in Indonesia. Their role is very crucial to bring changes in the education system in order to produce future teachers who have the sustainable knowledge, skills, attitude, and behavior. LPTKs host pre-service education to produce prospective teacher. Like LPTK, PPPPTK and LPMP are granted authority to grant a diploma for prospective teachers and educator certification for teachers. Diploma, educator's certificate should guarantee that teachers are professionally capable of educating, teaching, guiding, directing, training, assessing, and evaluating students on early childhood education, formal education, basic education, and secondary education.

Some LPTKs are appointed by thegovernment to carry out teacher certification programs which take place in three diffferent types of programs as follows:

- *Portfolio Assessment (PF)*
  Portfolio assessment is done through an assessment of the collections of files that reflect the competence of teachers. In the context of ESD, the dimension of ESD-integration on one or several components of portfolio assessment can serve as a better value.
- *Educator Certificate in Direct Provision (PSPL)*
  PSPL pattern of teacher certification is for teachers and teachers appointed in supervisory positions of the educational unit who meet the requirements that have been set. Knowledge and understanding of the concept of ESD and its implementation in educational practices have become important factors for teachers in this group. Knowledge and understanding of ESD can be developed in the form of education and training for teachers who obtain PSPL.
- *Education and Training for Teacher Profession (PLPG)*
  Curriculum of Education and Training on Teacher Profession (PLPG) focused on Active, Innovative, Creative, and Fun Learning Models (PAIKEM) accompanied by workshops of Subject Specific Pedagogy (SSP) to develop and package the tools of learning. The integration of ESD in the PLPG curriculum will develop a continuous learning process and ultimately produce professional teachers with ESD insights.

Indicators of teachers implementing the values of continuity in teaching practices can be seen in teachers' ability to synergize the following three basic components: (1) The Curriculum Content Standards; (2) Teacher Competency Standards, and (3) The concept of ESD as illustrated in figure 3.2.

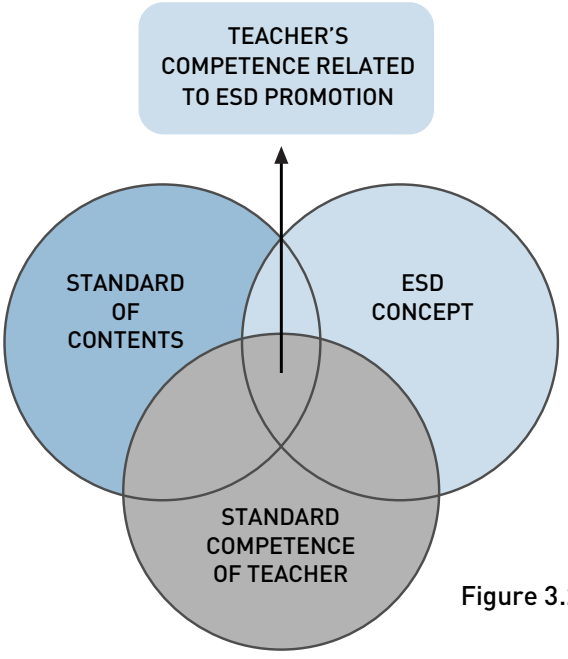

Figure 3.2 Teacher competence on three components

Diploma or certificate obtained by teachers after completing education and training characterized by ESD is not only as an evidence of teacher participation in the education and training, but it must be proven in the following capabilities:

- The ability to express creative learning ideas;
- The ability to develop sensitivity to local problems issues around the school, investigating problems, critical thinking, problem solving, and decision making related to the types of problems;
- The ability to develop learning models based on student activation;
- The ability to develop learning models based on IT (IT-based learning);
- The ability to raise issues of ESD into his subjects;
- The ability to do learning reflection;
- The ability to develop teaching materials that have ESD dimension;
- Advocacy ability of ESD programs in schools and communities around the school.

3.5 CLIMATE CHANGE

A. Introduction

Climate Change (CC) becomes the main issues raised in the ESD, considering the very close linkages between human activities and CC. CC is indicated by a change in the amount of greenhouse gas (GHG) emissions, small particles (aerosols), and clouds in the Earth's atmosphere.

Extreme impacts of climate change lead to the increase in temperature and a shift in the season. Global warming is one of CC's phenomena and has become an important factor to be studied, because changes in temperature result in a significant impact on human activity. Changes in temperature of the earth can change the environmental conditions which will impact on the environment. In other words, global warming will threaten human life as a whole. Some of the impacts posed by CC are as follow:

- **Impact of regional climate change**
  As an irregular pattern of the season begins, the emergence of extreme weather conditions has often resulted in catastrophic flash floods and landslides in several locations in recent years. Meanwhile, forest and land fires have greater chances to happen by increasing frequency and intensity of El-Nino.

- **Impact of climate change on agriculture**
  Decrease in agricultural productivity in the tropics appears whenever there is an increase in global average temperature between 1-2^{0}C thereby increasing the risk of famine. The increased frequency of droughts and floods are estimated to give a negative impact on local production, especially in the food supply sector in sub-tropical and tropical regions. The occurrence of the changing seasons in which the dry season becomes longer have caused crop failures, water crisis, and forest fires. Shift in

seasons and changes in rainfall patterns results in rice shortage in Indonesia. The increase of regional temperature will also have a negative impact on the spread and reproduction of fish.

- **Impact of climate change on sea level rise**.
  The increase of sea levels will inundate coastal areas which will destroy the fish ponds and shrimp in Java, Aceh, Kalimantan and Sulawesi (UNDP, 2007). Global warming will cause 98% of coral reef and 50% of marine life degradation. Fishermen have difficulty in estimating the time and location suitable for fishing because of the changing climate patterns. The increase in temperature causes the ice and glaciers in the North and South Poles to melt. This has caused the mass expansion of sea water and sea level rise.

- **Impact of climate change on health.**
  Global warming has also triggered an increase in tropical diseases like malaria and dengue fever. Population with low capacity to adapt will be more susceptible to diarrhoea, malnutrition, and the change in distribution pattern transmitted diseases through a variety of insects and animals. Heat wave that hit Europe in 2005 increased the number of deadly heat stroke, salmonella infection, and hay fever.

- **Impact of climate change on water resources**
  In the middle of this century, the average water flow of rivers and water availability in sub polar regions and the wet tropics is expected to increase by 10-40%. While in the dry subtropical and tropical regions, water will be reduced by 10-30% so that the areas experiencing frequent droughts will be in a more severe condition.

- **Impact of climate change on ecosystems**
  There is possibly an extinction of 20-30% species of plants and animals if there is an increase in global average temperatures by 1.5 to 2.5^0C. Increasing levels of ocean acidity due to increasing carbon dioxide in the atmosphere are expected to have negative impacts on marine organisms such as coral reefs and the species dependent on these organisms. Another impact is the loss of various kinds of flora and fauna, especially in Indonesia. For example, coral bleaching on 30% area or as much as 90-95% coral death in the Kepulauan Seribu is due to rising sea temperatures. (Source: World Wild Fund For Nature/WWF Indonesia)

- **The impact of climate change on Environmental Sector**
  The impact of climate change will be exacerbated by environmental problems, population, and poverty. Because of the damaged environment, nature would be particularly vulnerable to climate change.

- **The impact of climate change on Economic Sector**
  All the effects that occurred in each sector above will directly give impacts on the economy of Indonesia.

- **The impact of climate change on urban settlers**
  Sea level rise between 8 and 30 cm will also give a severe impact on coastal cities like Jakarta and Surabaya, which will be increasingly vulnerable to flooding and storm runoff.

B. The Importance and Purpose of Learning in the Context of Climate Change Education and Teacher Training

Considering the climate change as a natural phenomenon that has happened, people need to understand and take action to prevent and to adapt to the change. Mitigation effort is an attempt to reduce the effects of greenhouse gases so as to slow the rate of global warming. Adaptation is an act of preparing and adapting to climate change. For example, when we travel, we must take note of weather forecasts, reduce flooding by not littering and making infiltration or greening, savings on the use of resources such as water, fuel, and so forth. Therefore, climate change has become something important to be understood by every teacher to be implemented in learning. Teachers must have knowledge and action on mitigation and adaptation to climate change and these skills are to be acquired during the pre-service and in-service training programs.

Climate Change learning in pre-service and in-service training programs are based on the thought that the learning objectives in the context of climate change education and teacher training are:

- Teachers as actors who are in close interaction with the students need to deliver insight and knowledge in climate change whose impact will be felt by future generations;
- Teachers must be able to integrate climate change into learning materials and learning process in class;
- Teachers must be able to develop a learning process that give rise to the values of caring and awareness to save the earth and life due to climate change;
- Teachers must be able to develop activities that allow students to establish communication with other schools in a cooperative network through information sharing and discussion about the rescue efforts due to climate change;
- Teachers are at the forefront in education in the efforts to save the earth from climate change;
- Teachers must demonstrate competency in developing teaching materials that take advantage of climate change sites;
- Teachers must be creative educators who have concerns, awareness, and responsibility towards climate change issues.

Material Mapping of Climate Change

The material on climate change includes the following:

- Climate Change Issues include: the issue of climate change, the impact of climate change, changes in cropping patterns, and local wisdom;

- Human contribution to climate change includes: the wrong perception about natural resources, lifestyles and consumption patterns, behaviors and habits;
- Joint Response includes: emphasis of population growth rate, changing on consumption patterns, environmentally friendly technology, planting trees, alternative energy, waste management, bio fuel, etc;
- Problem solving climate change includes: adaptation and mitigation.

C. Implementation of Climate Change Model

CC learning in the process of education is to be performed through curricular and co-curricular activities. It can be delivered by integration and/or monolithic approach. Learning can beimplemented in the classroom/school or outside the classroom/school or in the community This is according to the needs and policies of the school or district. Therefore, teachers must have the ability or competence regarding content standards and competencies to integrate CC in the learning process to achieve the demands of the learning curriculum competencies and values of ESD.

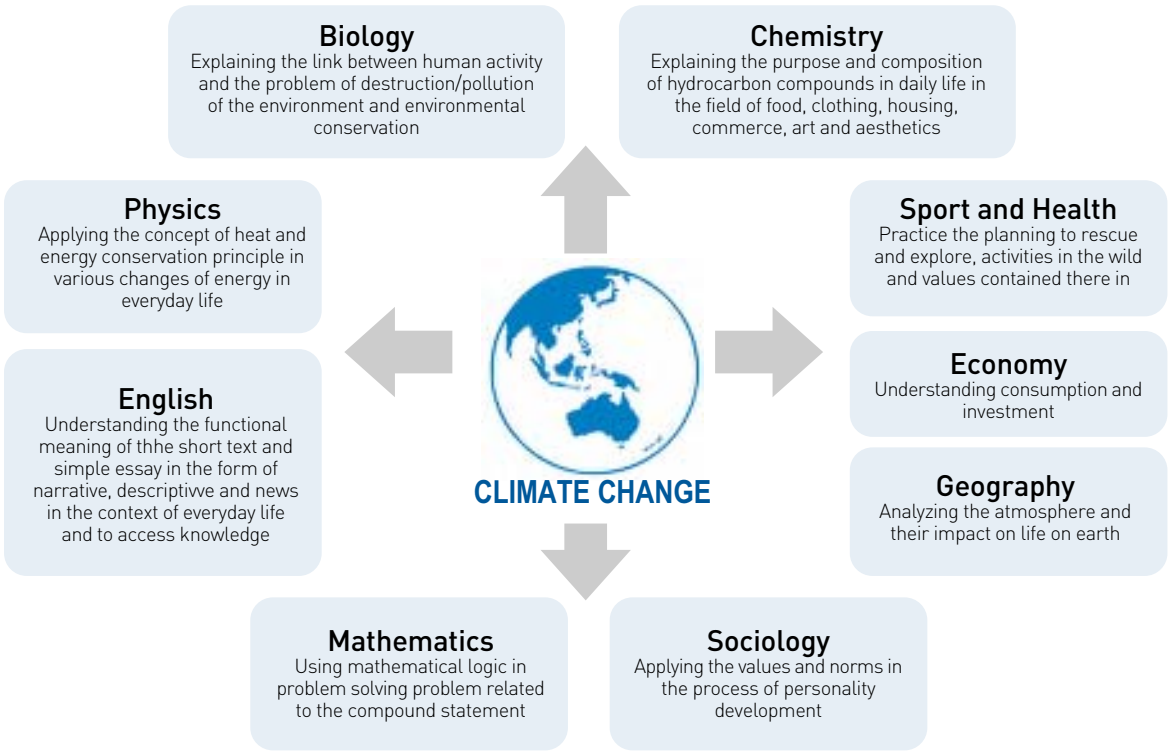

Figure 3.3 Integration of CC across fields of study

3.6 EDUCATION FOR DISASTER RISK REDUCTION (DRR)

A. Introduction

As stipulated in Law on Risk Management Number 24 Year 2007 on Disaster Risk Reduction, risk management means:" a threatening event or a series of
threatening events which harm human life caused by natural factors and/or non natural factors including human factors that lead to human victim, environment damage, material damage and psychological damage".

The causes of disaster risk in Indonesia include the following:

- Geological factors such as earthquake, tsunami, volcanic eruption;
- Hydro meteorological factors such as flood, erosion, drought, hurricane;
- Biological factors such as disease epidemic, plant and animal disease, plant pest;
- Technology failure such as industry and transportation accident, nuclear radiation, chemical contamination;
- Social and political factors such as horizontal conflicts, terrorism, ideological and religion.

Based on the Indonesian Law, DRR covers two propositions:

- Natural disaster is an event or a series of events caused by nature such as earthquake, tsunami, volcano eruption, flood, erosion, drought, hurricane (Law No. 24/2007 on Disaster Risk Reduction Article 1:2);
- Social disaster is event or a series of events caused by human such as social conflict among group of people or community and terrorism (UU No. 24/2007 on Disaster Risk Reduction Article 1: 4).

B. Importance of DRR

Based on its geographical position, Indonesia is susceptive to natural disaster. In addition, Indonesia is also susceptive to social disaster because of its social, religion, and cultural pluralism. Disaster is an unpredictable and unavoidable condition. Therefore, it must be wisely responded to reduce fatal damages. Disaster cannot be viewed only from a single point; it should be comprehensively viewed from various points such as the condition before, during, and after the disaster happens.

