Education for Sustainable Development Policy, Guyana

Funded by Japan Funds in Trust
# Table of Contents

Acknowledgments ............................................................................................................. 3

Preface ................................................................................................................................. 4

1.0 Introduction ..................................................................................................................... 6

2.0 Background ..................................................................................................................... 7

  2.1 Achieving Sustainability ............................................................................................... 7

  2.2 UNESCO and the International Context ...................................................................... 9

    2.2.1 Four major thrusts of ESD .................................................................................... 9

    2.2.2 Seven strategies for ESD ..................................................................................... 10

  2.3 Guyana’s Context and Vision for Sustainable Development ....................................... 11

  2.4 Current features of sustainability in Guyana’s Educational System ............................ 13

    2.4.1 Biodiversity and Climate Change ......................................................................... 13

    2.4.2 Science, Technology, Engineering and Mathematics (STEM) ............................... 14

    2.4.3 UNESCO’s Global Micro-science Experiments Programme .................................. 14

3.0 Goals, Objectives and Pillars ....................................................................................... 16

4.0 ESD Coordinating Body ............................................................................................... 18

5.0 Pillar 1: Institutional Capacity ....................................................................................... 19

  5.1 Curriculum Reorientation ............................................................................................ 20

6.0 Pillar 2: Integrate ESD into the Education System ...................................................... 21

  6.1 Whole school/Institution approaches .......................................................................... 21

  6.2 Priorities of Application for ESD ................................................................................. 21

    6.2.1 Culture .................................................................................................................. 21

    6.2.2 National Priority Areas for ESD Content ............................................................... 22

6.3 Pedagogical Innovations in Sustainable Development .............................................. 29

  6.3.1 Inquiry Based Science Education (IBSE) ................................................................. 29

  6.3.2 Science, Technology, Engineering and Mathematics (STEM) ............................... 30

  6.3.3 Information and Communication Technology (ICT) in Education for Sustainable Development .................................................................................................................. 30

  6.3.4 Research Component .............................................................................................. 31

6.4 ESD in Formal Education ............................................................................................. 32

  6.4.1. Teacher Education and Training .......................................................................... 32

  6.4.2 Early Childhood Education ...................................................................................... 33

  6.4.3 Primary Education ................................................................................................. 34
6.4.4 Secondary Education .................................................................................................................. 34
6.4.5 Tertiary Education ...................................................................................................................... 35
6.4.6 Education for Sustainable Development in Technical and Vocational Education and Training (TVET) ................................................................................................................................. 35
6.7 Quality Assurance ................................................................................................................................ 36
7.0 Pillar 3: Provide equitable and inclusive access to ESD in all communities ........................................ 37
  7.1 Special Needs Education .................................................................................................................. 37
  7.1 Non-Formal and Informal Education .................................................................................................. 38
  7.1.1 Lifelong Learning ....................................................................................................................... Error! Bookmark not defined.
    7.1.2 Community Based ESD ............................................................................................................. 39
  7.2 Networking ......................................................................................................................................... 39
8.0 Pillar 4: Raise Public Awareness & Understanding of Sustainable Development .................................. 41
  8.1 Public Awareness Plan ..................................................................................................................... 41
  8.2 Mass Media ....................................................................................................................................... 41
9.0 Monitoring and Evaluation .................................................................................................................. 43
10.0 Conclusion ......................................................................................................................................... 44
11.0 Policy Measures .................................................................................................................................. 45
12.0 Glossary of Abbreviations ............................................................................................................... 47
13.0 Glossary of Definitions ...................................................................................................................... 49
14.0 References ......................................................................................................................................... 51
Appendix 1 – Stakeholders December 18, 2015 Consultation ................................................................... 53
Appendix 2 – Linkages to the UN Sustainable Development Goals .......................................................... 54
Appendix 3 - How ESD delivers quality education as defined by the UNESCO Pillars of Learning ............ 59
Acknowledgments
The Core Writing Team and the members of the Climate Change Steering Committee wish to express appreciation to the Honourable Dr Rupert Roopnaraine, Minister of Education; Mr Olato Sam, Chief Education Officer; Ms Delma Nedd, Permanent Secretary, Ministry of Education; Ms Inge Nathoo, Secretary General, National Commission for United Nations Educational, Scientific and Cultural Organization (UNESCO); Ms Evelyn Hamilton, Chief Planning Officer, Ministry of Education; Ms Jennifer Cumberbatch, Director, National Centre for Educational Resource Development (NCERD); Dr James Rose, Director of Culture, Department of Culture, Ministry of Education; Dr Oudho Homenaouth, Chief Executive Officer, National Agriculture and Research Extension Institute (NAREI); and other stakeholders (APPENDIX 1). This Draft Policy is presently being shared by the stakeholders through email with a wider group within their respective organisations. We thank the regional expert team (Professor Arnoldo Ventura, UNESCO Consultant; Mr Bishnu Tulsie, Director of the National Trust, St Lucia; Mr Dwight Gillett, Policy Coordinator, Ministry of Energy, Science and Technology and Public Utilities, Belize; Dr Sandra Wint, Jamaica; and Professor Emeritus Winston Mellowes, Caribbean Academy of Sciences).

The team also expresses its appreciation for the many institutions which facilitated site meetings as part of the development process of this Policy. These institutions include the Ministry of Agriculture, Ministry of the Presidency, Office of Climate Change, Guyana Forestry Commission, Ministry of the Indigenous Peoples Affairs, Guyana School of Agriculture, Council for Technical and Vocational Education and Training (TVET), and the University of Guyana.

This work was achieved through the excellent cooperation of UNESCO Paris and the Caribbean Cluster Office, Kingston, which sourced funds through the Japan Funds in Trust (JFID). We are very grateful to Mr Robert Parua, Officer in Charge, UNESCO Cluster Office for the Caribbean, Kingston, for his guidance and support throughout this process.
Preface
Without education, sustainability cannot be achieved. For the purposes of this Policy, the linkages between the priority areas (Section 6.2.1) to the UN Sustainable Development Goals are shown in Appendix 2. This Policy is intended to guide Education for Sustainable Development (ESD); it is not Guyana’s policy for sustainable development. Guyana’s Low Carbon Development Strategy (LCDS) which was first published in 2009 aims at achieving sustainable development along a low carbon pathway. This ESD Policy is essential for the successful implementation of the LCDS and the UN Sustainable Development Goals (http://www.un.org/sustainabledevelopment/sustainable-development-goals).

The ESD Policy is informed by several national documents, including the Science and Technology Policy and Master Plan for Guyana (2009), National Forest Policy Statement (2011), the Low Carbon Development Strategy (2013), the National Cultural Policy of Guyana (2008), the Ministry of Education’s Strategic Plan (2013-2018), and the National Development Strategy (1997). These documents provide information on the areas of sustainability that are unique to Guyana. In addition, guidance was taken from similar policies implemented in other countries as well as UN Multilateral Policies and documents.

A National Orientation Workshop on Climate Change Education for Sustainable Development (CCESD) was held on September 15 to 17, 2015, and facilitated by a regional and local team (Dr Marceline Figueroa, Dr Lorna Down, Ms Denise Simmons and Ms Petal Jetoo). Information gathered from this workshop, as well as from interactions with stakeholders who attended, was invaluable to the production of this Policy.

The Private Sector’s role in the sustainable development of Guyana is just now being formalised and will be subsequently incorporated as new versions of the Policy evolve. Implementation of this Policy will require changes in institutional arrangements, skills, and resource allocation. These are mentioned in the Policy but not elaborated upon.

The role of the media as a key stakeholder and educator of the public is recognised as this is an avenue to realise wider national engagement on the implementation, refinement, and strengthening of this Policy.

The process of developing this Policy was consultative, participatory and inclusive in keeping with Article 13 of the Constitution of Guyana. The drafting of this Policy is the joint effort of a number of stakeholders who are listed below and in Appendix 1. Several drafts were prepared and reviewed to produce this Draft Final version for National Consultation. The Ministry Education recognises and appreciates the efforts of all Government Ministries, local authorities, civil society organisations and the private sector toward developing this Policy, thereby ensuring the development of education for sustainable development. This collective effort involved the Ministry of Education, Ministry of Agriculture, Ministry of the Presidency (Department of Natural Resources and the Environment; Office of Climate Change; the Guyana Forestry Commission), University of Guyana, Cyril Potter College of Education, NGOs: Conservation International – Guyana, World Wildlife Fund - Guyana, Iwokrama and the Guyana Energy Agency.
A small group attended to the core drafting and incorporation of comments into the document. This group comprised Ms Petal Jetoo (Project Coordinator), Professor Arnoldo Ventura (UNESCO Consultant), Mr Dwight Gillett (Policy Expert, Belize), Ms Kamini Ramrattan, Mr Alvin Doris, Ms Denise Simmons, Ms Wendel Roberts, Ms Keisha Richards, Ms Kene Moseley, Mr Curtis Bernard, Mr Raymond Hutson (members of the Steering Committee), Ms Ramona DeGeorgio-Venegas (Peace Corp Response Volunteer), and Mr Lawrence Faria (special assistance to the Steering Committee).
1.0 Introduction

Guyana, like all other countries, faces challenges in realising sustainability in socio-economic development. A key part of this challenge is the preparation of citizens empowered with the knowledge, skills, values and attitudes to realise sustainable development. This Policy, therefore, seeks to introduce the principles of sustainability in all aspects of the formal, non-formal and informal education system in Guyana. Guyana will work to ensure the development of an enabling environment and capacity for all sectors and stakeholders to effectively contribute towards the achievement of sustainable development. The implementation of this Policy supports the Government of Guyana’s Vision 2020. Vision 2020 envisions sustainable socio-economic development, good governance and human safety within a green society. Quality education is key for the achievement of Vision 2020.

It is recognised that quality education is not only about access to education, but it also requires a reorientation of the education system that provides the knowledge, skills, values and attitudes which respond to individual, national and global needs and expectations. Quality education encourages the development of critical thinking which fosters the desire and capacity for lifelong learning. Education for Sustainable Development (ESD) is simply good quality education which is about what and how people learn and its relevance to today’s world and its global, environmental and social challenges. ESD has spread across all levels and areas of education, in all regions of the world, and is widely considered key in supporting sustainable development. International and national strategies dealing with the economic, social and environmental dimensions of sustainable development are beginning to reflect ESD as a crucial component.

As a result, UNESCO’s selection of Guyana to develop this Education for Sustainable Development Policy is timely as the UN Decade on Education for Sustainable Development (DESD) has ended. This is the first policy of its kind in the Caribbean and we hope to set the example for other Caribbean territories. As sustainability challenges grow, education must play a decisive role in providing learners in the region with the knowledge, skills, attitudes and values to discover suitable solutions. This is fitting especially when the world is faced with economic and social inequalities, environmental degradation, biodiversity loss and disruption caused by natural disasters and climate change. In addition, Guyana is especially at risk because of its unique situation where approximately 90% of its population resides along its narrow coastal plain which is below sea level. The coastal plain is where the country’s major agricultural production is located. Global activities that adversely impact its biodiversity and its environment will place the country in an immediate vulnerable position with severe consequences for its economy and people. This Policy, therefore, supports Guyana’s Vision 2020 which is a response to the UN Sustainable Development Goals through Education for Sustainable Development (refer to Appendix 2).

It is recognised that strong leadership and commitment from all sectors are required for the institutional strengthening that will transform education in Guyana to respond to sustainable development. This transformation seeks to advance quality education through galvanised pedagogical innovation that promotes a shift in the education system’s methodology in order to achieve the desired objectives. Consequently, extensive partnerships and networks – within and between sectors – are imperative to the implementation of this Policy.
2.0 Background

2.1 Achieving Sustainability

Sustainable development as a concept was articulated in ‘Our Common Future’ (popularly referred to as the Brundtland Report) – the major outcome document of the 1987 World Commission on Environment and Development (WCED), as development which ‘meets the needs of the present without compromising the ability of future generations to meet their own needs’ – ‘Intergenerational Equity’ - (Brundtland Report, 1987, p. 43). Sustainable development is a balance struck among eco-system health, economics and improved social wellbeing and justice to prevent the exhaustion of the resources necessary for the continuation of life on planet Earth. It is about achieving and maintaining ecological balance through an understanding of how the environmental, economic, social, cultural and political factors interact. Sustainability is really the study of the interconnectedness of all things. For example, the unhealthy state of our world today is in direct proportion to our inability to see it as a whole. Additionally, the effects of unsustainable actions – the anthropocentric approach to economic development - usually have the greatest negative impact on poor populations, which in turn unwittingly force them into unsustainable behaviour.

A sustainable society is one that can persist over generations; one that is visionary, flexible and wise enough not to undermine either its physical or social systems of support. Sustainability transition is the process of coming to terms with sustainability in all of its ecological, social, ethical and economic dimensions. It is about new ways of knowing and acting; of being more humane in a world threatened by self-centeredness, but nevertheless one that is progressively seeking cooperation. This means that we need to better understand our environment, in the integrated sense, in order to be able to embrace this transformation. The best tool for doing this is science and technology through the process of research as well as the development of appropriate technologies. The investment made in these areas becomes an imperative hinged on a new national economic mind-set and environmental sensitivity. However, the present economic trajectory and principles, which emphasises excessive accumulation and consumption in a finite world, are in direct contravention of sustainability.

The excess accumulation of carbon dioxide in the atmosphere which has resulted from the unabated use of fossil-based energy in human activities is warming the planet to potentially lethal levels, acidifying the oceans, producing more violent storms, sea surges and brushfires, with a loss of human life and property, as well as the disruption of ecological systems. As such, this human-enhanced greenhouse effect - which has resulted in a 40% increase in carbon dioxide concentration since the pre-industrial times (IPCC, 2013) - is one of the greatest problems facing the world. One mitigation measure is to preserve standing forests, like those of Guyana, which are sources of carbon sequestration.

In 2005, the United Nations Decade of ESD (DESD) was launched to enhance the role of education in promoting and realising sustainable development. At the UN Conference on Sustainable Development in 2012 (Rio+20), the international community agreed to a:

UN Decade of Education for Sustainable Development. There is now a growing international recognition of ESD as an integral element of quality education and a
key enabler for sustainable development. *(Road Map for Implementing the Global Action Programme on Education for Sustainable Development, UNESCO p. 9).*

UNESCO defines Education for Sustainable Development as:

…including key sustainable development issues into teaching and learning e.g. climate change, disaster risk reduction, biodiversity, poverty reduction and sustainable consumption. It also requires teaching and learning in a more participatory fashion that motivate and empower learners to change their behaviour and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decision in a collaborative way. (ESD, UNESCO, 2015 p. 1)

Education for Sustainable Development is a matter for all members of society, starting at the earliest stages in education. Therefore, a small, developing and economically challenged country, like Guyana, with a low population density, has to evaluate its resource base, and choose a development path which maximises the returns on investments that produce the greatest sustained improvement in human well-being. Guyana is blessed with extensive natural capital, in particular its intact ecosystems. However, the development of its human capital is inadequate to sustainably harness the abundance and variety of these natural resources.

His Excellency, President Brigadier David Arthur Granger, in his speech to the United Nations on September 25, 2015, stressed that a unity of effort is essential to confront the difficult but necessary choices in order to realise the goal of sustainable development. This commitment came at a time when the international community is charged with implementing a new set of Sustainable Development Goals (SDGs) that is action-oriented, global in nature and universally applicable. He also stated that Guyana is committed to having inclusive and equitable quality education, and to promoting lifelong learning opportunities for all.

The implementation of this Policy will help guarantee Guyana’s achievement of the 2030 Sustainable Development Goal 4 Target 4.7 which states that:

‘by 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity’.

Education is key for the achievement of each of the seventeen (17) Sustainable Development Goals. *(http://www.un.org/sustainabledevelopment/sustainable-development-goals/).* Yet in the Caribbean, provision of education fostering sustainable development is inadequate. UNESCO’s selection of Guyana to pilot the development of an Education for Sustainable Development Policy is a crucial step toward achieving sustainability.
2.2 UNESCO and the International Context

The history of Education for Sustainable Development (ESD) links to the 1992 United Nations Conference on Environment and Development (UNCED), where 178 Member States agreed on a framework for action in ‘Agenda 21’ – Chapter 36, recognising that education, training and public awareness are critical tools for the transition to sustainable development, calling for ‘reorienting education toward sustainable development’ (UN, 1992: paragraph 36). UNESCO was assigned as task manager for chapter 36.

Parallel articles on education, training and public awareness were agreed in the three Rio Conventions (the UN Framework Convention on Climate Change [UNFCCC], the UN Convention on Biological Diversity [UNCBD] and the UN Convention to Combat Desertification [UNCCD]), with programmes of work agreed to by Member States. Agenda 21’s principles and underpinning frameworks continue to guide conceptual thinking and planning for ESD, from the global level through regional actions and local Agenda 21 initiatives.

The launch of the Decade for Education for Sustainable Development (DESD) in 2005 marked the beginning of 10 years of an explicit global movement toward improving and reorienting education systems toward sustainable development, building on earlier commitments to ESD in Agenda 21. Through the adoption of Resolution 57/254 in 2002, the UN General Assembly (UNGA) declared DESD to take place from 2005 to 2014 and tasked UNESCO as the lead agency. The DESD called on ‘governments to consider the inclusion of measures to implement the Decade in their respective educational strategies and action plans’ (UN, 2002). UNESCO Member States agreed to this commitment, with Japan, Sweden, Germany, and Denmark, among others, championing and supporting the work through extra-budgetary funds to UNESCO (UNESCO, 2013a, p. 5).

UNESCO framed its efforts to promote ESD within an International Implementation Scheme (IIS) (UNESCO, 2005a), approved by Member States to facilitate collective ownership of the DESD, and to connect various global initiatives to promote education (UNESCO, 2005a), including the Millennium Development Goals (MDGs), Education for All (EFA) and the United Nations Literacy Decade (UNLD). The IIS was based on the four major thrusts of ESD, and seven strategies:

2.2.1 Four major thrusts of ESD

1. Improving access and retention in quality basic education
2. Reorienting existing educational programmes to address sustainability
3. Increasing public understanding and awareness of sustainability
4. Providing training to advance sustainability across all sectors

2.2.2 Seven strategies for ESD

1. Vision-building and advocacy
2. Consultation and ownership
3. Partnership and networks
4. Capacity-building and training
5. Research and innovation
6. Use of Information and Communication Technology (ICT)
7. Monitoring and evaluation


This Policy takes into consideration these four major thrusts and seven strategies and applies them through its identified Goals, Objectives and Pillars.

Uganda, Ireland, Kenya and Sweden have applied the aforementioned recommended thrusts and strategies, and we have drawn on their experience in this document.

The UN was instrumental in framing global policies for ESD. UN forums have provided leadership, driven global cooperation, and shaped the international discourse. The UN, its organs and programmes are mechanisms for setting agendas, creating a global architecture for responses, and deploying implementation tools and mechanisms to inform and encourage broader audiences to act. Through these, the UN Member States come together to agree on common goals and objectives, and codify norms in the form of resolutions and declarations as well as conventions and treaties. Within the domain of ESD policy, the UN provided a platform for the inspiration, goal-setting and capacity support necessary to guide Member States in the development of ESD. It is in this context that UNESCO has selected Guyana as a pilot country, with support from Japan Funds in Trust, to provide this model for Education for Sustainable Development in the Caribbean Region.
2.3 Guyana’s Context and Vision for Sustainable Development

Vision: A country where everyone has the opportunity to the acquire knowledge, skills, values and attitudes necessary for a sustainable future and for positive societal transformation.

Guyana is committed in its attempt to address Education for Sustainable Development. Several agencies are engaged in the work that relates to climate change and biodiversity education. However, these efforts have not sufficiently addressed ESD since they were implemented without an existing broad-based ESD framework. This Policy creates the ESD framework that follows the UNESCO thrusts and strategies for ESD.

In 2009, Guyana made a significant attempt to address sustainable development through the launch of its Low Carbon Development Strategy (LCDS), built around the sustainable use of its forestry resources.

Guyana’s Low Carbon Development Strategy aims to achieve two goals:

1. ‘Transform Guyana’s economy to deliver greater economic and social development for the people of Guyana by following a low carbon development path; and
2. Provide a model for the world of how climate change can be addressed through low carbon development in developing countries, if the international community takes the necessary collective actions, especially relating to REDD+ ‘(LCDS, 2013 p. 1)

For sustainable development to be fully appreciated and achieved, all citizens must embrace an education emphasising sustainability. Guyana’s unique natural capital is its base for sustainability and must be understood. “Guyana is a tropical country situated on the north-eastern coast of South America between one and nine degrees north latitude and fifty seven and sixty one degrees longitude. It is bounded on the north by the Atlantic Ocean, on the east by Suriname, on the south by Brazil, and on the west by Venezuela.” (http://www.guyana.org/Handbook/loksize.html). Guyana is approximately 215,000 km² in terrestrial area with a population of about 750,000. English is the primary language, and there are six major ethnic groups: East Indians, Europeans, Africans, Amerindians, Chinese and Portuguese.

‘Guyana has five distinct geographic regions: the Low Coastal Plain, the Hilly Sand and Clay Region, the Highland Region, the Forested Region, and the intermediate and inland Savannahs’ (www.lcds.gov.guy). The Low Coastal Plain is predominantly clay, varying from about 8 to 65 km in width. This stretch of land is approximately 1.5 metres below sea level at high tide. It is protected from the sea by a series of earthen or boulder dams and concrete dikes (sea wall)’ (Green and Emanuel, 2007). The area supports most of the population and is used for agriculture (mainly rice and sugar cane) and other economic activities. The other geographic regions are mostly populated by the indigenous people who rely heavily on natural resources for their livelihood and sustenance. These regions also support mining (mainly for gold, diamonds, and bauxite) and logging activities.
Guyana has a diversity of natural resources. The coastal waters possess abundant fishing and shrimping grounds. With the exception of the coastal belt, all of the other regions are sparsely populated and are predominantly intact. These regions consist mainly of lush tropical forests and savannahs, with significant levels of biodiversity and minerals. Agriculture and mining are the major economic activities of the country. There is significant investment in the timber industry. Since 1994, there has also been steady expansion in the fishing, manufacturing, service, construction, mining, quarrying and tourism industries.

Most importantly, Guyana is classified as a High Forest Cover Low Deforestation (HFLD) country. Covered by approximately 85% intact forest, which acts as a carbon sink, and a small population, Guyana is a net carbon sequester. However, unsustainable practices such as illegal logging with inadequate reforestation, primitive mining and overfishing in hinterland regions must be corrected, and education for sustainable development infused. Remedial actions must be taken to educate all those responsible.

As such, Guyana sees education as both a means to and an end of our sustainable development. Education occupies a prominent role in the post-2015 development agenda, and at a national level, we must work toward the realisation of a vision where all of our citizens have equitable access to high-quality education and learning opportunities, and where education is positioned as the key intermediary through which we lay the foundation for an inclusive and socially cohesive society. (Guyana’s Budget Speech, 2015).

The formal education system of Guyana has at its lowest level early childhood education, followed by primary, secondary and tertiary (technical/vocational education and training (TVET), teacher training and university). There are 333 nursery schools, 440 primary schools and 110 general secondary schools under the management of the Ministry of Education. There are 6 Special Education Schools that cater to students with special physical, sensory and mental needs, and for others who are socially disadvantaged or in especially difficult circumstances. Guyana is divided into eleven education districts to facilitate the management of formal education by the Ministry of Education. Ten of these education districts correspond with the administrative and geographical regions of the country, while the capital, Georgetown, is treated as a separate education district. The Chief Education Officer (CEO) is the professional head of the education system. Three Deputy Chief Education Officers (DCEOs), one each of Administration, Development and Technical Education, assist the CEO. There are also four Assistant Chief Education Officers (ACEOs) with functional responsibility for nursery, primary and secondary education, and an inspectorate unit. Each ACEO functions at the national level within his or her sphere for responsibility.