C. DRR Education Concept

Natural disaster happens from time to time. In Indonesia, disaster risk reduction cannot be focused on certain regions only, but almost all regions are susceptive to disaster. Even if a region is predicted not to experience a disaster, the community, at least, will experience the impact of a disaster in other regions. Therefore, it is important to ensure that every citizen in Indonesia has a sufficient capability in responding disaster. It is also expected that the capability will increase to minimize the negative impact of the disaster. To achieve this, effort from stakeholders is needed to increase the knowledge of society on disaster management.

DRR education is a long term activity. It is also part of sustainable development since it uses knowledge, innovation, and culture in all its education units, as declared in the Hyogo Framework for Action. Since DRR education has become a priority program in the Hyogo Framework for Action, it is expected that Indonesia can also prioritize this especially in the education sector by including DRR education at schools.

The concept of mainstreaming DRR education into the education system is a process of including DRR elements into education system covering policy, strategic framework, planning, implementation, institutional structure, infrastructure tools, learning implementation to students, or by establishing and developing preventive activities, disaster mitigation and readiness of disaster preparation within education institutions.

D. Objectives of Teaching DRR in the Context of Teacher Education Institutions (TEIs)

TEIs should provide the prospective teachers with competencies to integrate special knowledge to all subjects and all teaching and learning activities, such as:

- To develop values , humanity manner and concern to disaster risk;
- To develop an understanding on disaster, social sensitivity, physical sensitivity, as well as motivational and behavioral sensitivity;
- To develop knowledge and skills to reduce disaster risk and preventive, natural resources and environment management, both collectively and individually;
- To increase capability, preparedness, and response in rescuing community;
- To support rebuilding community after disaster and to reduce the impact of disaster;
- To increase adaptive capability toward unexpected and sudden change and to increase the resilient resiliency power of community.

E. DRR Implementation

Figure 3.4 and figure 3.5 illustrate how DRR isn integrated into education system.

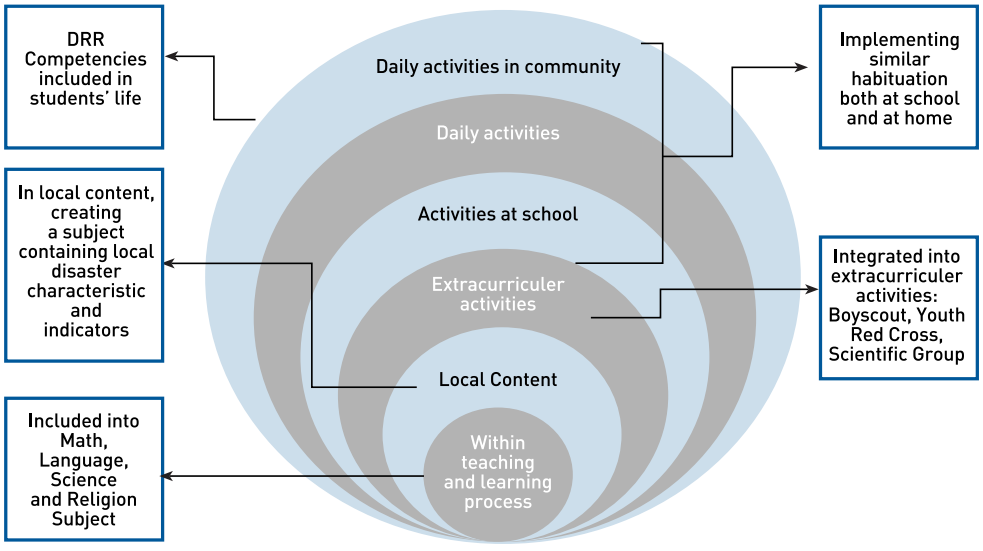

Figure 3.4 DRR integrated in education system

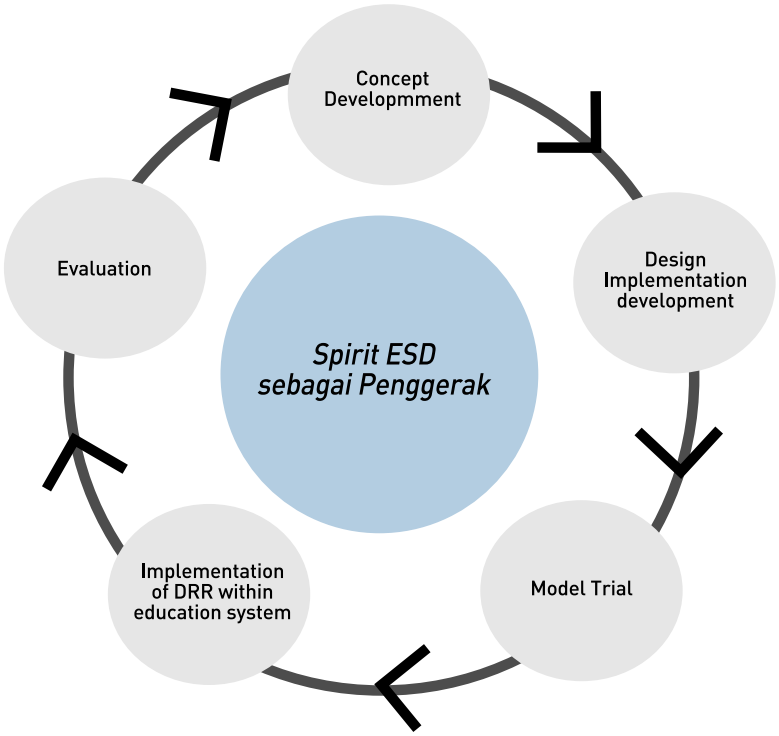

Figure 3.5 DRR within education system

Sustainability spirit associated with DRR values are as follows:

- Seriousness to achieve goals;
- Commitment to realize the necessity of presence;
- Commitment to provide self funding and facilities;
- Sincerity in working;
- Fighting spirit to be better.

3.7 MONITORING AND EVALUATION

A. Introduction

Once the program is in place, monitoring and evaluation is to be undertaken as an important step in promoting teaching, learning, and reflection in ESD. Monitoring and evaluation might respond to the following issues:

- To what extend did the program meet its goals;
- What were the learning outcomes;
- Were the results worth the project's costs;
- What components of the program are reproducible in other locations;
- In what ways did participants benefit from the program;
- To what extent was the product viable;
- To what extent has the process improved productivity.

B. Indicators Used

For this purpose, the indicators to be used are as follows:

- Status indicator: "what is happening in ESD at TEIs at a point in time";
- Facilitative indicator: "what has been put in place to assist the development of ESD in the context of TEIs";
- Learning indicator: "what has been learnt in the process of implementing ESD in TEIs";
- Effect indicator: "what has changed in TEIs environment";
- Performance indicator: "what progress has been made by TEIs and its components (Lecturers, Facilitators, Students, Institutions).

C. Critical Issues

In relation to the indicators used, there are 5 (five) issues to be addressed by those who undertake monitoring and evaluation in ESD implementation at TEIs. Those issues include:

- **Clarification**

  Under this issue, the following shall be responded: **(a)** does the authoritative literature identify the appropriate processes for facilitating learning of ESD at TEIs, **(b)** is there empirical evidence to suggest that particular learning processes are more effective in attaining the goals of ESD in TEIs context, **(c)** which learning opportunities in ESD at TEIs context in turn, promote and facilitate sustainable development and how, and **(d)** which state policies and plans explicitly address questions about ESD processes and learning.

- **Range and Diversity**

  This issue relates to the following: **(a)** what are the range of activities (levels and settings) which are undertaken under the banner of ESD, **(b)** what topics or themes do ESD cover and who funds or supports ESD activities, and **(c)** what diversity of cultural and contexts underpin ESD initiatives.

- **Engagement**

  This issue relates to: **(a)** who is involved in ESD processes and learning (providers, funds, recipients, beneficiaries), **(b)** how are related stakeholders engaged in the ESD processes and learning, and **(c)** which policies and plans explicitly promote engagement of stakeholders in ESD processes and learning.

- **Intentions**

  This issue relates to: **(a)** what are the range of intentions of existing ESD initiatives at TEIs context, and **(b)** what are good examples or programs and activities in TEIs learning which promote ESD.

- **Change**

  This issue relates to: **(a)** what has started to change as a result of ESD, **(b)** which policies and plans set out to document change and/or learning as a result of ESD learning processes and opportunities, **(c)** what has been learnt so far through efforts to re-orientate TEIs systems towards ESD and in increasing opportunities for ESD outside TEIs systems.

3.8 RECOMMENDATION

- All stakeholders especially policy makers within Ministry of National Education and TEIs need to understand the substance and the importance of ESD as well as its implementation in educational institutions in Indonesia in accordance with the national education policy and the realization of DESD;
- ESD needs to be developed and implemented in accordance with the national character and local community to anticipate various national issues;
- Since curriculum development is the authority of each TEI, it is recommended that TEIs should be given autonomy in accordance with the characteristics of each TEI;
- UNESCO as the leading agent of DESD needs to follow up the guideline implementation in TEIs as well as other teacher training institutes;
- For the purposes of enhancing public awareness, UNESCO is recommended to publish academic papers on ESD issues in Indonesia;
- UNESCO is expected to work with TEIs and teacher training institutes in developingESD learning resources and learning materials for implementation in schools.

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Prepared by:

- Prof.A. Chaedar Alwasilah, in Education, Indonesia University of Education, Bandung
- Hendarman Anwar, Ph.D., Head, Centre for Policy Research, Office for Research and Development, Ministry of National Education (MONE)
- Drs. Parus M.Si., Head, Evaluation of Environmental Education Community, Ministry of Environment
- Dra. Ratna Sinaga M.A., Indonesian National Commission for UNESCO
- Cyti Daniela A, MHRM, Indonesian National Commission for UNESCO
- Drs. Noor Suseno Vijaya Krishna Nanji, M.A., Researcher, Centre for Curriculum Development, MONE
- Philip Suprastowo, APU., Senior Researcher, Centre of Policy Research, Office of Reseach, MONE
- Nanik Suwaryani, Ph.D., Researcher, Reseach Centre for Educational Policy, MONE
- Teguh Supriyadi, M.Si., MONE
- Sudiono, S.Pd., MONE
- Dra. Asri Ika Dwi Martini, MONE
- Nur Listiawati, S.S., M.Ed., Researcher, Office for Reseach & Development, MONE

4. Malaysia

4.1 INTRODUCTION

Malaysia has experienced phenomenal economic growth in the last two decades. It has undergone a major structural transformation, moving from an agriculture to manufacturing-based economy, with significant social changes. This rapid development has brought about significant impacts to the natural environment. Recent studies indicated that the country's temperature had increased 0.18^0 C per decade for over 40 years since 1951 (MOSTE, 2000) while the UTM study (2007) revealed an average annual rise in sea level by approximately 1.25 mm at a southern coastal line in the peninsular Malaysia since 1986. These are worrying trends that shows that the environment will be increasingly challenged in the near future.

Development, therefore, cannot confer lasting benefits unless environmental considerations and related ecosystems are protected as integral parts of development planning and decision making. This can only be done by formulating appropriate policies and programmes to ensure development is undertaken hand in hand with sound management of the environment.

The Malaysian government as early as 1974 has taken concrete steps by introducing an enabling legislation called the Environmental Quality Act, 1974. The main objective of this act is to prevent, abate and control pollution, and further enhancing the quality of the environment in the country. The Department of Environment has been entrusted to administer this legislation to ensure that Malaysia will continue to enjoy both industrial grow and a healthy living environment.

At regional and international levels, Malaysia has worked very closely with many countries which are committed towards the same objective in order to help address equally pressing regional and global environmental issues related to the atmosphere, the stratosphere, wetlands, and the surrounding seas and oceans, climate, human health, the health flora and fauna, and the protection and preservation of their bio diversity.

Education is the motor for change in relation to creating awareness on sustainable development. Education is widely seen as one, large ray of hope for the global sustainability vision. Agenda 21, the world's first action plan for sustainable development, made it clear that many paths to sustainable development do exist. The document stated that work on multiple fronts was necessary: i.e. environmental protection, good legislation and governance, economic incentives, overcoming corruption, human rights and security, and creating infrastructure - from transportation to financial pillars. Nevertheless, education is essential for moving toward more sustainable future.

In the context of sustainable development for Malaysia, Teacher Education Institute has vital roles to play in bringing changes within educational systems that will help to shape the knowledge and skills of future generations. Teacher Education Institutes (TEIs) in Malaysia serve as a key

change agents in transforming education and society. This is because the TEIs will not only educate new teachers but also update the knowledge and skills of in-service teachers, develop teacher education curriculum and emphasizing education for sustainable development through collaboration with other regional and national ministries of education. The Ministry of Education in Malaysia hopes that the TEIs would have a broad influence in designing and implementing teacher education curriculum that will promote Education for Sustainable Development (ESD). The TEIs is fully aware of the roles of teachers in promoting awareness on climate change, natural disasters and educating the young children in school on means to reduce destructions brought about by natural disasters.

4.2 DEFINITIONS OF ESD IN TEIS

Education for sustainable development (ESD) in TEIs refers to any form of education, both formal and informal that promotes socio-economic and environmental development which can meet the needs of the present without compromising the well being of the future generations and environment.

The aim of ESD in TEIs is realized by educating the future teachers on issues related to the environment and its conversation. These future teachers will then act as a key change agents for the students and the society in large in creating awareness on the need to manage the environment effectively.

- **The Need For ESD in Malaysia**

The priorities of ESD within education parameter includes gender equality, health promotion, peace and human security, environment: water, climate change, biodiversity, disaster prevention and rural development, sustainable urbanization, sustainable consumption and cultural diversity.