The Principal Education Officer, Georgetown, and the Regional Education Officers are responsible for monitoring and supervising all educational activities within their respective education districts through the Regional Education Departments. The teams for the administration of these departments include District Education Officers. The number and types of schools that fall within the boundaries of the education districts, as well as their demographic make-up determine the number of District Education Officers assigned to a department. To mainstream ESD within the formal education system, institutional capacity building in ESD at all levels within the education system is necessary.
2.4 Current features of sustainability in Guyana’s Educational System

2.4.1 Biodiversity and Climate Change
The Ministry of Education, with international support, is engaged in piloting the infusion of climate change and biodiversity education in all levels within the school system. Conservation International – Guyana (CI-Guyana) has collaborated in the recent past with the Ministry of Education through the National Centre for Educational Resource Development (NCERD) to complete a number of strategic initiatives. These include the development of a video series on climate change and biodiversity for secondary school students (Grades 9-12); drafting a climate change and biodiversity resource book; and completion of a study for inclusion of climate change and biodiversity education at the primary level (Climate Change Education Progress Report, 2012).

In addition, UNICEF supported the development of a video on climate change titled ‘Our Earth is Heating Up? Let’s Take Action Now’ for the Nursery Level (age 3 years to 5 years nine months). Reviews by primary school teachers indicate this is also useful for the primary level (age 5 years nine months to age 11 years nine months). At the primary level, teacher training workshops targeted the use of the Inquiry Based Science Education (IBSE) approach in teaching climate change. Several IBSE lessons were developed for Grades One to Six for Science and Social Studies. These lessons are presently being piloted in sixteen primary schools throughout the country. They were developed in collaboration with technical expertise sourced through UNICEF. A recent review of the pilot has revealed the need for additional school-based training and the provision of resources to support effective lesson delivery.

The Guyana Mangrove Restoration Project (GMRP), which led to the recent formation of the Mangrove Restoration and Management Department at the National Agricultural Research and Extension Institute (NAREI), has collaborated with NCERD to implement the public awareness and education component of the National Mangrove Management Action Plan. This plan aims to mitigate climate change (carbon sequestration through mangrove reforestation and forest preservation) and adapt to its effects (sea defence, biodiversity). Several resources for schools on the sustainable coastal zone protection through mangroves were developed. These included a video titled “Holding Back the Sea” and a teacher’s resource manual for secondary schools in Guyana – “Mangroves: Our Natural Sea Defence”. The establishment of the Mangrove Visitors’ Centre, Victoria, East Coast Demerara, led to numerous field trips by primary and secondary school teachers and students. This is a good example of learning from the environment which bridges formal, non-formal and informal learning.

The Protected Areas Commission (PAC) has included biodiversity education in school programme tours and the nature school zoo camp. Projects include designing of a nature-based education centre within the Guyana Zoological Park and Botanical Gardens, with focus on biodiversity, environmental education and conservation. Other plans include nature paths, interpretive signing, fountains and picnic areas for families to learn about and appreciate the value of the natural environment.
Though the Ministry of Education has taken a proactive role in the infusion of climate change education with international support, one of the institutional constraints identified in the Climate Change Education for Sustainable Development Case Study of Guyana is the limited horizontal and vertical integration among and within public and private sector agencies.

2.4.2 Science, Technology, Engineering and Mathematics (STEM)

‘The purpose of science in the context of sustainability is to understand and clarify the dynamics of what is required to prevent ‘the human system’ – individual and collective, physical, social, economic, cultural and psychological – from destroying the environment on which it depends (Maiteny and Parker, 2002 p. 15). ‘Technology seeks to provide instruments and means for achieving particular human aims, wants and purposes in line with the prevailing norms and values of the society concerned’ (Maiteny and Parker, 2002 p. 24). Additionally, engineering will be required in the application of scientific knowledge and to make adjustments in its operations to accommodate sustainability. Education in mathematics teaches critical thinking for addressing the issues of sustainability and making adjustments for it.

The understanding and use of the scientific method integrate Science, Technology, Engineering and Mathematics (STEM). This integration is essential to the development of sustainable solutions for schools and communities. Therefore, education in the scientific method allows students to be more mindful of their lifestyles and the ways in which they contribute to issues of sustainability, while equipping them with the tools to fix this. Guyana has participated in the Sagicor Visionaries Challenge (SVC), the aim of which is to encourage secondary school students to utilise STEM, in whatever way they can, to develop effective, innovative and sustainable solutions to challenges facing their communities or schools. This is intended to stimulate national awareness and enthusiasm among secondary school students, teachers and parents as we seek to enable tomorrow’s leaders to build a more sustainable Caribbean. This approach facilitates the participation of all citizens and stakeholders in sustainable development driven through education.

The establishment of STEM clubs as “challenge labs” and experimental spaces opens up new pathways of thinking and acting, and especially invites youth to engage and lead in a multitude of ways.

2.4.3 UNESCO’s Global Micro-science Experiments Programme

One approach used by UNESCO to make a difference in science education is its Global Micro-science Experiments Programme which provides developed and developing countries alike with new teaching tools. This Global Micro-science Experiments Programme is an affordable, hands-on science education project that gives primary, secondary and tertiary education students the opportunity to conduct practical work on a micro-scale in physics, chemistry and biology, using micro-science kits that require small amounts of resources and energy. These kits are
accompanied by manuals for both teachers and students which detail the experiment procedures in clear and concise language for the most effective utilisation of the resources. The implementation of the UNESCO Micro-science Experiments Programme was intended to address the dire shortage of science laboratory space and equipment in many poor developing countries.

In 2011, Guyana was selected as a pilot country by UNESCO to implement its Global Micro-science Experiments Programme. The Micro-science Programme was merged with the Inquiry Based Science Education (IBSE) approach. IBSE mirrors the scientific method. This implementation promotes the development of competencies such as critical thinking, imagining future scenarios and decision-making in a collaborative way. This approach fits well with Education for Sustainable Development which seeks to deliver quality education and promote lifelong learning through the ESD learning pillars.

As a result of the successful implementation, Guyana’s model is being adapted and expanded with great success by other Caribbean territories such as Belize, Jamaica, St Lucia, St Kitts and Nevis and Trinidad and Tobago.

The above initiatives in education show that Guyana has already begun to work toward Education for Sustainable Development, and thus, is not starting from a zero point with this Policy. This Policy provides the framework for the integration, expansion and monitoring and evaluation of these initiatives. As factors that influence sustainability change, Education for Sustainable Development would also require change. Monitoring and evaluation of these changes becomes vital. This process of monitoring and evaluation would identify areas for improvement which will lead to the review of this Policy for appropriateness and suitability over time.
3.0 Goals, Objectives and Pillars

The goals of this Policy are in line with UNESCO Global Action Programme which adapts a two-fold approach:

1. integrating sustainable development into education; and
2. integrating education into sustainable development

through a shared commitment to education that empowers people for change.

To achieve these goals, education and learning will be reoriented so that everyone have the opportunity to acquire the knowledge, skills, values and attitudes that empower him or her to contribute to sustainable development, and strengthen education and learning in all agendas, programmes and activities that promote sustainable development. These goals will be realised through the implementation of the following Policy Objectives:

1. Develop education and training strategies that will enhance capacities for the achievement of sustainable development;

2. Embed ESD into the education system through literacy and lifelong learning in all aspects which concern sustainability;

3. Provide equitable and inclusive access to high-quality formal, non-formal and informal education which includes the ESD thrusts and strategies;

4. Raise public awareness and understanding of the principles of sustainable development, drawing on the capacities and comparative strengths of the media, public sector, private sector, and civil society.

This Policy rests on four main pillars identified below. These pillars support the implementation of the Policy Objectives.

**Policy Pillars**

1. Institutional Capacity;

2. Integration of ESD into the Formal, Non-formal and Informal Education System;

3. Equitable and Inclusive Access to ESD in all Communities;

4. Public Awareness and Understanding of Sustainable Development.
Figure 1: Policy Pillars

The achievement of the Policy Goals and Objectives through the Policy Pillars requires a broad-based National Coordinating Body to take a systematic approach in the implementation of this ESD Policy.
4.0 ESD Coordinating Body

For effective implementation of this Policy, the creation of a National broad-based ESD Coordinating Body (ESDCB) which involves all stakeholders is highly recommended to ensure the integration of sustainable development into education and education into sustainable development. The ESDCB will establish, implement and monitor the ESD Action Plan that is informed by the Policy Pillars. Since the process of developing this Policy was consultative, participatory and inclusive, the ESDCB will continue with this approach into the implementation phase. Within the Ministry of Education, the ESDCB will work in tandem with the National Centre for Educational Resource Development (NCERD) to support the implementation of the respective Policy Pillars that are linked to the curriculum development and implementation.

In addition, the ESDCB will work closely with the Cyril Potter College of Education (CPCE), the Ministry of Education, other Ministries, the University of Guyana (UG), the Institute of Applied Science and Technology (IAST), the Teaching Service Commission (TSC), the private sector, NGOs and related institutions to support curriculum design and development, its implementation and improvement, which includes an integrated approach to learning. This will create a new way of thinking among educators, enabling them to employ sustainability in their professional practice.

The ESDCB must fit within the National Science and Technology Management System of the Guyana as a sub-committee. A National Science and Technology Council was established following the approval of the National Science and Technology Policy and Master Plan in May, 2014. In addition, this ESDCB will link with the UN’s ESD global network and ensure that there is up-to-date information flowing into the local network. This sub-committee on ESD is necessary to act in an advisory role to the Minister of Education, the Chief Education Officer and the Permanent Secretary on the direction of ESD for Guyana. This sub-committee must take into account national priorities and current global trends in sustainable development to provide the overall strategic direction for ESD in Guyana.

The ESDCB will liaise with the private sector, the public sector, NGOs and other civil society organisations in a collaborative way to obtain full participation and commitment in making a positive change in sustainability for all.
5.0 Pillar 1: Institutional Capacity

Since Education for Sustainable Development (ESD) is an emerging and changing concept, there is need for institutional capacity building nationally. The successful implementation of ESD will require responsible, accountable, capable leadership and expertise within and among institutions. There are many different factors that influence how ESD will be interpreted, and how learning should be adapted to address ESD. As a result of the differences in geography and the variety of cultures that exist in the various administrative regions and education districts, ESD institutional capacity building must be site-specific.

To support institutional capacity building, a national training-needs analysis on technical skills in ESD will be undertaken to determine areas for improvement which will facilitate the design of technical training programmes to build capacities among current staff and other stakeholders (NGOs, FBOs, CBOs etc.). This needs analysis will identify gaps that may require additional expertise to execute the task of implementation. Special priority for capacity building will be given to the Ministry of Education which will assume the lead role in national institutional capacity building for ESD. This will require some amount of restructuring within the Ministry of Education to facilitate the following:

1. Establish a special unit within the Ministry of Education which is linked directly to the ESDCB to lead the national institutional capacity building for ESD;
2. Strengthen the Curriculum Development and Implementation Unit, NCERD, in capacity building among current technical staff or with the addition of new technical experts in ESD;
3. Strengthen institutional capacities for stakeholders (Non-Governmental Organisations, Community Based Organisations, Faith Based Organisations, Government Agencies and Ministries, Private Sector);
4. Conduct Monitoring and Evaluation of strategic activities.

This capacity building must be mirrored in schools for both teachers and students in the formal education system, in Community/Resource Learning Centres, NGOs, FBOs, and CBOs for non-formal education and public awareness through the media and other national sources for informal education.

These specific action measures for institutional capacity building for ESD are to be identified, prioritised, finalised and budgeted for over the given period of time for full delivery of this Policy Pillar.
5.1 Curriculum Reorientation

The curriculum that now exists does not capture all of the essential elements of sustainability that are relevant to Guyana. Guyana has a wealth of resources, the most valuable of which is its citizens. An established curriculum model, which has the flexibility to include intra-national diversity, will be selected for use. This is required since ESD is site-specific and quality education requires content relevant to the students’ individual environments. For example, the use of natural resources for education through field trips and understanding of the natural environment will allow better appreciation for the need for sustainability. This, in turn, protects those natural resources under threat.

The process of curriculum reorientation requires close research attention and institutional arrangements that enable the required changes to be identified. An initial step to conduct a curriculum audit is required to determine existing ESD gaps to address curriculum reform.

Relevant activities for effective curriculum reform include:

- Review of the existing ESD component within the education system;
- Design of concrete plans to mobilise financial and human resources to support curriculum reorientation;
- Establishment of appropriate mechanisms to review current curriculum for integration of ESD in all subject areas;
- Refreshment and enhancement/creation of the ESD component within the curriculum from early childhood to tertiary education institutions;
- Assumption of an integrated approach which involves cross-curricular strategies, for example the use of themes, as well as project work and local investigations employing knowledge and skills from various subjects to address the same issue;
- Infusion of ESD into existing curriculum subjects and programmes;
- Production of new curriculum instructional guides for educators;
- Reorientation of education so that everyone have the opportunity to acquire the knowledge, skills, values and attitudes that empower him or her to contribute to sustainable development and strengthen education and learning in all agendas.

Activities identified as being critical to the achievement of this Pillar must be consistently and continually monitored and evaluated. Monitoring and evaluation of the institutional changes that lead to capacity building is necessary because of the changing nature of the local and international factors which influence the achievement of sustainability.
6.0 Pillar 2: Integrate ESD into the Education System

The successful integration of ESD in the formal, non-formal and informal education systems is a central pillar that relies heavily on the institutional capacities built in the leading agencies.

6.1 Whole school/Institution approaches

The whole-school approach requires active and participatory learning which calls for the entire school - including students, educators and administrators - to be actively engaged in working toward a sustainable school or institution that can sustainably utilise resources available to it with little environmental impact which leads to sustainable societies.

The whole-school approach for ESD is the incorporation of teaching and learning for sustainable development in the formal education sector, not only through aspects of the curriculum, but also through practical sustainable school operations such as integrated governance, stakeholder and community involvement, long-term planning, as well as sustainability monitoring and evaluation and continual improvement. Through community involvement, schools and communities will both benefit from the skills and learning opportunities available within their specific environments. Students are expected to apply what they have learnt and to take home this knowledge to educate their parents and communities. This partnership leads to the development of sustainable societies.

The whole-school approach will allow education for sustainable development to be tackled in a holistic manner rather than in isolation. This asserts that ESD be truly education for sustainable development rather than education about sustainable development.

6.2 Priorities of Application for ESD

6.2.1 Culture

‘Culture is the sum total of the ways in which a society preserves, identifies, organises, sustains and expresses itself.’ There are three important ways to think about culture:

- Culture as art, ritual, literature and other forms of emotional expression.
- Culture as meaning-making, including political, religious, ideological and other ideals about development
- Culture as a key influence on human behaviour and surroundings.

Education for Sustainable Development must be addressed through an understanding of the culture specific to a particular place since culture is the lens through which development issues are viewed. This understanding and inclusion of culture better informs and contextualises sustainable development.

‘Guyana is endowed with a rich and diverse cultural heritage, comprising European, African, Asian and Indigenous traditions, each with its own unique characteristics’ (National Cultural Policy, 2008).

This Policy supports the implementation of the National Cultural Policy (2008) which seeks to promote, protect and preserve the nation’s cultural heritage and
enhance its contribution to community empowerment and the national development process. It will, therefore, through education, seek to support the implementation of the following objectives:

- ‘To promote and strengthen Guyana’s diverse cultural identities;
- To enhance social cohesion, collaboration and participation of all peoples in the cultural life of the nation;
- To promote community action on cultural practices that promote and enhance human dignity;
- To conserve, protect and promote Guyana’s tangible and intangible cultural heritage.
- to develop a vibrant cultural industries sector’ (National Cultural Policy, 2008)

Culture defines our life. As such, some reflection is necessary to recognise how certain cultural practices affect sustainability, both positively and negatively. This is a delicate issue that must be dealt with tactfully and respectfully. Hence the role of culture in addressing the following priority areas for ESD content must be understood.

### 6.2.2 National Priority Areas for ESD Content

Guyana’s special features and unique educational needs in relation to sustainable development have led the identification of the following priority areas for ESD. These priority areas for content were identified through several consultations with key stakeholders and the steering committee.

These priority areas align with the United Nations seventeen Sustainable Development Goals as well as the UNESCO Seven Sustainable Development Strategies to provide a good guide for Education for Sustainable Development. The priority areas have been identified for ESD content and linked to the relevant SDGs as shown in Appendix 2.

The Sustainable Development Goals are:

1. End poverty in all its forms everywhere;
2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture;
3. Ensure healthy lives and promote well-being for all at all ages;
4. Ensure inclusive and equitable quality education and promote life-long learning opportunities for all;
5. Achieve gender equality and empower all women and girls;
6. Ensure availability and sustainable management of water and sanitation for all;
7. Ensure access to affordable, reliable, sustainable, and modern energy for all;
8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all;
9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation;
10. Reduce inequality within and among countries;
11. Make cities and human settlements inclusive, safe, resilient and sustainable;
12. Ensure sustainable consumption and production patterns;
13. Take urgent action to combat climate change and its impacts;
14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development;
15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss;
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels;
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Each priority area addresses certain goals. However, overall, they all address goals 1, 4, 5, 10 and 11 to bring about further equity by addressing social issues through ESD.

6.2.2.1 Biodiversity and Biodiversity Management

Most of Guyana is covered by a variety of biologically diverse, intact natural ecosystems upon which people depend in different ways. The importance of and means to achieving sustainable use, protection and management of these ecosystems and their biotic and abiotic components are central to Guyana’s sustainable development and must be known by all.

Particular emphasis must be placed on citizens learning about the various ecosystems and species, their interactions, and the ways in which they benefit humans and other species - both directly and indirectly. Particular focus must be placed on ecosystems and associated species such as mangrove and other forests, wetlands, and savannas, which either help us to mitigate and adapt to climate change, and or are susceptible to changes in climate. In the Caribbean Region, the mangrove ecosystem found along the intertidal coastlines is important for coastal protection and is critical to our response to climate change and its potential impacts – especially that of rising sea levels. Guyana’s vulnerability to climate change is predicted to worsen with the greatest impact projected to affect the coastal zone where there is the highest population concentration. The role of mangroves as carbon sinks and their value to the livelihood of coastal communities through fisheries and other resources need to be researched. Strategies for mangrove protection, restoration and sustainable management must be implemented.

Research has to be conducted to determine how the changing climate has affected, is affecting and will affect biodiversity.
6.2.2.2 Agriculture (Food and Nutrition Security)

In 2013, Guyana was among 38 countries which met internationally-established targets in the fight against hunger, chalkling up successes ahead of a deadline set for 2015. Guyana has satisfied Millennium Development Goal (MDG) Number One: to halve the proportion of hungry people. Our progress was measured between 1990 to 1992 and 2010 to 2012 against benchmarks established by the international community at the UN General Assembly in 2000. In addition, the country has also met the more stringent World Food Summit (WFS) goal, having reduced by half the absolute number of undernourished people between 1990 to 1992 and 2010 to 2012. In recognition of its achievement, Guyana and the other countries were honoured at a high-level award ceremony at the Food and Agriculture Organization (FAO) headquarters in Rome in July, 2013. Guyana’s outstanding achievement in meeting these targets has been, in no small measure, due to its commitment to investment in the agriculture sector.

Guyana’s National Strategy for Agriculture (Vision 2020) sets out a plan for the country’s agricultural development based on food and nutrition security, and the development and creation of new industries based on agriculture, such as fuel production, fashion, furniture and craft, all within the context of a green and sustainable sector.

Agriculture plays an important role in Guyana’s economy, contributing almost 25% to our economy while accounting for over 33% of employment and 40% of export earnings (National Agriculture Strategy; 2015 Budget Speech). The future of the sector is, however, extremely vulnerable to the potential impacts of climate change. Guyana’s Second National Communication report has predicted that the potential impact of climate change on Guyana’s agriculture sector will be severe, with a decrease in yields due to increase in temperatures and frequency of flooding or drought in different parts of the country.

Recognising the importance of agriculture to national development and food and nutrition security, Guyana has developed, and is currently implementing, a number of plans and strategies aimed at the enhancement and security of the sector. These programmes (The National Strategy for Agriculture, Agriculture Disaster Risk Management Plan and the Food and Nutrition Security Strategy) have all recognised that capacity building and education are critical to the sustainability of the sector. The Guyana School of Agriculture (GSA) as well as National Agricultural Research and Extension Institute (NAREI) conduct training and research in modern agricultural techniques to support good farming practices. These institutions must work with the Ministry of Education to support agricultural science education in schools.
Agriculture is site-specific and its practices must be aligned with present sustainability efforts. Research must, therefore, bridge old and new knowledge in order to improve teaching and learning in sustainable agriculture. It is critical for sustainable agriculture to be integrated in the education system, while ensuring that public and private sector agencies and farmers incorporate education into all aspects of their programmes and agendas.

The implementation of this Policy, in collaboration with the sector-specific policies and strategies, will ensure a practical approach to learning that is relevant to the future of Guyana’s food and nutrition security.

6.2.2.3 Energy
The realities of Guyana’s energy situation must feature prominently in education. This will emphasise the economic and environmental consequences of Guyana’s reliance on fossil fuels as well as the finite nature of such energy sources. ESD will help students to appreciate their individual contribution to the problem and prepare them to aid the national effort to address energy management. Energy conservation practices must be taught and become the norm in the school and classroom. Students must be encouraged to take this knowledge home and practise the same in their communities. Students must be educated about alternative energy opportunities relevant to Guyana and encouraged to undertake projects to develop solutions for their schools and communities. Ideally a school’s energy use could be completely transferred to alternative energy and used as a teaching tool.

All sectors need to embrace alternative environmentally friendly sources of energy to ensure the achievement of UN Sustainable Development Goal 7.

SDG Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

Therefore, renewable energy must not be given peripheral attention but must occupy the focus of any strategy to move away from non-renewable energy sources. Since many of these developments are taking place in the developed world, links should be made to identify, select, modify and use these technologies in Guyana. This activity must take place at the government and private sector levels. The Guyana Energy Agency (GEA) must play a pivotal role in facilitating this transformation toward sustainable and modern energy for all.

In hinterland communities, the use of solar energy is encouraged. This is a move away from reliance on the fossil-fuel-based national electricity grid. This must be recognised and used in education. GEA must be a part of the broad-based ESD coordinating body that will take the lead in school programmes geared toward building awareness and driving the transition to sustainable energy. Schools and learning institutions must be at the forefront of energy audits which will provide relevant information for decision-making on sustainable energy use.
6.2.2.4 Water
While Guyana does not lack for water resources, a lot of this water is not readily available in a potable form. Considerations must be made for its sustainable use. The warming of the atmosphere has resulted in changes in the global water cycle (IPCC, 2013). The consequent floods and droughts have adversely affected Guyana’s agricultural production. Guyana’s economy is agriculture-based and an integrated water resources management approach must feature prominently in ESD. This will raise sustainable water-management consciousness among students, to incorporate water conservation into their lifestyles, and to develop positive changes in water conservation behaviour. The ESDCB will collaborate with Guyana Water Incorporated (GWI) to develop effective educational approaches and materials on integrated water resources management and protection.