In line with UNESCO's framework towards ESD, Malaysia being a developing nation upholds these parameters to ensure that its resources are well managed while allowing progress for the nation and ensuring human capital development of its citizens. The TEIs have significant roles to embark on ensuring these parameters are disseminated and their true meanings are fully embedded across the young generation who earns education at every school in Malaysia. The Malaysian Education Ministry through the TEIs subscribe to the ideals of ESD nurtured through the Millennium Development Goals which is seen as a comprehensive package for quality education and learning with the key issues such as poverty reduction, sustainable livelihood, climate change, gender equality, cooperate social responsibility and protection of indigenous cultures. The holistic nature of ESD allows it to be a possible tool for the achievement of the Millennium Development Goals (MDGs) and the Education for All goals. Thus, ESD could be perceived as the vehicle for achieving those objectives.

4.3 ESD AND CLIMATE CHANGE

Climate change is one of a growing environmental threat and gives a big impact on life. Ignorance and failure to deal with issues on climate change will have an adverse impact on the world and Malaysia. Climate change is no longer a distant possibility. It is now a scientifically proven reality that is already affecting all of us. Studies conducted under the auspices of the Ministry of Natural Resources and Environment Malaysia have given us a glimpse of future climate change scenarios and potential threats to the sustainability of our nation. Thus, the National Policy on Climate Change provides the framework to mobilize and guide government agencies, industry, community as well as other stakeholders and major groups in addressing the challenges of climate change in a holistic manner. The National Policy will enable Malaysia to take concerted actions and identify opportunities that can help navigate the nation towards sustainability. The policy statement ensures climate-resilient development to fulfill national aspirations for sustainability. The objectives of this policy include:

- Mainstreaming climate change through wise management of resources and enhanced environmental conservation resulting in strengthened economic competitiveness and improved quality of life;
- Integration of responses into national policies, plans and programmes to strengthen the resilience of development from arising and potential impacts of climate change;
- Strengthening of institutional and implementation capacity to better harness opportunities to reduce negative impacts of climate change.

There are five principles underpinning the ten strategic thrusts and key actions to set the national direction in responding to the challenges of climate change. Malaysia recognizes the adverse effects and impacts of climate change and undertakes to mainstream national responses that consolidate economic, social and environmental development goals based on the following principles:

- Development on a sustainable path to integrate climate change responses into national development plans to fulfill the country's aspiration for sustainable development;
- Conservation of environment and natural resources to strengthen implementation of climate change actions that contribute to environmental conservation and sustainable use of natural resources;
- Coordinated implementation to incorporate climate change considerations into implementation of development programmes at all levels;
- Effective participation to improve participation of stakeholders and major groups for effective implementation of climate change responses;
- Common but differentiated responsibilities and respective capabilities in inter-national involvement on climate change will be based on the principle of common but differentiated responsibilities and respective capabilities.

Education needs to take into consideration the following implications of climate change, all of which are characteristics of Education for Sustainable Development (ESD):

- All levels and forms of existing educational and teaching and learning programmes need to be reviewed and re-oriented to address the causes and consequences of climate change;
- Climate change requires educators to include new content into education, training and public awareness programmes;
- Creativity, problem solving and social transformation skills need to be developed and nurtured;
- Positive, participatory action and solution-centred approaches to education and learning need to be developed.

At the TEIs in Malaysia, every effort is taken to ensure future teachers are aware of the issues in climate change. Table 4.1 shows the issues discussed on climate change at the various levels of the teacher education programmes at the TEIs:

Table 4.1 Topics on climate change across various programmes

Programme level	Specialization/Core	Course/Topics
Post-graduate Diploma in Education	Environmental Education	Climate change: • Global warming • Open burning • Green house effect • Soil erosion • Population growth • Food production • Waste management
Foundation Programme for Bachelor of Teaching	Social Studies	• Physical Environtment • Human Environtment
Bachelor of Teaching	Social Studies	Environment Geography Education for Sustainable Development
	Science	Ecosystem and Biodiversity Life and Living Processes Earth and Space

Thus, the curriculum in place at the TEIs aims to deal with issues related to climate change in the hope that future teachers will be able to disseminate information on climate change to their students and the society.

4.4 DISASTER RISK REDUCTION

Disaster risk is of global concern. With the increase vulnerabilities stemming from population growth, unplanned urbanization, environment degradation, climate change combine with geological, hydro-meteorological and man-made hazards, has increased the frequency and the impact of the disaster itself.

Disaster Risk Reduction (DRR) involves activities aimed at protecting communities from hazards and minimizing their vulnerability to disaster risks. It moves beyond the traditional disaster management approach of simply focusing on response, rehabilitation and rebuilding after a disaster event. For DRR projects to achieve meaning and sustainable reduction in disaster risk, the whole community needs to be involved - government and others stakeholders, including international, regional and national organizations, UN agencies, scientific and technical organizations, civil society organizations as well as the media need to support and assist the government in ensuring the appropriate implementation plan towards building resilient communities.

Malaysia is truly blessed in that we are only assailed with disasters that are not catastrophic in nature but yet do experience a fair share of disaster such as annual floods and occasional occurrences of landslides. Recognizing this problem the government has put in place since 1990s' policy, infrastructure and operational mechanism that transcend from the national, state and district level to ensure that the cohesive participation and involvement of various government agencies and non-government sector in addressing disaster management.

Public education and awareness on disaster reduction in Malaysia is aimed at creating a higher level of community awareness including the ability of putting into place appropriate emergency measures, so that they could withstand the impact of natural disasters and prepare for and survive disasters.

To establish a sustainable and resilient environment for the local community, the Malaysian government has encouraged the participation and involvement of non-governmental organizations in disaster risk reduction programmes. Organizations such as MERCY Malaysia has played a profound role in exploring more proactive foundation in enhancing public awareness in disaster prevention, mitigation and preparedness. Among the programmes organized by MERCY includes school preparedness program, Johor Community Preparedness Program, DRR for persons with disabilities and disaster preparedness workshop.

In order to enhance disaster pre-paredness, the TEIs in Malaysia requires future teachers to have a better understanding on the importance of DRR. The following initiatives are included in the teacher education curriculum:

- The curriculum review for the Post - Graduate Diploma in Education Program has embedded the DRR concept in the Environment Education Course emphasizing the Safe School Programme in line with the implementation of Hyogo Framework of Action (2008). This curriculum is due for implementation in 2012;
- The Character Building for Teachers (Bina Insan Guru) is a compulsory programme for future teachers to be exposed on issues related to DRR. Future teachers are exposed on life-saving techniques including water-based activities, preparing for emergencies and suitable first-aid techniques;
- In the extra curriculum activities such as the Red Cross and Red Crescent Society of Malaysia conducted at the TEIs, due emphasis is placed upon the management of catastrophic situations;
- Students are given permission to be fully involved in voluntary activities in the natural disaster prone areas namely in flood evacuation centres and landslide zones;
- Future teachers are required to collaborate with non-governmental agencies such as the Malaysian Red Crescent Society and Civil Defence Department in educating the public especially children on how to protect themselves against floods.

Malaysia hopes to create a safe environment for the community through disaster management, sustainable development and risk reduction in the 21st century. The recent launch (17-18 February 2011) of the one million safe schools and hospitals and making resilient schools by the Prime Minister of Malaysia underlines the commitment shown by Malaysia to promote national disaster awareness measures.

4.5 ESD STRATEGY AT GLOBAL AND REGIONAL LEVELS

From the time sustainable development was first endorsed at the UN General Assembly in 1987, the parallel concept of education to support sustainable development has been explored. From 1987 to 1992, the concept of sustainable development matured as committees discussed, negotiated, and wrote the 40 chapters of Agenda 21. Chapter 36 of Agenda 21 requires promotion of education, public awareness, and training. This chapter identified four major thrusts to begin the work on ESD on improving basic education, reorienting existing education to address sustainable development, developing public understanding and awareness and providing training for all sectors of society including business, industry, and government.

The importance of ESD was reconfirmed to the world when in December 2002 the United Nations declared 2005-2014 to be the Decade of Education for Sustainable Development. Many educational organizations around the world are exploring how to reorient their curricula and programs to address sustainability. ESD is intended to support and

enhance the implementation of the National Policy on the Environment, whereby the first strategy is focused on education and awareness that provides and under-standing of the concept of environmental well-being and sustainable development, which is in line with the Rio Agenda 21.

The TEIs in Malaysia are committed towards building partnership in ESD both at global and regional level through a number of means:

- To collaborate with institutions of higher learning in the effort to exchange views and ideas among academics in issues related to ESD;
- To collaborate with the NationalCommission of Malaysia for UNESCO to foster relationship with the relevant ministries responsible for education, environment, health, agriculture, forestry, commerce and human welfare;
- To form joint committees in relation to research and development and teaching and learning for the purpose of sharing ideas on best practices on ESD;
- To identify measures to enrich the teacher education curriculum to better cater for ESD through academic discourse.

The initiatives mentioned above would not only benefit the TEIs in Malaysia but also other TEIs in the region to develop our knowledge and understanding on issues related to ESD. It is hoped that efforts undertaken at the global and regional level would contribute towards achieving the aims of the DESD (2005-2014).

4.6 ESD NATIONAL STRATEGY DEVELOPMENT

The Malaysian policy framework recognizes that education development plays an ever important role in building a sustainable, resilient and competitive society. Interestingly, the global education scenario has similar development strategies namely by providing wider accessibilities, ensuring quality education, continuous strategic education reforms so that the respective countries can compete as global education providers and education has already evolved into a big economic entity for some countries. Malaysia is ready to face these challenges in the field of education, both internally and externally, with the advent of globalization, trade liberalization, and the development of ICT in this new century. The National Mission has five (5) thrust areas in driving the country's goals and objectives. They are:

- To move the economy up the value chain;
- To raise the capacity for knowledge and innovation and nurture first class mentality;
- To address persistent socio-economic inequalities constructively and productively;
- To improve the standard and sustainability of quality of life; and
- To strengthen the institutional and implementation.

Malaysia's Green Strategy in National Policy on the Environment also seeks to integrate environment consideration into development activities and in all related decision making processes, to foster long term economic growth and human development and to protect and enhance the

environment. It complements and enhances the environment dimension of other existing national policies, such as those on forestry and industry and takes cognizance of international conventions on global concerns. Malaysia's Green Strategies will be directed towards the following key areas:

- Education and Awareness;
- Effective management of natural resources and environment;
- Integrated development planning and implementation;
- Prevention and control of pollution and environment degradation;
- Strengthening administrative and institutional mechanisms;
- Proactive approach to regional and global environmental issues; and
- Formulation and implementation of Action Plans.

The first key areas of Malaysia Green Strategies are directed towards to education and awareness because we want to achieve a deeper and better understanding of the concepts of the environmentally sound and sustainable development, and a caring attitude towards nature. Environmental education and awareness will be promoted across the board, incorporating information dissemination and training, in line with recommendations of Agenda 21.

Education and awareness strategy is:

- Comprehensive formal and informal environment education and training strategy and information dissemination programmes will be devised and introduced;
- Environment and development will be integrated into education activities, from school to tertiary institutions. Toward this end, relevant methods and materials will be developed for environmental education programmes;
- National centre of excellence will be established for interdisciplinary research and education for environment and development, towards a view to strengthening national capacity in related fields;
- Education curricula at all levels will be reviewed to ensure a multi-disciplinary approach with environment and development issues;
- Non-formal education activities will be promoted at local and national levels. These activities will include the direct involvement of social support groups and recognize the important role of family unit in inculcating positive environment attitudes;
- Public information services on environment and development will be made available and these may include information technology, multi-media and other audio visual methods. Public and academic forums to discuss environmental and development will be encouraged;

- Activities in the arts and culture circles with contain a positive message with regard to the environment and development will be promoted;
- The role of the media in disseminating environmental information will be strengthened. In particular, environmental journalism and associations of environmental journalist will be accorded recognition, with a view to raising the quality of environmental reporting;
- Cooperative relationship with the media, entertainment and advertising industries will be promoted to mobilize their experience in shaping public behaviour and consumption patterns;
- Environment and development issues will be integrated into the activities of groups including professional associations, trade unions and employers organizations, dissemination of information and training will be extended to include decision-makers, employees and employers;
- Manpower training programmes will be designed to enable trainees to deal with environment and development problems. *(Source: Ministry Of Science, Technology and The Environment, Malaysia, 2002).*

Some of the policies, strategies and action plans are shown in Table 4.2.

Table 4.2 Policies, strategies and action plans in Malaysia

No	National Policy/Plan	Strategies/ActionPlan/Statement
1	National Policy on Biodiversity (1998)	Incorporate the study of biological diversity and related fields into the curricula of schools and institutions of higher learning
2	National Policy on the Environment (2002)	To achieve a deeper and better understanding of the concepts of environmentally sound and sustainable development, and a caring attitude towards nature, EE and awareness will be promoted across the board, incorporating information dissemination and training, in line with Agenda 21
3	National Integrity Plan (2004)	Community Institution - emphasizing on increasing the awareness of environmental conservation
4	9th Malaysia Plan (2006-2010)	Appropriate interventions and changes will be made through the school curriculum to create a deeper and longer lasting awareness of the need to care for the environment. In addition, the energy, ideas, enthusiasm of the environmental NGOs will be harnessed to complement and supplement efforts by the government in promoting the environment.

The education strategies in Malaysia for sustainable development in the new century call for a total commitment from all Malaysians, with a sense of urgency in the face of increasing competition. The strategies will be responsive to the changing market needs both locally and globally. In strategizing national ESD efforts, the government has taken into consideration how education could play an important role in the dissemination of the concept and heightening awareness on a sustainable environment for the present and the future generation.

Further, the government is continuously taking efforts to support a sustainable environment through the activities conducted by the various ministries on their own accord and through inter-ministries collaboration to improve awareness among the community. The Ministry of Education, Malaysia has special projects such as Sustainable Schools, Sustainable Institutes of Teacher Education and Sustainable Universities. The Post-Graduate Diploma in Education Programme conducted at the Institutes of Teacher Education offers compulsory course on environmental education while the degree programme has large degree of the elements of education for sustainable development in the science major and the social studies. The Ministry of Housing and Local Government launched the clean toilet campaign, landscape competition and community involvement for sustainable environment. In Malaysia, the dissemination of medicines at the hospitals are done with the lesser use of plastic bags and the various state government are encouraging supermarkets and groceries to have non-plastic days.