In addition schools should begin by reviewing their present water management practices and incorporate rainwater harvesting systems where possible. This section seeks to address the UN Sustainable Development Goal 6:

**Goal 6: Ensure availability and sustainable management of water and sanitation for all**

6.2.2.5 Solid Waste Management
The current global and national patterns of consumption resulting in the generation of significant amounts of solid waste must change. Solid Waste Management (SWM) as advocated by ESD (learning to reduce, reuse and recycle waste) is imperative. Solid waste management in Guyana is a national environmental issue, particularly in urban centres. Lifestyle changes have resulted in increased production of solid waste. The systems of waste management have not kept apace with these changes. Citizens must understand the role that each individual plays in contributing to Guyana’s SWM problem; the effects of improper SWM on economics, health, the environment, and culture; and how each person can contribute to better SWM. School and community programmes that address the reduction of solid waste, its reuse and its proper disposal must be implemented. This approach will support the National Solid Waste Management Strategy, which calls for collaboration among national and regional institutions to facilitate improvements in SWM, and support education that leads to behaviour change management.

Guyana is taking steps to reduce waste, especially non-biodegradable waste, through the recent ban on the importation of Styrofoam boxes for use in the fast-food industry. The private sector will be educated on SWM and encouraged to reduce the amount of waste produced by their operations in a move toward zero waste.
6.2.2.6 Environmental Education

Environmental Education deals with an understanding of the ecological principles that holds natural environments together. The environment is made up of delicately balanced cycles which are interconnected. Understanding the impact of human activities on these cycles is of paramount importance. Natural cycles are affected by human activities and can subsequently have an impact on human life. Environmental Education in this context comprises of an understanding of both the natural urban environments and the relationships between them. It is therefore necessary for the development of consciousness in the way people relate to and utilise the environment in their day-to-day lives as producers and consumers.

Learning about the environment, through the environment for the environment contextualises and effectively delivers environmental education. This approach of using the environment as nature’s first laboratory builds the required consciousness and capacities for a new generation of citizens sensitive to the issues of sustainable development. Environmental Education must be delivered through multi-, trans- and interdisciplinary approaches as it is relevant to all citizens no matter their field of study or work. As such environmental education must not be isolated to the formal education system. The work of NGOs and other institutions is valuable in the delivery of non-formal and informal environmental education.

6.2.2.7 Climate Change Education

The infusion of Climate Change Education for Sustainable Development (CCESD) is critical for all countries. This was the main focus of several of UNESCO’s regional conferences in the Caribbean and Latin America which led to the development of the Tortola Declaration (2011) and the Caribbean Sub-Regional Climate Change Education Plan (2015). Although it is crucial for all countries, each country will have to pay special attention to CCESD according to its own needs. Guyana has made progress in undertaking initiatives to integrate climate change into formal and non-formal education, as indicated in section 2.4.1. These efforts must never stop as climate change deniers still exist even at the decision-making level. Priority actions must build on these earlier initiatives and also take cognisance of the relevant proposed actions outlined in the National CCESD Follow-Up Action Plan (University of Guyana Consulting Team, 2013); Public Education Programme and Implementation Strategy in Guyana’s Second National Communication to the United Nations Convention on Climate Change (GoG, 2012); UNESCO’s Tortola Declaration (2011); and the Caribbean Sub-Regional Climate Change Plan (2015).

The aim of CCESD is to create and enhance knowledge, inculcate attitudes and values, develop skills, and modify behaviour in support of ESD more broadly and climate change mitigation and adaptation strategies specifically (University of Guyana Consulting Team, 2013).
The proposed Public Education Programme and Implementation Strategy for climate change identifies the major target groups, the objectives and necessary activities. Two of the major target groups identified have relevance for this Policy, namely: children and youth, and teachers and teacher trainers. The objectives for the two target groups are:

- Teachers and Teacher trainers
  - To train and retrain teachers and teacher trainers to deliver environmental education lessons which address aspects of climate change at the nursery, primary, secondary, and technical levels
- Children and Youth
  - To increase knowledge of climate change issues through integration
  - To provide opportunities for local actions (in a local environmental setting) that address climate change
  - To develop in youths skills to discern the causal relationships between lifestyle choices and climate change impacts, and to promote opportunities for critical thinking and problem-solving.

This Policy supports the implementation of these objectives and the National CCESD Follow-Up Action Plan. Importantly, CCESD will highlight ‘personal responsibility’ as a critical component for mitigating climate change; and will identify convergence of climate change and other priority areas, including disaster risk reduction, energy and waste management.

6.2.2.7 Disaster Risk Management
Save the Children, UK states that globally it is estimated that 350 million people, 175 million of which are children, will likely be affected by disasters related to climate change within the next decade. Public awareness and education are key drivers in the successful implementation of policies and therefore there is need for awareness on climate change, biodiversity, disaster risk management and the low carbon initiative within Guyana.

In recent years, Guyana has seen an increase in disasters such as flooding and drought. As a result of the dynamic interplay between high tides and high rainfall, the drainage and irrigation network is compromised. Conservancies, canals, dams and sluices designed to support agriculture and protection of the coastal zone are susceptible to high risk of flooding, while at other times, affected by drought. In the hinterland regions, flooding resulting from high-intensity rainfall cuts off communities for extended periods of time. Droughts have resulted in an increase in savannah fires. These disasters affect both the coastal and hinterland regions, impacting schools and normal operations of other public services. The closure of schools as a result of these disasters negatively affects education delivery and directly impacts sustainable development.
The Civil Defence Commission (CDC) Guyana, works in collaboration with the Ministry of Education and other local and international institutions to address these problems. Approaches taken to address disasters risk reduction and management must be included in the teaching and learning process. Guyana is in the process of adapting the UNESCO Sandwatch Programme which aims to build understanding of changes in the coastline. Sandwatch provides a framework for children, youth and adults, with the help of teachers and local communities, to work together to critically evaluate the problems and conflicts facing their beach environment, and to develop sustainable approaches to address these issues. It also helps beaches become more resilient to climate change. Therefore, Sandwatch is a programme that is beneficial for the understanding the effects of rising sea levels and coastal erosion.

6.3 Pedagogical Innovations in Sustainable Development

The UN Decade of Education for Sustainable Development (2005-2014) has highlighted the importance of developing more active and participatory pedagogical approaches within ESD, and the need for research that provides empirical evidence of the impacts and outcomes of such approaches. Effective student-learning is essential for the fostering of better understanding of the world in which we live. Basic scientific literacy is essential to facilitate this understanding which creates opportunities for empowerment toward the achievement of sustainability.

Pedagogical traditions and national cultures have considerable influence on teacher professional practices. In order to ensure effective learning, the teaching process has to incorporate new ideas and strategies to modernise the delivery of education. Therefore, teacher education must become a key driver for change toward education for sustainable development. Focus must be placed on pedagogical innovations in teacher training. This will lead to more active and participatory learning which includes the UNESCO Pillars of Learning for Education for Sustainable Development. Pedagogical innovations will serve as key agents of change in providing the infrastructure that will transform education and society for the creation of a sustainable future. Some pedagogical innovations are under a pilot phase with planned expansion. These innovations are discussed below.

6.3.1 Inquiry Based Science Education (IBSE)

The Inquiry Based Science Education (IBSE) model mentioned in Section 2.4.2 is one pedagogical innovation which adequately meets the needs of ESD. Through its use of the scientific method, IBSE leads learners through a logical train of thought to inquire about and ultimately better understand the interconnected nature of the world around them. IBSE encourages questioning which allows learners to take an integrated approach which brings together learning from other disciplines. It aids the development of an understanding of the relationship between elements within a system which is a building block in learning to appreciate the relationships that
connect systems to each other. For example, the UNESCO Sandwatch programme, with its use of the methodology – Monitoring, Analysing, Sharing and Taking Action (MAST) for beach environments - mirrors the IBSE approach and utilises the environment as nature’s laboratory. Learning about the environment, through the environment is a pedagogical model that reconnects learners with nature.

UNESCO’s Global Micro-science Experiments Programme has incorporated the use of IBSE. The use of small amounts of resources which provides learners with ‘hands on’ experiences in the sciences builds on their understanding of the scientific method. The implementation of this programme allowed many schools to introduce practical lessons in the sciences especially in hinterland communities where water and electricity supply is limited. Several experiments were infused in lessons that were re-oriented to ESD.

### 6.3.2 Science, Technology, Engineering and Mathematics (STEM)

The integration of Science, Technology, Engineering and Mathematics is discussed in section 2.4.2 of this Policy. This integration is seen as a pedagogical innovation which merges several disciplines to foster integration in education. This builds on the application of the Inquiry Based Science Education (IBSE) which applies the scientific method to integrate Science, Technology, Engineering and Mathematics (STEM).

STEM is utilised in science fair projects. Students identify challenges facing their school or local communities and apply STEM to propose innovative and sustainable solutions. This type of project-based learning encourages team work and the development of critical thinking and research skills. The development of these skills are important to foster the transformation of Guyana towards a knowledge-based society.

The establishment of STEM clubs as “challenge labs” and experimental spaces opens up new pathways for pedagogical approaches that fosters ‘learning by doing’. STEM education for sustainable development will therefore aid in the creation of the future we want.

### 6.3.3 Information and Communication Technology (ICT) in Education for Sustainable Development

Information and Communication Technologies (ICTs) is an essential and powerful tool in enabling the development of innovations that promote and maintain sustainability. Deliberate attempts must be made to utilise this tool effectively. It is critical to ensure that education relevant to the modern technological world can be delivered. The infusion of ICT into the teaching environment is, therefore, of critical importance. Teachers must effectively use ICT to innovate and solve problems, and
deliver curriculum in new and more effective ways. The success of ICT is largely dependent on how effectively the tool is implemented and used.

Research into ICTs best suited to this purpose must be conducted in order to encourage the development of new methodologies and strategies to aid teachers in the delivery of the curriculum. ICT also allows for global collaboration with other countries where similar issues are being tackled. For example, ICT can help quickly overcome emerging problems such as disaster management.

Pedagogical innovations must take into consideration the needs of the specific context - learning environment, readily available resources and students’ cognitive abilities. Teachers will need to constantly evaluate the learning needs and abilities of their students and use a combination of approaches as required. The formation of a local ESD teachers’ network is recommended as a professional learning community will provide the platform for coherent activities of professional development and shared practices through a high level of collaboration.

6.3.4 Research Component
The nature and context of sustainability constantly evolve with changing international and local factors. As sustainability is site-specific, there must be constant research to ensure that our understanding of it is always relevant in order to effectively practice ESD. This Policy requires a strong research component to be undertaken at the national and university levels. This will serve to inform the understanding and application of ESD. Research into sustainability will be strongly encouraged, and it is recommended that all research require consideration for sustainability where relevant. The new knowledge generated by local and international research must then be translated and distributed across the education system to properly inform teaching. The use of appropriate ICTs is critical in ensuring this activity is carried in a timely manner.

Research must be conducted utilising the data from national assessments, the monitoring and evaluation of programmes and pedagogical innovations to provide information on the areas for improvement. Training programmes for teachers must be designed to address these areas.
6.4 ESD in Formal Education

ESD in formal education is necessary for the re-orientation of education that addresses sustainable development. Teacher education and training are critical for the implementation of ESD in the formal education system. In Guyana, teachers are trained at the Cyril Potter College of Education (CPCE) for the formal education system – early childhood, primary and secondary levels. The University of Guyana offers specialised courses in teacher education and training. These two institutions will be required to integrate ESD in their courses to support the national capacity-building efforts.

6.4.1. Teacher Education and Training

For teachers to effectively practise ESD, they must be conscious and sensitive to relevant issues such as climate change, the environment and the contextualised meaning of sustainable development. It therefore follows that the success of education comes from well trained teachers. ESD starts at the teaching-training level, and those who train teachers must see ESD as a priority, supported by updated curriculum and teaching methods. Effective teacher training is at the very core of the re-orientation of education for the achievement of sustainability. Dynamic interaction in the classroom and hands-on approaches should be encouraged to develop students’ critical-thinking and problem-solving skills which will be required for sustainable development.