Institutions are not stand-alone entities. They interact with, affect and are affected by other organizations, agencies and institutions along the same levels and across different scales (from global to local). The consequences of this interplay and how to manage it for effective and coherent global environmental governance are a major agenda item for research and policy components of governance and other institutions. A systematic approach is urgently needed to identify and effectively use the synergies that exist among the many institutions and sectors involved in environmental and sustainable development governance. Towards this, the formation of a steering committee for ESD at the national level comprising higher authorities of the Ministry of Education involving the heads of the various divisions of the ministry and the directors of the TEIs would act as a body coordinating and planning activities at the national level both for schools and TEIs. TEIs are currently in collaboration with WWF Malaysia to embark on the Eco-Institute pilot project at 10 selected institutes. A focus on inter linkages may reduce the burdens placed on national authorities, promote the efficient use of international and national resources and ensure that internationally agreed environmental laws and policies are mutually supportive.

- **Eco-Institute**

  The TEIs are geared towards streng-thening ESD through the formation of eco-institute. The Eco-Institute programme adapted from the Eco-School programme aims at mobilizing the whole institute to empower future teachers to adopt an active role in environmental decision-making and action in their Teacher Education Institutes (TEIs) and in their community. Teacher Education Institutes that have successfully achieved this goal are awarded a Green Flag - a prestigious eco-label testifying the school's commitment to fostering sustainable lifestyles.

Eco-Institute is an opportunity to improve the quality of life of our TEIs community by democratizing the process of decision making, setting relevant targets for the improvement of the TEIs environment, designing and implementing a plan, in line with the TEI's resources, to achieve these targets and integrating curriculum work with the day-to-day realities of the TEIs community, exploring ways of fostering team work within our TEIs as well as the community in which it is housed, and networking and sharing experiences and expertise with other local and foreign TEIs. Eco-Institute seeks to develop environmental responsibility by adopting a whole institute approach in the design, implementation and monitoring of an Institute Environmental Policy that is intimately integrated into the Institute's Development Plan. The ultimate goal is to infuse, through deliberate choices, sustainable lifestyles into the institute's day-to-day functioning so that this environmental ethic gradually becomes an integral part of the institutes. When an institute gives evidence that it has achieved this goal, it is awarded the Eco-Institute award - the Green Flag.

The essential requirements for participation in Eco-Institute by the 27 TEIs in Malaysia is that there should be a positive disposition towards actively involving future teachers in the decision making, implementation and monitoring phases of the programme, the staff and the community of the institute should be actively involved in the programme and a willingness to engage in long-term plans for the improvement of the institute.

The approach to realize the Eco-Institute is undertaken by using the seven-step methodology as shown in figure 4.1 below:

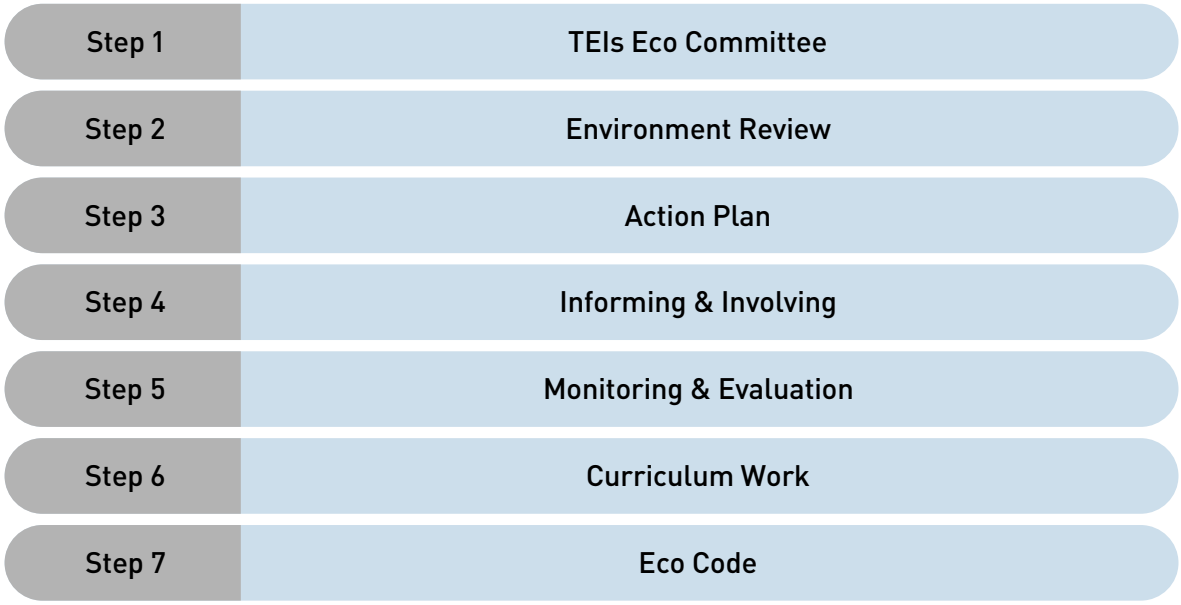

Figure 4.1 Seven Step Methodology

S1 The Eco-Institute Committee

The whole Eco-Institute process is dependent on the setting up of a committee whose main responsibilities would be that of:

- developing, implementing and monitoring a campus environmental policy that addresses the environ mental concerns of the institute community;
- ensuring that the interest of all sectors of the campus community are represented in the decision making process;
- establishing adequate communication links with the whole campus community ensuring wide ownership of the programme; and
- integrating the programme within the Institute Development Plan and the Local Agenda 21 initiatives of the local community.

The composition of the committee is up to each individual TEIs. A typical committee could be made up of a member of the institute management team, lecturer(s), teacher trainees, a non-teaching staff member, a parent and a representative of the local council.

S2 The Environmental Review

Although each campus might decide to start from any point in the Eco-Institute process, the first task of the committee is the design, implementation and evaluation of the campus' environmental review. The review aims to provide an opportunity to address environmental issues that are relevant to the campus community, inform the campus community about the state of the campus' environment and the environmental impact of the campus on its surroundings, identify aspects of the campus' environment that are not usually addressed, help the campus community to prioritize its needs re-environmental management, facilitate the drawing up of an environmental action plan, and provide the tools necessary for monitoring the campus' progress and the implementation of the action plan.

S3 The Action Plan

After completing the environmental review, the Eco-Institute committee can proceed to the next step in the Eco-Institute process: the compilation of an action plan. The data gathered from the environmental review will highlight the environmental issues that the campus needs to address.

S4 Monitoring and Evaluation

Careful monitoring and measuring of actions ensure that the targets outlined in the action plan are being properly addressed and achieved. Besides providing feedback about the effectiveness of the actions, monitoring allows the Eco-Institute committee to critically evaluate the strategy being adopted and identify possible alternative ways of proceeding.

S5 Linking with the curriculum

Besides increasing the status of the programme, linking Eco-Institute activities to the curriculum ensures that Eco-Institute is truly integrated within the campus community. The general strategy suggested is that of infusing environmental education concepts into

the already existing subjects and not that of presenting a new subject. Besides increasing an awareness of the environment, the weaving of an environmental education dimension in a particular subject enriches the subject concerned and thus makes it more relevant and interesting. The amount of linking is dependent on how the curriculum is structured and on the lecturers' willingness to engage in this initiative. Lecturers might introduce environmental education principles through incidental teaching or even through planned systematic teaching aimed at covering a particular aspect of the curriculum.

S6 Informing and Involving

One of the essential components of the Eco-Institute process is the dissemination of the activities throughout the institute and the community at large. The idea is to inform as many individuals as possible about Eco-Institute and to actively involve them in the process hence promoting local Agenda 21 principles. The need to involve the wider community does not only serve to give publicity to the campus' initiatives, but they also bring a range of benefits.

S7 Eco-code

The Eco-Code is the campus' mission statement and commitment towards improving its environmental performance. It is usually presented in a clear and imaginative way and displayed in a prominent place in the campus.

- **Suggested Activities at the Eco-Institute**

Eco Institute is a base to embrace the education towards a sustainable development by emphasizing an integrated approach. This is done by conducting programmes which are in line with the mission, vision and Policy of Sustainable Institute. Strategies for the successful implementation of the Eco-Institute will be conducted in stages. Among the programmes that can be implemented include:

  - Zero polystyrene campaign and reducing plastics usage
  - Saving papers
  - Saving electricity and energy
  - Saving water
  - Healthy lifestyle
  - Waste management
  - Recycling
  - Green campus
  - Research and Innovation in teaching & learning
  - Character Building Program
  - Promotion and dissemination
  - Community service

- **National ESD Curriculum Development Linked with School Activities and ESD Network**

The TEIs is the largest institute for training teachers in Malaysia. Currently, there are 27 ITES' with the main focus is to provide pre-service teacher education in a wide subject areas.

TEIs is responsible to upgrade existing teachers' academic qualification to the degree levels in meeting the targeted 100% and 50% graduate teachers in secondary and primary schools respectively. The pre-service teacher education programmes offered is in tandem with the demand of the national educational needs. The programmes such as Post Graduate Diploma in Education offers core subjects in Environmental Education. The EE has the following component:

- History, aims and objective of EE
- Introduction to basic ecology
- Environmental issues
- Sustainable Development
- Citizen of the environment
- EE across the curriculum

The environmental education component is also found in social studies and science studies majors of the Bachelor of Teaching programme. In the social studies major, EE is delivered in:

- Environmental geography
- Education For Sustainable Development

In the science major, EE is discussed in :

- Life and Living Processes
- Exploring Materials
- Ecosystem and biodiversity
- Earth and Space

In the Foundation programme for Bachelor of Teaching, elements of EE are delivered through the elective subject of Social Studies:

- Physical Environment encompassing The system of earth, atmosphere, hydrology, geomorphology and ecology;
- Human Environment encompassing population, economic development, urbanization, regional interaction and the impact of human activities.

4.7 TEACHING PEDAGOGY DEVELOPMENT IN ESD

Education plays a major role in shaping human behavior and therefore helps in developing individual who can behave in desirable ways and ultimately assume responsible citizenship. One of the key success factors for sustainable conservation is the level of awareness and appreciation on the heritage value of the resources by stakeholders, particularly the local communities. An informed society or community will make wise decisions about protecting and preserving resources that define the very essence of their culture and society.

A commitment to sustainable development must include well-embedded values, interest and understanding. Furthermore, pedagogies that ensures effective ESD should be identified. Several pedagogical techniques have proven to be effective in encouraging 'deep learning' and the effective teaching of sustainable development. These approaches usually call for a shift away from conventional teaching toward a learning paradigm in which students take

more responsibility for their own learning; where they are able to make sense of, rather than reproduce, information and thus are able to identify for themselves what they need to know and do to achieve sustainable development in their work and lifestyles.

In developing the national guidelines for ESD, the TEIs have considered multiple teaching pedagogies to promote awareness and application of ESD principles across subject areas:

- Experiential learning during visits, field trips and hands-on activities;
- Value clarification and analysis encompassing reflection in Capacity Building Programmes for future teachers, school-based experience programme, practicum and internship programmes;
- Critical thinking are made as an element that is integrated in all subjects;
- Interpersonal and intra personal communication skills;
- Problem solving skills pertaining to issues related to environment;
- Techniques encompassing story-telling, inquiry learning, place-based and problem-based learning;
- Community services such as Gotong Royong, Program Bersama Mu;
- Forum, seminars, conferences and workshop;
- Active learning.

4.8 NATIONAL ESD CURRICULUM DEVELOPMENT: INDIGENOUS EDUCATION AND ENVIRONMENT NEEDS

Issues related to national ESD curriculum development is centred on the need to have an equitable system of education in relation to gender, location and socio-economic status to achieve Education for All in the MDG.

The Education Ministry in Malaysia have posted teachers in rural schools and they are provided with hardship allowance for their service. Such an effort by the government augurs well with the initiative to provide quality education for all as mandated by EFA. Projects such as Pensiangan Salinatan is aimed at providing special assistance to teachers serving in remote areas especially in matters related to using the environment for the teaching and learning processes. In addition, the TEIs also conduct short courses for the in-service teachers as part of their continuous professional development.

Emphases are also given to promote indigenous pedagogy as a way forward in ensuring that the indigenous community of the country are integrated and assimilated within the main stream of the society. The TEIs in collaboration with Jabatan Hal Ehwal Orang Asli have implemented the KEDAP programme (Adult classes for the Penan and the natives) and even provided allowance for the parents. This is seen vital to encourage the parents to help their own children to upgrade academically. The promotion of indigenous pedagogy is also carried out through hosting of seminars, conferences and relevant researches. To get more of the natives to enter the TEIs, the government has adopted a special entry requirement for this group of people in Malaysia.

The orang asli students are further helped by providing them with school uniform, food and text books and other forms of assistance so as to ensure that their attendance in school is regular and could contribute to their own learning.

To cater for the environment needs, multiracial living and community which forms part of Malaysia's history and heritage must be preserved. They have been the key sources of racial integration for many years and have certainly played a part in making Malaysia a harmonious place to live, learn, work and play in. Implementing the "safe community" initiative alongside the "1Malaysia" concept for a livable Malaysia is therefore crucial. A "safe community" in today's context is no longer just a means of reducing crime on our streets and community, registering lower health bills and reducing the cost of addressing other social ills, but also determining whether we survive and succeed in the new economy.

A "safe community" programme should therefore be viewed as an integrated development programme that provides for co-ownership and care of safety at the workplace, school compound, recreational areas and the home, to name a few. As we strive for a 1Malaysia 1Safe Community in pursuit of national unity, 1Malaysia Foundation pledges to promote a Malaysia that is united in its diversity by providing access, engagement and support for the public sector and civil society's involvement in addressing key social issues, establishing avenues, developing programmes for providing policy input and suggestions, and other critical public policy issues through research as well as engagement with key stakeholders.

The principles of 1Malaysia Foundation also encourages public discussion and participation in critical social development, public issues and programmes. Essentially, 1Malaysia Foundation takes every step possible to help achieve a truly united Malaysian Nation. The 1Malaysia concept should set the pace for the rejuvenation of the unity-building process involving every Malaysian, irrespective of race, colour or creed. It should have, as its key elements, mutual understanding, respect and trust for one another, which are vital ingredients for building unity, in a multiracial country like Malaysia. Unity is a priceless gift that must be preserved by all Malaysians. Every peace-loving Malaysian should be fully committed to promoting a culture of peace, harmony and unity. Even if economics and information technology are the driving force of this era and in the future, we must not lose sight of racial harmony and unity as economic development will not be meaningful without understanding harmony, goodwill and trust among the people.