In Guyana, teacher training/education is divided as follows:

1. Pre-service - full-time teacher training/education conducted through the Cyril Potter College of Education and/or the University of Guyana prior to entry into the teaching service
2. In-service– teacher training for practising teachers conducted through CPCE for teachers on the job
3. Continuous Professional Development (CPD) - courses and training workshops conducted for practising teachers

For effective integration of ESD, concrete actions must be developed and implemented to enhance and promote inter-disciplinarity in teacher education and training. The development of flexible structures and incentives in Cyril Potter College of Education and the University of Guyana is imperative.

Since supplemental training in ESD offered to teachers in the formal education system alone is not adequate to fully integrate ESD in the education system, the establishment of appropriate mechanisms to introduce a mandatory/core course on ESD for all teacher trainees at the Cyril Potter College of Education and the University of Guyana are highly recommended.
To enhance ESD, teachers must be effectively trained in the use of Information and Communication Technology (ICT). This will allow them to follow the developments pertinent to sustainability both within local and international contexts (Section 6.3.2). As sustainability factors evolve, teachers familiar with ICT tools will be able to innovate and adapt to new circumstances in order to continue the effective delivery of curriculum.

A change in classroom management is essential. However, the leadership and administration of schools must see sustainability as a crucial part of teaching and learning at all levels, and fully embrace and support these changes.

Outside of the formal methods of teacher training, professional development programmes must take place in schools to sensitise current teachers and administrators to ESD. These professional development programmes will also serve to bring teachers educated outside of formal teacher training up to par with new ESD teaching methods. A mechanism for this exists in most schools where a head of department is responsible for bringing the teachers of that subject or group of subjects up to par. This may be adapted accordingly. Through interdepartmental collaboration, trained science teachers will be valuable in expressing the various roles science and technology play in sustainability.

There is need for greater integration and cooperation among teacher training institutions, the Ministry of Education and higher education institutions which all play a role in ESD. This integration will produce teachers who are sensitive to the issues of sustainability, and as such, will be better equipped to deliver this to students in their respective areas of specialisation.

### 6.4.2 Early Childhood Education

Children are competent, active agents in their own right, and education for sustainable development must reflect this. They are affected by, and capable of, engaging with complex environmental and social issues. At this early stage, they must be empowered as agents of change and made to recognise the impact of their behaviours on the environment. Since patterns for life are instilled at the early childhood stage, parents, caregivers and teachers must be competent role models to lay the foundation for lifelong learning.

Guyana is in the process of making early childhood education compulsory. Children start nursery school at the age of 3 years 6 months. It is important to have programmes on ESD that target parents, guardians, caregivers and teachers prior to the compulsory school age. Mass media must play a critical role in children’s education at this stage.

Nursery teachers must, therefore, be adequately trained and must be empathic toward sustainability issues, and must be willing to learn in order to facilitate the following learning goals for early childhood education for sustainable development:
• Learn good habits for sustainability
• Encourage tolerance and mutual respect by developing a culture of care, not only for the environment, but also for each other
• Have positive view of themselves and the purpose of education.

6.4.3 Primary Education

A foundation in science is necessary to develop a good command of the issues of sustainability. An understanding of the scientific method provides this foundation. The scientific method is mirrored in the Inquiry Based Science Education (IBSE) approach. The use of the IBSE approach fosters the development of critical-thinking skills and cooperative learning. This experience is essential at the primary level since the scientific method is the most natural way of learning. IBSE is also in line with the UNESCO Pillars of Learning for Education for Sustainable Development:

• Learning to know
• Learning to do
• Learning to live together
• Learning to be
• Learning to transform oneself and society.

Guyana has adopted the IBSE approach in selected primary schools, and the programme is under expansion based on its successful implementation. This will facilitate the inclusion of ESD at this level. Refer to Appendix 3 – UNESCO Pillars of Learning

6.4.4 Secondary Education

Guyana has recognised that STEM subjects are core subjects to a complete secondary education. Consequently, an attempt is being made to have all students become familiar with the STEM principles (Science and Technology Policy, 2011). The foundation laid at the pre-primary and primary levels will be reinforced and expanded at the secondary level. This will facilitate learning that will equip students with functioning knowledge of the issues relating to sustainable development, including climate change, the environment and social realities. Secondary education will seek to build capacity to develop solutions for these issues in an integrated manner by understanding and applying the social, physical, psychological, cultural and scientific principles involved. The use of STEM to solve problems in schools and communities will be encouraged, along with the application of research and inclusive decision-making. Students will learn to recognise their obligation to the human species and other life forms threatened by unsustainability, and become active agents of change. In keeping with the whole-school approach to ESD, students as well as teachers will engage in and lead ESD practices in their schools and communities. Emphasis will be placed on STEM education for girls since it is well known that women are an underutilised resource and consistently disadvantaged by
misguided traditions. Students should develop an understanding of how today’s
decisions affect the viability of tomorrow’s society.

The aforementioned efforts cannot be implemented without adequately educated and
trained teachers in STEM. All teachers must have a basic understanding of STEM to
relate to sustainability. Teacher training institutions must implement a flexible and
locally relevant curriculum. This curriculum must be revised to reflect currency of
development in knowledge pertinent to sustainability. Tertiary-level institutions must
facilitate the transition of new knowledge in ESD which reflects the changing issues
of sustainability and furnish constant curriculum reform.

6.4.5 Tertiary Education

Tertiary and higher-learning institutions must implement the teaching of Education
for Sustainable Development and lead the research, development and application
work needed to inform and realise sustainability in Guyana. The issue of
sustainability is complex and, therefore, requires that students at the tertiary level
learn to apply multi-, trans- and interdisciplinary approaches to solve problems of
sustainability. University faculties and schools must establish joint research projects
and the results of research must be distributed across the education system in order to
influence learning and gain maximum benefit. The results of research should be seen
in the context of sustainability and take into consideration sustainable development,
climate change and the environment in order to create a culture of sustainability
consciousness in all fields. Since all research on sustainability will not be generated
in Guyana, tertiary institutions will have the obligation to screen external research
findings for relevance and share them across the education system.

6.4.6 Education for Sustainable Development in Technical and Vocational
Education and Training (TVET)

‘Education for Sustainable Development (ESD) and Technical and Vocational
Education and Training (TVET) are powerful forces that can help people to become
active and ecologically responsible citizens, workers and consumers able to address
local and global challenges.’ (UNESCO ESD+TVET, 2012, p. 2)

In Guyana, Technical and Vocational Education and Training was restructured to
make a direct contribution to the realisation of sustainable economic development
and ultimately a better standard of living for all through the implementation of the
TVET Policy (2011) and the TVET Strategic Plan (2013). The inclusion of ESD in
TVET is, therefore, important as it provides another avenue for the inclusive practice
of ESD by producing a citizenry informed in sustainability.
Persons undergoing training in technical specialties must understand their impact on the achievement of sustainability and how they can make positive contributions to achieving national targets, and in their own world of work. The TVET curriculum must reflect this by encouraging environmental mindfulness, as well as, a standard for the production of resilient, sustainable infrastructure and systems with appropriate application of relevant technologies.

The private sector must become aware of sustainability issues which require specific training programmes to be designed and developed for managers and supervisors.

### 6.7 Quality Assurance

To ensure integration of ESD into the education system, the establishment of a quality assurance system which includes monitoring, evaluation, validation, corrective/preventive action and continual improvement is recommended. This quality assurance system will ensure the following:

- Independent peer review of ESD teaching materials;
- Accreditation of teachers and teacher trainers;
- Accreditation of ESD training programmes;
- External review of the integration of ESD in the education system.
7.0 Pillar 3: Provide equitable and inclusive access to ESD in all communities

ESD requires the involvement of everyone. ESD is an active, action-oriented learning process which informs and raises awareness for the implementation of solutions for the achievement of sustainability. This requires capacity building through a participatory approach that engages the entire population. This level of involvement creates a greater sense of ownership and commitment to action.

7.1 Special Needs Education

ESD will reach everyone, taking his or her unique circumstances into consideration. This is especially so for citizens, particularly children, with special-education needs. The Ministry of Education’s Special Education Needs (SEN) Action Plan aims at empowering and including persons with special educational needs, such as disabilities, in education. These action areas, listed below, will be adopted in the delivery of ESD. The action areas are:

1. Provide a safe, healthy and protective environment for children with SEN. This policy advocates the rehabilitation and construction of facilities such as ramps, rails, etc. which uses environmentally friendly materials.
2. Establish alternative learning paths for children with special education needs. This policy suggests that these alternative learning paths include the learning pillars for sustainable development so that as children with special needs education are adequately equipped with knowledge, skills, values and attitudes to enter the world of work.
3. Cater to those with hearing and visual impairment through the use of sign language, JAWS and Braille. This ensures the alternative learning paths for children with special education needs can effectively communicate the ESD learning pillars.
4. Raise public awareness about the importance of capacity building for children with Special Education Needs on issues relating to sustainable development.
5. Promote a culture of proper environmental management in special schools i.e. waste disposal, noise pollution, through teacher training. Some strategies to achieving this may include sustainable development lessons on waste disposal and self-conduct
6. Training of teachers for more evidence based environmentally friendly natural pedagogical approaches to dealing with SEN/ Disability.
7.1 Non-Formal and Informal Education

Non-formal and informal learning opportunities contribute significantly to the achievement of sustainable development. Non-formal and informal education that is relevant to ESD is provided through the local institutions such as the Environmental Protection Agency (EPA), Guyana Energy Agency (GEA), National Centre for Educational Resource Development (NCERD), Ministry of Education, Guyana Forestry Commission (GFC), Office of Climate Change (OCC) and Nongovernmental Organisations (NGOs) such as Iwokrama International Centre for Rainforest Conservation and Development (Iwokrama) and Conservation International- Guyana, among others.

These types of education are truly lifelong learning processes whereby everyone gets the opportunity to acquire knowledge, skills, attitudes and values from his or her daily experience and the educative influences and resources in his or her environment.

7.1.1 Lifelong Learning

Lifelong learning supports sustainable development for individuals and communities. Education and learning opportunities for active citizenship currently vary in the different regions in Guyana. Continuing training and professional development tailored to these specific needs are essential to empower local communities to take effective and necessary actions. Learning designed for the community will help to provide new knowledge and skills to improve livelihoods in a sustainable way. Some examples are eco-friendly farming and fishing skills, understanding diverse values, beliefs and customs, and addressing social and economic inequalities.

Local community empowerment provides the foundation for sustainable development by enabling local people to take direct and practical action to tackle the problems that they face in this changing and globalising world. An excellent example of this is the establishment of the Village Mangrove Action Committees (VMACs) managed under the Guyana Mangrove Restoration Project in 2010. Another local example of community action leading to transformative results is the Surama Eco Lodge which was established in 1988.

In addition, a local community approach to ESD will help Guyanese to re-identify, re-evaluate and further develop local and indigenous knowledge. This knowledge is based on the wisdom of individual communities which is relevant in addressing changes in their natural environment.
7.1.2 Community Based ESD

In Guyana, one way of achieving Community Based ESD is through the use of Community/Resource Learning Centres (CLCs) and other community organisations. These organisations play a central role in the empowerment of the communities through education. There is the potential for these learning centres to provide alternative equivalency education at primary and secondary levels, including youth and adult literacy and numeracy programmes and spaces for group learning and self-studies, especially for people with special needs (students with disabilities, school drop-outs and non-native speakers). NGOs such as the Iwokrama and Conservation International – Guyana are already engaged with local communities to support sustainable livelihoods. These collaborations cover all forms of education - formal, non-formal and informal - for people of all ages and from diverse cultural, economic, social and ethnic backgrounds. The new knowledge gained through research parsed at the tertiary level should feed into the teaching and learning process at all levels.