Programmes of action should continue to inculcate, nurture and strengthen the spirit of love and patriotism for the country. Inter-racial harmony and unity are of paramount importance in a multi-ethnic society like ours. Malaysia was forged out of diversity and through the spirit of give and take, compromise and consensus. The Federal Constitution, which guarantees the rights of the various ethnic groups, and the Rukunegara are the guides for nation-building and have been accepted by all Malaysians since we attained Independence.

In addition, most of the ministries and government departments provide services for people with special needs and those who are physically handicapped. Four main ministries namely; Ministry

of Health, Ministry of Higher Education, Ministry of Women, Family and Community Development, and Ministry of Education that provide learning and training facilities and services for children and youths with special needs in Malaysia.

4.9 CONCLUSION

Malaysia is striving hard towards achieving the goals and aims of Education for Sustainable Development through a multi-faceted approached undertaken by the relevant ministries particularly the Ministry of Education. The TEIs in Malaysia through the various programmes undertaken believes that by the year 2015, would have succeeded in assimilating the young generation on gender equality, health promotion, peace and human security, environment (water, climate change, biodiversity, disaster prevention), rural development, sustainable urbanization, sustainable consumption and culture and diversity as contained in UNESCO's DESD priorities.

The government of Malaysia is in right direction for implementing the Government Transformation Programme (GTP) focusing on six National Key Result Areas (NKRA) which includes widening access to quality and affordable education, crime prevention, fighting corruption, raising the living standard of the low-income group, upgrading infrastructure in the rural and interior regions and improving public transportation. These NKRAs aim to represent a combination of short-term priorities to address urgent demands and equally important long-term issues affecting the Malaysian. It is noted that the aims contained in the NKRAs run parallel to the aims of ESD.

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Prepared by:

- Datuk Dr. Haili Bin Dolhan, Rector, Malaysia Teacher Education Institute, Ministry of Education Malaysia
- Dr. Hj. Mohd Said Bin Hasran, Director, Teacher Education Institute, Temenggong Ibrahim Campus, Johor Baru, Malaysia
- Dr. Nagalingam Karuppiah, Principal Assistant Director, Malaysia Teacher Education Institute, Ministry of Education, Malaysia
- Ms. Marina Binti Hj. Abd Majid, Teacher Education Institute, Temenggong Ibrahim Campus, Johor Baru, Malaysia
- Ms. Khadijah Binti Aiyub, Teacher Education Institute, Temenggong Ibrahim Campus, Johor Baru, Malaysia

5. Philippines

5.1 INTRODUCTION

Teaching Filipino learners, both in school and out-of-school, to care for and act on the future of society and the country's environment is an idea that has naturally evolved in the Philippines. In fact, it did not have to wait for the Rio de Janeiro Conference and its country translation into national policy, the Philippine Agenda 21.

The idea and some educational initiatives on sustainable development have been there before. What they only needed and waited for was a unifying framework and authority that would lay down teaching-learning strategy and harmonize programs of diverse institutions, concerned groups, and directions of government agencies under one vision.

The UNESCO ESD initiative has come in at the right time. Teacher education now serves as the very appropriate entry point. It has a high multiplier effect that will redound to the benefits of basic education. This should be made available for all under the so-called "expanded vision of education" propounded by UNESCO's Education for All (EFA) in which the Philippines has been an active participant since 1990.

Indeed, within the Philippines' EFA Plan of Action 2001-2015, ESD has come as an educational vision that seeks to empower individuals to assume the responsibility for creating a sustainable future. It aims to improve people's access to quality basic education; to reorient educational curricula; to train people and to raise public awareness on sustainability; as well as to help people develop the necessary behaviors, skills, and knowledge at present and in the future.

This is also consistent with and will strengthen the Philippines' new definition of functional literacy which has become the lynchpin of the Philippine EFA Plan of Action 2000-2015 and recently the curricular framework of the country's recent main education reform, e.g. K-12 or Kindergarten and 12 years of basic education.

Much earlier, the UNESCO National Commission of the Philippines (NatCom) in the spirit of harmony proposed the following definition for ESD in the national context of the Enhanced Philippine Agenda (EPA 21).

"ESD is a learning process in all levels an d types of education that envisions a better quality of life for all Filipinos through the development of a just, moral, creative, spiritual, economically vibrant , caring, diverse yet cohesive society characterized by appropriate productivity, participatory and democratic processes and living in harmony within the limits of the carrying capacity of nature and the integrity of creation."

This definition highlights the vision of EPA 21 on sustainable development through all forms of learning-formal, non-formal, and informal-in all levels and for all ages. Thus, the country's

ESD thrusts aims to help people develop the necessary attitudes, skills, and knowledge in order to make informed decisions for their own and for others' current and future benefit as well as to act upon these decisions. Particularly, it should be able to help individuals to make decisions that are aligned with the long-term future of the economy, ecology, and equity of all communities. Founded on respect for others as well as for the planet and what it provides us (e.g., natural and human resources, fauna, and flora), ESD poses challenge all Filipinos to adopt new behaviors, life saving skills and practices in order to secure their future via the following major thrusts: Significantly, the country's own comprehensive definition effectively brings about both conceptual and operational harmonization under the expanded vision of education that is "for all" and "by all." It is envisioned to bring about a better and appropriate policy environment that is conducive to the following goals of the ESD Decade:

- Facilitating networking and collaboration among education for sustainable development (ESD) stakeholders;
- Fostering greater quality of teaching andlearning of environmental topics focus on DRR and climate change adaptation and mitigation initiative;
- Supporting countries in achieving their millennium development goals through their ESD efforts;
- Providing countries with new opportunities and tools to reform their educational systems;
- Providing basic concepts on environmental education, disaster risk reduction and climate change for update and latest strategies which can be applied by member countries.

5.2 HISTORICAL BACKGROUND AND CURRENT NATIONAL STATUS OF ESD

ESD's milestones had an early beginning and extensive adaptive actions in the Philippines. As early as the 1950s the civil society groups had started advocating for an alternative form of development.

In 1987, the Department of Environment and Natural Resources (DENR) was reorganized in order to abide by its mission of "becoming the driving force in the pursuit of sustainable development and of enabling stakeholder participation in protecting, conserving, and managing the nation's environmental and natural resources for the current and future generations." It has initiated the formulation of the Philippine Strategy for Sustainable Development (PSSD), which was officially adopted in 1989. Its goal was "to achieve and maintain economic growth without depleting the country's stock of natural resources and without degrading environmental quality."

Then in 1989, the Environmental Management Bureau (EMB) of the DENR also came up with the National Strategy on Environmental Education, which defined the country's goals, strategies, and programs related to environmental education. In 1992, the National Environmental Action Plan Framework (NEEAP) for 1992-2002 was also formulated.

Immediately after the historic adoption of the Agenda 21 in the "Earth Summit of 1992" in Rio de Janeiro, the Philippine government created an interagency body known as the Philippine Council for Sustainable Development (PCSD). This has been was mandated to provide the mechanism in order to attain the principles of sustainable development and to assure its integration into national

policies, plans, and programs that will involve all sectors of the society. A subcommittee on nformation and education was also created chaired by the EMB of the DENR. The Philippine Agenda 21 (PA 21)-the nation's blueprint for sustainable development was adopted in 1996. In 2009, this was updated, refined, and renamed to the Enhanced Philippine Agenda 21 (EPA 21). This had more focused thematic program thrusts on eradicating poverty, on managing globalization, on achieving social equity, on securing peace and solidarity.

Then on its part, the then Department of Education, Culture and Sports (DECS) now called Department of Education (Dep Ed), acting on the realization that the extant notion of functional literacy (FL) at that time was no longer sufficient and relevant to the needs of the times and the realities brought about by technological changes, initiated a move in 1997 to "revisit" the official definition. The ensuing new definition that was recommended by a "committee of ten wise men and women," made "Sustainable Use of Resources," as a strand of indicators of The New Functional Literacy (please see attachment 1). The Literacy Coordinating Council (LCC) formally adopted the new philosophical and operational definitions of FL, again within the context of the expanded vision of education.

In 2008, Republic Act (RA) No. 9512, also known as the National Environmental Awareness and Education Act, was implemented by the Philippine government. This law mandated all relevant agencies to integrate environmental education into public and private school curricula for all levels, including barangay daycare, preschool, non-formal, technical-vocational, professional, indigenous learning, and out-of-school youth (OSY) courses or programs. Consequently, the NEEAP was updated in line with the goals of the DESD, 2005-2014, which envisions an environmentally literate and a proactive citizenry imbued with a sense of responsibility to care for, to protect, and to enhance environmental quality conducive to their well-being; supportive of the nation's economic development; and united with the country's pursuit of peace, social justice, and equity in the use of natural resources. Subsequently, the Philippine government has also legislated Republic Act No. 9729, known as the Climate Change Act of 2009. R.A.9729 was enacted to mainstream climate change into government policy formulations, establish the country framework strategy and program on climate change and more importantly, create for those purposes, the Climate Change Commission [CCC].

As one of the most disaster-prone countries in the world owing to its geographic and geologic location and physical characteristics that feature earthquakes occuring 20 times a day and 100 to 150 per year on average and being exposed to super typhoons and other extreme weather phenomena such as El Nino and La Nina that bring about severe drought s flooding, the Philippines have had a lot of experiences in dealing with, responding to and managing disasters. The country has since shifted its approach from disaster preparedness and response in the 1970s to disaster management in the1980s and finally, disaster risk reduction in the years 2005 and beyond.

Thus, on May 27, 2010, Republic Act 10121 or the Philippine Disaster Risk Reduction and Management Act was passed into law effectively to address the need to "adopt a disaster risk reduction and management approach that is holistic, comprehensive, integrated and proactive

in lessening the socio - economic and environmental impact of disasters including climate change, and promote the involvement and participation of all sectors and all stakeholders concerned, at all levels, especially the local community."

Moreover, on June 7, 2010 the document "Strengthening Disaster Risk Reduction in the Philippines: Strategic National Action Plan [SNAP] 2009 - 2019 or Executive Order Number 888 was signed serving as the roadmap, indicating the country's vision and strategic objectives with respect to disaster risk reduction in the next 10 years. Translating these into education response, this paved the way for the Integration of Disaster Risk Reduction Education into the School Curricula for both secondary and tertiary levels. The National Service Training Program [NSTP] was also instituted covering all private or public, formal and non-formal, technical-vocational, indigenous learning and out-of-school youth courses and programs. The responsibility for the integration was conferred on the Department of Education [DepEd], the Commission on Higher Education [CHED], and the Technical Education and Skills Development Authority [TESDA], in coordination with the Office of Civil Defense [OCD], the National Youth Commission [NYC], the Department of Science and Technology [DOST], the Department of Energy and Natural Resources [DENR] the Department of Interior and Local Government - Bureau of Fire Protection [DILG - BFP], the Department of Health [DOH] and Department of Social Welfare and Development [DSWD] and other relevant agencies.

In line with the implementation of NSTP, the Commission on Higher Education [CHED] in cooperation with THE Department of National Defense [DND] and the Technical Education Skills Development Authority [TESDA], the Implementing Rules and Regulation [IRR] was continuously enhanced and the Minimum Standards for the Common and Specific Modules was jointly issued by the three major agencies: the CHED, DND and TESDA in November 13, 2009. Finally, the recent change of administration on June 30, 2010 prompted the UNESCO NatCom to revisit its approach to implementing ESD in the country. Consultations were initiated with the PCSD, the EMB of the DENR, and the Department of Education (DepEd) to ensure harmony and collaboration. Afterwards, the NatCom deemed that EPA 21 should be the overarching framework in implementing ESD programs in the Philippines.

EPA 21's overall direction will be to promote sustainable lifestyles and responsible citizenship among Filipinos with the following specific manifestations:

A **Ensure that education is geared toward developing full human potential:** The goal of education should not only be confined to securing Filipinos' future but should include giving them opportunities to become productive and to be of service to the Philippine society and to humanity as a whole via the following:
- Direct curricular development in all levels to develop well-rounded and skilful citizens who are knowledgeable on multiple disciplines as well as to promote systems thinking (i.e., each course should require understanding the link between the environmental, economic, political, and social dimensions;
- Conduct a comprehensive review of all curricula to determine entry points for mainstreaming sustainable development principles particularly on CCE, EE and DRR core values and concepts;

- Develop and integrate sustainable development modules into curricula in all levels and across fields of specialization to reorient value systems to recognize individuals' responsibilities in terms of sustainable development;
- Create and implement innovative and non-traditional learning methods (e.g., artistic expression, community-based learning, and experiential learning) that will enhance learners' hands-on exposure to sustainable development issues;
- Integrate innovative and non-traditional with formal learning methods.

B **Popularize and develop preference for sustainable lifestyles:** This can be done by increasing citizens' access to information on sustainable practices at home, in the office, in school, in the community, and in other settings through various media and creative communication means.

C **Create innovative reward and compensation systems for environmental services:** Individuals, households, and communities can be encouraged to make sustainable development a reality via innovative reward and compensation schemes.

D **Launch a government "saturation" campaign that will sustainable development advocacy across government agencies, levels, and branches:** This will involve the mandatory inclusion of sustainable development in all of the programs of government training institutions; regulating the budget for sustainable development training; as well as integrating sustainable development criteria into the competency evaluation tests for prospective civil service employees, career executive service officers (CESOs), and Cabinet appointees.

However, all these effort will not move forward unless there is clear re-orientation of Teacher Education for Sustainable Development. Everything else starts with education and what better way to start than with the Teacher Education Institutions (TEIs).