It is recommended that Community/Resource Learning Centres provide lifelong learning activities (capacity building programmes for life skills and livelihood or protection of cultural heritage) that proactively respond to the expressed needs of local community members. These are often conducted through relatively unstructured, informal and hands-on training activities (farming, craft work, environmental conservation), providing a space for peer counselling and for people with common issues and interests to gather. The programmes constitute open and safe spaces for intergenerational dialogue and learning involving schoolchildren, young people and adults.

(UNESCO, Communities in Action Lifelong Learning for Sustainable Development, 2015)

Community-based ESD approaches will provide opportunities to revisit and reclaim local/indigenous knowledge, cultures and wisdom and to rediscover what the individual communities can contribute to achieving sustainable development. Knowledge generated through these processes must be used in the formal education system to further contextualise ESD. The Community/Resource Learning Centres must be linked both with the ESD Coordinating Body and a centre for sustainability at the tertiary level to provide the framework to support these efforts.

7.2 Networking

Many organisations in both the public and private sectors have made efforts to address sustainability. However, these take place in an isolated, piecemeal manner. To achieve sustainability, the efforts must be coordinated with greater collaboration and integration among all stakeholder bodies and individuals. There is need for coordination and integration of the ongoing relevant, yet fragmented and disparate, initiatives. A national ESD network will be established to reduce this level of fragmentation. This national ESD network will facilitate the necessary level of engagement, and must be established by the ESDCB. This level of networking is necessary for the actions recommended by this Policy to be fully embraced and implemented by local institutions and key stakeholders.
The national ESD network must feed into regional and international ESD networks, such as the ESD UNESCO network, and strengthen bilateral cooperation and partnership. This will reduce the fragmented approach which presently exists at the local level. The reduction of this fragmented approach will reduce redundancy and result in greater efficiency in the use of resources. The ESD network will provide the opportunity for institutions to pool resources and support each other for the implementation of this Policy.
8.0 Pillar 4: Raise Public Awareness & Understanding of Sustainable Development

8.1 Public Awareness Plan

This Policy recognises the importance in raising public awareness for ESD and sustainable development in order to cultivate a countrywide culture of care and cooperation. The ESDCB will develop a Public Awareness Plan for ESD in Guyana which includes formal, non-formal and informal education. UNESCO, which has been assigned the lead agency for ESD, will be engaged to support the ESDCB in the development of this Plan and support its public awareness efforts. The educational resources to support public awareness will be sourced or developed.

Community-based ESD will be a major part of this Plan. Community-based sustainable development practices are a natural way to engage, educate, and involve citizens for the betterment of their own communities. As such, this Policy supports initiatives such as the Village Mangrove Action Committees and the resuscitation of Community Learning Centres. Public awareness will be strengthened through cooperation with NGOs, CBOs and the ESDCB. Not only will this cooperation ensure that the piecemeal efforts for sustainable development taken on by these agencies can be coordinated for maximum impact, but also that the educational resources developed by these organisations can be fully utilised for ESD.

8.2 Mass Media

A critical step in the implementation of ESD is awareness within the educational community and the public. Reorienting education to achieve sustainability is essential. This reorientation is necessary for the full realisation of the goals of ESD, extending beyond the classroom and into the homes and communities of learners. To raise public awareness and understanding of sustainable development, the media is a key stakeholder.

The infusion of ESD concepts and values into all forms of popular media such as newspapers, television, radio, social media, among other, allows for continued reinforcement of what is practised and taught to students in the formal education system. Informed parents can play a more active role in their children’s education and ensure that the good sustainable habits formed in school are reinforced in the home. Furthermore, mass media is an invaluable vehicle for lifelong learning and extensive reach of citizens outside of the formal education system and in remote areas. The Guyana Learning Channel, which operates at NCERD will be fully utilised to raise public awareness and broadcast ESD programmes.
An increased level of awareness will foster the inclusivity of everyone in ESD and support the implementation of the Pillars of this Policy. The institutional changes recommended by this Policy requires an understanding of ESD. This understanding facilitates easier adoption of ESD in these institutions by its employees.

Research into the most suitable channels of communication and media technologies for ESD will be done prior to the implementation of this public awareness campaign. To ensure equitable access to relevant information, the use ICTs in reaching remote communities cut off from traditional forms of media will be employed. In recognition of the fact that many people learn in different ways, multimedia education resources will be developed for the dissemination of knowledge and easy sharing. ESD experts will need to be engaged in the development of local ESD programmes for mass media.

The monitoring and evaluation of the implementation of the public awareness plan is considered a critical activity here. Findings will be incorporated into the improvement of future public awareness activities. In addition, new information on ESD from regional and international sources will be reviewed and incorporated in the public awareness and understanding of sustainable development.
9.0 Monitoring and Evaluation

Sustainable development is a very complex issue that is now being understood, and therefore, monitoring and evaluation of ESD is vital for the realisation of the Pillars of this Policy. Since the global and local environment is changing, and sustainability issues are also changing, this Policy must be seen as a first step in an evolving set of parameters. This Policy must be reviewed periodically to ensure currency.

All efforts suggested by this Policy must be continually evaluated so as to ensure effectiveness and relevance to the changing nature and context of sustainability in Guyana. This must extend to international developments as Guyana is not taking these efforts in isolation and can and will be influenced by the changing nature and context of sustainability globally.

The National Science and Technology Council, through the ESDCB, is ideally placed and constituted to undertake the coordination, integration and monitoring activities.
10.0 Conclusion
This is a first attempt at handling the very complex issue of the critical role of education for the
achievement of sustainable development. This attempt is apt for Guyana - a country for which
sustainability is critically important considering its wealth and diversity of natural resources. As
this Policy is implemented, reviews and updates will become necessary. These updates should be
seen as part of the national sustainability effort to constantly re-orient education in order to capture
the new knowledge that will inevitably become available.

This is the first such policy in the Caribbean. Similarly, Guyana has been given the lead in the
development of a National Science and Technology Policy and Master Plan, and subsequent the gap
analysis. These efforts have placed Guyana at the forefront of these modern and transformative
initiatives, and the country now has a responsibility to share these experiences with the rest of the
Caribbean. Therefore, it is being recommended that:

The local ESD efforts be of tremendous importance to the fragile small island-states in the
Caribbean and must be shared through a regional ESD network and linked with global Regional
Centres of Excellence (RCE).

Guyana must seek its own solutions for embracing sustainable development. In order to make
sensible choices, accepting Education for Sustainable Development through a supporting ESD
Action Plan is vital. Success is dependent on local research which informs the decisions relating to
sustainable development. Knowledge on what exists, and the projections on what may be, will
position Guyana for full participation in international investments.
11.0 Policy Measures
Pillar 1 - Institutional Capacity
1.1 Strengthen Curriculum Unit in capacity building among current technical staff or with the addition of new technical expert in ESD;

1.2 Strengthen institutional capacities for stakeholders (NGOs, CBOs, FBOs, Government Agencies, Private Sector);

1.3 Review existing ESD component within the educational system;

1.4 Refresh and enhance/create ESD component within the Curriculum from Nursery to Tertiary, TVETs and Teacher Training Institutions;

1.5 Produce new curriculum instructional guides for educators and teachers;

1.6 Monitoring and Evaluation of strategic activities.

Pillar 2 - Integration of ESD into the formal, non-formal and informal Education System;

2.1 Develop education and training strategies to enhance capacities;

2.2 Conduct systematic training sessions for educators and teachers;

2.3 Test pilot strategies in pedagogical innovations in SD;

2.4 Formation of a framework of core competencies in education for sustainable development;

2.5 Develop criteria for validating professional competence in ESD;

2.6 Include SD-related issues in training and re-training programs for educators for all levels of education;

2.7 Encourage the use of ICT in Education especially in utilizing the tools of technology and in the delivery of lessons;

2.8 Create mechanism to encourage educators involved in non-formal and informal education, to share experiences;

2.9 Develop monitoring & evaluation systems on the implementation of the learning/teaching strategies.

Pillar 3 - Equitable and inclusive access to ESD in all communities;

3.1 Ensure that adequate tools and materials for ESD are accessible;

3.2 Promote cooperation among formal, informal and non-formal educational institutions and other stakeholders;

3.3 Encourage cooperation on education for sustainable development to ensure mutual understanding, strengthen trust and develop respect for cultural values, thereby building friendly relations between peoples for peace and wellbeing;
3.4 Develop formal and informal mechanisms to cooperate people of hinterland regions in the SD discussion;

3.5 Create regional and sub-regional forums that bring together members of the education community, such as civil servants, educators and researchers, and other relevant actors to share their experience and good practices on SD;

3.6 Strengthen existing regional and sub-regional alliances and networks working on ESD.

**Pillar 4 - Public Awareness & Understanding of Sustainable Development.**

4.1 Encourage the development and use of electronic, audio, video and multi-media resources and visual aids for both learning purposes and sharing information;

4.2 Facilitate access by electronic means and the Internet to resources and information relevant to ESD;

4.3 Encourage and support community-based SD-awareness-raising activities;

4.4 Develop cooperation with NGOs and support their educational activities;

4.5 Encourage the media to inform and debate issues for SD to reach the general public;

4.6 Create mechanisms to share the results of research and examples of good SD practices;

4.7 Develop ways to highlight the economic effects of and incentives for ESD.
12.0 Glossary of Abbreviations
ACEO - Assistant Chief Education Officers
CARICOM – Caribbean Community
CCESD – Climate Change Education for Sustainable Development
CBO – Community Based Organisation
CEO - Chief Education Officer
CLC - Community/Resource Learning Centres
CPCE - Cyril Potter College of Education
CPD - Continuous Professional Development
DCEO - Deputy Chief Education Officer
DESD – Decade on Education for Sustainable Development
ESD – Education for Sustainable Development
ESDCB – Education for Sustainable Development Coordinating Body
FAO - Food and Agriculture Organization
FBO – Faith Based Organisation
GEA – Guyana Energy Agency
GoG – Government of Guyana
GMRP - Guyana Mangrove Restoration Project
GSA – Guyana School of Agriculture
GWI - Guyana Water Incorporated
ICT - Information and Communication Technology
IBSE - Inquiry Based Science Education
JFID – Japan Funds in Trust
LCDS – Low Carbon Development Strategy
MDG – Millennium Development Goal
MOE – Ministry of Education
NAREI - National Agricultural Research & Extension Institute
NCERD – National Centre for Education Resource Development
NGO – Non-Governmental Organisation
OCC - Office of Climate Change
PAC - Protected Areas Commission
SD – Sustainable Development
SDG – Sustainable Development Goals
SEN - Special Education Needs
STEM - Science, Technology, Engineering and Mathematics
SVC - Sagicor Visionaries Challenge
SWM - Solid Waste Management
TVET – Technical and Vocational Education and Training
UG – University of Guyana
UN – United Nations
UNCBD – United Nations Convention on Biological Diversity
UNCCD – United Nations Convention to Combat Desertification
UNFCCC – United Nations Framework Convention on Climate Change
UNGA – United Nations General Assembly
UNESCO - United Nations Educational, Scientific and Cultural Organization
UNICEF - United Nations Children's Emergency Fund
VMAC – Village Mangrove Action Committee
WCED - World Commission on Environment and Development
WFS - World Food Summit
13.0 Glossary of Definitions

Carbon Sequestration - Terrestrial, or biologic, carbon sequestration is the process by which trees and plants absorb carbon dioxide, release the oxygen, and store the carbon. An area with net carbon sequestration is considered a carbon sink.

Climate – the weather of a region or city averaged over many years, usually different for different seasons. (NASA - http://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-climate-change-58.html)

Climate Change - refers to a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. It refers to any change in climate over time, whether due to natural variability or as a result of human activity (IPCC - https://www.ipcc.ch/publications_and_data/ar4/syr/en/mains1.html).