5.3 GOALS AND FOCUS OF THE EDUCATION FOR SUSTAINABLE DEVELOPMENT COUNTRY GUIDELINES FOR TEACHER EDUCATION

Recent talks on climate change are couched in global issues, which resulted in Filipinos' seemingly detached attitude toward the issue. Identifying strategies to make them aware of their individual contributions to this global phenomenon can only be achieved through education, particularly through teacher education, which should make future teachers job ready and well-motivated. They must be equipped with knowledge, skills and attitude on the basic concepts of EE, CC, and DRR. Teachers have pivotal responsibility to make their learners aware of the nature of every disaster, their impacts on health, agriculture, and fishery and on society at large. At the earliest age possible, young people must become aware and should be prepared to cope with these at all times. If pre-service education can adequately prepare all would-be teachers to teach the concepts, this will mean tremendous savings in-service training cost.

Taking on from the UNESCO's ESD program, the Philippines' national ESD guidelines may be prompted and underpinned by the following philosophical questions:

- What if every person benefited from education that promotes development that is environmentally sound, socially equitable, culturally sensitive, and economically just?;
- What if learning was about knowledge; about doing, being, and interacting with others; and about changing the world?;
- What if formal learning was enjoyable, practical, and relevant to life outside school while addressing the problems of our world?;
- What if every person benefited from genuine learning opportunities throughout life, in the workplace, and within the community?;
- What if educational systems prepared learners to enter the workforce, to handle crises, to become resilient and responsible citizens, to adapt to change, to recognize and solve local problems with global roots, to respect other cultures, as well as to create a peaceful and sustainable society.

The Philippines needs to adopt national ESD guidelines in order to reorient teacher education to address sustainability, especially since the current curriculum, CHED Memorandum Order (CMO) 30 s. 2004, also known as the Teacher Education Curriculum, has very little reference to ESD.

While various higher educational institutions (HEIs), including the members of the Philippine Association for Teacher Education (PAFTE), have exerted some effort to create national ESD guidelines, an authoritative framework from the CHED is imperative. The same is true on the DepEd's part for basic education. Both pre-service education and in-service training of teachers are supposed to be seen and operationalized in a continuum with common threads running through. Thus, bodies like the Technical Panel for Teacher Education and the Teacher Education Council must work out and maintain this continuum.

Since CHED MEMORADUM ORDER 30, s. 2004 is still in place, the new Master Plan for Teacher Education (MPTE), which is currently being formulated, shall now be the main vehicle and driving force for the reorientation of teachers both in the pre-service and in-service levels. The current MPTE's draft, for instance, describes a new Filipino teacher as makakalikasan or pro-environment. To espouse ESD concepts and principles, the well-trained teacher should thus also consider the other aspects of ESD-the economy, the society, and various national and local cultures.

The reorientation program will follow the thrusts laid down by the Bonn Declaration, 2009 within the Philippine context. The new teacher education curriculum's competency-based and global character has the following generic goal-focus:

- It expresses and reflects Philippine values, attitudes, expectations, and feelings about the country's welfare and development. It is a complex and evolving mixture of visions and interests, involving all stakeholders and multiple institutions;
- Its curricular structure is specific and unique in terms of content. It should reflect the diverse approaches by which all of the stakeholders meet the society's needs and expectations;

- It integrates political and technical components that reflect the Philippine culture and society, which need to be pursued and built;
- It has a global vision, which includes what leaning outcomes to achieve; what pedagogical and instructional strategies as well as teaching materials to use; how to evaluate learning outcomes and achievements; and how to manage curricula;
- It uses competency-based approaches that address learner diversity, that integrating resources and activities so learners can cope with various situations, and that allow learners to apply different competencies;
- It aims to develop future teachers whose competencies are autonomous, critical, and constructive;
- It bears the mark of a global curriculum in the sense that it advances evidence-based and sound practices to equally meet global, national, and local educational expectations and needs.

5.4 COLLABORATION AND SUPPORT

For the Philippine ESD programs to move forward in a truly harmonized fashion, a steering group under the PCSD's subcommittee on information and education or an interagency consultative group should be constituted. It should be composed of representatives from the UNESCO NatCom, the PCSD, the Department of Environment and Natural Resources (DENR), the Department of Education (DepEd), the Commission on Higher Education (CHED), the Climate Change Commission (CCC), Department of Science and Technology and the National Disaster Risk Reduction and Management Council (NDRRMC) and the civil society. The steering group should then plot the national ESD framework, goals, targets, and indicators for the approval of and with the support of high-level officials from relevant line ministries, from the civil society, and from the private sector.

However, the translation of the overall direction, goals and targets into appropriate instructional contents and strategies shall be done by way of the Master Plan for Teacher Education which will be formulated by the expert group which is the Technical Panel for Teacher Education (TPTE). This is one of the many experts advisory panels under the umbrella of the CHED. It is also the task of the TPTE to set standards and quality assurance mechanism which includes monitoring the implementation of the MPTE by the TEIs for pre-service education. The Teacher Education Council (TEC) under the DepEd which is linked to the TPTE through a DepEd representative can oversee the in-service education's incorporation of and compliance to the ESD.

In the Philippines, the central agency for the external governance of the entire higher education subsystem is the CHED. As such, through the TPTE, it is responsible for crafting national guidelines to reorient teacher education in order to attain sustainability through collaborating with experts and agencies and organizations represented in the technical Panel.

Other valuable technical help and collaboration for ESD in the Philippines can be expected from the following:

- Materials and research documents that teachers, educational managers and students need as well as expert assistance for training and development can be provided by the UNESCO. The Government should establish a partnership with the organization, specifically through its University Twinning and Networking Programme (UNITWIN) UNESCO program. In 2009, the PAFTE began forming linkages with UNESCO Bangkok via its participation in the "Regional Workshop on Thematic Issues in ESD" under the Mobile Training Team (MTT) Project, which was held on June 1-5, 2009. Subsequently, the "Thirty-Eighth National Convention of the PAFT," partially funded by UNESCO Bangkok, was held on October 19-21, 2009 in Iloilo City with the theme "Mainstreaming for Sustainable Development in Teacher Education." The workshop's output indicated the need for national guidelines in order to incorporate ESD into curricula and into learning assessment in line with the country's general direction in relation to ESD. It showed a strong desire to make ESD a major component of the preservice teacher education curriculum while updating the In-Service Training (INSET) so it can catch up with pedagogical developments. In the same conference, Renato Opertti's Draft Training Guidelines on Incorporating ESD into the Curriculum, 2009 was introduced.

  More recently, the PAFTE expressed interest in the Japan-led ASP UnivNET endeavor during the UNESCO Bangkok-organized National Workshop on Reorienting Teacher Education toward EFA and ESD in the Philippines, which was held on March 28-April 1, 2010. The PAFTE is, however, still currently waiting for Japan to respond.

- Technical Education and Skills Development Authority (TESDA) oversees technical-vocational educational institutions and can promote ESD in the development of middle-level skilled manpower and in the training of teacher of TVET;
- The UNESCO National Commission of the Philippines (UNACOM) shall continue to provide linkage with the UNESCO and other international bodies involved in sustainable development programs;
- Other government agencies such as the National Economic and Development Authority under whose wings sits the PCSD Secretariat can provide technical, advocacy and planning/ development assistance.

5.5 PROMOTING EDUCATION FOR SUSTAINABLE DEVELOPMENT TEACHING, LEARNING AND REFLECTION

Based on the UNESCO's Guidelines and Recommendations for Reorienting Teacher Education to Address Sustainability, the Philippines' National Competency-Based Teacher Standards (NCBTS), and other reference materials, the following should be given emphasis in updating the NCBTS, as a key element of the Teacher Education and Development Program (TEDP). The latter was formulated under the Basic Education Sector Reform Agenda (BESRA) of the DepEd but will be incorporated in the envisioned MPTE of the CHED. The NCBTS aims to enable teachers, students, and the students' parents to appreciate the complex set of behaviors, attitudes, and skills that each teacher must possess in order to satisfactorily carry out their roles and

responsibilities. The NCBTS is divided into seven domains that represent the desired features of the teaching-learning process. These domains incorporate a series of strands of desired teaching performance statements that can be considered observable performance indicators of the quality of a teacher's performance.

Given the seven domains and its strands, the NCBTS matrix will serve as the performance statements that will take into consideration ESD concepts and principles.

5.6 NATIONAL COMPETENCY- BASED TEACHER STANDARDS DOMAINS IN THE CONTEXT OF EDUCATION FOR SUSTAINABLE DEVELOPMENT CONCEPT AND PRINCIPLE

To introduce ESD as a new educational vision, the updated NCBTS should include the following for each domain.

Social Regard for Learning

- ESD is a "dynamic concept that encom-passes a new vision of education that seeks to empower people of all ages to assume responsibility for creating and enjoying a sustainable future;
- The overall aim of ESD is to empower citizens to act in order to instigate positive environmental and social changes, which implies the use of a participatory and action-oriented approach;
- ESD integrates concepts and analytical tools from a variety of disciplines to help people better understand the world they live in;
- Pursuing sustainable development through education requires educators and learners to critically reflect on their own communities, to identify nonviable elements in their lives, and to explore tensions among conflicting values and goals;
- ESD brings about motivation to learn, as students are empowered to develop and to evaluate alternative visions of a sustainable future and to collectively work in order to fulfill their vision.

Learning Environment

- ESD requires linkage between global issues and local priorities;
- To realize ESD, support from the national and local governments is required;
- ESD should promote cultural heritage and should utilize a community's local language;
- ESD requires understanding indigenous knowledge from the community.

Learner Diversity

- ESD should consider the marginalized, particularly indigenous peoples and Muslims, as well as should respect their culture and language;
- The updated should include the needs of adult and preschool learners as well.

Curriculum

- Global and regional environmental issues should be taken into consideration to realize ESD. These include the following:
  a. Environmental Education which should include natural heritage and resources, including water, energy, agriculture, and biodiversity;
  b. Climate Change;
  c. Rural development;

d. Sustainable urbanization;
e. Disaster Risk Reduction and mitigation.

- Educational systems should be reoriented to address climate change. This includes making changes to the skills, principles, perspectives, and values taught in learning institutions as well as allowing students to ask questions, solve problems, critically think, and harmoniously work with others;
- The following ESD principles and perspectives should be woven into existing curricula:
  a. Practicing the precautionary principle;
  b. Safeguarding the interest of one's own and of future generations;
  c. Letting polluters bear the consequences of their actions;
  d. Providing equitable access to scientific information and development.
- Other global and local issues should also be addressed such as:
  a. Creating social transformative strategies;
  b. Implementing a holistic approval process in teaching students about the four dimensions of sustainability-social, cultural, economic, and environmental;
  c. Reorienting teachers on the different ESD strategies, including the following:
     - Critical approach and experiential learning especially through field studies
     - Inquiry learning
     - Transformative education
     - Community-based learning

Planning Assessment and Reporting

- Assessing the impact of the existing teaching pedagogy;
- Monitoring the extent of ESD integration inside and outside learning institutions through experiential learning courses;
- Using various tools to measure the impact of ESD on knowledge, skills, awareness, attitudes, values, and behaviors;
- Using various tools to obtain feedback from the members of the community and from other stakeholders.

Community Linkages

- Implementing community engagement programs on the four dimensions of ESD-environmental, (Climate change, disaster risk reduction) social, cultural, and economic;
- Stressing the importance of cultural heritage and of using a community's own language;
- Forming linkages with global and regional ESD movements.

Personal and Professional Development

- Promoting personal paradigm changes, as these are required to effectively implement ESD programs;
- Forming linkages with other agencies to ensure the formation of a holistic view of the four dimensions of ESD;
- Conducting further studies and research in order to stay updated and in sync with TEIs nationwide and worldwide.

5.7 EXPECTED OUTPUTS

The institutionalization of the updated NCBTS, following the "new educational vision," a new set of outputs will be put in place, including the following:

- ESD-based curricula from the preschool to graduate levels equipped with basic life saving skills ready to take charge of the world for the next generation;
- New schools and learning institutions with an ESD-based vision and direction or that use the Whole-School Approach to ESD. To make this happen, a new set of criteria need to be created based on ESD concepts and principles to recognize and reward outstanding teachers, learners, as well as schools and universities. Likewise, accreditation programs will have to take into consideration ESD concepts and principles in using various tools and in developing different competencies;
- Research and community engagement will take on a new dimension, as it tackles more real and pressing issues;
- Revised set of licensure examinations for teachers, including learning materials and licensing models. Eventually, the country can look forward to seeing Filipinos who assume responsibility for creating and enjoying a sustainable future.

5.8 MONITORING AND EVALUATION

The national monitoring of ESD programs in teacher education will be overseen by the CHED through the TPTE.

Based on the ESD Indicators of the UNESCO Monitoring and Assessing Progress, table 5.1 can be a useful device.

Table 5.1 Indicator Types Using Teacher Education

Indicator Type	Function	Indicator Example
Baseline	To identify the status of the overall ESD picture	*Percentage of teachers who know what ESD is and have had some training on it*
Context	To identify the existence of ESD support systems	*Existing school policies that require teachers to undergo ESD training*
Process	To identify the existence of ESD processes and activities	*All teacher education courses shoul provide training on ESD-related content and pedagogy*
Learning	To promote ESD learning and reflection	*Lessons learned in the process of training pre-service teachers in ESD are captured*
Output	To assess outputs such as tools and learning resources as well as the immediate results of an activity	*Percentage of new teachers that have been certified as having received pre-service ESD training*
Outcome	To assess outcomes related to changes or improvements that result from ESD efforts	*Percentage of teachers using ESD-related content and pedagogy in the classroom*
Impact	To assess impacts that result from ESD efforts	*Percentage of students who use sustainable practices in daily life*
Learning	To assess the change in the status of the overall ESD picture in a region or country	*Increase in the number of new teachers receiving pre-service training in ESD*

Source: Participant Handouts, Education for Sustainable Development, PAFTE Convention 2009.

5.9 CONCLUSION

Sustainable development assumes different aspects from society to society, from culture to culture, and from region to region. To bring about real improvements in the lives of people, sustainable development must reconcile growth with social and cultural development as well as with environmental protection.

To bring about balanced, harmonious, and sustainable development in the Philippines, it is imperative to take a closer look at the state, the needs the long-term vision of teacher education in the country. These include promoting quality education and improving the quality of education within the framework of the New Functional Literacy; focusing on lifelong education or on acquiring the necessary knowledge, skills, and values to improve the quality of people's lives; and to reorient and to reform curricula so these can become vehicles of knowledge, of thought patterns, and of the necessary values in order to build a sustainable world.

Table 5.2 The New Definition of Functional Literacy

The new definition of Functional Literacy

A range of skills and competencies - cognitive, affective and behavioral - which enables individuals to:

- live and work as human persons
- develop their potentials
- make critical and informed decisions
- function effectively in society within the context of their environment and that of the wider community in order to improve the quality of their life and that of society.

Table 5.3 Indicators of the New Functional Literacy

Communication Skills	Critical Thinkikng & Problem Solving	Sustainable Use of Resources	Development of Self & a Sense of Community	Expanding One's World Vision
♦ Ability to clearly express one's ideas & feelings orally & non-verbally ♦ Ability to listen ♦ Ability to read, comprehend & respond to ideas presented ♦ Ability to write clearly one's ideas & feelings ♦ Ability to access, process & utilize basic and multi-media information	♦ Numeracy skills ♦ Open to change ♦ Aware of options ♦ Ability to make critical & informed decisions ♦ Innovative-ness & creativity ♦ Scientific thinking ♦ Future orientation	♦ Ability to earn a living ♦ Sustainable use of resources & appropriate technology ♦ Entrepre-neurship ♦ Productivity	♦ Self-development ↘ self-awareness ↘ self-discipline ↘ sense of responsibility ↘ self-worth ↘ self-realization ↘ may paninindigan ↘ pagbabagong loob ♦ Maka-Diyos, maka-tao, makabansa, makakalikasan ♦ Pakikipag-kapwa ♦ A sense of personal & national identity ♦ Knowledge of one's history, pride in one's culture & respect for those of others	♦ Knowledge, acceptance, respect & appreciation of diversity ♦ Peace ♦ Non-violent resolution of conflicts ♦ Global awareness, independence and solidarity

Table 5.4 Minimum Standard for Common Module for the National Service Training Program:

Topics	Scope of Instruction	Methodology
Disaster Risk Reduction and Management Awareness	a. Geographic profile of the Philippines b. Disaster Risk Profile of the Philippines [focus on specific region / are where the school is located] c. Overview of the Philippine Disaster Management System d. Disaster Risk Reduction Management [DRMM] concepts, principles and trends [RA10121] e. Role of the youth in disaster preparedness and management, Basic disaster preparedness and response training [survival training] 1) First Aid / Basic Life Support 2) Search and Rescue [water, earthquake, landslide and fire]	Town-watching exercise; Demonstration / Simulation Exercise; Lecture
Environmental Protection	Basic knowledge and understanding on the following: a. Global warming [effects] and Climate Change [adaptation, mitigation, and anticipation] b. Seven Principles of Environment and Environmental Laws c. Forest protection, conservation and development d. Water sanitation and conservation e. Cleaning up water ways industrial and other sites [hospital, esteros and others] f. The Role of the Youth in the Environmental Protection and Management 1) Nursery establishment, tree planting, mangrove planting, restoration and preservation.	Lecture, Practical Exercise, Tree Growing Activity, Actual cleaning of esteros, etc.

Note: While the Education for Disaster Risk Reduction has been addressed by incorporating it in one of the required courses in the tertiary level, it is still necessary that this becomes part and parcel of the teacher Education.

Prepared by:

- Dr. B. Imperial, CHED, Deputy Executive Director
- Dr. Paz I. Lucido, Technical Panel Member for Teacher Education
- Dr. Lydia Liwanag, Language Professor, Philippine Normal University
- Dr. Amor De Torres, President, Philippine Association for Teacher Education - PAFTE
- Dr. Ethel Valenzuela, ESD Researcher, SEAMEO INNOTECH

6. TIMOR-LESTE

6.1 INTRODUCTION

Timor-Leste (TL) is the world's newest country gaining its independence through the UN lead public vote (referendum) held in 1999 which then faced a 3 year of transitional government under the leadership of UN until obtaining its internationally-recognized independence on 20th May 2002.

During the Transitional Government period, TL, as a country, has developed its own constitution in which article 59 is about the role of the Education sector. The article guarantees access to education for all East Timorese, particularly young East Timorese whose age are between six to 17, to finish their 9 years basic education. Also, it guarantees quality education for the country in the new globalized era and modernized world.

Our Constitution recognizes and guarantees the right to life of all Timorese citizens. This includes the right to live in healthy condition, ecologically balanced lives, and the obligation to protect the environment for future generations.

In this context, Education for Sustainable Development (ESD), Climate Change Education (CCE) and Disaster Risk Reduction (DRR) concepts are very fundamental to the socio-economic development of the country. The IV Constitutional Government takes this responsibility seriously and the National Policy of the referred subjects establish the objectives for the Disaster Risk Management Guidelines and Education sector for the next five years. In the context of Education Sector, besides the constitution of RDTL grants an access for education and quality of education for East Timorese people, the country, through the Ministry of Education based itself on the Education For All (EFA) and Millennium Development Goals (MDGs) and the declaration of the United Nations in which it chose the year of 2005 - 2014 as the Decade of Education for Sustainable Development (ESD).

However, although the concept of ESD is very new in a new country like TL, it should become one of the most prioritized programs given by the government of TL through the Ministry of Education (MoE) from now and in the future.

In October 2009, MoE and UNESCO established the UNESCO National Commission (NatCom) for Education which consists of seven members: the first Madame, Kirsty Swords Gusmão as the first President, the current Minister of Education as the Vice President, two members in charge of education, two others in charge of Science and Environment, and another two in charge of culture.

Hence, in regards to the ESD programme, both MoE and UNESCO NatCom play very important role in implementing programs both in short and long terms. But, as the ESD concepts has just

been recently brought to the attention of the Ministry of Education, there are only limited public awareness activities, such as campaigns on the impacts of climate change to the students, teachers, and communities, distribution of posters and brochures on climate change, emergency education, DRR to the students, teachers, and communities.

6.2 NATIONAL STATUS AND THE POLICY OF ESD IN TIMOR-LESTE

- **Status**

As one of the members of UNESCO NatCom, Timor-Leste adopted the philosophy of the United Nations (UN) Decade of Education for Sustainable Development (UNDESD) which also followed by the constitution of RDTL, article 59 that grants the right of education for all East Timorese through both formal and non-formal education that provides opportunity for the East Timorese people to the access for education, quality of education by enhancing skills, increasing the knowledge and experiences and promoting respectful values of human beings toward sustainable development in the future.

Since the restoration of TL's independence in 2002, MoE keeps improving the education sector from the infra-structure side, teacher training, development of curriculum and teaching materials, and elaborating its National Education Strategic Plan (NESP) launched in 2011 and to be implemented from 2012 onwards. In the NESP, ESD was developed in accordance with the target of EFA and MDGs goals. Although TL is late in joining the MDGs goals, but based on its NESP, by 2015, as part of the short term goals, more than 88% of the school age children (3-17) will be enrolled in pre-schools and 9-year-basic education with drop outs drastically reduced. In the long term, TL's government will have an accomplished and well-educated people through a strong and solid education system that is comparable to the highest international standards; For each East Timorese to achieve high quality of life in terms of social, economy, politics, and culture among other developed and prosperous countries in the world; And then, to have a dynamic and sustainable development in order to lift the country towards a peaceful, stable, and prosperous country in the future.

Therefore, the ESD programs is implemented through a newly established unit called Emergency Education and Inclusive Education Unit which aims to launch campaigns on school participation, Climate Change Education (CCE), and Disaster Risk Reduction.

- **Policy**

TL is the world's newest country in the 2nd millennium, so the concepts of EFA, MDGs, and ESD are still new for the country, particularly when it comes to the implementation of its programs. However, as the country is situated in the region with neighborhood countries such as Australia, Singapore, Indonesia, Malaysia which are very advanced in terms of ITC, TL is already part of the significant progress made in the above-mentioned countries.

However, as TL's government is already a member of UNESCO through the presence of UNESCO NatCom in TL, the country has always been working in accordance with the programs of UNESCO

such as preserving the environmental and cultural habitat which are protected and conserved. Although, TL is one of the post conflict countries, it has unique biodiversity, rain forests, and natural habitat that have to be well preserved and conserved. With the help of UNESCO, TL through MoE will keep launching the campaigns to protect and preserve the above-mentioned country resources in accordance with established international standards and practices; Establishing clear guidelines for the preservation of buildings and landmarks of cultural and historical values; Development and Implementation of appropriate regulations with regard to maintenance of the healthy environment and living atmosphere that affect public health and safety; and Supporting global and regional efforts to address trans-border and regional environmental concerns.

Hence, as an initial initiative in line with the focus of the targets of EFA and MDGs goals, MoE has commenced some initiatives and activities related to the DESD in cooperation with UNICEF, UNESCO, Plan International, Safe the Children, CARE, and other entities. Activities and projects include reforestation by planting some trees in school and government protected areas, Public Cleaning campaigns on Fridays, forums, seminars, workshops and conferences on related issues on culture, environment, energy, climate change, natural disasters, biodiversity, and many others. As part of the realization of ESD activities, MoE of TL is very active in participating in various ESD workshops held both inside the country and overseas.

Therefore, the policy of TL's government on ESD remains as an instrument to achieve the EFA and MDGs. It has been clearly stated in the MoE NESP that the country is determined to achieve EFA and MDGs in both short and long terms.

6.3 DEFINITION, VISION, MISSION, AND OBJECTIVES OF ESD AND CCE IN TIMOR-LESTE

- **Definition**

The definition of ESD might vary from one country to another, but within the context of five cluster countries, and for the purpose of this paper, TL will adopt its own definition as follow: ESD might be defined as the process of obtaining information and knowledge on how to guarantee the access to education and quality education for East Timorese people. A quality education which shall always respond to the country's demand to grant sustainability of development in order to provide access of education for all in line with EFA and MDGs' concepts, and to learn from best practices in other cluster countries. However, the above-mentioned quality of education is referred to the concept of Child Friendly School where healthy atmosphere and environmentally-friendly school is expected. This is in line with the country's demand to increase the capacity of policy makers, technical staff, teachers, and students so that they can provide quality education in

granting the country and its people sustainable development in the areas of social, economy, politics, culture, Information-Technology-Communication (ITC), and environment. With the limited resources, TL through MoE can respond to the higher expectation of its own people without sacrificing the beauty of the world's natural flora and fauna and its environment.

- **Vision**

Based on the MoE NESP, in 2030, the population of Timor-Leste will be well-educated, informed, and qualified to live in a productive long term life, respectful to peace and traditional values of family tradition and culture, safe and healthy environment where people are well-prepared in facing the impacts of climate change towards a sustainable development. All individuals will have equal opportunity of access to education in terms of both quality and equity that enable an active participation of the East Timorese people in the process of the development of economics, socials, cultures, and politics towards a sustainable social inclusiveness and national union.

- **Mission**

The TL government through MoE will implement its NESP by facilitating the process so that enrolment and completion of basic school and having the access for quality and equity education in a safe and healthy environment can be granted.

- **Objectives**
  - To launch the campaigns on the concepts of Child Friendly School ('Eskola Foun' in Tetum - one of the TL official languages). Many philosophies and programs related to safe, healthy, and comfortable working, teaching, and learning environment are addressed;
  - To adopt the methodologies of EFA and MDGs and contextualize them within the conditions in TL in order to achieve both short and long terms goals of TL NESP;
  - To promote safe and healthy environment at the working place and in teaching and learning process held in both schools and community centers;
  - To launch the campaigns on active participation as part of social inclusiveness in education for students, parents, and communities;
  - To launch the campaign on the quality, equality (boys and girls - gender balance), and equity of education to students, parents, and communities;
  - To disseminate information on the impacts of climate change, natural disasters, and its anticipative, preventive, and curative actions;
  - To promote safe, healthy, comfortable working place, and teaching learning process to enable sustainable development.

6.4 COLLABORATION AND SUPPORTS

In realizing this important program linked with the living conditions of many people in TL, it is a must to have the collaboration and supports from many entities and stakeholders, including UN agencies such as UNICEF, UNESCO, National and International NGOs, and other development partners. By having such collaboration, MoE is able to enhance the program of public awareness on the importance of ESD and its relevant issues to the students, teachers, and community of TL. The Teacher Institutes (INFORDEPE) is very important to develop the teacher guidelines for such training for more than 12.000 teachers of different level of education. Therefore, with limited source in terms of both financial and human resources, partnerships are definitely important. By then, MoE can learn the successful initiatives of other IEIs while also taking into account on the particularity of context for the guidelines to be implemented and to be carried out successfully.

6.5 PROMOTING TEACHING, LEARNING AND REFLECTION IN ESD

As MoE just passed the phase in reforming the educational system, restructuring MoE, and developing its own curriculum, it is the right time for MoE to think about how to integrate ESD concepts into our curriculum and to develop teacher and students guidelines. The process of integration will be simultaneously with development of our contents of teachers and students guidelines. The contents of the curriculum, particularly the contents of ESD concepts, have to be 'transformative' in order to help students, teachers, and communities in understanding ESD concepts and environmental evolution. Based on the some research done in many universities, Problem-Based Learning (PBL), Multi-Grade Teaching (MGT), Multi-Disciplines Teaching (MDT), and Non-Formal Education are very good to facilitate quick informative knowledge regarding ESD concepts to the students and communities. These informative knowledge dissemination, particularly the PBL, emphasizes learning by doing instead of in theory only. This is because it inspires the students and community to learn. Students and communities are given real-world problems then they are asked to find the solutions independently. Then, problems chosen should be contextualized in order to reflect their day-to-day living conditions in regards to ESD and environmental phenomena.

6.6 EXPECTED OUTCOMES

- **ESD Modules in Teaching Education Programme**

TL's education academic period adopts the TL Fiscal Year from January to December. The Academic Year is divided into three trimesters. The first trimester is from January to March, the second trimester is from May to July and the third trimester from September to November. So, this system aims at enabling all teachers (about 13.000) at all levels of education to take part in the intensive course held in April, August, and December of every year. MoE is in the midst of elaborating teaching materials for the August' course. Hence, this is a very good time for the Steering Committee of the ESD and Emergency Education to be part of the teaching materials. The module is just an informative knowledge on ESD, CCE, and DRR which we expect all teachers to be aware of and to pass them on to their students and community.