Curriculum - a reflection of the kind of society to which we aspire (core objectives, concepts); the pedagogical and administrative action plans of an education system (frameworks, structures, supports); an interactive, non-linear and dynamic tool and process of pedagogical development (pedagogy, disciplinary content, didactic strategies, assessment, learning outcomes, encompassing the design and management of the curricula (IBE-UNESCO, 2010).

Education for Sustainable Development (ESD) – a learning process (or approach to teaching) based on the ideals and principles that underlie sustainability and is concerned with all levels and types of learning to provide quality education and foster sustainable human development – learning to know, learning to be, learning to live together, learning to do and learning to transform oneself and society (UNESCO, http://www.unescobkk.org/education/esd-unit/definition-of-esd/).

Equity

Equity in education has two dimensions that are inter-linked:

- Fairness – making sure that personal and social circumstances, for example gender, socio-economic status or ethnic origin, do not present an obstacle to achieving educational potential. This aims to minimise divergence across social groups by bringing the achievements of the less advantaged to the same level as those of the more advantaged groups and ensure a basic common standard of education for all learners.

- Inclusion – meeting the needs of all individuals through differential treatment in order to take student diversity into account (Ainscow et al., 2006).

Life Long Learning - is the ongoing, voluntary, and self-motivated pursuit of knowledge for either personal or professional reasons. Therefore, it not only enhances social inclusion, active citizenship, and personal development, but also self-sustainability, rather than competitiveness and employability (Commission of the European Communities: Adult learning: It is never too late to learn". COM (2006) 614 final. Brussels, 23.10.2006).
**Formal education** - the hierarchically structured, chronologically graded 'education system', running from primary school through the university and including, in addition to general academic studies, a variety of specialised programmes and institutions for full-time technical and professional training. (Coombs and Ahmed, 1974)

**Informal education** - the truly lifelong process whereby every individual acquires attitudes, values, skills and knowledge from daily experience and the educative influences and resources in his or her environment - from family and neighbours, from work and play, from the market place, the library and the mass media. (Coombs and Ahmed, 1974)

**Non-formal education** - any organised educational activity outside the established formal system - whether operating separately or as an important feature of some broader activity - that is intended to serve identifiable learning clienteles and learning objectives. (Coombs and Ahmed, 1974)

**Quality Education** - There is no one definition, list of criteria, a definitive curriculum, or list of topics for a quality education. Quality education is a dynamic concept that changes and evolves with time and changes in the social, economic, and environmental contexts of place. Because quality education must be locally relevant and culturally appropriate, quality education will take many forms around the world. (UNESCO, 2005) Quality education is an effective means to fight poverty, build democracies and foster peaceful societies. Quality education empowers individuals, gives them voice, unlocks their potential, opens pathways to self-actualization and broadens perspectives to open minds to a pluralist world (http://www.inclusive-education-in-action.org/iea/index.php?menuid=36)

**Sustainable Development** - development which meets the needs of the present, without compromising the ability of future generations to meet their own needs (the Brundtland report, 1987)

**Weather** - short-term changes seen in temperature, clouds, precipitation, humidity and wind in a region or a city which can vary greatly from one day to the next, or even within the same day. (NASA – http://www.nasa.gov/audience/forstudents/5-8/features/nasa-knows/what-is-climate-change-58.html)

**Whole School Approach** – an approach to education which involves all members of a school community (i.e. students, staff, parents and carers, community members) and seeks to include all areas of school life. It recognizes that real learning occurs both through the ‘formal’ curriculum and through the ‘hidden’ curriculum and learners’ experience of life in school and community (http://www.inclusive-education-in-action.org/iea/index.php?menuid=36).
14.0 References

National Documents


Other Sources


## Appendix 1 – Stakeholders December 18, 2015 Consultation

<table>
<thead>
<tr>
<th>NAME</th>
<th>INSTITUTION</th>
<th>EMAIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanie Jones</td>
<td>Richard Ishmael Secondary</td>
<td><a href="mailto:Meldra_g@yahoo.com">Meldra_g@yahoo.com</a></td>
</tr>
<tr>
<td>Shandrina Welcome-Lee</td>
<td>Brickdam Secondary School</td>
<td><a href="mailto:Trish_shan78@yahoo.com">Trish_shan78@yahoo.com</a></td>
</tr>
<tr>
<td>Ariefa Alicia Khan</td>
<td>West Demerara Secondary</td>
<td>Aliciakhan2219@yahoo</td>
</tr>
<tr>
<td>Samantha Persaud</td>
<td>Kingston Secondary</td>
<td><a href="mailto:Persaud_11@yahoo.com">Persaud_11@yahoo.com</a></td>
</tr>
<tr>
<td>Sharon Waldron-Collymore</td>
<td>Comenius Primary School</td>
<td><a href="mailto:Shar.waldron@gmail.com">Shar.waldron@gmail.com</a></td>
</tr>
<tr>
<td>Sinika Rahbaran</td>
<td>Annandale Secondary School</td>
<td><a href="mailto:sinikarahbaran@yahoo.com">sinikarahbaran@yahoo.com</a></td>
</tr>
<tr>
<td>RamonaDeGeorgio-Venegas</td>
<td>US Peace Corps; EPA &amp; PAC</td>
<td><a href="mailto:Mona_degeorgio@yahoo.com">Mona_degeorgio@yahoo.com</a></td>
</tr>
<tr>
<td>Dr Sewnauth Punalall</td>
<td>National Task Force Secretariat – Ministry of Public Infrastructure</td>
<td><a href="mailto:ntfc@publicinfrastructure.gov.gy">ntfc@publicinfrastructure.gov.gy</a></td>
</tr>
<tr>
<td>Harrinarine</td>
<td>West Demerara Secondary School</td>
<td><a href="mailto:Harry_narine@yahoo.com">Harry_narine@yahoo.com</a></td>
</tr>
<tr>
<td>Naline Haniff</td>
<td>Leonora Primary School</td>
<td><a href="mailto:ziahaniff@yahoo.com">ziahaniff@yahoo.com</a></td>
</tr>
<tr>
<td>Bibi Bismil Singh</td>
<td>Leonora Primary School</td>
<td><a href="mailto:bismilisingh@yahoo.comm">bismilisingh@yahoo.comm</a></td>
</tr>
<tr>
<td>Shevon Wood</td>
<td>Guyana Energy Agency</td>
<td><a href="mailto:Shevon.wood@yahoo.com">Shevon.wood@yahoo.com</a></td>
</tr>
<tr>
<td>Nadia Hunte</td>
<td>Brickdam Secondary School</td>
<td><a href="mailto:Nadia_hunte@yahoo.com">Nadia_hunte@yahoo.com</a></td>
</tr>
<tr>
<td>Lucina Singh</td>
<td>HOTP/OCC</td>
<td><a href="mailto:Sd.bureau@yahoo.com">Sd.bureau@yahoo.com</a></td>
</tr>
<tr>
<td>Hoshiene Ragoonauht</td>
<td>Richard Ishmael</td>
<td><a href="mailto:Hosh_22@yahoo.com">Hosh_22@yahoo.com</a></td>
</tr>
<tr>
<td>Kamin Ramrattan</td>
<td>NCERD</td>
<td><a href="mailto:Kaminin_ramrattan@yahoo.com">Kaminin_ramrattan@yahoo.com</a></td>
</tr>
<tr>
<td>Lawrence Faria</td>
<td>-</td>
<td><a href="mailto:Lawrence_faria@hotmail.com">Lawrence_faria@hotmail.com</a></td>
</tr>
<tr>
<td>Wendel Roberts</td>
<td>NCERD</td>
<td><a href="mailto:ewroberts@hotmail.com">ewroberts@hotmail.com</a></td>
</tr>
<tr>
<td>Michele Jordan</td>
<td>NCERD</td>
<td><a href="mailto:Mich_estan@yahoo.com">Mich_estan@yahoo.com</a></td>
</tr>
<tr>
<td>Keisa Johnson-Richards</td>
<td>NCERD</td>
<td><a href="mailto:keisarichards@yahoo.com">keisarichards@yahoo.com</a></td>
</tr>
<tr>
<td>Azad Khan</td>
<td>UG</td>
<td><a href="mailto:azadhan@yahoo.com">azadhan@yahoo.com</a></td>
</tr>
<tr>
<td>Damian LaRose</td>
<td>St. Stanislaus College</td>
<td><a href="mailto:Unnicen_pc@yahoo.com">Unnicen_pc@yahoo.com</a></td>
</tr>
<tr>
<td>Parikhan Kam</td>
<td>NCERD</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 2 – Linkages to the UN Sustainable Development Goals

### Priority Areas for ESD Content and Link to the UN Sustainable Development Goals

#### Priority Area: Biodiversity and Biodiversity Management

- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3: Ensure healthy lives and promote well-being for all at all ages
- Goal 6: Ensure availability and sustainable management of water and sanitation for all
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 13: Take urgent action to combat climate change and its impacts
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development

#### Priority Area: Agriculture (Food and Nutrition Security)

- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3: Ensure healthy lives and promote well-being for all at all ages
- Goal 6: Ensure availability and sustainable management of water and sanitation for all
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12: Ensure sustainable consumption and production patterns
- Goal 13: Take urgent action to combat climate change and its impacts
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
development

- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

**Priority Area: Energy**

- Goal 3: Ensure healthy lives and promote well-being for all at all ages
- Goal 6: Ensure availability and sustainable management of water and sanitation for all
- Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12: Ensure sustainable consumption and production patterns
- Goal 13: Take urgent action to combat climate change and its impacts
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development
Priority Area: Solid Waste Management

- Goal 3: Ensure healthy lives and promote well-being for all at all ages
- Goal 6: Ensure availability and sustainable management of water and sanitation for all
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12: Ensure sustainable consumption and production patterns
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

Priority Area: Climate Change Education

- Goal 1: End poverty in all its forms everywhere
- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3: Ensure healthy lives and promote well-being for all at all ages
- Goal 6: Ensure availability and sustainable management of water and sanitation for all
- Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12: Ensure sustainable consumption and production patterns
- Goal 13: Take urgent action to combat climate change and its impacts
- Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable
- Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

### Priority Area: Disaster Risk Management

- Goal 1: End poverty in all its forms everywhere
- Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3: Ensure healthy lives and promote well-being for all at all ages
- Goal 6: Ensure availability and sustainable management of water and sanitation for all
- Goal 9: Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development

### Priority Area: Water

- Goal 3: Ensure healthy lives and promote well-being for all at all ages
- Goal 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development
Appendix 3 - How ESD delivers quality education as defined by the UNESCO Pillars of Learning

<table>
<thead>
<tr>
<th>Pillars of Learning</th>
<th>How ESD can help deliver quality outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning to know</td>
<td>ESD engages formal, non-formal and informal education; addresses content while taking context into account; includes global issues and local priorities; and is cross-disciplinary. No single discipline can claim ESD as its own, but all disciplines can contribute to ESD.</td>
</tr>
<tr>
<td>Learning to do</td>
<td>ESD is based on local needs, perceptions and conditions, but acknowledges that fulfilling local needs often has international effects and consequences; it promotes a shift from mental models to sustainability practices through which these mental models and concepts are explored and reviewed. It includes entrepreneurship and creativity development.</td>
</tr>
<tr>
<td>Learning to live Together</td>
<td>ESD is based on the principles of inter- and intergenerational equity, social justice, fair distribution of resources and community participation (amongst others), which underlie sustainable development.</td>
</tr>
<tr>
<td>Learning to be</td>
<td>ESD promotes life-long learning; it accommodates the evolving nature of the concept of sustainability; ESD emphasises the importance of values in learning.</td>
</tr>
<tr>
<td>Learning to transform oneself and society</td>
<td>ESD builds civil capacity for community-based decision-making, social tolerance, environmental stewardship, adaptable workforce and quality of life; ESD is facilitated through participatory and reflective approaches.</td>
</tr>
</tbody>
</table>

Extracted from the Education for Sustainable Development Lens: A Policy and Practice Review Tool (UNESCO, 2010 p. 51)