- **ESD Related Certification (Capacity Building for Teachers)**

MoE has just finished elaborating the 'Special Regime Career for Teachers' which is to be implemented from July this year onwards. In this regime, MoE adopts the credit system in the teachers' promotion system. For example, each qualification, experience, and other professional achievements teachers have were valued with the credit system whereby each teacher will compile such credit in order to obtain certain level of employment. Therefore, ESD materials will be given certain credit in order to certify and to encourage teachers to take part in the ESD courses. So, the teaching materials will be designed as an in service training programme with the purpose to enable teacher and students to take up ESD, CCE, and DRR concerns and issues in the classroom, and to engage their students in practical, action-oriented activities and projects.

- **ESD Related Instructional Tools (Curriculum and Case Studies)**

Taking the opportunity in the development of the national curricula, MoE will insert ESD-related materials into one of the subjects namely 'Environmental Studies' for both Basic and Secondary schools. By so doing, the ESD materials can be disseminated nationwide to students, teachers, and communities through in-service teachers who participate in the break courses in Aprils, Augusts, and Decembers.

6.7 ADDRESSING CLIMATE CHANGE EDUCATION IN TIMOR-LESTE

Firstly, Climate Change can be defined as natural changes that might give threat to human life in different aspects such as social, economic, culture, and politics that might destroy sustainable development in all the above-mentioned sectors. 'Climate Change' is one of the growing environmental phenomena that might bring threats and seriously affect human life. Therefore, failure to address issues on the impacts of climate change might cause destruction to the progress of the development in TL which is still classified as one of the fragile states. Although TL as a country is very new to such topics, but since it is also a part of the world, there are already a lot of climate change impacts felt by the East Timorese people. For example, long dry seasons have caused many food shortages in the agriculture sectors.

Secondly, in the Fourth Constitutional Government, there is a State Secretary for Environment under the Ministry of Economic and Development which has set up policy and action plans in regards to Climate Change. This State Secretary, in cooperation with MoE, Ministry of Health, Ministry of Agriculture, and Ministry of Social and Solidarity has implemented many activities through symposiums, seminars, workshops, and trainings on the issues of Climate Change including its impacts, preventive, and curative actions on the referred issue. In addition, the MoE in cooperation with UNICEF and UNESCO established a unit called Education Emergency and Social Inclusiveness Unit which is under the Social Action Directorate at the MoE. The main tasks of this unit include promoting campaigns on Climate Change issues to students, teachers, admin staff, students' parents, and communities, liaising with other stakeholders and ministries to address the same issues.

TL is in midst of finalizing its own curriculum for both Basic and Secondary Schools. In regards to teacher training, apart from the short trainings provided by UNICEF, UNESCO and other

development partners in TL, MoE is looking forward to integrate the CCE concepts into the teaching materials in the next Intensive Course to be held in August 2011.

Teachers play a very important role in disseminating information regarding ESD, CCE, and DRR to the students and communities. Teachers should play the role as the front line model for students and communities in addressing the importance of the educational and environmental issues. Hence, re-orienting teacher education in addressing CCE is crucial because teachers are the ones that are always at the front-line interacting with the students and communities. A majority of them are in-service teachers that need to up-date their knowledge and experiences through professional development programmes. Also, after the curriculum at all levels (Basic, Secondary education and university) are in place, such concepts of CCE will be designed for pre-service teachers in both the Faculty of Education and in teacher institutions operating in TL.

To end, in addressing CCE for teachers, the following issues are very important to note:

- Willingness and motivation to take actions on environmental issues;
- Possessing an understanding that they are not only subject-specific teachers, but also, as disseminators of information on environmental issues which affect the lives of students and communities;
- Becoming the stimulant for students to take a lead to be future policy makers on environmental and educational sectors;
- Understanding both global and local environmental issues and its relationship. Teachers should understand the term,'Think globally and act locally';
- Possessing an understanding and capacity to explain to students and communities on the evolution of climate changes and its consequences in TL;
- Possessing a capacity to mitigate the experience of best practices from other countries in order to promote the ESD, CCE, and DRR to the students and communities in TL.

6.8 DISASTER RISK REDUCTION

Disaster can be either man-made or natural. Disaster Risk (DR) is a concern of many people in the world. Some of the human-made hazards of DR are increasing the potentiality of risk and vulnerability from population growth reaching 6 billion people, unplanned urbanization, deforestation, rubbishes and mountains burning, and some other natural disasters such as environment degradation, climate change combined with geological, hydro-meteorological, landslides, flooding, cyclone, etc. These two types of man-made and natural changes definitely will contribute to the DR in Timor-Leste. DRR is a program integrated within the Emergency Education Unit under the Directorate of Social Work at the MoE. The unit was established to protect communities particularly students, teachers, parents from both human-made and natural causes to minimize their fragility and vulnerability to disaster risks. It commences with a very basic methodology which is to overcome and to prevent through proper disaster management approach that focuses on preparedness, prevention, response, rehabilitation, and rebuilding post disaster events.

In addition, at the government level, there is a policy on Disaster Management (DM) which is under the State Secretary of Natural Disaster, Ministry of Social Solidarity. The current Government

considers DRR as one of the priorities to develop a policy which contains measures to prevent natural disasters in order to save human lives and properties.

Towards this end, there is a need to consolidate a culture of prevention and to provide the Nation with means to prevent natural disasters and/or at least to minimize the effects of disasters. For this purpose, the Government deems as essential priorities the need to:

- Promote studies of the identification of risks zones;
- Create early warning systems, particularly relating to rains and droughts;
- Conduct training and capacity building of human resources in the area of disaster risk management;
- Be able to provide immediate response when disaster occurs;
- Establish inter-sectoral coordination mechanisms to respond to natural disasters."

In TL context, the Government of TL through MoE has made many initial efforts to involve students, teachers, parents, and communities in understanding the phenomena and characteristics on the DRR. In such public awareness activities, such as campaign launching of public education and awareness on disaster risks reduction in TL, can create a higher level of community awareness on some tangible actions during both pre and post disasters.

6.9 MONITORING AND EVALUATION

Monitoring and evaluation (M&E) of ESD related activities are done by the MoE and its stakeholders depending on the types of seasonal programs held at national and school levels. The main purpose of M&E is to ensure that the progress of ESD activities is always in line with the designed and expected program towards achievement of the expected outcomes. To facilitate the process, MoE adopted three common indicators recommended by UNESCO as part of the M&E methodologies:

- Status indicators: assess variable that determine the position or standing of ESD in a country. These are also known as baseline indicator;
- Facilitative Indicators: assess variable that assist, support the management with ESD. Context, process and learning indicator types belong to this category;
- Effect indicators: assess variable relating to initial, medium and long-term achievements during the DESD. Output, outcome, impact and performance indicator belong to this category.

6.10 CONCLUSION

TL is a new country which has obtained its independence 8 years ago. After its independence in 2002, the country builds its nation for all sectors including the education sector. Since then, MoE has been forming both education system and the ministerial structure so that it can enable quality of education for this world's newest born country.

During the process of reform, MoE has been working together with many stakeholders, development partners, and other entities to ensure that MoE can deliver access to education and quality of Education for all East Timorese.

Therefore, one of the programs implemented is ESD under the cooperation with UNESCO Jakarta Officce. ESD is in fact a new topic to this country, but MoE considers it as an instrument to achieve the EFA and MDGs in line with the MoE's National Education Strategic Plan. ESD is currently not developed as a specific subject in TL, but integrated into subjects called 'Estudo de Meio - Environmental Study'' in Basic School.

There have been various workshops held both inside and outside of TL to discuss ESD issues and other relevant topics such as CCE and DRR. Therefore, in the context of TL, MoE and its development partners, such UNESCO and UNICEF, have been conducting seminars, workshops, trainings for students, teachers, and communities on ESD, CCE, and DRR concepts and their phenomena. Therefore, this report simply contains the policy, statue, currents activities, and future plans on ESD, CCE, and DRR in Timor-Leste since 2009 and onwards.

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Prepared by:

- Mr. Apolinario Magno, Director General for Corporative Services, Ministry of Education Timor-Leste
- Mr. Antoninho Pires, Director INFPC-Ministry of Education Timor-Leste
- Mr. Joao Soares, Staff, INFPC-Ministry of Education Timor-Leste

Appreciation:

The Ministry of Education of Timor-Leste, particularly the Teacher Education Institute of Ministry of Education would like to express its sincere appreciation to all the delegation from the five cluster countries who have helped the writer to put together the ideas, information, and various references in completing this country guidelines of ESD for Timor-Leste.

7. Conclusion: Further Questions For Future Actions

To develop the ESD Country Guidelines for Teacher Education Institutions (TEIs) of this paper, UNESCO Office, Jakarta provided technical support to the five cluster countries. As a result, ESD Working Groups developed the Country Guidelines from a series of national meetings and expert consultation activities, in cooperation with the UNESCO National Commissions and the Ministry of Education in the five cluster countries.

When we consider the lack of instructions for TEIs, this paper has particular significance in guiding teacher educators and decision-makers working in ESD or relevant fields. The developed Country Guidelines are therefore a resource for TEIs in the five countries to reorient their curriculum, policies, standard practices and programming to address sustainability. Within this, TEIs can play a key role as early-adopters in transforming education and society to promote ESD awareness and move towards a sustainable future. It is also noticeable that Teacher Education can be an entry point to promote Climate Change Education (CCE) and Education for Disaster Risk Reduction (DRR) as shown in each country's common interests in these two specific themes.

Notwithstanding, there are still many questions about further actions. For instance, it is not yet clear how TEIs can adopt the Country Guidelines after they have developed details about instructional pedagogies, when we consider the realities of ESD learning such as the limited human resources and learning settings to reorient Teacher Education. A way of encouraging TEIs to take a key role in ESD is still missing in the ESD Country Guidelines. In other words, TEIs might not be interested in reorienting instructional structures and institutional frameworks when there are no practical incentives. Therefore, it is critical to address the question on how the government can reinforce an education system to support TEIs to let them lead in reorienting Teacher Education.

Finally, it should be made clear that this paper is only the first step to understand how we can encourage TEIs to promote ESD with a clear guideline in teaching fields, as each of the five cluster countries have very different educational and economical statuses.

Therefore, all Working Group Members hope that the ESD Country Guidelines will encourage TEIs not only in the five cluster countries of UNESCO Office, Jakarta but also in other countries with similar educational conditions, to challenge this undeveloped ESD arena despite the fact that this paper still has many unaddressed questions.

Appendix I: List of Working Groups

Country	Contractor	Working Group Members			
			Name	Position	E-mail
Brunei Darussalam	**Name:** Dr. Romaizah Salleh **Position:** DEAN of SHBIE **E-mail:** romaizah.salleh@ubd.edu.bn Tel: 6738773131	1	Mr. Desmond Tan Chia Chun	Lecturer in Sultan Hassanal Bolkiah Institute of Education	desmond.tan@ubd.edu.bn
		2	Dr. Hanapi Mohammad	Lecturer in Sultan Hassanal Bolkiah Institute of Education	hanapi.mohamad@ubd.edu.bn
		3	Dr. Irene P-A Cheung	Lecturer in Sultan Hassanal Bolkiah Institute of Education	irene.cheung@ubd.edu.bn
Indonesia	**Name:** Dr. Hendarman Anwar **Position:** Director of the Center for Educational Policy Research and Innovation, Ministry of national Education **Email:** Hendarman_Anwar@yahoo.com Tel: 6221 573 6365	1	Dr. A. Chaedar Alwasilah	Professor of UPI Bandung	chaedar_alwasilah@upi.edu chaedar@bdg.centrin.net.id
		2	Nanik Suwaryani, PhD	Researcher, MONE	suwaryani@yahoo.com
		3	Mr. Parus	Head of Evaluation of Environmental Education, Min. of Environment Affairs	suwaryani@yahoo.com
		4	Ms. Ratna T. Sinaga	Head of Education, Indonesian National Commission, MONE	ertsinaga@yahoo.com
		5	Ms. Susi R. Sadikin	Head od division of Environmental Education Community	srs@menlh.go.id
		6	Mr. Philip Suprastowo	Researcher, MONE	philip.suprastowo@yahoo.co.id
Malaysia	**Name:** Datuk Dr. Haili Dolhan **Position:** Rector, TEI, MOE, Malaysia **Email**	1	Tn. Hj. Mohd. Said (Key Person)	Director, TEI, Temenggung Ibrahim Campus, Johor Bahru	nagalingam.karuppiah@moe.gov.my
		2	Dr. Nagalingam Karuppiah (Key Person)	Principal Chief Assistant Director, TEI, MOE, Malaysia	saidhasran@yahoo.com.my
		3	Marina Haji A. Majid (Key Person)	Lecturer, TEI, Temenggung Ibrahim Campus, Johor Bahru	rin55ipti@yahoo.com
Philippines	**Name:** Dr. Patricia B. Licuanan **Position:** Chairman, Commission on Higher Education **Email:** chair.ched@gov.ph Tel: (632) 441 1260	1	Paz I. Lucido, PhD (Key Person)	Chair, TPTE, CHED	pazilucido@yahoo.com
		2	Lydia Liwanag, PhD	President, PAFTE	lydliwanag@yahoo.com
		3	Amor Q de Torres, PhD	Vice President, PNU	amorede_torres@yahoo.co.uk
Timor-Leste	**Name:** Apolinario Magno, MBA **Position:** Director General-ME **Email:** apolimagno@gmail.com Tel: +670 3339661/ +670 304150	1	Antoninho Pires	Director INFPC-ME	antoninhopires@hotmail.com
		2	Joao Soares	Staff INFPC-ME	laluna_212@yahoo.com

UNESCO Office, Jakarta

UNESCO House
Jalan Galuh (II) No. 5
Kebayoran Baru
Jakarta 12110
Indonesia

Tel. : +62-21-7399818
Fax : +62-21-72796489
Email : jakarta@unesco.org
www.unesco.org/jakarta

ISBN 978-602-98372-6-1